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HISTORIÆ NATURALIS CLASSICA

EDIDERUNT

J. CRAMER ET H. K. SWANN

TOMUS XXXI

ICONES PLANTARUM INDLÆ ORIENTALIS

BY

ROBERT WIGHT

VOLUME 1

TEXT AND PLATES 1—534

REFERENCE



REPRINT 1963

BY J. CRAMER • WEINHEIM

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THE MEMORY
OF
WILLIAM ROXBURGH,
CHIEF OF
INDIAN BOTANISTS.

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REFERENCE.



PREFACE.

IN concluding the first Volume of this work it can scarcely be required of me, as happens to Bome authors, to prove that it is wanted or to point out in what respects it is calculated to supersede the labours of those who have gone before since in truth, so far as Indian Botany is concerned, no similar work exists with which to compare it. In its plan and execution it differs widely from those of Rheede and Rumphius, each of whom have given figures of a vast number of Indian plants, but these often so rudely and incorrectly delineated that to this day many of the plants represented are unknown and in scarcely a single instance are their analytical details, apart from general habit, such as to enable even the most accomplished Botanist to say from them to what natural order the plant belongs. The somewhat more modern works of the two Burmans and Plukenetare little if at all in advance of them, though all very useful in aiding the determination of the plant they meant in their now nearly unintelligible descriptions. Modern works are not liable to the charge of want of precision, but of these the list is scanty, those of Roxburgh, Wallich, and Royle, being the only ones expressly devoted to the elucidation of Indian plants. Those of the two first named Botanists, though works of great merit, are yet on so magnificent and expensive a scale as to limit their usefulness to the cabinet, besides which they are already nearly out of print. That of Dr. Royle though not liable, to the same extent, to these objections, is scarcely applicable to this portion of India, its illustrations being confined to the flora of the temperate regions of the Himalayas, the plants figured are almost all unknown in the warmer climate of the south; lastly, but a very small number of the plants figured in this work have been published in either of these three.

Since then, this publication does not interfere with any of its predecessors, it only remains for me to show that it is wanted here. This has been in part already done, in the prospectus which accompanied the first number to which I beg to refer. To what is there advanced I may now add, the great advantage of pictures in conveying to the mind's eye a quirkier perception than words can do, of the distinctive peculiarities of an unknown plant. In descriptions, besides, when not drawn up by a professed Botanist, a laxity of terms is generally introduced, accompanied with such a want of analytical information that no one, whether a Botanist or not, can possibly make out what is meant, for in truth they convey no precise or definite idea. When we turn to the often elaborate descriptions of the older Botanists we find them utterly valueless in enabling us to picture to the imagination the plant they are describing. If we take, for example, those of Rheede, we find them, apart from his plates, nearly incomprehensible, but assisted by them, making allowance for embellishments and even occasionally for a jumble of two or three things into one, (as the drawings were not made by a Botanist) we are enabled, with the aid of specimens, to recognize most of his plants. This single fact shews the great value of even bad plates towards the advancement of Natural history, and to Botany where the number of objects of study is so great, they are, even in the present advanced state of the science, quite indispensable, especially to the young Botanist. In the preface to my illustrations I have shown,* I hope satisfactorily, the great advantages derived from the natural method of studying plants, adverted to the almost universal adoption of this system by scientific Botanists, and mentioned that an intimate acquaintance with a few species only of an order, will often enable even a young Botanist rapidly to acquire a competent know-

ledge of the rest. Plates giving a good representation of the general aspect of a group may often be found to supply this knowledge and in India, where large general herbarea (for the whole world) do not exist, and little progress in the study of natural affinities has been made, are therefore nearly indispensable to the student of this system of Botany, since by seeing several species of an order arranged together and put in contrast with those of some other order, he may acquire such an idea of the appearance of a group, although he may not be able to explain it to others, as will make a strong impression on himself and prove eminently useful in advancing his own researches and in preparing his mind for entering on the more abstract and sublime parts of the study.

According to these views, the correctness of which can scarcely, I presume, be questioned, it must be evident to every one, at all conversant with the subject, that this work, however humble in execution, is far otherwise in design and promises, if sufficient support is given to admit of its extension to three or four such volumes as the one now offered to the public, to prove one of the most useful yet published on Indian Botany, by enabling all those desirous of acquiring a knowledge of the plants of this country, to familiarize themselves with appearance of groups of indigenous plants, by furnishing correct figures of numerous species of each, in a form so compact and at a cost so moderate that none can complain either of its bulk, and consequent unfitness for ready reference, nor of the heavy charge to which he must submit in possessing himself of a copy. 10 rupees being but a small charge for 100 elaborately executed quarto plates, especially in this country, where the material for getting up such a work is so very expensive. I am well aware of the imperfections in the printing of some of the plates, especially of those of the earlier numbers, a defect happily diminishing in each successive issue. But when it is considered, that Lithography is yet comparatively in its infancy, even in Europe and decidedly so in this country, that success or failure often depends on atmospheric changes not cognizable by the senses, that this climate during a considerable part of the year is most unfavourable and that at the commencement of the work, the experience which has been gradually acquired in its progress and which enables us in a great degree to counteract these obstacles, was altogether wanting, few objections will I think be urged on that head. When in addition I state that these two works were the first of the kind ever undertaken in Madras, that I had personally to superintend every thing, to supply from my private resources the stimulus to exertion on the part of those employed in a new and untried occupation, that my own knowledge of drawing and Lithography was slight, and lastly, that I had to encounter all these difficulties while attending to my own avocations, I trust ample reason will have been urged, in extenuation of even greater imperfections than either of them present, the more so when I add, that the obstacles to be overcome were such as no one, but myself, can form an adequate conception of.

To compare this work, commenced and prosecuted under such adverse circumstances, uncheered by public approbation, and so slenderly supported that hitherto it has been conducted at a very considerable loss, with the luxurious and costly Lithographic botanical works of Europe would indeed be doing it an injustice, but few I believe will be found ungenerous enough to try it by such a standard.

Our knowledge of the India Flora though extensive is far from being widely disseminated and has been obtained through the indefatigable industry of but a small number of enthusiastic votaries of science. This paucity of labourers, in a country affording so rich and interesting a harvest, is, I believe, solely attributable to the want of local Floras and the consequent difficulties with which the study of Indian Botany has been beset. To obviate

this impediment to future success and promote a more extended cultivation of this not less delightful pursuit than useful science, is the grand object I have had in view in the publication of this and the other botanical works on which I am engaged. That they will produce this effect I have scarcely a doubt and in this hope alone, this work will be continued through at least another volume, though hitherto, the support it has received has been so little commensurate with the labour and cost that, but for this expectation, it would have ended with this volume. But impressed as I am with the conviction that it will yet fulfil the object of its publication I have resolved *deo volente* to carry it through a second volume of equal extent : a resolution in which I am strengthened, not less by the daily increasing interest which every thing connected with India is acquiring and by the anxiety expressed by both the European and local governments, to obtain correct information regarding the products and resources of this rich, but until lately, much neglected division of the British empire than by the enlarging list of subscribers. Should my anticipations of success be justified by the result a third volume may possibly be added raising, the number of species figured to 1000, after which, it must, I imagine, either drop altogether or be resigned into other hands. The latter would of the two, in my opinion, be the preferable alternative, as it could not but be a source of regret, after forming the machinery for carrying it on, that it should so soon cease to work, while there remains so much to be done. The flora of India, calculated at a very low rate, exceeds 10,000 species, excellent figures of about 2000 of which were left by .Roxburgh. Most of these are still unpublished, but are now, by the public spirit and liberality of Dr. Wai lie h in course of publication here. To allow two-thirds of that noble collection to remain unknown, through want of present support to this work, and the knowledge of the indefatigable labours of that excellent man be longer left in obscurity, while the means of bringing them to light are not only at hand but actually working, would indeed be a source of deep regret to future Botanists, but which, I fear, can only be avoided by the living Botanists of the present time extending a more liberal patronage to this publication, which, exclusive of the Government aid, has not paid for paper on which a small impression is printed, and holds out no inducement to any one to embark in such an unprofitable concern.

One other advantage to which this, work may lay claim over most other works of a similar description, consists in the rapidity of publication. Smith's English Botany, which extended to 2592 plates, was 24 years in publishing: at the rate of publication which this work has attained it would in that time extend to upwards of 5000 species, but supposing only half that number published, the work will form, beyond all comparison, the most valuable book of reference for Indian Botany ever published or likely to be even attempted for yet many years. With these few remarks I conclude this brief preface and leave the work to speak for itself and most cordially hope it may not speak in vain, but trust it will yet become one of as constant reference as the eminently praiseworthy and, for the time they were undertaken and executed, meritorious labours of the excellent Van Rhee de and prove to Indian Botanists, so far as it may extend, what Smith's English Botany has long been to British ones a work of unexceptionable authority.

PROSPECTUS

PREPARING FOR PUBLICATION

IN MONTHLY NUMBERS OF TWENTY PLATES EACH, PRICE TWO RUFFES, PRINTED UNIFORM WITH THE
ILLUSTRATIONS OF INDIAN BOTANY.

ICONES PLANTARUM INDLE ORIENTALIS,



FIGURES OF INDIAN PLANTS,

DESCRIBED IN THE AUTHOR'S

PRODROMUS FLORAE PENINSULA INDLE ORIENTALIS ;

AND IN HIS

ILLUSTRATIONS OF INDIAN BOTANY.

NO. 1, TO APPEAR IN JULY.

Almost befoe the 1st Number of my " Illustrations" had issued from the press, I had become sensible, that the number of platm, tthic.li the plan of that work admitted, was inadequate for the attainment of one of its principal objects, the full elucidation, namely, of (he distinctly character of the natural orders HS explained in the dtsciii nvt piirtionof ihe work, much of which, in consequence, remains lo many, almost a sealed book, from iheixHini les 1 HID obliged lo quote in illustration of my meaning, being often unknown to the reader. To go no further than die *tccompan\ nig number 1 may refer to the description of Cappandea?, where several exumples are quoted in support of paitx ular statements, Mich as Cadaba, G\ nandiopsis, Polanesia, &c , not one of which, though all moot common plants, may be known lothe majority of readers, and to such therefore can afford buHutle assistance towards acquiing a c rrect knowledge of the peculiarities ihey are intended to explain "I hu» liifmmlion I am desirous of communicating through the aid of additional figures. Again when treating of " Propemes and Uses" of plants, man) are mentioned as meriting attention on account of properties, they are known to possess, but of whose forms the name communicates no definite idea Thus undei DilemaceiB, boll. Dilknia speiws \ and Wormia Madagascanensis are mentioned as desirable additions to the ornamental shrubbetj, but wh >m, of the many persons who ma) have read (he*e encomium*, who have ne\cr seen either the [lanh tlivmselus, or a figure, can form ajul conception of their fillies fur the purpose indicated. Almost evtry orUr tnaid of, affVds similar examples, and many of them most c >im<n plants. Jn con venation plants aie often spoken of, a, endowed with valuable properties, but about which we may remain as much in ignoiance as be ton, howc VH n.mmon the plant, if we happen not to know the name, and have no figure to consult on the n< casion I o suppl) Mich a b >ok of reference is another object of these figures For want of figures Dr Ainslu'a Mifeiu Midica of llandoostan, to compile which cost him neail) 20)*ars of incessant application and lesearchi, remains to this day, little better than a monument of abortive labour, so few person* of the man) in this poumrv whoi msult it, possessing sufficient acquaintance with the plants named to be able to recognise them even when laid before them, and fewer still, to go m search of them when wanted. Hence, of nearlj *>)J spreies of plants nam d in that work, as used fur mediunc, food, or in the aits scarcely one tenth are known to Luiopeans, and peihaps not more lhan <\ third to Native* generally and of which non- JJoianical readers have no othei means of acquiring a knowledge, than thr ough the oial communication of unlives, whose acquaintance with the plants indicated, bung entirely tiaditional, without any guide m direct them

«n .i Vy, V of the S<t u,)IHnt| IH lflen» HH hke| y f0 be wronK HS n *ht, rhl!> IH no » u 'K'nar) sialt mem, it is one, the truth of which I Have set n verified ma thousand instances. Anoih.r, and not the least important purple of these figure* therefore is, to g,ve a value to that work, by making known through c rrect deuncatnns, the plants meant b\ the Author, and at the same time, to e*iHUi>h ihe Native mines of HI least so many or our indigenous plants, on a nun basis, by combining them w nh repre*, malions of the objects named. DuctiK woik still remains an important d hideralun lo til classes of the cmnmunm.

* To attempt all this by the publiation of Col mini Plaies, would only tmd to defeat mv object, since the neay eImf, and gieat Itngthof nme required to colour each plate separately, after printing, Ky ihe hand wouli perhaps grea.ly abndge the usefolneHH of the Wo.k, as well by retarding its progre-% as by Innilingita «"eulajion to the^wealthier C W R . Mv WHII IS to diffuse as qu.ckU, and a«?xtensivel> as possible, a know-irnge of imlian Plants by publishing as man) as possible in the shortest ptnod of lime, and at the lowest cnarge. lo atuui these objects, tUe % urea will be prepared in the stjle adopted w the accompanying

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PROSPECTUS.

specimen^ two of which are copies of plates already published in the Illustration?, and the other two copied from copper plate engravings. The first were selected to admit of comparison with the originals, to enable those who contemplate supposing the work to judge, how far such figures are fitted to supply the place of coloured ones in communicating a knowledge of the plant represented. Still further to reduce cost, and increase the rapidity of publication, it is not my intention to give letter press descriptions, but refer for these to my Prodiomus, by numbering the plates uniform with the running numbers of that work, except in cases where new plants are introduced, and then their place in the arrangement will be indicated by a double number, and a description given, printed in such a form, as to admit of its being either pasted on the back of the plate, or kept separate. For such descriptions no additional charge will be made. By the adoption of this plan, these figures will form, so far as they go, a *Pictorial Index* to the Prodiomus, and to the new species described in my Illustrations of Indian Botany. Utility and an anxious desire of making known, as many Indian plants as possible, being my principal inducement for undertaking this work, I shall consider it open to the contributions of those who may feel desirous of assisting me by communicating good figures of interesting plants, (if accompanied by specimens to enable me to verify their correctness) all of which shall be duly acknowledged. Occasionally also, when unable to procure specimens from which to prepare original drawings, I shall consider myself at liberty to select from rare and costly works now little known and seldom met with in this country, figures of useful plants. Among the works alluded to, may be mentioned the magnificent ones of Rheede, Roxburgh, and Wallich, the latter of whom, has obligingly permitted me to select from his publications, whatever I may think useful for this one. The plants mentioned in Ainslie's *Materia Medica* will of course occupy a prominent place, first as more especially appertaining to the Economical Botany of the Peninsula (they will always be accompanied by his names) and secondly because I hold it to be a matter of primary importance, to make known, as many as possible of the plants referred to in a work so generally known and consulted as that is in India.

The grand object of this work may now be summed up in few words, viz. *to give to India, (so far as the limited resources of a private individual will permit) that which England has so long enjoyed, in "Smith's Translated Botany," a standard Botanical Book of reference*, by the publication of correct figures, of as many Indian Plants as I possibly can and in the shortest period of time.

The publication of 50 figures per annum is scarcely sufficient to meet my own wishes in that respect, but it is the utmost I can venture to promise at the outset. Should however adequate encouragement be extended to the work, I shall endeavour to increase its speed, by augmenting the number of plates to 15 or more, in each monthly number, but at the same rate of charge (10 per rupee) which is considerably below the English cost of plates of a similar description.

As a proof that others as well as myself have felt the want of such a work, and duly appreciate the advantages to be derived from it, I subjoin an anonymous letter, received while engaged in drawing up this Prospectus. The author has certainly misunderstood the object of the Illustrations which, as I stated in the Prospectus to that work, is simply to supply the Indian Botanical amateur with the means of acquiring a knowledge of the Principles of the natural method of Botanical classification, by presenting him with a series of diagrams of the organs from which the characters of the orders are taken, to enable him to compare them with the written characters. As however the views of the author are strictly in accordance with my own, in regard to the necessity that exists for this work, I gladly avail myself of their support on the present occasion.

SIR,—Permit me as an admirer of your Illustrations of Indian Botany to suggest an alteration in its plan, which will I think be a decided improvement.

Your present design is I conceive much too limited, and the work, though useful as far as it goes, is not comprehensive enough to form a sound and standard work on Botany.

Your "Prodiomus" when completed, is intended I believe to form an entire dictionary, so to speak, of Indian Botany, comprehending every species of the vegetable kingdom, which has come under your observation, either in a state of nature or perceived in collections. Allow me then to suggest, that your Pictorial Illustrations should form a part of this work, that every species in the Prodiomus should be delineated in the other, and that instead of the long descriptions you have given, a simple reference should be made to the Prodiomus, with the addition of such term as you might think necessary.

You may probably object to my design on account of its magnitude, and of the length of time it would occupy. The former of these objections, is scarcely admissible when the work is so divided as to allow but a small part of the labour to press upon you at a time. The latter is answered by its extended usefulness.

You may urge that many purchase your Illustrations who are not in possession of your Prodiomus, but I believe you have only to tell them to buy it.

Should you think of considering my suggestion, you might begin to publish a series of intermediate numbers, numbered No. 1 a—b and so on.

I cannot help thinking that your present plan is too limited, and beg to subscribe myself.

m « « r,
To RODFUT WIGHT, Esq
Madras.

Your admirer,
X Y Z.

PROSPECTUS.

P. S July 1838— The preceding exposition of the objects of this work must, I think, satisfy every reader of the necessity that exists for its publication, but many may differ in opinion as to the judiciousness of the course I am pursuing in its preparation I allude principally, to the propriety of taking upon myself the labour of printing the greater portion of the plates while as yet so little conversant with practical Lithography, which is allowed, by all who have had any acquaintance with it, to be the most difficult, and in its results the most uncertain of the graphic arts, though the most simple in its principles. A few words in explanation of this apparent paradox may not be out of place here

Lithography is essentially founded on chemical principles, or the attraction existing between the stone used (a soft close grained lime stone) and greasy substances on the one side, and the well known repulsion between oil and water on the other. A greasy line drawn on such a stone strongly adheres, the stone being then wetted, the line throws off the water, retaining its attraction for any fresh portion of grease that may be brought in contact with it. A roller charged with ink, having an oily substance for its base being now passed over the stone, a portion of the ink attached itself to the line, while the water prevents its equally adhering to and soiling the rest of the stone. The line thus charged being subjected to heavy pressure, parts with the ink, which adheres to the paper to which the impression is to be communicated.

Such then are the very simple principles of Lithography. The drawing may be communicated to the stone either directly by means of Lithographic chalk, a substance containing a quantity of tallow, &c in its composition, or through the medium of a transfer drawing executed, on paper prepared for the purpose, with * transfer* ink, also a greasy composition, which on being firmly pressed upon a dry stone, adheres and imparts the lines which are afterwards to be charged with printing ink. So far all is easy, and the principles so self-evident, that it seems wonderful the first quarter of the 19th century had nearly passed away before they were practically applied to the diffusion of knowledge.

The practice however of the art of printing from stone, is as difficult as the principles are simple, and subject to so many sources of failure, that it seems not less wonderful, such astonishing advances towards perfection should have been already made. The method pursued in the accompanying figures is that by transfer, or the communication of the drawing from paper, and being that with which I am best acquainted, I shall confine my remarks to it.

From a bad transfer it is almost, if not actually, impossible to take a good print. Much care is therefore requisite in this first operation. The transfer being completed and communicated to the stone, the whole may be destroyed in the first inking, before a single impression is taken off. This accident may happen in two ways, either the ink may be too firm and adhesive and take the lines off the stone altogether, or it may be too soft and run the adjoining fine lines into one large blotted one, technically called "smutt". Both of these accidents can, if confined to a small portion of the drawing be in some degree remedied, but never altogether corrected. In the course of printing, they are so liable to happen that it is rare for even the best printers to take off fifty consecutive impressions, without the occurrence of one or other of them in a greater or less degree. Hence the value of a well proportioned printing ink, and still more, of one not liable to change its consistence from exposure to the air in the course of printing. This last is still a desideratum in Lithography, and until supplied we can never expect to have any considerable number of uniform impressions. Some will always be found darker and others paler, in proportion to the comparative softness or hardness of the ink, and the skill with which it has been applied. The importance of a good roller with which to ink the drawing may be imagined from the following simile of a Lithographer. "You may as soon expect to write well with a bad pen as to print delicately (in Lithography) with a bad roller." Unfortunately for the Lithographer no part of his apparatus is so difficult to make, add to these causes of failure, and many more not mentioned, the difficulty of making a fine dark and accurately proportioned ink in the first instance, its liability to change afterwards through the reaction of its component parts on each other, but especially during printing, and lastly, the great skill required in its application, only attainable by much practice, and we see sufficient reason to wonder at the perfection which has been attained by some printers, and ample cause for the frequent failures of others. Aware as I was, when I entered upon the printing of this work, of the difficulties with which I had to contend, it may be asked, why I unskilled as I was in the art, I embarked in such an undertaking. A variety of circumstances combined to induce me, to be informed of all of which could but little interest the reader, suffice therefore to say, that I knew, and felt, how much the work was wanted, I likewise knew that unless I undertook to supply it, no one else in this country possessed the same means, of doing so, and lastly, I saw no prospect under the already existing heavy drain on my finances of being able to raise the means of paying for the printing in any of our Lithographic printing offices nor it I had, of having it better done, now that the little spare time of Mr Winchester, the Company's Lithographer, certainly the best in Madras, is so fully occupied with the printing of the Illustrations that he has none to spare for other work. Add to these that the change from a more active, to comparatively sedentary habits, was beginning to work its usual effects on my health, and that I found the exercise of printing a sufficient compensation for the more vigorous exercise I formerly took, and then—I think I have given very satisfactory reasons for making the attempt. I will not adduce the execution of this first number as affording a fair specimen of what the work will be. The adage says "practice makes perfect" many of the transfers were made by new hands and not nearly so good as I now get them—every day's work is tending to improve my "prentice hand" while the recent acquisition of a good roller has given greater certainty to my endeavours to acquire skill in its application.

A subtle prouder of giving information to subscribers, is to be informed of the nature and extent of my resources for continuing the work. These I have much satisfaction in adding are most ample. I have already in hand several hundred drawings. Dr Wallich, the indefatigable Superintendent of the Calcutta Botanic Garden has most liberally undertaken to supply me with copies of the rich collection of drawings, appertaining to that establishment, left by the late Dr. Roxburgh. Several Amateurs have besides kindly offered their assistance, promising to furnish me with additional materials, while I have a Draughtsman on my own establishment, con-

PROSPECTUS.

stantly employed in encreasing my store, by making drawings of the most interesting materials, furnished by a large and richly stored herbarium.

It now only remains for me to indicate the plan of the work. My first thought was to publish it in monthly numbers of 10 plates each, on further consideration it occurred to me that numbers of 20 plates, but less frequent, would be a more judicious plan, as being (to much more economical in postage to distant subscribers. The kindness of Dr. Wallich and other friends, having so largely augmented my means of proceeding with the work at a more rapid rate, has induced me to extend my original plan, by endeavouring to publish the larger numbers monthly, in place of every two months. With this view I am now in treaty with a well qualified Lithographer, and should I succeed in procuring his assistance, have little doubt of being able to accomplish my object. The plan now contemplated therefore, is to publish monthly, along with the Illustrations, the successive numbers of this work. The plates which will be observed are not numbered consecutively, this is for the convenience of systematic arrangement. The method which I adopt and would recommend to others, is to provide a portfolio, and arrange the plates in the order of their numbers, as they come out. By this contrivance every facility of reference will be enjoyed, that the present methodical distribution of the vegetable kingdom affords, and for more ready consultation, I would advise them to mark off each number on the margin of the Prodrômus, as it is figured. By this plan that work becomes an index to this. In those instances where plants not described in the Prodrômus are introduced, their place in the series will be indicated by a double number thus 0 X 0 which may be equally noted on the margin of the Prodrômus. The explanations of the plates will be printed on one side of the paper only, to allow of their being cut out and attached to the plate for ready reference. Those for this number will accompany the next.

I N D E X

TO THE

PLANTS CONTAINED IN VOLUME I.

ACCORDING TO THEIR NATURAL ORDER.

RAHANCULACBJB.		Lebretonia procumbena	4	Sclerofitylis atalantioides	71
Ranunculus reniformis	75	Paritium tiliaceum	7	Roxburghii	72
subpinnatus	49	Sida acuta	95		
Thalictrum glyphocarpum	48	Thespesia populnea	8	HIPEEICrNB^.	
		BoMBACBJE.		Norysca mysorensis	56
DILLBNACBA.		Helicteres isora	180	GuTTITEBf.	
Tetracera Rheedii	70	BTITNEBIACEJS.		Calophyllum Burmanni ft	107
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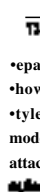


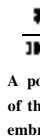
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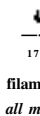
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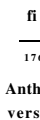
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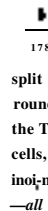
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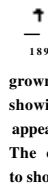
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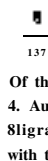
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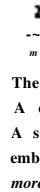
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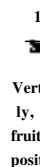
 178 Hibiscus lunanfoliui-2, Ovary, stamens and stigma—natural size—Z S Uinal tube, adhering to the bottom of the corolla, split open—4 An anther—5 Style, and stigma—G. A young fruit surrounded by its involucre and calyx—T. The same split vertically in the time of the valves—8. The same cut transversely, showing its five cells, and the arrangement of the seed in them—9 A portion of a leaf introduced, to show the stilate pubescence so common in the order—all more or leu magnified.

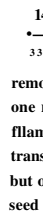
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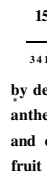
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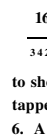
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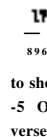
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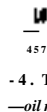
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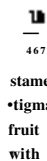
 14 riasena Willdenowu-S A flower, the front sepal removed to show the attachment of the petals—3 The same, the petals removed showing the stamens, style and stigma—4 All the stamens but one removed, showing the ovary, style, stigma, and depression on the filament—5 Ovary cut vertically, showing the ovules—6 The same cut transversely—7. A fruit cut transversely, showing that all the ovules but one have aborted—*. A seed—V and 10 Back and front views of the seed lobes, with the embryo at the base—oil more or leu magnified.

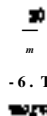
 15 Feronia clephantum-Xa/unfiliie-2. A dissected flower, showing the ovary and the filaments all apparently united into a tube by dense tufts of hair at the base—3. Back and front views of detached anthers, showing the tufts of hair on the filaments—4 Style, stigma and ovary, cut vertically—ft Ovary cut transversely—A. Pull grown, fruit cut transversely—o/i magnified.

 16 jEjle marmelos-nafeni/ *?*-? A flower, the petals removed to show the stamens and stigma—3. The calyx thrown back to show the torus, Insertions of the stamens, the ovary and stigma the taper figure, a detached petal—4 A transverse section of the fruit—6. A seed—A. The same cut transversely—A U more or leu magnified.


 17 Atadirahta Indira-naAiroJ me -9. The sUralnt tube removed and opened—J. Ovary, style and stigma, with one petal left to show its form—4 Ovary cut vertically, showing its pendulous ovules—5 Ovary cut transversely—8 A cluster of fruit—7. A fruit cut transversely—A all more or Uu magnified.


 14 Oxalis comiculata-aa/ura/ nte*-3. A flower opened lengthwise, to show its different parts—S The ovary cut vertically—4. The same cut transversely, showing its 3 cells—5. A seed detached—oil more or leu magnified.


 18 Befthemia parviflora-M/wd *-*. A dissected flower, showing the ovary sepals, minute scale. Like petals opposite the stamens and somewhat embracing the anthers—* and 1 Ovary and stigma. the former cut transversely and vertically—* and 6. Pull grown fruit cut transversely, showing that they may be either 2 or 3-celled, with one seed In each cell—atf magnified.

 20 Cleor arlethnin-3. A dissected flower showing all its parts—8 An anther—4. The ovary cut lengthwise—d. A Logume—6. The same opened—7 to show the diffident parts of a dissected seed—oil more or leu magnified.


No. n. EXPLANATION OF PLATES.


 **Crotalaria speciosa—natural size—5** A dissected flower, showing the sepals, stamens, gynoecium, and a fruit cut transversely—A fruit cut transversely—*all magnified*.


 **Trichauris eneoides—natural size—1** A flower, showing the relative size of the different parts—3 The same, the sepals and petals removed showing the insertion of the stamens, the ovary. 4 The detached figure the stigmas more magnified and a petal—4 Stamens—5 A diagram, showing the arrangement of the parts of the flower—6 A mature capsule burst—7 A seed with its beak—8. A portion of a branch showing the scale-like leaves—*all magnified*


 **Melhama abutiloides—natural size—Branches villous, 250 x 51** 1. sepals pubescent above, tomentose beneath—2 A dissected flower, showing the 3-leaved involucre, (one leaf detached) 5 so pale calyx enclosing the ovary, and the corolla and stamens detached—3 Detached stamens showing their union at the base—4 The capsule surrounded by the persistent involucre—5 The ovary cut transversely—6 One of the carpels, showing by the central position of the partition the locular dehiscence—7 A portion of the under surface of a leaf magnified, to show the pubescence on the leaves which could scarcely have been represented with sufficient delicacy if not magnified.


24. *Nephelium rubrum*—copied from Roxburgh's drawings deposited in the Calcutta Botanic garden—This figure represents a portion of the drawing full use.


 The same—A greatly reduced figure of the whole—2 A flower opened and magnified, showing the sepals, petals, linear incurved anthers, obconate ovary, and 2-cleft stigma—3 Ovary cut vertically, showing its two cells, and solitary erect ovules—4 Berries—5. Cut transverse!—6 Seed lobes separated, showing the small embryo at the base—7 Linch detached. See Roxb. Fl. Ind. 2pg. 472


26  **Valeria Roxburghiana—2** Sepals and ovary, with a single detached petal—3 Sepals and petals removed, showing the stamens and stigma—4. Detached stamens, back and front views—6 Ovary cut transversely 3-celled—7 A full grown fruit cut transverse!, showing from the solitary seed that all the ovules except one had aborted—8 The same cut vertical!, the circular spots are caused by irregularities in the form of the seed lobes, which, when thus cut are divided in several places—9 A seed, *natural size*—10 The same magnified, showing the manner of its suspension from the top of the cell—*all more or less magnified* I am indebted to the unaided ingenuity of the artist for these analyses who was not at the time of making them under my superintendence, and I have not since had the means of verifying them myself.


 **Vatica Tumbagaia—natural size—2** Dissected flower, corolla detached to show the sepals, stamens, and stigma—3 4 Stamens back and front views, anthers tipped with a tuft of hairs—5. Ovary cut transversely 3-celled, with two ovules in each—6 The same cut vertically, showing the pendulous ovules, conical style, and three stigmas—7 A mature fruit, with its enlarged wing-like sepals—8 The same, the sepals removed—9 A seed, the testa removed to show the superior radicle—*all more or less magnified*


28  **Vitis larcolaria—natural size—2** A flower opened, showing the petals, stamens, ovary, and sessile rough stigma—3 The lamp pedicels removed—4 Stamens—5 Ovary cut vertical!, ovules solitary in each cell, erect—6 The same cut transversely—7. A seed—*all more or less magnified*.


29  **Crotalaria speciosa—natural size—2** A flower detached to show the relative size and position of the involucre, calyx and corolla—3 The same forcibly opened and the petals removed to bring into view, the stamens, style and stigma, showing all the filaments united (monotheca) and the anthers alternate! linear and globose—4 The petals detached—5 Back and front views of one of the linear anthers—6 The ovary cut longitudinally, showing the ovules—7 A pod about half grown—8 The same opened—9 A seed—10. The same cut transversely, not yet mature—U A portion of a leaf magnified—*all more or less magnified*.


30  **Crotila bifaria—natural size—2** A dissected flower, the corolla removed and the calyx opened, showing the monadelphous stamens, ovary and stigma, the anthers oblong and globose—3 The petals detached—4 Ovary cut open to show the ovules—5 Leaves magnified to show the pubescence—w w r j Uue—*all more or less magnified*.


31  **Crotalaria evoluloides—natural size—2** A dissected flower, perhaps appears more hairy than in nature through the tendency of such lines, to become thick in course of print—3 Calyx forcibly opened to show the stamens, ovary and—4 Ovary cut lengthwise—5 A pod—6 The same opened—7 A seed—*all more or less magnified*.


32  **Sesbama (Egyptiaca)—natural size—2** A dissected flower, the petals removed, the calyx laid open to show the diadelphous stamens, 9 and 1, and the anthers all equal—3 A portion of a pod opened, showing the seeds separated by spurious partitions—1-5 Sections of a seed—*all more or less magnified*


33  **Abrus fruticosus—natural size—2** A dissected flower wings and keel adhering, stamens monadelphous, much longer than the ovary and style—4 A portion of the pod opened—4 A seed—5 The same, the testa and one seed lobe removed to bring into view the embryo and radicle at the small end—*all more or less magnified*.


34  **Frieseolus rostratus—natural size—2** A flower, the vexillum removed, and the wings thrown back to show the spirally twisted keel—J The (petals removed, showing the spirally) involute diadelphous stamens and style—4 A portion of the ovary opened, showing the ovules and interposed cellular partitions—*all more or less magnified*.


35  **Mucuna monosperma—natural size—2** A dissected flower the petals removed and the calyx partially opened, showing the diadelphous stamens, (9 and 1) anthers oblong and globose, the latter rounded—J The ovary—4 Same cut lengthwise to show the solitary ovule—*all more or less magnified*—b A legume—6 The same opened, showing the seed with its long linear hilum—*natural size*

 **Cesalpinia paniculata—natural size—3** A flower opened to show the different parts—3 The ovary, the calyx and petals, except the vexillum, removed, to show the attachment of that petal—4 A legume opened to show the solitary seed—5. A seed cut transverse!—*all more or less magnified*.

37  **Cesalpinia sepiana—natural size—2** A dissected flower but badly represented, in as much as it seems to place three calyx lobes in plate of two, next the axis—3 A legume, *natural size*—i A bee—5 The same, a portion of the testa removed to show the cotyledons and straight radicle in situ—Q The cotyledons leucovul—7 Leaves magnified to show the pubescence—*all more or less magnified*.


 **Rosa Lcschenaultiana—natural size—2** A dissected flower. the petals removed, and the segments of the corolla thrown back to show the continuation of the hollow receptacle round the tube—3 An anther—4 The tube of the receptacle cut vertically to show the ovary concealed within—5 A fruit—6 The same cut vertical!—*all more or less magnified*—1 A cluster of fruit—*natural size*

39  **Passiflora lcschenaultii—natural size—2** A dissected flower, the calyx removed, and the corolla with one row of the coronal filaments detached, leaving the interior row surrounding the ovary, stamens and style—3 Two of the coronal filaments more magnified—4 A flower cut vertical!, showing the stalk of the ovary surrounded by the united filaments of the stamens, and surmounted by the style and stigma—5 The ovary cut transversely—6 The same cut longitudinally


 **Guetarda speciosa—natural size—2** A dissected flower, showing the tubular truncated calyx the corolla laid open, the stamens adhering to its inner surface the whole length of the tube, equalling the number or its segments, and alternate with the corolla—4 The same cut transversely showing it, in this instance, 5-celled—5 A full grown fruit cut across—6 The same cut vertical!, bringing into view through their whole length two of the curved cells with their enulose seed—7. A seed removed—*all more or less magnified*.


No. m. EXPLANATION OF PLATES.


— Hi HSCUS hirtus—*natural nae*—2 StaiUnaltu.be with a portion of 186 the styles and stigmas—3 An anther—4 A capsule—*alt magnified*

42
—Drnsrlmtia rrotonifolia—*natural* «*—2 Staminal tshp with tVroherin clivite stiTnas projecting—3 UIPCIIIJX RfIitonm, the corolla and stamens removed showing the ovary st}le and stigma with the projecting points of the involucrel—4 A young capsule cut transverse} showing it 10 rolls and 10 valves withasr itarj «or 1 in each—5 Thi stimi tal tube split opt n and its attachment to thi cor 1 a shown—6 An anther—7 DIP same aft r having slud its pollen—8 A mature capsule—*natural sue*—9 Half of one of the cell* with a si e l attached the n m lining partition showing the locuhcidal dphiscncr—10 (9) 11 Portions of the upper and undir surfaces of the leaf magnified, toslnwthi NtllhL pubesce ice above and the tomentum beneath, all^ not otherwise m nttonvd—*mort or leu magnified*

4i NepheliumLit hi-natural«"—copied from Roxburgh sdraw"
Ing-J 3 Dissected nnle flowers om with 4 the other with 5 lobes to the ealvx-4 A bisexual flower-1^ Tht ovary cut vertical} showing the two cells

44
—Grewia columnans—*natural me*—2 A dissected flower show-
-79 in,thesr}ulh di tached the small pi tals enclosing and conn al-
int{theovai} the stamens thp stvli and 4 lobed sti,ma—3 Bark
an 1 fn nt vitwg of the anthers—4 The ovary on its columnar pedirtl
showing thi place of inw rtion of thr petals and stamrns—the detai hed
fljMireapeial-1* Ovary cut transverse}—6 Veitically—7 A full grown
fn it rut tiansversil} 4-eHled two of the nuts or cells with 2 seed in
ea h two with solitary set ds—« A seed rem m d from th nut—9 The
*ami cut 1 >n,itudinally to show the inuryo-10 The embryo removed
—*all magnified*

—Orrwia rotundif V*-*natural me*—2 A dissected flower the
391 sepoU srnaratid and thrown back to show tht smaller petals the
stnmci jnl<*ti.?ma-J A i etal show ing the nctanal gland at the base—
4 Ov-u} st}le and sti,ma-5 Stamens bark and fiont—6 Ovan cut
transverseh 2 celled with tw) ovules in each—7 Tlie same rut verti-
calh uliowmp thi nulos nnpereposed—8 A drupe with two 2 celled
nuts—*all more or leu magnji d*

44
—EloHicarpus ohinngus—*natural n*e*—2 A dlufwte 1 flower the
** wtnli* removed one petal dptnrhml to show its form and fimVn-
atod margin—3 The ovrv with its glands and two stamens—4 The
ovrrrvitf transverse!} 3 celled with two collateral ovules in earh—5
The same cut vertically—*all magnified*


47
310 CM pra "ymnanthca— *natural size*— 2 A flower opened show-
ing nil the parts in situ—3 The smno d «iert d the stamens ad-
hering to the bottom of the pi tain—4 Anthers back and front VIPWS—5
Anovir\ cut virtieillj shown* thp pen lulous ovules—6 The some cut
tannrvlrv—7 V mature fruit a portion of the pencarp removed
to show the pi ndulous seed—*all more or lets magnified*


48
—Thaliitrum glypliocarpnm-nn/wroZ *me*—2 A flower—3 4
5 An thr is ba k an 1 front \ u w» bhon mg their extrone or rather
marginal dehiscence—5 O>ai} cut vertically showing the solitary ovule
N^r VROLM.Y-1100hFR

GTN CliAH Calyx tub< oliennrlal I inib 5 parted persistent Corolla
rotate parted Stamen* 5 IihmintsO Anthers large united into a
tibit Ovir} turbmatp rrownedwilhan nprrculardisk i celled rrrny
seeded see »s itarhrd to a hr i crnril pUcnfi Style filiform «*tigma
simple or discoid lapsuk 2 crlid seeds numerous dolti d on the
iirfaeo-HerIntousi lints withent in lanreoliteloavis larjt variously
divided, stipules, axillary erect or ptndulous racemes, and bractiate
flowers


N Zrylininu Hooker-btipules many cliff segments subulit *
ncpmtrscriit

N IfarX naia R IV -Stipules ° cleft segments acuminate racemes
fiendiilous


—Neur Neal} Hlookemna—*natural me*—2 A flower opened,
1245 x 46 show m r the cal} \ torollj ind staminal tule 3 Stiminal
tube removed and hplit opm «how ing thi fuim and union of the anth rs
- 4 The ovii} crowned D\ Ht persistent uil}\ st}li and stigma **
Thi same tut tiansversil} shovni, i s two c« IN und nuuiri rous ovules,
cobnut, tht lar.e central placenta- 0 A setU--a« M«x" jnd

49
—Ranunculus subpinnatus—*natural size*—2 A flower, the petals
removed—3 A seed, both magujied

50
11J Vitis palbda—*natural me*-2 A flower full blown showing
the stamens opposite to thi i itals—3 A berry cut tiasverscl},
one seeded-a/(*magnified*

51
—Vitia quadrangulans— *natural me*—2 A flowrr—3 The same
the pctuls removid showing the uiseition of the stamens—4
Ovar} cut vertical}— *all mu,nijud* 5 A cluster of beines—*natwalm.L*

51
1JJ9 Coffea arabica—*natural si-e* 2 Corolla and stamens—3 1
Anthers—5 Otar} Hble and Bl,ma—6 Ovari mt lerti all}—
7-8 Jkneyut transversely and lon,itudinally-9-10 11 beed-o« mag.


—Geophilla remformis—*natural size* -2 foiolla split open to
show the enclosed stamens—3 The ovary ind caUx 4 An an-
ther 'y) The ovar} style and stigma 6 A fruit tut transversely- *all
more or leu magnified*



55
366—Salacia pomifora- *natural si r* 3 A flower showing the 5
petals 3 stamens and disk d A su'e view of the same the
petals removed -how inj, the broad base of the fl-units m I the shurt
thirk stile 4 A young fruit cut transversely 1 siulel 5 A fruit
natural tte 6 The sumo cut transversely—1 A teed—*Except in the in-
stance speajied—all magnjud*

NORYSCA-S/V/fff


GKNEBIO CHABACTII Sepals 5 coriaceous equal erect after ex-
pansion Petals oblique deciduous Stamens 5 delphous androjhorcs,
(tl e united portion of the filaments) short deciduous Ov ti} 5 celled*
ovules numerous Styled *» sometimes united to near the apex Stig-
mait minute sublrbiculate Capsule 5 celled subconaceous Placenta
pyramidal 5 sided with five crest*, (the crests bearing the seeds) seed
minute nearly straight

58
— Nor} sea mysorensis—*natural me*—2 A dissected flower showing
345 the sepals ovary stjl s stigmas and a detached petal—3 A bun-
dl ofstnucns showing the relative lenath f the androphore and the
frte portion of the filaments—4 Anthir>-5 Ov irv cut transverse}—6
Mutun capsule bunt showing the septiudal dihisrfiire—7 Ont earpel
with its seed cut trarisvprn 'v—8 The central pi ce nta ns it ippours after
the cells of the capsules have sep-nated and slud their seed—9 Seed
disHicteu—*all more or leu magnified*

57
—Lablah vulgans—*natural sue* 2 Adissectol flower showing
the bractea and si puls in titu the | < I lls ditarhed the stamens
*tyle and sti ma 1 An ov try cut opm bli}wiii<; the 4 ovili& *all
mm I I 4 1* w pods detached-0 A pod opened to biin into vie v the
teed- *natural me*

—Erythnna indira- a raceme of flowers anil po-tion of alenf—
798 *natural site*-2 A flower somewhat opened *natural me* -I The
smne di-s < ted sh J\ ingthe w inf,s and keel adlienu^ 1) I urs spirat d t le
cilix pidLilltd uv irj sohtar} stamen & the remaining btume is with ihe
united filaments detached—4 Anthers 5 The ovar} cut loiifeituinally,
containing a ovules-G Thesti,ma-7 Apod *natural sire*-6 A portion
of the same opt ntd to show the seed -9 The seed cut lon,itudinail} and
transveibd} 10 A small portion of a leaf ma,ni(iid to show the pubes*
tlUexcept tlie pod more or leu majijijid

59
805 Pongamiaglabra-natara/fize 2 A dissected flower showing
the truncated caljx opened the | elals remt vid und separately
represmted the win^s and keel ddherm thw s miens diadilphous.
(9nndl) -3 Apodoitmd to show the solitary s«ced -4 and 5 beed
lobes and i xahtyo—*all magnijietl*

—Odina wodler—*natural me*- 2 A male flower showing the
5J0 sipals petals stamens and sterile ovar}--A The s,ime, the
petals an I stiincus removed tohnno into view the disk and attachment
of the stinle o\ ni} 4 Fertile bisixual flown» showing the ovar} 4
sti^inas ind the st-imens much shorU i than tin si of the m lie flower —5
The ovar} cut yuticilly showing the nilitar} pendulous ovule 7 8—The
fruit cult MISVCMIV and«rtieall}- 9 The seed lobe removed from the
nut ind t ^ti mottled on the surface the small figure *uualsize*, with
that exe pli m, *all murt. or leu magnified*

EXPLANATION OF PLATES.

Fa Sclerostylis atalantidis, |*i**Tt. rml/S p*rr|frf«, B. W.
For l. lymenodactylon, plates 79 mi K» U d

Fa Sclerostylis atalantidis, |*i**Tt. rml/S p*rr|frf«, B. W.
For l. lymenodactylon, plates 79 mi K» U d

No. V.

EXPLANATION OF PLATES.

81 *Buchanania intermedia* (H. W.) Leaves obovate, spatulate, numbranaceous, panicles glabrous, flowers congested—Nagane Hills, near Madras

Intermediate between *latifolia* and *angustifolia*, having the obovate spatulate leaves of the former, but much smaller and not $\frac{1}{2}$ as long. In the last respect it also differs from the latter, as well as in the form of the leaves, which in *B. angustifolia* are linear-lanceolate, pointed

1 K flowering branch *natural me*—2. A flower—3 The same, the petals removed—4 Stamens—5 Sepals, petals, and stamens removed, the disk opened and partially thrown back to show the solitary fertile ovary, and four sterile pistils—6 The ovary opened, showing the ascending curved podosperm and solitary pendulous ovule, *all more or less magnified*

82 *Greuna oppositifolia*, Buchanan — "Arboreous leaves rhomboid-ovate, gland serrate, scabrous peduncles leaf opposed, 3-5 flowered petals lanceolate drupe 1-4 lobed nuts (4) 1-celled" —Hoxb Fl Ind 2 page 584

1 Flowering branch, *natural size*—2 Sepal—3 Petal—4 Podocarp, stamens, style, stigma, and 4 alarmins in *natural*—5 Ovary cut vertically—6 The same cut transversely—7 A nut full grown, with three aborted ones at the base—8 The same cut vertically—9 The seed dissected, showing the embryo in *situ*—*all more or less magnified*

83 *Grnna ulmifolia* Roxb "Shrubby, scandent leaves cuneate, oblong, serrate umbels terminal petals linear, entire receptacle cylindrical, with a pentagonal base" —Hoxb Fl Ind 2 page 584

1 Flowering branch, *natural size*—2 A sepal—3 A petal—4 Pentagonal base, cylindrical podocarp, stamens in *situ*, ovary, style, and stigma—5 Ovary cut transversely, *all more or less magnified*

84 *Greuna uluifolia*, Roxb *G. microcarpa*? Lin "Shrubby, erect leaves bifurcate, broad lanceolate, serrate, acuminate stipules simple, panicles terminal petals retuse drupe with a single bearded nut" —Hoxb Fl Ind 2 page 591

1 Flowering branch, *natural size*—1. Sepal—2 Petal—3 Podocarp, stamens, style, and stigma—4 The same more magnified, showing it 3-lobed at the apex—5 Ovary cut vertically—6 The same cut transversely—7 A full-grown fruit—8 Drupe bearded—9 The same cut transversely—10 The seed dissected showing the embryo, *all more or less magnified*

8) *Flacourti Ramouchi* — "Female—flowering branch, *natural size*—2 Female fruit—3 A young fruit cut transversely—4 Male—flowering branch, *natural size*

86 *Millettia platensis* (L.) (L.) "Arboreous, smooth leaflets 3-5, lanceolate, racemes axillary, solitary, calyx 5-lobed, simple or lamous filaments single and 9-cleft" —(calyx campanulate 5-lobed, flowers paired white)

1 Flowering branch, *natural size*—2 A dissected flower—3 A mature fruit opened to show the abortion of part of the seeds—4 A seed

87 *Dalbergia marginata* Roxb "Scandent, scabrous leaflets 5-7 lanceolate, flossy obtusely acuminate, panicle axillary, stamens 1 and 9, legumes sublinear membrane margined, 1-seeded" —Koxb

1 A flowering branch with young legumes—2 A legume opened to show the solitary seed

88 *Decaschistia trilobata*, R. W. Herbaceous, tomentose leaves deeply 3-lobed, slightly dentate—Hemiteris on the margin, stipules subulate, longer than the petioles "Belgaum, towards the foot of the ghauts, flowering in 1840" —J. Law Esq

I am indebted to Mr Law, B. C. S. for this, and two other, interesting new species figured in this number

1 Flowering shoot, *natural size*—2 Staminal tube laid open—3 Anthers back and front views showing them 1-celled—4 Ovary, style, and stigma, the calyx and involucre opened and thrown back to show them into view—5-6 Ovary cut vertically and transversely—7 A nearly mature fruit—8 The same cut vertically—9 The same cut transversely—10, A carpel opened to show the seed in *situ*, *all more or less magnified*

89 *Antennaria diaphylla*, Roxb MS. — *G. scabrophylla*, Roxb Fl Ind — Oil? I adopt the original name as it seems probable the other

"8-ribbed, leaves round, cordate, serrate rugose, above scabrous, inferiorly smooth, peduncles axillary, 2-3 flowered, drupes round, nut 4-1 celled, 1-celled" —Koxb Fl Ind 1 page 584

1 Flowering branch—2 Ovary with stamens in *situ*—3 A sepal—4 A petal—5 A young fruit—6 A full-grown fruit—7 The same cut transversely—8 The same cut vertically—9 The same cut transversely, showing a nut in *situ*—10 A seed dissected to show the embryo

90 *Flaregamia alata*, the entire plant, a rather small specimen, *natural size*—1 A flower showing the petals and staminal tube—2 Calyx, ovary, style, and stigma—3 Anther back and front views—4 The ovary cut transversely, showing it 1-celled and 1-lobed lateral ovules in each—5 The same cut vertically—6 A mature fruit, the valves removed showing the seed in *situ*—7 A seed—8 The same cut transversely—9 The same cut transversely, *all more or less magnified*

MONROVIA, R. W.

Calyx 5, rarely 4-cleft Petals 5, cohering at the base, with the staminal tube Anthers 10, attached to the apex of a slender funnel-shaped tube, alternate with its teeth exerted A tube sheathing the ovary and base of the style Ovary 5-celled, cells 2-ovuled ranged round a thick central placenta Ovules superposed Style filiform, stigma discoid—capitate Capsule 5-valved, valves septiferous, loculicidal seeds by abortion about 5, attached to a large pyramidal persistent placenta Embryo enclosed in a thin fleshy albumen. Cotyledons foliaceous, radicle pointed remote from the hilum, projecting small erect shrubs, with the leaves congregated near the summit Leaves pinnate, leaflets one or several pairs opposite, glabrous Peduncles axillary, one or several flowered, flowers white, sometimes fragrant

This genus which I have named in honor of my zealous and enterprising friend, Lieut Munro, 11 M 39th Foot, is most nearly allied to *Azaraea*, but abundantly distinct and readily distinguished by its 5, not 3-celled ovary and its superposed not collateral ovules A more perfect account of the genus will be given under *Meliaceae* in my illustrations

91 *Munronia pumila*, R. W. (*Melita pumila*). Moon's catalogued Leaves 4-foliate, the terminal one much larger

1 Plant, a small specimen, *natural size*—2 A dissected flower, the sepals and petals removed, and the staminal tube laid open to show the sheath of the ovary—3 Pedicel, bractee and calyx—4 Petals and staminal tube removed to show the ovary—5 Ovary cut vertically—6 The same cut transversely—7 Capsule burst the lobes deflexed, showing the central placenta after the fall of the seed, *natural size*—8 The same magnified, showing more clearly the obovoid form of the valve—9 A seed—10 The same cut vertically showing the inverted embryo—11 Embryo removed. With the exceptions mentioned, *all more or less magnified*

ft) *Alysicarpus Belgaumensis*—Calyx deeply 4-cleft, upper segment bifid, joints of the legume compressed irregularly, reticulated, pubescent, leaves 4-foliate—the terminal leaflet much the largest

Mam ghaut, Belgaum—Flowers in September—Communicated by J. Law Esq Bombay Civil Service

1 Flowering extremity of the branch, *natural size*—2 A flower opened—3 The same, petals removed to show the calyx and stamens—4 Keel, and wing petals—5 Vexillum—6 Stamens—7 Anthers—8 Ovary split open to show the ovules—9 A legume, *natural size*—10 The same magnified—11 A seed

93 *Ailona Lawn*, R. W. —Shrubby, erect, tomentose, leaflets obovate about the length of the petioles; flowers axillary, solitary, drooping, peduncles shorter than the petioles, legumes short, 2-seeded, concealed within, the persistent corolla, pubescent

A very distinct species, readily distinguished by its bushy habit and numerous short pedicelled yellow flowers

Belgaum, on the top of the ghauts flowering in January—Communicated along with the preceding and many other novelties, by J. S. Law, Esq. Bombay Civil Service, to whom I dedicate this species

1 Flowering plant, *natural size*—2 A dissected flower—3 Anthers—4 The lefrum, the withered corolla by which it was concealed drawn aside—5 The same removed—6 A seed—*all more or less magnified*

94 *Phenololus trilobus* — "Flowering branch, *natural size*—2 A dissected flower—3 Anthers—4 Ovary—5 A young fruit, *natural size*—6 A seed—*all with the exceptions mentioned*

95 *Syla acuta*—1 Flowering branch, *natural size*—2 Calyx, ovary, styles, and stigmas—3 Staminal tube laid open—4 Anthers—5 Ovary cut transversely—6 Capsule enclosed in the persistent calyx, *natural size*—7 The same, the calyx thrown back—8 The same cut transversely—9 Cut vertically—10 A seed With the exceptions mentioned, *all more or less magnified*

96 *Muraya exotica* — "A flowering branch, *natural size*—2 A flower, petals removed to show the stamens, &c—3 Ovary, style, and stigma—4 Anthers—5 Ovary cut vertically—6 Transversely—7 A full grown fruit, *natural size*—8 The same cut to show the position of the seed—9 A seed cut transversely. *All, except the fruit, more or less magnified*

97 *Salacta oblonga* — "Flowering branch, *natural size*—2 A flower and bud—3 A dissected flower—4 The same, the sepals and petals removed, showing the dilated base of the filaments sheathing the ovary, and the 1-celled anthers—5 Ovary cut transversely, *all more or less magnified*—6 A full grown fruit—7 The same cut transversely—8 A seed, *all natural size*

98 *Tribulus lanuginosus* — "A small plant, *natural size*—1 A flower—2 The same, the petals removed to show more clearly the stamens, ovary and stigma—3 Anthers—4 Ovary, style, and stigma—5 The same cut transversely—6 Vertically—7 A mature fruit, *natural size*—8 The same cut transversely showing its 5 carpels—9 Cut vertically showing the 4 superposed seed of each carpel—10 A carpel removed—11 The same cut transversely just above the prickles—12 A seed removed—13 and 14 Different sections of the seed, with the exceptions mentioned, *all more or less magnified*

99 *Ziziphus jujuba* — "Flowering branch, *natural size*—2 An expanded flower seen from above—3 The same seen from below—4 Stamens—5 A stamen and petal—6 A young fruit cut transversely—7 The same cut vertically—8 A full grown fruit—9 A nut removed from the flared carpel—10 A seed—11 The same cut transversely—12 The embryo removed, *all more or less magnified*

100 *Eugenia Rottbiana* — "A flowering branch, *natural size*—2 A dissected flower, *magnified*

EBBATHUM.

No. VI. EXPLANATION OF PLATES.

101 *Buchanania angastifolia*, *natural size*—2 An expanded flower—3 The same the petals removed to show the insertion of the stamens under the disk—4 Sepals petals and stamens removed the disk partially separated and thrown back to show the *LM* of ovules and 4 sterile styles—5 Stamens—6 The ovary—7 The same cut vertically—8 The same cut transversely—*all more or less magnified*

102 *Garcinia pictoria* Roxb *natural size*—2 The female flower the ovary removed to show the insertion of the stamens and union of the filaments near the base—3 Stamens detached—4 The same more highly magnified—5 The ovary detached—6 Cut vertically—7 Transversely—8 A full grown fruit—9 Cut transversely—10 A seed—11 Cut lengthwise—*all more or less magnified*

103 *Garcinia lanceifolia* Roxb *natural size*—2 A female flower the ovary removed showing the stamens and petals—3 The ovary cut transversely many celled—*both magnified*—4 A full grown fruit, *natural size*

104 *Garcinia Roxburgii* R W (*G. cowa* Roxb) — \ Male plant—2 A portion of a male flower—3 An anther—4 Female branch—5 Fertile or female flower—6 Stamens *both magnified*—7 A full grown fruit seen from below—8 The same from above—9 Cut transversely—10 A seed with its integument and freed from it—*natural size*

105 *Garcinia cornea* Lin —1 Male branch—2 Detached flower seen from below—3 A fasciculus of stamens seen from within a detached anther magnified—4 The termination of a fertile branch with its solitary flower—5 Female flower seen from below—6 The ovary—7 A full grown fruit—8 The same cut transversely—with the exception of the anther the figures of this plant do not seem to be magnified or but very slightly so

106 *Calophyllum deripicis* *natural size*—2 A flower-bud opened to show the petals which seem to drop immediately on the natural expansion of the flower—3 The calyx and ovary after the fall of the petals and stamens—4 The anthers back and front views—5 The ovary somewhat further enlarged—6 The same cut vertically, showing the solitary erect ovule—7 Cut transversely—*all more or less magnified*—8 A fruit *natural size*—9 Cut transversely—10 Vertically showing the embryo—*magnified*

107 *Calophyllum Burmanni* R W var *£ parvifolium*—*natural size*—2 An expanded flower—3 The sepals removed—4 Stamens showing the union of the filaments at the base—5 Anthers—6 The ovary in situ after the fall of the stamens—7 The same the petals removed—8 Cut vertically to show the solitary erect ovule—9 Cut transversely—*all more or less magnified*

108 *Calophyllum Burmanni* a H W see 107 for explanations—7 A full grown fruit—8 9 10 Dissections of the same

109 *Lagerstremia microcarpa* R W *L. yavijlora* XV and A *Prod* page 308—2 A flower split open and spread out to show the perygynous insertion of the petals and stamens—3 Anthers—4 Ovary style and stigma—5 Cut transversely—6 Vertically—7 A mature fruit *natural size*—the calyx as here represented is rather too short—8 A mature capsule bursting showing the four valves—9 One of the valves separated with the seed attached—10 A seed—with the exception mentioned *all more or less magnified*

110 *Calophyllum tomentosum* R W *natural size*—2 An expanded flower—3 The same sepals and filaments moved—4 Stamens and filaments cohering below—5 Anthers—6 Ovary—7 Cut vertically—8 Transversely—*all more or less magnified*—9 A portion of a young shoot magnified, to show the tomentum with which it is clothed

111 *Calophyllum Moonu* R W *natural size*—2 An expanded flower—3 The ovary and sepals—4 Stamens—5 Ovary cut vertically—6 Transversely

112 *Garcinia pinniculata* Roxb — 1 Male plant portion of a branch with a panicle of flowers *natural size*—2 Male flower front view—3 Back view—4 Detached stamens—5 Female plant—6 Female flower seen from above—7 From below—8 Detached ovary and stigma—9 10 full grown fruit seen from above and below—11 Cut transversely—12 A seed with its arillus—13 The same the arillus removed—14 Natural size of a fruit gathered from a wild plant in Bihet

113 *Garcinia Kydiana* (Roxb M 8 S)—1 Male plant—2 A male flower divided vertically showing the column of united filaments—3 An anther showing its four angles and distinct polleniferous cells—4 The same cut transversely—5 A female branch—6 A female flower divided vertically—7 The same cut transversely—8 A full grown fruit—9 The same cut vertically showing a seed imbedded in pulp—10 Cut transversely several of the seed abortive—11 A seed germinating

114 *Garcinia pedunculata* Roxb —1 Female plant—2 An expanded flower the ovary removed showing the union of the filaments near the base and the detached ovary—3 A full grown fruit—4 The same cut transversely—5 A seed

115 *Garcinia pedunculata* (Roxb 6)—1 Male plant—2 An expanded flower seen from below—3 From above—4 The column of stamens—5 A detached anther

116 *Garcinia Mirguensis* R W —1 Male plant *natural size*—2 An expanded flower seen from above—3 The same from below showing the exterior pair of sepals much smaller than the interior—4 Sepals and petals removed the fasciculi of stamens drawn back to show their number and central sterile stigma—5 The same parts in situ—6 \ fasciculus of stamens one anther separated and more highly magnified—7 The abortive pistil—8 and 9 The same cut transversely and vertically its cellular structure and ovules—*all more or less magnified*

117 *Mesua Coromandelina* (R W)—1 A flowering branch *natural size*—2 A partially dissected flower the sepals and petals removed to show the stamens and stigma—3 Anthers—4 Petals and stamens removed to show the ovary—5 The ovary cut vertically showing its 2 cells and erect ovules—6 Cut transversely showing the 1 ovule.

118 *Mesua ferrea*—a flowering branch copied from a beautiful coloured drawing made by Mrs Colonel Walker The detached leaf is introduced to show the site and form of the larger leaves It is an exact tracing

119 *Mesua pedunculata*, R W —1 Flowering branch *natural size*—2 The sepals and ovary—3 Anthers—4 Ovary the sepals removed—5 The same cut vertically—6 Transversely *all more or less magnified*

120 *Garcinia elliptica* * Wall —1 Branch of the male plant in fruit—2 A young fruit with its persistent sepals—3 The same cut transversely showing its two cells—4 Cut vertically showing the central attachment of the ovules

121 *Garcinia eonicarpa* R W —1 Male plant natural size—2 Male flower bud—3 The same opened—4 Petals removed to show the union of the filament—5 *all more or less magnified*—6 The same in fruit natural size—7 The fruit—8 The same cut transversely—9 Cut vertically—*all slightly magnified*

No. VII. EXPLANATION OF PLATES.

The *ttm* which respectively produce the Cinnamon and Cassia apices have, for a long series of years afforded matter for discussion and been a subject of controversy among Botanists. The question whether these barks were the produce of one or of several species having recently been referred to me by the Madras Government I have been induced in the present number of these *Ironrs* to lay before the public figures of number of the *Hpecies* of the genus *Cinnamomum* the younger branch *lesolmost* or perhaps all of which there is reason to believe are pitied as *jieldmL*, in aromatic bark more or less allied to its properties and flavour to that of the true Cinnamon and sold in the European markets under the name of Cinnamon or Cassia according to its quality.

The *Cinnamomum zeylanicum* of this series is that which furnishes the true Ceylon Cinnamon the *C aromaticum* *\\ plies the Chinese < innamom which is but little if at all less valuable but is I believe, that which is considered among European druggists the genuine or first sort Cassia of commerce—nearly all the other species here figured there is reason to believe are indiscriminately peeled and the bark sold as Cassia bark. The plant figured No. 132 (*Litsea Zeylanica*) is the type of the Linnaean *I aunts* Cassia with which he associated the species figured in NOB 130 and 141 both of which are now ascertained to be most distinct but which he did not discover owing to his opponents not being in flower. The one error which seems never before to have been traced to its source save rise to all the controversy which has at different times divided Botanists on this subject. For further details on this point I beg to refer to a short paper of mine published in the 9th volume page 110 of the *Madras Journal (of Science)*. To save unnecessary repetitions in explaining the plates I here subjoin the generic characters of the genus *Cinnamomum* with such explanations as may be necessary to make them clearly understood.

Omnamomum. 1° lowers bisexual or polygamous calyx 6 cleft in a double scrim the upper half of each beument separating from the cup shape tube. Stamina P in a quadrilateral series the two outer *r* *ci* futile opposite the segments of the calyx and opening inwards the third row also fertile opposite the outer series turned outwards and bearing on the filaments two glands (staminodia) the 4th series sterile opposite the second. Anthers ovate 4 celled opening by valves the inflexion cells larger lateral the sterile ones ovate capitate. Ovary 1 celled with one ovule. Stigma discoid. Berry 1 bitted the base of the enlarged 6 toothed persistent cup shaped base of the calyx—Indian trees yielding aromatic bark the leaves nerved spirally by pairs or of opposite flowers panicle dorsiflexed without involucre the buds naked.

In some of the following Insertions of the flow t, is of *Cinnamomum* the series of stamens are represented separately two and two that is the two outer rows are left attached to the segments of the calyx, while the inner ones which usually easily separate are represented distinct by which means the staminodia or glands and sterile stamens are more clearly shown and the confusion which might arise from bad printing or otherwise avoided. The following character of the genus *Litsea* is copied from Professor Fendlicher's most valuable *Genera Plantarum* it is slightly modified from NIP's character of *Tetradenia* a name pre-occupied for a genus of Labiales and therefore inadmissible here.

Zi/omi (Luss) Flowers dioecious the buds covered with scales. Male calyx 4-5 or 6 parted deciduous. Male stamens 6 of which 4 or the two interior ones have two glands at the base. Anthers introrse 4 celled the 4 valves ascending—Female—Stamens 4 6 thickened above opposite the segments of the calyx, 4 sessile glands surrounding the ovary either approximated by pairs or attached to the 5 and 6th sterile filaments. Ovary 1 celled, 1 ovuled, Uteric short stigma discoid. Berry 1 seeded naked placed on a pedicel thick, naked at the apex—In hand trees with alternate nerved leaves flowers axillary fasciated flower buds sessile in pairs or several densely imbricated with deciduous scales.

A reference to the figure No. 132 will render most of these characters sufficiently obvious it being borne in mind that they vary somewhat in different species it may however be remarked here that the drawing is made entirely from dry specimens and in some points owing to the minute size and difficulty of drawing the parts of the flower not quite so perfect as I could wish.

In the arrangement of the materials for this Number I regret that more attention was not paid in the first instance as had been done a methodical in place of a chance distribution of the species might have been affected.

EXPLANATION OF PLATES

188 & 122 bis *Cinnamomum iners* Nets

1 Flowering branch *natural size*—2 A flower—3 and 4 The same dissected—5 The inner series of stamens shown separately to prevent the confusion and difficulty in understanding the structure which results when shown in situ—6 The ovary cut vertically showing the solitary ovule—7 Cut transversely—8 A mature fruit *natural size*—9 The same cut vertically—10 Transversely with the exceptions mentioned *all more or less magnified*.

The specimen represented in the first of these figures was communicated by Dr Wallich from the Calcutta botanic garden. The one in fruit which was examined, and named by Professor Nees is from Malabar.

183 *Cinnamomum zeylanicum* *natural size*—2 A flower—3-4 The same dissected—5-6 The ovary cut vertically and transversely—7 A mature fruit—8 9 The same cut vertically and transversely—10 The embryo *all more or less magnified*.

The specimen figured was gathered in the Cinnamon gardens of Colombo this, though I apprehend not the finest variety has adopted as coming from the best native station in preference to others not raised in Ceylon.

184 *Cinnamomum nitidum* *natural size*—1 A dissected flower—3 A stamen of the outer series—4 A sterile stamen—5 A stamen of the inner series with its glands—6 The ovary cut transversely—7 Vertically—8 A full grown fruit—9 The same cut vertically—10 The embryo *all more or less magnified*.

Copied from Roxburgh's drawing

125 *Cinnamomum ovalifolium* (R W) Young branches quadrangular, and with the under surface or the leaves villous leaves ovate, obtuse, panicles axillary, shorter than the leaves, few flowered.

Hab Woodt, Ceylon

1 Flowering branch *natural size*—2 3 A dissected flower—4 5 Ovary cut vertically and transversely—6 A portion of a leaf magnified to show the villi—W mart or less magnified.

Specimens communicated by Colonel Walker

196 *Cinnamomum roilatiflorum* JjR W

1 Flowering branch *natural size*—8 3 The flower dissected—4 5 The ovary cut transversely and vertically *more or less magnified*.

The specimen was received from Ceylon and though apparently the same species differs sufficiently from Roxburgh's plants No. 131 to entitle it to rank as a distinct variety.

137 *Cinnamomum villosum* (R W) All the younger parts of the plant clothed with soft villous pubescence branches terete. Leaves lanceolate acute, aromatic stalked diffuse about the length of the leaves.

Hab Ceylon in woodt

This species seems closely allied to the true Cinnamon and may be the *C. perpetuum* Aorens of Burman though that appears doubtful it is principally distinguished by its pubescence.

1 Flowering branch *natural size*—Z i A dissected flower—4 5 Ovary cut vertically and transversely—G 7 1 portions of a leaf magnified to show the pubescence on both sides—*all more or less magnified*.

128 *Laurus cassia* Bot Mag 1616 This in the estimation of Nets von Lstnheck is a variety of the true Cinnamon plant an opinion in which after repeated comparisons with both growing plants and dried specimens I cannot coincide though I am unable to say to what species it is referable.

Copied from the Botanical Magazine

139 *LSUTUS cinnamomum* Bot Mag 2038 This I at first considered a variety of the former and on that supposition have doubtfully named it *C zeylanum* a more careful examination has led me to alter my opinion and now I think it a variety of *L. C an. matcum* Nees.

This like the preceding is copied from the Botanical Magazine

130 *Cinnamomum mers Carita*—Rheerle Hort Mai This like 138 is quoted by Nees as a variety of *C zeylanum* but in my opinion is much more correctly referable to *C in rs*. This is one of the plants quoted by Linnaeus as *hin laurus cassia* it is total I diffident from the Ceylon plant which he had before him (No. 112) and describe it in the *Flora Zeylanica*.

This figure is copied from Theede's Hort Mai

131 *Cinnamomum multiflorum* Nees—*Laurus multiflora* Roxb *natural size*—2 i A dissected flower

This figure is copied from Roxburgh's drawing a native of Ceylon

132 *Litsea zeylanica* Nees—*Twarfonia zeylanica* Sees—*Laurus cassia* Lin *natural size*—2 A flower bud unopened—3 The same, the involucre opened and spread out to show the enclosed flowers in white—4 The involucre with the lower in a very early stage—5 A flower unopened—6 The stamens opened—7 The glandiferous stamens back and front views—8 Stamens of the outer series back and front views—9 The ovary 10 11 The same cut vertically and transversely—12 A mature fruit *natural size*—13 The seed—14 15, The seed cut vertically and transversely the former showing the embryo in situ—the exceptions mentioned *all more or less magnified*.

The flowers of the fertile plant of this species are appears, bisexual.

The specimen figured is from Ceylon

133 *Cinnamomum recurvatum* *Laurus recurrala*, Roxb—2 A dissected flower—3 A staminal stamen

Copied from Roxburgh's drawing—I do not find this species in Nees' enumeration of Indian Laurin and not being in fruit I am not sure that it is a species of *Cinnamomum* hence the mark of doubt.

134 *Cinnamomum zeylanicum* Tf Nees *natural size*—1 3 A dissected flower—4 7 Ovary cut vertically and transversely

The specimen from which the drawing was made was communicated along with many more Ceylon Laurin by Colonel Walker. The branches and leaves are glabrous the flowers somewhat hairy, fruit I have not seen. This if it appears to me is identical with Burman's *Cm. perpetuum* JjR—auder Uinb a variety of *C zeylanicum*.

185 *Cinnamomum dihiinn* Nees—The analysis as in the preceding. The specimen from which his figure is taken was compared with one in my herbarium named as above by Professor Nets and found accurately to correspond to one of the magnified flowers in the upper corners is taken from the specimen named by Nees.

Hab Ceylon

186 *Cinnamomum aromaticum* Nees Copied from the Botanical Repository No. 596

This figure is quoted by Nees as a correct representation of his *O. armatum* the species which yields the China Cinnamon or first sort Cassia of the European market.

137 *Cinnamomum Culitawan* Meet—*Lamus Cuhlaban* Roxb This figure is copied from Roxburgh's drawing

138 *Cinnamomum dulce* Nees—*Laurus dulcis* Roxb *natural size*—3 A dissected flower—3 Sterile stamen—4 1 fruit

Copied from Roxburgh's figure

139 *Cinnamomum obtusifolium* Nees—*Laurus obtusifolia* Roxb *natural size*—2 A dissected flower—8 (Andulifolius stamen—4 A separate gland—5 A berry—6 The same cut vertically—7 The embryo

Copied from Roxburgh's figure

140 *Cinnamomum albidiflorum* (Wall) *Laurus cassia* Roxb *natural size*—2 A dissected flower 3 Detached fertile stamens—4 A sterile stamen—5 A berry—6 7 Cut vertically and transversely

Copied from Roxburgh's drawing

141 *Cinnamomum perpetuum* florens, Barm—Copied from Burman's Thesaurus Zeylanicus.

EXPLANATION OF PLATES.

2 Anthers 2-3 flower—3 Die sime the corolla removed, showing the filaments free above united beneath forming a cup round the base of the ovary—4 The ovary cut transversely, 5 celled, with two rows of ovules in each cell

No. IX. EXPLANATION OF PLATES.

LOFHOETALUM, vR W)

Of if CHAft Calyx obsolete 5 lobed Petals 5 orbicular, furnished near the base with a crest Torus a large litle 6-lobed disk, coveting the bottom of the calyx, the lobes covering, and cuticular with the claw* of the petals bitamina 5, inserted into the disk, filaments persistent Anthers oval, oblong versatile, bursting then whole length Ovary not immersed in the disk, triangular, d-celled, with a double IOW of compressed imbricated ovules in each Style short, thick furrowed, stigma obtuse

bhiuba, with opposite, coriaceous, ovate, acuminate, glabrous leaves large axillary corymbs, and redish purple flowers

This genus is intermediate between UUitui and huonymui, but more nearly related to the latter than the former Dr Aruot I think, cousin de Wallich a n-uunmui grand%flurui, another species of this genus, an opinion in which I cannot yet coincide, though it seems probable Wallich's plant aims the type of a genus distinct from Jiunymui

162 Lophopeulom Wightianum—1 Flowering specimen—natural MM—3 A flower—J Ovary cut vertically, showing the double row of ovules—4 Cultransverse showing its triangular form and J cells—5 A detached ovule— all time » less magnified

163 Venttlo madras patana—Flowering branch—natural size—9 Side view of an expanded flower—& front view of the same, showing the stamens plus the scale-like petals—4 Stamens—5 A transverse section of the ovary, showing it i celled, with a solitary ovule in each—6 A vertical section of the flower, ovary immersed in the disk—7 A full grown fruit—natural size—H * luit cut vertically, showing the solitary seed and ascending wing—8 A luit cut transversely, 1-celled and 1-seeded—natural size—10 An entire seed—11 Seed lobes separated, showing the embryo at the base—with the exception* mentioned, all more or less magnified

164 Vatica lucifera—A flowering branch—natural time—2 Corolla ditachid and split open to show the stamens adhering to its base—Jatitit4 Shuius—6 Gvmy cut transversely, d-celled with 2 ovules in each—b Ovar), style, and stigma, in %u—7 Ovary cut vertically, showing the central attachment of the ovule—8 A full grown capsule, with the sepals enlarged into 5 long wings—9 Corolla cauciosing the ovary, sepals removed—10 A fruit cut vertically—11 Cut tiduaversej— U A detached seed—U A seed lobe expanded— how iu form, but misled by the mistake of the artist—all more or less magnified

I am indebted to Air Apothecary Bertie, with the exception, of some of the dissections, for the very well executed drawing from which this n° is copied, and have much pleasure in thus publicly proffering my thanks IOT this and several other labours of the same kind, to that very man to nous officer

165 Shuteria vesti—A flowering branch—natural size—2 A dissected flower—3 Back and front views of the stamens—4 An immature legume laid open, showing its numerous ovules—5 A young seed—natural size—Q The same fuagmne

Obi —This may prove a new species, but owing to the great similarity existing between the two described pinnular * ties I preferred for the present associating it with the cut to which I thought it most nearly approached—though it does not altogether correspond with the character

166 Milnea Roxburgh 11—Flowering branch, and a detached panicle off luit—natural size—2 An expanded flower showing the globose stamiferous uiculus—J The ureolus split open to show the attachment of the filaments within—t The ovary surrounded by the subsistent calyx—5 A full grown luit cut transversely, 8-celled with 1 seed in each—all more or less magnified

167 Glycobmis triphylla—natural size—i A flower split open, to show the stamens and ovary—3 A young fruit cut transversely, 5-celled showing its short pedicel and discoid glandular torus—4 A mature fruit cut transversely, 1-seeded, the remaining ovules aborted—5 The seed removed all slightly magnified

Obi —This drawing was prepared many years ago, and the analysis is less perfect than they should be

168 Olycine labialis—A branch in flower and fruit—natural size—8 A detached flower—3 The same dissected and the petals shown separately—4 Calyx split open to show the ovary and united filaments—5 Anthers back and front VUWB—6 Stamens, the filament* all united at the base—7 The ovary split open—8 A portion of a full grown pod with the seed in nlu—9 Valves of the legume spirally twisted after dehiscence—10 A seed cut vertically—11 The same cut transversely—12 Seed lobes and incurved radicle—13-14 Portions of a leaf showing the hairs—all more or less magnified

169 Ipomna sessiliflora—Leaves cordate acuminate, hairy, flowers aggregated, small, not involucred, peduncles very short, capsules moderate sized

1 Flowering branch— natural size—2 Corolla split open, showing the insertion of the stamens—3 calyx, ovary and style, and capitate stigma—4 Capsule cut transversely—5. Embryo foliaceous— moved from the test

170 Vitis setosa—Flowering branch—natural size—t An expanded flower, petals reflexed—3 The same at the commencement of expansion—4 The petals removed showing the truncate calyx and a 4 lobed gland like disk with a single detached petal—5 Blame" back, and front views—6 The ovary cut vertically—7 Cut transversely, with a front view of the disk—8 A berry cut transversely— one seeded by abortion—all more or less magnified

Obt — die analysis are partly made from dry specimens, the figure is from a recent one

171 Vitis carnosa—Flowering branch—natural size—8 An expanded flower—d The petals removed to show the disk—4 A full grown fruit cut transversely—all more or less magnified

172 Terminalia Catappa—A flowering branch—2. A detached flower—& The calyx split open showing the filament and inferior ovary—4 Stamens back and front views—5 Ovary cut vertically, ovules pendulous—6 Transverse section of the same, ovules paired—7 A full grown fruit—8 The same cut transversely, seed solitary—9 Seed detached—10 The same cut transversely—11 Testa removed to show the spirally convolute cotyledons—all more or less magnified

173 Capparis horrida— Flowering branch—2 Anthers back and front views—J Ovary—4 The same cut vertically—5 Cut transversely—6 A full grown fruit—natural size—7 The same cut transversely—8 A seed—natural size—9 The same cut vertically—10 The embryo removed, with the exception* mentioned, all more or less magnified

174 Niebuhna linearis—Flowering branch—natural size—S A flower, the calyx split open, showing the cylindrical torus and insertion of the stamens—3 Anthers back and front views—4 Ovary cut vertically—5 The same cut transversely—6 An immature berry cut transversely showing the parietal attachment of the seed—7 A seed—8 The same cut transversely showing the twisted cotyledons—9 The seed the testa removed—10 Cut vertically—11. Cotyledons opened out showing the ascending direction of the M. dicl—all more or less magnified

Y* Limooia nmsionis, (L. citrifolia) Moon's cat. Ceyl PI. not Boxb)—Flowering branch—natural size—2 An expanded flower—3 Anther back and front views—4 Ovary cut vertically showing the attachment of the ovules—5 The same cut transversely, 4 celled, with two collateral ovules in each—6 Another instance showing an occasional variation & celled—7 An immature ovule—8 A fruit near maturity cut transversely—9 A seed—10 The same cut transversely—11 Seed, the testa removed—12 A seed lobe, showing the outer surface covered with pellucid dots—all more or less magnified

Obi —This is certainly Moon's plant the original specimen of which I have seen—Roxburgh's L. citrifolia appears to be a species, of my Paramignya, hence this plant ought perhaps to bear Moon's name

175 Vitis setosa—Flowering branch—natural size—2 An expanded flower—3 Anther back and front views—4 Ovary cut vertically showing the attachment of the ovules—5 The same cut transversely, 4 celled, with two collateral ovules in each—6 Another instance showing an occasional variation & celled—7 An immature ovule—8 A fruit near maturity cut transversely—9 A seed—10 The same cut transversely—11 Seed, the testa removed—12 A seed lobe, showing the outer surface covered with pellucid dots—all more or less magnified

176 Vitis setosa—Flowering branch—natural size—2 An expanded flower—3 Anther back and front views—4 Ovary cut vertically showing the attachment of the ovules—5 The same cut transversely, 4 celled, with two collateral ovules in each—6 Another instance showing an occasional variation & celled—7 An immature ovule—8 A fruit near maturity cut transversely—9 A seed—10 The same cut transversely—11 Seed, the testa removed—12 A seed lobe, showing the outer surface covered with pellucid dots—all more or less magnified

177 Vitis lanceolata— Flowering branch—natural size—2 An expanded flower—3 Anther back and front views—4 Ovary cut vertically showing the attachment of the ovules—5 The same cut transversely, 4 celled, with two collateral ovules in each—6 Another instance showing an occasional variation & celled—7 An immature ovule—8 A fruit near maturity cut transversely—9 A seed—10 The same cut transversely—11 Seed, the testa removed—12 A seed lobe, showing the outer surface covered with pellucid dots—all more or less magnified

178 Nymphaeaceae—Plant—natural size—3 Stamens and ovary front view—* Ovary cut transversely, many-celled—4 Cut vertically, seed very numerous—5 A single seed—* highly magnified

179 Moea Wightiana—Plant—natural size—2 A female flower dissected showing the small included petals the sterile filament* and the superior ovary—3 A seed with its arillus—one of the fruit cut transversely, shows the parietal attachment of the seed

180 Helicteres Isora—A flowering branch—natural size—i A dissected flower, the filaments united forming a tube round the podocarp—3 Capsule, carpels spirally twisted—4 Capsule cut transversely, 5-celled many-seeded—5 A seed all more or less magnified

181 Strechu foetida—A flowering branch—natural size—2 ML dissected flower the calyx split open, showing glands in the place of the petals and the stalked ovary surrounded by the stamens—3 The ovary—4 Cut vertically ovules numerous—5 The same cut transversely showing the 5 cells with two rows of ovules in each—6 K wnuw carpel, five of which go to form the entire fruit—7 A seed cut lengthwise—8 Cut transversely—9. Embryo removed— all more or less magnified

No. X.

EXPLANATION OF PLATES.

182 *Dioapryos tomenton*, Roxb & " *DIOLCOUS*, all the tender parts very downy leaves opposite and alternate, oval, entire tomentose—peduncles 3-flowered. calyx and corolla gibbous, 4-toothed stamens 12, on a receptacle female—solitary with the calyx and corolla 5-parted berry as first 5-seed. " *Roxb*

1 Flowering branch—2 A flower dissected and corolla removed to show the stamens—3 Corolla split *open*—Copied from Roxburgh's figure

183 *Diospyros toraentoss*, Roxb 9 —1 Flowering branch—2 A flower dissected corolla removed an 1 calyx split open to show the ovary—3 Corolla—4 5 Full grown fruit seen in different positions to show the enlarged calyx—6 Fruit cut transversely—Copied from *Baxburgh's figure*

184 *Ixora stneta*. Roxb " Shrubby, straight leaves subsessile. oblong corymbs dense, compound hemispheric lacinien of the corolla round spreading anthers bristle pointed " Roxb

1 Flowernt branch—i A corolla split open, to show the Inferior ovary, stlp and stigma—3 A fruit—4 The same cut trans-versely—Co/>i'dJ>om *Roxburgh'j* drawing

185 *Ixora barbata*. Roxb ** Tube of the corolla long. mouth
bearded leaves opposite short petiolcd. oblong, mtire, smooth,
shining, floral lervcs, round curdite. a ensile panicles open"
Roxb

1 Flowering branch—2 A flower, the corolla split open—3 A fruit—4 The same cut transversly—Copied from Roxburgh's drawing

186 *Ixora 'Pavetta 6m* } tomentosa, Roxb " Shrubby leaves
oblong, ventneose, entire, tomentose panicles lax, sub-globular,
tomentose style twice the length of the corol stigma entire ber-
ries globular

*Ob**—This is a species of *Pavetta*, which is distinguished from *Ixora* by the length of the style.

1 A flowering branch—2 The flower showing the style and stigma twice the length of the corolla—3 A fruit—4 The same cut transversely—Copied from Roxburgh's drawing

187 *Rubia Mungis* U. Roxb '• Perennial scandent leaves four-fold, long-petioled, cordate, acute from 5 to 7 nerved, hispid corol flat, B-parted, pentandrous " Roxb

1 Flowering branch-2-3 Flowers seen from above and from below-4 Stigma side and front views-5 Fruit cut transversely-6. A seed-7 The same cut to show the embryo-Copied from Roxburgh's drawing

186 *Diospyros Ebenum* Kōn " Leaves short petioled, alternate, bifanous oblong entire, polished male flowers sub-racemed, with about 2d anthers hermaphrodite, solitary, octandrous, style single stigma 4-cleft " Roxb

1 Male-flowering branch—2 Receptacle and calyx—3 Corolla and stamens—4 Detached stamens—5 Female, flowerin branch—6 Dissected flower, calyx, ovary, and cleft stigma—7 Corolla with attached stamens—8 A full grown fruit—9 The same cut trans., versely—10 The name seen from above uniliccate—11 A seed—12. The same cut transversely—CO/med/orn *Roxburgh's drawing.*

189 *Diospyros ramiflora*. Roxb " Arboreous leaves lanceolate, glossy hermaphrodite and male flowers in fascicles from the large woody branches CR1X and oocul from 5 to 6-parted, style from 5 to 6-cleft, berry with 10 or 20 seeds " Roxb

1 A flowering branch with 2 fascicles of flowers—2 *K* younger branch and leaves—3 Calyx and ovary—4 Corolla and stamens—5 A full grown fruit a/c n from b low—6 Seen from above—7 Cut transversely—8 A seed—Copied from Jioxburgh \$ diawing

190. *Rhopala exrelsa*, Roxb ** Leaves alternate, short petioled, cuneate-oblong, obtuse pointed smooth, with a few large blunt warts near the apex racemes axillar> and terminnll as long as the leavts downy nectaral scales 4 distinct ind naked I ' Roxb

1 Flowering branch—2 Flowers one dissected to show the nectaral scales and insertion of the stamens into the petals—3 Ovary, style and stigma removed—4 Ovary cut vertical!—5 The same divided transversely—Coined from Roxburgh's drawing

191 *Rhopala robusta*, Roxb " Leaves alternate, sessile, cuneate, oblong remotely serrulate racemes axillary and below the leaves smooth nectary a smooth 4-toothed cup " Rnxb

1 Flower in hianch—1 A dissected flower, showing the ovary in situ embraced by the nectanal cup—3 The ovary cut vertically—4 T.M.; Simp cut transversely, showing the two collateral ovules—
Copied from Roxburgh's drawing

193 *Xanthochymus dulcis* Roxb. " Polygamous leaves, opposite, oblong flowers fascicled, lateral corals globular fruit oval, obtunc, from one to 5 seeded " Knxb

1 Flowering branch—I A hermaphrodite fertile flower—3 A
mle one-4 A fascicle of stimens—5 An anther—6 The ovary
detached, stgm radiate—7 The same cut vertically—8 Gr^s trans.
Tersely—9 A full grown fruit—10 The same cut vertically and
ttaiwersely—11 A germinating seed—12 The same cut longitudi-
nally showing the embryo traversing the albumen—*Copied from
Roxburgh t drawing*

193 *Spermocoe leris*, Roxb • Biennial, straight, round, smooth leaves subsessile, lanceolar, corymbs terminal, anthers hid in the bearde 1 mouth of the infundibuliform corol " Roxb

1. Flowering branch—2 A corolla split open glabrous within—3 Ovary, calyx, style and stigma—4-5 Ovary cut transversely and vertically—6 The mature fruit enclosed in the calyx—7 The same cut transversal, 9-seeded-G₂ [1] from Roxburgh's figure.

194 Alan urn decapelym. " Leaves narrow, oblong, ~~10-12~~
times shortly and bluntly acuminate petals 6-10." W. and A.
Prod

1 A flowering branch—2 Ovary, calyx, style and stigma, after the fall of the petals and stamens—J An anther—4 A fruit cut transversely.

195 Terrainia tomentosa. W and A *Fentaptera*, Roxb D C and Wall " Back dfeph cracked, leaves nearly opposite, linea , ob-long obtuse somewhat cordate at the base, ctenulitic, pubescent, but finally glabrous above, to Men lose or pubescent beneath, with, some thick stalked turhinata glands on the midrib near the base—fruit glabrous " W and A. Prod

1 Flowering branch—2 A flower side view—3 The same seen from above—4 Calyx and ovary cut vertically, ovary with two pendulous ovules, calyx clothed within with hair—5. Ovary cut transversely, 1-celled, with two collateral ovules—6 A full grown fruit—7 Cut transversely, both natural size.

19G *Pterolohium lacerans*. Brown "Shrub, scandent, pinn 4-8 pair, leaflets 4-8 pair, oval, obtuse, or emarginate petiole with usually 2-recurred prickles on the under side betw. each pair of pinn and one incurved one on the upper racemes lvs in the axils of the upper leaves, pedicels slender "W and A Prod

1 Flowering branch—4 A flower—3 A stamens—4 Anthers—5. Ovary, style, stigma and a petal—6 Ovary cut vertically, 1-cm Med. with one pendulous ovule—7 A full grown legume with its siliqua—8 The same cut vertically, the shrivelled ovule showing that the seed has aborted though the legume has continued to grow—all more or less as they are!

197 *Hibiscus surattensis*, Linn " Stem herbaceous, and as well as the petals and pedicels rough with small recurved prickles stipules half cordate, broad, foliaceous leaves palmately 3 5-lobed, on long petioles, pedicels elongated, shorter t'an the petioles leaves of the involucre linear, incurved, furnished on their back about the Middle with an oblong, foliaceous, spreading appendage " W and A. Prod

1 A flowering branch—2 Column of stamens and ovary, style and stigma, separated, to show that the column is formed by the union of the filaments into a tube—3 Anthers l-celled—4 A stigma—5 Ovary in *ntu*, the *< alyx* and involucre! opened and turned back—C-7 Ovary cut vertically and transversely—8 A full crown fruit surrounded by the calyx—9 The same detached—10 Two valves separated, showing the seed in *ntu*—11 A detained seed—12 The same the testa partly removed to show the position of the radicle and cotyledons—13 fimbryo-folioceous, cotyledons and radicle—all More or *leu magnified*

198 Ingadulcis, (Willd > Arboreous, extreme branches pendulous, armed with short straight stipuUry thorns leaves bigeminate, (pinna and leaflets each one pair) leaflets oblong, verj unequal sided, obtuse, with a gland between the pin no and between the pairs of leaflets, peiols shorter than the leaflets, flowers capitate, headg shortly peduncled, racemose, the Tacemes pamcled, legumes large, twisted seeds glabrous and smooth imbedded in a Arm pulp

1 Flowering branch—*natural* x2—2 A flower—3 The sampl split open, showing the pedicelled ovary—4 Ovary detached—5-6 Ovary cut transversely and longitudinally—7 A full grown legume much twisted—8 The seed pulp with the seed enclosed—9 The pulp open, cd to show the seed in *ntu*—10 A seed—11 Cut transversely—*v* The lobes separated, showing the radicle and plumule at the small end—13 The radicle detached—*aw* more or *lew magnified*.

199 *Rothia infoliata*, Pen.—1 A plant—*natural me*—2 A detached flower—3 The same, the petals removed showing the stamens monilevohous—4 Anthers—5 The ovary cut [longitudinal]—fl Petals detached and separately represented—6 A pod laid open, showing the seed—8 A detached seed—9 "Th" testis partially removed to show the position of the radicle—10 Cotyledons and radicle—*all more or less magnified*

200 *Crotalaria verrucosa*. Linn ^{4*} Herbaceous, erect, much branched young parts minutely pubescent, stalks and racemes acutely 8-4 angled stipule-tun ate, recurved, ltrveaven ovate, suddenly and shortly acuminate at the base, at length nearly quite glabrous on both sides racemes terminal, and leaf opposed, many-flowered bracteas small subulate, reflexed pedicel¹ rather shorter than the calyx, cor irteoles very minute, setaceous about the middle of the pedicel cn)X smaller than the corolla slightly pubescent, legume cylindrical, oblong, sessile, softly pubescent. many-seeded ¹ W and A Prod

1 Flowering branch—*natural nze*—2 A dissected flower—3 The ovary cut longitudinal!—*4 A nearly mature pod opened—5 A seed—6 The same cut transversely—all *more or leu magnified*

201 Modecca palmntn, " Leaves from cordate acuminate (on young plants) to palmately 3-5 lobed, glabrous with two flat glands at the base and one below, each sinus between the lobes stipuks hardening and horn-like male and female flowers both with 5 short abortive filaments placed within the gibbosities of the calyx tube, lipside globular " w and A Prod

ca) Flowering branch. (female)—2 A male flower—3-4 The stamens, filaments united below into a conical tube with an abortive ovary in the centre—5 Anther—6 Calyx (female; laid open, showing the hairy linear ciliated petals and abortive filaments—7 The same in *ntu*, calyx open to show the ovary—R An abortive filament—9 Ovary split open—10 A fruit after dehiscence—11 A seed enclosed in its arillus—12 Seed detached—13 Cut vertically, showing the embryo, enclosed in Its nblumen—14 The same cut vertically, showing the embryo in <1/M-11>. Embryo removed—15 more or *leu magnified*.

EXPLANATION OF PLATES.

302 *Phascolu Pulmnens*, R. W Root tuberous stems procumbent diffuse, and with the leaves and elongated peduncles hairy leaflets ovate, lanceolate, acute stipules small, lanceolate, attached by the base peduncles very long, ascending, curved, one-flowered flowers large legume cylindrical, somewhat clavate, tapering towards the point, hairy.

Hab — Putney mountains, creeping among long grass at an elevation of about 6000 feet

1 Plant, *natural size*—2 A dissected flower—3 Ovary divided lengthwise, showing the ovules—4 Legume, *natural size*—5 A portion opened to show the seed in *ntu-natural size*—6 A seed—7 The same cut transversely—8 The same cut vertically—9 Cotyledons and radicle, testa removed—with the exceptions mentioned, all more or less magnified

203 /*Mblab vulgarts* Legume broadly scimitar shaped, gibbous below the apex, and ending abruptly in a straight or recurved cuspidate point, seeds longitudinally oval

1 Flowering plant, *natural size*—2 A dissected flower—3 A legume, *natural size*—4 Portion of the same opened to show the seed—5 A seed, *natural size*—6 The same, the testa partially removed.

204 *Zanthoxylan tinphyllum*, Juss. Unarmed leaves opposite, palmately 3-foliate, leaflets oval, oblong, acuminate, somewhat unequal. Bided at the base, glabrous peduncles axillaiy, longer than the ptiols, corymbs large, spreading, flowers numerous, minute carpels 1 4, spreading. 1-seeded, seed globOBe, glossy black

1 Flowering branch, *natural size*—2 A male flower, petals removed to show the stamens and sterile ovary—3 Fertile flower, petals removed, one shown separately—4 Stamens—5 Ovary cut vertically—6 Transversely—7 A carpel burst, showing the enclosed seed, *natural size*—8 A seed removed—9 Seed cut transversely, embryo enclosed in albumen—10 Embryo detached—with the exceptions mentioned, all more or less magnified

205 *Monocera ferruginea*, R W Arboreal leaves coriaceous, oval, acute, at first villous, afterward* glabrous above, tomentose, rusty colored beneath, oval, acute at both ends racemes axillary, shorter than the leaves, many-flowered, flowers drooping, and with the rachis clothed with rusty tomentum sepals lanceolate petals involute on the margin, many-toothed, anthers glabrous, bristle straight, drupe oval

Aetlgherrtes — Mpsnrs Munro and Gough. The specimen figured was communicated by Mr Gouirh. A very distinct species nearly allied to *M. tuberculata*, but quite distinct.

1 Flowering branch, *natural size*—2 A flower—3 The same, the sepals forcibly opened and the petals removed to show the stamens—4 HUmcnf1—5 Ovary—6 Ovary cut vertically—7 Cut transversely—8 A portion of the upper surface of the leaf—9 The under surface

206 *Jonena Asoca*, Roxb. Arboreous leaflets 4-6 pairs, lanceolate, racemes terminal and axillary, cymose, stamens usually seven legume compressed, ovules, all except the terminal one often abortive.

1 Flowering branch, *natural size*—2 A flower split open, showing the long *pod* of the ovary—3 An anther—4 A legume, *natural «.*—5 *A seed!—6 The same cut transversely—off, except the anther, *shuhlyly magnified*

207 *MeWittia ruhigenosa* Young parts, petiols and racemes covered with rusty tomentum. leaflets 2-3, oblong, lanceolate, acuminate, when young covered with a shining yellowish adpressed tomentum, afterwards more glabrous, racemes elongated, drooping, nearly as long as the leaves, solitary, with shortish lateral peduncles bearing 3-5 flowers, calyx minutely toothed, vexillum silky on the outside with two large tomentose callosities on the inside at its base, ovary with 3 ovules. legume linear, lanceolate, pointed

The specimen here figured was found at Courtallum, I have since got fruit of apparently a different species from Goomsoor

1 Flowering br rich—2 Flower dissected—3 Anthers—4 An
ovary split open—all more or less magnified

208 *Croialando obtusifolia*, Graham Suffrutescent, erect, covered all
vfr with short dense tomentum branches terate stipules and
bract¹ setaceous, minute leaves oval, mucronate racemes termi-
nal, elongated, Hotter² numerous, approximat d bracteoles on
the midrib of the petioles, setaceous calyx deeply 5-cleft, densely
covered with rusty tomentum, segments all distinct, linear, acuminate,
falcate legumes sessile, oblong, rarely broader upwards,
about 4 times as long; as the calyx, densely tomentose, many-seeded

1 Flowering branch, *natural nze*—2 A dissected flower—3, 4. Anthers—5 Ovary split open—6 Ltgeme, *natural nze*—7 A seed, *natural stze* 8 Put vertically—9 Cotyledons removed from the testa—*aM with the exceptions mentioned, more or less magnified*

209 *Desmodium canatum*. Wall Shrubby old branches
glabrous young shoots obtusely triangular, clothed with whitish pubes-
cent leaves 3-foliate, leaflets oblong-lanceolate, nearly glabrous, ex-
cept the white pubescent parallel nerves beneath stipules
obovate, acuminate peduncles axillary, solitary, several times
shorter than the petioles flowerpits numerous, somewhat umbel-
late, sepals broad, about equal legumes compressed, slightly
pubescent, 4-6 jointed

1 Flowi ring branch, *natural size*—2 A flower—3 A cluster of fruit, *natural size*—4 A Itgume split open—5 A seed—6 The same cut lengthwise, showing the curbed embryo—7 The cotyledons.

210 *Bulea paniflora*, Roxb. Arboreous, twining, racemes, anic li-d pedicels 3 4 times shorter than the calyx flowers very numerous cal x, segments m arly as long as the tube, acuminate orolla glabrous, about twice the length of the calyx vexillum vate, cm ar yinote at the apex

1 A flowering branch, *natural ttse*—2 A dissected flower—*magni-*
ed

211 *Quercu* spmuerrata*, Roxh Leaves petioled, lanceolar firm
nd lucid, ant* nor margins serrate, veins simple and parallel *Fe-
male flowers* in axillary nura Nuts oval, acuminate, smooth, of a
besnut colour, bane only embraced by the saucer-shaped, thick,
eltd, villous cup Roxb

1 Flowering branch, *natural size*—2 Female flower with its myocrum—3 A full grown acorn—4 The same cut vertically showing

212 *Quercus Unastefoha*, Roxb. Lcr M short petioled, lanceolar. entire, obtusely acuminate, firm and ucid *Spikes* paniced, terminal. *Nuts* oval cup in some completely covering the nut, in others variously split and covering more or less of its lower part only. Roxb

1 Male plant, flowering branch—2 Female fruit, bearing branch—
3 The nut cut vertically, showing the plicate cotyledons, and the
manner the integument of the seed enters between the folds—4 Two
seed. " so closely united as to ~~form~~ a simple seed with a double
corculum at the apex "

213 *Quercus squamata*. Roxb Leaves broad, lanceolar, entire, somewhat acuminate, coriaceous and glossy. *Spiket* axillary and terminal, often compound, the terminal ones paniced, cups growing together massy, rough and scaly, embracing slightly, the base of the hemispherical, hard, glossy, nut Roxb

1 *Male* flowering branch—2 A male flower opened seen from above—3 *female-A* fruit bearing branch—4 An acorn out vertically.

214 *Euanymus crenulatus*. Wall. Leaves elliptical-obtuse, short petioled, crenulato-serrated towards the apex, coriaceous, convex and bullate above, peduncles solitary, shorter than the leaves, once or twice dichotomous, few flowered, petals 5 (or occasionally 6) orbicular, stamens very short, anthers opening transversely, margin of the torus free style very short, stigma blunt, somewhat umbilicated capsule turbiniate, 5 telled, lobed at the apex seed solitary in each cell, bases of seeds without an aril - brown purple.

Obi —The specimens figured are not those described, hence some discrepancy between the figure and description, but not enough I think to constitute them distinct species, unless the fruit prove

Hab *Shevagherry* *hxllt.*

1 Flowering branch, *natural size*—2 An expanded flower seen from above—3 The same the petals removed—4 d.4 stamen—5 Ovary cut transversely—6 Cut vertically, *all magnified*

215 *Eucomis Goughn.* (R. W.) Shrubby, glabrous, ramul compressed, leaves somewhat triple-nerved, shortly petioled, quite entire, oblong-ovate, acute at both ends, acuminate peduncles acicillary, short 1-3 flowered, calyx acutellate, 5-lobed petals^(*) orbicular, fimbriated on the margin, stamens 5, inserted on the disk, connective^m of the anthers broad, cells placed transversely, dehiscent lengthwise; ovary immersed in the disk, 5-celled, with 2 ovules

in each Hab -Meilghernet—Q Cough. Esq.

1 TUwering branch, *natural size*—2 Expanded flower—3 The same, petals removed—4 A stamen—6. Ovary cut vertically—6. Cut transversely

216 *tambosa arnica*, (D C) Leaves almost sessile, oblong, lanceolate narrower, and somewhat cordate at the base peduncles terminal, or from the upper axils 3-7 flowered, (flowers white) fruit turbinate, flattened at both ends

1 Flowering branch, *natural size*—2 A dissected flower.

217 *Rotala fimbriata*, (R W) Petals fimbriately divided on the
margin

Hab —*Mysore in paddyfields or on the borders of tanks.*

Obs—The genus *Ammantha* *Atesra* and *Rotala* appear to be very imperfectly separated by their present characters. I propose amending them thus:—All the apticia of *Ammantha* with an uneven number (3-5) of parts of the flower and a 3-celled ovary *Am pentandra* to be referred to *Rotala*—All those having an even number (4) with the petals and stamens equal, and the ovary 2-celled, to *Ammantha*—All those with the petals and stamens unequal, and a 4-celled ovary (*Am rotundifolia* to *Mirkpooa*, and lastly, those having twice as many stamens as petals and a 4-celled ovary, *rAm Octandra*.) to *Nesosa*—*Mirkpooa* is one of our sub-genus of *Ammantha*, which I propose to elevate to the rank of a genus

Petals and stamens 3-5, ovary 3-celled, flowers axillary, ~~subtend~~
 ————— 4, OVBM 2-celled, flowers axillary *Ammannia*.
 ————— 4, ovary 4-celWd, flowers spiked *Mirkooa*.
 Stamens twice as many as the petals, ovary 4-celled, peduncles
 axillary. 1 3 flowered *Nesaa*.

218 *Quercus frux* Roxb Leaves ovate-lanceolate, and oblong-acute, entire, frlo9\ Malt spikes pointed. Hearers with a six-cleft caljx. and twelve stamina Cup an entire evalvular capsule, armed with many compound thorns, hiding completely the sub-ovate acorn

1 Male flower-2 Male flower-3 Female spike-4.
Capsule opened, showing the enclosed nut

219 *Quercus fenestrata* Roxb. leaves petioled, lanceolar, entire, finely acuminate firm and polished ^{Aw²¹¹} - terminal. ^{Aw²¹¹} flowers Urn male dodetandrous Nut hemispherical, all but the obtuse apex hid in the oblatcly spherical, muncated cup ^{Roxb.}

1 Female flowering branch-2 Ovary exposed by the removal of part of the calyx-3 Ovary cut vertically, two pendulous ovules in each cell-4 Cut transverse-5 A full grown acorn, the nut enclosed in the cup-6 The same cut vertically-7 The nut removed from the cup-8 Cut vertically, showing the superior embryo

220 *Qwrcus lappacea*, Roxb leaves lanceolar. entire, much acuminated, downy underneath & nles axillary, solitary Nut ovate, villous, slightly embraced by the inoffensive, echfuate, saucer-shaped cup ^{Roxb}

1 Male flowering branch-2 Male flower-3 Ovary-4. Female
branch-5 Acorn cut vertically

221 *Quercus turbinata*, Roxb. Leaves lanceolar, entire, obtusely acuminate, hard, glossy. Spikes terminal, generally paired, the lower part occupied by clusters of female flowers, and the upper part crowded with male ones. Huts turbinate. smooth, cup mugose.

1 Flowering branch—female flowers below, male above—2 Male flower—3 Female hermaphrodite divided vertically—4 Ovary cut transversely—5 Acorn

No. XII.

EXPLANATION OF PLATES.

222 *Blatrne* (Bereaia) *tritvosa*, W and A. Glabrous stems much bianchad 1 avta opposite, obovate, or oblong attenuated towards the base, those on the flower-hearing branches almost hrear, flowera pedicellate axillary, opposite, buhtary sepals and petals 5 stamens 10 styles short

1 A flowering branch—*natural nwe*—2 A dmected flower, showing the hjoog\ nous insertion of the stamens, the 5 clavate styles and a detached petal—3 Stamens—4 The ovar entire—5 Ovar\ cut vertical\, showing the centnl placenta—6 Cut transversely, 5-celled—7 A portion of the stark, showing that the floweis are occasionally paired—8 A capsule cut transverse!—*all more or lets magnified*

223 *Ochna Wxghhana* Wall Leaves ovate bluntish, rounded at the baso conspicuously lehtt d slightly si rruclated pedicels * liliti\, or in pain from the apex of a ven sh irt leafless shoot sepals oval, obtuse pitalb (deciduous) and ovaries 5, «ti»ma 5 cleft

1 Flowering branch—*natural me*—2 A flower partially dissected—3 Stamen8 4 Ovarj, stile mnd stigmas—5 The fruit nearly full grown—6 A carpel—7 The same, showing the immature seed—*aff more or less magnified*

224 *Agnmoma Zupatanum* Lin {A *ceylamca*. Moon) Stem, leaven pinnate It affets i lliptic—oblong t« rminal one stalked, calyx encompassed with bristles spikes e lou^atrd

1 Plant—*natural me*—2 An expanded flower—3 The trifle! brnr-teas—4 A flower split open to show the position of the ovary and insertions of the stamens—5 AntherB—6 An ovary cut vertical!, seed pendulous—7 Cut transversely—8 Portions of a leaf magnified to show the hairs

Dr Arnott has derided by comparing specimens, that thin phnt n identical with the European om but judging from characters only I think there is leason to doubt that

225 *Rubus rugostu*, Lin Shrubby, armed with scattered straight or ri curved pn< Tiles, branches, calyx and under side of the leaves villous, with awn\ tomenturr leaves simple, cordate 3-5 lobed, re ticlulated and pitted underneath, scabrous a d pustulated above, stipules and bractees villous racemes few flowered, axillary and terminal segments of the calyx oblong, lanceolate, equal to the corolla

1 Flowering branch—*natural me*—2 A dissected flower, showing the ovaries detached from the si pals petals and ntmeus—3 A petal—4 An ovar\ and style—5 The same cut vertically, ovule pendulous—6 Qvary cut transverse!—7 Stamens—8 Portions of a leaf magnified to show the hairiness and reticulations

226 *Enoboluyajapontca* Lin Leaves lanceolate somewhat cuneate •(thebifl\ slighl\ wrinkled, serrated, woolly on the unde! side, lobes of the cal\ x rounded

1 Flow enng branch—*natural use*—1 \ lower dissected showing the pe\k and stamens, the lobes of the calyx removed—3 The ovai\—the sepals part!} removed to bunj it into view

227 *Combrrtum fFigtthanum* Climbing glabrous leaves opposite, elliptic—o ovate usually with a short sudden acuminatun, coriaceous shining ihove spikes axillary, on longish peduncles, elongated lax rachis ami ealvx pubeso nt, bractioles obsolete, or resembling minute tuercles tube of the cal\ x two or three times longer than the ovar\, limb cleft to near the middle with a hairy rin k below the insertions of the stumens, segments triangular, oiate, acute, recurved petals elliptic, oblong, eraarginate

1 Flowering branch—*natural nxe*—2 An expanded flower—3 The same split open showing the insertions of the petals and stamens, the style and atigma—4 Stamen* 3 An ovary cut vertically, two ovuled—G Cut tra\sverael\—7 Fruit—*natural nwe*—8 Cut transversely—*natural size*—9 Cut vi rticall\, sreed pendulous flora a slender podosperm—10 Seed removed—U A seed, the testa removed, showing the cntvlellis unfolded and superior radicle—*unih the exceptions mentioned, ail num. or less magnified*

228 *Plmtmia Lindleyana*, V\ and A Leaves elliptical or oblong, lanceulat acute serrulate, or sometimes almost quite entire panicles small compound, ramifications glabrous pedicels equal to the calyx ee ll* of the ovir\ spurious!} bilocular Fruit glabrous, often one-seeded from abortion

1 Flowering branch—*natural size*—2 A dissected flower—3 The same\ cut vertically show iit4 the insertion of the stamens, the two stj ler, and the 2-relled half adhering ovary, with ascending ovules—4 Stamens—5 Ovary rut tramuerse\ 2-celled, with two ovu^a in each—6 A fruit full/iown-na/um/lire—7 The aaine, *magnified*—8 Cut transversely, 2-celled, until one seed in each—9 A seed—10 Cut transversely—11 C it vertical\ allowing the cotyledons about half grown—12 Cotyledons and radicle removed

229 *Alchemella vulgans*, Lin {Al *eyktnra*. Moon) Leares renelnnn, pluiteellj coneave. 9-lobed, serratid Flowers dichotomously corymbos—varies much in size and pubescence

I have now specimens of this plant from Ceylon, Neilgnerms, and the Pulney mountains.

1. Plant—*natural ttxe*—2 A portion of the rechis with abraetee, and a solitary axillary flower—not however, the usual arrangement—3. An expanded flower showing the insertion of stamens on the throat of the cal\ x tube—4 The flower split open, showing the ovai\ with its lateral style—5 Stamens—6 The ovary cut vertical\, ovule ascending from the has* of the atjle—7 8 Petitions of leavea magnified to show the hairs—*all more or lea ina ntified*

230 *Rubxu gowreephul* Roxb Stems somewhat terete, and like the petioles and peduncles armed with recurved prickles and densely hispid, with brown hoizontal hairs, leaves pinnate l\ 3 foliolate, liuflets from elliptical IO nearly orbicu^ar toothed seiraftd upper Bide glabrous, under white ami .omentose, with recurved prickles on the midrib and some of the nerves Blipulcre subulate, panicle's s all, axillary and terminal, cor\moose, se,ments oblong, white and shortly tomentose on both siuo, petals cuneate, obovate, longer than (he cal\ x

1 Flowering branch—*natural nze*—2 A flower cut vertical!—? A umilar section of » fruit near\ ripe—4 Stamen*—5 A detached ovar)—b Cut vertical!—7 A detached uchenum—8 The same cut vertically showing the seed and position of the embryo—9 Cut trausvetdely—10 The embi)o removed.

231 *Rubus Wallxch* ami* W. and A Stems somewhat teiele. and the petioles and peduncle* ttnd pedicels armed with recurved prickles and densely hispid with brown horizontal hairs leaves pinnately trifoliate, leaflets nearly orbicular, toothed serrated, gree n on both sides, glabrous above, «ji htlv villous beneath, midrib and some of the larger nerves pwckl\ bcnjutli stipuleet subulate pain, ties lar^e, compound somewhat coijmbose, axillar\ and terminal ae^mcita m tler eal\ oblong lunceolate, tomentose, hispid at llio busc petuU oblong, the length of the cal\ x

1 Flowering branch—*natural nze*—8 A dissected flower

232 *Rubus lanoirpus* Sm Stems terete, lonqr, rooting at the extremities* glabrous, glaucous, armed with cuived prukclH branches and petioles tomentose and prickly leaves pinnated leaflets! 7, somewhat plicate from ovate or obovate and acuminate to lanceolate, terminal ont roundish and often 3 lobed, glabrous above, white\ and tomentose beneath irregularly toothed and serrated stipules subulate panicles iacemose, chiefly terminal segments of the calyx •hlong, attenuated at the apex, tomentose petals roundish, shorter than the caly\ carpels tomentose

1 Draneh in fruit—*natural nze*

233 *Potentilla Momuana*, R W Stems creeping and with the under surface of the leaves clothed with silk\ pubescence, leases inter-rupted\ pinnate. Inz'er leaflets, from oval to obovate, obtuse, acute!} Berrated, smaller ones sub-orbieulal near\ glabrous above floweis racemose bractees entire or dentate acceMory sepals larger, denute petals obovate, yellow

Neirera Elba Ceylon on the banks of a stream creeping among grass

1 he ptUa were lo t beioie the drawing WHS made, but not conceiving them necessary for the identification of the species I huvc figured it notwithstanding this de-feet Thelftant figured is nearly two feet lonrf

1 Plant—*natural nze*—2 A flower expanded but without perils—1 Stamens—4 A luit cut vertical!—5 The entire fnn—6 A detached e urpe l—7 The sunic cut vertically, with its c nclosed s<M—8 9 Portions of leavra intended to represei t the upper and under surfaces but badly executed the one with too much the other with too little pubescence—*allmorrurkss magnified*

214 *Row involucrala* Roib Subscindent, armed with *trnnh stl-pulmr\ straight prickled, flowers in subsessile fascicles, bractees in f nn of a 4 or b leaved infei tor cal\ \

Mi specimen differs from Roxburgh's disruption in havin? thn lpAffets glabrous beneath, except the midrib which is somewhat h^ir\

I am indebted to Lieut Munro for my specimen which he found wild in Misore

1 Flowering branch—*natural nze*—2 A cluster of flow er-hiuls—> A doti lud hi lctea—4 Mmiens—& A carpel wilhstjle and «ti^mu—6 Tlie DQDII cut vertical\, showing the pendulous ovule

231 *Semccarjnu Grnhamu* R W Leaves runeito-lanreolate, acute ~~pubescent~~ glabroua above pubescert beneath petiol short furnished with 4 siluillite bodies (as in *Holigarna longijolla*) pnnicles rnone, rnrnrptctrd, congested towarus the summ ls of the li^inche* rnlv timicaud rul> hoped, adnate with the lower hull of the Vicing fruit stj\4H3, hlv r il, near the apex Tcttced *i < isciipitate ovar\ ami voimj luit cov^ red with rust\ colored liufis, uvulo Solitoi), pendulous from the hose of the stj kft

I dedicate this specu s to the mem or \ of the late John Gmhsrn, r^q of Hombaj liuin whom I rtceerd iho specuien. See Illustrations of Indian liotunj, vui I page 180

A brunch covered with young fruit—2 A }oung fmlt—3 The same rut vertically, showing the uosition of the ovarj—*loth masnt-J ad A veti-natural tuv*

A Calyx 4 or 6 cleft with accessory teeth petals 4 or 6 stamen*
8 or 18 ovary 3 or 4-ceUed, capsule enclosed w/Uua the talj x dehisc-

No. ~~XIII~~—EXPLANATION OF PLATES.

342 *Dalbergia tanuinrulefu* (Tmx) Leaflet* from 12 to 16 pairs, hniar, oblong lacum* latt ml. short ovalo, deilM nlain nt< nine in one body anthers 2-lobed legumes swelled, scabrous, where the single wed is lodged / climbing shrub—climbs up and over large ir<*

1 Flowering branch, as copied from Roxburgh's drawing—2 A dissected flower—3 A legume

243 *Dalbergia ilipulata*, (Roxb) Mss D stipulacea, Fl Ind 3p 233 Shrubby lea (dota from 8 to 12 pairs, alternate, linear, oblong stipules and bracteas oblong, falcate pinnicid axillary and terminal, filaments 10 in two equal bodies / flowers small, blue

1 Flowering branch, as copied from Roxburgh's drawing—2 A dissected flower—3 The bractea and bracteoles

244 *Dalbergia robusta*. (Roxb) This species is omitted in the Fl. Ind —D C gives the following, diamet< r from specimens communicated by Dr Walli h i Kalitille from the fiipire ** Leaflets 7-9, oral, or obovate, obtusi, sub-mucronulate, minutely pubescent racemes spiciform, longer than the leaves, pedicels aggregated" —Flowers small, numerous, stamens monadelphous, with a dorsal fissure fruit unknown

1 Flowering branch, as copied from Roxburgh's drawing—2 A dissected flower—3 A legume

241 &>:Wi m'-uita, (Roxb) Ormosia? sp It W There is no account of this plant in Roxburgh's Flora Indica, it appears however to be rupe n n of Onnosia, the other species or wuh genus are from South America Whether or not this is an Indian plant I am unable to say

1 Flowering branch, as copied from Roxburgh's figure—2 A dissected flower—3 A legume —4 A st< d rut transversely—5 Cut vertically, to show the form and position of the nidicle

240 *Pterocarpus dalaterrfontes* (Roxb) Leaves pinnate, leaflets about 9, alternate, ovate, l'incidute, smooth p-imi le (l' rminal) stamens 10 in two equal portions *Andaman red munt—a very large tree—15 feet in circumference Flowers pure ydhw deghtfully fragrant* —Roxb

1 Flowering branch—2 A dissected flower—3 A legume—4 The same opened to show the two seeds

347 *Erythrina ovalifolia*, (Roxb) Arboreous, armed leaves ternate, oval, petioles aramid icemes terminal, bourontnl banner ot* ordate Two umbilic ate glands on the piliats at the insertion of the leaflets flowers dark red —Roxb

1 Flowering branch, as copied from Roxburgh's drawing—2 A dissected flower—3 A legume partly open to show the seeds

248 *Cyamopsis psoralifolia*, (D C) Dolichux faba-formis (Linn). 1 The upper portion of a unit bearing both flower and fruit—2 Column of stamens noivikplous—1 The petals detnred—4 Stamens, anthers pointed—5 Ovary split open, maov-seeded—8 Portion of a legume opened to show the seed in situ—1 The same cut transversely—8 A seed cut transversely—9 Cut Vertically, showing the cotyledons and incurved radicle—10 Cotyledons removed from the seed

249 *Phaseolus ptorafotde*; (W & A) Erect or twining, young ahoov and rigid peduncles beset ith short rigid adpiesacd ham leaves trifoliate, membranous, glabrous above, hprnkled with silky hairs beneath, leaflets ovate or U ci olate, Brute stipules sessile, erect, acute racemes 5-8 times longer than the leaves filiferous, part elongated, peduncle reri lon i stout terete pedicels in pairs bracteisH and bracteoles subulnti. »etac<ous longer than the calyx, caducous calyx 5-toothed keel tircintite legumes pendulous, nearly straight, slightly campnsftid, long linear, many-seeded, pubescent Seeds e compressed, ali< litle truncated at both ends—Stem twining when growing in good soil and supported by bushes—flowers deep brownish purple

1 Top of a flowering plant, natural n*e -2 A dissected flower—3 An anther—4 Top of the style and stigma—5 The ovary cut lengthwise—6 A mature pod after dehiscence, natural rise—7 A s< ed

250 *Alyncarpus pubescent* (Law Mini -Herbaceous, erect, stem terete, hairy, leaves short prtioled. In ear lane* olate, acute, 3-nerved, glabrous above, pubescent beneath, racemiS terminal, spicate, flowers subacscle, calyx 4-parled to the base, segini nsi lanceolate, acute, clothed with long silky hairs the upper one slightly bifid at the apex, legume terete, much toutrol ted between the seeds, reticulated and corrugated on the aides, glabrous -Bilgatiu common—Law. This species is ulled to A longifolius, but quite distinct

1 A flowering plant, natural nte -2 A dissected flower, calyx forcibly opened and the petals removed to show the ovary and stamens—3 Stamens—4 Anthers before fin expansion of the flower, back and front views much magnified -5 The petals detached—6 Ovary cut longitudinally—7 A young in situ—8 A seed—9-10-11 The same dissected AU more or less magnified

251 *Alysicarpus lon'folius*, (W & A) Herbaceous, erect, branched, stems terete, glabr ms leaves short pctioled, linear lanceolate, somewhat obtuse, slightly cordate at the base glabrous above, a little pubescent IN m ath stipules large, longer than the petioU, racemes pike-likk* vary long, p< diet is short, approximated calyx 4-cleft, to near the base, segment* erect, overlapping at the edges, oblong. Striated, hairy, ciliated, upper one shortly bind legume slightly contracted between the seeds, reticulated, pubescent 5-6 seeded, about twice the length of the tabx

Not unfrequent in black cotton soils in the Ceded Districts and Circais

1 Flowering branch—2 A dissected flower, calyx split open to show the ovary and stamens—3 Petals—4 Stamens detached—5 Anthers—6 Ovary opened—7 Legume, natural size—% The same split open—9 A seed—10 The same cut transversely—11 Cut vertically, showing the curved radicle—12 Cotyledons and radicle, testa removed, all more or less magnified

232 *Caina bacillus*, (Roxb) Leaflets from 10 to 12 pairs, oblong or oval, obtuse stipules crescent-shaped, adnate racemes terminal, On short lateral branches the three lower filament* with an oval swelling near the middle—(Roxb) Rumph Amb 2 t 22-Arboreous calyx 5 of dull redish ovate leaflets, petals of a lovely pink or rose colour, seed albuminous win n in flower the most beautiful of Cassius Roxb

OB9—I have found it gufte Impossible to reduce this and a few others without ruining the figure They therefore mint stand for two plates each

1 A flowering branch—2 A portion of an ovary split lengthwise—3 A legume—4 A portion cut lengthwise, to show the partitioni-5. A portion with ased in situ.

253 *Cassia alata*, (Linn) Shrubby, branches spreading, firem. lar> angled, glabrous leaflets 8-14 pairs, ubovate, oblonir, very obtuse, mucronate, glabrous, or very nearly so on both sides, the lower pair clost to the branch, and at a distance from the next pair petiol triangular and the rachis without glands stipules lanceolate, pointed, rigid, persistent racemes terminal legumca long, enlarged on each oik with abroad ere nutated wing flowers yellow

1 A leaf and raceme, natural size—2 A flower, the petals removed—3 The petals—4 One of the larger anthers—5-6 The anthers—7 The ovary—8 A transverse section of the legume with a seed in situ—% A portion of a legume cut lengthwise

AcROCARRus, R W

GEN CFiar —Calyx subconaceous, ebracteolate, campanulate, 5-cleft, segments erect, the superior and inferior a little larger Toius covering the tube Petals oblong, subconaceous, about equal, sessile long persistent, inserted on the mouth of the calyx and a little longer than its lobes nsivation subimbricate, stamens alternate with the petals, filaments broad at the base subulate, two or three times longer than the petals straight, anthers n< illatory, ovary long, stipitate, (stipe free) oblong linear, full ate pointed with the ahoit incurved acute style, many (about 15) ovuled, legume unknown

A large tree leaves unequally pinnate, leaflets 3.4 pair, pale beneath, flowers scarlet—Courtallum

See Illustrations of Indian Botany, p 198

254 *A fraxmtfolius* Arn

1 Flowering branch, natural site—2 A flower, about the natural size—3. The same split open to show the insertion of the petals and stamens—4 A petal—5 Anthers—6 Ovary cut lengthwise—7 The same cut transversely, obtusely 4-aijled—8 A young legume—9 A leaf

SPHCBROCARYA, Wall

GEN CHAR —Calyx 5-parted petals 5 minute, alternating with 5 stamens *i minute flmbriated siales betwi n the htaarens and sepals, ovary without a disk, style undivided, drupe inferior but smooth, globose, without a suture —Wall

A showy tree with cinereous coloured bark, alternate, exstipulate leaves, small inconspicuous greenish flowers, and pear-shaped drupaceous fruit

255 *S edults*, Wall

1 Flowering branch, natural site—2 A flower seen from above—3 The same from behind—4 Disy<cted—5 A detached sepal with its flmbriated scale—6 An anther—7 The ovary—8 The same cut vertically, showing the ovule supported on a spiral podosperm—9 A full grown fruit—10-11 Sections of the same showing the nut in ntu—12. A nut—13 The same cut vertically, showing the minute embryo in the apex of the seed

I have copied this figure from Wallich's Tentamen Flor Nepa- lensis as a suitable companion to Scieopy rumWalhahianum, tab 241.

POLYODONTIA, Dume

GKN CHAR, —Calyx inferior, campanulate, 6-toothed, deciduous petals 6, minute, inserted on the margin of the calyx. stamens numerous, 12-18, about equal, inuerte'l with the petals ovary free 1-Cleft, with 2 pendulous ovules style one, stigma pe<late drupe remfomt, dry, 1-seeded embryo exalbuminous, inverse

256 *P. f. Oylantra*, (R. W.) Leaves, from the l'iptie, very obtuvt at both ends to sub-orbicular, glabrous, when dry of a rusty brown colour beneath, racemes axillary, stlitary, 'alnais T) about the length of the leaves, covered with short uppre<ed hun, flowers small. petals 5, reffixed, externally ven hairy round the margin

CeyUm in forests at*, e Rumbody

1 Flowering branch, natural size—2 A flower-i The same dissected to show the position of the ovary -4 A petal Men from within—5 The same from without—6 Stamens—7 Stigma—8 Ovar cut vertically, showing the pendulous ovulum—9 Cut transversely—10 A young fruit—11 The same cut transversely. seed solitary, all more or less magnified

257 *Jmelesia indtea*, (D C) Procumbent leaves obovate, opposite spikes axillary flowera scwile, solitary in the axils of the obovate bractec, bracteolea subulate membrauaceou*, shorter than the tube of the calyx stamens about equalling the calyx

1 A flowering plant, natural site-1 A flower-3 The same cut open to show the ovary in ntu -4 Stamens—5 A uortion of the vachis showing the relative position of the flowers and brnctcas-8. The ovary cut vertically—7 Cut transversely—8 A ripe capsule after dehiscence—9 A seed—10 The same cut transversely—11 The embryo—12 A detached leaf of the most usual form, all more or less magnified

257 B *AmeUa tewus*, (R W) Stems somewhat procumbent at the base, afterwards erect, most slender leaves opposite, orbicular, spikes terminal, flowers solitary, longish ped ice lied from the axil of a linear bractea, bracteoles large, stamens included, stylo project- ing, capsule ovate, 2-valved.

1 Flowering plant, natural size- 2 A flower—3 Cut open to show the ovary, stamens and petals—4 Stamens—5 Stigma—6 Rachu and flowers in ntu—1 A capsule dehiscing-8 The same split in two, showing the central placenta.

258 *Ameleha rotundifolia*, (R W) Stems diffuse, procumbent; branches erect leaves orbicular, opposite, sesmle spikt a congested near the extremities of the blanches flwurs solitary, in the axils of the sessile suborbicular or broad ovate cordate, pointed bracteas, bracteoles very minute stamens much longer than the calyx capsule 4-valved

1 A plant, natural sine—2 A flower with its bractea and bractioles—3 The same dissected—4 Stamens—5-6 Ovary cut vertically and transversely—7 A capsule—8 The same dehiscing—9 A seed, all more or less magnified

259 *Nesra inflora*, Kunth

1 Plant, natural nze—2 A cyme—3 A flower after the fall of the petals—4 A flower split open, showing the insertion of the petals and stamens and the free ovary—5 Stamens—6-7 The ovary cut vertically aiyl transversely. 3-valved, 3-celled

Ons —The analysis are taken from one of the lateral flowers, the centre ones being too far advanced—the centre one has a 4-lobed calyx and 4-valved capsule

260 *Rotala verticeUam*, (Linn) Calyr 3-Mobed, petals and stamens 3*> leaves linear lanceolate, veitu elled

1 Plant, natural size—i A flower-J Tliv same split open, stamens, petals, and lobes of the calyx 1, style short—4 Stamens-5-6 Ovary cut vertically and transversely. 3-celled—7-H Capsule dehia- ung. and the valves opened, 3-valved—9 A seed

260 R *Botala Roxburghiana*, (R W) Ammannia pentandra, (Roxb) Calyx 5-lobed petals and stamens 5 leaves opposite

1 Plant, natural me—2 A flower with its bracteas—3 The same split open-4. A capsule dehiscing, 3-valved. AU more or less magnified.

No. XIV.

EXPLANATION OF PLATES.

261. *Dalbergia rtiformit*, (Boib.) tender parts ferruginous: leaflets from 5 to 11, alternate, lanceolate: panicles axillary and lateral: stamens in two 5-cleft bodies: legumes reniform; with thick rounded margins—Koxb.

A large crooked bushy tree, leaflets 2 inches long 1 broad, legume of one or two, one-seeded, joints.

1. Flowering branch—2. A dissected flower—Copied from Roxburgh's drawing.

262. *Dalbergia nmosa*, (Roxb.) shrubby: leaflets about 7, sub-alternate, oblong, finely parallel veined; flowers minute, panicled; filaments 10 in one body. legumes one rarely 2-seeded, rimose at theseeds—Koxb.

1. Flowering branch—2. Legumes—3. A seed.

263. *BauAttua semibifida*, (Roxb.) scandent: leaves obovate, deeply J-lobed stipules broad, falcate racemes terminal, calyx 5-leaved petals oblong, unguiculate. stamens J with 2 rudiments, legume flat, smooth, few-seeded—Roxb.

Flowers white changing to pale yellow, fragrant—Legume thin, smooth, of a dark chestnut colour.

1. Flowering branch—2. Pedicel, tube of the calyx and ovary—* stigma very large-d. A legume.

264. *Bauhtnia scandens*, (Roxb.) scandent: tendrils opposite: leaves round cordate, apex 2-lobed. racemes terminal, simple or ramous. flowers triandrous. legumes hnear, from 4 to 5 seeded—Uoxb.

Petals densely clothed with soft ferruginous greydown, filaments 3. Seeds about the size of a chestnut, surrounded with soft spongy greyish yellow substance.

1. Flowering branch—2. Legume open showing the seed,

DALHOUSIEA, Wall. Benth.

OIN. CHAR.—Calyx short, broadly campanulas, orifice entire, circumscissile the base—ventrum broadly obcordate with a short claw, a little longer than the wings. Wings subfalcate, oblong. Keel incurved, obtuse about the length of the wings. Stamens free, filaments glabrous. Ovary subsessile with several ovules. Style incurved, glabrous, slightly dilated at the base. Stigma minute, legume compressed, few-seeded—Benth. Comment, p. 5.

Leaves simple, oval peduncles axillary, once or twice in the ultimate divisions 1-flowered, with a pair of large opposite roundish many-nerved bractes hiding the calyx, and a turn of the pair at the joints of the peduncles, flowers lame, white, the bowl-shaped, mouth unequally 5-toothed. duoduou—Koxu.

265. *Dalhoustea bracteata*, (Wall.) Podalyria bracteata, (Roxb.)

1. Flowering branch—2. A dissected flower—3. Ovary cut open—4. A stamen—5. Legume—6-7. Dissected seed.

266. *Dalbergia frondosa*, (Uoxb.) bark smooth: leaflets about 5 pair, alternate, oval, emarginate stipules falcate. panicles axillary; stamens in two equal bodies. legume from two to three seeded.

Flowers pale blue—legumes 1-4 seeded.

1. Flowering branch—i. A dissected flower—3. Ovary cut lengthwise—4-5. Legume—6. A seed lobe showing the embryo—7. Embryo removed.

267. *Flemingia strobilifera*, (Brown) *Hodysarum strobiliferum*, (Koxb.) filiform leaves simple, ovate racemes terminal, imbricated imbricately with remiform folded inflated bractes enclosing the fascicle of flowers—Roxb.

1. Flowering branch—4. A bractea opened, showing its fasciculus of flowers—J-4 Pods—5. A seed—the magnified views NoS. 6, 7, 8, 9 and 10, are additions to Roxburgh's drawing.

268. *Flemingia bracteata*, (Hedysarum bracteatum, Roxb.) shrubby, erect, leaves narrow, cordate, racemes terminal, imbricated imbricated with alternate remiform inflated downy bractes, legume of one oval joint 2-seeded—Hoxu.

1. Flowering branch, copied from Roxburgh's drawing—2. A bractea, with its enclosed fascicle of flowers.

269. *Cassia rhombifolia*, (Roxb.) leaflets about 5 pair, rhombiform, polished, racemes pendulous loment cylindrical, partitions lined with suit bitter pulp—Roxb.

Flowers bright yellow nedi albuminous, differs from *C. fistula* in the shape of the leaves, more slender loment and general habit of the trees—Roxu.

1. Flowering branch—2. Portion of an ovary cut lengthwise—3. Legume—4. A seed—5-11. The same dissected.

* A w * W < T, DC. Kd. > n. R < b, hnbly oblique leaf simple, round, remiform cordate, somewhat repand; attitues semicordate, cuspidate, racemous axillary, clothed with hooked bristles, legumes from 2 to 4 jointed, notched on the under margin—Koxb.

1. Flowering branch—2. Legume—3. Seed.

271. *Desmodium gangeticum*, DC. (Hedysarum lloth.) shrubby, oblique leaves ovate, acute, scabrous above, and villous underneath racemes terminal, very long and slender, flowers paired, earia and winged, the legumes from 5 to 6 jointed, straight on the upper margin—Koxb.

flowers either purple or white, the mottled leaves are characteristic.

1. Flowering branch—2. A legume—3. A seed.

272. *Desmodium collinum*, (Hedysarum collinum, Roxb.) shrubby, oblique: leaves ovate, cordate, downy underneath: raceme axillary, very long, legume notched on the under side—Roxb.

This plant does not appear specifically distinct from 270—nor do they seem so in the figures, which are true copies of Roxburgh's drawing.

273. *Crotalaria bracteata*, (Roxb.) shrubby, erect, with many spreading branches, slightly sericeous: leaves ternate, leaflets broad, lanceolate, acute, smooth stipules minute: racemes axillary or leaf opposed: a pair of large ovate bractes over the calyx; legume sessile, woolly, many-seeded—Roxb.

1. Flowering branch—2. A legume—3. The same opened.

BALANITIS, Delil. D.C.

GEN. CHAR.—Calyx 5-parted, petals 5, stamens 10, filaments awl-shaped. Disk glandular, girding the ovary. Ovary 5-celled, 0-seeded. Drupe ovate, acute, or suborbicular, 1-celled, 1-seeded, by abortion, nut woody, pentagonal. Seed pendulous with a fibrous covering and a thickened endopleura about the radicle, cotyledons semiovate, plumula, 2-leaved.

Trees with alternate bifoliate leaves and axillary spines, pedicels 1-flowered, aggregated, flowers small, whitish.

374. *B. jBgyphaea*, Delil. (Ximenia Lin. Roxb.)

1. A flowering branch and portion of another, bearing a full grown fruit—2. An expanded flower—3-4. Ovaries cut vertically, showing the pendulous ovules—5. Cut transversely, 5-celled—6. A full grown fruit, the rind removed showing the pulp—7. The drupe cut transversely—8. Cut vertically—9. A seed cut vertically, showing the superior embryo.

BRACHYPTRUM, W. & A. Benth.

GEN. CHAR.—Calyx obliquely truncated. Anthers ovate, legume membranaceous, samaroid, stipitate, acute at both ends, both sub-incurved, superior one with a straight narrow wing, inferior one naked. Leaves pinnated; leaflets opposite: racemes long, pendulous.

This genus is established by Benth (on our section of the same name) for the reception of *Dalbergia scandens*, (Roxb.) a most beautiful creeper.

275. *B. scandens*, (Benth.) *Dalbergia scandens*, Roxb. W. and A. 1. Flowering branch, natural size—2. A dissected flower—3. Stamens—4. Pollen—5. Ovary cut longitudinally, ovules numerous—6. An ovule—7. Legume, natural size, about 1-seeded—8. A portion opened to show the seed in situ, natural size, but the wing removed—9. A seed detached—10. Part of the testa removed, showing the curved radicle—11. Cotyledons, with the exceptions mentioned, all more or less magnified.

276. *Memecylon angustifolium*, (R. W. Hb. Ind. Bot. 1 p. 819) branch's terete, leaves congested towards the extremities, narrow lanceolate, attenuated below, blunt pointed, 1-nerved, peduncles short 1 on the scars of fallen leaves. flowers very numerous, umbelliferous sub-capitate, pedicels short.

Jungles about Jourlathum, nearly allied to *M. ramiflorum*.

1. Flowering branch, natural size—2. An unexpanded flower—3. A full blown flower—4. An anther—5. The ovary cut vertically, ovules erect—6. Cut transversely, 1-celled, ovules numerous, attached to a central placenta.

277. *Memecylon jambonotides*, (R. W. L.) branches cylindrical, glabrous leaves ovate, lanceolate, acuminate, 3-nerved; the lateral pair of nerves sub-marginal, united to the middle one with smaller transverse parallel veins flowers numerous, capitate, short pedicelled, peduncles from the scars of fallen leaves.

1. Flowering branch, natural size—2. An unexpanded flower bud—3. An expanded flower, the petals removed—4. Anthers before and after dehiscence of the anther—5. Ovary after the separation of the petals and stamens—6. The anther cut vertically—7. Cut transversely, 4-ovuled—8. A full grown fruit, natural size—9. Cut transversely, showing the convolute cotyledons—10. A cotyledon detached and opened, showing the radicle at the base.

278. *Memecylon Ueyneanum*, (Benth.) branches terete: leaves petioled, lanceolate, much acuminate peduncles abrogated, axillary, or on the older branches below the leaves, about the length of the petioles, each bearing an umbel of pedicellate flowers, the pedicels about as long as the peduncle. stamens and style about equal in length, short.

1. Flowering branch, natural size—2. A flower bud—3. A flower, the petals removed—4. An anther—5. Ovary cut vertically—6. Cut transversely—7. A cotyledon unfolded.

279. *Mnecyln amplexicaule*, (Roxb.) somewhat arborescent, branches terete leaves sessile, cordate at the base, from ovate to oblong and gradually acuminate. peduncles wanting. (or very short) pedicels 1-flowered on a sessile axillary, (or lateral on the older branches) tubercle about the size of the style. Stems scarcely longer than the petals, about the size of the style. Fruit globose, 1-3-celled, 1-J-seeded—W. and A. Prod.

1. Flowering branch, natural size—2. An expanded flower, petals jemyved—3. Anthers—4. Ovary cut vertically—5. Cut transversely—6. A cluster of fruit, natural size, with the exlplvitu ineMiutuid, all mon ur kn m'mjtd.

No. XV.

EXPLANATION OF PLATES.

380. *Mueuna ulilit* (Wall. MS3.) the principal difference of this species, it indeed a species and *M. prurtia* consists in the hair* of Us legumes being oppressed and almost silky nut erect rigid and stinging. In all inner respect* they lullHciently agree the dowers in built*re purple the greater size of thu is probably attributable to cultivation in which state only It is known.

1 Raceme *natural uu-i* a dissected flower—3 stamens showing the alternate long and round anthers—4 round antherb—& long ones—6 ovary—7 thusaine opened—If cluster of pods—9 portion of a legume opened—10 a need—11 the same cut longitudinally—12 transversely—14 the cotyledons testa removed—14 emojiyo.

281. *Bupieurumplantaginifolium* (H. W.) perennial, erect: stems ttrate, naked Lou aids the base: leaves congested towards the apex of the stem, remote on the branches, soinewhut imbricating at the base, ptiutled, spatulate, about 11 nerved, the middle one much larger: general umbel with 8-10 rajs: partial with 10-14 (lowsers: leailets of the involucre and involucl, 6-6 o bo vale, cuniate or oblong, decurrent on the stem, forming acute angles: fruit, prominent* ly ribbed interstices with single large VIUOB.

OBS. In the accompanying figure, the transverse section of the seed is not well represented. The plant attains the height of from 7 to 11 feet.

Hab. Kik. Hill. Neighornes.—Lieut. Mun o, to whom I am Indebted for this specimens.

1 A flowering branch—2 a partil—3a flower fruit view—4 the same •Ide-view—5 withers—6' a petal—7 ovary—commisurre of a ample jnerkaip—J mature fruit the me near ps separating suspended from the carphophore—10 a fruit before the separation of the menicrps, but badly represented—11 cut transversely bad—12 the inencarp cut vertically shuwing the embryo. The seed, the testa removed. I had not an opportunity of checking the dissection* of this figure until too late and thu artist was not then, conversant with the structure of this order.

282. *ZiiphyuM glabrata* (Heyne*) unarmed: leaves ovate-oblong or obovate, obtuse, crenate-serratecl, blabrous, coriaceous; stipules both caducous: cyrne* scarcely longer than the petioles: ovary y-celled: Hljles 2, nearly distinct: drupe turbaial*: nut hard and thick, obovate, mgobe, fluttfed, 1-2-ceiled.

1 Flowering branch, *natural tw-t* expanded flower—3 stamens—4 ovary immersed in the disk cut vertically—5 ovary cut transversely 2-celled all more or less magnified.

283. *Nomunia nwmulana* (W. & A.) petioles longer the leaves: leaflets cuneate-obovate, broader than long, retuse; racemes few-flowered, lax, much shorter than the petioles, usually on the young bhoos: calyx-aegnients (except the lowest) about half the length of the corolla: legume strongly wrinkled with a few parallel transverse lightly branched nerves, with reticulating connecting veins, terminated by the straight mucro-like base of the *t'ie, 1-seeded.

1 Portion of a plant *natural IIM-S-J* dissected dower-4 united filaments—5 anthers—6 ovary cut open 1-seeded—7 mature pod opened—H cotyledons testa removed all more or less magnified.

284. *Urana hamoia* (Wall.) shrubby, diffuse: young parts clothed with short hooked hairs: leaves simple and trifoliate; leadets elliptic or roundish, some times emarginate, glabrous aove, softly pubescent beneath: racemes axillary and leninal, hispidly hairy, before expansion of the flowers oblong or cone-like and imbricated wuh bracteas, in fruit becoming much elongated and lax: baacteascaducous, ovate with along subulate point, hairy: pedicels shortly hairy, incurved at the apex: calyx shortly hairy, short, not longer than the first joint of the fruit; upper tip 2-toothed: segments of the lower one ovule-acuminated: legume 2-6-jointed, pubescent.

1 Flowering branch—2 dissected flower—J legume—copied from Roxburgh's diawmg.

283. *iMUTia taper tiltont* (Desv.) lateral leaflets none, or small, obliquel cuneate at the base and truncated at the apex; terminal one tiansverse, about 10 times broader than long, tipped with a spiny bristle, 2-lobed; lobes divaricating, oblong-lanceulalu, falcately re-covered obtuse.

1 Flowering branch—3 dissected flower—3 ovary—4 legume—5 seed—copied from Roxburgh's drawing.

280. *PuudaThria vucua* (W. & A.) diffuse, prostrate; lateral leaflet* obliquely ovate, terminal one rhomboid-ovate, pubescent on the upper Hill lace, when old shortly villous on the under: racemes ilifurni,oloiU*. iud: bracteas subuldu: legumes J-4-tected, 3-4 times louder than bioad.

1 Abr. nnil in flower and fruit—2 a flower—3 stamens and ovary—J calyx—5 HMinrst anthers—7 legumes opened—H seed cut longitudinally—9 the same testa removed.

287. *Cleuiiw aptera* (Koen.) herbaceous, glabrous, rough with ml. nute scattered prickles on both the stem and leaves: leaves tri foil -olat: leafletsobioiik, many times longer than the petiole: stamens 6: siliqua terete, toiulose, glabrous, atu-nuuted at the bane, but quite sessile, acuminated with the subulate style: torus inconspicuous.—u: leaflets obtuse or slightly acute.

1 The plant *natural sue*.

288. *Triatilhemaboccordata* (Roxb.) perennial; stems diffuse, prostrate, slightly pulietcut on the upper side: leaves, one of each pair *argrr and obov.tu* or obooidato, the other smaller and oblong: flow-4-rattollilar*, tennilic, nearly concealed vtutun the broad sheath of the petioles: stamens 15-20: style simple: capsule tt-8-seeded: If-4 con-2-avfwih two spreading teeth, nearly quite closed at the bottom, nut-like, and including one seed.

1 The plant *naturalU gtze*—2 a dissected flower—3 ovary—4 the same cut vertically—5 the capsule aftei delnsceue—6-7-8 a dissected seed.

289. *Vraria Lagopoides* (DCU •uffruUose, procumbent, rooting at the jointU: stoina terete, pubescent, leaves simple and ternate; the terminal leaflet much the larger, roundish-ovate, sometimes cuar-gnate at the base, obtuse, mucioate, spunkled with a short scabrous pubescence: racemes terminal, conical-oblong, dense, very hairy: pedicels shortish, incurved at the apex, and with the taliX densely bearded: upper lip of the calyx short, the segments ovafe-acuminated: lower reñexed, the segments elongated and subulate-setaceous: legume i-jointvd; joiaU orbicular-ovate, polished.

1 A flowering brauvh—J dower—3 legume.

290. *Urana Alopecuroidei* (Doodia Alopecuroides Roxb. fl. Ind. 3-JIM.) perennial, Uiffuse, the lender plants clotted with small hook-ed bristles: leaves ternate lea Hem oval obtuse racemes imbricated and resembling a flozees tail from the hairying of the calyx tracts and incurved pedicels which bend the two jointed legumes against the rachis the upper lip of the moncste and two toothed, Roxb.

1 A flowering brauch 2-3 dissected calyx and legume.

291.292. *Veinudum trJlorum* (DC.) procumbent, diffuse: leaves triloliate; leaflets orbicular, obovate, or obcorJale, more or leas pubescent or hairy: stipules near lose, lanceolate; peduncles axillary, *ohary or fascicled, 1-3-flowered: calyx-segment* acuminated: vexillum obovate with a long cUw: style bent acutely near the sum-mil, and tumid ai the angle: legume hispiUy pubescent, 3-6-jointed, notched into the middle on the lower margin, even on the other: joint* truncated at both ends.

293. *IMimodiuwgwtutangulatam* Hpdysarum quinque angulatam Hoib. herbaceous Uuil4se 5 seeded hispid, leave teruate, leaflets oval downy: stipules cordate: racemes numerous: flowers paired: legumes hispid sex-jointed notched on both margins. Hoxb.

OBS. In our prodromus we have united thu with tab. 298-H. *aw rctulatam* H. *Detmodinn diffutum* D. C. and I believe correctly: as however Itoxburgh thiukis that they " differ spec ideally in the stipules and shapi'i of the leaflets, independent of their duration" (this he describe* as perennul that as annual; I give both ligu res—N. B. for quinque *Qgulare on the plate substitute quique angulaturn. Uuxburgh'Hpecific uaine.

291. *Dennadum tyrant* (DC.) suffrutescent, erect, twiggy; branch, csrather slender, au* lud, glabrous: leaves petioled, infoliate; leaf-le narrow-oblong or oblong-lanceolate; obtusi at both ends, glabrous above, udprtiased-pubescent beneath; the lateral pair very small: racemes axillary und terminal, numerous toward* the top of the bianches, and forming together a large panicle. brae lea* broadly cordate, concave, before expansion densely imbricated over the flowers, caducous: flowers short-pedicelled: stigma elongated laterally and as if 2-clefi: legume flat, pubescent, straight on the upper margin, crenated on the lower, 10-14-jointed.

A urauch in flower and fruit copied from Roxburgh's figure

295. *Admit JINO capitala* (W. & A.) petioles above the length of the leaves: leafletU nearly orbicular with a cuneate base: racemes peduced, many-doweied, longer than the leaves, with a slender leaf-less and somewhat abortive *oung shoot springing from about the middle of the peduncle; the flurifefous portion at first somewhat lax, soon becoming very flexuose twisted up and resembling a capitulus: calyx-segments long, subulate, forming a short hooked point to the flowerer-budduring estivation: vexillu.n not striped: legume marked with numerous close parallel transverse veins, terminated by the hooked base of the style, 2-needed.

1 A brauoh in flower und fruit *natural #to*—2 a flower -3 the same dissected—4 Blains—J anthers—*! ovary two seeded—7 a legume—8 the same opened seed *fruitu*—9 a seed detached—10 the cut) leduns, the testa removed—11 onecotJledon shewing the embryo— all more or less magnified.

298. *Trianthema decandra* (Linn.) annual: stems diffuse, prostrate, *labious or pubescent on the upper *idt: leaves elliptic, oU'ise or acute, petioled, one of each pair a little larger than the other: flow-em several, pedicelled on a short peduncle, accompanied with scan, ose bracteas and bractcoles: sepals membianaceous on the margin: stamens 10-U: style bipartite: capsule 4-seedvd. with a spurlious dissepiment; lid slightly 2-lobed at the apex, nearly closed below. nut-like, and containing 2 seeds.

1 Flowering branch *natural nae-Z* a flower forcibly expanded—3 ovary—4 stamen-0 ovary cut transversely—8 ovary cut vertically—7 a capsule cut vertically—6 cut traruvversely—9 a seed 10 the same out vertically shewing the embryo curved round the *fr>u>uqui albumen*.

297. *Ormarcarpwn tennoides* (DC.) young shoots, petiolM. pedunden, and calyx, covered with soft glutinous hairs: leaves unequally pinnated; leattets*ternate, 4-6 pair, obovate, letuse, slightly mucronulate: calx evidently bilabiate: stamens equally diadclphous (5 and 5): legume 2-5-jointed: joints striated, armed with minute prickly warts.

1 A branch in flower and fruit-2 adusected flower, copied from Roxburgh's drawing.

298. *Deimodinn diffutum* (DC.) herbaceous, procumbent, diffuse, branched: branches 4-5-uuRld, hispidly pubescent: leaves trifoliate; leaflets oval, pubem-cut on bothsides: stipules large, foliace-ous, aurleled and sl' Mucclaspia^: racemes terminating every branch, very long, bracteos small, lanceolate, 2-3 together: dowers in pairs or threes: legumes ascending or nearly erect, 5-6-jointed, notched on both autluis, hispid with short hooked hairs: joints orbicular, tumid in the middle when mature: needs oval, compressed, with the lulum at one of the narrow ends.

1 brunch in flower and fruit-2 a dissuclfd ftaner-3 a legume-copied from lioxburgh's draw ing.

No. XVI.

EXPLANATION OF PLATES.

300 *Aasthynomene affera* (Linn.) perennial, herbaceous, erect, floating, spongy, sometimes slightly branched and diffuse, usually glabrous leaflets 30 to 40 pairs, linear, obtuse racemes axillary, few-flowered, the peduncles and pedicels hispid with short horizontal bristly hairs corolla much longer than the calyx, both a little hairy legumes long-stalked, 4-7 jointed covered when mature with prickly tubercles on the middle of each joint, margins thickened, striated and crenulated

1 a flowering stem—2 a dissected flower—3 a legume

300 *facMia Farnenana* (W ft A) 1 a flowering branch natural utme—2 a flower—3 the same calyx and corolla opened to show the ovary—4 stamens—5 pollen—8 ovary cut vertically—7 cut transversely—8 legumes natural nwe—9 cut transversely—10 cut longitudinally—11 a seed—12 cut transversely 13 the cotyledons testa removed all with the exception mentioned more or less magnified

301 *Loranthus amplexifolius* (DC.) glabrous branches terete, leaves opposite, sessile, orbicular or ovate, obtuse, cordate at the base coriaceous racemes axillary, solitary, many-flowered, erect or spreading simple, shorter than the leaves flowers (purple) shortly pedicelled, often drooping, bractea solitary, lateral, concave, orbicular, close to the ovary, calyx-limb cup-shaped, entire, corolla long, infundibuliform, gibbous on one side, curved, limb before expansion swollen at the base constricted above it, oblong upwards splitting into 5 linear spatulate recurved unilateral segments, one of the fissures twice as long as the others filaments sprinkled with minute bristles, anthers linear berry oblong—Nearly talked to L long ft A

1 A flowering branch—2 the corolla split open—3 the ovary and style

302 *Loranthus longiflorus* (Dtnr.) glabrous branches terete leaves usually opposite, or sometimes alternate, petioled, from linear to oblong-lanceolate, or ovate obtuse, upper ones sometimes reflex or lightly cordate at the base, coriaceous racemes axillary, solitary or in pairs, erect or spreading, simple, many-flowered, much shorter than the leaves, flowers (yellow) shortly pedicelled, often drooping, bractea solitary concave, oblique, close to the ovary, calyx-limb entire corolla long infundibuliform, gibbous on one side, curved; limb before expansion swollen at the base constricted above it, oblong upwards, splitting into 5 linear, recurved, second segments, one of the fissures twice as deep as the others filaments sprinkled with short bristles anthers linear fruit oblong (red when ripe)—a variable spend as regards the form of the leaves but all distinguished by the contracted throat of the corolla

1 A flowering branch—2 a dissected flower.

303 *Loranthus lanteoideus* (Linn.) glabrous branches terete, young ones slightly 2-edged leaves opposite, petioled, ovate, or oblong-lanceolate, acuminate peduncles opposite, axillary, solitary, about equal to the petiole, bearing at the apex a few and somewhat capitate or several and more or less sulcate sessile flowers bractea 3 at the base of each ovary, roundish, acute, concave margin of the calyx between tubular and cup-shaped entire corolla elongated, tubular, curved, slightly gibbous on one side, several times longer than the ovary and calyx, equally cleft into 6 (or sometimes 5) cuneate-linear spreading lobes anthers linear

1 A flowering branch—2 a dissected flower—3 bractea calyx and style.

304 *Loranthus epiphyllus* (W ft A) glabrous branches terete, young shoots compressed and two-edged, leaves opposite, oblong lanceolate, obtuse, attenuated at the base into a short petiole petiole sharply keeled at the base flowers sessile, capitate few together, each with three roundish acute concave bractea at the base heads axillary, sessile limb of the calyx between tubular and cup-shaped, entire flower-buds gibbous and nearly terete at the base, angled upwards corolla tube short infundibuliform, about a half longer than the ovary and calyx limb cleft into 6 equal cuneate, linear spreading segments as long as the tube

1 Flowering branch—2 a dissected flower—3 calyx and ovary, the calyx partially removed to show the ovary

305 *Loranthus Candolleanus* (W ft A) when young all over greyish with very short stary pubescence branches terete leaves alternate or fasciated in pairs narrow-oblong, or obovate obtuse, cuneate at the base, petioled, at length nearly glabrous on both sides umbels peduncled, flowers 2-3 shortly pedicelled, clothed with short tomentum, bractea about the length of the ovary and close to it, unilateral, obtuse, calyx limb 3-5 or several toothed corolla tubular gibbous on one side above the middle curved 5 cleft segments unilateral, linear, one of the fissures the longest, anthers linear

OBS The specimen figured differs somewhat from those originally described, but not sufficiently to constitute it a distinct species—the specimen is very nearly allied to *L. tomentosus* from which it principally differs in the sue of the bractea, a joint which 1 shall substitute in my figure of the latter species

1 A flowering branch—2 the corolla split open—3 the ovary crowned by the calyx with its bractea

306 *Loranthus lagenarius* (R W) glabrous branches terete, leaves opposite, petioled elliptic-oblong, obtuse, rounded at the base peduncles fasciated leaving at the apex a large campanulate 4-5 lobed involucre flower 4-5 in the bottom of the involucre calyx membranous repandly 3-toothed corolla tubular pulverulent, twice the length of the involucre, 5 cleft annular towards the base of the segments segments linear, reflexed anthers erect

OBS This new and curious species is a native of Malabar extending as far north as Bombay from the mountainhood of which 1 have specimens communicated by the late Mr Graham

1 A flowering branch—2 an involucre split open, showing the position of the flowers within—3 a corolla split open

307 *Hrdera infundata* (W 8c A) shrubby, unarmed, glabrous leaves pinnately trifoliate leaflets ovate with a narrow acuminate equal and slightly at the base, none of which 1 have seen specimens communicated by the late Mr Graham

1 Flowering branch—2 an unexpanded flower—3 the ovary and stamens after the separation of the corolla—4 the talyptiform or hd-like corolla detached

308 *lontdum tufrulicolum* (Gin*) stems pubescent, branched near the base, branches nearly simple lower leaves the broader, upper ones oblong-lanceolate, mucronate, more or less pubescent, toothed or serrated, stipules subulate sepals narrow, acuminate, strongly keeled lower petal nearly orbicular, obtuse, long unguiculate, capsule nearly globose, seeds 9, obovoid, shining (whitish) longitudinally furrowed

OBS The term published under this name in the Illustrations is more justly referable to *etmeaspemxum* on which account 1 have given this figure of the normal form Perhaps they are only varieties

1 A flowering plant—2 a flower partially dissected—3 the capsule after dehiscence—4 the same cut transversely before dehiscence.

309 *Silyocoryns Weltera*. (A Rich.) shrubby, glabrous leaves lanceolate-oblong, shining corymbs trichotomous, terminal calyx limb 5 cleft tube of the corolla short, about twice the length of the calyx tube, slightly widened and bearded at the mouth, segments of the limb recurved, oblong, villous at their base along the middle, about twice as long as the tube style slightly hairy, stigma with 10 longitudinal somewhat winged angles berry 2 celled, with 4-8 seeds in each cell

1 Flowering branch—2 calyx divided and thrown to one side to show the style and inferior ovary—3 the corolla opened to show the hairy throat and insertion of the stamens—4 a berry cut transversely.

310 *Stylocoryne monoterma* (W ft A) This being only the species of the genus no specific character can be given The full generic character is given in our Prodomus This figure is exceedingly characteristic of the plant as it appears in a dry and poor soil, but the section of the fruit fig 4 is most incorrect a circumstamance unhappily overlooked until too late for remedy—A full and correct analysis of the generic character will be given in the next number in connection with some few other allied genera.

311 *Corchorus capitulans* (Linn) annual leaves oblong, acuminate capsules globose, truncated, wrinkled and muncated, 5 celled; seeds few in each cell, without transverse septa

1 Flowering branch with a capsule in the fork—2 a flower fully expanded—3 a stamen—4 the capsules cut transversely.

312 *Hedyotis racemosa* (Lam) annual or biennial, diffuse, glabrous leaves elliptic-oblong, or lanceolate, obtuse or acute, attenuated at the base flowers pedicelled, disposed in long-peduncled naked alternate-axillary and terminal racemes the partial peduncles 1-3 flowered limb of the calyx 4 partite segments triangular-ovate acute in fruit distant with the sinus wide capsule shortly turbinate, slightly marked with 4 acute decurrent angles

1 Portion of a plant natural size—2 ovary and calyx—the corolla detached and split open to show the hairy throat and insertion of the stamens—3 ovary cut transversely all magnified

313 *Indigofera tinctoria* (Reti) Perennial caespitose leaves simple legumes globular one seeded. Roxb

1 Portion of a plant in flower and fruit—2 stamens—3 keel furnished with a spur on each side—4 legume opened showing the seeds in situ—5 a seed—Copied from Roxburgh's drawing

314 *Indigofera trifoliata* (Linn) 1 prostrate Roxb Perennial* leaves ternate, leaflets wedge-shaped with glandular dots racemes axillary, sessile, the length of the petioles legumes reflexed, smooth, acute, from 6-8 seeded Roxb

1 Portion of a plant natural size—2 calyx opened to show the ovary and detached stamen—3 united stamens—4 keel of the corolla with its lateral spurs—5 a legume opened—Copied from Roxburgh's drawing.

315 *Indigofera tinctoria* (Linn) annual and biennial, erect rigid leaves ternate, leaflets obovate racemes axillary, sessile, many-flowered, legumes reflexed, straight, rigid, 4 sided, spinous, pointed, smooth. Roxb

1 Flowering branch—2 calyx split open showing the ovary and detached stamen—3 united stamens—4 keel of the corolla spurred on each side—5 a legume—copied from Roxburgh's drawing

316 *Indigofera tinctoria* (Linn) stems prostrate leaves simple, obovate dotted racemes axillary legumes crenent-shaped, with hooked bristles on the connex side one seeded—Linn

1 Portion of a plant in flower and fruit—2 keel of the corolla—4 legume opened, shewing the solitary seed Copied from Roxburgh's drawing

317 *Stylocoryne monoterma* (W & A) shrubby, glabrous leaves lanceolate-oblong, shining corymbs triholomous, with rather few flowers terminal calyx-limb cupulate minutely toothed tube of the corolla elongated infundibuliform many times longer than the limb of the calyx, pubescent on the inside, segments of the limb oblong glabrous, about half the length of the tube ovary with 2-3 ovules in each cell style slightly hairy stigma acute compressed, with a furrow along each side berry (white and about the size of a small cherry) fleshy, 1 celled, 1 seeded, seed not angled

1 Flowering branch—2 ovary style and stigma the calyx opened—3 corolla opened and the limb removed to show more of the hairy throat of the anthers—4 a cluster of young fruit natural size—5 one of them cut transversely magnified

318 *Ixora mcnvans* (Br.) shrubby, glabrous leaves oblong-lanceolate, shortly petioled shining on both sides turning black by drying stipules with a subulate point corymbs trichotomous large open, flowers lax calyx segments subulate about the length of the tube corolla (white) with the tube (three quarters of an inch long) slightly widened upwards, lobes oblong slightly acute, recurved filaments shortly exserted style glabrous considerably exserted divisions of the stigma filiform, recurved berries transversely oval

OBS Borne points of the character does not accurately correspond with the figure which may be indicated for by the former being taken from dried specimens the latter from the fresh plant the divisions of the stigma do not so part at the base and the mature berry is globose and purple, not unlike a small black cherry, but diametrically in drying

1 A branch in flower and fruit natural size—3 the corolla split open—4 the ovary with its style and stigma.

TO THE
PLANTS CONTAINED IN VOLUME II.
ALPHABETICALLY ARRANGED.

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EXPLANATION OF PIXATES.

VOL. II—PART I.



319 POLANISU CHSLIDONII (DC) stem hispid, irith Kcattered bhort prickly hairs, otherwise glabrou* leaves 7-^o: toliolate, leaflets obovate or oblong, cuneate, hispid, with a close pressed rigid pubescence, scarcely so long as the petiole, upper floral leaves minute stamens numerous (*4-32), filaments club shaped siliqua glabrous, terete, sessile — W & A Prod p 92

1 a small plant, *natural size*—2 a dissected flower, showing the hypogynous insertion of the stamens—J a sihqua dehiscing—4 a seed.

320 TBIUMrETTA ANOULATA (Lam) stems herbaceous, glabrous or pubescent uppermost leaves ovate, acuminate, middle and lower ones cuspidately ^ 5-lobed, all more or less covered with stellate hairs, Berrated peduncles 2 3 together, axillary and opposite to the leaves, 3 flowered calyx apirulate stamens 10, filaments glabrous fruit pubescent, 4 6 celled, 4-8-heeded, prickles glabrous —W & A Prod p 174

1 A branch bearing both flowers and fruit, *natural size* —2 an expanded flower, showing the 10 stamens and solitary style—3 a fruit cut transversely, 6-celled with 1 seed in each

321. SALACIA PBINOIDES (DC) glabrous branches terete leaves oblong, obtusely acuminate, Berrulated, coiaceous pedicels several, from an axillary tubercle, 1 flowered, about equal to the petioles calyx-lobes round, much shorter than the petals, more or less puberulous and ciliated petals broadly ovate, unguiculate, quite entire, torus large, cup-shaped, thick, fleshy, at first nearly enclosing the ovary stamens short, about the length • f the *tle, arising from the inner side of the torus ovules 2 superposed, in each cell of the ovary fruit nearly globose (about the size of a small cherry), 1 celled, 1-seeded-* & A Prod p 105 *

1 A flowering branch, with some fruit of the preceding season—2 an expande < flower, somewhat *magnified* —3 a seed divided luto its lobes, showing the minute radicle at the base

322 ALTSMA RBNroBMs (Don Fl Nepal) leaves renform, long-petiolel, nerved, glabrous on both sides scape pamtled, twice the length of the leaveB peduncles about 3, pedicels 3-5, fruit obovate obtusely 3 angular

The specimens here figured, were kindly communicated by Mr Ldgeworth, B C S of Seharumpore who, I believe, collected them near bimla

1 a flowering panicle—2 an unexpanded flower—3 a flower somewhat f< rcibly expanded—4 stamen* back and front views—5 pengonium and stamens removed showing the ovary in ntu—6 a detached ovary—7 the same cut vertically, ovule basilar erect—8 a leaf *natural size*

323 IMPATIENS SCABHIDA ? (DC) peduncles 3-4 flowered, erect, shorter thnn the leaves leaves oval, tapering at both ends, serrated, younger ones on both surfaces as well as the stem hispid, adult ones smooth spur long capsules subcylindncal, valves curling inward from the top-DC Prod 1 p 687

Simla—1 am also lidcbtrd to Mr Fdgeworth for ihn and the two following drawings, which he conimui icaied along with many others I buve some doubts however, of this being DeC Riidole s plant, for, though generally it accords well with his character, the *pnr agrees bi tter with the description of Roxburgh's *I tnptula*, which, therefore it may be.

1 A flowering branch, *natural* ze—2 a dissected flower, the different parts separately represented—J ovary and stameus—4 stamens detached—6 ovary—6 the same *mug-*

324 GFRANIUM WALLICHIANUM (Don) stem decumbent, purple, leaves 5-parted, with broadly cuneate, ovate, deeply-toothed, lobes, clothed on both surfaces aa well as the stem, with silky vilh stipules, ovate obtuse petals enarginate stigmas very long —Flowers large, purple, peduncles very long, 2-flowered, the whole plant clothed with silky vilh —Don (1 Nepal

This drawing is very characteristic of a specimen I have, of this plant, collected at Simla by the late Countesa Dalhousie It does not agree very well with the above character, which I copy from Don, the authonty for the S| ecies, but the remarkable stipules induce me to refer it to that species

1 Flowering branch, *natural size*—2 expanded flower—3 4 stamens-5 ovary, btle and stigmas—6 ovules—7 stigma *much magnified*—H a petal—9 sepals

325 SALVIA LANATA (Roxb) stems herbaceous, <*** pitose at the base, woolly leaves oblong-lanceolate, obtuse, entire, minutely crenulated, narrowing towards the base, rugous, above loosely, beneath densely, whitish, tomentose, the floral ones broad, acuminate, concave, persistent, as long as the calyx branches simple, villous, viscid verticellastn remote, about G flowered calyx campanulate, upper lip shortly, 3-toothed, inferior bifid, teeth acute corolla twice the length of the calyx, tube exerted, widening at the throat, upper lip vaulted, compressed, the lateral lobes of the inferior one oblong erect connective dentulate deflexed, or abruptly dilated and calous at the extremity —Benth Lab p 228

1 Flowering branch—2 calyx—3 the same opened—4 stigma—5 corolla—6 the same opened, showing the insertion of the stamens—7 a detached stamen showing the dihted posterior extremity of the connectivum>8 ovary, stjle and stigma—9 a stamen more highly *magnified*, showing separatel) the anther, connectivum, and short filament, the dotted lines showing the points of union—10 ovary more highly *magnified*

326 FLEMINOIA SIMULATA (Roxb) shrubby, ramous leaves ternate, leaflets oblong, acute, three-nerved, petiole winged raceme terminal and axillary, pamcled. -Roxb fl Indica3p 310

Is very nearly allied to *Fl congesta* but is distinguished by the petiole being furnished with a narrow wing, and the leaflets sprinkled with a few inconspicuous yellowish glands, and not copiously dotted with black ones" W and A Prod p 241

1 Flowering branch—2 a pod opened showing the 2 small seed

327 FLEMINGIA LINEATA (Roxb) shrubby, erect, branched old branches terete and nearly glabrous, young ones angled and pubescent leaves tnfoholate, leaflets obovate or oblong, (uneate at the base, upper side glabrous, under pubescent wl en)oung, afterwards glabrous, inconspicuously dotted with minute yellowish gland*, the nerves denseh pubescent petiole channelled, not miirginea, about h ill the length of the leaflets stipules deciduous, in ill) luili the length of the petioles racemes arranged in a pcduncled diffuse panicle bracteas deciduous calyx segments about equal and with the legume pubescent and covered with minute whitish n ejly glands— Y & A Prod 242

1 Branch in flower and fruit—2 an open legume.

328 PONOAMIA oALIFOLIA (W & A) arboreous, leafletB 4-pnir, drooping, OVP' obtuse glabrous raceme, elonguttd, deposed along the leafless branches, shghtlt compound, peduels lender, arranged along vey nhors minutelv bnctated partial peduncles vexillum without callosities ovary with two approximated ovules about the muddle.-W. & A. Prod. 2b2.

320 FLEMIKIA BTRICTA (Roxb) shrubby, erect* stems numerous, with few erect branches, branches triangular leave ft tnfololac leaflets broadly lanceolate, acuminate, glabrous, under side minutely black dotted, the nerves numerous and densely pubescent petiole channelled, with u short margin stipules large, a little shorter than the petiole, lanceolate acuminate, concave, sheathing deciduous racemes speciform, solitary, the length of the petioles or sometimes longer, peduncled bracteas lanceolate-subulate, acuminate, longer than the flowers, caducous legume without glands, nearly glabrous— W & A Prod p 241

1 ! lowering branch *natural size*—2 a flower—1 the petals detached and separately represented—4 stamens and ovary, the calyx divided and thrown back to bring them into view—5 anthers—6 and 7 legume opened, showing the position of the seed—8 a seed—9 the same part of the testa removed to show the radicle—10 cotyledons

310 Li«DirorEBA GLANDUIOSA (Roxb) Suffruticose diffuse, young parts softly pubescent or villous leaves petioled, tnfololate, leaflets oblong obovate, rather longer than the petioles, under side more h my and glandular dotted stipules setaceous rareines sessile, oval, dense, many-flowered, scarcely so long BB the pi tiolo calyx segments short-subulate legumes oval nb nit twice as long as broad hairy, 4 angled, angles slightly winged and toothed seeds 2, ovate and truncated at one end — W & A Prod p 19i

1 A branch wi h flower and fruit—2 a ditsecte 1 flower —3 a legume *natural size*—4 the ttame *magnified*—5 aplit open to show the position of the seed and the transverse septum between —Copied from Koxbuighs drawing

331 I NOT OOF KB A. PAUCIFOLIA (Deille I AnQRTXA Roxb) shrubby, erect much branched, all hoary with short adpreHsed whitish pubescence, branches terete leaves pinnated, leaflets 1-5, alternate, oblong lanceolate, the terminal the largest racemes floht ury, sessile, a mewhat spiked, longer than the leaves many flowered flowers very small calyx segments short and acute legumes linear, slightly comprcstted, torulose, pendulous, and curved upwards, 5-8 seeded seeds remlorm, flat tish, shining -W & A Prod p 201

1 A branch with flowers and truit *natural size*—2 the keel showing the spur on each side *magnified*

332 IHDIOPRRA ASTALATHOIDES (Vahl) shrubby, erect, young parts whitish with adprciwed hairs branches slender, numerous, spreading in every direction leaves sessile, digitately 3 5 foliolatc, leaflets narrow runeatc, small, the upper surface glabrous, under with a few scattered hairs peduncles solitary, 1 flowered, about the length of the leaves flowers very small, corolla soon deciduous legumes cylindrical, pointed, straight, nearly glabrous, 4-6 seeded — W & A Prod p 199

1 A branch *natural size*—1 keel of the corolla showing the spur—3 a legume

333 INP GOFEBIA UNIFLORA (Ham) perennial, stems prostrate, slender, long, coloured leaves sessile, pmnately 3-5 foholate, leaflets narrow cuneate oblong, acute, upper side glabrous, under sprinkled with a few white hairs peduncle s solitary, filiform, 1 flowered, twne the length of the leaves flowers small legumes linear oblong, terete, straight-pointed, nearly glabrous, nearly 4 times as long as broad, about 3 seeded -W & A Prod p 1«9

1 Branch *natural size*—2 keel 3 peduncle and calyx —4 legume—5 a leaf and flower *magnified*

334 SANICULA ELATA (Ham) stem diehotomous at the apex leaves 3 partite or tenute, glabrous, mgments sessile, ovate, acute, lobed and serrated, cuueHte at the base, the lateral ones often bipartite umbels usually 3-fid, few flowered flowers polygamous, the males pedicelled W & A Prod p 367

1 Plant *natural size* 2 a detached flower and ovary showing the hooked prickles with which the *mitritarpa* are clothed 3 the corolla detached but erroneously represented with a pedicel—4-5 a detached |etal showing its long inflated point—6 stamens—7 ovary cut vertically so twing the pen lulous ovules—8 cut transversely—i) a detached mencarp and seed*

335 PIMPINRLLA INVOLCBATA (W & A) Stem CTCCT, diehotomous, glaucous leaves ternate, segments cut and pmnited, or sometimes entire in the upper leaves, lobes in the lower leaves linear oblong and short, in the upper oblong line ir and elongated umbels with 6 8 rays, leaflets of the involucre and mvolut 1 few (about b,) subulate, entire, much shorter than the rays styles reflexed iruit blightly ribbed, minutely muncated all over —V & A Prod p 300

1 Portion of a plant *natural size*—2 an expanded flower —3a detached petal—4 stamens back and front views—5 ovary cut vertically—6 *mencarpi* not yet mature—7 *mtneatps* about separating and showing the bifid *carpo-p?to*re—8 the same cut transversely—y a mencarp cut veitically, showing the minute embryo at the apex of the large albumen—10 embryo detached—11 a leaf

*36 EXACUM PEDUNCULARE (Linn) (E *cannatum* and h *sulcatum* Roxb) stem erect, ramous, 4 sided leaves lameolate corymbis nearly naked (not leafy) corolla 4 rleft, segments oval, capsule globose -flowers *smulnth, blue or yellow*

1 Plant *natural size*—2 corolla and stamens—3 ovary, style and stigma—4 capsule cut transversely

317 LSUCAS CBPHALOTIs (^preng) herbaceous, somewhat hispid leaves ovate, oblong, slightly scrr<ted. veriicellasters Bohtary, large, globose, densely many flowered brittle ovate-lanceolate, acute, imbricated, ciliated with bristly hairs calyx villous, stn ted at the apex, 10-tooth d, ciliated on the margin, mouth oblique, teeth subulate, short, nearly equal—Benin Lab bl7

1 Portion of a full grown plant, *natural size*—2 corolla opened to show the lorm and insertion of the stamens—3 culvx split open showing the ovary and style—4 a seed cut across.

OBB The analysis of this genus is rather imperfect, other opportunities will occur of representing them

338 LBUCAB VESTITA (Benth) herbaceous, erect stem densely clothed with reddish hairs, lea/es ovate oblong, crenately serrated, hairy, green, or whitish beneath, bractiae linear, hispidly ciliated calyx mouth truncated, nearly equal ^ery hairy within, teeth subulate, about equal, stellately reflexed at the apex -Benin Lab 613

1 Portion of a flowering plnnt, *natural size*—2 corolla split open showing the stamens—6 calyx opened to show the ovary, style and stigma

339 ZIZYPHIUS BUOOSA (Lam) leaves broidly oval, serrated, young ones downy beocath, old ones nearly glabrous except on the nerves prickles Bhort, usually solitary on the bruntics, with a broad densel) puUscent base cymes long peduncled, forming on the leafless brauches a large terminal panicle ovary 2 celled styles 2, united at the base drupe obovatc, with a very thin 1 celled, 1-bedced putamen —W & A Prod p 1bi

1 Flowering branch, *natural size*—2 an expanded flower showing the disk, stamens, and semi superior ovary—3 anthers—4 ovary cut vertically—5 young fruit cut transversely- 6 & 7 nut divided trans veinly and longitudinally one seeded—8 cotyledons the tes»a removed—9 one cotyledon showing the radicle—10 embryo detached

OBS Figures 7-8 and 9 show the seed inveited with the embryo superior in place of inferior.

140 SONIOBATIA ACHIA\ (Linn) branchietn 4 angled, leaves oval oblong nails 6 narrow lanceolate stigma concave-W & \ Prod 327

1 Flowering branch *natural size*—2 a flower cut vertically showing the insertions of the p tals and stamens and situHt on of the ovary—d a portion of an ovary tut transversely -4 a fruit consider itly a Uanccd—5 the same cut transversely—6 a seed cut longitudinally showing th* cotyledons.

341. *PIMPIKELLA C\NDOIFA^A* (W & A) perennial? stem erect, slightly branched, and the petioles densely pubescent or shortly UIIOUB leav₁₉. A try pubescent on both sides, hard and firm, cartilaginuously toothed, radical and lower cauline ones remform cordate, entire, middle cauline ones tripartite the segments cut and sometimes lobed, upper ones small and divided down to the sheath umbel_N with many (10-16) very pubescent rays leaves of the involucre 5 M, subulate, deciduous, much shorter than the rays, of the involucre somewhat permanent about the length of the ray* st₁ch at length reflexed fruit densely covered with small granular tube, cles ^W & A Prod p <9

1 An entire plant *natural size*—2 an unexpanded flower—3 a flower the petals removed, to show the disk and insertion of the anthers—4 a petal back view hairy on the mid nb—5 otamens—6 ovary—7 the same cut vertically, ovules pendulous—8 a full grown fruit 0 the same the carpels separated and showing the bifid carpophore—10 a carpel cut vertically—like the same cut transversely, showing the vitta

342 *HFRACLBUM PBDATUM* (R W) stem branched, glabrous towards the base, the ends of the branches petiole* and top of the peduncles hairy leave* pedate, leaflets ovate acute, doubly serrated, the middle one sometimes 3 lobed, all slightly pubescent on both sides leaflets of the involucre linear-lanceolate calyx 5 toothed, the lanceolate enlarging with the fruit flowers of the centre of the umbel_H equal petaled, male or sterile, those of the circumference unequal petaled, bi-sexual and fertile

Alpine jungles Shevagherry, flowering in September This species differs so widely in some points from the other species of the genus, as to render its removal to form the type of a new genus, not improbable—for the present, however, I prefer retaining it here

1 Flowering branch, *natural size*—2 a fertile flower side view—3 same front view—4 a sterile flower—5 stamens—6 ovary and petal—7 an immature fruit—8 cut transversely—9 the same cut vertically showing the half grown seed

343 *LOBADITHUS BLASTICUB* (DCB) glabrous, dichotomous branches terete leaves sessile, oblong or ovate lanceolate, usually attenuated with a blunt point at the apex and acute at the base, thick and coriaceous, obscurely 5-nerved, two of the lateral nerves from the base, the other two from the mid rib below the middle flowers sessile or nearly so, fascicled around the knots of the branches ovary with a solitary adpressed bract at its base limb of the calyx entire, cup shaped corolla infundibuliform, deleft, one of the fissures deeper than the others, segments long, narrow-linear, elastically revolute limb before expansion tumid at the base then tapering and forming a long sharp beak as long as the tube anthers oblong linear fruit ovoid - V & A Prod p 55b

1 Flowering branch—2 a dissected flower—3 ovary, style and stigma—4 ovary cut vertically

344 *SOLAFUM EUBRDM* (Roxb Nees) annual, ramous, diffuse stem angular, with the angles and ribs of the leaves denticulated leaves ovate obloug alienated at the base and apex, repandly toothed fruit uifu* pedicels, dnancaied, shorttr th in the slender common peduncle (pollen yellow)—Nees Lin J rails

Obs The angles of the stem are much in evidence in the dried than the recent specimen from uhu this drawing was made, the deituht₁ns . ientioixd in the character art not seen in the drawing, ₁cy to u w s t of minute cartilaginous points or prickles

1 Flowering branch—2 a flower—3 the same split open to show the insertion of the stamens—4 stamens—5 ovary—6 cut vertically—7 & fruit^{cut} trans^{er}actly

345 *SOLATTIM TOIIVUM* (Swartz) shrubby, prickles small, (somettui* s wanting) recurved, tomentose at the base leaves in pairs sub cordate, ovate, sinuated and lobed, or angular, tomentose, having the mid rib prickly peduncles extra-follicleous, corymbose many-flowered, and like the calyx are unarmed, segments of the calyx ovate acuminate—Nees Lin J rans

Obs This drawing is imperfect in not representing the tomentum with «h ch 1 have always observed the plant more or less clothed The prickles in this species are usually very few and minute

1 Flowering branch—2 a flower cut open to show the stamens—3 ovary and calyx—4 a fruit cut transversely

346 *SOLANUM INDIUM* (Lin) shrubby, armed prickly* of the stem compressed, recurved leaves solitary or twin, oblong or ovate, tomentose, discoloured, sinuately lobed or pinnatifid, unequal at the base, racemes interfollicleous, sub cymose, calyx prickly with straight linear conn₁ved segments berries globose, corolla quinquefid—Nees Lin J rans

1 Flowering branch—2 stamens—3 calyx and ovary—4 a berry cut transversely

347 *PORANA VOLUDILIS* (Lin) suffruticose, twining leaves cordate, acuminate, glabrous, panicles many flowered sepals ovate, obtuse, glabrous, equal corolla 5-cleft, longer than the calyx—G Don, Diet p 4

Obi The character of the genus Porana, (of which I believe it is the type) is to have a 1 c₁Mad oovary^ but in this species I have ascertained beyond all doubt, that it is 2 celled, with 2 erect ovules in each If the other 8 species have 1 celled ovaries then this must be removed from the genus

1 Ho wen (i g branch—2 a flower both *natural size*—1 stamens—4 c₁ ml I a split open—5 calyx and ovary showing the style dm led i early to the base—6 the ovary cut transversely—7 cut vertically

348 *HFTEBOSTEMMA TAHGORBNSIS* (W & A) twining glabrous leaves broadly ovate or oblong, short acuminate obtuse or cordate at the base, peduncles shorter than the leaves, few-flowered leaflets of the crown spreading broad trn₁ate, furnished within with a tongue-shaped process, follicles devanate, slender, glabrous hooked at the point - V ight s Contnb p 42

1 A flowering branch, *natural size*—2 a detached flower shj₁itlv ma^mjed—3 the same more *magnified*—4 corolla and calyx removed, the stamens thrown back to show the pollen masses in *situ*—6 pollen masses detached.

319 *GTMNIMA ATLVI-STRB* (Brown) twining, clothed with soft down on every part except the upper surfaces of the leaves from oval attenuated at the base and apex, to ovate or cordate, acute peduncles equat in length to the petioles umbels twin, sub-capitate, many flowered flowers small stigma bluntly conical, much longer than the stamens follicles slender, attenuated, glabrous—Wight s Contnb p 44

A widely distributed plant in India and Ceylon, and, I now think, identical with the much older species *G ladi-Jerm*, regarding which I learn no plant possessing the inciferous properties attributed to it, is now found in the island

1 Flowering branch—2 a detached flower slightly *magnified*—6 a dissected flower, viz calyx and ovary—the corolla split open showing double lines of hairs decumbent from the divisions—and the stamens and stigma detached from the ovary—4 pollen masses—6 an ovary cut vertically.

850 LEFT VDEITA RETICULATA (W & A) twining, bark of the older branches coily glabrous, young branches, clothed with tinted tomentum, down, and sometimes with tomentum leaves ovate or lanceolate, acute, usually smoothish and sometimes clothed with short white downy umbels. Petioles of the corolla with revolute edges, and a bearded process near the point, scales of the throat simple short, stigma blunt follicles subcylindrical oblong, obtuse, often solitary by abortion —Wight 8 Contnb p 47

I now suspect this is not specifically distinct from the Bengal species—*L. imberbis*—which I now find is also a native of the Peninsula

1 Flowering branch, *natural size*—2 a flower—3 the same dissected, the corolla removed, the stamens forcibly thrown back, to bring the pollen masses and their cells into view—4 another figure showing the inverted position of the pollen masses while the process of impregnation is going on—5 the position of the pollen before impregnation—6 calyx and ovary.

351 TITLOPHOBA CAHNOSA (Wall.) twining, glabrous, stems and branches slender leaves fleshy, ovate or subcordate, mucronate, shining, pale beneath, peduncles flexuose bearing at the flexures several filiform pedicels flowers small, leaflets of the crown fleshy, sub-orbicular pollen masses ascending stigma convex, follicles glabrous, usually solitary by abortion —Wight's Contnb p 49

1 Flowering—2 a flower showing the form of the coronal leaflets as seen from above—3 front view of the stamens and stigma, the anthers forcibly thrown back to show the pollen masses and cells—4 the staminal column as seen after removing the corolla—5 ovary—6 pollen masses.

352 PSITTATROPIS MICROPHYLLA (W & A) twining, glabrous leaves rather fleshy, ovate, mucronate, rounded at the base or subcordate umbels almost sessile, few flowered pedicels long, filiform calyx minute corolla spreadingly reflexed segments acute, leaflets of the corona broad, averse at the base, cuspidate and incurved at the apex, equal to the gynostegium —Wight's CODTnb p 53

1 Flowering branch—2 a partially dissected flower—the corolla removed to show the column of fructification and form of the coronal leaflets one of which is removed, and the other turned back to show the pollen masses *in situ*—3 staminal tube removed showing the ovary, styles and stigma—4 pollen masses

353 CEROPEGIA TUBEROSA (Roxb.) herbaceous, glabrous, twining leaves from nearly orbicular, to oval or ovate, unispinate, sometimes lanceolate, acuminate peduncles usually twin, few or many flowers, longer or shorter than the leaves calyx small, with subulate segments corolla ventricose at the base, having the tube widened upwards, segments of the limb narrow, nearly linear, villous one half shorter than the tube, gynostegium stipitate, middle lobes of the leaflets of the crown legulate, lateral ones short, cohering with the primary one, follicles slender —Wight's Contnb p 12

1 Flowering branch—2 a dissected flower, corolla removed to show the stipitate gynostegium and form of the crown—3 polleneae—4 calyx and ovary—5 ovary cut vertically—6 a follicle in the act of shedding its seed—7 a seed with its pappus

351 CYRANCHM PAUCIFLOBUM (R Br) twining, glabrous leaves ovate, acuminate, remiformly cordate at the base, the auricles diverging umbels few flowered, peduncles shorter than the petioles flowers glabrous on short pedicels crown equaling the corolla with a 10-cleft plicate border, naked inside, lobes opposite the anthers lanceolate acuminate, bifid at the point, the alternate ones very short and emarginate or truncate pollen masses attached beneath their apices (erroneously represented here) stigma apiculate, obtuse—Wight's Contnb p 56.

1 Flowering branch—2 calyx and ovary—3 corolla detached and split open—4 crown similarly shown—5 staminal column as seen after the removal of the crown—6 pollen masses.

355 HETICHINIA INDICA (Wight's Contnb p 14)

1 The essential character of this genus is to have the staminal crown in a double series, the inner consisting of 5 simple lobes resting on the anthers, the outer of 5 lobes alternate with the inner series, but each 3-cleft with the middle segment smaller, thus making together a 20-lobed corona—this being the only species of the genus, has no specific character

1 Flowering branch—2 gynostegium showing the double corona, but not well represented 3 ovary—4 stigma and anthers, the latter thrown back to show the pollen masses *in situ*—5 side view of the gynostegium enclosed in the corona—6 and 7 different views from above of the same—8 polleneae showing the pellucid angle

456 MAHDEMABIUKONMHA (W & A) twining, glabrous leaves broad, cordate, acuminate peduncles shorter than the petioles flowers cymose, large, glabrous segments of corolla obtuse coronal leaflets attenuated, about equal in length to the gynostegium, stigma bluntly apiculate—Wight's Contnb p 40

1 Flowering branch—2 a dissected flower, calyx and gynostegium as seen after removal of the corolla—3 corolla detached and split open—4 staminal tube, the anthers turned back to show the pollen masses *in situ*—5 polleneae

357 DICHROSTACHYS CIKERBA (W & A) thymifolious pinnae of the leaves 8-10 pair, leaflets ciliated, 12-15 pair petioles pubescent spikes usually solitary, rarely 2 together, drooping, somewhat cylindrical, rather shorter than the leaves petals scarcely cohering by their margins, and forming a 5-cleft corolla —W & A Prod, page 271

1 Portion of a branch, showing both flowers and legumes—2 a flower—3 stamens showing their staked gland—4 a flower cut open to show the insertions of the stamens and ovary *in situ*—5 an ovary—6 cut transversely—7 cut vertically—8 a seed *natural size*—9 the same magnified—10 cut transversely, albuminous.

358 DIPLUMA BRACTEATA (R W) arboreous leaves from oval, obuse to obovate, tapering towards the base, crenate, glabrous on both sides peduncles axillary from the summits of the branches several flowered, pedicels pubescent, jointed, furnished with 2 cuneate bracts below the joint sepals coriaceous, obtuse, silky on the back, stamens all equal, styles and carpels 6, many seeded.

Balaghaut mountains, near Madras—This is a very handsome species, nearly allied to *D. relusa*, but I think it certainly different

1 Flowering branch, *natural size*—2 a flower the petals removed to show the ovary and styles, and unguiculate petiole—3 a stamen—4 the ovary with 1 carpel opened to show the ovules—5 a half grown fruit surrounded at the base by a ring of persistent filaments, the anthers having fallen off—6 a filament magnified—7 a young fruit cut transversely—8 cut vertically—9 a seed—10 cut vertically—11 cut transversely—12 seed exarilate

ISONANDRA (R W) No Sapotaceae

GEN CHAR Calyx deeply 4-parted corolla 4-cleft stamens 8, all fertile, anthers posticous ovary 4-celled, with a solitary erect ovule in each cell nut chartaceous, by abortion, one-celled, one-seeded seed obovate erect; cotyledons fohaceous, enclosed in a copious albumen, radicle inferior—1 trees with alternate somewhat coriaceous glabrous or pubescent leaves, and small Sower* Flowers forming axillary clusters or capitulae, generally found mixed with fruit in nearly all stages, from the fall of the corolla to perfect maturity, flowers yellow or whish

This genus is readily distinguished from all others of the order by its perfectly symmetrical flowers, and the stamens all perfect (hence the name) in place of one half sterile In habit and also in structure, it is allied to *Sida xyloxyloxy*, but the quaternary, not quinary, Arrangement of the flowers and the absence of abortive stamens in any form, sufficiently separate them.

359 ISONINDBA LANCEOLATA (R W) arboreous, leaves lanceolate, acute or sub-acuminate glabrous flowers, in axillary few flowered duster*, short pedicelled segments of the calyx, lanceolate, acute

1 A branch with flowers and fruit—2 a flower before opening, side view—3 corolla, limb expanded, showing the oblong, acute, projecting anthers—4 the same split open—5 stamens, back and front Mews, anther 2 celled, cells approximated, dehiscing longitudinally—6 calyx and ovary—7 cut vertically, showing the attachment of the solitary ovules—8 cut transversely—9 a fruit not quite mature, cut vertically showing it 1-celled, with a solitary ovule—10 seed cut transversely showing the embryo enclosed in albumen—11 embryo detached, cotyledons fo-haceous

360 ISONANDBA VILLOSA (R W) arboreous, young branches, petioles and under surfaces of the leaves clothed with rusty brown vilh leaves coriaceous elliptical or nearly orbicular flowers numerous on small axillary capituh (orange coloured)

1 Flowering branch—2 flower side view—3 corolla, split open to show the inbertion of the stamens—4 stamens back and front, celU of the anther remote on the edge of abroad connectivum—5 ovury and calyx—6-7 ovary cut transversely and vertically—8 a fruit nearly mature, cut vertically 1 seeded—9 seed cut transversely albuminous—10 embrjo detached.

SCt PA Lindley.

GEN CHAR Flowers dioicous, *male*, flowers amentaceous, with a 4-leaved pengomum imbricated in aestivation stamens 2, anthers 2-celled, dehiscing longitudinal), *female*, flowers in short, axillary, racemes pengomum 4-6 leaved in a double series ovary free 2-3 celled with 2 collateral ovules in each, style very short, stigma 4 6 cleft, (2 segments to each cell) ovules, pendulous from the apex of the partitions, each furnished with a scale projecting from the placenta and covering the micropyle (not shown >n the hguie) fruit a friable mdehiscent capsule 2 3 celled, with a single seed in each, seed compressed, somewhat winged, testa membranaceous, embryo enclosed in a copious albumen, cotyledons foliaceous, radicle next the hdura *Shrubs—widely diffused m India and m Ceylon*

Dr Lindley views this genus as forming the type of a new order which he designates *Sepacas* I prefer, however, adopting Endlichers arrangement, as the more correct, by whom it is referred to *Antidesmacee*

361 SCEPA LINDLBUTANA (R W) The specific character cannot be given at present

1 Flowering branch, female plant—2 portion of a male oment before the expansion of the flowers to show the scales with which they are covered—3 an amentum natural me—4 magnified—5 a flower with its scale—6 the same more fully opened—7 stamens—8 ovary and calyx, but the calyx perhaps incorrectly represented—9 the ovary cut vertically, showing the pendulous ovules, hut the scales covering the apex not shown—10 ovary cut transversely—11 a portion of a branch with fruit nearly ripe—12 a capsule cut transversely—13 a seed showing the winged testa—14 the same, cut transversely—15* embryo detached

362 STMPHOFMA INVOMJCHATA (Roxb) corolla about 7-cleft stamens 7, alternate with the segments, leaves ovate, nearly glabrous above, pubescent or sub-toinotose beneath (R W)

1 Flowering branch, *natural nze-2* corolla split open, to show the number and insertion of the stamens—3 anthers—4 calyx cut and forcibly opened, to show the ovary—5 the ovary cut vertically, showing it 1 celled with an erect central 4 angled column-like placenta, bearing the ovules pendulou* from its apex—C the placenary column and ovules removed, but the column represented a little too thick—7 an ovule detached—8 a fruit enclosed in the persistent talyx—!) the seed removed—|0 the same cut transversely, a copious albumen hollow in the centre, perhaps from shrinking of the immature embryo -II cut vertically showing the space occupied b) the embryo- 12 the embryo removed from its place hut inverted by the draftsman—13-14 portions of a leaf *magn'fied* to show the starry pubescence

363 STMPHOFMA POLYANDBA (R W) corolla many (14-18) cleft stamens equalling the number of segments leaves from broadly ovate, sub-acuminate to nearly orbicular, stellately hairy above, thickly tomentose beneath

1 his is altogether a larger plant than the former, and a very distinct species—Ballaghaut hills, neai Madras

1 flowering branch, *natural size*—2 corolla split and forcibly opened—3 anthers—4 calyx opened shown g the ovary *in situ*—6 ovary cut transversely, apparently 4-celled owing to the angles of the column extending to the walls, and erroneously represented as cohering—6 o'ary cut vertically, showing the column and pendulous ovules—7 the column and ovules detached—the angles of the former, seen projecting between the pairs of o'ules, but difficult to show—Han ovule detached—9 a fruit enclosed in the persistent calyx—10 the same cut transversely u large albumen hollow in the centie—11 cut vertically, showing the form and relative size of the embryo and albumen, the embryo apparently far from maturity—12 a young branch to show the foliage—13-14 a portion of the upper surface of a leaf *magnified*, to show the hairs and a tutt of hair—15-lb under surface and hairs

The piace which this genus ought to occupy in the natural system, docs not seem well determined Hitherto, it has been referred to *Verbenacee*, but I think there is much reason to doubt the propriety of this distribution To me it seems probable that this and *Congta* Roxb vwill unite to form a small but very distinct order, but whose affinities I have not yet made out

364 STERCULEA FCBTIDA (Linn) when I figured this plant No 181, I had not a good specimen of the fruit, I am therefore induced to give this additional figure of that plant, to show the *nuty'al size* of the full grown fruit—2a follicle after dehiscence, but before the seed have fallen out—3 a seed—4 the same cut transversely, showing the embryo enclosed in a copious albumen—5 a seed divided vertically between the cotyledons, showing the minute radicle at the apex—6 whole embryo detached

365 JNDIGOFEEA TXNCTORIA (Linn) ~~erect, branched~~ erect, branched, sprinkled with short whitish pubescence, branches terete firm leaves pinnated, leaflets 5-10 pairs, oblong obovate, cuneate at the base, slightly decreasing in size towards the apex of the leaf stipules subulate, erect or in-curved racemes shorter than the leaves, sessile, many-flowered flowers small, approximated at the base of the raceme, more distant and deciduous towards the apex calyx-segments broad, acute legumes approximated towards the base of the rachis, nearly cylindrical, slightly torulose, deflexed and more or less curved upwards sutures thickened Beeds about 10, cylindrical, truncated at both ends—W and A Prod p 202

1 Flowering branch—2 legume, cop ad from Roxburgh's drawing

366 JNDIGOFERA CJJRULKA (Roxb) shrubby, erect, branches terete, closely cohered with adpressed whitish pubescence leaves pinnated, leaflets 4-5-pairs, obovate, emarginate, the lower the smaller, the terminal largest, upper surface glabrous, under paler covered with depressed hairs racemes solitary, sessile, shorter than the leaves, many flowered flowers small, pretty close, tht upper ones deciduous calyx-segments short, acute legumes terete, short, about 5 times as long as broad, deflexed and falcate upwards, approximated towards the base of the ma< his, slightly torulose, 3-4 seeded — W and A. Prod p 203.

1 Flowering branch—2 dissected flower—3 stamens detached—4 keel petals showing the spurs—5 a raceme of fruit—6 a single legume slightly *magnified* Copied from Roxburgh's drawing.

367 INDIOOFERA PULCHBLA (Roxb) large erect shrub or small tree, young parts usually whitish with short adpressed hairs, branches angled leaves pinnated, leaflets 8 10-pairs, obovate or broad elliptic, emarginate, mucronate racemes about the length of the leaves, sessile, many flowered, springing from the axils of the leaves and from the former years' leafless branches flowers lirge, at first crowded, afterwards more distant cilyx-segments short and acute petals many time* longer than the calyx, patuloua and rebembling a bilabiate corolla legumes scattered along the rachn, slightly deflexed, nearly cylindrical, thick, straight, sharp pointed, 10-12-seeded, sutures callous, thick —W and A Prod p 203.

1 Flowering branch—2 a N ike of flowers and legumes detached Copied from Roxburgh's drawing

u> IMHf.ortkv \RnoKi < (Ko\b) arboreous, leaves piimute leaflets from 6 to 9 pin, oval < rvirginate, racemes the length of the leaves win,* ^paudid legume fluted, sii u^ht, smooth — Ho\b H Ind Jp 351

I I lowering branch—2 i dissected flower Copied from Roxburgh s drawing

✕ INDKOFFRA ATROPI RPIILV. (Buchan) shrubby eicct leu\es pinnate, ^ leifkts tiom 6 to 8 pairs, oval, smooth lacemes when in flower as long is the leaves, in seed twice their length legumes cjhndnc, straight, lcflexcd, from 8 to 9 seeded — Ro\b Fl Ind S p oil

1 Flowering branch—2 a portion of a raceme, with 2 pods—3 i pod after dehisreice Copied from Roxburgh s drawing

170 1 DPURO^IA SENTICOSA (Linn) shrubby, diffu&, noirly glabrous leaves pinnated leaflets 1-3 pairs, obcorditc, the tei ininal one the largest upper side glabious, under whitish with a veiy fine pubescence stipules subulate flowers in pairs, awllaiy, towards the extremities of the bianehes neilv sessile calyx segments subulate legumes compressed, glabrous, slightly curved at the point —VV and A Prod p 211

1 Flowering branch—2 dissected flower—3 legume—4 the s une open Copied from Roxburgh s di awing

371 TEPIIROSIA INCANA (Graham Galga incana (Ro\b)) shrubby, diffuse, evcry where except the upper surface of the lea\cs toinentosc oi woolly leives pinnated leaflets about i> pin, obo\ ite, retuse, upper side pubescent or silky, undei woolly stipules lanceolate, n tie vd racemes temiin il, elongated, interrupted, many-flowered flowers fascicled, almost sessile calyx villous, with long fuhoushairs, segments subulate, several times longer than th> tube vexillum silky legumes dt flexed and talcately curved upwards, obtuse, densely fulvous-wooll\, b Speeded—V\ and A Prod p 212

1 Flowering branch—2 legume open—Copied from Roxburgh s drawing

372 TEPHROSIA SPINOSA (Pers) Bhrubby, branches numerous, woody, rigid, spreading in every direction, clothed with white soil addressed somewhat cottony hairs leivis pinnated, leaflets 2 4 pair, cuneate, emarginate , uppei side glabrous, under clothed with addressed white silky hairs stipules subulat*, p itent, rigid, spinous (in the wild plant), flowers axillary 1 2 together, short peduncled calyx hail), segments subulate, about the length of the tube vexillum hairy legumes spreading, much compressed, lineal, falcate, more or less clothed with somewhatadpicsscd hairs, b-8-seeded.—W and A. Prod p 214

Copied from Roxburgh s drawing

373 DESMODIUM CFPHALOTFS (Wall) (Hed)sarum cephalotes, Roxb) arborescent branches obtusely triangular oensely clothed when jounng with adpiessed white silky pubescence, afterwaidis more glabrous leaves f nfoliolate, leaflets oblong or oblong lanceolate, clothed with woolly or silky hairs when >oung, soon glabrous, nerves paiallel, woolly beneath stipules <xanose, acuminated peduncles axillir}, seveial tunes shorter thail the petioles, manv-flowered lower calyx-segments narrower and longer than the others legumes densely vil lous, 2-3 jointed — \ and A Prod p 224

1 Flowcnng branch—2 cluster ot legumes—3 a single legume Copied from Roxburgh s drawing

374 DLSMODIUM RKCUR\ATLM (Gr\ham Hedy>aruin lecurvatum Roxb) shrubby branches spreading, recurved, clothed as well as the raceme with short ad pressed h tirs, angled , v,oung shoo to triquetrous lea\cs bifariou*, tufoholate, leaflets ovate or oval, glabrous above, pube cent beneath stipules lanceolate, acuminated racemes terminal, drooping befoie the flowers expand, afterwaidis very long (1 2-feet) brae teas lanceolate surrounding se\eral smaller setaceous ones flowers several together legumes nai row linear, straight on both sutures, clothed with short hooked hairs, joints more than twice as long as bioad —Graham Prod, p 226

Copied from Roxburgh's drawing.

37 > OsBrCMv TRIM VTA (Don) heibircous m nuil Mtms -lightlN krinched, 4 angled, the ingles cloth* d with ad pressed and afterward* spreading i r deflextdhans leaves spre uhng or deflexed, ovate strigose, quite entiri, ciliated, \ nerved the four upper ones ap proxnnited ind forming a kind of involuie mid r the flowers flowers (very mnall) termm il neatly sessile aggrepcited c-ilj\ urceohte, covered with spiciding simple or palmatt long bristles segments 4, deciduous appendage s deciduous, *hoi tish, crowned with bridles inthcM 8, tiuncated (without any beak ') o\ary crowned with 16-20 bristles —W und A Prod p 322

1 Flint natural size—2 a flowei partially dissected—3 anthers back and front views—4 o\ar\ cut virtically—5 capsule natural size—6 cut vertically—7 cut trails eiselv —3 a seed

37b OsBrCKiA VIHGATA (Don) shrubby branches straight, twigg), 4-inged, hispid leaves petioled lan peolate or ovate lanceolate, 3-nerved, quite entire , upper side sprinkled with addressed hairs under hirsute on the nerves, otluurwise glabi)us flowers aggregated calyx tube urceolan, sprinkled with simple and 2-J-partite spreading bristles, sometimes neirly naked, segments5, deciduous, appendages deciduous, being usually deeply tnfid or sometimes simple bristles anthers 10, shortly beaked, ovary crowned with numerous bustles stkle incurved near the apex—W and A Piod p 12)

1 Flowering branch—2 dissected flower—3 anthers back and front views—4 capsule—5 rut vertically—6 cut transversely—7 a seed

377 OSBBCKM ASPFBA (Blume) shrubby bnchea obscurely 4-angled, rough from short stugose bristles leaves shortly petioled, oblong-ovate, or oblong-lmceolate, acute, obtuse at the base, 3-nerved, upper side copiously clothed with ad pressed bristles, under hirsute on the nerves, and harshly pubescent between them flowers on short pedicels, terminal, somewhat racemose calyx-tube cup-shaped, copiously clothed with addressed rigid pubescence , segments 5, ovate-oblong, obtuse, deciduous , appendages caducous, consisting of a tuft of a few (sometimes only 1) bristles stamens 10, anthers acuminated but scarcely beaked style incurved at the apex , ovary crowned with numerous bristles —W. and A Prod p 323

1 Flowering branch—2 dissected flower—3 capsule cut transversely—4 cut vertically—5 a seed—6 the same cut longitudinally—7 the embryo detached

378 LOHANTHUS TOMENTOSUB (Heyne) all over greyish with starry toinentum branched terete leaves alternate, roundish obovate obtuse somewhat cuneate at the base petioled, at length nearly ^uhroU8 on the u> per side peduncles axillary, solitary, bearing an umbel of 3 5 pedicelled villous flowers , bractea foliac eous, much larger than the ovary, umlateial, close to the ovary, cuneate-obovate, obtuse calyx limb 5-toothed corolla tubular, gibbous on one side abene the middle, curved, splitting into 5 linear recuved unilateral segments, one of the fissures much deeper than the others filaments inuncated anthers lmeai —Vr and A Prod p 385

In this phtc three varieties are represented—varying in the forms of th(leaves and of the bractas, but agreeing in all having large folticeous biacts

1 Flowei ing branch—2 a flower with its attached bractea—3 a dissected flowei—4 stamens—5 ovary after the fall of the corolla

37J CAPIARIS MuauAYMi* (J Graham) 6hrubby, diffuse, armed with bhoit recurved (orange colour*d) prickles , joun^ shoots tomontose lcivcs small, roundish, glabrous flowers large upper sepal larger than the othei&, sac< ate bcii) long peduncled oval, ribbed

t or the draw mg and a sohtury specimen of this verv distinct species, lam indebted to the late Mr John Giaham of Bombay It is found m ravines HC Mahible>hwin hills " Flowers white, beautifully suffused with red, large and showy Niinmo in Graham s catalogue

1 Flowering branch ^2 withers—3 ovary cut longitudinally>

380 HIPPOCRAIEA ORAITAMTI (R W III Ind Hot J 31) shrubby, twining, glabrous leaves coriaceous, entire, from broadly ovate to sub-orbicular, acuminate panicles, numerous, many-flowered, congested towards the summits of the branches, petals linear spatulate, obtuse, carpels obovate, obtuse, slightly emarginate — Bombay

1 Flowering branch—2 a flower seen from above—3 the same, the petals removed—4 a stamen, anther transverse—5 ovary cut vertically—6 cut transversely—7 young carpels—8 one of them opened showing the position of the seed at this early stage—9 a carpel further advanced cut transversely—10 a seed, the wing beginning to form

381 HIR/FA INDICA (Roxb) leaves broadly ovate, more or less acuminate, shining, glabrous on both sides panicles axillary or terminal calyx without glands carpels each surrounded with an oblong-linear entire wing — Roxb W and A p 108

1 Flowering branch—9 a flower, *natural size*—3 the same *magnified*, and partially open—4 the same somewhat forcibly opened—5 anthers—6 calyx, ovary and styles—7 ovary cut transversely—8 cut vertically ovules pendulous—9 a cluster of fruit—10 one of them cut transversely—11 a single carpel cut transversely—12 a fruit with one carpel separated to show the mode of union—13 side view of one—14 one carpel attached to the pedicel—15 a seed detached

382 CBLASTRIB MONTAVI (Roxb) thorny, young branches occasionally unarmed, smooth (purplish) leaves elliptical or obovate, tapering at the base into the petiole, minutely and rather shallowly crenate-serrate, coriaceous, glabrous, whitish-glaucous (when dried) cymes axillary, lax, peduncled, about twice as long as the petiole style deeply divided capsules somewhat globose, 1-angled (about the size of a pea, black when dry) — W and A Prodr p 159

1 Flowering branch—2 a flower, side view—3 the same front view—4 stamen—5 ovary cut vertically—6 cut transversely—7 an ovary in which one of the cells have aborted

383 CROTAIRIA OJITECTA (Graham) suffruticose, erect, covered all over with a short dense tomentum branches terete, stipules and bracteas setaceous, minute leaves oval, mucronate racemes terminal, elongated, flower numerous, approximated bracteoles on the middle of the pedicels, setaceous calyx deeply 5-cleft, densely covered with rusty tomentum segments all distinct, linear acuminate imbricate legume sessile, oblong, rather broader upwards, about four times as long as the calyx, densely tomentose, many seeded—W and A Prodr p 180

1 Flowering branch—2 dissected flower—3 an anther—4 the style and stigma—5 ovary cut lengthwise—6 a legume similarly cut—7 a seed—8 the same cut longitudinally

384 TRIGONFLACOBANKULAT (Linn) annual stem somewhat erect, sometimes flexuose or diffuse, glabrous leaflets obovate, toothed or serrated towards the apex stipules lanceolate, nearly entire or toothed peduncle axillary, longer than the leaflets, mucronate at the apex racemes many-flowered, at first dense and umbelliform, afterwards lengthening corolla thrice the length of the calyx legumes compressed, decimate falcate short pointed, transversely veined seeds reniform, rugose, radicle prominent — W and A Prodr p 190

Copied from Roxburgh & drawing

385 INDIGOFERA HINTAPHTLA (Linn) suffruticose decumbent, terete, glabrous except the young parts leaves pinnate, leaflets 1-2 pairs oval, both sides but more particularly the under hoary from whitish soft hairs stipules hence late-subulate, hairy peduncles about the length of the leaves, bearing about 2-3 rather distant flowers calyx-segments short, subulate legumes straight, cylindrical, mucronate, glabrous seeds 10-12, cylindrical, truncated at both ends — W and A Prodr p 200

1 Branch with flowers and fruit—2 a dissected flower—3 a legume opened

386 IMMIGOBRA TRITA (Linn—I cinerea Roxb) herbaceous or suffruticose, erect, rigid, more or less hoary from short indurated pubescence leaves pinnately trifoliate, leaflets oval or oblong, rounded racemes sessile, about the length of the leaves, many-flowered, flowers small, upper ones deciduous calyx-segments long and subulate legumes deflexed or horizontal, closely approximated at the base of the rachis 4 angled straight, rigid, and sharp pointed seeds numerous (G 10), 4 sided, truncated at both ends — W and A Prodr p 203

1 Branch with flowers and fruit—2 the keel of the corolla spurred on each side

387 INDIGO* EH A UACPIDA (Roxb) suffruticose, sparingly covered with adpressed short hairs stems and branches usually weak, the former terete, the latter angled leaves pinnate, leaflets 2-3 pairs, opposite, oval, acute, bristle-pointed stipules long, setaceous, erect racemes peduncled, elongated, twice the length of the leaves flowers small, reticulate, rather distant calyx-segments long and subulate legumes subulate on the lower half of the rachis, drooping, long-linear, slender, 4 angled, pointed, many-seeded — W and A Prodr p 204

1 Flowering branch—2 spurred keel of the corolla

388 TEPHROSIA TINCTORIA (Linn—Galega He) (near Roxb) shrubby, tree-like, branched, everywhere except the upper surface of the leaves clothed with a silky white or fulvous tomentum branches flexuose stipules linear lanceolate leaves pinnate, leaflets 1-2 pairs, or occasionally reduced to the terminal leaf, oblong oval, terminal one longest, the lower pair at the base of the petiole and smaller than the others, upper side glabrous, under white and tomentose peduncles usually longer than the leaves, axillary, erect, bearing a short spike-like raceme at the apex calyx-segments subulate flowers small, on pedicels shorter than the bracteas vexilliform silky legumes flat, nearly straight, spreading, unilateral, 8-12 seeded — W and A Prodr p 211

Var a branches shorter, more rigid hairs on the young parts fulvous leaflets shorter, smaller, 1 to 1½ inch long, more coriaceous

1 Flowering branch—2 dissected flower—3 legume opened

399 FLBMINCIA NAN (Roxb) suffruticose, with a very short ligneous base, and few abortive leaves ternate leaflets sub ovate, petiole-winged racemes axillary crowded legume covered with red clammy glands — Roxb H Ind J, p 330

1 Flowering branch—2 legume Copied from Roxburgh's drawing

390 FLEMINGS CONGESTA (Roxb) shrubby, somewhat erect, young parts villous leaves lanceolate, leaflets ovate lanceolate, upper side nearly glabrous, under pubescent, dotted with numerous black glands, the nerve densely pubescent and rather distant petiole nearly terete stipules lanceolate-subulate, 5 times shorter than the petiole, caducous racemes dense, oblong, rather shorter than the petiole, almost sessile, aggregated bracteas ovate cuspidate, shorter than the flowers, caducous legume glabrous — W and A Prodr p 241

1 Flowering branch—2 spike of fruit—3 legume—1 same opened

391 DARUKECIA OOFINLIMS (Roxb) leaves ternate, leaflets sub rotund racemes terminal and axillary flowers 3-fold stamens 1 and 2 legume linear — Roxb Fl Ind 3 p 220

1 Flowering branch—2 flower-buds with their accompanying bractea, to show the ternary arrangement—3 a dissected flower—4 a one-seeded legume—5 a legume opened to show the seed

•192. *CxsALPIRIA MIMOBIOIDES* (Lam.—C. Simora Ham.: Roxb.) scandent; stem and branches armed with numerous straight prickles; young parts coloured, armed with prickles and glandular hairs or bristles: pinnof tAe leates 12-30 paii; leaflets 8-16 pair, linear-oblong, obtuse, glabrous: common petiole armed with usually ;) prickles at the insertion of each pair or pinnae, two of them on the under side recurved, one on the upper bent upwards: stipulesensiform: racemes simple, leaf-opposed and terminal: legumes short, obliquely truncated, cuspidate, about a halt longer than the breadth at the top, turgid, somewhat hairy, 2 - seeded.—W. and A. Prod. p. 2*1.

1 Flowering branch—2 dissected flower—3 legume—the same opened—5 a seed cut transversely—6 vertically showing the radicle and plumule at the base—7 radicle and plumule removed.

393. *TADERNEMOKTANA PAUCIFLORA* (Roxb.) shrubby, dichotomous: leaves broad, lanceolate, tapering upwards to an obtuse point: peduncles in pairs at the forks, few-flowered: segments of the calyx ensiform.—Roxb. Fl. Ind. II. p. 25.

1 Flowering branch—2 a dissected flower—3 calyx and ovary—I ovary cut transversely—5 stigma.

•94. *MBLODINUS MONOGYNUS* (Roxb.) glabrous, climbing, leaves lanceolate, shining, acuminate: panicles axillary and terminal, sub-globular, brachiate crowded: corolla 5-parted, segments sub-falcate; scales in the mouth of the tube entire ensiform; style short: stigma ovate, bifid, or emarginate at the top.—The pulp of the fruit is edible. G. Don Diet. 4, p. 101.

1 Flowering branch—2 a dissected flower—3 calyx, ovary, style and stigma—4 ovary cut transversely—5 a full grown fruit—6 the same cut transversely—7 a seed—8 cut transversely—9 cut longitudinally showing the embryo embedded in a copious albumen.

895. *ECHITKS CTMOSA* (Roxb.) A«AHOBMACTMOSA.G, Don Diet.) shrubby hairy: leaves elliptic, acuminate: cymes terminal, shorter than the leaves, segments of the corolla oblique-ensiform: nectary cup-shaped, 5-toothed. Flowers small white, calyx and corolla hoary outside. Roxb. Fl. Ind. 2, p. 216

1 Flowering branch—2 dissected flower—3 calyx, ovary, style and stigma, ovary enclosed io its rup-shaped disk—4 disk opened to show the ovary—5 ovary cut transversely. Copied from Roxburgh's drawing.

396. *ECHITES rANicuLVTA* (Roxb.) leaves broad, lanceolate, bluntly acuminate: panicles axillary and terminal, trichotonvms throughout; the extreme divisions three-flowered: follicles sub-clavate, few-seeded: hypogynous scales combined into a cup-shaped 5-toothed urceolus.—G. Don Diet. 4, p. 75.

1 Flowering branch-2 dissected flower—3 calyx split open, showing the urceolus enclosing the ovary—4 ovary cut transversely—5 follicles—6 a seed with its coma—7 cut longitudinally, showing the embryo embedded io albumen.

397- *RANDIA ULIGINOSA* (DC. *Gardenia uliginosa* Roxb.) arboreous, armed: branches straight, 4-angled; branchlets decussating, horizontal, terete, bearing 1-4 thorns and 1-3 short-pedicellate flowers at their extremity: leaves short petioled, oblong, somewhat cuneate at the base, glabrous, shining: limb of the calyx tubular, bluntly 5-toothed or nearly quite entire, a little shorter than the tube of the corolla: corolla villous in the mouth: berry oval, drupaceous, even.—W. and A. Prod. p. 398.

1 Flowering branch—2 dissected flower—3 anthers back and front views—4 calyx split open and thrown back to show the disk, style and stigma—5 ovary cut transversely—6 cut vertically.

398. *GUATTBBIA KORINTI* (Dun.) shrubby, climbing: leaves ovate-oblong, acuminate, coriaceous, glabrous; upper side shining, under prominently leticulated with veins: flower-bearing shoots elongated, leafy, with several flowers; peduncles axillary, solitary, pubescent: petals equal, about twice as long as the calyx, elliptic-oblong, obtuse, margins recurved: carpels 6-12 globose, on sulks longer than themselves.—W. and A. Prod. p. 10.

1 Flowering branch—2 a flower full blown—3 a flower after the fall of the petals and stamens cut vertically, showing the position of the ovaries on the thalamus or receptacle—4 an ovary detached—5 and 6 the same cut vertically showing the solitary erect ovule-7 cut transversely—8 stamens truncated on the apex—9 a carpel with its pedicel—10 a seed removed from the carpel—11 cut transversely—12 cut vertically, showing the embryo at the base.

399. *ABRLMOSCHUS MOSCHATUS* (Moench) stem herbaceous, hispid with spreading hairs, not prickly: leaves, and long petioles, hispid with rigid hairs but otherwise glabrous, unequally and coarsely tootheti, deeply 5-7 lobed; lobes all spreading, oblong or lanceolate, acuminate: pedicels harshly pubescent, axillary, about as long as the petioles: involucl-leaves 6-10, linear, hairy, somewhat persistent: capsule oblong, acuminate, hairy.—W. and A. Prod. p. 53.

1 Flowering branch—2 an anther—3 ovary cut vertically—4 a capsule—5 cut transversely—6 a seed—7 dissected showing the embryo *in situ*—8 the embryo detached.

400. *EBIODINDRON AAFBACTUOSUM* (DO.) trunk at the base prickly: leaflets 5-8, quite entire or serrulated towards the point, lanceolate, mucronate, glaucous beneath: anthers versatile, anfiactuose.—W. and A. Prod. p. 61.

1 Flowering branch—2 ovary cut transversely—3 mature capsule dehiscing—4 carpels showing the position of the seed—5 seed with its wool—6 a seed detached from the wool—7 cut vertically, showing the twisted folded cotyledons—8 cut transversely.

401. *SCHMIDBLEA VILLOSA* (Omitrophe villosa Roxb.) shrubby, tomentose: leaves ternate; leaflets oblong, ventricose, remotely serrulate on the anterior margin: racemes axillary and terminal, simple: petals uniform the whole of the inside woolly.—Chittagong.—Roxb. Fl. Ind. II. p. 265.

1 Flowering branch—2 a dissected flower, the petals thrown back, and part of the stamens removed to show the ovary—3 ovary cut vertically—4 back view of the flower. Copied from Roxburgh's drawing.

402. *CCPAHIA ROXBURGHJI* (R. W. Schlicbera pentaphylla Roxb.) leaflets from three to four pair, sub-alternate, lanceolate, flowers 5-peialed: capsule 1-seeded.—Roxb. Fl. Ind. II. p. 275.

1 Flowering branch—2 a male or sterile flower—3 a bisexual or fertile flower—4 ovary cut vertically—5 cut transversely—6 capsule and seed after dehiscence—7 the same as seen before perfect maturity—8 a seed—9 & 10 the same dissected. Copied from Roxburgh's drawing

403. *INDIGOFERA ENNHAPHYLLA* (Linn.) perennial, procumbent, all the young parts and leaved pubescent with adpressed whitish hairs: branches prostrate, two* edged: leaves pinnate, sessile; leaflets 3-5 paira, obovate-oblong: stipules lanceolate, acuminate, scariose: raceme sessile, short, oval, dense, many-flowered: calyx-segments long-subulate: legumes oval, scarcely twice as long as broad, pubescent, not winged: seeds 2, ovate and truncated at one end.—W. and A. Prod. p. 199.

1 Flowering branch—2 legume—3 spurred keel of the corolla. Copied from Roxburgh's drawing.

404 INDIGOFBBA* VISCOSA (Lam.) suffruticose, erect, much branched branches, petioles, peduncles, and legumes glutinous, with rigid gland-tipped hairs leaves petioled, pinnated leaflets 4-8 pairs, elliptic-oblong, pubescent from white adpressed hairs, particularly on the under side racemes peduncled about the length of the leaves or longer flowers distant, small calyx-segments short subulate legumes cylindrical, horizontal, straight seeds 6-12, cylindrical, truncated at both ends —W and A Prod p 200

1 Flowering branch—2 dissected flower—3 nine stamens united into one brotherhood—4 spurred keel of the corolla

405 &CHYVOMENE TINDICA. (Linn Hedysarum Nali-Tali, Roxb.) annual, diffuse, branched branches slender, glabrous young shoot*, petioles, and peduncles, often slightly muncated leaflets 15-20 pairs, linear, obtuse at both ends peduncles axillary, slender, few flowered, often with a small leaf at the base of the pedicels calyx and corolla glabrous legumes long-stalked, 6-10 jointed, joints at first smooth, afterwards with a few glandular dots, when mature rough with irregular confluent warts, tumid in the middle, thinner at the edge —a, Branches thicker, more spongy, ascending, arising from the root and along the main branch —W. and A Prod p 219

Copied from Roxburgh's drawing

406 DESMODIUM POLTICARPUM (DC Hedysarum purpureum Roxb.) suffrutescent, procumbent, branched, often rooting at the joints branches slightly angled, usually with white adpressed pubescence, but often with white spreading hairs on the young shoots leaves infoliate, leaflets from exactly oval and obtuse at both ends to obovate-retuse or mucronate, upper side glabrous or very sparingly pubescent, under reticulately veined, usually pubescent sometimes covered with long soft white silky down, lateral leaflets rather smaller than the terminal one, sometimes wanting petiole slightly margined stipules acuminate, deciduous racemes axillary and terminal, many flowered bracteas broadly ovate, pointed, pubescent, before expansion densely imbricated pedicels nearly glabrous keel narrow, straight, incurved at the apex, longer than the ale legumes erect, hispid, 6-6 jointed, straight on the one margin, notched into the middle on the other -W and A Prod p 227

Copied from Roxburgh's drawing

407 DESMODIUM PATENS (Hedysarum patens Roxb.) perennial, diffuse leaflets oblong raceme's terminal bracteas three fold, one flowered legume from 5 to 6 jointed, notched underneath, hamose bristled —Roxb. IL Ind III p 363

Copied from Roxburgh's drawing

408 FLEMINGIA POCUMBENS (Roxb Fl Ind Hedysarum procumbens Roxb M Ss non Fl Ind) perennial, procumbent, 3-sided, particularly when dry, racemes axillary length of the leaves, legumes and calyx be sprinkled with garnet-coloured grains —Roxb Fl Ind III. p 338

1 Flowering branch—2 dissected flower—3 legume—4 the same opened

409 DESMODIUM DIFFUSUM (DC Hedysarum diffusum Roxb.) herbaceous, procumbent, diffuse, branched branches 4-5 angled, hispidly pubescent leaves infoliate, leaflets oval, pubescent on both sides stipules large, foliaceous, auncled and stem-lasping racemes terminating every branch, very long bracteas small, lanceolate, 2-3 together flowers in pairs or threes legumes ascending or nearly erect, 5-6 jointed, notched on both sutures, hispid with short hooked hairs, joints orbicular, tumid in the middle when mature seeds oval, compressed, with the hilum at one of the narrow ends —W and A Prod p 226

Branch copied from Roxburgh's drawing

410 CASSIA NODOSA (Roxb.) leaves bifarious, leaflets ten-paired oblong stipules obliquely crescent shaped, with a bristle at each angle racemes lateral three lower filaments with a globular swelling near the middle Chittagong Roxb Fl Ind I p 3J6

This like the other species of the section *Cathartocarpus* has albuminous seed

1 Flowering branch—2 stamens—3 portion of the legume

411 UBABIA MCTA (Desr Hedysarum pirtum Roxb.) shrubby, erect, young parts clothed with hooked hairs leaves simple and pinnated, simple ones oblong ovate, leaflets of the compound ones 2-4 pair, linear lanceolate, obtuse, upper side clouded, under a little reticulated and pubescent racemes terminal, $\frac{1}{2}$ in long, spike like, rigid bracteas below the raceme pedicels, (VHte lanceolate, acuminate, rigid pedicels covered with short hooked hairs, much incurved at the apex after flowering calyx-segments bearded with long hairs, lanceolate setaceous, the lower ones at length about twice as long as the upper legume J-G-jointed —W and A Prod p 221

Flowering branch, copied from Roxburgh's drawing.

412 PUERARIA TUBIFLORA (DC Hedysarum tuberosum, Roxb.) root tuberous, very large stems Moody, twining leaflets roundish, pubescent above, beneath silky-villous stipules cordate racemes simple or branched the length of the leaves, from the cicatrices of the fallen leaves flowers (blue) in threes calyx 4-cleft, silky, segments about equal, ovate, the upper one the broadest and almost entire legumes very hairy linear, pitted, 2-6-seeded, much contracted between the seeds. —W and A Prod p 205

1 Flowering branch—2 a leaf—3 legume Copied from Roxburgh's drawing

413 LAGERSTROMIA REGINIA (Roxb.) leaves oblong, glabrous panicle terminal calyx tomentose, longitudinally furrowed and plaited petals orbicular, waved, shortly unguiculate stamens 11 about equal, broadly ovoid, 6-celled —W and A Prod p 108

1 Flowering branch, *natural size*—2 a flower the petals removed—3 anthers, one dehiscent—4 ovary—5 the same cut transversely—6 cut vertically—7 capsules nearly full grown—8 the same cut vertically—9 cut transversely—10 mature and dehiscent—11-12 seed *natural size* and *magnified*

414 PERGULAHIA OBOBASSIMA (Smith) twining branches softly pubescent leaves cordate, acuminate, pubescent on the veins cymes short peduncled, many-flowered corolla segments short, obtuse, tube twice as long as the gynostegium, furnished within with five lines of deflexed hairs, decurrent from the sinus* crown of the stamens as long as the gynostegium —Wight's contn p 43

1 Flowering branch, *natural size*—2 a dissected flower corolla removed and the calyx opened to show the gynostegium—3 corolla opened—4 gynostegium detached—5 the same, the anthers turned back to show the pollen cells and pollen masses *in situ*—6 the stigma and pollen masses, anthers removed—7 detached pollen masses—8 ovary cut vertically—9 one carpel cut transversely

415 DIOSPYROS KAKI (Koenig) leaves bifarious, ovate, cordate, downy male peduncles three flowered stamens about 20 hermaphrodite, solitary, octandrous style four-cleft, stigmas bifid —Roxb Fl Ind II p 527

Upper figure—1 flowering branch, male plant—2 a dissected flower—*Lower figure*—1 flowering branch bisexual plant—2 corolla split open—3 anther—4 ovary and styles—5 detached stigma—6 calyx—7 a fruit full grown seen from above—8 the same seen from below—9 cut transversely—8-celled—10 a seed—11 the same cut longitudinally, the embryo in the apex of a large albumen

416 DIOSPYROS BACEMOSA (Roxb.) leaves from oblong to lanceolate, obtuse, glossy both male and hermaphrodite flowers on axillary, cymose racemes, the former with 20 or 30 stamens, the latter with 12 or 16 germ 4-celled, style none, stigma 4-cleft berries round, smooth, with as many as four seeds—Roxb Fl Ind II p 536

OBS The figure of the hermaphrodite plant differs from the character of the species, in having solitary not cymose flowers

Upper figure—1 male plant flowers and leaves—2 corolla and stamens—3 calyx—*Lower figure*—1 flowering branch, bisexual plant—2 corolla split and forcibly opened showing the stamens—3 ovary and calyx—4 cut vertically—5 cut transversely—6 full grown fruit seen from below—7 cut transversely 1-celled—8 a seed—9 the same cut longitudinally showing the embryo Copied from Roxburgh's drawing

EXPLANATION OF PLATES.

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417 CASTANKA INDICA (Roxb *Nikan*, *nbhettee*) Leaves oblong, acute mucronate-serrate, polished j^b ve hoary underneath Aimntn subtennmal paucied flow-ers polygamous Roxb H Ind 3p 643

1 Flowering braccn 2 a male flower seen from above —3 hermaphrodite flower, showing the calyx surrounded by its scaly involucre—4 the same cut vertically—5 ovary cut tra aversely—6 a fruit the spines removed from the front aspect—7 a fruit with wo nuts in the same capsule—8 & fruit with one nut cut vertically to shew the inferior attachment of the seed - 9 a seed cut tiansversely—10 cut vertically showing the embryo —11 embryo detached.

418 DICEBMA PULCHRIUM (DC) «tem erect sti-pules free from the petiole and from each other leaves long petioled, pinnately tnfoiolate leaflets elliptic ob-lⁿgi pubescent beneath, glabrous above, terminal one the Juigest, all furnished with partial stipules flor vl leaves bifoliolate, the odd one nb«rtive, the lateral ones orbicular aud bractea-like the petiole ending in a bristle Dearly as long an the lateral leaflets flowers aggregated pedicels short bracteoles caducous legumes 2- or sometimes 3 jointed, glabrous on the sidett, viUous on the sutures—W and A Prod 1 page 230

1 Flowering branch 2 floral leaves forcibly opened to Bhow the flowers—3 a legume—1 a seed—5 and b the same slightly *magnified*

419. DICEBMA BIARTICULATUM (DC) diffuse sti-pules free from the petiole, but coh ring together to near their apex leaves short petioled, palmately tnfoholate, leaflets nearly equal in size, without partial stipules, obovate oblong, obtuse, nearly glabrous floral leaves abortive flowers 2-4 together in the axils of stipules, and forming naked racemes legumes 2-jointed, clothed with adpressed hairs — W and A Prod I page 230

1 The long tapering root full length with a single flowering branch.

420 PONGAMIA ELLIPTICA (Wall *Galedupa elhptica* Roxb Ms sand Fl Ind 3p 242) Twining leaflets opposite from four to five pair, cuneate oblong rat met panirled, axillary partial peduncles from 2 to 5 flower' ed calyx bowl-shaped almost entire banner with 2 scales at the base legume elliptic Roxb Fl «Ind 1 -c native of Amboyna aud Malay Inlands

1 Flowering branch -2 legume opened showing the seed.

421. CROTALABIA TRIFOLIATIBUM (Willd) Suffruti-cose, stems several woody, »Tect or ascending branches long and nearly simple, straight and twiggy, tonieutose stipules minute, setaceous leases rather distant, tnfo-holate, long petioled, leitiet? cuneate, obcorda'e, shorter than the petiole, (from half an inch to an inch lung), upper side glabrous, under paler, sprinkled with minute adpr ssed hairs racemes terminal elongated (3 5 inches long), many flowered, w»ih occasionally a few flowered peduncle in the axils of the upper lea'ves, flowers distant (pretty large) bracteas subulate —W and A Prod I page 191

1 Branch with flowers and fruit—2 a flower—3 and 4 the same dissected—5 oval anthers of the longer &enes of stamens—ti subulate anthers of the shorter—7 ovary cut open to show the position of the ovules—8 legume opened showing the seed.

422 ALRTONIA SCHOLARTM (R B *Echttis scholar*[^] Roxb) leaves 5—7 in a whorl obovate oblong obtuse ribbed and having the veins approximating the margin cymes on short peduncles corolla a little bearded follicles very long—G Don, Diet 4 p 86

1 Flowering brand)—2 a dissected flower

421 ECHITES PANvFT OBA (Roxb) leaves lanceolate, panicles terminal and axillary, brachiate, lube of corolla gibbous touirdfi the base segments of the limb linear, falcate—G Don, Dicty 4 p 75

I I* lowering branch^ 2 Corolla tube opened to show the positiou of the stnmens

424 AGANORMA ACUMINATA (G Don-ZMife* *acu-minata* Roxb) leaves from oblong to broad-lanceolate, acuminate, glabrous, panicles axillary, longer than the leaies, tnchoti inous ditJW segments of corolla linear, falcate, curled—G Don Dicity 4 p 77

1 Flowering branch—2 calyx opened to show the o'ary and style—3 corolla detached, tube opened to show the stamens—4 ovary cut tran«versely—5 follicles -6 a seed, coma next the hilum—7 seed i ut longitudinally

425 AOAKOSMA MARGIN AT A (6 Don *Echttis mar-gnata* Roxb) lea'ves lanceolate, smooth, having the tops of the veins forming a wavtd line within the marpm of the leaf, pnmcles terminal, lax, corymt ose, at first sub-tnchotomouti, and then dichotomous, glabrous, segments of corolla linear, falcate, nectary annular G Don Diet 4 p 77

1 Flowering branch -2 calyx dissected to show the ovary—J corolla dissected to show the stamens—4 ovary cut transversely.

426 CABISSA. CABAVDAS (Linn) subarboreous leaves ovate, mucronate, or elliptic, obtuse, glabrous, spines often 2-forked corymbs terminal and axillary, few-flow-ered cells of fruit 4 Beeded-G Don 1 c p 104

1 A I ranch beannng flowers and fruit—2 calyx and ova-ry — 3 corolla dissected

427 CARISSA DiFrusA (Roxb) shrub diffuse, spiny, with dichotomous branches leaves almost sessile, round- i li-ovate cordate mucronate, polished corymbs «er-nunal rarely axillary, many flowered cells of berry 2-seeded—G Don 1 c p. 104

1 Flowering branch—2 calyx dissected showing the ovarj 3 corolli dissected—4 a stamen—5 a berry—6 cut transversely 2 seeded—7 rut longitudinally

428 HFVTRBIA COBTMB BA (Roxb) leaves oblong, lanceolate, obtuse, pointed, glabrous corymbs terminal, decussate lobes of calyx ovate—G Don 1 c p 105

1 Flowering branch—2 dissected flower—3 fruit, one cut transversely

420 VAIXABTS PBRGDLANA (Burm—*Echttis htrcosa*, Eoxb) leaves ovate, elliptic, acute, Uabroua, corymbs axillary, tnchotomouR, downy segments of corolla roundish fe Don 1 c. p 79

] Flowering branch—2 calyx and ovary—3 dissected flower and suuneos—4 o'ary—5 ovary cut transversely.

430 *ICHNOPLERIS FRUTESCENS* (Roxb) *Echites frutescens* (Roxb) stem twining leaves oblong lanceolate, tapmi % to both ends glabrous peduncles axillary, very long mucose pedicels fascicled follicles variable—G Don 1 c p 78

1 Flowering branch—2 detached flower magnified—3 the same dissected showing the ovary and hypogynous filaments—4 follicles—one dehiscing

411 *CATPICARPUM ROXBURGHII* (G Don—*Certhra fruitcoia* Roxb) leaves opposite, remote, oblong to lanceolate (lanceolate) acuminate corymbs at first terminal, but a few towards the forks, with sub-terminal, short divisions—G Don 1 c p 100

1 Flowering branch—2 calyx dissected showing the ovary—3 corolla tube cut open—4 detached ovary—5 ovary cut transversely—6 cut vertically—7 follicles, one aborted—8 mature follicle opened, one seeded—9 seed detached

432 *CHONEMORPHA MACROPHYLLA* (G Don *Ec kites macrophylla* Roxb) stems twining leaves large, roundish, acuminate, downy beneath, cymes terminal—G Don, 1 c p 7b

1 Flowering branch—3 detached ovary and stigma—3 dissected corolla, tube and anthers—4 ovary cut transversely

433 *TIBERNO2MONTANA DICHOTOMA* (Roxb) leaves oblong, obtuse, coriaceous shining, with many parallel nerves beneath, nerves elongated, dichotomous alone segments obtuse segments of corolla oblong falcate, about equal in length to the tube G Don 1 c p 91

1 Flowering branch—2 calyx and ovary—3 corolla dissected and stamens—4 a follicle opening—5 a seed—6 ovary cut transversely and vertically—7 a seed cut transversely—8 cut longitudinally showing the embryo *in situ*

434 *STRYCHNOS COLUBRINA* (Lin) scandent tendrils simple leaves from oval to oblong bluntly acuminate triple nerved, polished berries many seeded—G Don 1 c p page 65

1 Flowering branch—2 calyx, ovary, style and stigma—3 corolla dissected anthesis in the throat—4 ovary cut transversely—5 a full grown fruit—6 the same cut transversely—7 a seed cut longitudinally

435 *EIGENIA (JAMBIR) IN WIGHTS Illustrations 2, p 14—(Jifnbosa vnl'ara Dc)* leaves narrow-lanceolate, attenuated at the base, acuminate towards the apex racemes (mucose) terminal (flowers white) fruit globose—W and A Prod I page 332

1 Flowering branch—2 a dissected flower—3 stamens—4 ovary cut transversely—5 a full grown fruit—6 the same cut transversely—7 a portion of a leaf magnified, pellucid dotted

436 *ALSTONIA VENINATA* (Roxb) *Echitea venenata* (Roxb) leaves 4 m or more, oblong lanceolate, acuminate, attenuated at the base cymes dichotomous tube of corolla wide edupwards, limb acute, beardless follicles attenuated at both ends hardly equal in length to the leaves—(G Don, 1 c p 87

1 Flowering branch—2 detached flower—3 calyx dissected showing the ovary—4 corolla dissected—5 a branch with fruit—6 follicles—7 a seed

437 *CARIBSA VILLOSA* (Roxb) shrub downy, tender parts villous leaves from broad lanceolate to oblong, acute, soft from down, particularly while young flowers terminal, by threes or sevens cells of fruit 2 seeded—O Don, 1 c p 104

1 A flowering branch—2 a detached flower—3 calyx dissected showing the ovary—4 dissected corolla—5 ovary cut transversely—6 a berry—7 cut transversely—8 a seed—9-10 and 11 dissections of the same.

43b *VALLARIS DICHOTOMA* (Wall *Eckit dichotoma* Roxb) leaves lanceolate oblong, glabrous racemes axillary dichotomous segments of corolla roundish filaments bearded and woolly—G Don 1 c p 79

1 Flowering branch—2 dissected flower—3 stamen, front view—4 back view of the same—5 side view showing the fleshy protuberance—6 a follicle dehiscing—7 a seed—8 9 the same dissected

439 *CHONEMOBPHI (?) ANTHY-CHIERCA* (G Don. *Echites untidy tener tea* Roxb) shrubby erect angular leaves ovate lanceolate with obsolete crenulated edges, glabrous on both surfaces corymbs axillary, dichotomous calyx and corolla downy—G Don 1 c p 76

1 Flowering branch with follicles—2 a dissected flower

440 *AGANOHMA ROXBURCHII* (G Don—*Echitea caryophyllata* R) leaves ovate, cordate, acuminate having the petioles and veins red, glabrous, pale beneath and thinning above with the principle nerves running from the base to the apex of the leaves corymbs terminal segments of corolla triangular—G Don 1 c p 77

1 Flowering branch—2 dissected flower showing the hypogynous disk—3 calyx seen from below

441 *CLEBBRA ODOLIUM* (Gaert Roxb—*Tanghtua odollum* D Don) leaves lanceolate, approximate, shining corymbs terminal calyx segments linear, revolute segments of corolla sub-falcate G Don 1 c p 98

1 Flowering branch—2 dissected flower—3 a mature fruit, outer coat much torn—4 the same outer coat removed—5 cut transversely

442 *WRIGHTIA COCCINEA* (*MHS—*Neman Coccineum* H) leaves almost sessile, ovate oblong flowers 3-4 together terminal corona in the throat 5 lobed, lobes crenulated follicles imbricate, rough tube of corolla short—G Don 1 c p 86

1 Flowering branch—2 calyx and flower before expansion—3 dissected calyx, ovary style and stigma—4 dissected corolla—5 anthers back and front views—6 ovary cut transversely—7 a follicle dehiscing—8 a seed—9 testa removed cotyledons spirally convolute

443 *WRIGHTIA TOMENTOSA* (G Don *Neman tomentosa* B.) leaves oblong acuminate, downy corymbs terminal small tube of corolla larger than the calyx corona fleshy, lacerated into obtuse segments follicles scabrous, distinct—G Don, 1 c p page 86

1 Flowering branch—2 dissected calyx, ovary, style and stigma—3 dissected corolla—4 anthers on the throat—5 a detached petal showing the crown—6 follicles dehiscing—6 a seed

414 *WRIGHTIA TINCTORIA* (Roxb) *Nephrolepis tinctoria* (Roxb) leaves elliptic lanceolate, and ovate oblong, acuminate glabrous panicles terminal, branches and corymbs dearsiate tube of corolla twice longer than the calyx follicles distinct, but united at the apex.—G Don, 1 c p page 86

1 A flowering branch—2 a flower dissected—3 calyx—4 anthers, back and front view—5 follicles—6 a seed and crown

445 *Dim ASIA CONGLISTA* (Graham) branches, petioles, peduncles, and leaves, shortly villous leaflets ovate, slightly inclining to lanceolate racemes longer than the leaves many flowered and keel strongly cohering for a little space by their limb—W and A Prod I page 20b

1 A flowering branch—2 a detached flower—3 the same directed—4 detached petals—5 stamens—6 anthers—7 ovary cut lengthwise—8 a mature legume—9 a portion of the same opened showing the seed—10 a seed cut lengthwise—11 cut transversely—12 embryo detached—13 and 14 upper and under surfaces of the leaves *thylly magnified*.

446 ADENOSMA BALSAMEA (Spreng — Nees) stem erect, glabrous leaves petioled, lanceolate serrated, glutinous flowers verticillate bracteate

1 Flowering plant, *natural size*—2 corolla split open to show the stamens and variegated lip 3 calyx and bractea—4 Stamens—5 ovary cut vertically—6 capsule *natural size*—7 the same dehiscent *natural size*—8 the same magnified showing the numerous seed—9 a detached seed, *magnified*

447 DICTYCHIA RIBBIOTUALIB (Nees, Wall PI As Rar J p 81 *Ruellia* Lin) stem fruticose, diffuse leaves cumiform retuse, dentate towards the apex, glabrous

1 Flowering branch *natural size*—2 calyx and bractea—3 corolla split open showing the stamens—4 stamens—5 calyx split open showing the ovary *in situ*—6 ovary cut vertically—7 capsule burst, 4 seeded

448 PHLEBOPHTLIDUM KUNTHIANUM (Nees 1 c) a small erect shrub with opposite 4 sided branches, oval sub-undulate acutely serrated leaves, coarsely veno-reticulated, and clothed with whitish tomentum beneath flowers pale bluish sometimes nearly white On hill pasture! at great elevations, I have rarely met with this plant under 1000 feet of elevation — K V

1 Flowering branch—2 corolla cut open showing the 2 Stamens—3 a stamen—4 calyx and bractea—5 ovary style and stigma—6 ovary cut vertically—7 cut transversely

449 ABTEBACVNTHA LONGIFOLIA (Nees 1 c p 91) A herbaceous annual usually growing in wet or marshy places Flowers light purple or pink about an inch long

1 Flowering plant—2 calyx split open to show the inequality of the sepals and the ovary—3 corolla split open—4 anthers—5 ovary cut vertically—6 capsule dehiscent

450 BIBLEHA ACUMINATA (R W Nees 1 c p 93) shrubby, tomentose leaves ovate or cordate acute, sometimes prolonged into a slender acumens whitish beneath peduncles axillary, cymes 2 or 3 cleft bracteoles linear lanceolate reflexed larger segments of the calyx oblong and like the interior shorter lanceolate ones, reticulated (Perhaps too nearly allied to both *B. tomentosa* and *longifolia* Hfl)

1 Flowering branch *natural size*—2 dissected flower, showing the calyx, ovary, style and stigma, and tube of the corolla split open, to show the insertions of the stamens—3 Stamens—4 ovary divided vertically—5 capsule dehiscent

451 BARLRRFA CUPRIDI (Klein Nees 1 c p 93) shrubby, bractea and bracteoles spinous, fascicled leaves lanceolate or oblong lanceolate, spinously mucronate sprinkled with a few appressed hairs flowers axillary subsolitary segments of the calyx quite entire spinously acuminate —Nees.

1 Flowering branch—2 corolla split open to show the form and insertions of the stamens—3 calyx and bractea—4 long stamens—5 the short ones—6 ovary cut vertically—7 capsule dehiscent—8 a seed—9 the same cut vertically showing the testa and 1 immature embryo—10 cotyledons removed from the testa

452 BARLBHIA PBIONITIS (Linn Nees 1 c p 93) shrubby, the sterile spinous bractea and bracteoles in 4-cleft fascicles, the fertile bractea lobes subulate spinous leaves elliptic oblong, attenuated at both ends, glabrous beneath, on the lines and margins slightly hairy, flowers sessile, axillary, verticillate, the terminal ones spicate larger segments of the calyx ovate, spinously cuspidate quite entire, glabrous —Nees

1 Flowering branch 2 tube of the corolla split open—3 anthers of the longer stamens—4 shorter stamens—5 calyx and bractea—6 ovary cut vertically—7 capsule dehiscent—8 a seed—9 the same cut transversely—10 cut longitudinally—11 cotyledons separate

453 BRALBBIA CRISTATA (Linn Nees 1 c page 92) herbaceous, clothed with appressed bristles leaves petioled elliptic, attenuated at both ends peduncles axillary very short, few flowered bractea linear subulate ciliate larger segments of the calyx unequal, elliptic-oblong ciliate-serrated — Nees 1 c

1 Flowering branch, *natural size*—2 corolla split open—3 anthers—4 shorter stamens—5 bractea and calyx—6 ovary cut vertically—7 stigma—8 capsule dehiscent, but apparently immature

454 BVELBRIA NITIDA (Nees 1 c p 91) stem fruticose, spinous leaves ovate or elliptic, petioled, the younger ones clothed with scattered bristles flowers spicate, bractea ovate-elliptic acute denticulate, ciliate, the larger segments of the calyx unequal, rhomboid ovate somewhat acute ciliate and spinous — Nees 1 c,

1 Flowering branch—2 corolla split open to show the stamens—3 calyx and bractea—4 capsule dehiscent—5 a seed, hairy—6 cut longitudinally—7 cut transversely—8 cotyledons detached

455 LBPBDAGATHIS CBISTATA (Willd Nees 1 c p 96) stem suffrutescent, diffuse, and with the linear lanceolate leaves glabrous spikes capitate congested, conglomerated near the root on the branches axillary woolly bractea and bracteoles conformable, oblong mucronate calyx 4 parted, segments mucronate, the inferior one blind —Nees

1 Flowering plant—2 corolla split open, to show the insertions of the stamens—3 anther, showing the cells distinct—4 calyx, one segment detached and thrown back to show the ovary of bractea and bractea—5 calyx and bracteoles together—6 ovary cut vertically—7 mature capsule, *natural size*—8 the same magnified and opened to show the seed—9 a seed, hairy—10 the same cut longitudinally—11 embryo detached

456 LPPIDAGATDIS PUNGENS (Nees 1 c p 97) stem shrubby, very ramous leaves (small) spinously dentate spikes binate or ternate, capitate congested, axillary villous dorsal bractea ovate, and like the fertile ones, and bracteoles oblong-lanceolate, rigid, spinous at the apex calyx 4 parted, segments mucronate, spinulose, the inferior one blind at the apex —Nees

1 Flowering branch—2 corolla split open showing the insertion of the stamens—3 back and front views of the anthers—4 bracteoles and calyx—5 an immature capsule opened

457 LAPIDAGATHIS SPINOSA (Nees 1 c p 95) stem shrubby and like the under surface of the ovate ripand leaves pulverulently tomentose spikes terminal, capitate, involucre All the bractea and bractea like the segments of the 4 cleft calyx, shortly armed, the interior one deeply blind acuminate —Nees

1 Flowering branch—2 corolla split open—3 calyx and ovary—4 stamens—5 ovary cut vertically—6 stigma.

458 BLEPHARIS BOEBHAAVIAEPOLIA (Juss Nees 1 c p 97) bractea acuminate, flat, bristly, ciliate at the apex —Nees

1 Flowering branch—2 calyx and bracteoles—3 corolla split open to show the insertions of the stamens—4 and 5 anthers different views—6 ovary and ovules—7 capsule dehiscent, seed rough

459 DILIVARIA ILICIFOLIA (Juss Nees 1 c p 98) shrubby, spinous or unarmed glabrous leaves elliptic, serrately dentate, spinous spikes many flowered flowers bractea and bracteolate

1 Flowering branch—2 corolla and stamens—3 anthers *natural size*—4 one magnified—5 calyx and ovary—6 ovary and ovules—7 a capsule dehiscent

460 CROSS ANDBA AXILLA RIB (Nees 1 c page 98) young stem* somewhat scabrous, leaves quaternate oblong, glabrous, even spikes axillary subsessile alternate, shorter than the leaves bracteas pubescently scarious margin naked—Nees

1 Flowering branch—2 calyx and corolla—3 corolla tube split open to show the stamens—4 an anther *more magnified*—5 bracteas and calyx—6 immature capsule—7 mature capsule, dehiscent, showing the rough seed—8 a seed *more highly magnified*—9 the same cut longitudinally—10 embryo detached

461 CROSSARDRA INTONDI BULIPOBMIS (Nees 1 c p 98) stem pubescently rough, leaves in whorls of 3 or 4 obovate oblong, punctulately rough and scabrous, bracteas ciliate, spikes long peduncled—Nees

1 Flowering branch—2 calyx and corolla—3 corolla tube split open to show the stamens—4 an anther—5 bracteas and calyx—6 a young fruit opened—7 mature capsule dehiscent—8 a seed, (seal), rough

462 GINDABUSSA TRANQUEBARIENSIS (Nees 1 c p 105) shrubby clothed with whitish pubescence flowers axillary solitary rising into a terminal spike bracteas orbiculate retuse, the linear bractioles equaling the calyx inferior cells of the anthers calcarate, leaves roundish, small—Nees

1 Flowering branch—2 calyx and bractioles—3 corolla split open—4 anthers—5 ovary and calyx—6 ovary opened—7 capsule dehiscent—8 a seed—9 cut longitudinally—10 embryo

463 JUSTICIA ECBOLEUM (Linn. Nees, 1 c p 108) spike terminal 4 sided bracteas oval entire, ciliate, mucronate, equaling the fruit leaves elliptic oblong, attenuated at both ends, pubescent upper lip of the corolla linear reflexed—Nees

1 Flowering branch—2 corolla split open dividing the upper lip—3 calyx and ovary—4 Siemens 5-polliniferous ovary cut vertically—7 capsule dehiscent—8 a seed—9 cut transversely—10 cut longitudinally—11 embryo detached

464 RUBIN ACANTHUS COMMUNIS (Nees) c p 109) panicles axillary and terminal, trichotomous upper lip straight, leaves ovate oblong—Nees

1 Flowering branch—2 corolla, tube split open showing the insertion of the stamens—3 calyx and ovary—4 stamens—5 ovary opened—6 capsule after dehiscent

465 RUNGIA REPENS (Nees 1 c p 110) bracteas ovate cuspidate, nerveless, margin broad, silvery, subciliate bracteoles lanceolate leaves oblong lanceolate, acute stem creeping—Nees

1 Flowering branch—2 corolla opened—3 stamens—4 calyx and bracteas—5 ovary opened—6 capsule dehiscent—7 a seed, rough and furrowed—8 divided lengthwise showing the embryo—9 embryo detached

466 EBANTHIMUM MONTANUM (Roxb. Nees 1 c p 107) stem roundish, and like the oblong attenuated at both ends repandly crenulate leaver, glabrous peduncles tenridal and with the spikes clothed with viscid pubescence bracteas lanceolate-attenuated ciliate—Nees

1 Flowering branch—2 tube of the corolla opened to show the stamens—3 calyx, bracteas and ovary—4 stamens—5 ovary divided vertically—6 capsule dehiscent

467 ANDRAGAPHIS ECHINOIDES (Nees 1 c p 117) herbaceous hairy, leaves oblong, subsessile, somewhat crenate racemes reflexed capsules 4 seeded—Nees

1 Flowering branch—2 corolla split open showing the insertion of the stamens—3 calyx forcibly opened showing the ovary—4 ovary opened—5 capsule dehiscent *natural size*—6 a seed *magnified*—7 the same cut transversely—8 cut longitudinally—9 the embryo detached.

468 GENDARUSSA VULGARIS (Nees 1 c p 104) shrubby spikes terminal, flowers somewhat whorled, leafy at the base bracteas small leaves lanceolate glabrous—Nees

1 Flowering branch—2 flower split open from behind, showing the stamens and anegitid lip—3 bracteas and calyx—4 stamens—5 ovary divided longitudinally

469 CORDIA SERRATA (Roxb. Fl. Ind. 1 page 591) arborescent tender parts hairy leaves ovate cordate, serrate, a terminal corymbous lateral flowers sub-ovate indurous, with the corolla from 7 to 9 cleft—Roxb

1 Flowering branch—2 corolla split open showing the stamens—3 corolla removed, calyx split open to show the ovary—4 ovary cut vertically—5 cut transversely.

470 TAIERNJSIHOCTANA CRISPA (Roxb.) leaves oblong, undulated peduncles few-flowered pedicels elongated calyx deeply 5-parted segments broad-ovate, fohaceous G. Don 1 c p 91

1 Flowering branch—2 corolla opened showing the stamens—3 dissected calyx ovary, style and stigma—4 Jollities—5 a follicle opened showing the seed

471 PLIMERIA ACUMINATA (Alton) leaves scattered, lanceolate, acuminate, glabrous, flat flowers corymbous, terminal—G. Don 1 c page 91

1 Flowering branch—2 dissected flower—3 follicle

ECHALTIUM (R. W. Nenum Roxb.)

(ETER CHAR Calyx 5-parted, segments acute Corolla inferior, hypocrateriform, limb 5-parted, tube crowded with 5 forked scales, alternate with the segments of the limb Stamens 5, inserted near the bottom of the tube included, anthers oblong pointed, slightly sagittate at the base Ovary 2 lobed, 2 celled, with numerous ovules in each, attached to an elevation down the centre" (Koxb.) style short stigma capitate bifid Follicles ovate, inflated, seed numerous, compressed with a broad membranaceous margin—albumen thin, membranous Cotyledons round cordate, radix cylindrical next the crown

This plant belongs to the suborder *Euphorbia*, the character is taken from Koxb figure and description which notes the plant distinct from all the other genera of the order, and shows that it does not even belong to the same section with *Wrightia* the genus in which G. Don has doubtfully placed it It wants the awned anthers of *Nenum* and the exerted ones of *Wrightia*, exclusive of belonging to a different section, no other genus does the character of the crown permit it to approach

472 ECHALTIUM PISCIDIUM (R. W. *Nenum piscidium* Roxb. *Wrightia piscidia* G. Don *Echaltut Jbuhetee*)

1 Flowering branch—2 dissected flower 3 calyx ovary, style, and stigma—4 ovary cut transversely—5 cut vertically—6 a follicle—7 a seed, coma next the radicle—8 a seed dissected, coma removed.

473 URBOLA ELASTICA (Roxb. Endlicher *vahea* G. Don, not Lamarck)

1 Flowering branch—2 a detached flower—3 the same dissected—4 anthers back and front views 5 ovary and calyx, style and stigma—6 follicles one of them partially dissected showing the numerous seed.

474 HOTA PENDULA (W. and A. *Asclepias pendula* Roxb.) twining leaves fleshy, glabrous from oblong oval acute to broad ovate, acuminate, with revolute edges peduncles pendulous, a little louder than the petioles, many-flowered, corolla downy inside, leaflets of rounded oboval, very blunt, depressed, having the inner angles short and truncate at the apex stigma apiculated—G. Don 1 c p 125

1 Flowering branch—2 ovary, detached stigma and erect pollenia—3 a stamen and its crown—4 and 5 different views of detached crown leaves.

475 TOXOCARPUS ROXBURGHII (W and \ *Asclepias longistigma* Roxb) I ranches clothed with rust) down leaves broid, oval, acuminate corymbs on short peduncles, with divaricate branches, about equal in length to the leaves flowers almost sessile thro it of corolla hairy segments hglute, glabrous leaflets of corona ovate acutish, bearing each a short, thick, acute, hardly exerted -egmtnt inside, which is equal in length to the anthers - stigma beaked, twisted, equal to the tube of the corolla —G Don, 1 c pge 100

1 Flowering branch—2 a dissected flower

476 TABERNJEMONTANA RECUHVA (Roxb) leaves oblong lanceolate, undulated, glabrous (alc)ne teeth ovate segments of corolla convex, of two forms, crenulated cymes dnancate, flowers drooping -G Don 1 c p 91

1 Flowering branch.

477 TABERNJEMONTANA CORONARRA (R B) leaves elliptic or oblong, bluntly acuminate peduncles from the forks of the branches twin 1 3 flowered bractes deciduous (alc)ne teeth very short, rounded anthers exerted stigma undivided follicles torulou* —G Don 1 c p 90

1 Flowering branch—2 dissected flower—3 follicles one burst—4 a young seed cut transverse!—5 a mature seed similarly cut—6 cut longitudinally showing the embryo in copious albumen—7 « seed —8 the same enclosed in its anllus—9 specimen of a double flower

478 ANAPHALIS NEBLGLRRYANA (D C Prod 6, p 272 *Gnaphalium* — *Ytights* contributions) stem shrubby low, very ramous flonferous branches erect tomentose lower leaves close, pressed retro sely imbricated, linear, sub obtuse, glabrous, the upper ones along the flouferous branches erect, tomentose, somewhat distant, acute, capitula congested into a dense terminal corymb scale of the involucre oblong-linear, Bub acute, longer than the disk, white, bristles of the pappus penullate at the point —DC

1 Plant *natural size*—2 a capitulum before expansion—3 after expansion—4 sterile flowers and scale detached—5 fertile flower—6 the same disserted—7 anthers back and front views—8 a bristle of the pappus *more highly magnified* showing the pencillate apex

479 AMBFBBOA INWCA (DC Prod 6, p 55S) stem erect, ramous, sulcately angled, naked towards the apex, and like the leaves glabrous or somewhat rough leaves lanceolate coarsely dentate, the upper ones few and distant, linear entire

1 Flowering plant—2 a detached flower with its scaly unequal pappus—3 corolla split open to show the stamens—4 detached anthers—5 pollen—6 ovary, style and stigma—7 a pappus scale—8 ovary cut open showing the erect ovule

480. CROTALARIA LUNULVTA. (Heyne) suffrutescent, erect, much branched, clothed all over with glutinous soft hairs patent on the branches and ad pressed on the leaves stipule* and bractes permanent, deeply cordate-ovate, amplexicaul, reflexed, shining and viscid on the upper side leaves from oblong-oval obtuse to oval lanceolate racemes with the lower flowers abortive, forming a large panicle bractes alternate, more pointed than the stipules bracteole* Bimilar to the bractes, in the middle of the pedicel calyx, deeply 5 cleft, shorter than the corolla margins of the segments scarcely recurved vexillum silky legume roundish oblong, about the length of the calyx, sessile, silky, 1-seeded.—W and A Prod I p 183

1 Flowering branch—2 disserted flower—3 detached petals—4 short Btiin^ns—5 long ones—6 H legume—7 ovary cut open showing the ovules—8 a legume opened—9 a seed, cut lengthwise—10 embryo detached—11 portions of leaves *magnified*.

481 CROTALABIA PUICHERRIMA (Roxb) shrubby, erect, branched, covered all over with fulvous shining soft hairs stipules none leaves cuneate-obovate obtuse racemes elongated, terminal, on panicle axillary 1 2 leaved branches, lower flowers abortive bractes alternate, cordate, acuminate, reflexed, upper surface viscous bractetles on the middle of the pedicels, similar to the bractes calyx deeply 5 cleft, shorter than the corolla and like the vexillum silky with fulvous hairs segments oblong lanceolate, the margins scarcely recurved legumes sessile, oblong, glabrous, hid in the permanent calyx, few-seeded — W and A Prod 1 p 184

1 Flowering branch—2 expanded flower, *natural size*—3 the same dissected—4 and 5 stamens—6 petals detached—7 ovary opened—8 legume and persistent calyx—9 Legumes opened—10 a seed—11 cut longitudinally to show the embryo—12-13 upper and under surfaces of the leaves *slightly magnified* to show the pubescence

482 GALACTICA LONGIFOLIA (R W) slightly pubescent, leaflets linear lanceolate, cordate at the base, peduncles axillary, slender, nearly as long as the leaves, few-flowered, calyx pubescent campanulate at the base, 5 cleft segments subulate, legume slightly pubescent — Balaghaut hills near Madras.

This species seems intermediate between *O. temiflora* and *villosa* but amply distinguished from both by its leaflets which arc from 3 to 5 inches long and scarcely 4 lines broad

1 Flowering branch *natural size*—2 detached petals—3 stamens—4 calyx and bractes—5 ovary with the remains of the stamens—6 ovarj divided lengthwise—7 a ripe legume after dehiscence—8 a seed—9 the same cut transversely—10 cut lengthwise—11 embryo detached

483 PAROCHETUS MAJOR (Don) leaflets obovate, retuse, crenulated — W and A Prod 1 page 252

1 Flowering branch—2 a detached flower—3 detached petals—4 calyx, ovary and stamens—5 stamens detached—6 anthers back and front—7 ovary opened—8 a legume opened—9 a portion *more highly magnified* to show the position of the seed—10 a seed—11-12-13 the same dissected

484 NoroNi* COHYMBOSA (DC Prod C page 442) leaves broadly elliptic, obtuse, flonferous branches naked, bearing a many headed bracteate corymb on the apex, capitula longer than their pedicels DC (I am doubtful if this is really distinct from *N. Orandiflora* -R W)

1 Flowering branch—2 a young flower before the separating of the stigma*—3 another flower somewhat further advanced *but lest magnified*—4 corolla detached and split open to show the stamens—5 detached stamens—6 style and stigmas—7 ovary opened showing the erect ovule—8 ovary - 9 a bristle of the pappus

485 COCTULUS CORDIFOLIUS (DC) twining, bark corky, slightly tubercled leaves roundish cordate with a broad sinus, shortly and sharply pointed, glabrous racemes axillary or lateral, of male flowers longer than the leaves, pedicels several together, of female scarcely so long as the leaves, pedicels solitary petals unguiculate, unguis linear, slightly margined upwards, limb triangular ovate, reflexed stamens 6, filaments thickened at the apex, anther cells divaricating, ovaries 3 drupes >3, globose embryo small, cotyledons orbicular, approximate, fleshy — W and A Prod 1 page 12.

] Male plant *natural size*—2 a detached flower—3 the same, one of the petals thrown back to show the inner series and stamens—4 a stamen with its attached scale—5 detached anthers back and front views.

486 COCCULUI COORDIFOLIA (DC) 1 Female plant—2 flower and apocarpous ovaries—3 the same, petals removed showing ovary and attached scales—4 front view of the flower—5 side view, the four series of floral envelopes detached—6 young fruit, one cut vertically showing the pendulous ovule—7 cut transversely—8 fruit cut longitudinally—9 transversely

487 STESCVLIA OUTTATA (Roxb) leaves between broadly ovate and oblong, obtuse or with a longish sudden acumination, entire, prominently nerved and veined beneath upper side shining, under young leaves densely pubescent racemes somewhat fascicled, nearly simple pedicels short calyx deeply 5 cleft tomentose, segments lanceolate, distinct ovary stalked carpels obovate—W and A Prod I page b2

1 Flowering branch—2 a male flower split open to show the insertion of the podocarp and stamens—3 4 back and front views of the stamens—5 detached anthers—6 calyx and ovary of a fertile flower 7 ovary cut vertically—8 cut transversely—9 young fruit carpels separating—10 part of a raceme with several fruit—11 a young fruit opened longitudinally—12 cut transversely, ovules collateral

488 BTTNFRIA HERDACEA (Roxb) stem herbaceous, without prickles, leaves not glandular, toothed ovate, acuminate cordate, rounded or cuculate at the base sepals linear lanceolate, reflexed ligulate production of the petals subulate, erect, about as long as the calyx free part of the antherous filaments very short, recurved lobes of the urceolus (sterile stamens) ovate—W and A Prod I page 65

1 Flowering branch *natural size*—2 flower buds—3 the same, the sepals forced open showing the petals—4 petals opened showing the dilated base and bending the anthers and urceolus into view 5 petals back and front views for the purpose of showing the dilatation at the base, but not successfully executed as it is 2 lobed and embraces the neck of the anther cells on each side—6 anther, the cell separated by a broad connective—7 ovary detached—8 cut vertically 9 cut transversely—10 fruit half grown—11 a detached carpel back view—12 front showing the seed—13 a mature fruit—14 one carpel detached—15 a seed—16 dissected showing the foliaceous cotyledons—17-18 upper and under surfaces of the leaves *magnified*

489 PIBROSPERMUM HEYVFANUM (Wall) leaves cuculate-oblong, acuminate, slightly cordate and 4-5-nerved at the base, and sometimes a little oblique, coarsely toothed or lobed towards the apex, under side clothed with a roughish tomentum veins slightly prominent petioles short, attached a little within the margin peduncles axillary, very short involucre leaves and bracteoles imbricated round the base of the flower-bud, palmatifid and lacinate, deciduous petals obovate, patent sterile filaments linear capsule oblong, acute, outside encrusted with a furfuraceous pubescence seeds 8 in each cell—W and A Prod I p 69

1 Flowering branch—2 flower before expansion showing the bracteoles—3 a detached flower, petals removed to show the calyx and stamens—4 calyx removed showing the stipitate stamens and ovary—5 anthers—6 ovary cut vertically, ovules ascending—7 cut vertically 8 a capsule, *natural size*—9 a seed with its wing—10 testa removed showing the seed *view*—11 embryo detached to show the foliaceous cotyledons

490 VJTMANII AFEICANA (W and A) Prod I p. 166

1 Flowering branch—2 a detached flower side view—3 the same, front view—4 a stamen and its attached petal 0 anthers—6 ovary cut vertically—7 cut transversely

401 BATATAS CHOISYANA (R W) stems either procumbent, or twining if near support, everywhere clothed with coarse him leaves peltate, ovate acute hairy above tomentose beneath peduncles solitary I → flowered, 1 younger in the petioles, 1 uiceolate, hairy much shorter than the corolla tubulose near Madras

Flowers purple—I have not seen the fruit

1 (lowering branch—2 tube of the corolla opened to show the stamens—3 anthers 4 (ilix and bracteas—6 stigma—6 ovary and its cup shaped disk—7 ovary cut vertically—8 cut transversely, 4 celled, with one ovule in each

492 CAT. TROPIS HERBACEA (Wight—*Ascleptas her-laca* Roxb) herbaceous, erect, smooth leaves petiolate, oblong umbels compound corolla with a globular tube, which incloses the corona segments or petals triangular, spreading leaflets of corona shorter than the gynostegium, acute and spreadingly curved at the base, but truncate at the apex, and lying upon the gynostegium—G Don 1 c p 147

1 Flowering branch—2 flower dissected

40? CRPTOLEPIS ? PAUCHIURA (R W) *Nenium pauciflorum* Roxb shrubby twining, leaves lanceolate-ovate, peduncles axillary 7 flowered nectary 5 conical scales follicles long slender horizontal—Roxb M S S

1 Flowering branch—2 calyx and ovary—3 corolla detached and opened showing the stamens and Town—4 another view, *more highly magnified*

By an oversight Roxburgh a name was omitted in the plate

494 CRPTOLEPIS BUCHANANI (Roem and Sch Neman *reticulatum* Roxb) flowers small, yellow, leaves oblong, white and veiny beneath corymbs inter-petiole, almost sessile—G Don, 1 c page 82

1 Flowering branch—2 dissected flower—3 follicles

495 BOUPEROSIA UMBELLATA (W and A—Contribution) segments of corolla glabrous—G Don 1 c p 123.

1 lowering plant, *natural size*—2 a dissected flower, corolla and calyx reinserted presenting a side view of the stamens and crown—3 front view of the same, showing the double series of coronal appendages—4 stamens and pollen mass detached—5 a single staminal anther—6 gynostegium and pollen masses—7 follicles—8 a seed.

496 OUCI MIR PULBEBB (Willd) stems scabrous leaves somewhat remote, repandly and acutely toothed, slightly angled, the angles obtuse or acute, petals slightly acute fruit oval, obtuse at both ends terete, spotted, more or less pubescent, (about 1 or 2 in length) W and A Prod I p. 42

1 Flowering branch, *natural size*—1 corolla male flower split open to show the stamens—3 a detached stamen 4 female flower and ovary—5 ovary cut longitudinally—6 fruit cut transversely, but contrary to the usual form 4 carpelled, perhaps a mistake of the draftsman

497 CUCUMIS TIBIGONUS (Roxb) stems scabrous leaves 5 lobed, lobes rounded, repandly and sharply toothed, male flowers crowded, female solitary fruit oval, rounded at both ends 10 striated, 10 striated, glabrous, (about 1½ inch long and 1½ thick) a lobes of the leaves very broadly obovate, and almost touching each other at their broadest part, sinus rounded—W and A Prod I page 342

1 Flowering branch *natural size*—1 male flower dissected—3 the anther back and front views—4 female flower, corolla removed, tube cut to show the styles—5 ovary cut longitudinally 6 cut transversely—7 a fruit—8 the same cut transversely—9 a seed, cut transversely—10 a seed—11 cut lengthwise—12 embryo detached

408 CITRULTUS COLOCYTHIS (Am *Cucumis colocynti* H Linn) aems scabrous leaves glabrous and nearly quite smooth above, copiously muncated beneath with em ill white and of'en hair bearing tubercle , many deft aiidlobeii the lobes obtuse tendrils shoit ind simple female fl >wers M lu try calyx tube glo >bt and hispd , segments of the li nb narrow linear tnut globose, glabrous , flesa very bit er — \V and A Prod 1 page 342

1 A bran h with flowers ind fruit, *natural size*—2 a male flower 3 tie vatic petals rtmo\ed to show the authors—4 ant'icrs d tithed ind separated to show the conneima—1 tcmilo flower front view, showing the st)les "tigrnas an 1 ab >rtive am hers-6 ovary cut transversely three-celled, but wnh six placentiferous margins —7 utull grown fruit cut iransversely—8 a sied, *natural sue*—9 10-11 directions of the same.

499 Li FFA prNT\NDn\ (Roxb) lower leaves acutely angled, uj per ones palmate wnh lanceolate segments mule ra<ernes (large) on a long pednule, stamens distinct calyx-segments of the female flowers covered with glands fruit linear oblong, smooth marked with JO longitudinal lines but not ribbed, (1-3 feet long and about 3 inches thick) seeds (t,ray) with elevated dots an i sharp waved margins — W and A Prod I page 343

1 Portion of a branch with flower and fruit—2 male flower—3 female flower, corolla removed in both cases—4 ovary cut trans(er<el)—5 a portion cut longitudinally —6 a seed *natural size*, cut longitudinally—7 a seed cut transversely.

500 BRTONII LACIMOSA (Linn) steins glabrous tendrils bifid leaves slightly scabrous palmat ly fibbed , segments oblong-lanceolate acuminate, serrated petioles shorter than the leaves, munched male fl >wers fascicled , female solitary in the same axil berries (size of a cherry) spherical, glabrous, 3 celled seeds few in each cell, with a pulpy anllus, tuberose margins, and gibbous suberose sideB —W and/A Prod I page 345

1 Flowering branch—2 male flower opened and spread out showing the connective of the anthers—3 male flower, corolla remove * to show the anthers in *attu*—4 female flower, front view—5 styles and stigmas—6 corolla, female, spread out showing the redunculary stamens—7 young fruit cut transversely J celled, with one seed in each by abortion P—8 9 different views of the seed—10 11 the same dissected

601 BsroMA scAMIKLLA (Linn) stems, petioles and peduncles hispid and scabrous tendrils simple leaves cordate, lobed or angled, scabrous on the upper side, scabrous and hispid on the under flowers short peduncled, males faociel d, female 1-4, in different axil* from the male berry globular, (size of a pea), glabrous or ftpnntried with a few bristly hairs seeds several, surrounded by a narrow zone rugose from numero is shallow hollows—a *Plukpnetn*, leaves acutely 5 lobed, the middle lobe often longer than the others, berries usually 2-4-together-W and A Prod I p 345

1 A branch in flower and fruit—2 male flower, side view—3 the same opened and spread out to <how the stamens and redunculary ovary—4 stamens front, back and side views—5 fe ale flower—6 the same, calyx and corolla removed showing the style, stigmas and disk—7 ovary cut transversely 2-celled-fl cut vertically—9 a berry, *atmrlnze*—\Q the same cut transversely—11 a se d, *natural me*—12-13-14 and 15 diBsections of the teed.

502 BIYONIA. AMVIBXTPAULIS ¶nm *Kartua amplericmliH* Am) monacious stem-, gl iurous tendrils simple leues on vt ly short petioles oi almost sessile, deeply cordite or SIL,H ate it the bw» (the lobes much longir than the petiole), ovate or oblong entire or mg-led muer n ite, sinuate and tootheu «. i 1 u> do ted and slightly scibious on the upper side glibroua ind smooth on the uncer somewhat conaceous male flowers in an umbel at the apex ot i slender peduncle rath r shorter than the leaies pedicels short, without bricteoles , c ilyx ciinpanulate females solitary, very short peduneled in the same or different axils, from the malts berry (smaller thin a hazel-nut) broidly ovate rostiata, few (about 4-) seeded seeds oval, thick compressed, surrounded with a thick corky closely warttd and rugose zone, the sides flattish, sprinkled with little tubercles—\\ and A Prod 1 page 3-16

1 Flowering branch, *natural stze*—2 male flower split open showing the stamens- 3 female flower sinulirly opened—4 i fruit eut transversely 5 a seed, *natural size*-6 a seed and anllus opened—7 the same tut tra lsverselj

501 BRYOMA FPiriFA (Rottl *Achmandra ept^cea* Am) stem glabrous, often ury flexuose at the innts tendrils simple leaxes somewh t fleshy, on longish petioles cordate sometimes only obtusely angled, usually *l lobed, densely <o>ered on both sides with short bristly hairs , lobeb rounded the laicril ones the bioldest and slightly 2 lobed all lenotd) and slightly toothed mile flowers shortly ramnose at the apt\ of a long thiekish peduncle cal^x canpinulate females shoiic<ih peduncled, bobtarj in the same or different avils from the males berry ov ite r R tare, glal rous, few-seeded seeds (white) compressed, w th the sides slightly convex — M and \ I rod I p-ge 146.

1 Flowering hiant h—2 male flower front view—3 corolla detached and opened to show the stpmens—4 female flower and ovary—5 ovary cut transveisely 2-celled—6 fruit cut transversely—7-8 a seed

501 MOMORDTCA CHARANTIA (Linn) stems more or less hairy or villoua leaves palmately *5 lobed, sinuate-toothed, when young more or leso villous on the under side, particularly on the nerves peduncles slender with a reufbrm bracteole , male ones with the bracteole about the middle, female with it near the base calyx segments oblong fruit oblong or ovate, tapering at both ends, more or less tubercled or muncated seeds with a thick notched margin and red anllus —« fruit longer and more oblong, tubercled —* and A Prod I page 3-18.

1 Flowering branch- 2 male flower, corolla removed —3 the same calyx removed showing the stamens—4 cut vertically showing the tubulai calyx—') female flower, petals removed <ad calyx drawn back showing the stenle anthers and the deeply 2-lobed stigmas—G a fruit divided transversely—7 a seed, *natural size*—S-J the same dissected

505-506 MOMORDICA DIOI«A (Roxb) dioecious root tuberous, perennial stems glabrous o rarely slightly hairy leaves longish petioled, cordate at the base, from entire to J-4 lobed toothed, upper side slightly scabious, under smooth or nearly so petioles without glands peduncles slender, with entire bracteolus, male with the bracteole dose to the flower, cucullate, and concealing the lower part of the flower, female with a smallish one near the base calyx-segments subulate petals lanceolate fruit (about the size and shape of a partridge egg) ovate, muncated seeds oval, surrounded with a large red anllus —a, leaves cordate, acuminate, usually entire — W and A Prod I page 318

50o—I Flowennng branch of male plant—A flower and its bractea, p tals removed

506—1 B anch of a female plant with flowers and fruit 2—flower, petal* removed—t ovary cut lengthwise—4 cut transversely—5 a seed—6 7 the same dibsected

Ob* These and some of the other figures were prepared by Rungiah not under my superintendence, hence the dissections are less perfect than desirable

507 CUCITHBITA MAXIMA (Puch) le-ucs cordate, rugose, harshly and densely pubescent on the under side petioles hmpid flowers campanulate, broad at the base segments of the calyx often dilated at the apex into in obovate oblong toothed foliaceous limb division? of the corolla recurved fruit large, roundish, glabrous, torulose—W and A Prod I page 3j]

1 Flowering branch—2 male flower corolla removed—3 stamens removed to show the glandular disk—4 anthers, outside view—5 inside Mew—6 female flower, corolla removed showing the disk and rudimentary stamens?—7 ovary cut transversely—8 cut longitudinally

508 CARDIOSPERMUM HALICACABLM (Linn) annual stem, petioles, and leaves nearly glabrous leaves biternate leaflets oblong, much acuminate, coarsely cut and serrated glands of the disk roundish fruit broadly pyriform—W and A Prod I page 109

1 Branch in flower and fruit—2 a flower side view—3 front view—4 ovary cut critically—5 cut transversely—6 capsule showing the seed in situ—7 fruit seed natural size—8 a seed cut transversely, but not well represented

509 VrsEMA UMBELLATA (Blume *Glossospermum velutnum* Wall) the only species of the genus, a beautiful and richly flowering tree of very rapid growth, a native of Java Leaves cordate, acuminate, serrated, canes erect, from being thickly clothed with appressed silky hairs, corymbs umbellate flowers very numerous of a pale pink or flesh colour The specimen from which the figure was taken was raised in the Horticultural Society's garden from seed sent by Dr Wallich

1 Flowering branch—2 an expanded flower—3 the same, the calyx divided and drawn back to show the glandular thickening at the base of the petals—4 still further dissected to show the ovary and staminal tube—5 anthers—6 a capsule—7 the same cut transversely—8 a seed, natural size—9 the same magnified—10 cut transversely—11 embryo detached

510 POITCARPUSA SPICATV (R W) glabrous, stems numerous, slender, diffuse bearing one or two fascicles of leaves and peduncles radicle and caulm leaves fascicled, glaucous, somewhat succulent, spatulate, oblong obtuse, or somewhat acute flowers imbricately spiked spikes several fascicles on the summits of the branches, sepals ananose nerved on the back much longer than the subulate petals filaments detached at the base forming with the corolla a ring round the ovary

My specimens of this plant were gathered by my collectors and the exact locality not ascertained

1 A flowering plant—2 a specimen far advanced ID fruit—Analysis

1 A flower and its branches—2 the sepals spread out showing the corolla and stamens surrounding the ovary but so much shrunk in drying that they give an imperfect idea of their size—3 stamens—4 a petal detached—5 a capsule—6 the same opened showing the seed in situ—7 a seed—8 the embryo detached

511 ASLAM ODFRATA (Lour, Adr de Juss) leaves pinnate leaflets 5-7 obovate glossy—D C

The specimen figured is from Ceylon but whether native or introduced is uncertain

1 Flowering branch natural size—2 a flower—1 the same petals removed to show the staminal tube—4 staminal tube removed showing the disk and ovary—5 tube opened showing the anthers—6 detached anthers

The ovary is one celled with a single ovule, but so minute and fragile that I could not succeed in making a sufficiently perfect section to show that part of the structure

512 AMARANTHUS POLYGONOIDES (Willd Roxb Fl Ind 3, p 602) leaves obovate glomerules axillary, 2-parted, capsule, bilobate, equalling the acute lanceolate leaflets of the calyx—Roxb

1 Flowering branch, natural size—2 a male flower and bract—3 anthers—4 female flower—5 capsule—6 the same opened showing the solitary seed in situ—7 seed natural size—8 the same magnified—9 testa removed showing the embryo curved round the albumen—10 seed cut transversely—11 embryo detached.

513 AMARANTHUS SPIHOSUS (Willd Roxb 1 c, page 611) erect, ramous, round, with sharp spines on the axils of the leaves spikes terminal, simple, with sessile axillary glomerules—Roxb

1 Flowering branch natural size—2 male flower—3 female flower—4 a mature fruit, upper portion of the capsule removed to show the seed.

514 AMARANTHUS TRISTRIS (Willd Roxb 1 c p 604) erect very ramous near the ground leaves rhomb-ovate, obtuse, emarginate glomerules axillary and on terminal spikes, calyxes dagger pointed, longer than the capsules—Roxb

1 Portion of a flowering plant, natural size—1 male flower—3 anthers—4 female flower—5 capsule and enclosed seed—6 seed natural size—7 the same magnified—8 cut transversely—9 cut longitudinally showing the curved embryo and enclosed albumen—10 embryo detached.

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ERRATA.

- 467 *L. wnora*, on th' plate *L. spinosa* letter press These proofs being corrected IQ Coimbatore while my Herbarium and Library are in Ootacamund, I am unable to siv which is right, but believe the latter, though less appropriate name, to be so The name alludes to the short rigid spinous points of the sepals
- 484 Heading of Plate for *Ieguminaset Papthonaca* read *Compoiita Seneciomdea*
- 491 For *Batatui Choisyanus* read *Rive a Choisyana* When this figuie was published I had not se«n the fruit and erroneously on account of its 4 celled ovary referred it the wrong genus
- 694 For *M&noxora* read *Rhodamma* Jack I was not aware at the time of publishing this genus that it was identical with Jack s *Uhodamma* My attention was first directed, by Mr Wm Griffith, to this oversight, aid I take the earliest opportunity of correcting the error

EXPLANATION OF PLATES.

VOL. II PART III.

515 FavicuLUM VUIGVHB (fiaertn) biennial stem terete at the base segments of the leaves linear filiform, elongated umbels with 1) 20 rays involucre wanting - U and A Prod I | age 371

1 Flowering branch 2 expanded flower, side view--- 3 the same, front view 4 menicarp entile-*.5 cut transversely - 6 commissure with two vittae

£16 CORMINDRUM SATITUM (Lin)

This plant is cultivated in various parts of India, and the seed is at all times to be found in every bazaar being extensively used as an ingredient in curry stuff

1 Plant natural size - 2 disk flower, front view - 3 ray flower, front view, petals unequal - 4 stamen - 5 and 6 semi superior ovary with the unequal toothed calyx - 7 menicarp before maturity - 8 mature fruit cut transversely, but not very well represented - 9 menicarp separating adhering by the apex only - 10 commissure of the menicarp concave constituting the distinctive character of the tribe

517 ANDHOORAFMIS FRUTICULOSA (R W Ertan- them Nees) stem procumbent leaves suborbicular, subsessile flowers axillari pedicels from 1 to 3 flowered - Nees in Wall Pl As Rar

The Characteristic distinction between *Enanthera* and *Andriophis* is, that the anthers of the former are 1, those of the latter 2 celled 1 he anthers in this species being decidedly 2 celled 1 have accordingly removed it from the genus in which Nees placed it to the one with whose character it conforms

1 Portion of plant, natural size - 2 calyx and corolla a little magnified - 3 corolla split open to show the insertion of the stamens - 4 calyx opened showing the ovary in situ - 5 back and front views of the anthers - 6 capsule after dehiscence showing the seed in situ

518 ANDROORATHE PANICULATA (Wall) herbaceous glabrous leaves lanceolate attenuated into a petiole racemes axillary, bifid, or dichotomous capsule many seeded - Nees in Wall Pl As Rar

1 Flowering branch, natural size - 2 corolla split open to show the insertion of the stamens - 3 calyx opened showing the ovary - 4 stamens, anthers connate at the base - 5 a detached stamen - 6 capsule dehiscing with the seed in situ - 7 a single seed detached with a portion of the placenta adhering

519 VITEX NEOUNDO (Lin) leaves digitate quinate, leaflets lanceolate entire, three larger petioled, two smaller sessile flowers racemously panicled - Lain Ln p 662

1 Flowering branch - 2 corolla split open showing the stamens - 3 calyx opened showing the ovary - 4 anthers back and front views - 5 ovary cut transversely - 6 cut vertically - 7 a fruit, natural size - 8 cut transversely

520 BRAGANTIA WALLICHII (R Br) dioicous leaves oblong lanceolate, 3 nerved at the base tube of the perianth smooth, lobes of the limb acutish anthers 9, triadelphous, united by thick male pistil very short, stigmas 9 radiating united at the base three of them bifid, fruit terete - W and A Ed Phil Jour July 1832

1 Flowering plant natural size - 2 an expanded flower front view - 3 calyx removed showing the stamens - 4 and 5 capsule dehiscing - 6 placenta with the seed adhering - 7 a seed - 8 the same cut transversely.

521 NBLITRIS PANICULATA? (Lindl) leaves oblong acuminate - 1 - uncles terminal and axillary ca- 0 * 4 toothed petals 4 pellucid dotted ovary 8 celled with a single ovule in each - R W Must Ind Bot vol. a page 12

1 Flowering branch natural size - 2 expanded flowers - 3 the same, the petals removed to show the peryg. - 4 stamens - 4 anthers back and front view - 5 a part of the mature fruit - 6 a berry cut vertically - 7 cut transversely

522 MTBT S TOM euros A (Ait) brandies downy leaves ovate, 3 nerved the lateral nerves near the margin, upper side when young downy, under tomentose and hairy peduncles 1 or occasionally 2 flowered, bearing 2 ovate bracteoles under the flower ciliolate downy, 5 cleft petals slightly downy on the outside berry 3 celled seed is compressed, forming two rows in each cell - W and A Prod I page 328

1 Flowering branch - 2 flower, petals removed - 3 a detached petal - 4 stamens - 5 ovary cut vertically showing the ovules superposed - the series of ovules are usually more numerous than here represented - 6 ovary cut transversely, 3 celled with 2 rows of ovules in each - 7 young fruit - 8 cut transversely - 9 seed - 10 the same cut longitudinally, showing the form and position of the cotyledons.

521. JOSSINIA INDICA (R W) leaves short petioled, obovate spatulate, glabrous on both sides peduncles axillary, solitary, or congested, sometimes, from abortion of leaves, corymbose on the ends of the branches, one flowered tube of the calyx globose, clothed with short whitish tomentum, limb 4 lobed, lobes persistent ovary and fruit 2 celled, seed several in each testa polished soft cotyledons fohacious

1 Fructiferous branch, natural size - 2 a young fruit cut vertically to show the seed in situ - 3 a fruit cut transversely 2 celled - 4 one somewhat less advanced cut vertically showing the remains of numerous aborted ovules adhering to one about half grown - 5 a seed not quite mature - 6 the same cut lengthwise, showing the cotyledons in situ - 7 cotyledons detached

MONOXORA (R W III Ind Bot. 9 p 12)

GbN. CIAB Flowers quaternary ovary one celled with two parietal placentas ovules numerous fruit drupaceous, containing several nuts (4 in two that I examined) nuts 3 or by abortion 1-celled, with a cylindrical curved seed in each cell Shrubby plants Leaves opposite, 3 nerved, ovate oblong, obtusely acuminate, acute at the base, coriaceous, glabrous above greyish beneath, peduncles axillary, congested, one-flowered, flowers small, calyx tube hairy, 4-lobed, with 2 bracteas at the base, petals 4, stamens numerous, style solitary pointed

524 MONOXORA SPICATULOID (R W Myrttu speculab- Us Blume) - The plant here figure 1 is the only species of the genus Its one celled ovary (whence the name) with parietal placenta and several celled nuts readily distinguish it from all the other genera of the order

1 Flowering branch natural size - 2 flower - 3 the same, the petals and bracteas removed - 4 stamens - 5 ovary cut vertically - 6 cut transversely - 7 a fruit, natural size - 8 cut transversely, showing 4 nuts - 9 a nut dotched - 10 cut transversely, J-celled - 11 a cell opened showing the seed in situ

525 EUGENIA (J) HEMIPIB/CA (R W) leaves petioled, lanceolate, acuminate at both ends cymes axillary solitary or paired, shorter than the leaves calyx tube short, sericeiglobose petals orbicular, reflexed fruit - Ceylon - R W III Ind Bot 2, p 14

1 Flowering branch natural size - 2 a flower bud before expansion - 3 a somewhat dissected flower - 4 a flower cut vertically - 6 stamens - b ovary cut vertically more highly magnified - 7 cut transversely

526 EUQUINIA (J) PADICIFMHA (R W) leaves short petioled, lanceolate, attenuated towards the base, ending in a long slender acumen pedicels solitary from the extreme axils, one flowered calyx tube cylindrical long and slender, limb 4-cleft, fruit oval - R. W III Ind Bot 2 p 14

Ceylon - Coiraltm This species seems very nearly allied to the following, but the solitary one flowered pedicel common to this plant, both as found in Cejloa and on the continent, at once distinguishes it

1 Flowering branch natural size - A a flower bud cut vertically - 3 stamens - 4 ovary cut vertically - 5 cut transversely - 6 HD immature fruit - 7 divided verti-

527. EUGENIA (J) CYLIHRTCA (R W) leaves short petioled, ovate, acuminate at both ends cymes terminal or from the axils of the last two or three pairs of leaves calyx tubular cylindrical long and slender fruit —P—R W III Ind Bot 2 p 14.

Ceylon. 1 the tube of the calyx in both these species is nearly an inch long, slightly ventricose near the middle, where the ovary is situated, and thence tapering downwards to a point

1 Flowering branch *natural size*—2 a flower cut vertically—3 the same partly dissected—4 stamens as seen in the bud before expansion—5 stamens after expansion—6 ovary cut vertically—7 cut transversely.

628 EUGENIA (A) LEPTANTHA (R W) leaves oval, acute or acuminate at both ends, finely parallelly vened racemes biplicate, lateral, from naked branches calyx tube long, clavate, finely attenuated towards the base, limb dilated and much produced beyond the ovary, margin slightly repand petals usually 5, caducous, calyptriform? fruit? *Mergui*—Griffith—R. W III Ind. Bot 2 p 15

1 Flowering branch, *natural size*—2 a flower before expansion—3 the same cut vertically with two of the petals remaining attached—4 stamens—5 an expanded flower after the separation of the petals, cut vertically—6 detached petals all cohering—7 a separate petal—8 ovary cut transversely—9 cut vertically—10 ovules and placenta detached

529 EUGENIA (A) WIGHTIANA (R W III Ind Bot 2 p 15)—*Syzygium Wightianum* W & A leaves elliptic-oblong, slightly tapering at both ends, thinly coriaceous, inconspicuously dotted, marked beneath with the transverse veins flowers scarcely pedicellate about 3 together at the apex and 2-J at the side of each peduncle, the peduncles arranged on the leafless branches or shoots, so as to form a narrow racemose cyme—1 x glabrous, elongated, clavate, repandly 4-5 lobed petals 12, or fewer by abortion, the outer ones occasionally expanding—W and A Prod I p 330

1 Flowering branch *natural size*—2 an unexpanded flower—3 the same cut vertically—4 anthers—5 ovary cut transversely—6 a detached petal—7 diagram of the flower—8 an immature fruit—9 the same cut vertically cotyledons conferruminate—10 seed cut transversely—11 seed detached—12 position of a leaf magnified showing the pellucid dots.

530 EUGENIA (A) LANCEOLATA (Lam R W III Ind Bot 2 p 15) *Syzygium lanceolatum* W and A leaves lanceolate, almost sessile, glabrous but not shining, pellucid dotted peduncles terminal and lateral, blanchard, few-flowered calyx turbinate, 4-lobed—W and A Prod I p 330

1 Flowering branch *natural size*—2 petals found adhering to a calyx in form of a calyptra, carefully separated and figured—3 ovary with the petals represented in half—4 ovary cut vertically—5 ovary cut transversely.

531 EUGENIA (A) BRACIOLATA (R W III Ind Bot 2 p 15) ramous 4 sided, angles subacute leaves short petioled, elliptic-lanceolate, acute or slightly acuminate at both ends, a, pellucid dotted cymes terminal from the upper axils, the extreme divisions terminating in a cluster of from 3 to 9 sessile flowers, each division and each flower furnished with two minute, persistent, acute bracteoles calyx tube conical 4 sided, limb repandly 4 lobed

1 Flowering branch *natural size*—2 a corymbose flower, each with its bracteoles—3 an unexpanded flower—4 an expanded one the petals cohering in form—5 anthers—6 ovary cut transversely—7 cut vertically.

532 EUGENIA (S) STILVESTIBIS (Moon) leaves obovate obtuse or spatulate, coriaceous, bluntness, short petioled cymes corymbose, congested toward the summits of the branches and extreme axils, loush peduncled fruit about the size of a crab apple, reddish—R. W III Ind Bot 2 p 15

Ceylon—Most of the above character is copied from MOOD'S notes on this species

OBs—The leaves of the specimen figured do not accord with the usual form, and are I suspect indebted to the draftsman for some part of the discoloration. The usual form is that described but they certainly vary considerably in their outline

1 Flowering branch—2 a flower dehiscing, petals calyptriform—3 an expanded flower—4 anthers—5 ovary cut vertically—6 cut transversely—petals detached.

533 EUOBIA (S) NEESIANA (R W III Ind Bot p. 15)—*Syzygium Neeianum* Arnott's pugillius leaves subsessile, oblong lanceolate, blunt pointed, subconceous, pellucid dotted, penninerved cymes terminal, laxly corymbose, trichotomous, peduncles 4 sided, the partial ones umbellately 3-7 flowered, pedicels half the length of the shortly turbinate slightly 5-lobed calyx—Arnott *Ceylon*

1 Flowering branch *natural size*—2 a flower bud just before expansion—3 an expanded flower with a detached petal—4 anthers—5 ovary cut transversely—6 diagram of the flower showing its 4 lobed calyx and 4 petals.

534 EUOBIA (S) novOLUTA (R W) leaves short petioled, obovate, very obtuse, revolute on the margin, very coriaceous, penninerved, polished above, dull glaucous beneath cymes terminal, longish peduncled, flowers sessile, congested on the points of the floriferous ramous calyx 4-5-toothed petals usually free, sometimes cohering—R. W. III Ind Bot. 2 p 17.

Ceylon—Colonel Walker

1 Flowering branch *natural size*—2 an expanded flower with the petals distinct—3 a flower the petals detached—4 anthers—5 ovary cut vertically—6 cut transversely—7 a diagram showing the relative position of the calyx lobes and petals.

535 EUOBIA (S) JAMBOLANA (Lam R W III Ind Bot 2 p 16)—*Syzygium Jambolanum* DC) arborescent, leaves oval or oblong, more or less acuminate or obtuse, feather-nerved coriaceous cymes panicled, lax, usually lateral on the former year's branches, occasionally axillary or terminal calyx short, turbinate, truncated berry olive-shaped, often oblique—W. and A. Prod I page 129

1 Flowering branch *natural size*—2 a flower in act of expansion, petals cohering—3 cut vertically—4 anthers—5 ovary cut transversely—6 petals separated to show their form and number—7 a cluster of fruit—8 a fruit cut vertically to show the lobed solitary seed in situ—9 cut transversely—10 fruit of a large fruited variety, but between which and the one figured I cannot detect any sufficient specific difference

536 EUOBIA (S) WALLICHII (R W) young branches 4 sided, leaves lanceolate, acuminate, acute at the base, concave, glabrous cymes corymbose, axillary and sometimes terminal, much shorter than the peduncles calyx deeply 5-lobed, lobes persistent petals frequently expanding before falling—U. W III Ind Bot 2. p 17

1 Flowering branch *natural size*—2 a flower bud just before expansion—3 the same, the petals separated all cohering—4 expanded flower—5 stamens—6 ovary cut vertically—7 cut transversely—8 petals detached.

537 EUGENIA (S) ALTXBNIVOLIA (R W) leaves alternate 1 suborbicular, thick and coriaceous, pinnately cymes luteal, longish peduncled, corymbose, dense, sometimes congested near the apex of year old branch lies calyx truncated, entire petals calyptrated *Bulagh vltM untuinn* -R W III Ind Bot 2 p 16

1 his figure gives a most imperfect idea of this species

1 E¹ lowering branch *natural size*,—a very *IIIHU one being selected as the outline of the leaf below will show,—2 a flower opening—3 the same the leaf 1 reu <>ed—4 stamens—5 a flower bud cut vertically showing the ovulate stamens and ovary—6 ovary cut transversely—7 the petals detached and separately figured—8 a diagram of the flower

OBS The lobes of the calyx are represented too large in the figure The dissections show that this is *ii error of the draftsman

538 EUGENIA (S) BUBICUNDA (U W — *S. rubicunda* W and A) shrubby leaves narrow oblong, attenuated at both ends, obtuse at the very point, coriaceous, pellucid dotted, striated with numerous parallel transverse veins cymes corymbose, terminal longer than the leaves flowers minute calyx repand, 4-lobed, shortly turbinate —W and A Prod I p 330

1 Flowering branch—2 a flower bud before expansion—3 the same the petals separated as a lid—4 stamens—5 an unexpanded flower cut vertically—6 cut transversely—7 the lid of cohering petals—8 the petals detached—9 a portion of a leaf *magnified*

539 EUGENIA (S) SALICIFOLIA (R W *Syz. sahctifolium* Graham s Cat Bombay plants) leaves linear lanceolate, tapering towards both ends, obtusely acuminate, transversely finely parallel veined, pellucid dotted, cymes numerous, tinctomous* small, from the scars of fallen leaves flowers small fruit- **GhauU near Bum' bay* Graham- -R W HI Ind Bot 2 p 16

1 Flowering branch *natural size*—2 a flower bud before expansion—3 the same cut vertically—4 anthers—5 ovary cut transversely—6 lid detached—7 the petals of which it is composed separately figured

540 TUGBIA (S) CAEYOPHILUEA (R W *Vf gy* CCL-ryopkylletum* Osrtm) leaves obovate, obtuse or with a very short sudden blunt acumination, tapering towards the base, somewhat coriaceous, inconspicuously dotted, the upper side becoming black by drying cymes corymbose, tinctomous, terminal, lax calyx shortly turbinate, inconspicuously repand or 4-toothed fruit globose, 1-seeded «W and A Prod I p 329

1 Flowering branch *natural size*—2 an expanded flower the calyx tri adhering to one side—3 the same dissected, but badly—4 a cluster of fruit—5 one cut vertically—6 cut transversely—7 a detached seed—8 one of the cotyledons

541. EUGENIA (S) BBTICOLATA (R W) leaves ovate lanceolate, acuminate, thick and coriaceous, when dry, brownish beneath and finely reticulated with slender whitish veins cymes axillary, corymbose, tinctomous limb of the calyx much dilated, 4-toothed flowers large *Aisam* —R W III Ind Bot 2 p 16

1 Flowering branch *natural size*—2 a flower in the act of expansion—3 an expanded flower—4 anthers—5 ovary cut vertically—6 cut transversely—7 a diagram of the flower—8 a portion of a leaf *magnified* to show the reticulation

542. EUGENIA (S) TODDALIOIDEI (R W) leaves lanceolate, attenuated towards the base ending in a long acuminate apex, coriaceous, transversely parallelly veined, pellucid dotted cymes lateral di-tinctomous, each branch bearing 1-2 or 3 flowers limb of the calyx much dilated, tube contracted not thicker than the pedicel *L 4f<Tgw...R yj in Ind Bot 2 p 16*

1 Flowering branch *natural size*—2 a flower bud cut vertically after the petals had been forcibly separated and opened to show their relative size—3 anthers—4 an expanded flower—5 the petals separated—6 ovary cut to *ni?eiMlj...7 cut vertically.

513 Eu IWIA (S) roLYANTiu (R W) leaves pinnately innervated oval lanceolate tip pointing at the base, bluntly acuminate, coriaceous, dotted, shining above, dull somewhat glaucous beneath cymes numerous short, many flowered, several springing together from the scars of fallen leaves (calyx 4-cleft, petals 4, constantly expanding before falling fruit *Mtrgui* ---11 W HI Ind. Bot 2 p 17

1 Flowering branch *natural size*—2 a branch of the cymose panicle—3 an expanded flower—4 anthers—5 calyx and a petal—6 ovary and cup shaped base of the calyx cut vertically

OBS The figure given a very imperfect idea of the numerous flowers of this species, which in some specimens, are so dense as nearly to conceal the branch which bears them It seems very nearly allied to & *S. balsamea* from which I fear on further acquaintance it will be found scarcely distinct

544 EUGENIA (S) CORDIFOLIA (R W *Calyptanthus cordifolia*, Moon) leaves coriaceous pinnately, ovate, acuminate, sessile, cordate, stem clasping at the base cymes corymbose, longish peduncled axillary, shorter than the leaves calyx limb very slightly 4 toothed, petals calyptriform - R W III Ind Bot 2 p 11

Ceylon Moon and Colonel Walker — This is a large handsome species The leaves are upwards of 6 inches long and nearly 3 broad, very coriaceous, revolute on the margin, flowers pretty large, the fruit I have not seen.

1 Flowering branch *natural size*—2 a flower bud about the time of expansion—3 the same after the separation of the petals—4 ovary cut vertically—5 stamens—6 ovary cut transversely—7 a diagram of the flower

545 EUGENIA (E) WILDENOWII (DC *Eugenia Zeylaraca* Willd) leaves shortly petioled, oblong narrowed at the base, acuminate with the point blunt, coriaceous, shining, veined not dotted peduncles falliform, 1-flowered, solitary or in pairs, axillary or on the leafless branchlets, with two short subulate bracteoles under the calyx—W and A Prod I p J31

1 Flowering branch *natural size* but a small one selected—2 an expanded flower—3 the same cut vertically to show the ovary—4 anthers—5 ovary cut transversely—6 a fruit *natural size*—7 the same cut transversely, 2 celled with one seed in each—8 cut vertically—9 a detached seed—10 the same, testa removed to show the form of the cotyledons

546 EUGENIA (J) MUNRONII (R W — *J. aquea*, Munro's MSS) racemes cymose terminal, tube of the calyx much attenuated at the base, lobes of the limb somewhat membranous, obtuse leaves subsessile, slightly cordate at the base, lanceolate upwards, ending in a short blunt acuminate, pinnately, veins meeting and forming a thick coarse nerve within the margin, pellucid dotted —A slender tree from 12 to 20 feet high, flowers large and conspicuous, apparently from the dried specimen, reddish Fruit eatable—R W III Ind Bot 2 p 14

1 (lowering branch—2 an expanded flower—3 the same cut vertically—4 anthers—5 ovary cut transversely—6 a diagram of the flower—7 a detached petal *magnified* to show the pellucid dots

547 BVBRINGTONIA SPBCIOSA (Linn) leaves shining, cuneate, oblong, obtuse, quite entire flowers (single) forming a lax simple raceme or thyrsus pedicels elongated, several times longer than the flower, 1-bracted at the base calyx 2-3 cleft ovary 4-celled, two of the dissepiments being often imperfect in the middle ovule attached to the inner angle of the cell, near its apex fruit acutely 4 angled, pyramidal, endocarp fibrous, resembling a putamen, separating from the epicarp —W. and A Prod I p 333

1 Flowering branch *natural size*—2 a partially dissected flower—3 a fasciculus of stamens—4 anthers—5 ovary cut transversely—6 ovary cut vertically—7 a fruit nearly mature copied from Gertner

M8 TUOEMA (T) Aim (Hob R W III Ind Hot 2 p 11 — 'nmlx sa alba W and A) leaves almost quite sessile elliptic oblong peduncles lateral and terminal, brachy, beccil flowered (flowers white) fruit turbinate, depressed — W and K Prod I p 332

1 Flowering branch—2 fruit seen from the apex—3 seen from the side—4 cut vertically Cypripedium florum Roemer's figure

619 THE GEMA (J) punpi RFA (Roxb R T* III Ind Cot 2 p 14)—7 trunk straight, leaves smooth, flowers in terminal sessile fascicles, berries val

Difference from *E. Mulicctnsia* in the shape of the fruit only. The fruit is as in the species, the colour a very dark purple—Roxb Fl Ind II p 483

11 fruiting branch—2 fruit seen from the apex—3 fruit *nuiutai uze*—A cut transversely showing the seed (copied from Roxburgh's figure)

550 FIOFANIA (J) AQIEA (Roxb R W III Ind Dot 2 p 14)—*Jambosa aquea* DC) leaves almost sessile, oblong lanceolate narrower and somewhat cordate at the base, peduncles terminal or from the upper axils, * 7 flowered (flowers white), fruit turbinate, flattened at both ends—W and A Prod I p 332

1 Fruit bearing branch—2 a panicle of flowers—3 ovary cut transversely—1 fruit seen from the apex—5 cut transversely

551 FUGEMA (F) MOOMANA (R W) shrubby, glabrous, leaves pellucid dotted, short petioled, ovate, tapering at the base, acuminate, acumen either short and blunt or prolonged and tapering to a fine point, peduncles axillary, solitary or sometimes paired, one flowered, flowers small, calyx tube ventricose, oblong, limb 4 cleft, fleginentsiflexed, pointed, fruit globose about the size of a cherry, seed longerruminant — R W III Ind Bot 2 p 13

1 Flowering branch, with a tuft of moss growing on the stem *natural* m—U an unexpanded flower bud—3 a flower after the fall of the petals and stamens—4 a perianth flower—5 anthers—6 ovary cut vertically—7 cut transversely—8 a fruit cut transversely, one seeded—9 a seed—10 cut vertically to show the position of the embryo—11 diagram of a flower

2 EIGEMA (S) OPPRCDLATA (Roxb R W III Ind Bot — Syz nmosnm DC) leaves elliptic ovate, at tenanted at the base, acuminate at the apex, eubconacou? pennnened, the lateral nerves tightly prominent, peduncles lateral, laxly cymosely paniced, calyx entire—DC Prod

ODS I have rotated Roxburgh's specific name, now that I have reverted to his generic one

1 Flowering branch—2 a flower, petals separating—1 ovary with the petals forcibly opened—4 vertical section of the calyx and ovary—5 transverse section of the same—6 a fruit—7 the same cut transversely

553 EUGENIA (S) CARYOPHILLIPOLIA (Lam Roxb) leaves elliptic-ovate, acuminate at both ends, coriaceous, feather nerved, peduncles lateral, densely tomentose, paniced calyx repand, somewhat hyaline on the margin—DC Prod

Ons In our piodromus Dr Arnott and I viewed this as only a small fruited variety of *Jambolanum* to this opinion I am still disposed to adhere but having an opportunity of publishing Roxburgh's figure I think it better to allow Botanists to decide for themselves

1 Flowering branch—2 an unexpanded flower—3 a flower in the act of expansion—4 the ovary and calyx partly removed

554 *ivrrvta* (S) TFRHUGI*EA (R W) riniuli compressed, leaves oblong lanceolate acuminate, tapering, or sometimes obtuse at the base concave, glossy above, dull glaucous beneath, peduncles axillary from the upper pairs of leaves, several times longer than the petiole, trichotomously branched, flowers fascicled on the ends of the branchlets, calyx 4 lobed, lobes obtuse on the margin, *Lduco is* petals expanding by a expansion

Mergm—Griffith

This is the plant alluded to (Ml Ind Dot 2 p 17) under *E. nibmi*. I had not when that was pointed out either a specimen or figure of Roxburgh's plant. A comparison of my plant with his figure shows them different though nearly allied species (tics). My plant has 8 petals but I am unable to say whether they all expand or partially fall off as K. lid. i. hi* can only be ascertained by a careful examination of recent flowering specimens.

1 Flowering branch—2 unexpanded flower—3 an expanded flower—4 stamens—5 calyx and ovary cut vertically—6 cut transversely—7 a diagram showing that the flower is 8-petaled

555 FUGENM (S) CYMOSA (Lam not Roxb) leaves short petioled, finely transversely veined, oval, acuminate, somewhat waved on the margin, acumen blunt, pointed cymes corymbose contracted, trichotomous, few-flowered flowers subsessile clustered on the points of longish peduncles, calyx slightly lobed, petals free expanding — *Meigui*—Griffith — H VV III Ind Bot 2 P 17

This is certainly a beautiful plant, and though in character not easily distinguished from *E. S. pilyantha* is yet very distinct. The leaves want the coarse conspicuous nerves, being quite even on both sides, the nervation resembling that of a *Calophyllum*, the midrib only conspicuous. The cymes, though as a whole small, act seem to have long branches, the flowers being confined to their points and capitate. The fruit I have not seen. Cymes terminal or from the axils of young shoots

1 Flowering branch—2 expanded flower showing the petals—3 a flower, but the petals removed to show the positions of the stamens before expansion—4 anthers—5 ovary and limb of the calyx cut vertically—6 ovary cut transversely

556 CARETA SFIERICA (Roxb) herbaceous leaves obovate obtuse, glossy, berries globular and crowned with the inflated flattened segments of the calyx — Roxb H Ind 2 p 86

1 Flowering branch—2 a fascicle of anthers—3 a full grown fruit—4 fruit cut transversely

557 CAREY A HERBACEA (Roxb) herbaceous flowers peduncled, leaves obovate, cuneate serrulate — Roxburgh s 1 c

1 Flowering branch—2 ovary with the calyx partially removed—3 stamens and petals—4 ovary cut transversely—5-6 a full grown fruit cut vertically showing the remains of the persistent calyx

558 SEMDCARPDB ANACARMUM (Linn) leaves cuneate obovate, rounded at the apex, whitish beneath but scarcely downy, enlarged tor is turbinate, fruit sessile, cordate ovoid, with a slight notch on one side under the apex — W and A Prod I p 109

1 Flowering branch—2 male flower—3 fertile flower front and back views—4 a fruit with its dilated receptacle—5 the same cut vertically

559 SEMECARPUS CASSUVIUM (Roxb) leaves alternate, lanceolate, entire and very smooth, nut resting on a depressed fleshy broad turbinate receptacle — Roxb Fl Ind 2 p 85

1 Flowering branch—2 expanded bisexual flower—3 ovary cut vertically—4 cut transversely—5 ovary further advanced, cut vertically—6 a fruit full grown resting on its fleshy receptacle—7 the same cut vertically—8 cut transversely—9 a seed the lobes separated to show the embryo—10 embryo detached

«VI RiU. SITCCID^PA (Linn) loi os 5 7 pnirod
homcwhit permanent, pctnl wiiijcs<. loiflets ohlong-
lanrcohte, ucuiiinitil, sinning, briu u'i rcticulately
\eineiot ium*>rn c>lour—DC Prod 1 p f>H

1 Flowering branch -2 a *mng hijed* floweri

561 RHOS BUCKI-IMFH (Roxb) /? *p *malnla vary*
*Roxbwghtt D**) arboreous lcives pinn iti Itafleis5
purs ovate, senite villoui, extcnoi halt of the peioli
winded pnnu le terminal beiiics orbicular, compressed
vi3u<l—Uovb H Ind 2 p 99

1 Flowering bi until—2 e\pinded flower—3 the same
dissected tn ihow the ovary—4 o\ary cut vertically—5
ft fruit—(3 cut tianaver^ely—7 a seed detached

562 VAHLIA OM>RLANDIODES (Roxb) stem erect,
slightly pubescent leu en linear hnecolate, spreading,
pubescent peduncles sohtir) , mther shorter than the
leaves, 2-flowered cipsules neaily globose seeds mi-
nute—N and A Piod I p 364

1 Full grown plant, *natural nzt*—2 a flower—3 a fruit
natural size-4 capsule cut vertically—5 cut trans-
versely)

563 VAHLU VISCOSA (Roxb) stems diffuse or some-
what ere t, puhescent, slightly glutinous leaves oblong-
lanceolate or linear, pubescent flowers in pairs, almost
sessile capsules nearly globose seeds minute—W
and A Prod I p 364

1 Flowering plant *natural size*—2 expanded flower—
3 capsule cut vertically—4 cut transversely.

564 HTBOCOTTLE BOTU N D t FOLIA (Roxb) filiform,
creeping leaves long petioled, round, lobate, crenate,
smooth umbels erect fiout 8 to 10 flowered involucre
of 3-4, or more, minute ciflets -Roxb Fl Ind 2 p 88.

1 Portion of a flowering plant—2 a flower—3 a cre-
mocarp—4 the same cut transversely

565 HYDROCOTYLE ASIATICA (Linn) leaves attached
by the margin, oi bicular-rcniform, equally crenated, 7-
nerved, glabrous, or slightly villous on the under bide
when young petioles an I peduncles f isicled, bpnkled
with soft hairs umbels capitate, shortly peduiled, few-
(3-4-) flowered fruit orbicular, reticulated, with 4 ribs
on each of the flat sides—W and A Piod I p 360

1 Flowering branch—2 an umbel with one flower blown
—3 ciemocarp-4 the same cut transversely

*> J66 PTVCHOTIS AJOWAN (DC Ligusticum Ajowan
Roxb) stem erect, dichotomous leaves few, cut into
numerous linear or filiform segments, the uppermost
simply pinnate umbel with ?<) rays involucre few-
leaved % leaflets hneir, entire fruit strongly ribbed, covered
with small blunt tubeicles - W. and A Prod I
p 369

1 Flowering plant *natural size*—2 an expanded flower
—3 the ovary after the fall of the petals—4 cremocarp
—S a single mencarp—6 cut vertically-7 cut trans*
versely

567 APIUM INVOLUCRVITUM (Roxb) annual, glau-
cous, villous superior leaflets filiform, both general and
partitl involucre about six leaved —Roxb. Fl. Ind. 2
p 97

OBS The plant figured No 335 of this work differs
so much in its general appearance from thia, which is the
true *Roxburgian* one, that I have thought it ju<t to-
wards Roxburgh to publish his own figure, even at the
risk of giving plates of 2 varieties of the same plant

1 Flowering branch—2 expanded flower—3 cremo-
carp—4 the same cut transversely.

568 DA>TIOMA BFNGYIE *Z (DC Sc>silc Bengal
ensis Itoxb)

ODS Dt(undolle dmtng! <hes two <pccics of this
ginus one 1) *Be julmse*, h\ its umbels being bc>silc—
the other *D jUw urn b>* its umbelU having a distinct
peduncle As this is Roxburgh s plint, therefore the
true /) *Benmkn&e* and ull the umbels ln\c peduncles, it
seems probable ih it the two aie but \ in ties, or if not
that DeCandolle s caracteis are insufficient for then dis-
crimination

1 Flowering branch—2 an expanded flower—J cre-
mocarp -4 the same cut transversely

W9 CNIDIUM DinusiM (DC Ligusticum diffusum
Roxb) stem diffuse striated leaves pinnatifid, segments
pinnatifid, lacenetp cuncatc obtusely dentate at the apex
peduncles oppoMtr the ICIMS lcives of the involucre
num rous line I sub nitinbr inaccous—DC

1 Flowering pi uit—2 floweri—3 a young cremocarp
—4 the same near maturity—5 cut transversely

570 FaiMCULUM FANMORIUM (DC Anatheum pan-
raorium Roxb) stem erect ramous leaves supra decom-
pound rays of the umbel from 10 to 20 unequal fruit
oblong deeply furrowed, wingt ss—DC Prod 4 p 142

1 Flowering bianch—2 expanded flower—3 mencarps
suspended from the c irpophore -4 detached mencarp—
5 the same cut transveisely

571 OENANTHE STOLONIPERA (DC Phellandnum sto-
loniferum Roxb) stem piped striated, repent at the
base, afterwards ascending leaves bi-nnnatifid, the up-
per ones pinnatifid, lobes lanceolate a uminated at both
ends counely and widely serrated umoels opposite the
leaves, exinvulcrete fruit obovate-oblong shorter than
the pedicels-DC Prod 4 p 138

1 Flowering branch, *natural nze*—1 an expanded
flower-3 a cremocarp crowned with the calyx lobes—4
the same cut transveisely

572 ANETHKUM SOWA (Roxb DC) fruit oblong, al-
most destitute of a membranaceous margin—DC —An-
nual leaves uupri- (ecomound umbel of from 5 to 15
rays equally elevated seeds flat with a membranous
margin and 3 nbv on the back —Roxb Fl Ind

1 Flowering plant—2 a flower—3 a young cremo-
carp—4 the same full grown <5 transverse section of
the same- -6 transverse section of a single mcucarp.

573. PANAX PRUTICOSUM (Linn Roxb) shrubby,
unarmed leaves pinnately decompound, leaflets pcttol
ed, oval oblong, acuminate, \ery acutely serrated, of-
ten variously lai miated panicle cor)mbose, the branch-
lets bearing umbels at the apex styles 2-3 ovary and
berry 2-3 lobed and celled-W and A Prod I p 376.

1 Flower ng branch—2-3 back and front views of the
flower—4 immature berries-- 5 transverse section of
the same with three cells --0 transverse section of one
with 2 cells

574. GABDBMA BNNFANDHIA (Keen W & A G hti-
folia Roxb not Alton) arboreous, unarmed leaves op-
posite or in threes, nearly stssile, from ovate to obovaie,
glabrous, with a hairy gland m the axils of the nerves OQ
the under side flowers terminal, 1 3 together, nearly
sessile limb of the calyx shoit and irregularly divided
corollahypocratenform , tube long, glabrous, limb 7-11
cleft, the divisions ihc length of the tube berry even,
nearly globose, crowned with the base of the limb of the
calyx , nut thin, with 5 parietal receptacles —YY and A.
Prod I p 394

1 Flowering branch -2 dissected flower- 3 fruit cut
transversely.

57' GARDENIA LUCIDA (Roxb W and A) arborescent unarmed, with leainousbuds leaves very shortly petMltd, oblo g, oval or obovate, obtuse 01 with a •hoit blunt point, glabrous, hard, shining, with simple par illel nerves and connecting prominent veins flowers somewhat terminal, solitary, rather shortly pedicelled (pedicels from } to an inch long) limb of the calyx with 5 long subulate ilivisi ins, sprinkled internally with erect short stout brinies corolla hypocratTiform, tube long glabrous, striated, limb 5-partite, divisions obovate oblong, as lon* as or a little shorter than the tube, ghhbrous stigma entire berry drupaceous, even, oblong, crowned with the whole limb of the calyx, nut very hard, thick and bony, with 2 parietal receptacles —W. and A Prod I p 395

1 Flowering branch—2 dissected flower---3 a sta men detached—4 a fruit full grown—5 the same cut transversely

576 GVRDENIA OUMMIFERA (Linn G arborea Roxb, arborescent, unarmed, with resinous buds leaves sessile from narrow elliptic oblong to ovate-oblong, obtuse or very shortly and bluntly pointed, pubcrulous and slightly scaorous when young afterwards shining, with «unple p trail el nerves flowers teiminal, 1-3 together, almost sessile ealx densely puberulous and slightly scabrous, limb short, with 5 ovate acumined divisions corolla h) pocratenform tube long, slender, widened at the mouth, sparingly pubescent, 1> lb 5 partite, segments narrow oblong, more than half the length of the tube, almost glabrous stigma clavate, entire, striated berry drupaceous, e)en, oblong, crowned with the whole limb of the calyx, nut w th 4 or 5 parietal recept teles —W. and A Prod I p 395

1 A leaf bearing branch—2 a flowering branch—3 a dissected flower—4 a berry cut tiansversely

577 GARDENIA MONTANA (Roxb) arboreous with short rigid spines leaves oblong, obtuse, nearly sessile, with the margins revolutc, upper side glabious and shining under a little pubescent flowers 3 6 together, fascicled, springing from the young leafless shoots, shortly pel icel led calyx with about 5 teeth corolla 5 7-cleft, glabrous in thir^d throat anthers included stigma bihd berry drupaceous, roundish, nut hard and bony, with 4-6 parietal receptacles — W and A. Prod I p 396.

1 Flowering branch—2 dissected flower—3 a fruit cut transversely

578 GAROBINIA CAMPANULATA (Roxb) shrubby the rainuh short, spinous towards the apex leaver* lanceo* late smooth acumined at both ends flowers fascicled, short pedicelled, axillary and sub terminal limb of the calyx campanulate acute and shortly toothed corolla Bub-campanulate 5 lobed, berry roundish 6vate —Flow-ers pale yellowish, anthers included, berry one celled with 5 p irietil placentas —DC

1 Flowering branch—2 dissected flower—3 a berry full grown—4 the same cut transversely

579 GMIDENIA TUHGIDA (Roxb) arboreous armed, bark thick leaves obovate attenuated at the base into a pctiol, smooth flowers lateral, sub solitary calyxlnub tubular, 5 toothed corolla hypocratentoroi, anthers included—DC Prod

1 Flowering branch— 2 ovary, calyx and style—3 co-rolia detached and split open showing the enclosed sta-men.—4 a full growu beiry— 5 the same cut trans-versely

580. R\NDIA DUMKTORUM (Lam Gardenia dumeto-rum Roxb) spines opposite leaves oval, somewhat obtuse cuneate at the base glabrous or when young slight-ly pu escent flowers solitary, terminal on (he joung shoots, sh >rtdy pedicelled limb of the calx campanu-late, lobes obk ng coroll i hirsute on the outside, tube rather longer than the segments of the calyx, furnished on the inside neir the base with a ring of erect dense hairs fruit usually globose, rarely oblong, crowned with the limb ot the calyx — W and A Prod I p 317

1 Flowering branch—2 dissected flower—3 ovary cut transversely—1 a berry full grown—5 cut transversely.

591. RANDIANUT4NS(DC Posoquena nutans Roxb) spines opposite, horizontal young branches long, droop* ing, pubesrent leaves from cumform oblong to round, glabrous flowers short pedicelled,, at the extremity of short leafless or few leaved axillary young shoots calyx with a short rather hairy cjlindric tube corolla silky on the outside, tube scarcely longer th in jhe calyx seg-ments, with a dense circle of white hairs internally near the base fruit globose, crowned with the whole limb of the calyx —W and A. Prod I p 397

1 *lowering branch—2 a portion of the same—3 co-rolia split open—4 calyx and pistil—5 ovary cut trans*versely—6 a full grown berry—7 the same rut trans-versely—8 a dissected seed—9 embryo detached.

582. RANDia LONQISPINA (DC Gardenia longispina Roxb) spines opposite or occasionally rternate, hori-zontal young branches drooping leaves from obovate to oblong, cuneate at the base, glabrous or pubescent on the nerveb flowers shortly pedicelled, generally I - J at the extremities of the young short axillary shoots, occa-sionally solitary and axillary limb of the calyx campanu-late, lobes ovatec.with often a small tooth between them in the sinus corolla silky on the outside, tube rather longt r than the segments of the calyx, with a dense ring of hairs near the base on the inside fruit drupaceous, short ovoid and slightly retuse at the bas«, crowned with the permanent limb of the calyx —a, cu.Ua, tube of the calyx, and ovary gUbrous.—W and A Prod I p 398

OBS 1 he spines in the wild variety are short and the tube of the calyx and ovary hairy

1 Flowering branch—2 diosected flower—3 a full grown fruit—\ the same cut transversely.

583 RANDIA FLORIBUNDA (Posoquena flonbunrfa Roxb) spines axillary, rigid leaves opposite and fascicled, obovate, cuneate at the base, glabrous flowers shortly pedicelled, 4-6 on each of the small lateral scaly leafless young shoots calyx glabrous, tube cjlindnc, segments of the limb somewhat lanceolate, acumined, persistent corolla silky on the outside, tube rather shorter than the segments of the calyx, with a circle of erect hairs about the middle on the inside fruit ovate-cordate, shining, crowned v\ith the limb of the calyx —W and A Prod I p 39d

1 Flowering branch—2 dissected flower—3 ovary cut transversely—4 a berry—5 cut transversely—b a seed dissected showing the embryo in situ

584 STYLOCOPYNE WEBEHA (A Rich Webera corym-bosa Roxb) shrubby, glabrous leaves lanceolate-ob. long, shining corymbs tnchotomuus, terminal calyx-limb 5 cleft tube of the corolla short, at out twice the length of the calx-tube, slightly widened and bearded at the mouth, segments of the limb recurved, oblong, villous at their base along the middle, about twice as long as the tube style slightly hairj, stigma with 10 longi. turlinal somewhat winged angles berry 2-ctiled, with 4-8 seeds IU each cell —W and A Prod I p 401.

1 Flowering branch—2 detached flower-3 corolla dissected—4 o\ary and calyx

?.*? ^{PE₄G₁OLAHIA} *ALLIDA (W and A Asclepias paluda Roxb) twining, branches slender, softly pubes-cent leaves cordate acuminate cymes short peduncled many flowered segments of the corolla legulate, tube glabrous within, longer than the gyuostegium crown of the stamens exceeding the apiculate stigma.—Wurht's Contributions

1 Flowering branch-2 dissected flower showing the column and staminal crown—3 ovary and stigma, the crown and filaments removed—4 stamens and crown.

586 HOTA VBRIDIPLoaA (R Brown) twining leaves ovate or cordate, acumined, membranaceous glabious coroll i glabrous, with o\ate acute lobes leaflets of the stttinenal crown flattened above, obovate, obtuse, interior angle shoit, blunt, follicles divaricated, thick, obtuse rusty colouied —Wight's Contributions

1 Flowering bran h—2 a flower partly dissected showing by the remov vl of 2 coronal leaves and filaments the pollen masses and o\ary—3 detached pollen—4 sta-men with its crown—5 follicles, one opening.

^p87 HOTA P\B^ITICA (Wall Asclepias paaisitica Roxb) scandent, ninsitu il glabrous, blanches 'lender, terete leaves flesliv «l ibious, shining slightly 3 nerved at the base, oblong imicoUte, tapeungto a p mt peduncles about hlf fie length of the leaves, man} fl >w ered corolla glilirc u» <leely 5 cleft leaflets of the crown ovate acute, the interior angle resting on the stigma —W ight s t ontbutjns

Lower Icily poiti n of A branch showing the pirn-sitic loots—1 a flowering branch — 2 a flower, front view —3 back view of the sa lie—4 a follu le

588 TYFOPIORA TFNOISSIAIA (W and A —Asclepias tenui»sima Roxb) twining, glabrous, stem and branches slender leaves oblong lanceolate, subcordate at the base, veinless, sli^htl) i< volute on the nnr^in (two or three inches long by about halt an inch broad) peduncles flexuose, pe licels numerous fascicled on the flexuics flowers sin ill, le iflcts of the ir >wn ovate oblong pollen masses ascending stigma conve* follicles diverging glabious —W and \ Contnbutiois p 49

ODS I he flexuose ped nicies wnh the pedicels nfigiegated in fiscicles on the flexures is ncailj peculiar to this genus and occurs in almost every species I know In my genus Iphetia a similar habit ptevails which lends me to doubt whether it ought to be kept up

1 Floweing branch -2 e\pauled flower

589 MARSDENU TINCTORU (R Rr—^sclepias^ tinctona Roxb) twining lei\cs ovate or oblong acummitid cordate at the base, neatly glabrous, furnished with glands near the base thvises literal, flowers small beat ded on the thro it leaflets of tne crown subulate, as long as the gyuostegiuiu btigina blunt — Y\ lghi s Contributions p 40

1 Flowering branch—2 an expanded flower—3 the same dissected showing the g'ynostegiunwn situ—i ovary and stigma

590 MAR«DENIA TrNACissiM\ (W and A—Asclepias tenacissima Roxb) twining leaves cordate acuminate, tomentose on both -id s i>i*s 1 ige | am cled segments of the corolla broad obtuse leiflcts of the crown broad truncate I, entire or bligitlv ^furcated at the apex stigma obtusely apiculate —W ight s Contributions p 41

1 Flowering branch-2 dissected flower-3 ovary and stigma—* detached pollen—5 stamens fiout view, with the crown attached

591 CoSMOBtOMA RACBMO«\ (R W -Asclepias* raccin sa Roxb) I his is the only species of this genus, which is easily distmgui he I by the peculiar hal it and its remarkable crested or ornamented stigma (whence the mime) which however is not very clearly shown in the fLure

1 Flowering bianch-2 disserted flower-3 pollen—4 ovary tut trmavcrsely-5 cut vertioall)-b a follicle —7 a seed-8 cut trausvcr^el)— 9 dissected showiug the embryo

592 GTMNEMA TINGENS (Var ovahfoha W and A —Asclepias montana Koxb) twining, shrubby, younger brand es herbaceous, glibrons, leive«*fiom c idate ov te to ovate or oval usual) abruptly acuminate, glnbro is umbels orcoi)mbis often paired, at first shoiter thin the pctio, at 1 ngth elongating fpirnll) floweis D>'Tsh (pale ullov) throat of the corolla raked, tube tarnished wuhhairv. lines glands of the filaments more than a hall shcrter than the stamens, stigma bluut, exceeding the stamens —Aight s Contributions p 45

1 Floweung branch-2 calvx-3 cor lla split nppn showing the 1)iry lines, but not lepiescnung them quite coriectlv — 4 g)toietegium showing the stamens aod pio-roineut oLtuse bti,ma-5 a detached stamen

593 GTMNFMA TJHGRNS (Var cordifolia W and A —As< lepias tingens Roxb) see the preceding charactei

OBS Dr RoxUugh assigning a higher value to charncteis taken from vunanous in the foliage than I feel disposed to adopt, has, mainly on that gtound, constituted the plants lepie euted in these two figures, distinct species I am not deposed to follow him in that dnision, but think it incumbent on me, having the opportunity of doing so, to show Roxbuighs reasons and leave those interested m the q iestion to decide which is right

1 riowenu^r branch—2 dissected flower showing more correctly the form of thehany lines—3 g)nostegiuiu-* 4 polleu—5 stamen—G follhle—7 a seed.

5J4, HEMIDESMCS INDICUS (R Br—Asclepias pseudaisa Ro\b) glabrous leaves fion cordate to ovate, cuspidate, passing into n urow hneai, acute, often oblong-hnceolate c) ines often subsessile, sometimes ped unclcd scUes of tlle coiolla obtuse cohering the whole length of the tube follicles slendei, straight —Wights Contributions p 63

i lhwennng bianch—2 ? magnified flower front view —3 the same dissected, cal)X und corolla detached to show the g) nostegium - 4 follicles—5 a leaf of different \anet}

595 SARCOSTFMMA BBEVISTIGMA P (W and A —Asclepias auda Roxb) twining, leaflets, umbels terminal or terminating shoit latinl branches cal^x and pedicels glabious exttnor crown 10 plaited, 10-erenated, the leaflets of the interi >r one gibbous on the back equaling the gynostegium stigma blunt —Wights Contributions p 59

OBS In the true 5 ummale the stigma is prolonged, pointed, and bind at the apex, here it is evidently flattened, on which account I have doubtfully referred Roxbuigh s As auda to this tpecies, m place of to vinnnale to which it is usually assigned

1 Flowering brinck—2 an expanded flower front view —3 back view—4 ovury aud stigma with the attached pollen

596 DJEMIA EXTEXSA (R Br — Asclepias eehenata Roxb) shrubby twining leaves roundish, cordate, acuminate, aurlclcd at the base, pubescent above, glaucous, peduncle^ and elongated pedicels filiform margin of thecoiolla eilnted

1 1 lowering branch—2 dissected flower—3 pollen and ovarv—4 stamen and crown—o follicle The pubescence of the corolla is not shown

507 UOIOSTRMMA HHEFDII (Sprang —Asclepias anuluna Roxb) leaves broad ovate cordate —\ lglit's Contributions p 55

ODS J o the localities mentioned in the " Contribution" I am now enabled to add Courtallum and the Neilghernes from both of which I have specimens

1 Flowering bianch—2 a flower with the corolla removed to show the annular crown—3 ovary, stigma and pendulous pollen masses—4 detached polleu-5 a stumen.

51)8 TOXOCABPUS LAUBIFOLIUS (R W — Aselepias launfolia Roxb) glabrous leaves oval, sometimes obtuse, oftenei acuminate coriaceous corymbis sessile, devaritatly trichotomous, very ramous fliwers numerous sm ill segments of the corolla reflexed, bearded within leaflets of the crown fleshy, short, roundish-ovate acute, with the interior lacinula shortly exerted, equaling the gynostegium apices of the anthers thickened, sub ciestate, curved over the obconic all) apicuJate stigma follicles slender, diverging horizontally —Wight's Contnbutions p 61

1 1 lov wing branch—2 back view of the coiolla—3 front view more highbj magnified—* ovary aud Btigma—5 Btameu seen from within—6 a seed

609 STROPHANTHUS DICHOTOMUS (DC — Nodding) ciuidum (Roxb) shrubby, scaudent leaves oblong, finooth cymes ten mini segments of the cor 1 i ending in i long filiform point—Roxb l/ In 1 2 p 10

1 I lowering bran h—2 e»l)x, st/le uil Btigma stimens detached—4 portion of a coioll i, seen lioiu within

600 ADFNEMA HYSSOPIFOLIUM (G Don — Gentiana terticellata Luin fl Roxb Lxatuinhysopilohum Willd)

firN CHAB "Caljx o parted coiolla funnel sluped, 5 cleft Stamens 5 enclosed, hhinents shoit furnished with a gland at the u seitiou of each, untheis uicumbent Stigma 2 lobed, seeds stobiform

An elect pereuid plint with creeping roots, sessile, lance late, decussate 3 nerved leaves, tetragonal, simple steins ind a'llar) sessile RID ill white flowers, generally 3 in each axil and threfo e appealing \citiellate —Dons Gardeners Diet onaiy

1 his is the only species of the genua which until separated by Do i had been confounded with *Oentiana* and *Exacum*

1 Flowering branch—2 dissected flower—3 detached stamen — 4 capsule *natural size*—5 the same cut trin»-versely *magnified*

fioI HYDROLI A ZBYI UNICA (I inn — Nama Z)lanici (Roxb) heibaceous, glabious, diffuse ro >tmg at the joints floufrous branches ascending leaves fr in oval obtuse to lanceolate acute flowers racemose on the uds of the ramuh, occasionally solitary and leaf opp >se 1 between them flo *rs deep blue

OBS This is I believe the only Indian spc les, the above must therefore be viewed as a buief desuption rather than a specific character

1 Flowering branch—2 expanded flower, front view — 3 back view of the same—4 calyx and ovary - 5 capsule cut transveially.

602-603 CblTis OBTBNTAIS (Willd) pol)gimoiir arboreous leaves bifunous, obliquely cordate, serrate, fine pointe I, villous underneath —Roxb Fl Ind 2 p 65

1 he male and fern tie of this plant are usually found on different trees i have therefore followed Roxburgh in giving figures of each on separate plates

b02 1 Male plant flowering branch—2 a male flower—3 a leaf and cluster of female flowers.

603 1 Female phnt flowering bianch—2 a dissected flower—3 a fruit enclosed in its cal)X—4 fruit cut transversely—5 the same detached

604 CARALLIA LANCEFGTOLIA (Roxb DC) leaves lanceolar, acutely serrulate, neived, shining peduncles man)-flowered—Roxb Fl Ind 2 p 481

1 Howenng bianch—2 dissected flower, showing the thickened base of the style resembling a superior ovary with which the true ovary is crowned-3 an advanced ovary cut transversely, 5 celled—4 tut vertically

OBS It seems probable this must constitute a new genus the ovary being tiuily 5 celled with 2 collateral ovules in each 1 he one hgured has three of the cells with a single ovule in each, the others having aborted, the remaining 2 cells have each two ovules but apparently both aborted

603 CAB ALII A LUCIDA (Roxb) leaves opposite, oblong, serrulate, peduncles many-flowered —Rox Fl Ind 2 p 481

1 Flowering branch—2 dissected flower—3 a fruit—4 cut vertically showing the solitary curved seed *in situ* —5 seed detached

606 EUGENIA (A) CLAVIFLORA (Ro»b) leaves hnccolar corymbs lateral, subsesbile, umbelliform flowers clav lie berries long ovate, crowned with the c)a-thiiform base of the calyx—Roxb Fl Ind 2 p 488

1 Flowering branch—2 flower cut vertically, showing the position of the ovary—3 ovaic cut transversely—4 a beiry fullgrowu—5 cut vertically—6 the embryo detached.

607 FUCFENCA (A) ACUMINATA (Ro\b) len\es broad lincclour adiiiiumtc poMslud, fin el) \uncl pc lui lrs mill nj terim I i man) flmeiel coioll iipienl itc btmcbiounl -R \b I I In i 2 p 4 >2

Oiib 1 Ins «| cries rnnls uith F .. M/C ami P tblata from the 1 ist of which it sou is p n tipnM* to i iYr in the size of the fr ut an 1 ipi nl it , m t e\p nding coiolla 1 have not ««cn the plant niut oil} know it tin ugh the figmc and Roxburgh s short ehai u ter above quoted

1 Floweing bianeh—2 flowci—3 ben3

608 TUGTMA (J) AMPLFXICAILK (Ro\b) lea\es stem clasping ohkng obtuse peduncles Intel il 3 or 0 flowoied bcnv phuitil—Ro\b Fl Ind 2 483

A stately tree, ' the culm it on of which imiot well be recommended on account of its fruit but the tree IH one of the most hinds me of the genus ft is inly known to me by the fl^ue and Roxburgh s desention

1 1 lowciing branch-2 a full grown fruit—3 the tame cut transversely—4 adetiehed seed—5 the same, the lobes separated to show the embryo

609 EUGENIA (J) IAUURIFOMA (Roxb) Icives sub- sessile oblong, glossv, obtusely acuminate peduncles laltial three flowered, pedicels elav ite, length of the pel ncles berries oblong Roxb hi Ind 2 p 489

J he pulp of the fruit is in small quantity, and suce eatable, the uhape however of the bcynes III this species together with itB da k blown bark immediately point it out¹¹—R xb

The hguic difftrs somewhat from the specimens sent to me by Dr Wallich but not specific lly

1 Flowering bianch—2 a fruit—3 cut vertirally—4 a seed lobe showing the embijo

610 EUGENIA (J) POLYPETALA (Wall — E Angustifoha Roxb notlamirck) leaves tern linear hnccolar peduncles lital from three to four flowered corolla many petal d —Roxb Fl Ind 2 p 490

OBS I foimeily (Illustrations 2 p 14) expressed a do ibt of this species being justly teferable to the genus, further expeuence does not confirm that suggestion numerous petals being found inscveial other species

1 Flowering branch—2 ovary cut \citi cally—3 cut tiansveisely, showing an accidental variety with three cells—4 another leprcsenting the usual 2 celled iorm

611 LIGIMA (J) TERNIFOLIA (R xb) leaves tern sessile, oblong fl wers literal—Roxb Fl Ind 2 p 4HU

A lircg tree a Native of Lhittagong and Assam 'there are two vane ties one with white flowers cilled by the p ople where the tiee grows Phool jamb the other with lovely rosy fl >wers they call Lai phool jimb I heir leaves are among the lircgst of the genus being from 6 to 1 J inches long and iiom 3 to b broad -Roxb

1 Flowering branch-2 ovarj cut transversely,

612 EUGENIA (J) MICROCARPA (Roxb) leaves sub- sessile, lanceol ite acumunte base narrow cordate pe duncles terminal few flowered berries spherical, of the size of a large orange crowned with the 4 lobed perna nent calyx —Roxb Fl Ind 2 p 497

Native of Chitugong where it is called Chaltajamb the fruit ripens in August and is eaten by the natives

1 Flowering branch—2 ovary cut transversely—3 full grown fruit—4 fruit cut transversely, several seeded, which is unusual in the genus

613. EUGBNIA (J) 1 ANCBOLARIA (Roxb) leaves short petiolecJ narrow lauccolar floweis terminal about 15, cor) mbose fascicled bernea irregularly round lobate —Roxb Fl Ind 2 p 494

Flowers very large, rosy and somewhat fingrant, which with the elegant foliage renders it one of the prettiest of the genus the fruit though as large as a small apple is not eaten, the pulp being braall in quantity and tough —

1 Flowering bianch—2 ovary cut transversely—J full grown fruit—4 cut transverse!), apparently several seeded but probably with but one, many lobed seed all uniting in a single, central embryo

611 *EuOBANIA* (S) *OBANDIS* (Roxb) leaves oblong, polished, hard cymes terminal and axillary crowded —Roxb Fl Ind 2 p. 492

OB9 The leaves of the specimen figured, seem to have been pointed those of the specimens I examined were broadly oval with an abrupt obtuse acumination not at all like those of the figure but which in other respects the figure agrees so well with the specimens that I am disposed to view that discrepancy as an accidental variation

1 Flowering branch—2 an expanded flower seen from below—3 the same, dissected seen from above—4 ovary cut transversely

615 *EUGENIA* (S) *CERASOIDES* (Roxb) leaves short petioled from oval to oblong remotely coarse veined panicles lateral bracts alternate of the size and appearance of small black cherries—Roxb Fl Ind 2 p 483

The timber is used for various purposes in Chittagong where it is a native, and the fruit are very generally eaten. This species, which much resembles some form of *E. Jambolana* is readily distinguished by its free expanding petals, a character not noticed by Roxburgh

GIG *EIGBMA* (S) *PANMLA* (Roxb) leaves broad lanceolar, acuminate, coarsely veined panicles lateral, brachiate flowers in little heads berries oval—Roxb Fl Ind 2 p 489

This is a very large tree a native of Chittagong. The fruit are about the size of a gooseberry and very juicy. It is also the petals expand before falling

617 *EUGENIA* (S) *THUMRA* (Roxb) leaves lanceolar, polished panicles terminal, extreme, remote, many flowered divisions of the calyx subrotund petals reniform 6P88ile-Roxb Fl Ind 2 p 495

Hab Pegue, where it is called Ihurora

1 Flowering branch—2 a flower seen from below—3 front view partly dissected—4 cut vertically showing the ovary—5 ovary cut transverse!

G18 *EUGENIA* (S) *MIRTIFOLIA* (Roxb) shrubby, leaves lanceolate, taper, obtusely pointed, lucid peduncles axillary, compound, many flowered berries spherical —Roxb Fl Ind

A native of Sumatra—The specimen figured differs somewhat from that sent to me by Dr Wallich, which induced me to refer this species to the section with terminal flowers, though it seems preferably to belong to that with axillary ones

619 *EUGENIA* (S) *FBOCOX* (Roxb) leaves opposite petioled, lanceolar, rather obtuse, coarsely veined panicle lateral and axillary, brachiate half the length of the leaves—Roxb Fl Ind 2 p 488

A native of Chittagong flowering in January

620 *EIOBMA* (S) *OBTISROLIA* (Roxb) leaves elliptic obtuse, polished panicles below the leaves corolla calyptrate berry oblong one seeded—Roxb Fl Ind 2 p 485

Native of the Mollucas

Roxburgh remarks that this only differs from *Jambolana* in the leaves being obtuse and frequently smaller. Rinate which he has illustrated by the introduction into LIB drawings of figures of two forms of leaves of the true *E. Jambolana*. In all other respects they are the same and I should therefore assign the propriety of reducing this as an obtuse leaved variety of that species

1 Flowering branch—2 calyx and ovary cut vertically—3 cut transversely—4 a full grown berry—5 the same cut vertically—6 a detached seed—7 the same divided to show the embryo—6 leaves of *Eugenia Jambolana*

621 *FLGEBMA* (S) *LANCEIFOLIA* (Roxb) leaves short petioled, lanceolate with the base rounded, acuminate smooth panicles axillary and terminal, globular shorter than the leaves berries oblong crowned, with the entire calyx—Roxb Fl Ind 2 p 494

A native of Silhet where it is called Psora jamb. Flowering time November and ripens its fruit in February. This I am inclined to consider one of the most elegant and most useful species of this extensive and truly superb genus. Roxb. The young shoots appear quadrangular and the petals expand

622 *EIGTNIA* (S) *ODLATA* (Roxb) leaves opposite, broad lanceolar obtusely acuminate panicles terminal, with smaller axillary, corymbiform, fascicles all shorter than the leaves berries transversely oval—Roxb Fl Ind 2 p 943

Native of Chittagong where it is called Goohm and cultivated for its fruit which ripens in June and July. The wood is also in some estimation—Roxb

623 *EIGCNIA* (S) *INOPTITUA* (Roxb) trunk straight to the top of the tree leaves elliptic oval to oblong finely veined and polished panicles terminal corymbiform (enhx obscure) from four to five lobed corolla from four to five petaled bract tubinate—Roxb Fl Ind 2 p 496

Native of Moluccas although it resembles the clove tree it possesses no kind of fragrant fruit not eatable—Roxb

1 Flowering branch—2 a flower cut vertically showing the limb of the calyx much produced and the petals adherent—3 ovary cut transversely—4 a berry full grown—5 cut transversely one seeded

624 *FIJGENIA* (S) **RUTICOSA* (Roxb) shrubby leaves from obovate oblong to oval finely veined panicles lateral. There are numerous calyx entire peduncles and pedicels. The corolla four petalled, but generally deciduous in form of a lid—Roxb Fl Ind 2 p 4H7

Native of Chittagong, Berries small one seeded

1 Flowering branch—2 dissected flower—3 position of a peduncle—4 a berry natural size—5 cut transversely slightly magnified

625 *EIOENIA* (S) *VEMISTA* (Roxb) arboreous with numerous drooping branches leaves broad lanceolar, obtusely acuminate panicles axillary and terminal, brachiate, shorter than the leaves, ultimate divisions three flowered—Roxb Fl Ind 2 p 491

From Fippara. An elegant tree, flowers like those of the (omnion) title and about the same size, with 4 toothed. Corolla of 4 short lobes orbiculate, concur, redish petals—Roxb. I have suggested that this might be *Eugenia cymosa* of Lamarck an opinion which attentive examination does not tend to confirm

626 *EUGENIA* (S) *BRACHIATA* (Roxb) arboreous leaves elliptic, obtuse pointed panicles lateral peduncles and pedicels four sided calyx entire berries spherical—Roxb Fl Ind 2 p 488

A native of Amboina. The fruit are about the size of peas, dark purple or black and of an astringent taste—Roxb

1 Flowering branch—2 a berry full grown—3 cut transversely—4 cut vertically showing the embryo in the centre of the seed—5 unbroken detached

G27 *IGFMA* (S) *COBVEDOSA* (Roxb) leaves ovate lanceolate, entire, smooth corolla ternate lobed calyx with large lobed divisions berries globular—Roxb Fl Ind 1 p 49/

A native of the Moluccas

1 Flowering branch—2 expanded flower seen from below—3 the same dissected—4 ovary cut transversely

628. *EUGENIA* (S) *PUTCHERIA* (Roxb.) leaves broad lanceolar, acuminate, finely veined, lucid: panicles terminal, divided in a triternate form: peduncles and pedicels four sided: berries spherical.—Roxb. Fl. Ind. 2. p. 496.

Native of the Moluccas. A beautiful small tree, flowers in March and April, and ripens its fruit which is like the black currant in June and July.

1 Flowering branch—2 dissected flower—3 a full grown fruit,

629. *EUGENIA* (S) *OLANDUUFERA* (Roxb.) shrubby: leaves broad lanceolate, highly polished: panicles terminal brachiate; ramifications simple and umbelliferous: calyx five toothed, and with the germs and pedicels glandular.—Roxb. Fl. Ind. 2. p. 496.

A native of Sumatra.

1 Flowering branch—2 dissected flower—3 ovary cut transversely.

C30. *EUGENIA* (S) *RUBENS* (Roxb.) leaves short petioled, opposite, and subalternate, lanceolar, obtuse, fine veined, hard and glossy: panicles terminal, ultimate divisions often umbelliferous.—Roxb. Fl. Ind. 2. p. 496.

Native of Chittagong. A large timber tree flowers in April, fruit, which is eaten by boys, ripens in June and July.

1 Flowering branch—2 ovary cut transversely.

631. *PETBOSPERMUM ACERIFOLIUM* (Lamarck) leaves roundish, entire or coarsely toothed, cordate at the base, usually more or less peltate and 10-12 nerved at the insertion of the petiole; under side clothed with loughish tomentum; veins conspicuous; petioles elongated: pedicels axillary, much shorter than the petiole: involucre leaves at a little distance from the flower, very caducous: petals linear-revolute: sterile filaments club-shaped: ovary oblong, 5-angled, with 12-14 ovules in each cell: capsule oblong, 5-angled; outside encrusted with a furfuraceous pubescence.—W. and A. Prod. 1 p. 69.

Doubtfully a native of the peninsula, but certainly of Silhet and China.

EXPLANATION OF PLATES.

VOL II PART IV

632 *Ficus POLTCABF A* (Roxb not Jacq *F coptosa*, Steud Norn Dot) Arborescent leaves oblong some of them slightly waved on both sides strabrous* fruit in fasticled from the trunk or woody branches — *R tl Ind J 556*

Moluccas — In the Calcutta garden, in fruit About the end of the rains Leaves scabrous from the -s one sort of bristles and glands as cover the bark of the young parts , furnished with a green gland in the axils of the uerves

633 *Ficus ASPEBBIMA*. (Roxb) leaves oval, often scol'oped, ver\ scabrous fruit axillary paired, peduncled, round, downy — *R Ft Ind 3 554 —liort Mai 3 60*

Native of the moist valleys of Malabar and the Circars — A large tree—fruit downy, size of a gooseberry, when ripe, yellow

634 *Ficus CABICOIPES* (Roxb) Sub arboreous leaves cordate, crenate, villous fruit axillary solitary or paired, peduncled, trigonal, trinate, wrinkled umbilicus shut with three cordate scales calyx from 6 to 8 leaved — *R tl Ind J 529*

Lucknow — Introduced, by General Martin, into the Calcutta Botanic Garden

1 flowering branch—2 a detached fruit with its peduncle—3 a single female floret detached, showing the perianth, obliquely seated ovary, style, and forked stigma

635 *Ficus HDMILLO* (Roxb) Tirenmal creeping leaves short petioled, oblong, remotely dentate serrate, harsh obtuse acuminate fruit peduncled, oblong, with an elevated umbilicus — *R tl Ind 3 635*

Sumatra — A small caespitose species, in fruit all the year In this Species Roxburgh found only female florets

1 Flowering branch—2 a seed detached from the 5-cleft calyx

636 *Ficus BBPBHB* (Roxb Willd) somewhat shrubby, creeping leaves, obliquely cordate lobate serrate-dentate fruit solitary, peduncled, long obovate *—*R Fl ind 6 686—Willd *p 4 1149*

Calcutta — Pasture grounds at borders of tauks
1 Flowering branch—2 detached fruit

637 *Ficus aiwoEMiB* (Roxb) Arboreous smooth leaves solitary and in pairs, petioled, oval pinctate entire, a ring of scurrous specks below the insertions of the stipules fruit axillary, solitary, short petioled, turuip-shaped— *R Ft Ind 3 551*

Moluccas In 5 years, young trees introduced into the Calcutta Bot Garden were from 10 to 20 feet high, and produce fruit about the close of the rains in September and October.

638 *Ficus OPPOSITIFOLIA* (Roxb Cor PI Willd *F hispida* Lin fil) Leaves opposite, oblong, serrate fruit in axillary pairs, or on cauline racemes, round, peduncled hairy — *R Fl Ind 3 561*

A small tree, native of banks and rivulets where the soil is moist and rich It or *t Jamona* is frequent in such situations about Madras they much resemble each other, and I may have confounded them

1 A leafy branch—2 a fructiferous one with 2 racemes of fruit—3 a male flower—4 a female flower—both magnified

639 *FICUB BACBMIFBBA* (Roxb) Arboreous leaves alternate, cordate, crenulate fruit on compound glomerate racemes, from the woody part of the tree below the leaves— *R Fl Ind 4 60 Rumph hb Amb 3 + 9 3*

Sumatra — 1 rees small and in fruit most part of the year leaves deciduous during the cold season.

640 *FICUB COBDIFOLIA* (Roxb not Blume. *F Rumphii* Blume) leaves lone, slender petioled, ovate-cordate, acuminate, gloss} fruit paired, sessile, round, smooth, black — *R Fl Ind 6 548*

Calcutta — A large ramous spreading tree Trunk " while young, round and straight but when old deeply furrowed as if composed of many coalesced trunks "— Roxb

641 *FICUB BCSMONA* (Roxb Ron Vahl) shrubby leaves, generally opposite, cuneate, oblong, and oblong pointed, serrate, above scabrous, downy underneath, with a green gland in the axils of the veins fruit in pairs on long radical racemes above very hairy, of the size of a nutmeg — *R Fl Ind 3 562*

1 anjore—in sandy lands near the sea coast In the Calcutta Bot Garden they produce fruit all the year round

1 A leafy branch and portion of the stem with a radical fructiferous raceme attached—2 a male flower—3 a female one

642 *Ficus WITIDA* (Roxb Met Willd ? Thunb *P F Benjamtna?* Roxb *U lml*)

OBS I his species though figured, is omitted in the Flora Indica unless it be the plant there called *F Benjamtna*, with the description of which it accurately corresponds except that the leaves are said to be slightly 3 nerved which is not shown in the figure If this is correct it may be inferred that the two plants are very like each other In figure corresponds closely with specimens taken from a large handsome umbrageous tree, frequent in Mysore and the Southern Provinces of India, remarkably for the immense proportion of not dropping from its branches, which, like those of *F Indica* descend to the ground and Decomo trunks so far as I can make out, Willdeow's characters and descriptions of both *F Benjamtna* and *nitida* are equally applicable to this tree it is probable therefore his two species are but varieties of one I his opinion is strengthened by the following remark of Willdenow under the former ' *b nitida et pertusae valde nanlu a qulms caute distingtunJa* ' the following are his specific characters of these two species

" *F Bejavuna* (Liu) leaves elliptic, oblong entire, narrower at the base, obtusely acuminate at the apex, slightly parallelly veined glabrous, nerved above with while d is fruit globose subsessile

F nitida (Linn) leaves obovate, entire, shortly and obtusely acuminate, marked beneath with slender parallel vein* shining, glabrous

The differences in the shape of the leaves form no distinction, all the forms mentioned in both and many more being found on the same tree The white dots on the leaves of Benjamtna, the only remaining character, being derived, not from the examination of an extensive series of specimens but from a single plant growing in a hot house is surely not entitled to have so high a value assigned to it, I therefore propose uniting these two under the older name, quoting the more recent as a synonyme thus

Ficus BENJAMIN A (Linn Willd Roxb) Leaves oval ind obovate obtuse, polished fruit axillary paired, smooth — *R Fl Ind 3 530 F Nitida* Thunb Willd. Roxb *Icon etMst*

A large tree widely diffused over Southern India, very umbrageous and much used as an avenue tree Roxburgh describes the leaves as slightly 3 nerved at the base this I find is the case, though it is not shown in the figure In the lithograph copy the parallel veins are represented too strong and rigid

643 *Ficus SCANDENS* (Roxb) shrubby scandent leaves short petioled ovate entire fruit in axillary pairs round, peduncled common calyx 3 toothed — *R Fl Ind 3 536*

Silhet—a ramous climbing shrub running over small trees, Bhrub &c

1 A flowering branch—2 a female flower—3 a male one.

661 FICDI ft CAB tru \ (Roxb) shrubby scandent * leaves alternate, abort petioled, oblong, remotely serrulate dentate, scabrous fruit axillary, solitary, peduncled turbinete, tubercled, of the size of an olive, scales of the umbilicus abate —*Roxb hi Jmd 3 532*

Chittagong—An extensive rambling species depending on other plants for support Male florets few round the mouth, monoandrous, females numerous over the whole, smooth, inside of the receptacle

662 FICOI obTuiroa (Roib) arboreous leave* alternate short petioled, from cuneiform to linear oblong, thick, hard and glossy fruit axillary, paired or single, sessile, round, smooth, the size of a small gooseberry and yellow —it *FL Jmd 3 546*

Chitragung.—A large elegant tree Male flowers monoandrous mixed among the sessile female ones perianth J-leaved, style long with the upper acute stigma

1 Flowering branch—2 male floret—3 female floret

663 Ficus BLASTICA (Uoxb) leaves from oval to oblong, pointed, thick, firm and gloaty fruit in axillary pairs, sessile, oval, smooth, the size of an olive stipules nearly as long as the leaves, smooth and rosy —*Roxb Ft Jmd 3 541*

Moutains of Silhet —A large handsome tree now cultivated in most part of Southern India, every part abounds in milky juice which furnishes about one-third of its weight of caoutchouc, roots descend from the larger branches Male florets monoandrous, female with an oblong ovary, terminating near the apex in a curved style and large stigma The rosy coloured long supules of this species is very peculiar

1 (lowering branch—2 female floret-3 male—4 receptacle cut longitudinally

664 Ficus EXASRATA (Roxb) arboreous leaves abort petioled, oblong, acuminate repand serrate, rough on both sides fruit axillary, solitary, or in pairs, peduncled, round, use of a pea —*H Ft Jmd 3 555*

Lasteru parts of India - Stem and branch* covered with the rust coloured smooth bark

665 FICDS INFECTOKIA (Willd) leaves ovate oblong, acute, waved smooth fruit paired, axillary/ sessile, round, smooth, white —*R FL Jmd 3 551*

Bengal —A large and beautiful tree, sometimes dropping roots of considerable size from the trunk and branches.

666 Ficus WARS A (Roxb) shrubby straight leaves broad lanceolate, often 1st mute sub-serrate, scabrous fruit axillary, peduncled, solitary or paired, sub rotund —*Roxb hi Jmd, 3 539*

Moluccas.- A small straight species the fruit appears during the hot season

667 Ficus OLOMBATA (Roxb Willd) leaves broad, lanceolate, smooth fruit in bundles from the trunk and large branches, peduncled, downy, turbinate —*Ri#b FL Jmd 3 548*

A Urge tree widely distributed over the So J them provinces of India, usually growing in moist ground near the banks of rivers and water courses I thought I have often seen the tree, I have rarely observed the fruit so Urges as here represented

668 Ficus TSWLA (Roib /Vnu mdxc Willd not Lin) leave* long petioled, acute, oblong, polished, veins parallel and simple fruit paired, axillary, sessile round-turbinate-it** *H Jmd 3 549*

A Urge and very handsome tree, widely diffused over British India It is very generally planted by roadsides for the sake of its shade, and by not sending down roots from the branches is in so far superior to either *F. munda* (femyau tree) or *F. tiemjawuma*, the pendulous toots of which are often dangerous impediments on roads.

669 Ficus COKOLOM BIATA (Roxb) arboreous, leaves alternate, subsemi cordate, cuspidate, rough and hard fruit roundish, tubercled, crowded on long procumbent, or drooping, dicompound, cauline, leafless branches —*Roxb Fl Jmd 3 559*

Chittagong —In the Botanic Garden of Calcutta this tree is loaded with fruit the whole year

670. Ficus BIBSCTA (Roxb) arboreous, tender parts hirsute leaves round cordate, from three to five-lobed, serrate-dentate, lobes acute fruit axillary, paired, sessile, oval, shaggy —*Roxb Fl Jmd. 3 528*

Silhet.—The fruit is eaten by the natives.

1 A branch with young fruit—2 male flower—3 female, ovary separated to show the calyx—4 full grown receptacle with its bracts—5 the same cut vertically

671. Ficus B A DIC A us (Roxb) shrubby, scandent, and rooting leaves oblong, entire, long linear, acuminate fruit globular without a common axis, long peduncled . male flowers monoandrous —*Roxb Fl Jmd 8 536*

Silhet —V* here it grows on old walls, bushes, trees & L like the ivy in Europe, but generally bears its main root in the ground

1 Fruitful branch—2 male flower—3 female flower

672 Ficus HIST A (Roxb) arboreous, tender parts very hairy leaves long petioled, cordate, ciliate, serrate fruit axillary, paired, senile, ovate, shaggy *R FL Jmd 3,531*

Silhet —Grows to a great size, and is beautiful during the dry season.

673 Ficus MACBOFHTLIA (Roxb not Desf) arboreous leaves round cordate, thin, nerved fruit collected in bundles near the root, turnip shaped, from eight to twelve ribbed, hairy —*Uoxb fl Jmd << 556*

Nepaul—Silhet—Chittagong —Hniburgh only knew this from the plants growing in the Calcutta Garden. In them female flowers only were found, and these without any obvious perianth Stigma single hairy, of a beautiful rose colour Where the tree is indigenous, the fruit is eaten by the natives in their tarts

674 Moses IHDICA (Lin) dioecious, subarborescent leaves ovate, cordate, long taper pointed, serrate, smooth amentsotal style single, half two cleft —*Rub hi Jmd 3 596*

This species is much cultivated all over India for feeding silk worms.

675 Moars TABT%BICA (Willd) dioecious arboreous leaves cordate-serrate, rather obtuse, mostly entire, though sometimes sessile, or even lobate —*Roxb. FL Jmd J 598*

This species is only found in gardens in India, and that only as a curiosity, the leaves not being employed for feeding silk-worms* and the small fruit are in too little estimation to encourage any one to cultivate it

676 Moais FAKKCLATA (Roxb) arboreous, dioecious leaves alternate, long petioled, cordate, serrate, hoary underneath panicles axillary female calyx urceolate entire berries round, pellucid, white —*kvxb FL Jmd 3 599*

Moluccas —Whence it was brought to the Calcutta Botanic garden, a very rainous tree—ripe fruit sweet, but rather insipid

1 Flowering branch female plant—2 panicle of the male—3 male flower—*maHtJicd*—\ female flower*, (oat) cut transversely to show the ovary enclosed in list urceolate calyx—5 female panicle

677 Moais ATBORCBRAIA (Roxb) leaves cordate, very rarely lobate, serrate, smooth aments cylindrical fruit cylindrical, dark purple

China.- This species is frequently met with in gardens where it is cultivated for the sake of the Urge succulent berries

678 ABTOCABPUS IHTBGBITOLIA (Lin fil) leaves oblong, entire flowers cauline — *R Fl Ind* 3 522

Roxburgh remarks of this tree "much cultivated throughout Southern India, and all the warmer parts of Asia Where it is wild, or originally from, I know not" From having repeatedly met with this tree, in the course of my excursions in the wildest jungles and high on almost inaccessible hills I had come to the conclusion that it is actually a native of India This opinion may however be erroneous, as the seed of a fruit so generally esteemed I might easily be conveyed to and propagated in very wild and retired situations I this is a most valuable tree—the fruit affording an abundant store of nourishment, and the stem a beautiful and valuable timber

679. ABTOCABPUS LAKCBCEPOIJA (Roxb) leaves broad-lanceolate, or oblong, acuminate, entire fruit terminal spherical — *Roxb Fl Ind* 3, 527

Pinnace of Wales Island

680 ABTOCABPUS KCHIHATA (Roxb) leaves oblong entire male and female amenta round fruit spherical echinate — *Roxb Fl Ind* J 527

Prince of Wales Island and other parts east of the Bay of Bengal This species seems very closely allied to *A hinuta* the Angelee of Malabar The fruit is eaten by the natives

1 Flowering branch—2 fruit—3 the same cut transversely

681 ABTOCABPUS LAKOOCHA (ROKO) leaves entire, oval amenta axillary, globular fruit nearly round somewhat lobate and almost smooth — *Roxb Fl Ind* 3 524

Bengal —Where it is common Stem short and thick with a large spreading head The fruit is eaten by the natives, the male spadix which is acid and astringent they dry and eat in their curries The roots dye yellow

682 ABTOCABPUS CBAPLVSHA (Roxb) leaves in the adult obovate entire, in the young pinnatifid amenta axillary, long, peduncled, subrotund fruit spherical — *Roxb Fl Ind* 3 525

Ipiparah and Chittagong—A tree of the first magnitude from the trunk of which canoes are made the wood is used for various other purposes Roxburgh does not state whether the fruit are eaten

683 UBTICA pulchra BRIMA (Roxb) dioecious shrubby leaves alternate lanceolate serrate, three nerved, veins reticulate, underneath hoary and pitted spikes axillary, paired, compound, glomerate, recurved male flowers pentandrous — *Roxb Fl Ind* 3 J88

Chittagong — This species, or one very nearly allied, is common in subalpine jungles in the Peninsula It seems referable to the sub-genus *Urena* Gaudichau but from my not having specimens at hand, to compare with the character, I am unable with certainty to determine The Peninsular plant is a moderate sized tree with capitate fruit each composed of a congeries of small yellowish succulent berries

684 UBTICA HAUCLEPILOBI (Roxb *Comptalua* Blume) dioecious, shrubby twining leaves alternate, cordate entire glomerules globular compact, the male amentum panicled — *Roxb Fl Ind* J 59 J

Chittagong—Silhet —A large scandent woody plant, with beautiful fragrant flowers This plant has been recently removed from the genus *Urtica* and referred to the new order Artocarpus, along with the fig, jack, Ac In the accompanying plate the small heads of flowers are male, the larger ones female

685 UBTICA INVOLUCBATA (Roxb) arboreous leaves alternate, broad cordate, downy, sub-entire stipules opposite, subulate peduncles axillary, drooping, bearing a few female flowers in an involucre head — *Roxb Fl Ind* 9 592

Malay Islands—Whence it was introduced into the Calcutta Botanic Garden, no male flowers have been produced and the seed do not ripen.

686 UBTICA CBBHULATA (Roxb) shrubby, dioecious, erect leaves alternate oblong acute crenate spikes axillary compound dichotomous — *Roxb Fl Ind* 3 J91

In eastern parts of Bengal —Roxburgh had not seen the male flowers

687 UBTICA HETEBOPHTIXA (Willd Roxb) annual leaves alternate, cordate, variously lobed grossly serrate male and female flowers on distinct, glomerate, peduncled spikes every part armed with stiff acute burning bristles — *Roxb Fl Ind* 3 686

Alpine jungles in most parts of the Peninsula and table land of Viceroy's bore —I have rarely seen it at lower elevation than 2000 feet above the sea It was introduced into the Botanic Garden from the mountains of Malabar

688 URTICA TENACISSIMA (Roxb) shrubby, erect, ramous leaves alternate, long petioled, broad cordate, grossly serrate, hoary underneath panicles axillary, flowers in round fascicles, the male ones on the lower panicles, and the female ones above — *Roxb Fl Ind* 3. 590

Sumatra and Eastern Archipelago —Where it is cultivated on account of its bark which abounds in strong and fine fibres

689 URTICA DIBIDMANA (Rumph Roxb) shrubby leaves alternate cordate serrate, rugose, bristly female spikes composed of alternate bifarious ramifications — *Roxb Fl Ind* 3 687

Moluccas —Whence it was introduced into the Calcutta Botanic Garden The leaves are armed on both sides with clear sharp stinging bristles Female flowers numerous, congested, intermixed with small bristly coloured bracts, seed compressed

690 UBTICA PABVIPLOBA (Roxb) dioecious, herbaceous erect, armed with numerous strong harsh, pellucid stinging bristles leaves opposite ovate, lanceolate, serrate stipules undivided female spikes quatern compound glomerate — *Roxb Fl Ind* 3 58J

Rohilcund —Whence it was introduced into the Calcutta Botanic Garden, but had not ripened seed apparently for want of the male plant

691 UBTICA SCABBELLATA (Roxb) shrubby, spreading leaves opposite, cordate, serrate, harsh, three nerved spikes axillary erect, cyathaceous, the male ones crowded, short and in the lower axils, the female ones above and generally solitary — *Roxb Fl Ind* 3 581

Chittagong—Though harsh to the feel it does not sting

692 UBTICA INTRICATA (Linn Roxb) annual, erect, bristly leaves cordate, serrate racemes compound, partial racemes corymbed stipules solitary 2 cleft seeds compressed, obliquely cordate — *Roxb Fl Ind* 3 585

Bengal near Calcutta —The bristles of this species sting like the common nettle Roxb I suspect Roxburgh's plant is different from the Linnean, one specimen of which, I believe, I possess, and have met with at different times in the Southern provinces I have not at this moment a specimen by me to refer to, but I think my plant does not sting like the nettle

693 UBTICA ALIENATA (Linn Roxb) annual, erect while young, branches brachiate leaves opposite, petioled, ovate, three nerved entire flowers axillary sessile, female calyx urceolate — *Roxb Fl Ind* 3 582

Ceylon, Roxb —This habit is I suspect much too confined for this species, unless closer examination shows that a plant agreeing entirely in habit, and which I have frequently found in alpine situations, is distinct.

604 URTICA Asorribtmcoia (Roxb) suffruticose leaves alternate, lanceolate broaden at the base entire, three-nerved, umbels axillary crowded, sessile flowers terminal, one two, or three corolla lobes cleft, berries single [> r paired] ovate—*Roxb Fl Ind 1 U6*

A common and beautiful species, found in most parts of Coromandel among hedges and bushes. Flowers during the hot season

695 URTICA VBSICABH (Roxb) shrubby, erect leaves lanceolate, three-nerved entire, downy flowers axillary, crowded, sessile female calyx with an inflated swelling round the base—*Roxb Fl Ind J 587*

Circar Mountains—This species is I believe, found as far south nearly, as Cape Conionn, in similar situations in shady moist alpine forests

606 UKTICA IEHTAHDEV (Roxb) Perennial diffuse leaves opposite and alternate, subsessile, linear, small, three-nerved flowers axillary, pentandrous, the male ones peduncled, the female ones sessile, with calyx winged—*Roxb Fl Ind 1 081*

Found about Calcutta among bushes in wet places. The unusual development of the limb of the calyx before expansion, as shown in the upper figure, and the winged fruit render it probable, this will form the type of a new genus

697 URTICA TUBEBOSA (Roxb) root tuberous leaves alternate, oblong three-nerved hairy flowers axillary sessile seed much pointed

Native of the banks of water courses, hedges, &c widely distributed over Southern India. This with the three preceding species and *U. ahenutu* seem all more justly referable to *Parietaria* than *Urtica*

Ons—As the following figures of Jasmines are all copied from Roxburgh's drawings I adopt his specific characters in preference to those of more modern writers even when I think the latter better as I think it but just to record that excellent Botanist to define the plants he has so successfully illustrated from living specimens, in his own words

698 JASMINUM ANGUSTIFOLIUM (Willd Roxb) *Nyctanthes* Linn) shrubby, twining polished leaves opposite, petioled ovate, smooth, of a shining deep green flowers terminal, one two, or three corolla lobes cleft, berries single [> r paired] ovate—*Roxb Fl Ind 1 U6*

A common and beautiful species, found in most parts of Coromandel among hedges and bushes. Flowers during the hot season

699 JASMINUM IBBOBESCTNS (Roxb) arborescent leaves opposite and three-fold oblong downy flowers terminal, numerous, corymbiform border from ten to twelve cleft, stigma two-lobed—*Roxb Fl Ind 1 95*

More elevated parts of Bengal flowering the beginning of the hot season. This species has no tendency to twine or climb by which it is distinguished from *J. latifolium* Roxb

700 JASMINUM AUBICULATUM (Linn Roxb) shrubby, twining leaves subternate, leaflets ovate, the upper minute or wanting border of the calyx with 5 obscure glandular teeth corolla 7 cleft berries globular—*Roxb Fl Ind 1 98*

Less common than *J. angustifolium*, but usually found in similar situations in the Southern provinces it can scarcely be considered common. Its flowers are much more abundant than that, but smaller, and the plant is less graceful

701 JASMINUM ELONGATUM (Linn Roxb) scandent leaves opposite and alternate, lanceolate, villous on both sides corymbs terminal corolla 8 or 12 cleft, segments linear stigma hind—*Roxb Fl Ind 1 90*

In forests near the mouth of the Hooghly in Bengal.

702 JASMINUM HIBOTTUM (Linn Willd Smith J. *pubescens* Willd Roxb) leaves cordate, downy umbels terminal, sessile, many flowered—*Roxb Fl Ind 1 91*

Native of both China and Bengal, from the former it was introduced into the Calcutta Botanic Garden. Willdenow seems to have described the same plant under two different names, the older of which is here adopted. It appears a very handsome species apparently very nearly allied to *J. elongatum*

703 JASMINUM LATI FOLIUM (Roxb) shrubby, twining leaves opposite, petioled, cordate corymbs terminal calyx segments from 5 to 7, subulate those of the corolla from 10 to 12 linear and cuspidate berries kidney shaped—*Roxb Fl Ind 1 95*

Roxburgh only found this in the mountainous parts of the Circars. I have specimens of a species found on the Neilgherries, much resembling this except in the length of the calyx segments, in this they are short, in mine long and subulate, more resembling those of *J. aiborescens*, but from which it differs in being an extensive climber. It may perhaps prove an intermediate form, tending to shew that these two are mere varieties of one species

704 JASMINUM SYMBUO (Alton Roxb) shrubby, twining leaves opposite, subsessile, from round to oblong, acute or obtuse segments of the calyx subulate berries globular—*Roxb Fl Ind 1 88*

A common plant—some varieties much cultivated by the Natives for presentation at the shrines of their deities.

705 JASMINUM SIMPLICIFOLIUM (Forst Roxb) shrubby, spreading leaves oblong, polished flowers from three to many, terminal border of the corolla of from six to eight, linear, acute, segments, equaling the tube in length—*Roxb Fl Ind 1 97*

Friendly Islands and the Eastern Archipelago, whence brought to the Calcutta Botanic Garden

706 IXOBA ACUMINATA (Roxb) shrubby leaves petioled, lanceolate, acuminate, smooth, floral pair stem clasping and broad corymbs superdicompound, much crowded and smooth calyx segments ensiform—*Roxb Fl Ind 1 383*

Grows near Silhet. A fine shrubby species, blossoms during the hot season, very fragrant

1 Flowering branch—2 corolla dissected—3 bracteal style and stigma—4 ovary cut vertically—5 cut transversely—6 fruit full grown—7 cut transversely showing the seral lunar embryo—8 embryo detached

707 IXOBA AJBA (Linn Roxb) leaves sessile, lanceolate corymbs decomposed, dense, subhemispheric lacinae of the corolla obovate and reflexed

1 BICTA (Roxb) shrubby straight leaves subsessile oblong corymbs dense, corolla hemispheric lacinae of the corolla round, spreading anthers bustle pointed—*Roxb Fl Ind 1 379*

Both these species were originally brought from China to the Calcutta Botanic Garden, and Roxburgh supposes they may perhaps be only varieties of the same plant. Much difference of opinion exists among Botanists on this point. We have in our Prodrum considered them distinct and both of Indian origin, referring *I. alba* to our *I. parviflora*, while *I. stricta* is retained as a distinct species nearly allied to *I. coccinea* and confounded with that species by some writers. Whether we are correct is a point to be determined, but in justice to Roxburgh, I have thought it right to adduce his own evidence in support of his opinion by the publication of his figures

708 IXOBA UNDULATA (Roxb) shrubby leaves broadly lanceolate, much waved on the margin, glabrous corymb, trilocular decomposed, open, branches pubescent flower* (small and white) numerous at the extremities of the ultimate divisions, calyx segments short-lanceolate, acute lobes of the corolla narrow-obovate, reflexed filaments exerted style glabrous, scarcely exerted, divisions of the stigma linear, recurved berries transversely oval—*W. A. Prod 1 428*

Bengal, flowering time, the hot season

1 Flowering branch—2 dissected flower—3 a berry—4 the same cut transversely.

709 IXOKA CUNEI FOLIA shrubby leaves oblong-lanceolate, more or less cuneate at the base, pointed, glabrous corymbs trichotomous, open, flowers (small and vrhitis'i) fasciated at the extremities of the ultimate subdivisions segments of the calyx narrow-oblong, thrice the length of the tube tube of the corolla slender (more than half an inch long) lobes oval, obtuse filaments slightly exserted, divisions of the stigma linear, recurved berry roundish-turbinate—W and A Prod 1 428

Introduced into the Calcutta Botanic Garden from Dacca, but is also found in Coromandel

1 Flowering branch—2 dissected flower—3 ovary cut vertically with two sepals remaining—4 cut transversely—5 a fruit full grown—6 cut transversely—7 cut vertically—8 embryo detached

710 IXOBA BBACHIATA (Roxb) shrubby with opposite spreading branches leaves shortly petioled, lanceolate oblong, obtuse, tapering at the base, glabrous stipules triangular, acute corymbs sessile, trichotomous, open, primary branches long, the lateral ones horizontal, flowers (small, white) numerous on the ultimate divisions calyx with 4 small broad acute teeth tube of the corolla (3-4 lines long) slender, lobes obovate, retuse, during aestivation forming a globose head anthers sessile style scarcely exserted, glabrous, divisions of the stigma oblong, short, erect — W and A Prod 1 429

A native of forests of Bengal and also of Coromandel, a rather large handsome shrub

1 Flowering branch—2 detached corolla—3 ovary style and stigma—4 ovary cut transversely—5 full grown fruit—6 the same cut transversely—7 a dissected seed—8 embryo detached

711 IXORA PARVIFLORA (Roxb) arboreous leaves short-petioled, from linear-oblong to cuculate-obovate, bluntish or with a short point, often slightly cordate at the very base, coriaceous and hard, bluish stipules with a long subulate point corymbs or panicles terminal, trichotomous, sessile or peduncled, with often foliaceous bracteas subtending the primary branches flowers (small and white) crowded on the extreme subdivision calyx with 4 obtuse small teeth corolla (scarcely half an inch long) with a slender tube, lobes oblong-linear, obtuse, reflexed, forming an oval head during aestivation style hairy exserted, divisions of the stigma oblong, erect berry somewhat didymous — W and A Prod 1 42J

Widely distributed over the Indian Peninsula—a handsome shrub, the wood of which, dried and split is much used by travellers in place of torches

1 flowering branch—2 corolla magnified—3 ovary, style and stigma magnified—4 fruit natural size—5 cut transversely

712. POITCARPJKA COBIMBORA (Lam. *Celosia corymbosa* Roxb) stems ascending or erect, simple or with a few simple branches, young parts glabrous or tomentose leaves narrow-linear or setaceous, mucronate cymes terminal, dichotomous, rather lax sepals entirely scarious, lanceolate, at uminated, 2-3 times longer than the capsule — IV and A Prod 1 J>>

A native of dry sandy lands, and is in flower all the year Between this and *P. spaldicea*, I have not been able to discover any good discriminating character

1 A flowering plant natural size—2 an expanded flower magnified, and showing the filament* tree to the base —J and 4 stamens and ovary of a species of *Celosia* apparently introduced in conformation of an opinion expressed by Roxburgh that "this would better form a separate genus than a species of *Celosia* —5 capsule dehiscing

713 AMABAHTU8TaisTis (Linn Willd Roxb) erect, very ramous near the ground leaves rhomb-oval, obtuse marginate glomerules axillary, and on terminal spikes anthers daggered longer than the capsules—Roxb. hi. 2nd 3 60-f

Generally cultivated Roxburgh remarks that he has never found it wild It is much esteemed by all ranks of Natives as a pot-herb A *campestris* and A *polystachya** Willd Roxburgh suspects are only varieties of this species.

NOTE The genus *Amaranthus* being a large and very natural one, the species are in many instances very difficult of discrimination The difficulty is occasionally increased by some species being, as in this instance, only found in a cultivated state while others, occurring as weeds in every kind of soil and aspect, presents such endless variations of form as renders their limitation by the usual specific characters nearly impossible

Willdenow paid much attention to this genus, and in his *Historia A. maruoruin* gave figures of many of the species He, however, working with dried specimens far from their place of growth, seems to have fallen into the too common error, under such circumstances of being more anxious to multiply species, taking his distinctive characters almost entirely from the foliage, (the part of all others most liable to mislead through variations in its form*) than to retrench existing superfluities by an attentive study of structure and a careful application of structural differences to the definition and limitation of his species

Roxburgh has in several instances expressed doubts of the goodness of Willdenow's species, but I suspect, has not altogether avoided his error He certainly does not seem to have been more successful in his verbal distinctions but has left figures of most of his species to aid his written characters Having got copies of several of his drawings, I have determined to publish the whole, including *ytensis* and A *polygonoidea*, (see 512 and 514) to guard my readers against the error into which I seem to have fallen, of applying Roxburgh's characters to other than his own plants This I feel the more necessary, as, my never having studied this genus with the minute attention its acknowledged difficulty demands, disqualifies me from offering any decisive opinion on the goodness or otherwise of these species Judging, however, simply from the series of figures now before me, it strikes me, my A *polygonoidea* (512) is not identical with Roxburgh's, plant but seems rather an intermediate form between that and A *tnsUs* (514) while my A *tnatis* (514) seems to be another intermediate form between 512 and 713 again, between 713 and 714 I confess I can see no satisfactory difference unless, in the form and mode of attachment of the anthers, distinctions not alluded to in the specific characters and possibly not existing, except in the drawing, thus leaving it doubtful whether, in truth, the do not all represent but varying forms of one species

714 AMABARTUS ROTGAMDS (Linn Willd. Roxb) diffuse leaves rhomb-ovate emarginate glomerules axillary or on terminal spikes calyces daggered, longer than the capsules —Roxb. hi. Ind 3 60S

A very generally diffused plant and I can scarcely avoid thinking the wild state of the former So far as can be learned from Roxburgh's specific characters there is no difference, except in habit, which cultivation might change.

715 AMABANTUSOLEBACBDS (Linn Willd Roxb) erect with a few branches above the middle leaves from broad rhomboidal to ovate lanceolate glomerules axillary and on a terminal spike calyces cuspidate and rather longer than the rugose capsules — Roxb. Fl. Lid 6 005

Roxburgh, though he quotes Willdenow as his authority for this species, seems yet to think this plant is not identical with his He says Willdenow's *h. urc* of A *Oleraceux* "does not by any means agree with what Komg and myself have always considered to be that plant His A. *tnamamut* is much more like it, and if the leaves were emarginate, it would be a very excellent representation of this species * The leaves in Roxburgh's own figure are acute, not emarginate, hence it seems not improbable, the species of this genus are very unnecessarily multiplied There are several varieties of this species distinguished by their colours One has red stem and veins, another has them white—in a third, of which the accompanying figure is a representation, has them green.

716 AMARANTUS LANCIBOLATUB (Roxb) straight leaves lanceolar, plain green glomerules triandrous axillary calyx daggered, longer than the swelled rugose capsules —Roxb. Fl. Ind. J 607.

A native of Bengal

717 AMAEAILUS FKCIATUS (Roxb) tree, ramous above the middle (civcs lhomb ovate panicles terminal, composed of a few simple cylindrical bracts minute, shorter than the obtuse three leaved cilw, wf ch is shorter than the obtuse rugose capsule —Roxb Fl Ind 3 609

A common weed green in every part except a crescent shaped cloud of paler green crossing the centre of the leaves

718 AMAHANTUS TENUTFOIUS (Willd* Roxb) annual diffuse leaves wedge shaped emarginate glomer lies axillary} mule flowers diadrous, with a two-leaved calyx the female ones irregular—Roxb Fl Ind 3 602

In cultivate 1 gio ind near Calcutta

1 Flowering branch — 1 imle flower—3 a female flower the perianth of which has aborted—4 5 two otheis one with a one leaved perianth, the other with two—6 a capsule not circumsessile—7 a seed

719 AMAHANTUS polTGONoidrs (Lin Willd Roxb) diffuse leaves obovate glomerulea axillary, two parted capsule bullate equihng the acute, lanceolate, leaflets of the calyx —Roxb Fl Ind 3 602

A common weed every where, is much used by the Natives as a pot herb

720 AMAEANTUS FBI MENTACEUS (Buchanan Roxb) pentandrous annual stem and bracts erect leaves broid lanceolar panicles erect leaves of the calyx daggered capsule wrinkled seed pellucid, with callous white margins —Roxb ti In I 3 609

A large species much cultivated on the slopes of the high hill in several districts of Southern India In Coimbatore, Salem and Madura, I have frequently met with large fields of it, often on very steep slopes In such situations it often grows upwards* of six feet high 1 the seed ground into meal forms the principal food of the wild inhabitants of these hills

721 LEIOSPERMUM FRUGINEUM (*all Achyranthes Roxb) annual, flaccid leaves opposite obovate spikes subterminal, peduncled and sessile nectary 5-toothed each tooth ending in a proper altheriferous filament stigmas entire —Roxb Fl Ind 1 673

A small annual wild, about the borders of cultivated lands near Calcutta

722 CEMBOSTACHYS DIANDRA (Wall Achyranthes Roxb) annual diffuse leaves opposite linear lanceolar spikes terminal flowers reflected and pressed close to the rachis stamina two alternate with the two multifid lobes of the nectary —Roxb Fl Ind 1 677

Native of Ceylon

723 AEEU< LANATA (Juss Achyranthes Roxb) annual, erect, ramous, woolly leaves alternate, orbicular spikes crowded nectary 10 parted, alternately antheriferous stigma two-cleft —Roxb Fl Ind 1 676

A very common weed every where

724 AFRUA SCANDENS (Wall Achyranthes scandens Roxb) perennial, climbing, downy leaves alternate, oblong ventricose spikes axillary sessile calyx hairy nectary 10 parted subcordate 2 lobed —Roxb Fl Ind 1 676

Native of hedges near Calcutta

725 AERL v MONSONJE (Mart Achyranthes* Roxb) tetandrous, leafy ramous leaves subulate toothed spikes terminal subcylindrical —Roxb Fl Ind 1 673

A very common weed in dry sterile and sandy soils

726 ACBYBAInits SFUCEA (Koi Roxb) stem erect downy leaves opposite, broad cordate, acute, covered with much silky down peduncles axillary, longer than the leaves bifid or tripartite, main flowered —Roxb Fl Ind 1 673

A large straggling annual growing in sandy places in dry soil

1 the leaves are erroneously said to be 'broad lanceolate in the specific character in place of broid coidite acute' as in the description, which I have altered

727 ANTIRNANTUFBA SESBIUS (It B Achyranthes tandra R > h) annual creeping leaves opposite, sessile, lanceolate smooth flaccid triandrous capbules winged —Roxb Fl Ind 1 678

A common weed usually found in moist or even marshy soil in such situations throughout all seasons

728 DBVIINGIA CILOSIOIBBS (Roxb) perennial scandent leaves alternate cordate spikes terminal, pinicled styles three beines three boded —Roxb Fl Ind 1 682

Beng I—Found near Calcutta — I his sometimes attains a large size Roxburgh mentions one plant which he saw climbing over a tree sixteen or eighteen feet high

729 DBEBINSIA TBTRAGYNA (Roxb) shrubby, scandent leaves ovate cordate flowers axillary styles four cleft —Roxb Fl Ind 1 683

Moluccas—1 hence introduced into the Calcutta Botanic Garden Seeds from one to 4 usually one

1 Flowering branch—2 an expanded flower with small bracts (calyx Roxb) detached and separately shown—3 stamens and ovary of a tetandrous flower—4 a berry with the persistent calyx and bracts—5 berry cut transversely—6 cut vertically showing the pedicelled seed

730 CELOSIA CBBMJA (Roxb) annual, erect, ramous leaves lanceolate acute racemes cylindrical with long sterile ramous, pendulous tails capsules operculated many seeded —Roxb Fl Ind 1 680

Rajmahal Hills Whence it was introduced into the Calcutta Botanic Garden, by Mr W Roxburgh Junr It seems nearly allied to *Celosia comosa*, Ketz but Roxburgh thinks it distinct

731 DBSM»CHOSTA ATROPOKPUBBA (D C Achyranthes lappacea Roxb) biennial straggling leaves opposite, petioled, ventricose oblanceolate, smooth spikes terminal flowers remote, generally in pairs, with three fascicles of coloured hooked bristles to the pair —Roxb Fl Ind 1 673

A common plant, usually met with in hedges and among bushes, often in such situations from 6 to 8 feet high

732 DESMOCHBTA MUBICATA (D C Achyranthes alternifolia Roxb) annual, diffuse leaves alternate, ovate oblong spikes axillary, longer than the leaves two variously horned bodies between the corolla and calyx nectary none —Roxb Fl Ind 1 674

A very common procumbent plant, frequent in cultivated ground 1 the leaves and tender tops are used by the Natives in their curries

1 his seems to be a species of *Digra*, Forsk perhaps identical with the Egyptian one he describes Seed globose with a crustaceous testa embryo annular embracing a farinaceous albumen, radicle inferior

733 DESMOCHBTA PBOSTRATA (D C Achyranthes prostrata Linn Roxb) annual diffuse leaves opposite, spikes filiform flowers reflexed with fascicles of bristles adjoining nectary with five bideutate horns, alternating with the filaments —Roxb Fl Ind 1 674

Introduced into the Calcutta Botanic Garden from the Moluccas, but as it is figured in the Hort Malabar 179 (hd Roxb) it seems also to be a native of Malabar

734 CHIONANTHUS KAMIFLORA. (Roxb) arboreous, leaves opposite broad lanceolar, entire panicle below the leaves —Roxb Fl Ind 1 107

Moluccas —Flowering March and April

1 Flowering branch—2 expanded flower—3 back view of the same—4 corolla detached—5 ovary and calyx—6 a mature fruit—7 the drupe—8 nut cut lengthwise, showing the seed

73 OLKA ROXBURGH (R and S Olea paniculate, Roxb not R Dr) leaves opposite, petioled oblong, entire, smooth panicles axillary bristly deciduous lobes of the stigma divaricate —Roxb Fl Ind 1 101

Native of the Circar Mountains —Roxb I think I have also found it in the mountain forests of the Southern Provinces

73b OLEA OLWATA (G Don Phytyrea paniculate Roxb) arboreous leaves opposite ovate oblong entire, smooth panicle terminal —Roxb Fl Ind 1 100

A native of China, and thence introduced into the Calcutta Botanic Garden 1 the genus *lyllyrea* not being found sufficiently distinct from *Olea* has been incorporated with that genus and there being already an *O paniculata* Don has changed *Roxb* specific name substituting one descriptive of the stigma which is club-shaped

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EXPLANATION OF PLATES.

VOL. III.-PART I

737. *SALICOHIA INDICA* (Vahl. Roxb.) Perennial, diffuse; joints gibbous: spikes cylindrical, flowers hid.—*Roxb. Fl. Ind.* 1 p. 85.

Very abundant on the sea coast at various Stations in the Northern Circars. I have also met with both species further South, but not so abundant. Floral joints very short: flowers inconspicuous opposite three-fold, hid by the upper margin of the next floral leaf below: calyx a flask-like fleshy substance with a slit for the style, in this species I have never been able to discover even the rudiments of a stamen.—*Roxb.*

1 A flowering branch—2 a floral joint with 3 flowers—3 female flower magnified and cut vertically to show the ovary—4 a detached flower natural size—Seed detached enveloped in its persistent calyx.

738. *SALICORNIA BHACHIATA* (Roxb.) Perennial erect: branches numerous, dicussate, joints clubbed: spikes cylindrical: flowers conspicuous.—*Roxb. Fl. Ind.* 1. 84.

Native of the sea coast. Roxburgh suggests that this species should be compared with *S. herbacea*, others have referred it with doubt to *S. frutcosa*.

1 Portion of a flowering plant full sized—2 floral joint with 6 flowers three uncovered and three above in situ—3 A flower detached showing the position of the stamen and ovary—4 ovary natural size—5 seed enclosed in the capsule or persistent calyx.

739. *COBCHORUS ACUTAKGDLS* (Lam.) annual: leaves ovate: peduncles opposite to the leaves, 1-2-flow'ered: capsules prismatical, straight, glabrous, stout, about 10 times longer than broad, 6-angled with 2-3 of the angles winged, 3-celled, truncate with 3-5 divaricating entire or bifid horns: seeds numerous in each cell, with the transverse septa nearly obsolete.—*W. and A. Prod.* 1 p. 73.

Common in pastures and cultivated grounds by the banks of the dihediet, &c.

1 Portion of a plant bearing flowers and fruit—2 a flower showing the subulate bractee—3 a flower fully expanded showing the stamens—4 the same partially dissected to show the ovary and style—5 detached stamens—6 ovary cut transversely ovules surrounded by pulp—7 cut longitudinally—8 a nearly mature capsule cut transversely—9 a seed—10 the same cut vertically—11 embryo and radicle detached, all except the first magnified.

740. *VITIS (Cisscs) MURICATA* (Wall. :) unisexual, glabrous except the densely pubescent inflorescence: stem woody; branches terete, with a rugulose, muricated bark: leaves petioled, trifoliate; leaflets stalked, firm and somewhat coriaceous, distantly serrated (the serratures shallow, tipped with a hardened gland), oblong, acuminate; lateral ones broader, unequal-aided: umbels shortly peduncled, with bractees at the base of the peduncle, axillary, not so long as the petiole, twice compound, with 3-5 primary branches: petals distinct: style very short, thick: stigma large, capitate, somewhat lobed: fruit globose (about the size of a cherry), 2-4-seeded.—*W. and A. Prod.* p. 1)28.

Found not infrequent in subalpine jungles growing among bushes to a great extent.

1 Portion of a flowering branch—2 a flower magnified—3 a cluster of immature fruit—4 a berry cut transversely magnified.

741. *IMPATIENS CUSPIDATA* (W. and A.) herbaceous erect glabrous, sparingly ramos: leaves alternate, long petioled, membranaceous, oblong lanceolate attenuated at both ends, serrated; nerves beneath sprinkled with tawny hairs: pedicels axillary, slender, shorter than the leaves, solitary or in pairs, when in fruit, erect: lateral sepals small subulate pointed, upper one deeply obcordate subcuneate, furnished on the back with a projecting hornlike appendage; lower one cuspidate at the apex, terminating below in a long, slender, straight spur, gibbous at the point: petals two-lobed, upper ones large slightly bifid; lower vertical, (pointing to the earth) cuspidate, capsule glabrous, oblong, attenuated at both ends: seeds ovate, reticulated; reticulations hairy. *R. W. Arnott, Comp. Bot. Mag.* 1 p. 221.

Neilgherries, in moist woods near Kotergherry. This species is allied in some points to *I. latifolia*, but is readily distinguished from both by the form of the flowers, the straight spur, and the reticulated seed.

742. *IMPATIENS DASYSPEBMA* (R. W.) herbaceous, erect, unbranched: leaves petioled, alternate, ovate-lanceolate acute, hairy above, glabrous beneath, crenate-serrated; petioles glanduliferous: pedicels axillary, solitary or paired, erect, scarcely half the length of the leaves: flowers rather small: upper sepal obcordate cuneate, cuspidate; lateral ones minute: lobes of the petals nearly equal scarcely half the length of the slender curved hairy spur: capsule glabrous ovate many seeded: seeds hairy. *R. W. Madras Journal.*

Courallum dense jungle flowering August and September.

1 A flowering plant natural size—2 a detached flower—3 ovary stamens and spur—4 stamens detached—5 ovary and lateral sepals—6 ovary cut vertically—7 ovary cut transversely—8 a mature seed natural size—9 the same magnified—10 seed cut transversely.

743. *IMPATIENS ALBIDA* (R. W.) suffruticose erect, ramos, branches terete, marked with numerous scars of fallen leaves: leaves ovate lanceolate pointed, slightly serrated, attenuated at the base, tomentose: pedicels solitary, as long as the leaves glabrous: upper sepal large, broadly emarginate villous above; lower one tomentose: spur slender tapering curved, nearly twice the length of the flowers: lateral sepals cordate acuminate: petals deeply two-lobed, the upper lobes larger: ovary hairy; ovules few. *R. W. Madras Journal.*

Courallum rare, growing at an elevation of between 2500 and 3000 feet among rocky cliffs in exposed situations. I have since found it on the Pulney mountains, on the rocky banks of a stream, but so much more luxuriant that it did not seem to be the same plant. Flowers pure white.

1 Flowering branch natural size—2 detached flower—3 stamens ovary and sepals—4 stamens—5 ovary detached—6 the same cut vertically.

744. *IMFATIENS CAMPANULATA* (R W) herbaceous erect, sparingly branched, glabrous stem and branches terete leaves alternite, long petioled, broadly ovate lanceolate acute, incurved bistle serrated, beneath glaucous with the veins very prominent peduncles axillary erect, shorter than the leaves, three-flowered, pedicels about the length of the flower upper sepal keeled above, lower ventneose with a short incurved spur, lateral ones large naviculate about the length of the others upper lobes of the petals mucronate short, lower ones large exceeding the upper sepal capsule ovate attenuated at both ends glabrous seeds echinate — *R W Afadis Journal of Science*

A very handsome species found in moist woods on the Pulney mountains at an elevation of about 5500 feet. Flowers cream coloured speckled with purple. The large size and in curving of the upper sepal over the edges of the petals gives the flower a campadulate shape (whence the name) not easily represented on paper.

1 Flowering branch—2 dissected flower—3 detached stamens—4 detached ovary—5 ovary cut vertically—6 capsule cut transversely—7 placenta detached with the seed adhering—8 a seed—9 the same cut transversely—10 a seed cut longitudinally

745. *IMPATICNS UMBELLVTA* (Hejne) herbaceous erect, root tuberous leaves crowded towards the top of the stem broadly ovate lanceolate, obtuse, crenately serrated above sprinkled with short hairs below glabrous, axillary put phsh coloured peduncles shorter than the leaves, bearing from 4 to 6 rather large pedicelled flowers upper sepal orbicular nearly equalling the petals, not furnished with a herbaceous point spur slender tapering curved, longer than the petals lobes of the petals about equal lower one broader capsule glabrous many seeded seeds echinate — *R W Madras Journal of Science*

Courtallum in moist jungles flowering August and September. The lower surface of the leaves is usually tinged with a dark brownish purple but not always.

1 Flowering plant—2 dissected flower—3 stamens—4 ovary and lateral sepals—5 ovary cut vertically—6 cut transversely—7 a seed—8 cut transversely.

746. *IMFATIBKB YISCIDA* (R W) herbaceous diffuse rooting at the lower joints afterwards erect, stem angled, with a few bristly hairs scattered over it leaves alternate, longish petioled, ovate pointed serrated, veins on both sides covered with stiff erect hairs peduncles axillary erect, filiform, viscid, 2-4 flowered usually shorter than the leaf flowers large, all the sepals about equal, the lower furnished with a long tapering spur, nearly twice the length of the flower, lateral ones ovate cordate upper lobes of the petals larger than the sepals, but much smaller than the lower ones capsule glabrous, tapering at both ends, ventneose seeds pendulous hairy — *It W Madras Journal of Science*

Pulney mountains at an elevation of 5000 feet in wet swampy ground, flowers light purplish or deep pink colour, the peduncles covered with a viscid secretion whence the name.

1 Flowering branch—2 dissected flower—3 stamens—4 ovary—5 ovary cut vertically—6 capsule cut transversely, showing the hairy seed.

747. *IMPATTEKS UNCIRATA* (R W) herbaceous erect leaves ovate or cordate acuminate, serrated, hairy on the veins above, glabrous beneath, petioles glanduliferous at the apex peduncles axillary solitary, nearly as long as the leaf—4-8 flowered lateral sepals about half the length of the upper one, ovate pointed, lower campaulate spur shorter than the flower, ventucose, hooked at the point lower lobes of the petals declining larger than the upper ones capsule attenuated below beaked above, few seeded — *H W Madras Journal of Science*

Courtallum in dense, moist, forests flowering August and September.

748. *IMFATTENS PASCICULATA* (Lam.) stems erect, glabrous leaves opposite, almost sessile, from narrow, linear to lanceolate, usually rounded or cordate at the base, serrated, upper side somewhat hispid under glabrous, whitish, and marked with coloured nerves pedicels usual in pairs slender, elongated sometimes nearly as long as the leaves sepals all with a callous point, lateral ones linear, falcate posterior rounded-ovate larger than the posterior but only half the size of the large one nor semi obovate lobes of the petals, lower widely-inflated form, with the tapering slender spur about as long as the pedicel stigmas combined capsule oblong a little ventneose, tapering at both ends—W and A Prod p 138

This plant occupies a wide range of elevation extending from about the sea level in Malabar to 8000 feet of elevation on the Nilgherries where it abounds in marshy grounds decorating them with its large showy pink flowers.

1 flowering plant—2 dissected flower—3 stamens in situ—4 stamens detached—5 ovary—6 cut vertically—7 capsule cut transversely—8 plants and seed—9 a seed—10 the same cut transversely

749. *IMPVLIENS TOMPNTOSA* (Hejne) stems diffuse, glabrous leaves opposite, sessile linear lanceolate, obtuse, acutely serrated, upper side slightly hispid, under pale, glabrous pedicels axillary, solitary or in pairs, pubescent, about as long as the leaves, in fruit deflexed anterior sepal ciliolate, with the spur short and inflated at the point stigmas united capsule oblong, tapering at both ends—W and A Prod p 139

In marshy pastures, Nilgherries, Pulney mountain, and Mysore, flowering August and September. The specimen here is rather a large one, I have frequently met with it not 1/2 inches high.

750. *IMPATIENS ROSMAHIHITOUA* (Retz) herbaceous erect, ramos, glabrous leaves opposite subsessile cordate at the base, linear lanceolate, serrated pedicels axillary solitary or paired, shorter than the leaves upper sepal vaulted broad ovate, pointed, nearly equalling the lower upper lobes of the petals much smaller than the lower spur short conical fructiferous peduncles erect capsule ovate

Courtallum in moist woods flowering August and September. Dr Arnott likewise describes this species from Ceylon specimens, sent to England by Colonel Walker, in terms that leaves no doubt of his plant being identical with the one here figured.

1 Plant natural size—2 detached flower magnified—3 dissected flower—4 ovary—5 ovary cut vertically—6 a nearly mature capsule cut transversely

751. *IMPATIENS RIVALIS* (R W) herbaceous root tuberous leaves all radical, ovate oblong, somewhat oblique at the base, serrated, above hairy, glaucous and glabrous beneath scape racemose many flowered flowers large drooping long pedicelled from the axils of small fleshy bracteas upper sepal obtuse vaulted above, lateral ones minute, lower large ovate ending in a long curved spur nearly twice the length of the petals petals large spreading the lower lobe deeply 2-cleft capsule erect glabrous many seeded seeds hispid — *R W Madras Journal of Science*

Courtallum on cliffs of rock at what is called "Five Falls" where it is constantly, during the flowering season (August and September) exposed to the spray from the adjoining cataracts.

1 Flowering plant—2 detached flower—3 stamens—4 sepals—5 a half grown capsule cut vertically—6 cut transversely—7 seed—8 the same cut transversely

752 CROTAIARIA NOTONII (W and A) suffrutescent, erect branches divaricate mg, shortish, torae to stipules narrow-subulate leaves slightly approximated, infoliate, 1 mg petioled, leaflets cuneate obovate, scarcely retuse, nuncinate rather longer than the petiole (fn in i half to an inch long, and one third of an inch br > ad), upper aid* glabrous, under paler, sprinkled with minute impressed hairs, racemes terminal or leaf opposed shootish (2 3 inches long), many-flowered flowers approximated (pretty large) bracteas linear - \ and A Prod p 192

Neilghernes near Koter^herry, August

1 Flowering branch—2 detached flower—3 dissected flower—4 stamen* showing the elongated form of the anthers of the shorter series -i stamens of the longer series with their round anthers—6 ovary cut lengthwise with 2 ovules—7 legume full grown 1 seeded—8 seed—9 cut lengthwise showing the cotyledon* and radical—10 Embryo detached

7-3 CANAVALI* GLADIATA (D C) perennial, twining, glabrous leaflets cordate ovate, rather acute legumes 5 10 times (or more) longer than broad.—W and A Prod 1 p 203

A common plant in hedges and thickets much cultivated for the beams which are used as a potherb

754 ATTLOSIA CANDOLLII (W and A) erect branches straight, twiggy, young parts villous with fulvous hairs leaflets oval upper side even, pubescent, under reticulated, shortly tomentose, villous on the nerves and margin stipules lanceolate, acuminate, spreading peduncles 2 flowered, longish calyx villous, segments lanceolate acuminate, curved upwards, lowest one about half the length of the keel spurs of the vexillum introflexed, slightly callous legumes villous—W and A Prod p 217

Neilghernes, where it is most abundant from an elevation of about 5500 feet to the top It seems to be in flower at all seasons, flowers yellow

1 Flowering branch—2 dissected flower—3 stamens—4 dissected ovary—5 dissected legume—6 detached seed showing the carunculus—7 seed cut transversely—8 embryo detached

755 PHASBOLUS LUIATCS (Linn) biennial, usually twining glabrous or pubescent leaflets ovate, acuminate stipules minute, reflexed caducous racemes shorter than the leaves, peduncled, the flowerous part elongated pedicels in pairs bracteoles narrow, small, shorter than the calyx adpressed, caducous legumes pendulous, scimitar* shaped, long mucronate, not torulose, glabrous, 2 4 seeded seeds oblong, corapressed — \ and A Prod 1 p 214

Much cultivated but seldom if ever found in a truly wild state A Uræ podded variety of this is the well known " Duffen Remi" of India, said to have been introduced by Dr Duffen from the Mauntius, whence the name

756 DESMANTHUS TRIQUITRUS (Willd) biennial prostrate stem compressed, triquetrous below leaves bipinnate, pinnae 2 3 pinnate, leaflets 10 12 pair stipules subulate peduncles axillary, solitary, naked or with 2 caducous bracteas about the middle flowers globular headed, 5 petaled, decandrous, legumes stalked, linear oblong, equal sided, 4 6 seeded —W and A Prod 1 p 270

Found in wet pasture ground near the coast flowering during the rains The specimen here figured was gathered at Madras

1 A small plant natural size—2 a fertile flower—3 dissected flower—4 stamens—5 dissected ovary—6 a pod nearly mature—7 a dissected seed—8 embryo detached—9 a sterile flower—10 a pair of leaflets to show their form and cells.

757. CASSIA (SESNA) OBTUBA (Roxb) perennial, herbaceous, diffuse, procumbent, branches glabrous: leaflets 4 6 pair, obtuse, mucronate, unequal at the base, glabrous petioles and rachis without glands: stipules lanceolate subulate, tapering, spreading, persistent racemes axillary, few flowered, much shorter than the leaves pedicels without bracteas, legumes lunate, broad, thin, obtuse, valves protuberant and slightly angled but scarcely crested at the seeds — W. and A Prod 1 p 288

Frequent in pastures and cultivated grounds all over the Southern provinces of India Is much used by the natives as a substitute for Senna.

758 BHTONIV MYSORENSIS (Klein in herb Madr) Stems glabrous, smooth tendrils simple leaves cordate repand toothed, usually 8 angled or lobed, slightly scabrous male flowers in a simple or profliferous umbel at the Apex of a long slender peduncle, female very shortly peduncled solitary, often in the same axils with the males, rarely several umbellate at the apex of a long peduncle calyx-tube and ovary narrow-oval berry longish oval glabrous, copiously marked before maturity with small shallow pits seeds smooth, surrounded with a zone* quite flat on the sides —W. and A Prod, p 1 345

M) sore, Neilghernes, &c climbing among hedges and bushes Between this and *B. Hookeriana* extended and more careful observation has satisfied me there is no difference, nothing being more common than to find both forms on the same plant or even on the same branch.

1 Flowering branch—2 male flower—3 same dissected—4 stamens—5 female flower—6 same dissected—7 umbel of fertile flowers—8 ovary cut vertically—9 ovary cut transversely—10 a berry nearly mature cut transversely

(739) GARDENIA LATIFOLIA (Ait) arboreous, unarmed leaves opposite or in threes, very shortly petioled, oval or obovate, glabrous, with a small hairy gland in the axils of the nerves on the under side flowers terminal, solitary, very shortly pedicelled (pedicels scarcely a line long) limb of the calyx campanulate, irregularly divided, hirsute on the inside corollahypocrateren form, tube long, hirsute on the outside, limb about 9 cleft, the divisions obliquely obovate, about half the length of the tube, hirsute towards the one margin on the outside stigma clavate, thick and fleshy, bipartite, segments bifid berry even, nearly globose, crowned with the whole limb of the calyx, nut thin, brittle and bony, with 4 parietal receptacles —W. and A Prod 1 p 395.

Found in thickets and subalpine jungles in the Carnatic especially near the coast but not common so far as I have had an opportunity of observing

760 HYDHOPTLAX MARITIMA (Linn) Linn . f. *tuppl* 126, *DC prod* 4 p 576. *Spr syat* I D 410, *Roxb Cor* 3 t 2)3. *Ind* 1 p 373 (*ed Wail*) 1 p 380 *Wall L u* 6205 *Wight cat n* 1369. —*Sarissus anceps*, *Gartn fr* \ p 118 t 25.—W and A Prod 1 p 441

Salt sandy soils near the sea beach in which it spreads extensively binding the sand.

761 *MICROTROPIS GARCINIFOLIA* (Wall) *Jottomus garcini folia* Roxb *Can sine discolor* (Wall) subabundant leaves lanceolate entire acuminate peduncles axillary or eupaaxillary short corymbose small few flowered capsule—2 valved splitting from the base *Jlorb Fl Ind 1 p 626*

Sylhet (Roxb Wall)

Of this genus little seems to be as yet known, Dr Wallich, with whom it originated, published the names of 6 species in his list of Indian plants, but without either generic or specific characters Professor Meisner from imperfect specimens of two of the same constructed a generic character so nearly correct that I was enabled from it to refer two or three new species, natives of the Neilgherries, to the genus Dr Arnott (Annals of Nat Hist 3 p 151) from more perfect specimens of the species here figured drew up a generic character which, with a few slight modifications, will include all my new species, though differing a little in the capsule I hope in a subsequent part to be enabled to give a more perfect character taken from the examination of several species

762 *LUDMIGIA PROLATA* (Roxb) low or branches creeping leaves alternate, petioled lanceolate flowers axillary sessile capsule filiform with one row of seeds in each cell attached immediately to the axis *Roxb. Fl Ind 1 p. 520*

Native of Pegue

763 *MABA BUXIFOLIA* (Juss) *Ten tola buxifolia* Roxb leaves obovate glabrous in the adult state calyx, downy flowers solitary or aggregate, hexandrous, filaments all simple *O Don Inction 4 p 43*

A frequent shrub in low jungles very abundant in the Circars, but also extending to the Southern parts of the Peninsula

764 *MYRICA INTEGRIFOLIA* (Roxb) leaves lanceolate entire smooth, scales of the female amenta reniform cordate one or two flowered drupe oval granulated *Roxb bl Ind Sp 765*

Sylhet grows to the size of a large bush Flowers December and January fruit ripen in May the fruit is pickled by the natives and used as a condiment in its raw state though inviting to the eye is too sour to be relished Drupe about the size of a prune, nut oblong thick and very hard, a little flattened, the two edges rather extended and somewhat sharp, densely clothed with an immense quantity of fine white hair in pencil-like tufts The pulp consists of innumerable closely united but distinct clavate succulent yellow bodies" *Roxb*

764 A branch of the male plant with a detached flower magnified

765 Female plant with analysis of the ovary and fruit.

766 *ANTIDESMA XANTHOLARIA* (Wall) *Stilago* Roxb) shrubby smooth leaves lanceolate stipules ensiform pikes terminal whorled male flowers dioecious *Roxb. J-1 Ind 3 p 760*

Name of Chittagong

767 *ANTIDESMA TOMENTOSA* (Wall) *Stilago* Roxb) shrubby tomentose, leaves imbricate, stipules subulate spikes cincinnate, mucilaginous, male flowers dioecious *(Roxb Fl Ind J p 757)*

A Native of Sylhet, flowers May and June, ripens its fruit in September

The genus *SUHQO* not being considered sufficiently distinct from *Ant ultima* has been reduced to the latter as being the older name

767 "Flowering branch of the female plant with JB i 18.

768 Male plant with detached flowers, seen from above and below

769 *QUERCUS CASTANICARPA* (Roxb) leaves entire smooth ovate, a little hairy, completely hid the evaluar capsule-like cup which is completely armed with ramous sharp spines *(Roxb Fl Ind 3 p 640)*

Chittagong, a large tree, flowers July and August, and the small acorns ripen during the cool season

770 *QUERCUS ARMATA* (Roxb) leaves lanceolate acuminate entire smooth cup an entire evaluar capsule armed with many compound thorns, hiding completely the subovate acorn *(Roxb II Ind 3 p 640)*

Mountainous countries East of Bengal, a large timber tree

771 *ARISTOLOCHIA ACMDATA* (Lam) perennial twining smooth leaves cordate, rather acuminate racemes axillary, simple or compound, drooping *(Roxb Fl Ind 3 p 489)*

Eastern parts of Bengal, Roxb —Lower slopes on the eastern face of the Neilgherries, R W —Mauritius, Lam Flowering season on the Neilgherries June, July and August

1 Flowering plant—2 dissected flower—3 a capsule after hanging from the stem—4 capsule cut vertically—5 cut transversely

AROIDEJE.

*Ob** The natural family *Aroidca* has of late years undergone much careful revision, by several most eminent Botanists, in the course of which it has been found necessary to break down the old Linnean genera and construct numerous new ones The old genus *Arum*, so copiously illustrated in this Part, affords a striking example of the coarctation of this statement Of 22 species described by Roxburgh, in his Flora Indica, under that generic name, not one is left I have notwithstanding preferred publishing most of his figures under his own name, quoting the new ones as synonyms, not because I disapprove of the innovations, for I have not yet had an opportunity of determining for myself by examination of the plants the necessity that exists for such numerous changes, but because I think it desirable to show the progress he made in elucidating this difficult and, at the time he wrote, imperfectly understood family

When naming the plates I had not access to any systematic description of the aroids, and now find I have fallen into several errors in writing the synonyms on them Since then, indeed while these sheets were passing through the press, I received Kunth's Enumeratio Plantarum, Vol 3d embracing among others this family, with the aid of which, I have been enabled, in the letter press, to correct the errors of the plates

772 *CRIOCOCTNE RLTIROFIRALIS* (Fischer—*Amhosinia* Roxb) leaves linear lanceolate spathe first twisted to the right and there cloned, then to the left and then open, capsule 5 celled, 5 valved *(Roxb Pl Ind. p 402)*

Native of the Northern parts of Bengal in mud soil.

773 *CRIOCOCTNE SPIRULIS* (Fischer—*Ambronma*—Roxb) leaves petioled linear Inneol He spathe sessile much shorter than the leaves twisted ovary 5-celled *(Roxb Pl Ind 1 p 412)*

Isatne of marshy banks of streams and tanks The plant is found in Allied species abundant in such places in January and near the old fort of Palarocottah on the bank of an irrigation canal.

774. CRTPTOCORYNE ? UNILOCULABIS (*Ambrosinia* Roxb.) stemless; leaves linear lanceolate: spathe as long as the leaves twisted: capsule one-celled.—*Roxb. Fl. Ind. 3p. 493.*

A native of Coromandel in marshy places where it is partly immersed in sweet water. This species I am not aware of ever having met with. The one-celled ovary seems to make it a very doubtful member of this genus.

775. CRTPTOCOHYNK CILUTA (*FiacheT—Ambrosinia* Roxb.) leaves long petioled lanceolate: spathe shorter than the leaves with a tabular case and expanding ciliate apex: capsule 9x-ctNed.—*Roxb. Fl. Ind. 3 p. 494.*

A native of Bengal in marshy grounds on the banks of streams and tanks.

776. PoTBoa BAHDXNS (Lin. Roxb.) epiphytic: petioles as broad as the lanceolate leaves; spadix globular reflexed.—*Roxb. Fl. Ind. 1 p. 430.*

A very widely distributed plant, always found climbing on trees, to the bark of which it adheres like ivy by its slender fibrous roots entering the crevices of the bark. Roxburgh defines it "Parasitic" which in the modern more limited sense of the term is incorrect, I have therefore substituted Epiphytic or growing on trees for his word.

777. LASIA HETBROPHYLLA (Endl. *Pothon heterophylla* Roxb.) caulescent, creeping, armed: leaves from cordate, segittate to pinuattid: spathe erect spiral many times longer than the short cylindric apaiix: florets tetrapulutous tetrandrous. — *Roxb. Fl. Ind. 1.437.*

Native of Bengal. This and *Pothos Lasia* R. have been separated from *Pothos* as a distinct genus on account of their solitary pendulous ovules. *Pathos* having several erect ones.

*

778. SciNDAPSCS OFFICINALBS (Schott. ~~*Pothos*~~ *Roxb.*) perennial epiphytic stems rooting: leaves oblong cordate entire: flowers terminal; florets naked octandrous: berries one-seeded.—*Roxb. Fl. Ind. 1 p. 431.*

Native of Bengal. In some parts of the Midnapore district it is cultivated for its fruit which, cut in transverse slice* and dried, forms an article of the Hindoo materia medica.

779. SCIKDAPSDS DECURSIVUS (Schott. *Pothos* Roxb.) perennial, rooting on trees, smooth: leave* subdichotomously pinnate; segments falcate cuspidate: flowers lateral or axillary long peduncled.—*Roxb. Fl. Ind. 1 p. 436.*

Native of Sylhet. A very large powerful species blossoms during the hot season.

780. SciNDAPSUS PEEPLA (Schott. *Pothos* Roxb.) perennial subparasitic rooting on trees: leaves long petioled oblong acuminate: flowers subtinninal florets apetaloui tetrandroua.—*Rotb. Fl. Ind. 1 p. 433.*

Sylhet, flowers April and May,

781. SCINDAPSUS PERTUSUS (Schott. *Pothos* Roxb.) scandent subparaitic rooting on trees: leaves cordate perforated on one side and pinnatifid on the other: anthers two-lobed. *ll.xb. Fl. Ind. 1 p. 455.*

⁴⁴ A native of the mountainous parts of Coromandel" Roxb. I have only so far as I can recollect, met with this species at Court all urn at the place called "Five Falls."

782. ABTJM CAMPANULAIUM (Roxb. *Amorphophallus* Decaisne) stemless, leaves decomposed: flowers sessile with respect to the surface of the ground and appearing when the plant is destitute of leaves: spathe the length of the spadix campanulate, with curled margins: no nee* Cary: club broad ovate lobate: anthers 2-celled. *Roxb. Fl. Ind. 3 p. 509.*

An extensively distributed plant much cultivated in Coromandel by the natives for the sake of the roots which are used as yams or potatoes. When in flower the fetor it exhales is most overpowering and so perfectly resembles that of Canon as to induce flies to cover the club of the spadix with their eggs. From a number of drawings sent me I selected two, this one to show the plant, and the other 782 to show a most gigantic flower, but to which I find no reference in Roxburgh's work.

783. AEUM BULBIFERUM (Roxb. *Pythonium*. Schott *Amorphophallus*, Blum.) root tuberous stemless: leaves decomposed bulb bearing: spathe cauled rather longer than the cylindric spadix no nectaries. *Roxb. H. Ind. 3.*

A native of Bengal plentiful in woods in the vicinity of Calcutta, blossoms in May.

784. AEUM CUSPIDATUM (Roxb. *Arisanot* Martius) stemless: leaves ternate; leaflets equal lanceolate cuspidate: scapes as long as the petioles: spathe longer than the subulate pointed spadix: anthers from four to five in a peltate circular crown on each filament. *Roxb. Fl. Ind. 3 p. 506.* *Aria Roxbu^{hix}*. Kunth.

Native of Pulo-Penang. Roxburgh when he described this species had only some male flowers.

785. ARTJM CAMPANALATUM (Roxb. *Amorphophallus* Decaisne) stemless leaves decomposed flowers sessile with respect to the surface of the ground and appearing when the plant is destitute of leaves, spathe the length of the spadix campanulate with curled margins no nectary: club broad ovate lobate: anthers 2-celled. *Roxb. Fl. Ind. 3 p. 509.*

An extensively distributed plant much cultivated in Coromandel by the natives for the Bake of the roots which are used as yams or potatoes. When in flower the fetor it exhales is most overpowering and so perfectly resembles that of Canon as to induce flies to cover the club of the spadix with their eggs. From a number of drawings sent me I selected two, one 785 to show the plant, and this one to show a most gigantic flower but to which I find no reference in Roxburgh's work.

786. ARUM COTOCASSIA (Lin. Roxb. *Colocassia antiquorum* Schott.) ² ABUM NTMPHJEIFOLIUM (Roxb. *Caladium Ventinat.*) Two plants are represented in this plate, and according to some authors they belong to different genera. Roxburgh however doubts whether they are not mere varieties of one species.

1. COLOCASSIA. ANTIQUORUM (Schott.) stemless leaves peltate ovate repand semibifid at the base: scape shorter than the petioles: spathe much longer than the spadix cylindric erect: club subcylindrical length of the antheriferous part of the receptacle, anthers many celled. *Roxb. Pi Ind. 3 p. 494*

A native of wet marshy grounds: is very abundant in the Tanjore district on the banks of irrigation canals. The leaves and foot stalks of some of the varieties of this plant are much eaten by the natives.

2. COLOCASIA NYMPHEFOLIA (Kunth *Caladium vent.*) stemless: leaves peltate, ovate, repand, semibifid at the base: scape shorter than the petioles, spathe much longer than the spadix subcylindrical erect: club slender acute, scarcely half the length of the antheriferous part of the receptacle: anther* many celled. *Roxb. Fl. Ind. 3 p. 495.*

This is common in Malabar and like the former forms part of the food of the natives.

787 ARUM cerunTUM (Tour Roxb — *Caladium* Zom Co aiasuu Schiott) caulescent 1 imous leaves sub pel Lite exictly cordite acute with the lobes exquisitely rounded and convex or concave from their margins being COM ti acted scape half the length of the petioles spadix cvhndncil neaily as long as ihc cyrabifotm spathe *Roxb Fl Ind 3 p 201*

Native of Bengal—found about Calcutta but rare

788 ARUM CURVATUM (Roxb --*Anseema*l&rt)Btem less leaves pedate leaflets from 10 to 12 lanceolar, spathe \aulted half tht length of the cuived spadix no nutu- rial filaments antheis J lobed *Roxb Fl Lid 3 p 506*

Native of Nepaul blossoms in May.

789 ARUM FOIINCVTUM (Roxb *Colocasia* Ray Schott) caulescent leives peltate, narrow cordate with the lo\es angle rounded spadix elavate uppei half of the spathe vaulted equalling the spadix berries with flora one to three seeds *Rub Fl Ind J p oOI*

Native of Bengal and Chittagong blossoms during the lainy season

790 AHUM DIVIRICATUM (Roxb *lyphontum* Schott) Btemless leaves cordite acumiato sppthe longer than the subulate spidix with a slendei dlooping spiral apex nectanal fil iments simple and subulate, encurved *Roxb Fl Ind 3 p c>03*

Nitive of Maiabir—Roxburgh also received living plants of it from China

791 ARUM FT AGHIIFOKMF (Roxb *Typhonmm* Schott)stemlcss leaves sagittate lobes spreading spathe and spadu equal whip shape neetunal scales coloured, anthers Uo-lobed two celled *Roxb Fl Ind 3 p 502*

A native of Bengal found in damp shaded ground

792 ARUH FOR*ICITUM (see above No 789) This figure should have been numbored 700—the drawing seems to have been made foi the purp >se of showing a peculiarity of this specie* unu&u il in the genus namely, its Mwpoious piopeitv, the buds on its stem becoming developed and fotmin^ new plants there, denvmg then nouishment thr mgh the pirent plant "We have here a good figure of neaily mature lruit

793 ARUM GRACrc (Roxb *Typhomum** Schott *Artsama* Xunth) stemless leives deeply three parted or subterunte, lobes icute the middle one oblong, lateral ones semihastdte s\ithe fla^elliform the length of the flagelhform s| i \\\ nectanal scales simple and revolute *Roxb il Ind 6 p oi)o*

794 ARLMr\DiriM (Roxb *Culocasia* Ray Schott) eauliacent erect leaves coidate base biñd, lobes appioxima*c and rounded spadix cylindrical equalling the line ar boat shaped spathe club c>hndric longer than the ie<t of the spadix *Roxb Fl Ind 3 p 49s*

\ native of various parts of Southern Asia, cultivated in Bengal for its esculent: stems and small pendulous tu- hers of its loot, which aie eaten b) people of all ranks in theu curries.

79 > ARUM MARGARITIFFüTJM(Roxb *Amorphnphallus* Kuiith) heibiceous stemless leaves tnfid with entire rii row Imctolate pmnatifid segments spathe campanu- 1 ite equalling the obtuse spidix , nectaries like large penN *Roxb Fl Ind 3 p 512*

Native ot Imdostan, fioweis May and June The globulu bodies seen on the spidix are not fruit but ab oime or modified putilla oi in Roxburgh o language Nectaries' The o\aues occupy the lowei poition of the spauix the stamens the upper—the pearl like bodies the middle Roxbuighs description of the leaves does not conley to the mind a clcai idea of then foim Generally they may be designited bimnnatifid, th\t is they aie fiist divided into 3 piunary lobes each of which is ngdin cut into seveial nariow liucolate segments with entire milems They may then be briefly and cleaily defined almost in Roxburgh's own words sh^ht- J> alteied in the arrangement thus 'leaven tnfid lobes pimiAtifilly cleft into several narrow lanceolate seg uients, enure on the margin "

796 ARUM MOVTV\UM(ROX1> *O>focasta* Ray, Schott, Xunth) stemless, root a subcylindncal tuber leaves cordate repand polished spadix neaily as long ns the cuculate coloured spathe anthers many-celled *Roxb H Ind 3 p 497*

V mtile of the m > intamous parts of the Northern Circara where the root is employed to poison tigeis '

797 ARUM ODORUM (Roxb *Colocana* Ray, Schott) caulescent, len'es cordate, base bifid lobes rounded flowers in axilkiy pairs spadix equalling the qmbiform spathe club one third the length of (he whole spadv , beiries one seeded *Roxb II Ltd 3 p iO9*

Native of Pegue, fioweis during the cool season ripen- ing its Auit m March and Apnl The flowers possess a considerable degiee of a^ieeable iragiance, a very un usual quality in the family

798 ARUV vrviPERLM (Ro\b *Remusatia* Schott) stemless leaves peltate coidate Hcummate root flagel hferous and these runners bearing seal) viviferous bulbs in clusters *Roxb Fl Ind 3 p 496*

A native of Nepaul—Malabar—Courtallum, very Abundant at the bitter station, under the shade of dense woods Tlieic I found it m peifection August and September

799 CALLA CALIPTRATA (Roxb *Hmnahnema culyptratum* Kunth) stemless leaves oblong cordate spathe circumcised the upper conical portion falling when early in blossom spadix the upper half clavate and covered with stimena the louter half cyhndnc and female *Roxb Fl Ind J p 514*

Native of Ambojna

800 ARUM SESSILIFLORIM (Roxb *Sauromatum* Kunth) stemless leaves pedate leiflets about nine bioad lanceolate en tne flowers sessile appearing when the pimt is destitute of foliage spathe revolute twice the length of the long tanering erect acute, spadix, nectanal, filaments clavate mtheis 2 lobed,beiries fion one to two seeded *Roxb H Ind 3 p 507*

A name of the counti) aiond Cawnpore, blossoms duingthedrj hot season

801 ARUM ORIMNSF (Ro\b *Typhomum* Scnott) stem'ess leaves fire c lobed flowers subsessile spathe ample eiet longei thin the spadv neetanal, filaments lon^ and oftту lamous *Roxb II Ind 3 p 503*

A mtue of shidy mingo gioves near Samulcottah wheietlu soihspictt) rich undleitile flowering time the beginning of the luwis (Roxb) I do not recollect ever to have met with it in the station indicated This species is quoted by Kunth as identical with *Typhomum tulobatum* (No S03) a glance at the figues will show how erroneously The loots are exceedingly acrid and are applied as cataplasms to discuss schirrus tumorus

802 ARUM SILYATICUM (Roxb *Amarphoplia* Uu* Kunth) Pyllonium bchoff) leaves super decompound, leaflets lanceolate spadix straight, two or three times longer than the short gibbous campanulate spathe anthers 2 celled *Roxb Fl Ind 3* p 511.

Native of the Cucar mountains, flowering time the wet season

803 AHIM TRITOBATUM (Lin Roxb *Typhonium* Schott) stemless leaves three lobed flowers subsessile spathe ample with its apex spiral and resting on the earth, nectanal himen short simple and removed. *Roxb FL Ind 3* p 50b

Native of the Moluccas whence it was introduced into the Botanic Garden

804 CALLA PICTA (Roxb *Aglaonema* Kunth) caulescent leaves shortpetioled, ovate, oblong entire clouded flowers axillar) shortly peduncled, spathe, gibbous, acuminate, shorter than the obtuse clavate spadix. *Roxb 11 Ind 3*, p 316

Native of the Island of Sumatra.

805 CALLA AROMATICA (Roxb *Homalonema* Schott) caulescent leaves subsagittate, cordate, acuminate, lobes rounded and divaricate spadix cylindrical, obtuse equaling the spathe, above male below female with abortive stamens intermixed anthers many celled *Roxb Fl Ind 3*, p 513

A native of Chittagong when cut it diffuses a pleasant aromatic scent The natives hold the medical virtues of the root in high estimation

806 CIVILA OBLONGEOLTA (Roxb *Aglaonema* Kunth) caulescent leaves erect, oblong spathe boat shaped, acuminate spadix cylindrical shorter than the spathe the lower part bearing a few scattered pistils above closed) covered with 4 celled anthers *Roxb bl Ind 1*, p 516

A native of the Moluccas, thence introduced into the Botanic Garden of Calcutta *

807 CALLA RUBESCENS (Roxb *Homalonema* Kunth) leaves cordate, base bifid, spathe contracted, acute, equaling the spadix lower third of the spadix covered with germs and clavate corpuscles intermixed upper two thirds covered with anthers only *Roxb Fl Ind J*, p 510

808 CIVILA VINOSA (Roxb *Coiocana* Kunth) caulescent, leaves peltate ovate, slightly waved, undivided At the base spathe one fourth the length of the spathe with the lower part bearing a few scattered pistils above closed) covered with 4 celled anthers *Roxb PI Ind 3*, p 517

The station of this plant is not mentioned It is called in Hindoo *JBtsh Richoo*, Bish meaning poison. Roxburgh derived his specific name from that word.

809 SMILAX OIALTFOITA (Roxb) stem cylindrical leaves uncinated, oval smooth from five to seven nerved petioles tendril bearing, umbels compound Native of the Circassian hedges and forests.

810 Dioscorea ATATA (Linn) tubers oblong, white, stems annual climbing four ringed leaves opposite, deep cordate from five to seven nerved *Roxb Fl Ind 3*, p 797.

This plant is universal*, cultivated in the Carnatic being that which produces the Yim

811 DIOSCOREA DIEMONA (Roxb *Fl Ind D anusa* Roxb *Mss*) root tuberous, biennial, stems annual, twining, armed, leaves ternate, leaflets obovate acuminate, three to five nerved *Roxb Fl Ind 3*, p 805

Native of Bengal and Moluccas "The root is dreadful \ nauseous, even after it has been boiled " (Roxb)

812 DIOSCOREA GLOBOSA (Roxb) tubers roundish white, stems twining six winged, leaves alternate and opposite, sagittate cordate male spikes compound long pendulous and verticillate, female simple *Roxb FL Ind J*, p 797

This species is much cultivated as affording the most esteemed of the Yams amongst Europeans and Natives in India

813 DIOSCOREA OPPOSITIFOLIA (Linn) herbaceous smooth, leaves opposite (from cordate to ovate—lanceolate, acute, from three to seven nerved, male flowers panicled, the female ones spiked *Roxb bl Ind 3*, p 804

A native of Coimandul, and of frequent occurrence in sub alpine jungles

814 DIOSCOREA PENTAPHYLLA (Linn Roxb) tuber is oblong, stems herbaceous twining prickly leaves digitate downy male flowers panicled, female ones spiked. *Roxb Fl Ind 3*, p 806

A sufficiently common species in jungles on low hills, &c but never, so far as I have seen, cultivated which is the more remarkable as I have always found the Natives dig the tubers, whenever they had an opportunity, to dress and eat them

815 DIOSCOREA TOMEHTOSA (Koemg) herbaceous, tubers irregularly oblong stems twining downy, slightly armed leaves alternate, ternate, downy, male racemes axillary compound *Roxb Fl Ind 3*, p 805

A widely distributed species, extending from the Circars to Cape Comorin and to be found on almost every considerable hill that is covered with natural jungle Unless my memory deceives me, I have seen specimens in Dr Royle's collection from even the high latitude of Seharanpore and the foot of the Himalayas.

NOTICE.

THE Author takes advantage of the present opportunity of informing the Subscribers to his *Illustrations of Indian Botany*, that that work will shortly be resumed, and he trusts conducted to a satisfactory conclusion without further delay or interruption. Immediately on the publication of the last part published (Part 1, Vol. 2) he was under the necessity of packing up the whole of his collections preparatory to leaving Madras and up to the present hour, (1st May, 1844) the greater part of them are unavoidably still in the packing cases. They are now however in course of being re-arranged and so soon as that is done the work will proceed.

He further avails himself of this opportunity to inform the Subscribers to the present work, that the next two parts extending to probably 120 plates each, will be almost exclusively devoted to the illustration of Neilgherry plants, and that he contemplates publishing a few (perhaps about 100) extra copies *coloured*, under the title of "NEILGHERRY PLANTS."

The "Neilgherry Plants" will differ from the continuation of this work not merely in being coloured, this remaining uncoloured, but in being made up of selection from the whole work, of the handsomest or otherwise most interesting flowers natives of these hills, in being separately numbered and having a distinct letter-press.

They will, for the most part, be grouped in natural families, accompanied by some general observations on alpine vegetation under each family. The series of drawings, for the succeeding parts being nearly complete, enables him to give a systematic form to this portion of the present work, as well as to the new one*

The price of the "NEILGHERRY PLANTS" cannot as yet be fixed, but it is estimated that it will not exceed 10\$ Rupees per part of 50 coloured Plates, and that the whole will be comprised in 4 or at the very utmost 5 parts.

Subscribers to the NEILGHERRY PLANTS are requested to send their names to Mr. PHAROAH, the Publisher, who will forward their copies as published.

EXPLANATION OF PLATES.

VOL III—PART II.

816 MAPPA MOLTJCCANA (Spreng—*Htvcim mappa* Lin. *Acalypka mappa* Willd) dioicous , leaves peltate cordate entire acute spikes pumcled (Roxb) panicles of male flowers axillary bractaas alternate, sessile, cordate, concave, dentate, ciliate, many flowered flowers very small , calyx 2 parted reflexed stamens about 8, filaments longer than the calyx *Roxb hi Ind 3 p 690*

Amboyna and Eastern Islands.

Roxburgh's description of the flowers of his plant is deficient by omitting to notice the stamens and anthers. On this account I am unable to identify specimen* from Moulmain of apparently the same plant, (tho' differing in some respects from his figure) except that in mine the calyx is *three* not *two* parted in it also the anthers are peltate, deeply divided into 4 globose cells, not mentioned here but described under his *Ocyns peltata*

817 MAPPA P PEXTAI A (B W *Ocyns peltata* Roxb *Macaranga* * Pet Thour) Arborescens, leaves peltate ovate cordate entire (Roxb) male panicles axillary bractaas many flowered flowers exceedingly minute , calyx three parted , stamens three , anthers peltate four celled , cells covered with lidB, (Roxb) female, calyx 3 parted , ovary superior covered with yellow glutinous grains usually (by abortion ?) one sometimes two celled , style short, lateral, springing from near the base of the ovary, ending in one, sometimes two, long reflexed subulate stigmas , ovule attached near the base of the ovary opposite the insertion of the style, ascending capsule 2 valved, fleshy, about the size of a pea, dehiscing vertically, seed globose ascending integuments three—exterior smooth shining blackish , the middle one nuciform black, thick, hard and rough on the outside, between it and the exterior tunic is a quantity of soft whitish pulp, the inner one pure white and very thin embryo obliquely inverse, enclosed in a copious albumen cotyledons foliaceous cordate 3 nerved plumula minute , radicle pointing obliquely upwards towards the apex of the seed

Circars Roxb , Malabar and Eastern, slopes of Neilgherries

This extended character is taken partly from my own dissections, but principally from Roxburgh's description and is given with a view to showing that the *Mappa* of A de Jussieu and the *Onyins* of Roxburgh are generically congeners even though in this species the stamens are usually only 3 and the ovaries solitary, and further it seems probable that they must all be referred to Du Petit Thouars' genus *Macaranga* between which and *Mappa* the plant now under consideration seems, to me, to form the connecting link , with however the weighty objection that in it the ovule and seed are said to be pendulous from the apex of the cell and the calyx to be 4 parted while in this the one is ascending and the oilier 3 cleft. But even with these difficulties to be explained, I think it probable a careful investigation of all the known species of both genera will show that they can be reconciled and all brought under one generic denomination, the plants themselves being very like. Should this not prove the case then, as surmised by Roxb in a MS note on the drawing, this must constitute the type of a new genus and possibly win the other two form the type of a small suborder.

118. SPINACEA TETRAKDBA (Roxb Steven ? Moq Tand P) annual erect leaves variously lobed flowers hispid, sessile, the male ones tetrandrous, the female calyx 2 parted *Roxb Fl Ind 3 p 771*

Hab much cultivated in Bengnl

I have quoted the *S tetrandra* of Steven and Moq. Tandon with doubt, the character of the latter not agreeing well with Roxburgh's figure and description. Steudel (Nomenclator Botan) is equally in doubt but he seems either not to be aware of the existence of Roxburgh's Flora Indica, or if he is, does not quote it, preferring Wallich's catalogue, as if the one might be safely and satisfactorily substituted for the other. Should this be his opinion he could not have fallen into a greater error, the catalogue being a work not published and of no authority, though well adapted to fulfil the end proposed, that, namely, of supplying a temporary and convenient expedient by which numerous undescribed plants, distributed among Botanists, might be distinguished and thereby, rendered available to the advancement of Botanical Science, pending their more careful determination by numerous eminent Botanists who undertook to aid the author of the catalogue in carrying out the munificent intentions of the Indian Home Government, by the publication of descriptive monographs of the different natural orders intrusted to their care for that purpose. Roxburgh's work on the contrary is one of high authority, the result of years of diligent application and careful study of the numerous species described, as well as figured in his most extensive and unique collection of drawings to the general accuracy of which representations this work bears most ample testimony. In this point of view Dr Wallich's catalogue was most useful to all who received his plants, and is in the hands of but few besides. The burthening therefore of our Science, already overwhelmed with synonyms, by the addition of the numerous undefined names of that list, was an error scarcely exceeded by the exclusion of Roxburgh's Flora from the list of authorities quoted in that otherwise invaluable compilation, his names being generally well defined and his plants for the most part elaborately described.

819 ANTIDBSMA HUNBAS (Spreng *Stilago Bumis* Liu Roxb) Arboreous, leaves alternate entire lanceolate oblong polished spikes axillary and terminal male flowers triandrous with an abortive column in the centre. *Roxb Fl Ind 3, p 758*

Nepal, Amboyna, Malabar all claim this as a native. It is a tree of quick growth and particularly beautiful when loaded with its numerous bunches of ripe, shining, deep red fruit, which are aubacid and palatable.—Roxb.

820 ANTIDESMA PANICULATA (Roxb "Willd) Spikes pumcled leaves round oval villous stigma stellate drupe round. *Roxb Fl Ind 3p 770*

A small tree with light ash coloured bark, flowering in April. Spikes terminal and axillary, pumcled, flowers small quinary, male ones with an abortive pistil ovary embraced by a yellow villous disk, stigmas 5 stellate; drupe round, dark purple when ripe and of a pleasant subacid taste nut one seeded, embryo inverse enclosed in albumen. Roxb.

821 ANTIDESMA punicea (Roxb Willd) leaves oblong entire downy stipules subulate spikes terminal panicled R Fl Ind 3, p 770

A small tree flowering about the beginning of the rains The berries of this species are eaten by the natives

822 HEDYOTIS BAUOBA (Burm—Oidenlandia ramosa Roxb) diffuse ramous leaves narrow lanceolate peduncles axillary with from one to several flowers Roxb Fl Ind 1p 424

Native of Pegue apparently very nearly allied to H umbellata which it much resembles in habit and appearance

823 DILLBNIA SPBCIOSA (Thunberg) leaves oblong, serrated, glabrous appearing with the flowers peduncles solitary, terminal, one flowered stamens all equal in length styles and carpels about 20 seeds hairy W jr A Prod pg 5

Southern provinces and Malabar cultivated about Madras as an ornamental tree

Several figures of this plant have been published, that of Bliede (Horl Mai) is very characteristic, but none of these have analyses of the flower The accompanying figures will therefore, it is hoped supply to some extent that desideratum They represent outside and inside views of the flower natural size, a transverse section of the entire ovary showing the 20 carpels or cells, of which it is composed, magnified A portion of the same more highly magnified showing the two rows of placenta in each cell—and, at that early stage, the 2 ovules each bearing—also a vertical section of the ovary, showing the conical form of the receptacle and position of the carpels on its surface The larger figure represents the fruit in a further advanced stage, at which period one of each pair of ovules has aborted, leaving two not four rows of seed in each cell Below that is a portion of a mature fruit showing the hairy seed in situ, also a seed dissected showing the minute embryo, at the base of a very copious albumen, immediately under the hilum, and lastly, the embryo itself detached

Through an oversight the figures in this and several following plates were not numbered which renders the above explanation less explicit than could be wished

824 COCCULUS PLUENETH (DC) stem twm-825 log, glabrous, young branches pubescent leaves ovate, mucronate, sometimes slightly cordate at the base, rarely retuse at the apex glabrous, when young the nerves on the under side, and long petioles hairy racemes spike like, longer than the leaves, pedicels short, with a bubulate bractea at their base, of males 2 3 together, of females usually solitary petals cuneate-oblong, emarginate, obtusely 2-toothed near the base, in the male about equal to the stamens, somewhat membranaceous above, below fleshy and embracing the filaments in the female flesh), and internally warted anther cells approximated ovaries 3 drupes solitary, nut reniform W 4 A Prod 1, p 13

In these two plates I have represented the male plant in flower the female in fruit from specimens collected in the vicinity of Madras The berries when ripe are pulpy and of a face purple colour.

826 CANTHIUM LBSCHINAULTII (W & A) shrubby, climbing? quite glabrous old tor inches armed with short supra axillary thorns, young shoots long, slender, often unarmed petioles shortish twisted leaves opposite or 3 4 verticillate, oblong, much acuminate acute at the base cymes axillary, short peduncled, few (3 5) flowered calyx minutely 5 toothed corolla in aestivation acuminate, tube campanulate with a ring of reflexed hairs internally, segments of the limb 5, linear lanceolate, acuminate, reflexed stamens 51 anthers exerted, afterwards reflexed style thickened about the middle and hairy downwards stigma mitiform, bifid to about the middle drupe obcordate W 8f A Prod pg 42G

The specimen here figured was obtained at Courtallum but the species is not confined to that station X have repeatedly met with it in subulpine jungles

827 IXOBA LANCEOLABIA (Colebrooke) shrubby branches slender drooping glabrous leaves short-petioled, spreading, approximate, narrow or oblong-lanceolate, acuminate upper surface dull, glaucous, glabrous, under pale, glabrous or pubescent, coriaceous small, few floretted, sessile, trichotomous, open flowers (white) lax calyx segments linear oblong much longer than the tube, connate in fruit tube of the corolla (about three quarters of an inch long) slender, lobes spreading, linear oblong, obtuse, a little flattened slightly pubescent ovary crowned with a series of fleshy sphaecelate bristles round the inside of the limb of the calyx filaments shortly exerted, anthers long linear, the base bifid and ending in 2 subulate spine like processes, style much exerted divisions of the stigma long linear, spreading berry somewhat didymous—leaves narrow-lanceolate, much acuminate, quite glabrous W 4* A Prod pg 420

The specimen figured was obtained from Courtallum, so far as I have observed this is a rare plant

828 PSYCHOTRIA LCEVIOATA (W & A) shrubby, erect, glabrous leaves very shortly petioled, oblong-lanceolate, acuminate, cuneate or tapering at the base stipules lanceolate, acuminate twice the length of the petioles corymb terminal, longish peduncled, primary rays and those on the central primary one in fives, subtended by four bracteas, the other rays in threes and subtended by two bracteas, bracteas all lanceolate acuminate, connate at the base flowers aggregated at the extremities of the partial rays, intermixed with broad lanceolate acuminate bracteas calyx limb 5 cleft, lobes ovate, slightly ciliated tube of the corolla much bearded in the throat, scarcely longer than the segments of the calyx filaments longish, exerted, anthers oblong stigma short and thick, bilamellate, scarcely exerted berry ovate, with four deep furrows albumen flat on the inner side, with two deep domed furrows and a broad obtuse rib between them W fr A Prod pg 433

I have to regret the want of more perfect analysis for this figure owing to the plants not being in fruit when the specimens were gathered at Courtallum in July 1835

829 VEBNONIA CONTZOIDES (DC Prod 5, W & A Contributions) stems herbaceous erect striated, shortly pubescent, leaves ovate or oblong lanceolate acuminate, narrowing into a short petiole, serrated, glabrous above, beneath villously pubescent corymbs compound many-headed naked scales of the involucre linear lanceolate acuminate, villously pubescent DC m Wights contributions, pg 5

Neilgherues frequent but not limited to that station.

830 GYMNBMA ELRA^{N9} (W & A Contributions) twining, branches slender glabrous, the older ones warty leaves cordate—ovate or ovil, acuminate, undulate on the margin umbels short peduncled, peduncles and pedicels afterwards elongating flowers small, (white) throat of the corolla naked, tube furnished within with hiny lines stigma obtuse longer than the stamens follicles often, by abortion, solitary, acuminate seed margined Wight's Contributions, pg 40

The exact station whence the specimens figured were obtained is unknown to me the drawing having been made when I was in England which will in part account for the absence of fruit The follicles are slender, about 1 niches long and only three or four lines in thickness

831 CRTPTOLKFIS QRANDIFLORA. (R W) leaves* from oval to obovate spatulate cymes axillary diffuse, longer than the leaves corolla funnel-shaped, throat furnished with 5 inflexed capitate processes anthers acuminate, 5 hypogynous emarginate scales alternate with the stamens, follicles divaricate

Bulaghaut mountains near Naggary A fine species abundantly distinct from *C. Buchananii*

While examining the specimen figured I found some grains of pollen producing their tubes, these I have endeavoured to represent The large tube on the right hand side is one of them more highly magnified to show little opaque bodies passing along

832 CRYPTOSTEGI*. QRANDIFLOHA (R Br *Nertum grandiflorum* Roxb)

This is a large twining shrub now common in the hedge rows about Madras and not unfrequently met with as an ornamental shrub in gardens It abounds with milky juice from which, when exposed for a short time to the sun, a quantity of pure caoutchouc separates flowers redish white especially towards the bottom of the tube.

833 ANRREIA CALTSIWA (Choisy *Contoloulus edy mus* Roxb) stem pilose twining leaves oblong cordate acuminate very acute, glabrous, petiolate peduncles hardly the length of the petioles 1-3 flowered sepals with villous edges, exterior ones sagittately cordate corolla tubular *G Don gard diet 4, w 295*

Roxburgh assigns the interior parts of India as the station of this species The specimen here figured is of peninsular origin the exact station I do not at present recollect but think Negapatam.

834 BATATAS PSNTAPHTLLA (Ch *Convolvulus pentaphyllus* Lin *C. hirsulus* Roxb) hairy leaves quinate, leaflets petiolate, elliptic lanceolate or oblong, entire, acuminate peduncles longer than the leaves, loose, dichotomous corolla white or cream coloured *Von gard diet i, pg 261*

Roxburgh assigns the same station as above "interior parts of Hindostan" for this species I have found it repeatedly near the Coast The specimen here figured grew at Negapatam on the sea coast

835 HEWITTIA BICOLOR. (W & A *Shuteria Choisy*, not of W & A Prod *Coniolychnis bicolor*, Roxb)

This, the only species of the genus is common enough near the Coast It is distinguished generally by its one celled 4 seeded capsules and the flattened ovate spreading lobes of the sterna Roxburgh however says, "capsules huryfout celled, seeds black, one in each cell" which I think must be a mistake on his part My diagnosis of this (then) represented the capsular 1 celled and four seeded which corresponds with Choisy's character

836 IPOMCEA FESTIOBIDIS (Lin) leaves palmate 5 rarely 7 lobed, lobes ovate entire clothed with silk} him peduncles many flowered equal in length to the leaves flowers aggregate, bractes six or eight surrounding the head of flowers and longer than it *Don gard diet 4 pg 280*

A most common plant in sandy soils extending all over India

837 IPOMOJA* PILOSA (Choisy) hairy leaves broadly cordate entire or slightly 3 lobed clothed with white wool beneath peduncles exceeding the petioles cymosely many flowered, sepals linear hairy *Don gard diet 1 c*

subalpine plant found twining over bushes in jungles near the bottom of hills The leaves are white and powdery beneath, the flowers a beautiful rose pink colour and the whole plant covered with long soft hairs

838 IPOM (E A *sepiABU* (komg Roxb) stem alternately glabrous and villous from its hairs leaves cordate oblong peduncles many flowered sepals oblong ovate acute or obtuse corolla showy tubularly funnel shaped *Don gard diet 4, pg 273*

Very common twining in hedges, a showy plant deserving of a place in the flower garden The peduncles enlarge toward the apex and sometimes become so succulent as to resemble fruit.

839 ARQTREIA CTMOSA (Choisy *Ituea* R W *Itu somia cymosa* Roxb) clothed with pruinose down leaves roundish cordate or reniform-cordate obtuse, terminated by a short mucro, glabrous on both sides or clothed with pruinose down peduncles equal or occasionally exceeding the leaves, leafy at top and cymosely many flowered, bractes ovate roundish, obtuse plicately recurved outer sepals like the bractes, inner ones ovate linear corolla showy *Don gard diet 4, pg 257*

A plant of not uncommon occurrence twining among hedges, which during the flowering season it greatly enlivens with its numerous large pale pink flowers*

When naming this plant I had not specimens at hand to dissect the ovaries and therefore adopted Choisy's name in opposition to the evidence furnished by the drawing which shows a 4 celled ovary, not a 2 celled one, which constitutes the essential character of the genus I have since ascertained that the draftsman is right and that it is in fact a species of *Renea*, the character of which is to have a 4 celled ovary with a single seed in each cell With this character taken from structure M Choisy, has, in the *Ciste* of *Argyria*, unhappily, combined one derived from the form of the corolla of easier observation, and on which he seems generally to have relied, though unfortunately of no value and such as a very slight degree of reflection must have satisfied him ought not to be associated with those derived from the structure of the ovary, until confirmed by most careful examination, there being no necessary connection between the shape of the corolla and number of cells of the ovary As the matter now stands it seems not improbable that *Louieiro* a old genus will be swept away to give place to one of yesterday merely through an error of the more recent expositor For myself I have not yet met with a single instance of a convolvulaceous plant with baccate fruit and a 2 celled ovary and now, I trust not unreasonably, feel sceptical of the existence of such a union, though at the same time I beg no reason why it should not exist but being of comparatively rare occurrence I would urge (the propriety of reverting to Roxburgh's idea of unking the baccate fruit the essential character of the genus reuniting *Renea* and *Arymeta*, of course adopting the old name, and dividing the genus into sections and subsections according to its 2 or 4 celled ovary and form of the corolla As it now stands the genus *Arymetum*, though so truly Indian, has scarcely a truly Indian species, if I may, as now denned, one genuine species can be found—that is, *Convolvulaea* combining the three essential requisites of—baccate fruit, a 2 celled ovary, and campanulate corolla.

840 EXACTUM WIGSTIANUM (Arno) stems very famous and with the branches broadly winged leaves oblong lanceolate acuminate subsessile corymbose, corolla five (lanceolate) acute or acuminate fruit laciniae pedicel* curved capsule globose ellipsoidal At >tt inns Nat Hut 3, p 89

This seems to be a rare plant I have not myself met with it the accompanying drawing Wing been depicted during my absence from India

841 SOTOL (NICTOTAGNIA) WIGHTII (Nees) herbarium name with aciculate prickles, and clothed with fine hairs leaves cordate ovate or elliptic, repand emarginate fruitiferous peduncles elongated reflexed the three inferior anthers higher fruit covered by the persistent calyx* Nees II Act Acad COBS Nat Cur Vul 18

A rare plant found sparingly on the Nilgernes near Coonoor in jungle, the specimen figured was not however from tint station

842 WAHLENBERGIA PEBOTIFOLIA (W & A DC) Dinillia Willd. Hb. stem erect flexuose, pilose, angled ramous leaves alternate, sessile, lanceolate, acuminate attenuated at the base, glabrous the margin somewhat undulate crisp, denticulate peduncles terminal pubescent naked tube of the calyx hairy with shorter linear acuminate, glabrous lobes capsule globose DC Prod. p 434

Found not uncommon in cultivated sandy soils near the Coast Leaves finely ciliate, capsule 3 celled

843) EMBKOPTERIS GLABRIFLORA — Male and female

844 j (Roxb) Diospyros glutinosa Kom. in Roxb leaves linear lanceolate glabrous male peduncles from three to four flowered with about 20 filaments and forty anthers fertile flowers solitary, with from one to four sterile stamens styles four Roxb Fl Ind 2, p 533

The specimens here figured were found in Malabar They seem to correspond so nearly with Roxburgh's description that I can scarcely doubt their being the same species, though they vary in some points Judging from one or two I have seen cultivated at Madras it seems a middle sized tree

845 CEBOPHIA BUIBOSA (Roxb WU Contributions) turning, glabrous, rather fleshy root tuberous leaves from suborbicular to lanceolate acuminate peduncles many flowered, shorter than the leaves calyx five segments much shorter than the ventricose base of the corolla, tube of the corolla subclavate, segments of the limb enlarging upwards, much shorter than the tube, imbricated middle lobes of the leaflets of the corona subulate incurved at top, lateral ones minute acuminate lying on the primary ones W & A Contributions p 32

The specimen figured was grown in my garden from a root found in sandy soil on the sea coast near Point Calimere, I am uncertain whether I have since met with the plant

846 CROROPHIA MYSOBEVSIS (It W) sumutecose, glabrous, twining leaves broad cordate ovate, acuminate peduncles about the length of the petioles four to eight flowered lacunae of the calyx acute, much shorter than the greatly dilated base of the corolla tube of the corolla short, suddenly expanding into a large 5 lobed limb, segments short broad ovate, adhering at the point, glabrous on the margins lobes of the corona all hylate, the lateral ones about equalling the primary follicles long slender irregularly curved

Mysoie twining in hedges December 1834

I have not since met with this beautiful, copiously flowering plant Flowers pale straw-coloured It is most nearly allied to *Celegans* but is readily distinguished at first sight by the uniform colour of its flowers their being quite glabrous, but more indistinctly by the divisions of the staminal crown which are all equal in place of the lateral ones only about half the length of the primary

847 HOTA OVALIFOLIA (W & A) climbing, rooting along the stems, glabrous leaves fleshy oval acuminate at both ends peduncles shorter than the leaves many flowered corolla puberulous within, segments ovate acute, leaflets of the staminal crown oval, obtuse, interior angle short stigma rufous Wight's Contributions p 37

A handsome species but apparently of rare occurrence as I have not met with it for several years, the specimen figured was found in Malabar

848 TITLOPHOBA FASCICULATA (Him W & A Contributions) erect, or slightly twining, glabrous leaves approximated ovate somewhat fleshy, slightly decurrent towards the ends of the branches peduncles erect flexuose, being at the flexures two or three flowered leaflets of the staminal crown oblong ovate, bluntish pollen masses transverse stigma apiculate Wight's Contributions, I c

Copper mountains Bellary frequent, twining on grass JISO on low grassy hills at Courtallam twining among long grass When it meets with support it twines to a small extent In the analysis the peculiarities of this species are not so well shown as I could have wished.

840 OPHIOXYLON SBBPENTINDM (Linn)

This is a plant of frequent occurrence in moist woods and being one of great beauty is also much cultivated as an ornamental shrub The leaves are generally whorled, from three to five round the joints, lanceolate acute or acuminate waved on the margin, glabrous, cymes axillary on long peduncles usually erect pedicels and calyxes bright shining red which, contrasting with the pure white flowers, give the cymes a showy appearance especially when combined with its clusters of black berries

850 A NISEI A UMFLORA (Choisy) stems glabrous or pilose at the apex, prostrate leaves oblong on very short petiole, mucronate at the apex, glabrous peduncles equal in length to the petioles 1 flowered outer sepals joined obliquely at the base Don gard diet 4, p 29 >

A rare plant in Coromandel I have only once met with it near Negapatam, where this drawing was made As I found it growing on the edge of a tank in moist sandy soil it may perhaps be more frequent in the more humid climate of Malabar where Kheede also found it

851 ABQTRBIA SPECIOSA (Sweet Choisy Ruea, H W) tomentose leaves large cordate, acute, glabrous above or rarely villous, thickly nerved beneath and clothed with silky silvery down peduncles about equal in length to the petioles, at first umbellately capitate the divisions afterwards elongating, forming lax cymes bracteas acute unequal sepals ovate very blunt. Don paid d. t 4 p 254.

A most powerful twiner and splendid plant The juice like that of most of the genus is milky and viscid, the flowers pink or rose colored within, but appear nearly white exteriorly, owing to the thick coat of white hair with which the tube is covered Except in the campanulate corolla this is a *Itivea* having the 4 celled ovary of that genus

852 DATURA ALBA (Nees — *D. metel* Roxb) leaves ovate, acuminate, deeply toothed, unequal at the base, and are, as well as the stem, smoothish stamens enclosed fruit prickly Don gard diet 4 p ATA

A very common plant, possessing, in every part, intensely narcotic properties which has led to its being beneficially employed in medicine for the relief of various nervous disorders and, among evil disposed persons, for other most mischievous purposes

853 PHYSALIS SOMNIPEHA (Link Nees,) shrubby leaves entire flowers crowded, nearly sessile, subverticillate Don gard diet 4, p 44

This is a common plant but, so far as I am aware, it is useless one to man.

854 SOLVMJM TRILOBVTUM (Linn) frutescent, scandent, prickly, prickles (looked leaves panduriformly 3 lobed, 01 3 lobed obtuse, glabrous and are, as well as the petioles and peduncles, prickly racemes subumbellate ternate and lateral corollas deeply 5 cleft Don gard diet 4,;J 437

A common plant found creeping on the ground or climbing among hedges and bushes The color of the flower varies from white to purplish the berries red.

855 STRIO\ BUPBRASIODRS (Benth *Buchnera evphraswides* Valil Benih) nearly glabrous, rough, leaves linear oblong calyx oblong, marked with about 15 striae tube of the corolla pubescent Benth Scroph In I p 41

This plant is common in wet pasture land Since the publication of his synopsis of Indian Scrolularmce Mr Beutham has revised his previous labours in this family and has separated the Indian species of *Buchnera*, from the Cape ones, under the generic name of *Striga*, mainly on account of the very different form of the corolla—being straight salver-shaped in *Buchnera* and abruptly bent in *Striga* I have therefore osmg a true *Striga* I have adopted the name and quote that on the plate as a synonym, without, however, approving of the principle and still less the practice of constructing genera based on such slender points of difference So far as I can judge from a perusal of the generic character, I should suppose that a subgenus would have amply sufficed, thereby avoiding the injury to the science arising from breaking down good natural genera and unnecessarily adding to the already too long list of synonyms under which Botany groans

856 SUTERI GLANDULOSA (Roxb Benth) diffuse, clothed with glandular hairs, viscid, segments of the pinnatifid leaves cut, the upper ones, with the rate of flowers, alternate sepals obtuse —Benth's Synopsis^ p 42

This drawing was not made under my direction and the analysis is less perfect than I could have wished The plants forming this genus are low diffuse herbs with opposite pinnatifid leaves, pedicelled axillary solitary, or occasional], racemose flowers

857 BONWAYA HISSOPIUBS (Benth) stem elongated lax leaves oblong lanceolate, remote pedicels axillary elongated, filiform corolla three or four times longer than the calyx Benth Synop p 34.

This is a common plant on the banks of paddy fields and in wet pasture every where during the rainy season

858 BONNAYA MINIMA ? (G Don *Orahola minima* Roth) stem filiform erect simple leaves oblong, sessile, remote, serrulated and are, as well as the calycine segments, ciliated on the margin capsule oblong, rather longer than the pedicels Don gard diet 4, p 538

This very minute species is found in paddy fields, but to the best of my recollection is of rare occurrence I have flowers are pale yellow I am uncertain whether this is Roth's plant, but I think it corresponds well with the character and, like it, only attains the height of about 3 inches

859 DOITBIUM LOBBLOIDE9 (Benth *Grahola lobeloides* Roxb) stem elongated, sparingly branched leaves of the stem rostrate, obtuse capsules globose corolla nearly five times the length of the calyx Benth St/nop p 31

Frequent in rice fields growing in water, flowers usually pale blue, longish pedicelled, racemes on the ends of the branches The draftsman from not understanding it, has not clearly shown the structure of the capsule which is four valved This however is unquestionably Mr Bentham's plant

Figure 4 is a detached anther considerably magnified.

860 LIMNOPHILA POLYSTACHTA (Benth) leaves* emerged ternately whorled, 3 nerved racemes branched, slender many flowered flowers small sessile Benth. Sytiop Scropxdartnce Indicts p 27

Not too frequent in rice fields and other flooded grounds in the Tanjore district and indeed in most parts of Coromandel Flowers small white

861 LIMNOPHILA RACEMOSA (Benth. *Cynlla aquatica* Roxb) leaves emerged opposite or subverticelled, three nerved, entire, or the lower ones divided racemes dense many flowered, flowers pedicelled and like the membranaceous calyx smooth Benth 6ytwp Scroph Lid 26,

A native of flooded ground such as rice fields the flowers are purplish, possessing considerable fragrance.

862 TORBIA ASIATICA (Linn) leaves ovate or ovate lanceolate peduncles axillary fascicled calyx oblong, contracted at the base, about half the length of the corolla Benth Synop Scroph I^d p 38

An alpine or subalpine plant very widely diffused in alpine regions. The specimen selected by the draftsman for the illustration of this species is not so favourable a one as might have been The plant itself has little beauty, except when forming a compact tuft with a number of open blossoms when it does become one strikingly so, owing to the deep rich purple of its flowers.

863 VANDELIA CRUSTACBA (Benth *Graliolu lucida*, Roxb) diffuse, glabrous leaves ovate peduncles axillary or subracemose two or three times longer than the calyx before expansion 5 toothed, afterwards 5 parted, exceeding the ovate capsules Benth Synop Scroph Ind 35.

A very widely distributed plant and well represented in this figure

864 ANISOMELKSMALABABICA (Brown Benth) tomentously villous leaves oblong lanceolate narrowing at the base verticillasters many flowered, dense, or at length elongating into large cymes, floral leaves, bracts, and subulate teeth of the calyx very soft Benth Lab p 704.

Frequent in many parts of the Carnatic, but has an extensive range, being also found in Burmah, the Mauritius, Penang, Java, China, &c.

865 ANISOMELB8 OVATA (R. Brown—Benth) hairy or subglabrous leaves ovate or roundish, acuminate, rounded, or truncately subcordate, at the base, verticillasters dense, many flowered, teeth of the calyx lanceolate acute Benth I c p 702.

A common plant not very ornamental and with a wide geographical range as the preceding

866. LLUCAS BILLOBA (Brown Benth) herbaceous diffuse leaves ovate, coarsely dentate, pubescent on both sides verticillasters two flowered, bracteas minute calyx tubular, mouth equal, teeth subulate Benth I c p 610.

A low growing plant, common in arid jungles, very polymorphous in its general appearance The form here represented is not the most common, but being suitable for the size of the plates was taken I have seen plants three or four feet long, usually lying on the ground, but Bometunea climbing to that height among bushes.

867 LEONOTIS NEPKTIOFOLIA (R Brown—Benth) herbaceous leaves ovate crenate all the teeth of the calyx spinous, the upper one larger ovate corolla (red) about twice the length of the calyx Benth I e p 618

This very conspicuous plant, owing to its large redish orange coloured flowers, is usually found growing among rubbish and in neglected places, flowering at all seasons It is widely distributed over the world, being found in the tropical parts of Asia, Africa, America, and New Holland.

868 OCIMUM BASILICUM var THYRSIFLORUM (Benth) herbaceous, erect or acaulescent, leaves petioled, ovate or oblong narrowing at the base, subdentate, glabrous, petioles ciliate racemes simple, calyx longer than the pedicel, the fruitiferous ones reflexed, cympanulately nerved, gibbous above the base, superior division ovate concave, with a short acuminate tip, wings not extending to the base of the calyx, the lateral teeth of the acute lobes lower ones setaceous pointed superior filaments appendiculate—[var THYRSIFLORUM erect, glabrous, petioles and calyx scarcely ciliate, raceme thyrsoidly cymose Benth Lab page 4

869 PREMNA LATIFOLIA (Roxb) arboreal leaves round cordate entire, smooth, cymes axillary and terminal, the base of the corolla woolly Roxb bot bid 3, p 76

A common shrub, flowers of a dirty yellow colour, drupe about the size of a pea erect woody 4 celled

870 BARRERA BUFOLIA (Lin Nees) shrubby hairs spreading bracteoles axillary paired, spinous, opposite, divaricate, alternately one flowered and sterile leaves elliptic, acute at the base, spinously mucronate lacunae of the calyx shorter than the spines, the inferior one obtuse, emarginate Nees in Wall pi Asiatic 7at 3, p 94

A low growing thorny shrub, frequent in poor lands and about road sides. The flowers open in the course of the night and generally drop before midday. They vary in colour from white to rose colour.

871 HEXACENTRIS MYSORENSIS (R W) leaves elliptic oblong, acuminate, crenate, three nerved, reticulate anthers bearded stigma tubular

Mysore —I am indebted for the drawing and specimens of this plant to the kindness of Air Stokes of the Mysore commission, who found it near Nuggur in Mysore. It is the only specimen I have been the dissections were made by my Draftsman. The limb of the corolla is bright yellow the tube purplish. The bearded anthers and tubular stigma seem to indicate that it might form the type of a new, or at all events a sub genus, but not having fruit I prefer leaving it here.

P S —Since writing the above I have seen fruit which does not differ from those of *Hexacentris* I, therefore, think it advisable to view the hairy anthers rather as a sectional than generic character.

872 THLIREHIA GIBBIFLORA (Roxb Nees) scandent leaves cordate, angled, acuminate, hispid limb of the calyx truncated, entire Nees in Wall pi Asiatic 3 P 77

In this plant I have never met with wild. The specimen here represented was obtained from the Mysore Horticultural Society's Garden at Bangalore. It is an extensively twining handsome plant, well fitted for arbours.

873 STENOSIPHONIA RUSSIIANUM (N & C S) leaves ovate, dentate, glabrous beneath bracts rhomboid obtuse cuspidate, equaling the calyx Nees in Wall pi Asiatic 3, p 84

In this specimen here figured differs a good deal in appearance from the one so named by Professor Nees in my herbarium, especially in the shorter spikes and greater abundance of flowers, but still I believe them only different states of the same plant, they are from the same locality, namely the Pulney mountains. This form is also known with the Neilgherries.

874 BOERHAAVIA PROCUMBENS (Roxb) root fusiform perennating branches procumbent, smooth leaves variously cordate, covered with a silver coloured pellicle underneath flowers terminal in long peduncled heads—stamens three Roxb bot bid 1, p 148

A very common and troublesome weed, always in flower. The young leaves are eaten by the natives as greens and made into curries.

The analysis of the seed, though strictly correct, as seen in the section represented, does not convey a correct idea of the structure, a circumstance which I regret to find I overlooked when sending the drawing to the press, fig 6 seems to represent the embryo surrounded by albumen in place of conduplicate and enclosing a central albumen. This is shown in figure 7, where the cotyledons are unfolded, but not clearly.

Roxburgh seems to think this the only Indian species, then there are certainly other two, namely, the following which I have ventured to consider undescribed and another larger flowered species probably *B. diffusa*.

875 BOERHAAVIA STELLATA (R W) decumbent. Leaves succulent, cordate ovate, obtuse, mucronate racemes long peduncled flowers verticillate, subsessile, interruptedly subspherical, ovary elongated, clavate, furrowed, the intermediate ridges furnished with viscid glands, five, round the apex, elongated, spreading starlike.

It is usually in black cotton ground frequent, forming dense tufts, also but sparingly, in Coimbatore. Its whole appearance is different from the preceding and is at once distinguished by its white flowers, the viscid glands and stellate processes surrounding the apex of the fruit. The latter part of its structure it approaches *B. scandens* as figured by Gartner.

876 AKRUV JAVANICA. (JUSS) stem erect, and like the oblong obtuse pale greenish leaves, clothed with woolly tomentum spikes cylindrical, crowded towards the ends of the branches, villously tomentose. Sprengel Syst Veg 1, p 815

An exceedingly common and troublesome weed, found nearly all over the Southern provinces of India, but so little known in the Northern ones that Roxburgh seems never to have met with it, as it is not mentioned in his *Horn Indica*.

1 flowering plant—2 detached flower—3 flower forcibly opened—4 ovary and stamens detached—5 ovary opened showing the single ovule and podosperm—6 ovule detached—7 mature seed—8 cut vertically the embryo rolled round a minute farinaceous albumen.

877 ACALYPHA INDICA (Linn) spikes axillary lax male flowers few, females more numerous, alternate involucra several flowered, glabrous, subdentate leaves long petioled rhomboid ovate, serrated Sprengel Syst Veg 3, p 850, slightly altered.

Frequent among bushes in subalpine jungles, also in gardens and about old walls where vegetation is luxuriant. The curious body, apparently sterile flowers, which terminates each spike in this species, readily distinguishes it from all the other Indian ones.

1 flowering plant, 2 portion of a spike showing both male and female flowers with its terminal cross—3 a male flower—4 female flowers and bractea—5 fruit, one of the carpels opened to show the seed—6 a fruit cut transversely.

678 Dioscorea BULBIFERA. (Linn) leaves alternate deeply cordate, acuminate, 7 nerved, the exterior nerves 2 chief, transverse veins reticulate stem bulbiferous male spikes fascicled Sprengel Syst Veg 2, p 152

This drawing was made from a cultivated plant which may perhaps account for the flowers being bisexual in place of dioecious as usual in the genus.

1 flowering plant with a large round tuber on the stem, 2 flowers—3 calyx, lobes detached—4 a flower, the calyx lobes removed to show the sexual organs—5 stamens.

KYDIA. Roxburgh.

Roxburgh in establishing this genus assigned two species to it, *K calytrina* and *K fraterna* but with characters so loosely constructed that, I think for his hours, there would have been some difficulty in distinguishing them. Having got specimens of three different forms it became necessary to determine their species. This I found more difficult than I had anticipated. Had I only possessed the plant here figured No 879 I should have had no hesitation in considering it *K fraterna* with which it sufficiently accords in the form, size and number of the segments of the involucre, in form of the stamens and in the stigmas not projecting from the staminal tube. But on the other hand I could find no mark by which to separate it from another, herbarium specimen I had, marked *K calytrina*, covered with fruit.

This led me to examine the only flower left on the fertile specimen which proved its identity with Roxburgh's *K calytrina*. The circumstance of every flower of the one having passed into fruit while nil those of the other were sterile it once solved the difficulty by showing that the tree is occasionally polygamous, that M, sometimes fertile sometimes sterile. Roxburgh's *K calytrina* is the fertile form, as indicated in the flower by the largely developed styles and stigmas projecting beyond the staminal tube, and his *K fraterna* is the sterile one, in which the female organs are comparatively rudimentary and not seen until brought to light by dissection. For these reasons I unite his two species, under the older name of *K calytrina*, which I have further endeavoured to illustrate by contrasting the analysis of his two species with a similar series prepared from my sterile form and fruit taken from the fertile specimen. As to the difference of appearance between my figures and his I attach no importance, depending as they do on the flowers of my specimen having faded somewhat, before they reached the artist. After uniting the fertile and sterile forms, I had still a third to dispose of, that I have considered a distinct species, and have dedicated it to the ever to be respected founder of the genus.

The preceding observations will explain the cause of Roxburgh's never having seen the ripe seed vessel of *K fraterna* though the "structure and contents of the germin promise the same parts as that of the other species."

879 KYDIA CALYCINA (Roxb) *K calytrina* and *fraterna* (Roxb)) arboreous, polygamous fertile flowers involucre usually four leaved, longer than the calyx, spatulate, enlarging with the fruit filaments united their whole length into a tube style elongated, stigmas projecting male, involucre 16 leaved shorter than the calyx, lanceolate blunt filaments united about half their length, free above petals in both emarginate, ciliate. Flowers, white or pale yellowish. The figure is of the male plant corresponding with *K fraterna* Roxb.

In the valleys of the Circar mountains Roxb on the northern or M'sore slopes of the Neilgherries flowering time the cool season August, in Mysore.

880 A KTDIA CALYCINA, dissections from the Neilgherries plants.

1 an expanded flower seen from above—2 seen from below—3 corolla and stamens detached—4 calyx detached, 5—margined and rudimentary ovary—6 anthers—7 style and stigmas shorter than the staminal tube—8 ovary cut vertically—9 cut transversely—10 & 11 front and back views of immature fruit taken from a fertile specimen.

B KTDIA FKATBRXA (Roxb) (By mistake marked *K calytrina*) showing the short contracted staminal tube and lengthened filaments of the preceding form. Copied from Roxburgh's figure.

C KTDIA CALYCINA (Roxb) (also marked wrong) showing the short tube of the filaments and anthers sessile on the apex with the top* of the long styles and stigmas projecting beyond. Copied from Roxburgh's figure.

881 KYDIA ROXBURGHIANA (Roxb) arboreous, polygamous P fertile flowers involucre 4-5 leaved, leaves at first obovate obtuse, about the length of the calyx, afterwards enlarging, becoming narrow spatulate filaments short, united at the base, free above, at the apex exceeding the stamens stigmas large dilated. Flowers small, tube purple, limb pale rose colour.

Hamilton has a species which he named *R polystachya* but it is not described and may be either this or the other. Dissections the same as above.

882 MICROCETIA QUINQUELOBULARIS (W & A) involucre leaves minute, caducous, 3-5 lobed ovary 5-lobed stigma 5-lobed W & A Prod p 71.

Slopes of the Neilgherries frequent. A moderate tree flowering in July and August, maturing its fruit during the cool season. This, which is the only species of the genus I think, to have been united to *Enochlana* DC from which it assuredly does not differ in any essential point.

1 flowering branch—2 flowers—3 petals back and front veins—4 stamens—5 anthers—6 calyx and ovary—7 stigma—8 ovary cut transversely—9 cut vertically—10 a fruit about half grown—11 cut vertically showing several superposed seeds—12 a seed—13 flower bud and involucre—14 6 15 upper and under surfaces of a leaf all magnified.

883 IMPATIENS CUPRESSIFOLIA (Linn) W & A : branches diffuse, filiform, flaccid leaves opposite, from narrow linear lanceolate at the top of the stem to broad obovate lanceolate near the base, acute, membranaceous, slightly serrated, serratures bristly pedicels axillary or in pairs, not half the length of the leaves, very slender. Lower sepal cucullate, with a very short conical nearly straight spur anterior lobe of the petals elongated, tapering much towards the base stigmas united capsule glabrous, narrow, tapering at both ends, with about 2 seeds towards the middle and a constriction between them W & A Prod p 139.

Malabar flowering in July. This I found in great abundance near Walliar in moist jungles, during the prevalence of the South West monsoon, and at the same time and place the following.

984 IMPATIENS kimmi (W & A) W & A : erect, with spreading diffuse branches leaves opposite, from obovate and obtuse to lanceolate and acute, with a large gland on each side near the petiole, upper side hairy on the veins and near the margin, under glaucous* pedicels solitary or in pairs filiform, longer than the obovate leaves, shorter than the lanceolate ones, in fruit reflexed lateral sepals linear, equal to the column, posterior one hairy, concave, larger than the posterior lobe of the petals, much smaller than the elongated obovate anterior lobe, lower one with slender spur, nearly twice the length of the flower capsule narrow oblong, tapering at both ends, few seeded W & A Prod p 140.

885 CROTALLA RUBICINOSA (Willd) W & A : low, shrubby, branched, diffuse, slender, densely pubescent stipules triangular at the apex, decurrent leaves simple, from elliptic oblong to rounding, mucronate, slightly tomentose and glaucous beneath racemes lateral legume sessile, about twice the length of the calyx W & A Prod p 181.

This low diffuse growing plant is of frequent occurrence in alpine districts. The specimen from which this figure was taken was gathered on the Neilgherries.

886 TOXOCARPUS KLBINII (W & A) stems glabrous, anthers pubescent, leaves elliptic, abruptly acuminate, corymbs subsessile, bracteae duncated longer than the leaves, flowers pedicel led segments of the corolla ligulate, glabrous, throat pilose, leaflets of the Staminal crown ovate, bidentate, truncate, the apex furnished with an interior exserted flaccid lacuna subdentate at the point, stigma rostrate, slightly behind at the apex, a little longer than the tube of the corolla, follicles arcuate, reflexed. *Wight continens p 61*

1 wining in hedges near the sea coast in Taojore about Kragapatam

1 flowering branch—2 detached flower—3 corolla—4 calyx removed and limb of the corolla drawn back to show the crown more highly magnified—5 pollen masses—6 follicles

I am indebted to Dr Greville of Edinburgh for Nos 4 & 5 of these analyses

887 IPOMOEA* RUGOSA (Choisy) stems creeping, leaves cordately reniform, glabrous, obtuse, microneurite, peduncles usually shorter than the leaves, sepals ovate, outer ones shortest and rugosely plicate. *Don dict 4 p 266*

Frequent in moist soil as about the banks of water-courses and under the buds of taks, flowers usually pink, sometimes pure white

In this plate the figure No 4 represents the calyx with its two rugous sepals, the best distinguishing mark of the species

888 RIBES POMICCA (R W Argynca pomacea Choisy) leaves clothed with cinerous velvety down on both sides but especially beneath, petioles exceeding the petioles, somewhat cymose, many flowered, bracteae linear lanceolate adpressed to the flowers, sepals ovate lanceolate obtuse, rather villous. *Dm 1 c*

This is a strong growing spruce frequent about Coimbatore, twining over hedges and bushes, fruit milky, flivvers pink, berries yellow when ripe, pulp. The analyst of this and two subsequent species Nos 890 & 891 (cle irl) show that all of them the ovary is 4 celled and fruit baccate, and to that extent all are clearly referable to Choisy's genus *Jussiaea* to which, I have referred them. I have however found this character so universal in the genus that I am becoming more and more fearful, if rigidly adhered to, that the older name will be blotted out of Botanical nomenclature and would therefore suggest that the generic character be so extended as to include all those species having baccate fruit whatever the form of the corolla or number of cells of the ovary. As that I have yet seen are further distinguished from *Ipomoea* by their woody subarborescent habit abounding in milky juice

889 CAPPARIS DIVARICATA (Lamarck W & A) glabrous, stipules thorny, short, curved, leaves very shortly petioled, exactly linear, elongated mucronate, coriaceous, flowers axillary, solitary, short pedicelled, petals linear, spatulate, dilate, acuminate. *W & A Prod p 27*

Very common about Coimbatore, usually appearing as a small very ramous shrub, exactly agreeing with the first part of the above character, and in that form never in flower, hence neither Lamarck nor ourselves had seen flowers. More rarely it attains the size of a small tree, with a round dense top, the ends of the branchlets drooping. In this state only I have seen it in flower and this figure gives a good representation of a branch taken from a tree rather larger than is usually met with. The natives begin to associate some sacred idea with this tree, as I have frequently seen swamiy idols under its shade.

890 RIVEA COHEATA (R W Argynca Ker, Choisy & A) smoothish, leaves obovate cuneate, emarginate, glabrous above, but beset with short crowded hairs beneath, hardly petiolate, peduncles shorter than the leaves, 3-6 flowered, bracteae linear, very acute, sepals, mate obtuse, equal, villous. *Don 1 c*

This species is very abundant in Mysore and is also generally met with in alpine districts, but rarely below 2500 feet of elevation. It is a beautiful shrub when in full flower, rarely twining but does sometimes. The fruit after maturity becomes dry and capsular, forming at it were the transition from the succulent fruit of *Aigynca* to the capsule of *Ipomoea*

891 RIVEA HIRSUTA (R W Argynca hirsuta W & A Madras Journal) hairy all over, leaves cordate at the base, harshly tomentose beneath, flowers cymose, peduncles usually longer than the leaves, flower large, tubular, stamens included, fruit ovate, pyramidal, pointed deep orange coloured when ripe, is a glabrous flowering the greater part of the year

It seems, to me, doubtful whether this and several other reputed species, found on these hills may not require, on more careful examination, to be united into one

892 HBLIOTROPICUM ZEYLANICUM (Lam) stem shrubby, branched, clothed with stiff bristles, leaves linear lanceolate, pilose on both sides, racemes axillary, numerous towards the ends of the branches, much longer than the leaves, forked, flowers eecund sessile, corolla tubular, 5 (lft, throat parted, segments of the limb spreading, acic initiated, anthers sessile, included, connate, produced beyond the cells, 10 toothed at the apex

Frequent in cultivated land about Coimbatore but generally a rare plant in India. Burman a figure (11 ludica) taken from a dried specimen, is most characteristic of the plant in that state but gives an imperfect idea of the growing one.

893 SOLANUM GIOANTEUM (Jacq) stem shrubby, prickles tomentose, the berries leaves elliptic, lanceolate, acute, unarmed, entire, glabrous above, clothed with hairs, tomentum beneath, racemes dichotomous, tomentose lateral, many flowered, clothed with white tomentum. *Don dict 1, p 430*

A subalpine shrub, the specimen here figured grew on the Neilgherries at an elevation of 6000 feet

The flowers which are small, pale purple, nearly hid in the woolly calyx, are at first drooping afterwards erect, and the clusters of fruit always erect. This plant has the property of expanding the flowers of each corolla in brief succession, that ripe berries and unopened flower buds are collected in the same cluster

894 BIDDLEIA DISCOLOR (Roth) arboreous, branches almost terete, compressed at the nodes, tomentose, leaves lanceolate, acuminate, subserrated, glabrous above, pale beneath, or clothed with white tomentum, spikes interrupted slender, simple or panicled, bracteae linear, lanceolate, flowers nearly sessile, subglomerate, capsules reflexed. *DOR gard dict 4, p 600*

A subalpine plant common on the slopes of the Neilgherries scarcely attaining to an elevation of 6000 feet, though most abundant, a little lower. No 11 of the analysis represents a seed highly magnified but conveys a very imperfect idea of its beauty when seen under a good magnifier.

895 (EGINETIA IHDICA (Roxb) scape nearly simple, elongated, naked, one flowered limb of the corolla shortly 5 cleft

Jungles near Punalhnut, among decaying vegetation, very abundant flowering in June and July

On comparing my figure with those of Rheede and Roxburgh I cannot help thinking that, in quoting Rheede's figure 11 a synonym for his, Roxburgh has fallen into error and that Rheede's plant is identical with mine but difficult from Roxburgh's, I must however leave them as find them for the present

896 BASILLA ALBA (Linn) stem twining perennial leaves ovate undulate spikes peduncled simple Spreng Syst leg p 90

This is a common plant occurring in every part of the country the succulent leaves are dressed and eat like epigram The most curious part of the structure of this plant is the seed the embryo of which is rolled up like the main spring of a watch

897 LUPHOBIA AKTIQUORUM (Linn) stems jointed erect ramous, 3 4 or more angled angles furnished with numerous protuberances (floral eyes or buds) each armed with two short spreading stipular spines joints straight peduncles solitary or in pairs, usually 3 flowered, a little above the axles of the stipules

Common all over India a very polymorphous plant No character can be derived from the number of angles that being moot unable It is however quite distinct from the following and easily distinguished by the straight not twisted stems and the peduncles being few, one or two, from each protuberance or bud while in the other they are numerous.

898 EUPHORBIA TOBILES (Rottler) stems erect, ramous, jointed, joints spirally twisted, angular, angles furnished with armed protuberances, flowers numerous fasciated on the angles peduncles 1 flowered

I suspect when this family shall have been more closely studied the best specific as well as sectional characters will be derived from the parts enclosed within the cup of the involucre, the appendages of the flowers, that is, viewing each stamen and ovary as a distinct flower These parts, as shown in this and the preceding plate, are sufficiently distinct in form to encourage further investigation in that direction

899. KEMPFBIA GALANOA (Linn) leaves round ovate cordate spikes central, upper segments of the lobe of the perianth, corolla, oval emarginate

This I have only seen wild on the Malabar coast, the figure was taken from a plant I found in Travancore near 1 revandrum

900 RBMUSATIA VIVIPARA (Shott) in No 798, I gave from Roxburgh a figure of the viviparous form (see Arum viviparum) of this species I here give the much rarer one, in which it presents the normal form of the genus

The drawing was prepared from specimens gathered at Courtallum along with the other, this being exceedingly rare, while the other was most abundant.

901. MICOSTYLIS VBESICOLOR (Lind) stem leafy leaves cordate or ovate oblong, abruptly petioled, undulate plaited, lip transverse, dentate on the margin, cucullate, slightly overlapping at the base column bicornate at the apex sepals and petals secund Lind genera and species, p 21

Lipart densiflora? Richard ABD des sciences v 15 Frequent on the Neilgherries and other elevated stations in grassy pastures

The specimen here figured was gathered on the Pulney mountains but is quite identical with the Neilgherry plant

902 MICOSTYLIS RHEEDI (Lind) stem leafy leaves oblong lanceolate plaited lip truncated dentate, largely overhanging at the base Lind gen and species* p 21

Pulney mountains among pasture—August 1836

This species first came into Rheede's figure, and Dr Lin Uey in his recent work 'Genera and Species of Orchideous plants' remarks "I do not think there are any materials in this country sufficient for determining exactly what the *Malaxi** *Rheede* of Swartz is or rather the *Basaala Poulou Maravara* of the Hortus Malabancus upon which that species is founded" Under the conviction that this is actually Rheede's plant I publish this figure though less perfect in its details than I could wish partly owing to my indifferent acquaintance with the tribe when it was executed, and partly from the Artists want of practice at that time in representing Orchideae.

903 LIPARIS OLIVACEA (Lindley) leaves bipinnate or solitary, roundish cordate or oblong, acuminate, plicate, shorter than the erect many flowered raceme scape terete at the base lip obovate retuse with a mucro, bituberculate at the base sepals obtuse, lateral ones resting on the lip Lind I c p 26

Pulney mountains, on rocky cliffs covered with herbage I have some doubts as to this being Lindley's plant horn which it differs in some particulars There are three in place of one or two leaves* and the lip is emarginate retuse in place of incurved, besides which there may be other distinctions not marked

904 LIPARIS ATROPITRUPURE* (Lind) leaves two or three, roundish acuminate, petioled, plaited, obliquely cucullate at the base, about as long as the erect, few flowered raceme labellum oblong obtuse, recurved, crenulate, lateral sepals oblong lanceolate oblique petals long filiform Lind I c p 28

Pulney mountains among rocky cliffs sparingly covered with pasture—also from Ceylon

Flowers purple, large in proportion to the size of the plant

905 LIPARIS WALKERKE (Graham Bot Mag) leaves two or three, roundish ovate acute, petioled, plicate, oblique at the base, cucullate, shorter than the erect, many flowered, raceme peduncles angled lip roundish, reflexed, crenulate sepals spreading oblong, margins revolute, the germen and filiform petals equal

Graham Bot Mag No 3770

I am uncertain whence I obtained the specimen here figured but believe it was at Courtallum in 1835 It is much larger than the one figured by Dr Graham, but is I think unquestionably the same plant

906 LIPARIS IOKGIPES (Lind.) pseudo bulbs long, terete two leaved leaves ensiform lanceolate raceme straight many flowered, scape acapitous lip ovate acute, without tubercles, length of the column sepals ovate petals linear Lind I c p 30

Courtallum flowering in July and August I have also specimens from Ceylon My specimens are all much smaller than Dr Wallich's Nepal one figured in the Plant As Rareores

907 PHOLIDOTA IMBRICATA (Lindley) pseudo bulbs ovate oblong obtuse, somewhat angled leaves solitary, oblong lanceolate, plicate, acute spikes the length of the leaves, pendulous, bracts membranaceous, concave, imbricated lateral sepals ovate can Date lip subglobose cucullate, lateral lobes small, erect, intermediate one two lobed cordate Lind I c p 36.

Courtallum—I have also frequently met with it in other stations also in Ceylon.

908 DBKDBOBIUM PIERARDI (Roxb) sterna pendulous glabrous leaves ovate-lanceolate acute flowers in pairs, forming a spurious raceme sepals acuminate membranaceous petals larger than the upper sepal, acuminate lip dilated cuculate somewhat truncated ciliated *Lxnd. I c p 79*

Pendulous from trees The ignorance of the Transferrer of the habit of this plant, had made him turn it upside down

009 DENUROMUM HBTNEANAM (Lindley) stem erect, flexuose clavate, clothed with the lax sheaths of the leaves linear lanceolate, acute racemes axillary, spreading, many flowered bracteas, minute ovate sepals and petals ovate lanceolate acute, about equal hp three lobed, united with the base of the column, a longitudinal callosity on the disk, lateral lobes acute, the middle one roundish fleshy imbricate crenate *Lxnd I c p 90*

Epiphytical on branches of trees in Malabar "The spreading many flowered peduncled racemes, combined with the figure of the lip are alone sufficient to distinguish this species" Lind.

010 DRNORODIDM BIBBATULUM (Lindley) stems terete aphyllous racemes lateral and terminal, many flowered sepals ovate acuminate, petals obovate acute larger than the upper sepal hp flat, obovate-obtuse, speculate, entire, bearded at the base *Lxnd I c p 84*

This seems to be a very handsome species, growing on trees, but of which little is yet known, the specimens from which it was taken up having been poor ones The one figured here was found in Malabar The flowers are pale straw coloured

911. CYMBIDIUM TRISTE (Willd) leaves terete umbels subsessile sepals and petals connivent, fleshy, oblong, cymbiform lip oblong, about twice as broad as the sepals *Lxnd I c p 167*,

This is a difficult plant to dry hence Dr Lindley seems imperfectly acquainted with it, having only had a bad worm eaten specimen to examine I cannot understand, however, on what principle the racemes of this and one or two other allied species are called umbels, they are short but distinctly racemose Another peculiarity of some species of the section of the genus to which this belongs is the form of the lip, a hollow inflated sack

912 GIODORUM DILATATUM (R Brown) scape shorter than the leaves, spike pendulous flowers congested, lip subcalcarate, dilated at the apex, crenulate {Brown Hort Kew land I c p 175.

This is a widely distributed plant Rheede found it in Malabar, Roxburgh in the Circars, Blume in Java, Colonel Walker in Ceylon, and the plant here figured I found within a few miles of Coimbatore

Kanathkoovoodoo, August 1843, in clefts of rock under the shade of bushes

The figures of the elaborate analysis seem all too plain as scarcely to require explanation with the exception of No 1J, which is a transverse section of a nearly full grown fruit.

913 EULOPHIA VIRENS (Rt Brown) leaves grass-like, linear lanceolate, shorter than the branched scape sepals and petals oblong obtuse narrower at the base, tessellated hp three lobed bearded, lateral lobes shorter middle one, ovate obtuse with an erectish conical spur. *Lind I c p 18J*

This specimen was found with the preceding in clefts of rock filled with vegetable earth in great abundance outside of the specimen upwards of 3 feet high

914. ANIA LATIFOLIA (Lindley) leaves oblong plicate shorter than the scape hp unguiculate three lobed, cohering with the elongated base of the column, lateral lobes obtuse, shorter than the roundish ovate acute middle one, the claws furnished with three truncated lamella terminating below the sinus of the lobes, that of the middle one 5 toothed, the lateral ones shorter. *Lind I c p 130*

Not having the original drawing by me I am at present unable to give the station of this plant, but believe Pulney mountains I suspect it is not the species described by Dr Lindley, differing as it does so materially in the character of the hp and its lamellae, neither do I feel quite certain that the structure of the anther case is the same as in his, but as I have not the specimen* at hand to ascertain that point by examination I am for the present compelled to leave the matter in a state of uncertainty.

915 VAKDA SPATBULATA (Sprengel) leaves ovate oblong obtuse, oblique, emarginate raceme cymose many flowered, much longer than the stem and leaves sepals and petals oblong obtuse flat two callosities in front of the base of the hp, limb rhomboid, incurved at the apex, crestate ovary six winged *Lind I c p 216*

A beautiful species growing on trees the leaves and racemes often marked with blood coloured spots, flowers yellow spotless, base of the lip white within "

The specimen figured was gathered in Malabar.

916 VANDA KoxBURGBir (R Brown) leaves obliquely indented at the apex racemes erect, longer than the leaves sepals and petals oblong obovate undulated obtuse, middle lobe of the hp emarginate *Lind I c p 215*

A splendid species, remarkable for its finely lessellated petals, is found epiphytically on trees especially the mango The specimen figured was found in Malabar This is the *Cybidium teisebides* of Roxb H Ind

917 SACCOLABIUM WIORTIANUM* (Lindley, *Centes radicosum* f Rich) leaves channeled, narrow, obtuse, fleshy, subequal at the apex racemes erect ramous, longer than the leaves sepals and petals ovate obtuse lip with a cylindrical obtuse bent spur, limb furnished at the base with a two lobed fleshy callosity, lateral lobes rounded capsules three winged and three furrowed. *Lind I c p 221*

Epiphytical on branches of trees, this specimen grew in the Pulney's, flowers rose colored

The specimens from which the species was originally taken up, were far from good and the character is unavoidably imperfect, but sufficiently so to leave little room to doubt that this is the plant I have quoted Richard (Annal des Sciences Vol 15) with a doubt though I believe unnecessarily his description and figure, agreeing so well with ray plant The erect not recumbent column and entire not 3 lobed hp of his plant show that it is not referable to *Centes* at least as defined by Lindley

918 CALATHE BAMBUIWATA (Lindley) leaves broad lanceolate spike erect slightly pubescent hp with two callosities, limb 3 lobed, middle one emarginate, spatulate, the lateral ones minute spur linear somewhat compressed equaling the ovary *Lind I c M from Blume Amblyglottis emarginate* Blume

This plant does not seem hitherto to have been found in India, the above character, which applies well, having been taken from a Java specimen. Flowers purplish blue or violet.

919 PIATANTHRA LUTEA (R. W.) stem erect, lower half clothed with sheathing scales, above leafy leaves ovate lanceolate acute bracteas foliaceous, ovate, cucullate, acuminate, equalling the flowers sepals ovate obtuse the lateral ones ascending petals smaller, linear lanceolate, lip 3 lobed, about the length of the sepal*, lobes, obtuse, entire, lateral ones smaller, spur pendulous clavate somewhat shorter than the ovary

Pulney mountains in pastures among long grass, flowers yellow I have not met with this species in any other station It seems a genuine *Platanthera* though so very different from the next I thought at first it might be a *Penstemon* but the free sepals and long spur induce me to place it here

920 *Platanthera* SUSAN KOS. (Lindley) stem leafy about three flowered leaves ovate oblong acute, upper ones cucullate acuminate sepals ovate obtuse, lateral ones oblique the dorsal one rhomboid petals linear acute, lip three parted, lateral lobes truncated many cleft, the middle one linear spur double its length *Lindl, I c p. 295.*

Pulney mountains with the other This magnificent species seems very widely distributed Amboyna, Cochin China, New Holland and India all claim it as a native. I have never met with it except once, but I have a specimen from the vicinity of Bomba, for which I am indebted to the kindness of Mr. Law, of the Bombay Civil Service, as well as for many other highly interesting additions to my herbarium, for all of which I beg to tender my sincere thanks

921 *Feristylus* PLANTAGEMA (Lindley) leaves (3) erect oblong lanceolate acute, almost as long as the spike sepals ovate petals roundish obtuse lip roundish obtusely truncate, spur spheroid. *Lindley, I c 300*

In moist pasture in the forests of Paulghat flowering in May and June, flowers white Dr. Lindley describes this species from Ceylon specimens.

922. *Habenaria* LINDLEYANA (R. W.) leaves few distant, roundish ovate cordate, acuminate raceme many flowered bracteas foliaceous equaling the flowers posterior sepal truncated at the apex, the lateral ones ovate acute petals two parted, segments linear subulate, about equal, lip 3 parted, middle segment the longest.

Pulney mountains in pasture In the character of the flower this seems allied to *H. bulacemum* Blume, but as it is impossible to determine, from such a character as he gives, I have thought it safer to consider it a distinct species.

923 *Habenaria* HORTENSIA (Lindl.) leaves narrow oval acute raceme lax second few flowered, bracteas foliaceous cucullate, somewhat ventricose acuminate, longer than the flowers lip 3 parted segments about equal, the length of the sepals, middle one narrow oval, lateral ones filiform incurved sepals and petals about the same length connivent, spur pendulous filiform shorter than the ovary *Lindl I c pg 320*

This is frequent on picture ground on the Neilgherrie, but is far from being a conspicuous plant, its pale yellowish green flowers resembling the herbage among which it grows The fleshy processes in front of the column are particularly large and conspicuous in this species

924 *Habenaria* RARIFLORA. (A. Richard) leaves oblong lanceolate acute plicate, occupying the lower part of the stem stem slender 1 2 flowered few along peduncled bracteas convolute oval acute, usually shorter than the peduncle petals oval oblong acuminate, with a longer, linear appendage, lip three parted, lateral segments the longest, linear subulate somewhat spreading, spur longer than the ovary, processes, of the stigma, long obtuse. *A. Richard Annul des Sciences 15, p 70.*

This species I have only once met with on the Neilgherries, whence Richard received his specimen, on Chitt at Kaitty "Waterfall" My figure is from a specimen found on the Pulney mountains where it abounds This is the only described Indian species, referable to Lindley's "Erostrate" division, having the upper sepal largest, and the anterior segment of the petals longer and narrower than the posterior

925 *Habenaria* LONGICALCITA (A. Richard) radical leaves numerous, oblong elliptic acute upper leafless part of the stem clothed with the sheaths of numerous depauperated leaves, flowers 1 or 2 large, long peduncled, bracteas convolute, oval acuminate, length of the peduncle sepals diverging, petals erect lanceolate, lip trifid, middle segment lanceolate narrow, lateral lobes broad truncate crenate spur very long, two or three times the length of the ovary and peduncle *Richard, I c.*

This drawing was made on the Pulney mountains at the same time with the preceding I here I found the plant very abundant, on the Neilgherries it is comparatively rare

926 *Habenaria* CRISTATA (Lindley) radical leaves oblong lanceolate, spike many flowered bracteas acuminate, about one-third the length of the ovary lip 4 times longer than the sepals, unguiculate at the base, limb 4 parted lobes much acuminate upper sepal and petals galeate, spur curved, compressed, clavate, longer than the lip *Lindl I c p. 323*

I am uncertain about the exact station whence this specimen was obtained Lindley's specimens are from Ceylon.

927 *Habenaria* MONTANA (A. Richard) stem erect scaly at the base leaves sheathing oblong lanceolate acute, subplicate, 4 or 5 perfect, approximate, the rest passing into long lanceolate very acute sheathing scales. raceme few (4 5) flowered bracteas oblong linear, very acute, shorter than the very long ovary sepals glabrous, lip three cleft, middle lobe lanceolate acute, lateral ones broader, truncated, irregularly cut on the margins, stigmatic processes obtuse short spur longer than the ovary *Richard I c pg 73*

Pulney mountains This species I have not yet met with on the Neilgherries whence M. Richard had his specimens, but think there can be no doubt of the identity of the two plants 1st July—While this sheet, was passing through the Press, I found it at Kaitty waterfall, but only coming into flower.

928 *Ate* VIRBENS (Lindley I. c. pg. 326)

This is the only species of the genus and was separated from *Habenaria* principally on account of the curious tooth rising from the orifice of the spur, (figures 2 & 4) combined with the unusually developed sterile stamens (see figures 2 & 4) and some difference of habit I have only met with it on the Pulney mountains, where I found it in considerable abundance flowering during the rainy and cool season, and on the Sheramullies near Dindigul growing among long grass

929. SATYBIUM NEPALIMSS. (Don.) radical leaves oblong lanceolate acute, sheaths inflated, acuminate, distant : spike lux many flowered bracteas ovate acuminate reflexed, length of the flowers : lateral sepals oblong, middle one and the petals linear glabrous ; lip helmet form, crested above, spurs filiform longer than the ovaries. *Lindley, I. c. page 340.*

A widely distributed plant extending from Nepal to Ceylon, very abundant on the Neilgherries and Pulney mountains in pastures.

930. DISPERIS TRIPETALIODBA. (Lindley) stem erect, three or four flowered: leaves cordate oblong acute : sepals glabrous lateral ones pendulous, sessile, united at the base, foveate above the base ; lip filiform pubescent, roundish dilated at the apex, with a minute concave appendix at the base. *Lindley, I. c. p. 371.*

I am indebted to Mrs. Colonel Walker for this most correct representation of this very curious plant specimens of which were found near Raubodde. The flowers are pink with a yellow lip.

1 flowering plant—2 detached flower the upper hood-like portion consisting of the posterior sepal and lateral petals the two lower ones the lateral sepals with the pit at the base—3 lip incumbent on the column—4 the same with the perianth partially drawn from its sheath or anther case—5 pollinia quite detached—6 column and anther showing its long spirally convolute caudicle—8 lip detached, back and front views—10 ovary seen from behind Bracts removed.

VANILLA AFHYLLA f (Blume, Lind.) leafless, peduncles 5 (or many) flowered: limb of the lip undulated obtuse bearded in the middle : anthers two lobed, fruit cylindrical (insipid ?) *Lind. l.c. p. 436.*

Travancore near Trevandrum, climbing among bushes. Dr. Lindley refers to this plant in his remarks under *V. aphylla* but seems doubtful of their being identical a point which my imperfect specimen did not enable him to clear up. At first he seemed to have considered it distinct as he has marked a specimen in my Herbarium *V. Wightii*, but on re-consideration changed his mind and published the species under the name here adopted. The numerous flowers and acute not obtuse limb of the lip seem to indicate that his first opinion was correct, but that point I leave for himself to decide*

VANILLA WALHBHB (R. W.) leafless peduncles many flowered : " lip and petals much waved delicately transparent" and like the sepals marked with a deep green costa; lip slightly bearded; anthers 2 lobed; fruit cylindrical.

Ceylon,—For this very characteristic drawing I am indebted to Mrs. Colonel Walker. It is accompanied by the following note written on the margin. " The leafless Vanilla alluded to by Colonel Walker, (in a letter to me). The original drawing was sent three years ago (1834 ?) to Dr. Graham, by whom it was sent to Dr. Lindley who pronounced it a new species of Vanilla. I am anxious to get the flower again to make a better drawing, as I think I have improved a little since this was drawn, and also understand the structure of Orchideae better than I, then did,

" Flower inside pure white : Labellum and petals much waved and delicately transparent, sepals striated, outside tinged with fawn colour, a streak of deep green in the centre, which the petals also have, though neither so broad nor so strongly coloured."

This species seems very nearly allied to the preceding but differs in the petals being much more waved ; the lip being less distinctly three lobed and sparingly bearded toward the base. Should they, on better acquaintance, prove the same species I trust this name will be retained in preference to Dr. Lindley's *MS. name*, the compliment being so highly merited by that most accomplished lady, by whose admirable pencil the Flora and more especially the Orchideae of Ceylon has been largely and most exquisitely illustrated.

Judging merely from the brief character given, I can scarcely hesitate in considering both distinct from Blume's plant. I fear, however, that Botanists, more intimately acquainted with the order, might consider these two identical, this plate is given extra to the regular number. The figure is copied from a tracing not from the finished drawing.

1 flower seen from below—2 lip side view—3 front view, —4 column—5 anther case—6 anther case with its contained pollenia—7 front view, view of the column with the anther case raised to show the pollen—8 side view of the same—9 seed vessel.

EXPLANATION OF PLATES.

VOL. III —PART III

931 *VANILTA AFHYLLA* (Blum**, Lind) leafless, peduncles 3 (or many) flowered J m» of the lip undulmed obtube bearded in the middle an I herb two-lobed, fruit cylindrical (insipid ?) *Lind lev* 436

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913 34 *CLEMATIS GOURIANA* (Roxb) climbing • leaves pinnate or b»pu nate , leaflets ovate lanceolate acuminate, coidate at the base, 3 or obscurely 5 nerve I, entire or with a few coarse serratures young branches Hnjt-d, and peduncle*, and oblong acheuia pubescent sepals re volute. *W and A.Prodp* 2.

This beautiful species flowers during the cool season At this time, January, it is in full bloom m the jungles belt w Cuonoor, where it may be seen climbing to the tops of the highest trees completely covering them with such a profusion of white flowers BB almost to conceal the tree that BUI ports them In Mysore it is of frequent occurrence in the dense t) ickets surrounding most of the hamlets of that province.

935 *CLEMATIS WIOHTIANA* (Wall) climb ng leaves pinnate , leaflets not wrinkled, very villons aud soft on both Rides, coarsely serrated, cordate at the base, pal mutely 3 lobed, the middle lobe the 'ongest or divided ngain in 3 ovate lanceolate segments young branches peduncles, and flat, achenia, i ube-scent, sepals ovate, outside very pubescent inside glabrous filaments uairy — *W and A Prodp* p 2*

7 his species is less frequent than the preceding, but is abundant among the brushwood of clumps of jungle about Ootacamund also on the road side above Kaity and on that leading from South Uwn round the foot of Elk Hill In the latter station I met with it in the gieatest perfection It is readily distinguished by its soft almost woolly pale green leaves

936 *ANBMOKE WIOHTIANA* (Wall) clothed with silky hairs leaveB on leiy long petioles, tripartite, divisions verv deeply 3 cleft, segments cuneate deeply 3 lobed , lobes cuneate, irregularly inciso serrated involucral leaves subs^ssile, deeply J cleft divisions 3 cleft, segments linear-oblong, cut and serrated sepals 6 8, elliptic oblong" acheuia glabrous style hookei, persistent —*W and A Prodp* p 3

Frequent 10 pastures about Ootacamund, but also generally distributed over the hills Flowering in May and June Flowers white within purple exteriorly During these months it is certainly one of the greatest ornaments of the hills I have not heard of its being applied to any useful purpose, though it may nolba destitute of useful qualities as some of them are known to possess these.

937 *RANUNCULUS WALLICHUMTI* (W and A) perennial stem glabrous, diffuse, prostrate, with a tendency to root at the joints, and bearing there several leaves leaves and petioles hairy , radical leaves trifoliate, leaflets petiole I, 3 cleft, segments somewhat ovate lobed and i«ciaio serrated peduncles hairy, scarcely longer than the petioles petals (yellow) about as long astbecal)X heads of fruit globose achenia roundish, compressed leuticular, minutely dotted tuberculated st)le broad, hooked at the apex — *W and A Prodp* p 4

J his species is generally met with in moist woods, is of a procumbent habit, with small flowersflowering in May and June after the rams of the South west monsoon have commenced. It is however found at other seasons, especially during rainy weather. Another species is foud at the same season and so much resembling this one, that, to the unpractised eye, it is not distinguishable, but is at once ki own by the seed, which, in this, is furnished with numerous httletubeicles, m that, is quite smooth aad without asperities *t any kind.

938 M NiliarICA (Zonker) Leaves elliptic oblong tapering to a point at both ends, glabrous, stipules and spathe silky petals about 9, in three rows stamens numerous, shorter than the column of fructification ovaries numerous, about 4 ovules in each carpels warty, one or two seeded

A large tree found frequent in the clumps of Jungle about Ootacaniund There are several very fine ones in the thicket immediately adjoining the Church the branches of one or two of them overhanging the road

939 CLYPBA HB&NANDIFOLIA (W & A)—Leaves ovate rounded or scarcely truncate at the base, mucronulate, upper side glabrous, under slightly hairy panicles about equal to the petioles, umbelliform, rays umbelliferous, pedicels very short polleniferous ring 6 celled —W & A Prod p 14

Frequent twining among underwood, in the clumps of jungle about Oitacduin 1, particularly in low moist situations—It is equally frequent in similar situations on the Pulney mountain-, but also occurs on the phuus ID moist shady jungles

910 BPRBEBH (MAHONIA) LE4CHERIULTII (Wall) —Leaves pinnate, leaflets about six pair, ovate, nearly equal in size slightly cordate at the base, repand with 6-8 thorny teeth at each side, about 5-nerved at the base, lower part of leaflets close to the stem racemes elongated, slender, bracteoles at the base of the pedicel oblong obtuse petals with two distinct glands filaments without teeth berry globose, crowned with the evident style and stigma —W and A Palp 16

As this is a true congener of Nuttall's genus *Mahonia* I preserve that as a subgeneric or sectional name The plant is found in almost every clump of jungle about Ootacamund, flowering during the Southwest monsoon, but may generally be met with in flower at other seasons though more rarely, the fruit ripens during the dry season and when fully ripe acquires a bluish purple colour

941 CABDAMENeBoBBONiCA (Peanon) —Leaves trifoliate, leaflets hairy on both sides, particularly on the nerves beneath, petioled, ovate acuminate, unequal at the base, irregularly and sharply toothed, terminal one sometimes 3 lobed or divided into 3 leaflets similar to the others siliqua erect —W & A Prod p 20

942 HTDNOCARPUS ALPINUS (R W)—Sepals all equal reflexed petals ovate lanceolate glabrous scales lanceolate, as long as the petals, ciliated towards the apex male, stamens 5, filaments much shorter than the petals, glabrous, anthers obtuse pistil none female, calyx, corolla, and stamens, as in the male, but the anthers without pollen style none, stigma peltate 5 parted, the divisions obcordate spreading crown of the ovary

A large ramous tree, 70 to 100 feet high, not unfrequent in deep moist vallies of the Neilgherry hills, about Coonoor and Kotergherry, usually growing on the banks of streams Flowering in July and August. Leaves alternate, ovate acuminate, entire, glabrous, from four to six inches long and from 1 to 2 inches broad, at first red, afterwards deep green fruit globose, about the size of an apple, clothed with short brown tomentum seeds enclosed in a white fleshy pulp testa dark coloured bard embryo enclosed in albumen cotyledons, foliaceous coxiform, radicle elongate pointing to the hilum.

H NBBaiANB (Van') Sepals unequal, the three inner ones longer petals broad ovate, fringed with soft white hairs scales broad ovate, about half the length of the petals, densely hairy stamens as long as the petals filaments subulate, anthers broad reniform pistil none female as in the male, anther* without pollen—W & A Prod p 30 *WigMuUtt I tab 16*

A tree of moderate size frequent near the coast in MaUbarand Ceylon, flowering at all seasons Leaves alternate, ovate, acuminate glabrous, crenulately serrated about 5 or 6 inches long and 1 to 2 inches broad racemes axillary, short, few flowered fruit globose many-seeded

943 VIOLA WIGHTUNA (Wall) stoloniferous, slightly hairy leaves cordate-ovate, crenated sepals lanceolate somewhat acute, spur short, very blunt torus flattish style attenuated downwards, stigma rostrate convex but not beaked neither margined nor papillose fruit globose —W & A Prod p 32

A humble plant common on the Neilghernes, flowering at all seasons In general appearance as well as in Botanical characters very nearly allied to *V. odorata* but at once, in the growing plant, distinguished by its being destitute of its sweet scent

944 DBOERA BUBMANNI (Vahl) stemless leaves all radical, obovate cuneate sessile, veins reticulated scapes erect, and the calyx glabrous seed coat not aniliform —JV & A Prod p 34

A low growing stemless plant, inhabiting swampy ground On the hills it is usually to be met with in flower at all seasons but in greatest perfection during the summer months The clump of plants represented were selected to show the manner of its growth, but unfortunately were unavoidably not taken at the best season and do not therefore show it to the best advantage, though it conveys a good idea of its habit as seen growing

945 PABNASSIA WRIGHTUNA (Wall) leaves broadly cordate ovate or slightly reniform, sinus slightly rounded bractea like the leaves, embracing the scape petals obovate oblong, their lower half having the margin cut into numerous slender linear simple or forked segments resembling a fringe, unguis very short broad and cuneate sterile stamens about as long as the fertile, cleft upwards into 5 stout horn like segments that are glandular at the point—W & A Prod p 36

A low growing herbaceous plant abounding in almost every swamp which during the rainy season, they ornament with then numerous wither showy flowers in general appearance somewhat resembling *Bitter cups* but differing in having the flowers pure, white in place of yellow, the prevailing colour of *Ranunculus* In *Parnassia palustris* there are four stigmas and 4 lines of seed within the ovary in this there are only three, this, independent of other marks, affords a certain and easily observed distinction between these otherwise very nearly allied species.

946 POLTGALA ABIHATA (Ham) shrubby, branches pubescent leaves oblong, acuminate, on longish petioles, puberulous beneath racemes lax, many flowered, terminal or opposite to the leaves and about as long, drooping bracteoles caductus alas obovate, obtuse, tapering downwards, glabrous can* na enstate capsule reniform, retuse, coriaceous seeds globose, smaller than the large carunculus.—IV.#A. Prod p. 39.

A handsome rare leafy shrub, varying from 6 to 12 and even 15 feet high, found growing in shady woods usually near water. Flowers yellow racemose, rarely erect or scarcely drooping, seeds enclosed in a large scarlet carunculus, leaves deep green from 4 to 6 inches long, and about 2 broad acuminate, strongly nerved, glabrous or slightly puberulous beneath.

947. *STELLARIA MEDIA* (Smith) stems procumbent with an alternate line of hairs on one side lower leaves ovate, upper ones lanceolate petals deeply divided stamens 5-10 capsules deeply divided, scarcely longer than the calyx — *W & A Prod p 43*

This is a very common plant about villages and corn fields but I suspect has been introduced will European seed along with the following and with *Spergularia arvenata* which is now as common a weed in Ootacamund as in European corn fields.

948. *CEKASTIUM VULGATUM* (Linn) stems, leaves and calyx, covered with a roughish viscid pubescence stems flaccid, angled leaves ovate or oblong, lanceolate, with a short mucroniform attenuation flowers much shorter than the pedicels, in a small compact somewhat dichotomous panicle petals scarcely longer than the oblong acutish sepals capsules ovoid, scarcely so long as the calyx, teeth 10, rolled backwards, their margins flat — *W & A Prod p 43*.

Like the preceding as common a weed in the gardens of Ootacamund as in those of Europe.

949. *ARBENARIA NEILGHERBENSIS* (W & A) stems elongated, much branched, procumbent, with an alternate line of hairs on one side leaves distant, obovate, mucronulate, glabrous, with minute whitish points, 1 nerved, margins thickened, nerve like, ciliated towards the petiole flowers axillary, or in terminal and dichotomous panicles pedicels widely pubescent all round, longish, slender sepals oblong, acute, with 1 dorsal hairy nerve margin membranaceous petals longer than the calyx styles usually 2 (sometimes 2 or 4) capsules ovate, nearly the length of the calyx — *W & A Prod p 43*

950. *MALVA NEILGHERBENSIS* (R W) annual hairy shrubby, branches diffuse somewhat angular leaves long petioled suborbicular cordate, 5 lobed, lobes ovate obtuse doubly serrated flowers numerous, densely aggregated in the axils of the leaves involucre of three narrow linear lanceolate acute leaflets, shorter than the calyx calyx somewhat inflated 5-lobed, lobes ovate acute 3 nerved corolla rose coloured, nearly twice the length of the calyx, petals deeply emarginate, carpels about 10, corrugated on the angles, pubescent.

- Kottagherry, in cornfields and about villages, in the rich soil surrounding the latter very luxuriant flowering during the rainy season. The larger leaves are from four to six inches across, pubescent above, hairy beneath, supported on a hairy petiole from four to six inches long. Flowers very numerous, small in proportion to the size of the plant, forming dense clusters, or short racemes in the axils of the leaves. Involucral leaves slender, clothed with long hairs, acute, calyx considerably inflated, cleft about half way down, hairy, lobes ovate, obtuse, three nerved and viewed by transmitted light, finely reticulated between, after drying translucent and chartaceous capsule white, triangular, corrugated along the exterior angles, pubescent. These last points are not shown in the drawing, the figures having been taken from too young specimens.

This species, comes nearest to *M. verticillata* a Chinese plant, but, so far as can be made out from written characters, stems amply distinct.

951. *ABELMOSCHUS (HYMELOCALYX) AHGULOBUI* (Wall) stems herbaceous, not prickly leaves on long petioles, cordate, 6-lobed, unequally toothed; lobes ovate acuminate, upper aide pubescent with short softish hairs, under slightly tomentose pedicels rigidly and horizontally hairy, about as long as the petioles involucre 6-5 leaved, leaves cohering splitting spathe like calyx much shorter, and concealed within the involucre, membranaceous capsule ovoid, acute, very hispid — *W & A Prod p 53*

This is a considerable, erect growing, shrub, frequent in moist soil in clumps of jungle on the Neilgherries in favourable situations, as on the banks of streams, attaining the height of from 10 to 15 feet. It is to be met with in flower at all seasons, but perhaps in greatest perfection during the earlier months of the year, contrary to the general character of the genus the flowers are white or very pale yellowish.

I have altered that part of our specific character which refers to the involucre and calyx which, as given in the Prodromus, is incorrect.

952. *MONOCERA MUNBOTI* (R W) Ind Bot glabrous, leaves ovate lanceolate, acuminate slightly serrulate on the margin, without glands on the tender surface racemes about the length of the leaves many flowered, flowers drooping sepals lanceolate acute petals not involute on the margins anthers glabrous, apex, at length reflexed ovary elevated on the torus very bairy fruit about the size of an olive. - R W

On the slopes of the large ravine below Coonoor flowering in November and December, covered with fruit in February, apparently nearly full grown. A large and handsome tree, which I should estimate at not less than from 60 to 80 feet in height, with a fine umbrageous head, every branch of which, when I gathered the specimen here represented, was covered, like it, with pure white flowers, forming a rich contrast to the deep green foliage. Captain Munro first found it in Coorg and sent me the specimens from which the above character was taken. It is certainly very closely allied to *M. glandulifera*, but differs in technical characters, and as I have never seen that tree in such a state as to admit of their accurate comparison, I am still uncertain whether or not they ought to be united.

953. *GOBIPHANDRA POLYTRICHA* (R W) dist? - glaucous glabrous, leaves petioled, membranaceous glaucous beneath, from oblong to obovate lanceolate acuminate cymes axillary, solitary or in pairs, about the length of the petiole, male, many flowered, female 2 or 3 flowered calyx entire, minutely 4 or 5-toothed petals 4 or 5 united below, glabrous stamens projecting fruit oblong, crowned with the persistent style.

This large shrub is found in the dense clumps of jungle about Coonoor, the Avalanche and elsewhere, flowering in March and April and, usually, the female at the same time bearing ripe seed, showing that it is in flower most part of the year. The plant here figured approaches most nearly to my variety *O. angustifolia* III Ind Bot p. 103, but does not seem quite identical. I cannot, however, find characters to distinguish it as a species. It seems rather to be an intermediate form between that variety and *O. conata*, differing from the latter in being pentandrous, not tetrandrous, but in other respects, agreeing, upon the whole, better with *conata* than *polymorpha*.

955 STEMONUBUS FATIDUS (R W) leaves elliptic oblong acuminate venous, pubescent beneath flowers terminal, small, cymose panicled, every where clothed with short hairs stamens glabrous style about the length of the ovary drupe succulent olive* shaped, purple when ripe, nut thin

Neilgherries in woods, and thickets flowering during the rainy season, but may generally be met with in both flower and fruit

This, when growing in favourable situations, becomes a large umbrageous tree, the leaves are of a deep green colour, and when young marked with prominent veins to an extent far beyond what the draftsman has here represented. From what cause, I am unable to state, the flowers are often all males, for a longtime I had specimens of this tree in my herbarium before I got them in sufficient perfection to enable me to make out its genus. The leaves vary greatly in size, I have seen them upwards of seven inches long and three broad, but the usual size is from 4 to 6 by about 2 broad. The flowers are very numerous small, yellow, clothed with short hairs both outside and in, a bad during the heat of the day exhaling the most dominant smell of carrion. The fruit is about the size and shape of an olive, pulpy when ripe, and the stone so firm and soft that it can be easily cut with a knife.

BURSINOPETALUM (B W)

Flowers bisexual superior. Calyx 4-toothed. Petals five, furnished at the apex with an inflexed bidentate process, aestivation valvate. Stamens 5, anthers 2 celled introrse. Ovary adherent, one-celled, with a single ovule pendulous from near the apex. Drupe ovoid umbilicate, one celled, one seeded, endocarp deeply inflexed so as to divide the cell into two compartments. Embryo small, eccentric, immersed in the apex of the fleshy albumen, radical very long superior.

A large umbrageous tree with very dark green, almost purplish foliage. Leaves alternate, long petioled, oblong elliptical, acuminate at both ends, from two to three inches long by about one and a half broad, glabrous coriaceous. Flower terminal cymosely panicled, small in proportion to the tree, calyx conical, adhering to the ovary, limb short, cup shaped. 5 toothed petals five, ovate pointed, very coriaceous (whence the name, leathery petal*) each furnished within at the point with a little bidentate hook. Stamens five alternate with the petals, filaments short compressed, anthers linear, cordate ovate, obtuse two celled introrse attached near the base. Ovary enclosed within the tube of the calyx and adherent, covered by a thick fleshy disk. Style short stigma obtuse. Fruit drupaceous about the size of a small plum, ovoid, the apex marked by a broad scar where the flower had separated. Putamen hard, deeply inflexed on one side. Embryo small, eccentric, immersed near the apex of a copious fleshy albumen, the radicle, very long, in proportion to the cotyledons, pointing towards the hilum or apex of the seed.

This genus differs from all the rest of the order in its peculiar seed, and from each by many characters. It will form with Alph. De Gendolle's genus *Hypoea* a new section of the order distinguished by their inferior ovary.

956 BURSINOPETALUM AHB0BIUM (R W)

On the slopes of the hills at Sispara in dense forests flowering in April and May, at the same time bearing ripe fruit. In February, when coming into leaf and several weeks before the expansion of the flowers, the foliage is of a lively green colour, afterwards it deepens to a violet as almost to acquire a purplish tint.

957 CITRUS VULGATIS (Risso) leaves elliptical acute or acuminate, slightly toothed petiole more or less winged, flowers white fruit orange coloured, roundish or slightly elongated or lepro*ed and with concave vesicles of oil, pulp and or bitter.

Neilgherries, on the slopes below Kottergherry and Coonoor, in the opinion of the Collector quite wild but possibly raised from seed accidentally dropped by travellers.

I am doubtful whether this is the true *C. vulpart*, some points of the character are at variance with the figure, but none of much importance and without better specimens, for comparison, of the true *C. tulgarm* than I possess, I could not venture to found a distinct species on these differences.

958 CITRUS LIMBATA (Risso) leaves oval or oblong often toothed petiole more or less winged or margined flowers small, white fruit pale yellow ovoid or roundish, terminated by a knob rind with concave vesicles of oil pulp watery acid or sweetish occasionally slightly bitter.

Orange valley, near Kottergherry, flowering August and September certainly wild. A very ramous erect, thorny, bush covered during the flowering season with a profusion of beautiful fragrant white flowers, a very ornamental shrub, well deserving a place in the shrubbery, where, judging from what I saw at Kottergherry, it grows freely.

959 HYPSELEUCUM HOOKERIANUM (W & A) glabrous, shrubby, diffuse stem terete, young branches compressed leaves opposite, somewhat distant, oblong, obtuse with a mucro, contracted at the base with a kind of very short petiole, lateral nerves arching, and anastomosing, pellucid dots round and oblong, black dots none. Flowers (large) clustered at the ends of the branches sepals roundish obovate, obtuse, entire, without black dots. Petals not dotted. Stamens very numerous styles 5, distinct, overtopping the stamens shorter than the ovary. Anther 5 celled — *W and A Prod* 99.

Neilgherries in swampy ground, flowering in Feb. and March, a shrub with long slender branches, distichous ovate obtuse leaves, perforated with numerous pellucid points, the branches terminated by clusters of large yellow flowers, which, when they first open are nearly obscured from the overlapping of the edges of the petals. It is at once distinguished from *R. Mysorensis* by the form and direction of the leaves which are distichous in this, and decussate, or crossing and spreading in four directions, in that.

960 1 GARCINIA PAPILLA (R W) dioecious leaves short petioled, obovate, obtuse flowers axillary, nearly sessile, segregated in the stemiferous, solitary or three together in the fructiferous plant. Ovary numerous, filaments united, forming a thick short androphore. A sterile style. Anthers 2 celled dehiscing longitudinally. Ovary globose 8-celled style a thick short fleshy body, crowned with 8 spreading star-like persistent stigmas, enlarging with the fruit. Fruit ovate, oblong furrowed, 8 or, by abortion 4 or 6 celled crowned with the greatly enlarged style seed somewhat triangular, covered with a thin coloured membranous testa.

A diffuse tree, growing on banks of streams near Coonoor also in similar situations at Sisparah. Flowering during the rainy months. This species in general appearance is allied to both *O. Roxburghii* and *Q. Cambogi* (die & *kydia* W and A Prod not Roxb) but differs from both in the style, the form and the peculiar nipple like prolongation of the fruit, whence the Indian name last structure seems confined to this plant and to Roxburgh's *G. Kytana*, a very distinct species, where it exists in a less degree.

961 *MB8UA BPECIOBA* (CHOISY) leaves long linear-lanceolate subacute flowers shortly peduncled petals exserted roundish, regular, mature fruit, four-seeded. *Choisy, m D C prod*

This very handsome tree I found on the Eastern slopes of the Neilgherries, 3 miles below Coonoor, probably at an elevation of about 5,000 feet above the sea.

It is not easy to distinguish the species of this genus. I formerly published a figure of the Ceylon plant under the name of *M. ferrea* and up to the present time thought this distinct. A closer examination however leads me to doubt whether the continental one is different from the insular tree, the more so as the original *M. ferrea* is an Eastern tree, while the *M. Bepaosa* is from Western India. The distinctions between the two as given by Choisy are that in *M. ferrea*, the petals have a claw or 'unguis' which it wanting in this, and that the fruit in that is one seeded, while in this four is the usual number.

962 *SALACIA MACROSPERMA* (R. W.) a diffuse, rambling shrub, leaves oblong elliptic acuminate, concave, glabrous flowers numerous, fasciated, short pedicelled calyx 5 lobed fringed with rusty coloured hairs petals ovate, obtuse broad at the base ovary 3 celled with 2 superposed ovules in each fruit irregularly ovate, few seeded seed ovoid confluent without a conspicuous radicle.

Jungles about Sissaiah flowering, and at the same bearing full grown fruit in April.

This species seems nearly allied to my *S. verrucosa* but want the warty stems, and has a ciliated, in place of glabrous, calyx. The plants besides, when compared, seem quite distinct, though the differences are not easily stated in words. The structure of the anther and ovary amply distinguish it from my *S. multiflora*, in this the anthers open longitudinally, in this transversely here the ovules are two superposed in each cell, there they are numerous, forming two rows.

963 *HIPPOCIUTEA OBTUSIFOLIA* (Roxb.) glabrous leaves elliptical, obtuse or acute at the base, obtuse or shortly and obtusely acuminate at the apex, slightly serrated or almost quite entire, very coriaceous panicles axillary and terminal, thyrsoid, longer than the leaves, terminal ones sometimes much elongated and compound from the abortion of the upper leaves flowers pretty large petals lanceolate, much longer than the calyx ovules 6 in each cell carpels obovate, emarginate, striated—*W and A Prod p 104*

The specimens from which the accompanying figure was taken were gathered on the eastern slopes of the Neilgherries by the road side from Kottergherry to Matikulm in the beginning of March, but no fruit.

964 *Sen MI DKLIA BRBKOB* (R. W. S. *Cobbe* partly W & A) a diffuse shrub all the younger parts densely villous or tomentose leaves elliptic, oblong, acute or acuminate, serrated, pubescent above, at the short-

ly tomentose, afterwards villous beneath racemes axillary, solitary or sometimes paired, often longer than the leaves, branched, rachis hairy calyx glabrous 4 sepaled, sepals unequal, lateral pair orbicular petals 4 spatulate hairy with 4 fleshy glands at the base ovary hairy, minute style compressed ending in two spreading stigmas, berry two or, by abortion, one-lobed, lobes obovate obtuse, glabrous cotyledons fleshy foliaceous folded.

Growing in thickets in Malabar and eastern slopes of the Neilgherries also on the hills near Coimbatore. The ripe fruit I have not yet found, but presume that it is like the rest, a red succulent berry. This is distinguished from all other species I have seen by the resinous and under surface of the leaves being tomentose and by the many branched racemes.

964 2 *SCHMIDHIA COBBE* (D. C.) leaves trifoliate, leaflets stalked, ovate or oblong, acute, serrated, younger ones more or less pubescent above, villous beneath, older ones more glabrous, but always more or less pubescent raceme axillary, solitary simple, or sometimes bifid, rachis pubescent petals cuneate, emarginate, with a scale bearing a tuft of hairs above the slightly hairy claw, limb glabrous stamens glabrous ovary hairy, 2 lobed style as long as the ovary, glabrous fruit baccate—*W and A Prod p 109*

I have a figure of what I esteem the true *S. cobbe* is introduced to show by comparison how perfectly distinct this species is from the preceding with which it has long been confounded. The specimens from which this is taken, were gathered in Malabar and similar ones in Courtallum.

964 3 *MILLINOTIA TUNQERS* (Wall) leaves simple, coriaceous, lanceolate, acute at the base, quite entire glabrous on both sides, nerves beneath with a rusty pubescence panicle rigid, densely covered with a rusty pubescence, radiis terete, flowers on the ultimate branchlets of the panicle aggregated calyx with 3 bracteoles, sepals unequal, glandularly ciliated outer petals roundish, concave; inner ones erect beyond the middle, equal to the filaments—*W and A Prod p 115*

A large tree very abundant in the woods about Ootacamund—flowering during the warm season—Leaves thick and leathery, Panicles large, terminal, flowers white, the branches of the panicle and the calyx clothed with short, matted rusty coloured hair. Fruit about the size of a pea, dark brown, nearly black, when ripe.

965 *VITIS (AMPELOPSTIS) NBIQHSBENSTIS* (R. W.) leaves coriaceous, palmately trifoliate, slightly macronately dentate, middle one, broad oval acuminate, lateral ones unequal sided, like the centre one ending in a slender straight acuminate cymes terminal peduncles, longer than the leaves flowers pentadactylous petals distinct.

This species I found at Kottergherry and Nedda-wuttum but at neither place have been so fortunate as to find it in fruit. The under surface of the leaves are sometimes coloured of a deep crimson those from which the drawing was made were pale whitish beneath.

Dr Royle has described a nearly allied species from the Himalayas but which differs in the form of the leaflets, as well as their being deeply serrated, and in having small, short peduncled, cymes. The venation of the leaves also differs considerably and shows at once they are distinct species. These distinctions are drawn from comparison of specimens.

966 IMPATIENR FRCTICOSA (D.C.) erect, branched : Btenu glabrous, jjaucioib : leaveu alternate, long petioled, upper side hairy, particularly on the veins; under tomentose petioles villous, glanduliferous : peduncles glabrous, shorter than the leaves, dimid into several long 1 (lowered pedicel) : flowers shorter than the spur laieifil sepals Urge, concave, roundish ofaie, acuminate : falHiuents united at the apex : •tigmas qombiua : capsule glabrous, tapering at both ends.— W. and A. Prod p. 137

'I his noble species I have otill found about Kottergheny and Uoonoor, it seems to be ID flower the greater part of the year. 'I he specimen fiured was gathered in August, and I afterwards found it in full flower in March. It is usually met with on the banks of Btreams, in clump* of jungle hud in such situations I have ieen ii upwards of 8 feel hi, <h, ueaily every branch as richly covered with flowers as the figure. This species is well adapted for bhuwiug the compound nature of the lateral petals.

967. IMPITIKNS SC A PI FLORA. (Heyne) glmbro is : root tuberous leaves ridw al, orbicular, deeply sinuate cordate, ill* lobes overlapping, coriaceous; under side pakr, maiked with numerous coloured nerves : ftcape beitriug a many-flowered raceme, bracttated : peducela alternate, solitary from eachbiacten, slender, in fruit becoming tie flexed : lateral sepals ovate, small: spui sometimes tumid and inflated, sometimes much flonga ed : petals 2 lobed, posterior lobe small, anterior elongated, projecting forward.— W. and A. Prod p. 137

Tliisvei} beautiful but unusual form of Balsam occurs in great profusion in dry pastures all over the upper range of Hills, but is moat plentiful about Dodabet, flowering from July till October or November, but is in greatest perfection in September when it is most conspicuous. In tins the lower half of the compound petals is lobed, affording a useful specific chaiacter.

968 IMPATIENS MODESTA (R. W.) leaves few, radical, broadly cordate-ovate, or sub-orbicular, hairy above, glabrous aud pnle binning glaucous beneath, siape erect racemose m iny flowered ; flowers small, rather long pedicelled, from the axil of a small tubulate bractea: upper sepal broad obovate or suborbicular, the later il ones narrow lanceolate or subulate incumbent on the upper; lower shorter than the petals with a shoit obtuse spur * petals declining, 3 lobed (lower petal tuo cleft upper entire) hairy near the attachment : capsule glabrous ovate. (R. W. Madras Journal)

Dump woods about P}carah, flowering July and August. Plant from 8 to f2 inches high, leaves from j£ to 2 inches broad flowers from JO to 20. Petals approximated aud, unnt closely examined, the whole flower iias much the appearance of an Oichidacious plant. This description is taken from plants growing in shady woodb on the top of the Hills at Shevagherry near Courtallum, but quite corresponds with the Neilgherry plant.

969. IMPATIENS BCFFSCEISS (Benth) stems erect, branched, jointed, glabrous: leuves shortly-petioled, from elliptic and bhghtly cordate to obovate, sharply serrated, upper side hispid with short callous hairs; under glabrous and whitibh, except the nerves v>hidi are hairy : pedicels solitary or in pairs, about the length of the leaves, villous posterior sepals much smaller than the petals, anterior saccate, without a spur anterior lobes of the petals oblong, protruded, much larger than the short roundish posterior ODC: capsule oval, glabrous.— W. and A. Prod.p. 130.

Frequent in swampy grounds And on the marshy Bides of »mall stream*, flowering during the rainy sea* son, but may be met with in fl wer the greater part of the >car near springs where the ground is always wet. This species afforue Hll example of the great inequality in the size of the twoh.lves of the compound pttals and of a Baccate not spured sepal.

970. IiiPATitN' incoNspicuA (Benth) branched, diffuse, glabrous: leaves opposite, nearl) i>essile, fion oval tolineur-laiueolate, slightl) cordate at the base, remi tely Hid blightly brintle-serrated; under bide pale, glaucous : pedicels solitary or se>ernl together, shorter than the leaves, | ubehcet : lateral srpHls nettrl) equal to the flow ere, Immr; lower one gibbous without a spur : capHiile oval, gl ibroufl, lew-seeded.— W. and A Prvd p \SVi

'Thisminutff and little known species I lia'e only found on Dodabet and < n die t< p < f tie hill immediately beyoud mid to the MUIII < f Elk Hill : in the lalrrr station among cuipgv exposed lock" It flowers in November, and, but lor us abundance where it does grow, would indeed be truly inconspicuous. This like the preceding, is distinguished by KB unequal, petals and saccate uot spurred sepals.

970. IMPATIBNB LtsCHENAUlti (Whll:) KlrTruticose erect, biHnched j branches ascending, almost gla< bious : leaie< eliernate, short petioled, ovi te laiueolate, acuminate, acute at the base, glabrous, with bristly incurved senature* : petioleB without gland>: peduelt solitary, shorter than the leaves : laieial sepals minute, caducous: F>UI slender, tapering, ntlier longer than the fli>>ers, curved upwards: capsules SDIHIL, droo|ing, glabrou*, ovate, poiuted, few-Beeded.— W and A. frod.p 136.

'I his is one of the mom common species on the Hillh, being found HI <ver> thicket and in flow*r at all SHHSons. It is quite a shrub in its habit and often attains a considerable size. lu shadv HOOUS and moist noil lha\etieenit fully 8 feet high. It is so nearly allied to/ latt/oilu as to le scarcely distinguishable by technical diameters, but, w hen seen growing side by side, they are reitdiU recognized The flowers of tins are pate rof colour or iteHly while ; those of/, latifolia pink and coibiderabl) larger.

971 PITTOBPOBDM TETHASPKHMUM (W. & A.) [1871] eilip le-obloig, acu'e, ct naceo'is, glabn UP, margins slightl) waved und iecurved • flowers m a teimnal sessile umbel; peduncles aggregated, u uall^], mr-ly 2 flowered, pubescent : sepals piibi^ceui, lanceolaie, acuminaiied, minute, man) times shtirter tlan the corolla: pttuls linear: ovaly haii) : si^|e glahious: stigmas 2 lobed . otule* 2 m each cell: capsule nearly globose, scarcely compressed, 4 seeded; valves thick coriaceous— W. and A Prod p. 154.

Ootatamund in clumps of jungle : H large shrub flowering in February and March. 'J 1^ figuie differs ID two points from the cliHracter »Inch WHS tnkeu from dry tpecimenH. 'I he stigma is 4, not 2-lob>ed, and the cap^ulrs arc somewliat composed The lobeB of the stigma a.e at best so minute that a mistake might eamly have happened, and the capsuhs aivat first perfectly globose but becoii e flitteued v. hen quite mature. 'I he dark streak on the li npitudmal stcuoa of the seed does not represent the euhrjo which the draftsman has failed to detect, being un minute and Bituted Ht the ba<e of the i-eed / Neilgherrente is also found in the jungles about Ootacannii.d and P>carrati ; a third undestribed Fpencs m foui d at blypallqi wbuu die in flo>ier at the eaiie time

972. *TDBPFNU NEPALRNSIS* (Wall.): leaflets 3-5, oblong lanceolate, acuminate, coriaceous: branches of the panicle opposite: styles almost quite distinct: ovules 3, or occasionally 2, in each cell: berry (immature) scarcely fleshy, marked on (lie outside above the middle with 3 small distant points (the remains of the styles), about 3 seeded: seeds pendulous: radicle superior.— *W and A. Prod.* p. 166.

A very common tree on the Hills, and to be found more or less perfectly in flower at all seasons, but in greatest perfection in May and June. It seldom attains a considerable height; but its branches when it has room to spread, extend on all sides forming a fine head.

973. *EUONYMUS CBENULATUS* (WHITT.) leaves elliptical, obtuse, short petioled, crenulate-serrate towards the apex, coriaceous, convex and bullate above: peduncles solitary, shorter than the leaves, once or twice dichotomous, few flowered: petals 5 (or occasionally 6) orbicular: stamens very short; anthers opening transversely: margin of the torus free: style very short: stigma blunt, somewhat umbilicated: capsules turbinate, 5 celled, lobed at the apex: seed solitary in each cell; hilum truncate, without an annulus.— *J. T. and A. Prod.* p. 161.

This plant often attains the size of a considerable tree; but more commonly it occurs as a large and often very handsome shrub, on account of its numerous ascending branches covered with abundance of bright shining foliage. The flowers, as seen on the growing plant, are but little conspicuous being small and hidden by the profusion of leaves. They are of a dull purple colour, and not generally so numerous as on the specimen selected for representation. In the above character of the species, the seed are such as to be without an annulus. This is not quite correct. The annulus is present but much smaller than usual in the genus. One of the ovules only in each cell usually matures, the remains of the other is shown in figures 8 and 9, sometimes, however, they both ripen.

The plant represented No. 214, under this name, I now find, it not actually, a distinct species, but at least a variety, departing in appearance, so widely from the true plant, that it becomes necessary to devote a plate to the illustration of the more usual and regular form. The above gives a very good idea of the plant, but differs from the character in having entire not crenulate leaves. This is a frequent variation occurring even in different leaves of the same specimen. My first thought on comparing the two drawings was to consider them distinct species and give the older figure a new name. On minutely comparing, however a number of specimens, I do not find the actual differences so great of the drawings would lead one to suppose, depending on the way they do, mainly, on the inflorescence; in the one the cymes are contracted, few flowered, in the other lax and many flowered.

Under the fruit of 214 I might be able to determine, beyond all doubt, whether I ought to consider them species or varieties, but not without; I therefore in the meantime feel that I must consider the plants represented in these two drawings as extreme forms of the same species. The leaves of 214, and being serrated, while those of 973 are quite entire: the more usual form is between the two. The greater size of the leaves of 214 is partly the fault of the artist. The great difference in the inflorescence is not however so easily accounted for, but still it is only, so far as yet, known a solitary character, for I do not know the tree, except from specimen. In my present state of ignorance therefore I call 973. *E. crenulatus* and 214 *E. crenulatus* var. *laxiflora*.

974. see below, 978 bis,

975. *MICROTROPIS MICROPHYLLA* (R. W.) an erect shrub: leaves opposite ovate, mucronate, entire, glabrous, shining above, glaucous beneath: petalobovate acuminate broad at the apex, cymes axillary, dichotomous shorter than the leaves, capsule sunken, slightly attenuated at the base, pointed: testa of the seed of a rusty brown colour.

Kottergherry, in dry jungle, flowering July and August, at the same time bearing clusters of ripe seed. The shrubs from which the specimens were taken were 8 or 10 feet high, branches, ascending, leaves ovate from 12 to 15 lines long, 4 to 6 broad. The flowers had not quite opened at that time and the open flower, figure 2 was opened artificially. No. 1 shows the unopened corolla after the removal of the calyx.

976. *MICROTROPIS OVALIFOLIA* (R. W.) a large somewhat diffusely ramous shrub. leaves oval, rounded at both ends: cyme axillary, trichotomous shorter than the leaves: petals orbicular, fruit oblong oval, obtuse: testa of the seed crimson.

Ootacamund, frequent in moist woods, flowering in February and March, but may generally be found in flower at other seasons.

In their outline the leaves are very constant, but are often much larger than those represented, being sometimes nearly 2 inches long by 1 broad. These two are very nearly allied species but, I think, quite distinct.

977. *MICROTROPIS RAMIFLORA* (R. W.) a moderate sized tree: leaves subsessile, slightly cordate at the base obovate obtuse or slightly emarginate, reflexed, very coriaceous: flower subsessile, aggregated in dense clusters along the naked branches: petals somewhat obovate: fruit oblong obtuse. testa of a reddish orange colour.

Ootacamund in thick jungles. This is the largest species I have yet met with, being quite arboreal. The leaves are from two to three inches long by about 1 broad, exceedingly hard and coriaceous. When in full flower, all the younger branches are as densely covered with flowers as in the specimen figured.

There are three or four other species found on the hills, two referable to the ramiflorous division, and another, or perhaps, two, to the cymose.

973. *RHAMNUS HIRSUTUS* (W. & A.) young branches pubescent, spinescent; older ones glabrous with a white cuticle: leaves opposite or alternate, ovate, or oblong lanceolate, with a short sudden acumination, serrated, membranaceous, nearly glabrous above beneath hairy, particularly on the nerves and veins; pedicels from the base of the young shoots, 3-6 together, pubescent, as long as the petiole: calyx 4-cleft: petals obovate, obtuse, entire, flit: ovary 2-3 celled: styles 2-3, connected to the middle, then diverging; the upper part jointed with and deciduous from the persistent lower half: fruit 2 celled: seeds plano convex, with a deep furrow at the base on the outer convex side.— *W. and A. Prod.* p. 165.

A considerable shrub rather extensively distributed on the Hills, but not so common on the higher ranges as lower down. The specimen delineated supplies a somewhat flattering likeness as it usually presents a rather scraggy appearance. It is to be met with in flower at almost all seasons, but is not so free as the other in bearing fruit.

978. (*bi*§) *GOUANIA LEPTOSTACHTA* (DC.) branches glabrous. leaves ovate, acuminate, slightly cordate at the base, coarsely creuate-serrated, glabrous: racemes interrupted, axillary or in terminal panicles, elongated, when young, pubescent, afterwards glabrous: flowers OQ very short pedicels, polygamous: disk glabrous*, stellate; accessory angles partly adnate to the calycine lobes, free and acuminate towards the two homed apex: fruit glabrous, shortly winged.—*W. and A. Prod.* p. 106

An extensively struggling climbing shrub, found in great abundance along the road between Burliar and Coouour, flowering towards the end of the year and maturing its fruit during the hot season. We formerly supposed this species confined to the Northern parts of the Peninsula, a point on which, it now appears we were mistaken.

975. *SOPHORA OLAUCA* (Lesch.) shrubby: leaflets 19-23, elliptical, mucronate, upper side glaucous and velvety, under villous: racemes terminal, crowded.—*W. and A. Prod.* p. 179.

Very abundant on the Neilghernes, in flower at all seasons. A handsome flowering shrub from 6 to 12 feet high, all the green parts except the upper surface of the leaves clothed with soft pubescence, flowers pale purple: seed oval, polished very hard.

980. *CROTAHRIA BABBITA* (Graham.) herbaceous, erect, densely clothed with dark brown hairs: stipules minute, inconspicuous: leaves oblong-lanceolate, bluntish; racemes terminal, elongated; flowers few, distant calyx a little shorter than the corolla, deeply S-cleft, very hairy; segments slightly unequal: legume glabrous, stalked, 2-3 times the length of the calyx, obovoid. Apex of the style and stigma woolly.—*W. and A. Prod.* p. 181.

Not unfrequent in woods about Ootacamund, in moist soil on the banks of streams. A large species conspicuous on account of the large size and bright yellow colour of its flowers. It is very readily distinguished by the universal hairiness of all the young parts. Among bushes where it obtains support, it often attains the height of 10 or 12 feet. The whole plant turns black in drying.

981. *CROTALARIA FORMOSA* (Graham) erect, branched, all over villous except the upper side of the leaves stems terete* stipules minute, setaceous, reflexed: leaves cuculate, obovate, obtuse, glabrous on the upper side, villous beneath: bracteoles lanceolate, acuminate, lower ones without flowers: flowers in a dense raceme at the extremities of the bracteated elongated branches: bracteoles setaceous, on the middle of the pedicels calyx villous; legume oblong, broader upwards, glabrous, about 4 times the length of the calyx, many-seeded.—*W. and A. Prod.* p. 186.

Frequent in pasture grounds on the hill sides, flowering in greatest perfection during the months of February and March. It is an erect shrubby species, rising in favourable situations to the height of between 4 and 6 feet, but is generally met with much lower. The leaves are a fine pea green colour above, clothed with white adpressed hairs beneath, flowers pale yellow streaked with brown.

982. *CROTALARIA WALLICHIANA* (W & A) herbaceous, erect, much branched, young branches irregularly and rather bluntly angled, with the racemes and under side of the leaves densely pubescent: stipules lunate, transverse, recurved leaves oval, glabrous above, haired beneath with rather prominent nerves: racemes terminal and leaf opposed, many-flowered: bracteoles subulate, reflexed, small: pedicels elongated, longer than the calyx: bracteoles very minute, setaceous, about the middle of the pedicel: calyx smaller than the corolla, densely pubescent;

legume clavate-oblong, stalked, softly pubescent, many-seeded.—*IT. and A. Prod.* p. 187.

Abundant in wood* and thickets about Ootacamund, preferring a rich moist soil, and in such situations sometime, with the support of bufihei, rising to the height of 9 or 10 feet. It is in flower at all seasons and is most conspicuous from the size and brilliancy of its flowers. A species it is perhaps too nearly allied to *C. semperflurens*.

983. *INDIGOFERA PKOICELLATA* (W. & A.) suffrutescent, procumbent; branches filiform, sprinkled with short adpressed brown hairs; older parts terete; young parts compressed, thickly covered with brown glands: leaves petioled, palmately trifoliate; leaflets cuculate-oblong; both sides with short whitish hairs mixed on the under side with glands: racemes almost sessile, somewhat corymbiform, about the length of the leaves: pedicels slender, drooping, 2-3, longer than the calyx: calyx deeply 7-cleft (segments linear and acute), and with the vexillum and keel hirsute and glanduliferous.—*W. and A. Prod.* p. 200

A low growing procumbent plant frequent in dry pastures, where it is rendered conspicuous by its bright crimson flowers, which rise above the herbage among which it grows and which conceals the rest of the plant.

984. *DUALDIA RUFESCENS* (DC.) shrubby: branches, racemes, bracteoles, pedicels, filipule, petioles, and nerves of the leaves beneath, densely clothed with yellowish-brown tomentum: leaves trifoliate; leaflets oval, obtuse with a long bristle; upper side glabrous, under densely clothed except the nerves with adpressed silky white hairs, especially when young: stipules caducous: racemes axillary and terminal, many flowered: bracteoles ovate, tapering to a long subulate point, before expansion densely imbricated, soon caducous: vexillum large, obcordate: ale as long as the broad keel: legume pubescent, about 7-jointed, straight on the one suture, notched into the middle on the other.—*IT. and A. Prod.* p. 228.

A low growing shrub, not unfrequent in moist ground among brushwood. On the road side below Coonoor on the Neilghernes, it occurs in considerable abundance, and from that station, the specimen from which the drawing was taken was obtained. It is in greatest perfection during the rainy season, but may generally be met with in flower in the neighbourhood of springs.

985. *DIPSACUS STENOBLATTARIA* (W. & A.) herbaceous, erect: branches hairy, somewhat 3-angled, angles obtuse: leaves 3-foliate, long petioled: leaflets pubescent on both sides, lateral ones obliquely ovate, terminal one rhomboid: stipules scariose, oblong lanceolate, concave, glabrous: raceme 4 hairy, axillary and terminal, panicled, at first oblong and imbricated with large oblong concave hairy bracteoles, afterwards becoming very long and lax, few-flowered: flowers 2-3 together, on long filiform pedicels: calyx campanulate, bilabiate; upper lip emarginate, under deeply cleft: vexillum obovate; ale shorter than the keel: stamens monadelphous from the base to the middle, diadelphous towards the apex: ovary 4-ovuled: legume 2-3 jointed (occasionally from abortion 1 jointed), much contracted on one suture between the joints, even on the other, hispidly pubescent; joints semi-oblong, nearly equal at both ends.—*W. and A. Prod.* p. 228.

A slender erect growing herbaceous plant, frequent in dark shady woods. It is at once distinguished from all the other peninsular species of the genus, by its deep orange coloured flowers, and the deep divisions of the legume between the seeds.

986 SMITHIA BLANDA (Wall) miffrohose diffuse, eery where except the upper surface of the leaven and corolla hairy leaves abruptly pinnate 3 paired leaflets linear, elliptic, obtuse, mucronate, glabrous above, hairy beneath racemes, axillary and ifr minal flowers congested toward* the al ex cahx 2-lipped, upper lip bifid under 3 cleft, without pellucid glands or dots R W MbS

Pycarah in wet swainpy ground rare Intheaccom panyng figures No 3 showing a magn fied view of the brails, calyx and stamens, is from a flower picked from the specimen represented No 6 showing the calyx and pod belongs to another species, and is introduced partly to show the form of the pod < f the genus partly to indicate a specific distinction, the one being perforated with transparent glands which are wanting in the other J h« glandular one is probably & racemoia but of this I am uncertain as I have not authentic specimens of either it, or of *S. blanda* for examination, and the character under consideration is not indicated in the published definition of either species

997 FLEMINGIA PROCTIMBBIIS (R W) herbaceous, diffuse, procumbent hairy leaves palraately trifoholite, middle leaflet obovate, lateral ones ovate, slightly unequal at the base, hairy above, nearly glabrous, except the veins, beneath peduncles longer than the leaves flowers capitate calyx deeply 5 cleft, divisions linear, lanceolate, acute, about the length of the corolla ovary two seeded stigma capitate hairy legume shorter than the calyx usually, b> abortion, one seeded seed oval

P>carah in pastures, frequent A very diffuse plant lyn g flat on the ground nd spreading all round, extending from 12 to 18 inches from the root leaves ab ut tin inch long and 8 lines broad, under mirface spn kled with minute garnet coloured glandular points, flowers dark dull purple

988 FBAGARTA BLATIOB (Ehrh) leaflets some what coriaceous hairs on the petioles, peduncles, pedicels and calyx widely spreading tnlx in fruit reflexed bracteoles similar to the calycine segments — *W and A Prod p 300*

A very romroon) lant about Ootacamund producing aoundance of fruit in Mny and June, but not limited to these months 1 he fruit is about the size of the wood strawberry of Europe, of a pale yellowish white, except the side exposed to the sun which is generally tinged with a pale rose blush It is rather insipid, but when seasoned with a little lime juice and sugar, is much relished by some persons

989 FHAG\RIAISDICA (Andrews) leaflets obovate, peduncles axillary, solitary, 1 flowered bracteoles patulous, cuneate, much larger and broader than the entire calycine segments, deeply 3 6 toothed at the apex — *W and A Prod p 300*

Frequent in shady woods where the soil is somewhat moist Unlike the rest of the genus the flowers are yellow 1 he fruit is a bright red, very tempting to the eye, but watery, mawkish and disagreeable to the taste

990 POIENTILLA LISCHENAUTIANA (Ser) covered all over with silky lot g hairs stems derumbent at the base radical and lower leaves pinnated, longish petioled, le flets 5 cuneate obovate, obtuse, incise toothed the lower pair smaller than the others upper stem leaves pal mate ly 3 5 foholate , leaflets about equal and similar to the larger leaflets of the radicle leaves stipules large, ovate lanceolate, lower onea often ei tire, np-er toothed or deeply cut flowers in terminal forked panicles, or corymbose calycioe segments aod bracteoles about equal,

oblong lanceolate, more or less obtuse petals (3 elow) slightly obcordate, about equal to the calyx • r ceptacle villous Ciirpels slightly wrmkled—•, stems si ort , panicles small, corrnjinlform — *W and A Prod p 301*

Every where common by rmd sides and ditches, sometimes erect, but oftener diffuse with the ends of the branches only ascei ding The fruit of this spenes approaches mor« nearly to that of the strawberry thtn is usual io the genus, but still it is a true Potentilla

991 PHOTTIA NOTONIANA. (Wall ?) leaves from cuneate lanceolate to oblong at ute, quite entire or with a few inconspicuous scattered teeth panicles large very compound m mi heat ions puberulus pedicels much shorter than the calx cells of the ovary spuriously semi hilocular fruit glabrous, 2-seeded — *W and A Prod p 302*

A considerable sized tree abun Inntly distributed over the Hil a, flowering during March and April, and is then a beautiful object lu June and July the fruit ripen and then are of a dull reddith brown colour They posseas in a remarkable degree the pecu inr taste aud flavour of th >e < f the mountain ash.

The figures 8, 9 10 and 11 of this plate, through a blunder of the draftsman, not detected until after the impression was printed off, are inverted The radicle should ill all have beeu lufenor not superior as here shewn

992 COTONBASTFB BUXIFOLIA (Wall List) shrubby erect very ramoui leaves oval or subobovatr, pointed, gl brous above, tomentose beneath, corymbs few flowered, peduncles and calyx tomentose

Frequent about Ootacnmund, Kulhulty, Orange Valley near Kotergherry &c

This is a small rigid, semgg) looking veiy ramoui shrub rarely attaining the height of bix feet De Cundolledmbtfull) refers this to Ins Cq^mwaHimalayan plant, with what jublice lam unable to say. Making use of his douhl and the wide geogriplucal d fference, I have adopte I Wallich's name A more minute description is given in the second part of my Neilgherry Plants A plant of what I suppose to be *C. affimt*, in Lord Elphinbtone's garden at Kaitee, differs to to iselo in habit the latter being very diffuse, spreading fldt 0ll the ground, while this is always crest

993 PYGEUM ACUMINATDV (Colrbrooke) arboreous leaves alternate, oblong acun mated, entire, glabrous racemes axillary shorter than the leaves flowers yellowish calyx lobe* and corolla indistinguishable, clothed with nmy coloured pubescence filaments attached to the edge ef the tube mflexed ill estivation ovary ventricoeae, stigma dilated, two lipped drupe dry friable transversely oblong, glabrous

A large tree of rather rare occurrence 1 he specimens from which the drawing was taken, were found on the Neilghemes at K itee Falls and in the woods about the Avalanche Mr Gardner and I found it ibundautly, in fruit, in February I do not recollect any other station in which I have observed it I HID uncertain about the species because it seems to me, had this been the species from which Colebrooke't description is taken he would havedesc thfd the flower as apetalous with a 12-lobed calyx limb In this respect, if the dissection of my figure of Polydontia Cejlamca, No 256 is correct, and I believe it is, thia can scarcely be coi sidered a true congener, as it is represented with distinct calyx and petals, but I have not now the specimens to re-examine Specimens of a Ceylon species which I have, correspoud with this

994 *CONICARFUS L. ATII FOLIA* (Roxb.) leaves without glands, elliptical or obovate, obtuse or emarginate, glabrous peduncles. Herms branched, bearing several heads of flowers, or very short with the heads densely accrescent 1 — u, peduncles coriaceous. *W and A Prod p Jib*

A large and tall some tree frequent on the Eastern slopes of the Neilgherries, also in most of the Nubalpine jungle, along the whole of that mountain range from the Northern Circars to the southern extremity of the Peninsula

995 *SONBRILA GBAWDI FLORA* (U. Br.) erect, glabrous leaves elliptic, attenuated at both ends, bristle-serrated, 3-nerved at the base peduncle terminal (always?), about the length of the leaves, flattened at the apex and there bearing a slightly curved raceme of several or lateral large flowers petals ovate, pointed style as long as the stamens. Bignoniac capsule glabrous, 3 sided, scarcely the length of the pedicel — *IP and A Prod p 322*

A beautiful plant, and as compared with the other species of the genus, well named. I have only met with it in one station on the Neilgherries in Long Valley about mid way between the Avalanche and Sisparuh. There it occurs in considerable abundance on the banks of a stream by which the valley is intersected. The flowers are of a deep pink, congregated on the ends of the branches. It is an erect suffrutescent plant, from 12 to 18 inches high, the leaves between 2 and 3 inches long and about 1 broad, three to five nerved, the outer pair of nerves often very slender, but in luxuriant plants, such as the one represented, distinctly 5 nerved.

995 2, *SONBRILA* species* (Zenker) stem erect, subdichotomous at the base, somewhat four-sided leaves petioled 5-nerved, broadly ovate, acute, raucronately serrated, glabrous petioles hairy near the apex peduncles terminal, dioecious, branches afterwards elongating flowers secund calyx and mid rib of the petals, below, covered with short rigid glanduliferous hairs petals ovate, obtuse, imbricate style and stamens about equal

Kitit Falls rare, on moist sides of ravines in the woods above the Avalanche Bungalow, very abundant, flowering in February. This when seen in perfection is a very handsome species. Flowers pink, rarely more than two or three open at once on each branch of the cyme

995 3 *SONBRILA BLFGANS* (Roxb.) herbaceous, erect, rare, leaves petioled, penninerved, from ovate cordate to cordate, acuminate, serrulate peduncles terminal, cymosely dichotomous, branches afterwards elongating flowers numerous, secund calyx pubescent petals ovate pointed anthers long beaked capsule hirsute, conical, 3 sided, crowned with the limb of the calyx beaked hairy

Sisparuh, very abundant all along the road side, in flower and ripe fruit in February. A most conspicuous species, at first a few pale pink flowers open, these are followed successively by others as the branches elongate until at length each branch is several inches long, covered along the upper edge with a row of appendages and two or three flowers at the extremities the branches in the mean time tending horizontally thickened and slightly approaching each other, present somewhat the form of the letter V as shown in the drawing.

996 *OSBEBERIA LECHBATTIANA* (DC.) shrub by the ranches 4 angled, beset with stiff hairs. Leaves sessile, somewhat acute, approximate, 6 nerved villous on both sides flowers bracteate, about 3 together, calyx tube globose, covered with imbricate short scales, segments 4, imbricate (DC.) petals obcordate, bluntly mucronate stamens 8, anthers clavate, truncated, enned. OVUM crowned with a tuft of bristles. (R. W. Ms*)

Frequent about Kotergherry, flowering during the autumn months. Flowers small, compared with those of most of the other species of the genus, and in proportion to the size of the plant, which often attains a height of between two and three feet. They are nearly white dashed with crimson spots. It associates with *O. trunata* in its beakless anthers and small flowers, but is in all other respects amply distinct. The flowers in DeCandolle's specimens seem to have been imperfect, as he has not alluded to the petals or stamens

997 *OSBEBERIA GARBNERIANA* (R. W.) a large erect ramous shrub, all the young parts clothed with long bristly hairs leaves sessile, ovate, 3 nerved, usually with two short slender lateral ones near the base, pubescently hairy on both sides flowers terminal capitate calyx tube shortly campanulate, closely covered with ligulate and towards the apex clavate adpressed scales, furnished with numerous long dark red or rusty coloured bristles, limb 5 parted, divisions linear, lanceolate, obtuse, more than twice the length of the appendages, both covered with bristles petals 5, orbicular stamens 10, anthers recurved, coriaceous on the inner edge, shortly beaked.

It is the largest and most conspicuous species found on the hills, is very abundant in the woods about Ootacamund extending westwards as far as Sisparuh. In favourable situations it becomes a large bush 8 or 10 feet high, though generally about 4 or 5, flowering in profusion during February and March. It is nearly allied to *O. Wightiana* but is abundantly distinct in nature, though, as regards technical characters, the difference is not so clearly seen. I have dedicated it to my friend George Gardner, Esq. Superintendent of the Royal Botanical Garden of Ceylon, as a memorial of many agreeable hours spent in his company while exploring together the wilds of these Hills

998 *OSBEBERIA WIGHTIANA* (Benth.) shrubby: branches herbaceous, scabrous with short bristles leaves nearly sessile, ovate, slightly acute, quite entire, 5-7 nerved; upper side covered with adpressed somewhat shining hairs, under hirsute on the nerves and shortly tomentose between them flowers (large) terminal, at first densely capitate and bracteate, afterwards often solitary calyx campanulate, densely covered with short adpressed capitate scales, bearing a tuft of long bristles at the apex, segments 6 deciduous, appendages deciduous, covered with bristles anthers 10, linear oblong, scarcely beaked: style clavate — *W and A Prod p 323*

This species is rare about Ootacamund but about Coonoor and Kintla Falls it is common. It is readily distinguished from the preceding by the short adpressed hairs with which the 5-nerved leaves are covered and by the calycine bristles being nearly white, while in it they are a deep brownish red

909. EUGENIA (S) ARNOTTIAWA. (R. W. III Ind Bot *Syzygium densiflorum* Wall.) leaves elliptic, oblong, acuminate, folded, coriaceous, dotted, cyme dense, corymbose, peduncles lateral, general and partial stout, the partial ones short and bearing at the apex an umbel of 8-12 almost sessile flowers subtended by oblong linear caducous bracteas, calyx shortly turbinate, limb cup-shaped, shortly and bluntly 4-toothed lobed petals expanded before falling off.—*W and A Prod* p. 329

Abundant in the jungles about Ootacamund and generally met with in the woods on the higher hills. It is a beautiful tree, generally of low growth, with wide spreading branches forming a dense umbrageous head. It is in its greatest perfection in February and March when covered with the mass of large clusters of flowers. In May and June it is covered with myriads of its oblong, dark purple bucculent austere-tasted fruit. The cotyledons are thick and fleshy, placed horizontally one above the other with a small radicle between.

The fruit is eaten to a considerable extent by the natives, though, owing to its astringency, by no means palatable.

1000. EUGENIA (S) CALOPHYLLIFOLIA (R. W.) arboreous, ramuli, 4-sided leaves imbricated towards the ends of the branches from oval, very obtuse, to obovate-orbicular, coriaceous, veinless above, pinnately-veined beneath, when dry, slightly revolute on the margin, not dotted, young terminal, corymbose, short peduncled, many flowered, repandly 4-toothed petals 4, orbicular, depurating as one fruit drupeoid, oval, oblong, succulent, dark purple when ripe.

A low spreading tree, very abundant in the woods about Ootacamund. The flowers are exceedingly numerous but make no show so few in each cluster opening at the same time. 11" tree itself however is a very beautiful one, with a fine round terminal head. It is to be met with in the forest all the year, but is in greatest perfection in March and April. The fruit is so like those of *E. Arnottiana* that the same description will serve for both.

1001. SBRPICUL/L HIRSUTA (W & A) stems hirsute leaves oblong-cuneate, bluntly or oval, to the apex slightly hairy particularly on the under side. Male flowers 8-10, on hairy pedicels twice the length of the leaves — a, leaves oval, slightly cuneate at the base. — *W. and A. Prod* p. 331.

A low creeping procumbent plant very common in moist pastures, especially in the vicinity of springs and water courses. 1 vertical flower — 2 fertile flower showing the 4 styles — 3 male flower unopened — 4 the same opened — 5 anthers — 6 pollen — 7 young fruit front view — 8 side view — 9 stigma — 10 ovary split open showing the 4 pendulous ovules — 11 full grown fruit — 12 cut vertically — 13 transversely — 14 embryo detached.

1002. HYDROCOTYLE CONFERTA (R. W.) prostrant, rooting everywhere clothed with long hairs, leaves long petioled, orbicular reniform, obscurely 7-lobed, serrately toothed flowers all fertile umbels globular, many flowered, always sessile fruit turged ecostate.

Frequent in dense woods where the soil is moist. It grows with great luxuriance extending several feet from the original root. This species is closely allied

to both *H. Nepalensis* and *capitata* but seems so far as I can judge, simply distinct from both in its constantly sessile umbels and bisexual flowers.

1003. HYDROCOTYLE POLYCHAETA (W & A) stems rooting, scabrous or nearly glabrous, branches petioles and peduncles, and the leaves sparingly on both sides, scabrous from short stout hairs leaves attached by the margin, orbicular-remiform, 7-lobed, lobes scarcely acute, coarsely crenate peduncles hoar, numerous (6-12) and umbellate in the axils of the uppermost shortly petioled leaf, almost as long as the leaf flowers all fertile, numerous (20-30 together), at first capitate and almost sessile, afterwards (in fruit) on short glabrous pedicels perianth pedicels fruit didymous slightly 2-ribbed on each side, smooth and flat between the ribs — *W and A Prod* p. 366.

Frequent in low woods in rich moist soil, in such situations very luxuriant, completely covering large patches of ground, I have found it in many distant stations in similar situations, both on the Continent and in Ceylon.

1004. SAMICULA ELATA (T. Sm.) stem dichotomous at the apex leaves 3-partite or lorate, glabrous, segments sessile, ovate, acute, lobed and serrated, cuneate at the base, the sterile leaves bipartite umbels usually 3-fid, few flowered flowers polygamous, the males pedicelled. — *W and A Prod* p. 347.

Common in almost every wood about Ootacamund, flowering during the rainy season. It often attains a large size, three or four feet in height.

1005. PIMPINELLA LANCEOLATA (DC.) bifurcated stem slightly branched, glabrous or minutely pubescent radical leaves petioled, orbicular, cordate, entire, toothed, firm and hard, many-nerved at the base, glabrous on the upper side, pubescent on the under, cauline ones few, divided, small and almost reduced to the sheaths umbels with 5-10 pubescent rays partial ones with many rays involucre and involucre wanting styles diverging fruit ovate-acuminate, glabrous — *W and A Prod* p. 349.

Generally distributed over the high range of the hills in dry pastures, flowering during the rainy season. From the naked stipulated situations in which it usually grows, though itself little striking, it becomes very conspicuous. The roots are perennial and strike deep into the soil.

1006. BUPLURUM DIMORPHYLLUM (W & A) perennial stems erect, simple and twiggy below, flexuose and almost simply branched upwards leaves distichous and usually crowded near the base of the stem, more distant upwards somewhat erect, from narrow linear and much acuminate to linear-umbellate, very sharp, amplexicaul, striated on the under side generally umbels with 5-8 rays, partial with 10-13 flowers leaflets of the involucre and umbellate about 5-6 linear acuminate and very sharp, the former about twice as sharp as the rays, the latter usually longer than the fruit fruit prominently ribbed, rather shorter than the pedicels, interstices saltish, with single vittae — *W and A Prod* p. 370.

Common on the higher ranges of the hills in pastures. The figure represents an average sized plant. It is often smaller, more rarely it exceeds that size. Flowering during the rainy and cool season.

1007. *BUPLIUBUM RAMOSSIMUM* (W & A) perennial, diffuse and much branched, leaves oblong linear, with a long mucro, narrowed towards the base, anaplexiciul, 5 9 nerved, between coriaceous and membrauceuH general umbels with 5-8 rays , parti 1 with 8 12 floweis leaflets of the involucre and mvoluced about 5, oblong linear, mucronate , the former 2-1 times shorter than the rays, the lattei rathei longer than the flowers, shorter than the fruit fruit About a half longer than the pedicels, strongly ribbed, in ters'ices with 1 2 villa? — *WSJA Prod* p. 370.

Common among bushes and thickets In such situations it is frequent on every road side, frequently attaining a large size. I have seen plants seven or eight feet or more in height It is well named ramosisium but that ofmucronatum seems equally appropriate, and after comparing manv specimens in all states and forms, I AID now satisfied that one of these species mutt be reduced. *B virgatum* seems also too nearly allied to these

1008. *PASTINACA SPRINOELIANA* (R W *Hera- cleum Sprengelianum* W and A)Stem much branched, furrowed when dry, rough, leases puherulous on both sides, unequally pinnate, purnae pnnatifid divisions ovate, irregularly lobed, ultimate division 3, lobed, lobes acute serrated petals equal nearly orbicular vitta on the back, linear acute, sin rter than the fruit the lateral ones m the middle of the interstices, vitta? on the commissure, 4 slightly clavate and unequal

A very large coarse growing species freque it about hedges and enclosuies, perhaps in other situations among thickets in moist rich soil of this however I am not quite certain, as I find there are two species closely resembling each other, which 1 have hitherto confounded.

1009 *PASTINACA BIOBNS* (R. TV *Heradeum rtgena* Wall DC W and A) stem slightly branched, furrowed, pubescent or hirsute leaves ternate , division* roundish, somewhat cordite at the base, toothed, upper side more ot less seabrous with •h >rt hairs, under densely pubescent or toinentnse, lateral ones on a short, terminal one on a long petiole, the latter bluntly 3-lobed or ternate , leaflets of the involucler ovate petals equal fruit obovate , •lttBB en the back linear, much shorter than the fruit, the lateral ones in pairs, and close to the intermediate ridges viitfle on the commisRura 4, acute, unequal, the two outer the shorter — *JP and A Prod* p 373.

(requent in pastures flowering duuog the rainy autumnal months 1 he radical leaven are usually pinnated and lie on the ground The specimens selected for representation is a small one, but as compared with many of the others, this is a small species, though larger than the next

1010 *PASTINACA HOOEHRI&IA*, (R W *Heradeum Hookenianum* W and A) Stem nearly simple, furrowed, coarsely pubescent or somewhat hirsute with short glutinous hairs , leaves nearly radical, 3 lobed, toothed, sparingly pubescent or hairy on the upper tide, shortly tomentoe on the under , lobes roundish, toothed, the terminal one the largest and often 3-lobed , upper stem leaves few, and sometimes almost reduced to the mere sheaths, umbels long peduncled, with G 10 rays leaflets of the involucre persistent during flowering, afterwards deciduous lanceolate-subulate of the mvolucler oblong lanceolate, longer than the flowers petals (whitish with a tinge of red) unequal fruit (very immature) sprinkled with a few short hairs , coniniissura with 2 vitta — *W and A Prod*, p 337.

Like the preceding this frequents pastures, on the slopes of the hills, and during the rainy season, is equally abundant it is readily distinguished by its naked stems the leaves being all radical and lying flat on the ground

Being unable to discover any characters, by which these species and several others in my collection, may be distinguished generally from Pasunaoa, the older genus of the two, I have been induced to refer them all to that genus in preference to retaining both it and *Heradeum* in the Indian Flora It is my impression that there is no difference between the two genera but I leave that for those who have better means of determining the point to decide So fir as written characters go (here is no difference but there may be in habit, with which I am unacquainted.

1011 & 12 *HEDBRA* (P) *OBOVATA* (R W) arboreous, glabrous, leaves digitate, le iflets about 5 petioled, obovate, cuniate, very obtuse or sometimes obcordate, coriaceous thyrses numerous, aggregated towards the ends of the branches, «bractiate umbels numerous, solitary in each peduncle, flowers pediselled petals, stamens and stigmas from six to eight ovary 6 8 celled

A rather widely distributed tree, of small size, •ccurring in alpine jungles I have specimens from Courtallum, Shevagherry Hills, Hills near Coimbatore, and from the jungles about Coonoor 1ha specimen from which the drawing was taken is from the Jatter station, where it flowers in April and May.

1013 14 *HEDERA* (P) *BOBTBATA* (R W) arboreous, glabrous leaves digitate , leaflets 5 to 9 longish petioled ovate lanceolate acuminate, serrated : thyrses- solitary, terminal, at first furnished with several sheathing cuspidate bracts (abortive leaves) lateral peduncles bracteated, from one to three umbelled flowers numerous peduelled petals 5, dehising before falling stamens and styles 5, exserted, cohering and forming a beak, peisistent in the fruit ovary and fruit 5 celled

A considerable tree frequent in woods near Nedawuttem and Sisparah on the Neilghernes The serrated leaves and long beak like style at once distinguish this species The branches of the thyrses, in the specimen from which the drawing was made, seem all to have borne solitary umbel«rny specimens, however, in some instances, have three umbels on one branch 1 his species seems to go far towards reducing the genus *Qilibertia*

1015 *HBDEEA* (P) *BACKMOSA* (R W) arboreous, leaves digitate leaflets about 7 form oblong, lanceolate acuminate, undulate on the margin, to elliptic cuspidate ihyrses paniced, usually lateral (from the previous year's wood) branches racemose, flowers pedicelled, furnished at the base of the pedicel with a small somewhat subulate bractea petals and stamens 5 styles 5 short, stigmas distinct obtuse fruit 5 celled

A large tree of rather rare occurrence A few fine trees 70 or 60 feet high, and large in proportion are growing ID the woods behind Kelso land in Ootacamund I have met with it in several other places, but no where abundant 1 he very peculiar inflorescence at once distinguishes it from the rest of the genus The leaflets vary a good deal m form and size , in some of my specimens they are scarcely waved nearly elliptic with a short cuspidate point, under 4 inches long, and 1\$ broad, in others they are 6 or 7 inches long and about 2 bread, much waved. Flowers June and July.

OBS In our PRODRUMUS it is remarked that *Para* iropia* appears a natural genus, having the leaves digitate and umbels of flowers ananged in racemes forming thyrses, &c, being now impressed with conviction that, so far as characters derived from the fructifit tUon are concerned, no g'neri difference exists between *Hedern* and *Paratropta*, I have referred all these species to the former, but have retained the latter as a very natural and characteristic subgenus, on account of their digitate leaven an I thrjsoil inflorescence, these, in the absense of structural difference of the reproductive organs, not being held of sufficient weight to entitle them to generic value

1016 VISCUM ORBICULATUM (R W) monoicous, branches foursided, angled leaves opposite orbicular, much waved on the margin, slightly 3 5 nerved flowers sessile, axillary, aggregated, male and female mixed anthers sessile on the lobes of the calyx, flat, composed of numerous little cells, berries oval, oblong, obtuse at both ends

A very rare shrub the plants from which the drawing was made being the only ones I have seen, they were growing on the branches of *Agapetes ar* borea* The Draftsman has not correctly represient* ed the anthers, the other parts of the figure are uoexceptionable

1017 VISCUM BAMOSIBSTUUM (Wall) entirely or almost leafless, much branched stem and branches terete, verticillate or opposite, younger branched usually long and slender leaies (when present) narrow, oblong, J nerved flowers usually 3 together, axillary, sessile or nearly BO berries almost globose. — *W and A Prod p 380*

This is like the preceding is monoicous, and is frequently met with in all parts of the country

1018 VISCUM MONILIFOBME (Blume) leafless stems terete at the base, branches opposite or fascicled, compressed articulations obovate oblong, lapeuug at the base, 3 4 times longer than broad, costa»e along the middle but not striate^ flowers sessile at the apex of the joints, opposite or in opposite fascicles of 3 together, sometimes nearly verticillate — *W and A Prod, p 380*

This is, like the preceding, a widely distributed plant and is found on all kinds of trees, the specimen here given, grew on the *Rhododendron arboreum* a portion of which accompanies

1019 VISCUM MONILIFOTIMH *p corabtdt*(R W)* This variety occurs in the most profuse abundance OD the hills, frequenting nearly all kinds of trees and shrubs, but is probably most frequent on a species of *Ilix* The specimen from which the drawing was taken grew on a species of *agaptics* on the banks of the Pycarah River This variety Beems quite dioecious, but I have never met with a male plant among hundreds that I have examined Judging from the specimen figured, it might well be considered a distinct species, but extended examination of the plant in all its forms scarcely warrants its separation from the preceding

1020 LOBANTHUS NEILGHKRENSK, (W & A) glabrous branches terete, young ones obscurely and bluntly angled leaves alternate, elliptic oblong, shortly petmlrd, thick and somewhat fleshy, ultimate one of the branch (always *) orbicular ovate peduncles axillary aggregated, very short, about the length of the petiole, bearing an umbel of 3 7, very shortly pedicelled flowers bractea solitary under the

o?ary and close to it, lateral, ovate • margin of the calyx obscurely repand toothed corolla glabrous, ventricoeely gibbous at the base, rq lally 5 cleft to beyond the middle, segments cuncate-linear, recurved — *W jndA Prud, p 382*

This is a fine species of great size, and when ID perfection, most conspicuous from its numerous deep red, almost crimson coloured flowers, which completely cover the branches, while the young leaves on the new shoots are also often deep red.

1021 VIBURNUM ACUMIUTUM, (Wall) young branches, petioles, and peduncles dotted with small rusty-coloured scales leaves elliptical, acuminate at both ends, coriaceous, quite entire with the margin slightly recurved, glabrous upper side shining, under covered with minute shining rusty-colouied dots corymb terminal, large, trichotomous, often larger than the leaves stigmas sessile berry oval oblong— *W and A. Prod p 388*

A common and widely distributed species, bnt rarely, if ever, met with at the elevation of Ootacamund, at Conoor, and for two or three miles below that place, it is very common and when in flower, a very handsome shrub I have tpecimens from several other alpine stations, but have never seen it under three or four thousand feet of elevation.

In some situations it may almost be called a small tree generally it is a large ramous shrub.

1022 VIBURNUM CAPITELLATUM, (W & A) free from scales, quite glabrons except in the axils of the nerves leaves oval-lanceolate, with a few distant wavy teeth, attenuated at the apex into a rather fine point, under side with the axils of the nerves woolly cymes compound, somewhat umbel* shaped, 3 6-partite, flowers umbellate, several together, nearly sessile at the extremity of the ultimate divisions flower buds viscous and shining stigmas seibile berries oval oblong.— *W. and A Prod, p 388.*

The specimens from which the accompanying drawing was made were found in the neighbour! ood of Kotergherry I have other specimens from the Pulny range, found at a nearly similar elevation but I do not recollect having observed it about Oof acamund It is a handsome shrub, very nearly allied to the next, but evidently distinct. Flowers during the autumnal months

1023. VIBURNUM HBBANTHUM, (W & A.) branches, petioles, and general peduncles glabrous leaves elliptical or obovate, Bhortly acuminate, ot»tu«e or acute at the base, slightly sinuate toothed on the lower half, coarsely so toward the npex, woolly in the axils of the nerves on the under side, other w'se glabrous partial peduncles of the corymb pubescent corolla tubular campanalate, softly pubescent, limb very small, nearly erect, 4 5 times shorter than the tube style very short and thick — *W. and A Prod, p 383*

A very common shrub or small tree all over the higher ranges of the hills The specimen from which the figure is taken does not convey a favourable impression of the inflorescence, but can searcel) be said to be unfavourable, as in that respect it is certainly the least striking of the Neilgherry species It begins to show its flowers ID February, but » not in perfection until March and April

1024. *Viborwim WIGHTIAWUU*, (Wall) branches, petioles, peduncles, pedicels, and flowers glabrous leaves oval, shortly acuminate, obtuse at the base, quite entire on the lower half, sharply serrated towards the apex, upper side glabrous, under slightly puberulous when young, nearly glabrous when old, the nerves densely pubescent and their axils woolly corymb shortly peduncled, somewhat panicle shaped bractes linear, pubescent and ciliated corolla hypocrateriform, limb spreading, conspicuous, about 4 times shorter than the tube ovary linear style very short and thick — *W and A Prod* p 388

A moderate tree or large shrub frequent in the woods about Ootacamund, flowering in April and May, but generally to be met with at other seasons. The fruit in this, like those of the preceding, is an oval succulent drupe red, and subacid when ripe.

OBS It will be remarked from an examination of the dissection* of the ovary of all these species that it is one-celled with a single pendulous ovule. This structure led me at one time to suppose these formed a genus distinct from the European genus *Viburnum*, but on comparing the ovary of 2 European species—*V. Opulus* and *V. Lantana*, I found the same structure, though, judging from the descriptions of the most recent writers, I was led to expect them 3-celled.

1025 *LONICERBA(X) LIGUSTRINA*, (Wall) stem somewhat erect and bushy, branches slender, slightly twining, younger ones hairy or pubescent leaves shortly petioled, ovate lanceolate, acute obtuse at the base, quite entire, shining, sprinkled on the margin and when young on the midrib beneath with spreading hairs peduncles a little longer than the petiole, slightly drooping at the apex 2 flowered, axillary and solitary bractes, a subulate one at the base of each ovary, and one cup shaped closely surrounding and containing both ovaries calyx, limb constricted in the middle, the margin 5 toothed teeth oblong, short corolla puberulous, infundibuliform, tube rather short gibbous on one side at the base, berries distinct, both covered by the common bractea — *W and A Prod*, p 389

This is a very common plant about Ootacamund, and like the privet much used as a fence about gardens for which purpose it answers well, forming a very compact one. The flowers are too small and too few in proportion to the quantity of leaves to admit of its being considered an ornamental flowering shrub, but so far as general form is concerned, were shrubberies more in vogue on the hills, it would well merit a place in them.

1026 *HEDYOTIS (D) LAWSONTJE*, (W & A) shrubby, glabrous branches 4 angled leaves oblong lanceolate, acuminate at both ends, petioled, nerves few and distant, curved stipules deciduous, triangular-ovate, acuminate, the point thickened and glandular lobed, the margin entire panicle spreading calyx limb cup shaped, 4 toothed corolla externally glabrous, villous in the mouth and on the segments slightly protruded style considerably protruded capsule obovate, dicoccous — *W and A, Pro I* p 407

A handsome but neglected shrub, found in the woods about Ootacamund and elsewhere, not very rare on the hills. The flowers which in fine plants, form much larger clusters than those here represented, are of a much more lilac colour, that introduced into shrubberies, and would be bestowed on its cultivation,

it might become a passing good substitute for the lilac.

1027 *HEDYOTIS (D) STILOSA* (Brown) shrubby, glabrous branches somewhat terete or obtusely 4-angled leaves from oval to oblong lanceolate, acuminate at both ends, petioled, the nerves on the under side strong, armed, slightly branched stipules somewhat permanent, triangular-ovate, their margin pectinately pinnatifid, the segments long, filiform, hirsute panicle spreading calyx limb cup shaped, 4 toothed corolla externally glabrous, villous in the mouth on the segments filaments considerably protruded style much protruded: capsule ovoid, dicoccous — *W and A Prod* p 389.

This is a much more abundant shrub than the preceding, and the clusters of flowers being larger it is really a showy plant, but I have not once seen it in cultivation though abundant in the woods. The flowers are nearly white, and it is in flower at nearly all seasons.

1028 *HEDYOTIS (D) ABTICULABIS* (Brown) shrubby, glabrous branches terete or obscurely 4-angled leaves approximated sessile, narrow, oblong-lanceolate with the margins recurved, coriaceous, minutely papillose, nerves on the under side striate, form close, simple stipules ovate lanceolate, the opposite ones connate at the base, the margins divided into several filiform rigid segments panicle coarctate calyx limb cup shaped, 4 toothed corolla externally puberulous, villous in the mouth and on the segments filaments protruded, anthers oblong-linear style scarcely longer than the tube of the corolla capsule oblong obovate, dicoccous.—*W. and A Prod* p 389

A common flowering shrub on the hills and to be met with in nearly all situations, especially when the soil is somewhat humid. It is usually a dry scraggy looking plant almost always to be met with covered with flowers and dry yellow sickly looking capsules. Judging from its appearance in the wild state there is little in its appearance to recommend it to the attention of the Amateur.

1029 *HEDYOTIS (D) VERTICILLABIS* (Wall *Bed pluntagifolia Am pug*) perennial herbaceous, leaves nearly all radical, linear lanceolate, nerved, plaited between the nerves glabrous, overlapping at the base, those of the scapes linear lanceolate scapes as long or longer than the leaves leafy, lower pairs distant opposite, upper ones approximated verticillate stipules between the distant pairs bristle toothed flowers sessile, capitate and terminal, or verticillate in the axils of the upper leaves heads from the axils of the lower pairs peduncled calyx segments linear lanceolate as long or longer than the tube of the corolla corolla infundibuliform, hairy in the throat stamens more or less exserted or included.

Very abundant in marshy soil on the banks of the river at Pycarah, also all along the road from a mile or two beyond the Avalanche to Sisparah, and is generally distributed in marshy grounds over the Koodahs. When in full flower it is certainly a beautiful plant. I can see no difference between this and *H. rufotagifolia* Arnott, and feel confident this last has been added to the list of described species owing to Dr Arnott not having a specimen to compare, and our description having been made from a scape only not a perfect plant. The proper stems of both are underground rhizoms, the leaves and scapes are the same in both and so are the flowers and seed.

1030. *HIDTOTIB* (A) *AFFINIS* (W & A) herbaceous, procumbent, rooting stems flexuose, branched, branches villous, particularly near the extremities hairs on the branches and leaves flat and jointed leaves deltoid ovate, acute, tapering slightly at the base into a petiole about one third of the length of the limb, sprinkled with hair* on both sides, paler on the under bristles of the stipules 2-4 on each side, much shorter than the petioles corymbs shortly hirsute, terminal, peduncled, trichotomous calyx segments cuneate lanceolate, becoming larger and somewhat fohateous immediately after flowering corolla infundibuliform, tube slender, 4-5 times longer than the calyx segments filaments exserted and the style short, or filaments short and the style elongated capsule with 6-6 seeds in each cell—W and A Prod p 411

This is a very common plant on the Neilgherries, especially on the banks of water courses and in pastures where the soil is somewhat humid. I long considered it the *Hed deltoidea* and it was only recently, when arranging the whole of my collections of the genus, I ascertained that the one here represented was more correctly referable to *affinis* than to *deltoidea*, the two species might, I think with advantage, be united // *Ltschenaultiana* might however be retained as a good species, distinguished by its sessile, cordate, ovate, somewhat amplexicaul leaves.

1031. *HIDTOTH* (A) *MOHOSPEHMA* (W and A) herbaceous, procumbent, rooting stem* and branches slender, glabrous below, hairy towards the extremities leaves petioled with the petioles more than one half the length of the limb, deltoid ovate, acute, upper side thickly, under thinly sprinkled with flat jointed hairs stipules with 2-4 hairy bristles on each side corymbs somewhat terminal, small, few flowered corolla shortly infundibuliform, the tube about twice the length of the calyx segments compressed-globose, crowned with the distant spreading calyx-teeth, seeds solitary! In each cell—W and A Prod p 410

This is a common and widely diffused plant, my specimens being derived from Courtallam, Bhavangherry, Malabar and the Neilgherries, &c. As a species it is very distinct from all the rest of the genus, unless by the way I chance to have confounded two or more species, having a similar structure, which seems not improbable as viewed as one, it seems rather polymorphous but this point still remains for closer examination than I have yet had leisure to bestow.

1032. *LASIANTBLS VE^OIOHJS* (RW *Santiavenulosa* W. & A) shrubby, glabrous stipules triangular hairy leaves coriaceous, short petioled, elliptic oblong, cuspidate or acuminate, glabrous above, veins prominent on both sides beneath sprinkled with hairs cymes axillary, short peduncled few (3-5) flowered bracteas small hairy calyx 4-5 parted divisions tubulate, as long as the tube of the corolla corolla 4-5 cleft throat and lobes hairy stamens 4-5 style as long or often longer than the corolla 3-5 lobed cells of the ovary equalling the lobes of the stigma, a single erect ovule in each

Common in the woods about Ootacaraund, and generally distributed over the higher ranges of the Hills—a very ramous shrub leaves from 2 to 4 inches long by about half as much broad, of a light yellowish green colour, sometimes acuminate often cuspidate. Flowers pale yellow or cream coloured, berries about the size of a pea, succulent blue. The long teeth of the calyx of this species, a very charac-

teristic. The inflorescence is cymose, but the peduncles are sometimes reduced to one flower

1033. *WBNDLANDIA NOTONIANA* (WHI) arboreous, with the young shoots hirsute leaves petioled, oblong, slightly tapering at both ends, upper side glabrous, under somewhat glaucous, more or less minutely pubescent, often nearly quite glabrous except on the nerves and veins stipules triangular-ovate-hirsute at the base, the upper part glabrous, recurved branches of the panicle hirsute, somewhat erect, flowers crowded and forming interrupted spikes calyx hoary, the teeth triangular, acuminate corolla glabrous, 6-8 times longer than the limb of the calyx tube widened at the mouth, divisions of the limb oval, obtuse, recurved, anthers nearly sessile capsule sprinkled with short hairs.—W and A Prod, p 403

A large and very beautiful shrub frequent about Coonoor and Kottergherry, but not ascending to the elevation of Ootacamund. It also occurs abundantly and in great perfection about Kaitie Falls flowering in February and March, when it is most ornamental often attaining a height of from 10 to 15 feet with every branch terminated by a large panicle of reddish white flowers

1034. *CANTBIUM UMBELLATUM* (R W) shrubby or subarborescent, unarmed, young branches four-sided leaves short petioled, oval acuminate glabrous, coriaceous flowers axillary umbel led on a short thick peduncle calyx limb obtusely 5 lobed tube of the corolla hairy within, the lower hairs pointing downwards stamens 5 style exserted stigma nitiform, 2 lobed, fruit obovate didymous

An alpine plant rather rare on the Neilgherries about the elevation of Kottergherry, where in Orange Valley I found it forming a moderate sized tree. I also found it in great abundance on the tops of the Hills at Shevngerry in full flower in September. It is very nearly allied to *C didymum* in which it scarcely differs except in the inflorescence, and subarborescent habit of the plant generally the leaves when the two are compared are found much larger and more coriaceous in this, but its most striking characteristic, is the union of all the branches of the cyme into a single stout peduncle from the dilated apex of which, the flowers rise on short pedicels—Flowers white.

1035. *PAVBTTA BREVI FLORA* (D C) leaves oval acute at the base, acuminate, short petioled, submembranaceous glabrous. panicles corymbose, many flowered, its opposite branches, small, and flowers glabrous tube of the corolla scarcely longer than the lobes—Tube of the corolla about 3 lines long. style 4 lines clavate at the apex • stipules broad membranaceous plant turning black in drying—D C. Prod 4 p 401.

A shrub not uncommon in the woods about Ootacamund flowering in March and April. The leaves which are thin and translucent when held between the eye and the light are seen marked with numerous dark glandular points. DeCandolle's specimens were from the Neilgherries, and as this is the only species I have seen there, presume this is his plant though he has failed to notice the ciliate margins of the calyx lobes. There are however two forms one with the calyx lobes, minute, glabrous, the other with them larger and ciliated, but beyond that I can see no other point of difference of any importance, I have therefore united them as mere varieties. In the analyses of the plate both forms are given.

1036 GRUMELIA ELONGATA (R W) shrubby glabrous leaves short petioled, obovate oblong, cuspidately acuminate, penninerved becoming yellowish in drying stipules caducous, ovate oblong, broad pointed cymes elongated, panicle-shaped, compact when in flower, enlarging somewhat in fruit calyx limb minutely 5 toothed tube of the corolla short, throat closed with hairs style umbraced at the base by a thick convex fleshy disk, stigma exserted, dilated 2-Jobed

In woods about Ootacamund but rather sparingly. I also possess specimens from several other stations, Courtallum, Shevagherry &c It is unquestionably very nearly allied to the next, but is, I think, an abundant distinct species, as well by character as habit, the two bushes, even when growing side by side, generally flowering at different seasons The flowering season of this is the autumnal months, of that the spring ones

1037 GRUMELIA CONGESTA (W & A) erect leaves short petioled, oblong, acuminate at both ends, penninerved becoming yellowish by drying stipules broadly triangular, cuspidate, caducous corymbs sessile, at first compact and scarcely longer than the stipules, afterwards larger but also compact or rarely spreading when in fruit, naked calyx limb somewhat bluntly 5 toothed tube of the corolla short, scarcely longer than the calyx limb berry ovoid, not furrowed — *W and A Prod* p 432,

With the preceding and much resembling it

1038 PSYCHOTRIA SABHENTOSA ? (Bluffe) Stem climbing rooting, leaves short petioled lanceolate, acuminate at both ends, slenderly veined, coriaceous, glabrous, stipules connate corymbs terminal deparicately-inchotomous tube of the corolla funnel-shaped drupes elliptic, globose, furrowed by drying — *D 0 Prod* 4 522

Malabar about Calicut also in Ceylon The drawing is taken from a Malabar specimen, I have others from Ceylon I think this plant corresponds well with De Candolle's character, so far as it goes, I am doubtful of its being Blume's plant

The tube of the corolla of my plant can scarcely be said to be funnel shaped, and no notice is taken of the very hairy throat, but still these differences are too slight to justify me in describing it as distinct while unacquainted with the original species

1039 PSYCHOTRIA BIBULCATA (W & A) shrubby, diffuse glabrous leaves with a short petiole slightly dilated at the base, oblong lanceolate, tapering at the base stipules triangular acuminate, caducous corymb terminal, peduncled, small, few flowered, inchotomous or with the primary rays in fives, with minute acute bractes subtending the ramifications calyx limb 5 lobed, lobes roundish, ovate tube of the corolla bearded in the throat, about twice the length of the calyx limb filaments exserted, anthers oblong stigma nearly included, short and thick bipartite berry ovate, 4 furrowed by drying seed and albumen flat on the inner side, with two deep dorsal furrows and an intermediate broad blunt ridge — *W and A Prod* p 434

In woods about Ootacamund but rather sparingly The leaves are of a light lively green, and dry almost unchanged in colour

OBS These two genera *Grumelia* and *Ptychotria* ought to be united as they are truly one in every thing except the ruminated albumen of the former, a character, which, however good in a mere carpological system, is too limited for a vegetable one (which requires its generic characters to be taken from more organs and structures than one) as it can only be made out from ripe seed, if both are preserved then, I believe, I may almost predict that probably half the present genus *Psychotria* must ultimately

be transferred to *Grumelia* and then, without specimens furnished with ripe fruit no man can tell whether an unknown species belongs to the one or other genus Our *P bractiata* I feel certain will, when the ripe seed is found, prove a *Grumelia* Wallich's *P truncata* I am all but certain is a *Grumelia*, and I think identical with our *G congesta*—Genera in a natural system ought not to rest on a solitary character! the only the most artificial can be so limited and still less so when that is derived from the ripe seed which, as distinct from *Ysychotria*, is certainly the case with *Grumelia*

1040 COFFEA ALPBSTRIS (R W) shrubby, glabrous leaves lanceolate, cuneate towards the base, pointed, coriaceous peduncles axillary, confined to the upper leaves longer than the petioles, aggregated forming terminal corymbs corolla five cleft divisions much longer than the tube, lanceolate obtuse anthers exserted style gibbous, near the base, hairy stigma clavate, glabrous berry oval 2-seeded.

Ootacamund in woods flowering March and April A low very ramous shrub the branches nearly naked, the ramules covered with closely approximated coriaceous shining leaves peduncles confined to the terminal axils generally about 3 flowered, flowers white with a hairy throat and line of hairs extending along the segments of the corolla

1041. COFFEA GRUMELIODES (R W) shrubby or subarborescent glabrous leaves obovate cuneate, shortly and bluntly acuminate, coriaceous peduncles axillary, confined to the upper axils, about 3 flowered forming terminal corymbs corolla 5 cleft, throat hairy, divisions oblong elliptic obtuse, anthers exserted style not gibbous stigma clavate, slightly cleft at the apex berry ovoid, crowned with the persistent calyx

A large shrub or small tree, in low woods by the road side going to Pycarah, flowering in February. This seems to be a rarer species than the preceding and is confined to a lower range of elevation Though in many respects like *C alpestris* this is certainly a distinct species

1042 GALIUM REODENDRUM (W & A) perennial stems diffuse, ascending branches 1 and the branches 4 angled, clothed with soft spreading or deflexed hair, when old more glabrous leaves in four*, roundish obovate, mucronate, 3-nerved, upper sides sprinkled with hairs, under more copiously hairy, particularly on the nerves near margin peduncles axillary or terminal, few flowered, inchotomous, hairy divisions of the corolla roundish ovate, slightly hairy on the outside fruit roundish, hirsute with hooked bristles — *W and A Prod* p 443

This is a low growing procumbent plant which, but for the large patches it forms, would be but little conspicuous from the grass among which it grows I believe it is in flower the greater part of the year

The late Mr Griffith was of opinion that the Stellate division of Rubiaceae were misunderstood and erroneously described in calling the yellow petaloid part of the flower, a corolla that he once stated to me in a letter, he considered merely the coloured dilated calyx limb I have since often examined the flower with reference to that view of its structure, but have scarcely been able to satisfy myself that there is not both a calyx and corolla The Draftsman seems here to have settled the point in Mr Griffith's favour. He knows nothing of Botanical opinions or theories, but sets down what he sees, and here he has assuredly given no corolla, and I think he is right, in which case this section must, as Lindley has done, be elevated to the rank of an order and will stand in the same relationship to *Spermacoceae* that *Nyctaginia* does *Plumbagineae*

P S subsequent examination has left no doubt on my mind on this point

1043. VALERIANA BANONCANA (W. & A.) herbaceous, glabrous or very slightly puberulous stems erect with 12 pairs of leaves near the root, and another small pair about the middle, slightly hirsute on the knots leaves somewhat fleshy, lower ones quite entire, ovate, bluntly acuminate, long-petioled, the radical one often emarginate at the base, uppermost or small pair somewhat sessile, narrow oblong, entire or toothed along the margin: corymb terminal, dichotomous, panicled, with a pair of foliaceous bracts similar to the uppermost leaves subtending the principal branches corolla 5 cleft fruit linear oblong, glabrous — *Wand. Prod.* p. 443

Common in pasture lands on the hill sides all over the hills, flowering during the rains. It generally attains a larger size than the specimen represented. In the figure the pubescence is a little too distinct but it varies in that respect.

1044 VALERIANA LESCHNAULTII (D. C.) herbaceous stem erect, simple, with the knots hairy, otherwise glabrous radical leaves petioled, ovate, obtuse, creased, hirsute on both sides, stalk leaves remote, small, sessile, the uppermost cut in a pinnated manner into 3-5 linear glabrous lobes, the odd one the longest corymb contracted fruit villous. — *XV. and A. Prod.* p. 44*.

This, like the preceding, grows in pastures, but prefers richer soil and shade, being met with about the skirts of woods in moist soil though nearly allied, it seems distinct from the other both in characters and habit. In my specimens the leaves and petioles are ciliate. The fruit in this is pentangular, in that compressed, furnished with 3 hairy nerves on one side and one on the other.

1045 & 6 VALERIANA ARNOTTIANA (R. W.) herbaceous, erect puberulous radical leaves on long petioles, unequally pinnated, about 2 pairs and an odd one, lower pair of leaflets alternate, upper pair opposite, all ovate or ovate cordate, grossly, crenate-serrated the odd one much the largest, cauline ones unequally pinnate about 3 pairs, leaflets ovate or cordate, crenately dentate, obtuse, slightly acuminate panicle large diffuse, divisions dichotomous. corolla 5 cleft, fruit compressed, 3 ribbed on the one side, one on the other, very hairy between.

In woods near Sisparah, on the Neilghemes, also on the Pulney mountains, flowering April and September. This appears very distinct from *V. Hookeriana* the species to which it most nearly approaches.

EXPLANATION OF PLATES.

VOL. III.—PART IV.

1047. *CAPPARIS P* RIFOLIA* (Lam.) stipules thorny, short, hooked. leaves between ovate and oval-lanceolate, mucronate; the younger ones densely pubescent, older ones glabrous: pedicels short and stout, axillary, solitary, 1-flowered, 2-3 times longer than the petiole. ovary narrow-oblong, glabrous, furrowed — *IF. and A. Prod.* p. 25.

A low thorny shrub with spreading branches: it rarely attains over two feet in height but the lateral branches cover a larger space. The flowers are large and handsome, but very fugacious*. Frequent towards the bottom of the Neilgherries on their Eastern aspect flowering the most part of the year, but in greatest perfection during the cool season immediately after the rains.

1048. *CAPPARIS ROXBURGHII* (D. C.) shrubby: stipules thorny, recurved, hooked: leaves elliptic-oblong, obtuse, tapering at the base, glabrous. racemes terminal, corymbiform, leafless: ovary obovoid-berry globose, many-seeded — *W. and A. Prod.* p. 26.

A large diffuse very ramous shrub: flowering in April and May. The only plant I recollect having seen grows near the foot of the descent from the Neilgherries by the Coonoor road. It forms a large straggling climbing bush. the prickles on it are always small and often altogether wanting. Flowers pure white and very evanescent—I was not so fortunate as to find mature fruit, but judging from the remains of one hanging on the bush, they seem to be about the size of small Billiard balls.

1049. *IMPATIENS MUNRONII* (R. W.) erect sparingly ramous: leaves crowded towards the summits of the branches ovate, slightly serrated, acute, hairy on both sides: pedicels axillary, solitary, one flowered, about the length of the leaves, furnished near the base with a minute bractea, lateral sepals ovate, toothed at the apex; posterior concave like a mate shaped, sin mounted by a membranous crest, lower one terminating in a conical hooked very hairy spur: lower lobes of the petal a little larger than the upper — *It. W. Musc. in Bot.* 1 p. 160

Neilgherries in Jungles near Sisparah, February 1845.

This seems an almost suffrutescent species, it grows among bushes completely shaded from strong light. All those that I saw seemed to have naked stems a few straggling branches tipped with a bunch of leaves from the axils of a few of which the curious shaped flowers spring—Found in flower in February, but apparently at that season past its prime.

1050. *IMPATIENS GARDNERIANA* (R. W.) diffuse, nearly glabrous, at first procumbent, rooting at the joints, afterwards ascending: leaves verticillate in threes, short petioled, ovate, lanceolate, acutely serrated, some of these serratures bristle pointed: pedicels solitary, longer than the leaves, filiform: lateral sepals ovate, acuminate, shorter than the petals; anterior ovate pointed, with a filiform spur as long as the flower and slightly ribbed at the point; posterior about the length of the interior lobes of the petals, petals obovate, very obtuse, the upper lobes a little shorter than the larger anterior ones, capsule oblong, pointed, small, glabrous. Western slopes of the Neilgherries about 5 miles below Sisparah in moist pasture, flowering in January and February

I dedicate this species to my friend George Gardner, Esq. superintendent of the Royal Botanic Garden,

Ceylon, who accompanied me during the excursion, in the course of which we found this and many other interesting novelties.

A very slight error of the draftsman has been so greatly magnified between the transferer and printer that a plant almost glabrous, or with merely a few hairs scattered on its surface, has come out of the hands decidedly hirsute, the character is correct, the figure is wrong.

"In the plate will be found two sets of diagrams A and B elucidating the views of Messrs. Kunth and Roeper—A representing the position of the parts as understood by Kunth, B as understood by Roeper. In these diagrams the dark lines a,a,a,a, represent the parts respectively culled sepals by these savants, and the double lines, b,b,b,b,b, the petals. From these it will be seen at a glance that, while Kunth allows only four petals, united by pairs, and 5 sepals, the upper two of them united into one, that Roeper accounts for only three sepals constantly present and 2 minute ones only occasionally found, but gives the full number of petals as always present; the upper or posterior compound sepal or Kunth being viewed by him as the anterior petal, he accounting for this reversed position of the flower on the supposition that the pedicel has got a twist in the course of its growth, a view which is supported by analogy, a similar disposition of parts being met with, in both *Tryptolium* and *Pelargonium* two nearly allied tribes. And is still further supported by the genus *Hydrocolea* which is simply a regular flowered Balsam. The two dissected flowers given in the plate are similarly marked so as to show by the corresponding letter*, the parts indicated in the diagrams: the other figures require no explanation."—*It. M. Neilgherry plants.*

1051. *MALOPE INDICA* (R. W.) leaves simple obovate cuspidate by acuminate

Woods near the Attache, Neilgherries; flowering and in fruit in February.

A large shrub or in favourable situations a small tree. Of this species two plants only were found, one on the bank of a stream in a deep ravine which had attained the size of a tree, the other a large very ramous shrub, in a jungle by the road side going to Sisparah near the top of the ascent. The leaves are subalternate, petioled, glabrous, shining, from 3 to 4 inches long by about half the breadth, broader above and tapering slightly towards the petiole, ending abruptly in a short acuminate. Flowers long peduncled, about 3 together on the apex, pale yellow. calyx 4 sepaled: petals 4. stamens 8 ovaries 4, cohering below free at the apex, with 2 ascending ovules in each. styles 4 free below, apex and stigmas cohering. As the fruit advances one of the ovules aborts and the other becomes pendulous; capsules 4, coriaceous, detantled, dehiscent above: seed solitary in each, ovate, testa bluish shining, neural, black, composed of two easily separable coats: exotermic tunic, in the dried specimen, loose and fragile, interior hard mid bony. Embryo foliaceous, rudicle pointing into the hilum indosed in a fleshy albumen.

The other 2 species of this genus are both natives of New Zealand. I have therefore given this a geographical specific name though a more appropriate one might easily have been found. The genus stems very nearly allied to *Zanthoxylon*, differing principally in the stamens being double the number of the petals. In habit and general appearance, they nearly agree, and the seed of this plant accurately corresponds with the description of those of *Zanthoxylon*.

MICROTROPIS.

Caly 5 parted imbricated. Corolla 5-petaled periginous inserted into the outer edge of an annular disk, aestivation imbricated. Stamens alternate with the petals rising from the edge of the disk. Anthers introrse, dehiscent longitudinally, sometimes alternating with short epipetalous scales (squamous 5, breves, epipetalous staminibus alternates. Am.) Ovary semi-superior 2-celled with 2 dependent collateral ovules in each : style short, conical: stigma obtuse, obscurely four-lobed. Capsule superior 1-celled, two-valved, but usually dehiscent on one side only. Seed solitary, rarely paired, erect: testa thin, succulent, coloured. Embryo erect, enclosed in a copious firm tenacious albumen. Cotyledons foliaceous. Radicle cylindrical.

Shrubs or trees, leaves entire opposite, exstipulate, glabrous, shining, coriaceous. Cymes axillary or from the scars of fallen leaves, either furnished with longish peduncles or subsessile, forming dense capitals on the older branches. Flowers small white, sepals and petals orbicular concave, very coriaceous. Fruit capsular, oval oblong pointed with the persistent base of the style; capsule corticose, (resembling bark in colour and texture) testa thin, friable, somewhat resembling semi-indurated pulp, and, in all species I have seen, deeply coloured : albumen tenacious, translucent, easily sectioned : cotyledons, when fresh, green.

This genus was named by Dr Wallich, but without a character, in his List of Indian plants. Lindley adopted it in his Natural System but without defining it. Drs. Meisner and Arnott having got specimens, both published characters quite independent of each other. Their generic characters are both good so far as their imperfect materials enabled them to go, but both admit of alterations. The materials in my hands being more perfect than those they had, has induced me to endeavour to render more perfect their characters. The part I have described as the testa of the seed, Roxburgh has called an anellus (" *Semina sohtarta anellum succulentum involuta*." Arnott from Itoxb.) I do so from finding no other part corresponding to that organ, from its completely investing the seed, without any opening, which a true anellus must have, and from its being distinctly vascular, showing that it cannot be merely indurated pulp. I have not observed in any of the Hill species the epipetalous scales mentioned by Arnott. In Arnott's character the ovules are said to be ascending, in all the Neilgherry species the ovules are pendulous, the seed erect, and the radicle inferior. How this change of position is brought about still remains for investigation.

When Dr. Arnott published his remarks on this genus, he doubted whether it belonged to this order, a point on which there cannot, I think, be any longer a doubt, even supposing the corolla gamopetalous. This it certainly is not, but polypetalous, the petals attached to a disk. This structure is most easily made out in the unopened flower bud.

1052. *MICROTROPIS DEJSIFLORA* (R. W.) leaves short petioled broad oval obtuse, somewhat attenuated towards the base, coriaceous, glabrous : cymes axillary, erect, compact, many flowered ; much shorter than the leaves : capsule slender cylindrical, pointed, 2 valved : seed like the capsule, testa crimson coloured.

On the western slopes of the Neilghernes below Sisparah in dense jungles, flowering and bearing ripe fruit in February.

This seems a very distinct species from any of those previously figured, it forms a large straggling shrub or small tree. The dense almost capitate clusters of flow-

ers combined with the long slender fruit, are very characteristic and the outline of the leaves is besides very different from that of all the others.

1053. *EUONYMUS ANGULATUS* (R. W.) arboreous, ramous prominently 4 angled and furrowed between : leaves ovate lanceolate, acuminate, quite entire, glabrous : cymes axillary, dichotamous, lax : flowers long pedicelled : calyx fimbriated on the margin, petals orbicular : capsules turbinate 5 celled : cells by abortion 1 seeded, seed partially enclosed in an anellus accompanied by the remains of the aborted ovule.

Slopes of the Neilghernes below Sisparah on the banks of streams. The flowers, owing to the size of the cymes, are more conspicuous than in any of the others I have seen. They are of a dull purple colour, the specimens were gathered in February and as they were accompanied by ripe fruit, the tree is probably in flower most part of the year.

1054. *EDWARDSIA MADRASPATANA* (R. W.) leaflets about 25, glabrous, from elliptic to sub-ovate obtuse, mucronate, or frequently retuse at the apex : racemes axillary or terminal, very slightly pubescent, many flowered : calyx cup shaped, slightly oblique, 5 toothed : legumes villous.

Balahaut mountains near Madras.

My collectors brought me seed of this plant some years ago, which were transmitted to the Calcutta Botanic Garden and there vegetated. From these plants the specimen represented was taken. Owing to some error whether of the Draftsman or Lithographer or both, (I have not the original drawing by me to ascertain the point,) the petioles and flower bearing branches are represented densely hairy, while the specimens are so slightly pubescent that a magnifier is required to detect its presence. I suspect the error is principally attributable to the transferor, but be that as it may it is an error as the plant might without much impropriety be described as glabrous. I am indebted to the kindness of Dr. Wallich for the drawing from which the figure is taken, as my specimens were not in flower.

I possess a somewhat imperfect specimen of what appears to be a new species from China, it is not in fruit, but the calyx and flower are unquestionably those of an *Edwardsia* it may be thus defined.

E. parvijolia (R.W.) every where glabrous; leaflets* about 7 from ovate attenuated towards the apex, to elliptic, mucronate : racemes axillary, congregated towards the extremities of the branches, many flowered : flowers secund : calyx cupshaped obtusely 5 toothed, glabrous ; filaments about the length of the corolla free to the base, ovary slender glabrous, ovules about ten.

The flowers so far as I can judge from indifferently dried specimen are well represented in the accompanying drawing of *E. Madraspatana*. I am indebted for the specimen to Asst. Surgeon Dorward of the Madras Establishment, who during a short residence collected a considerable number of plants which he kindly communicated.

1055. *TAVERNIERA CUNEIFOLIA* (Am.) leaves petioled 1-foliate, from the almost constant abortion of the lateral pair; leaflet from orbicular to obovate-cuneate, recurvedly mucronate, thickish, glabrous or pubescent, peduncles short, from the axils of leafless stipules bearing, towards the apex, from 1 to 4 shortly pedicellate flowers : legumes with the inferior joint abortive stipitiform, the superior one unequally, obovate, echinate, with rigid hooked bristles.—*Am. pvgilus*. 14.

The drawing, for which I am indebted to Dr. Wal-

lich was taken from plants raised in the Calcutta Botanic Garden from seed communicated by Dr. Gibson. It is a native of Mysore extending northwards in the direction of the Western Ghats. I have never met with it in the Southern provinces.

1056 NICOLSONIA CONGEST* (R. W.) suffruticose, (ver) diffuse, procumbent, all the young parts except the upper surface of the leaves pubescent or hairy: leaves 3 or by abortion 1 foliolate, leaflet* elliptic or suborbicular, mucronate: flowers congested on the extremities of the branches: calyx 5 parted; segments subulate hairy, longer than the corolla, stamens diadelphous: ovary with a single ovule: (alwnjs²) legume 1 seeded.

Pycurruh, Neilghernes, on the banks of the river, abundant—I have also met with it at Ootacamund but very rare. This plant has the appearance of being a true Nicolsonia notwithstanding the discrepancy between the generic character and my plant as regards the legume 'constans articulis plunmis' as I find on referring to D. C.'s figure that his &pecinuns had one or two, and an ovary with 3 ovules, in my plant the ovary (fig. 6) is represented with a single ovule whether or not that is always the case I am unable to say.

1057. SONERILA VERSICOLOR (R. VV.) herbaceous; stems erect roundish hairy afterwards glabrous, marked with a slight decurrent rib from the insertions of the leaves: leaves opposite ovate or slightly unequal at the base, acute or somewhat acuminate, crenulate, pubescent on both sides; penninerved: peduncles axillary and terminal: racemes curved secund many flowered: calyx glabrous. petals obovate cuspidate: anthers cordate at the base, rostrate: style equalling the stamens: stigma obtuse: capsule clavate, trigonous, with a prominent nerve between the angles.

Western slopes of the Neilghernes below Sisparah among grass and low jungle.

The under surface of the leaves is usually dark crimson or purplish, flowers pink; in the earlier stages the whole plant is sprinkled over with scattered hairs but afterwards the stalks are nearly glabrous. It seems nearly allied to *S. Buinoms* but is at once distinguished by its penninerved leaves, and obovate petals; it seems still more closely allied to the following form which it is distinguished by its long curved many flowered racemes; the form of its petals, and more copious pubescence.

1058. SONERILA AXILLARIS (R. W.) herbaceous erect sparingly sprinkled all over with hairs; stems terete: leaves opposite or subternate, long petioled, ovate or subcordate at the base, acuminate, sparingly hairy above, nearly glabrous beneath: peduncles axillary erect, about the length of the petioles, few flowered: calyx limb 3 lobed, lobes pointed deciduous: petals elliptic mucronate. anthers rostrate. style the length of the stamens: capsule clavate, somewhat triangular, 6 nerved, glabrous.

Western slopes of the Neilghernes two or three miles below Sisparah: frequent by the road side, flowering December and January. My specimens were gathered in February, but I only succeeded in obtaining one or two in flower. It seems a very distinct species, its nearest neighbour being, apparently, the preceding.

1059 SONERILA BEUNONIS (W. & A.) herbaceous stems (about a foot high or more) erect, branched; branches acutely 4-angled, glabrous: leaves long-petioled, ovate, bristle-serrated, 5-7-nerved at the base, hairy or at length glabrous: peduncles terminal, longer than the leaves: flowers unilateral longish-pedicelled,

racemose: calyx glabrous: petals lanceolate, pointed: anthers ovate, short-pointed: style about the length of the stamens: stigma capitate: capsules turbinate, 3-sided, strongly and prominently 6-nerved, three of the ribs forming the angles, the other three on the sides.—*W. and A. Prod. p. 321.*

The specimens from which the figure was taken were gathered at Courtallum in 1836, in general habit and in the form of its capsule, it approaches both the preceding, but is amply distinct from both.

1060. EUGENIA (SYZYGEUM) MONTANA (R. W.)—arborescent, young shoots acutely 4 angled the sides depressed or concave between: leaves coriaceous from obovate bluntly acuminate to suborbicular, short petioled: cymes terminal corymbose many flowered, each extreme division terminating in a fascicle of three flowers: flowers small: petals adhering and separating as one: calyx obtusely 4 lobed persistent, crowning the fruit: fruit globose about the size of a currant purple:

Neilghernes not unfrequent in woods, sometimes attaining a large size. This species is very nearly allied in many respects to *Moons*, & *Syhtstis* but is certainly distinct. Its most characteristic feature is the form of the young shoots which are prominently 4 angled with concave sides between. In the specimen figured the leaves are represented as occasionally alternate. This form, however, is of rare occurrence, and, though it certainly does occasionally present itself, cannot be admitted as part of the specific character.

1061. HALORAGIS OLIGANTHA (W. and A.) herbaceous, glabrous, procumbent: leaves alternate, narrow-linear, tapering at both ends, serrated towards the apex: flowers minute, axillary, solitary, sessile: calyx-tube marked with four projecting angles: petals linear-lanceolate, obtuse, much longer than the segments of the calyx. stamens 4: stigmas 4, large, sessile, papulose: nut muncated, 1-celled, 1-seeded.—*W. and A. Prod. p. 338*

This plant occurs in great abundance in shallow water in the lake at Ootacamund and in marshy ground along its borders. I have also seen specimens from Ceylon, but more abundantly covered with fruit.

1062. HEDERA ACUMINATA (R. W.) arboreous, glabrous; leaves unequally pinnate many paired, leaflets oval-oblong acuminate short petioled: thyrses numerous elongated, peduncles, involucre at the base with minute subulate bracts. flowers very numerous, short pedicelled, forming subcapitate umbels, each having a minute caducous bractiole at the base; calyx 5 lobed petals expanding: styles 5 free at the apex: ovary 5 celled with a pendulous ovule in each: fruit—

Courtallum and on the western slopes of the Neilghernes about 2 miles below Sisparah. Apparently a small erect growing tree. The plant from which the specimen represented was taken had been injured and six or eight tall, erect, luxuriant branches had sprung from the stump. The wood appears very soft; the larger leaves were full 2 feet long and the leaflets twice or thrice the size of those in the plate. As a species it seems nearly allied to Don's *H. Jackiana*, if not indeed the same plant, a point his character does not enable me to determine with certainty, but I think they must be distinct as the characters differ in several points. I have not seen the fruit.

1063. LORANTHUS (SCURRULA) EUPHORBIA (R. W.) glabrous, erect, very ramous, branches terete: leaves short petioled, elliptic or orbicular, with a tendency to attenuation downwards, succulent when dry obscurely

3 nerved, veinless when green : flowers sessile, axillary or fascicled round the knots of the branches: bractea lateral, embracing the base of the ovary, very obtuse : calyx truncated enure : tube of the corolla terete, limb elongated indurated, unite before expansion, lucineae subulate, becoming elastically involute on dehiscence : filaments red ; anthers subulate : stigma clavate, beny red about the size of a small bean.

Frequent about Coimbatore parasitic on *Euphorbia antiquoi* urn and *lot tils*, flowering in July Very nearly allied to *L. elatus*, but I think quite distinct ; differing in the form of the leaves and in their being only 3, not 5 nerved. The flowers* of this are slender, about an inch and a half long, one-third of which only is truly petuloid, forming the proper tube; the limb is firm and i oriaceous, at first bursting with elasticity, and then becoming spirally involute like the main spring of a watch. The whole plant is exceedingly fragile, and will scarcely bear the gentlest handling, all tumbling to pieces in drying The juices of this plant do not show a trace of milkiness.

1064. *STYLOCORONE RIOIDA* (R. W.) shrubby, glabrous : leaves elliptic shortly acuminate at both ends, coriaceous shining: cymes teiminul and from the axils of the upper leaves, compact, tncholomous ; calyx limb 5 cleft, lobes obtuse, nearly equaling the tube of the corolla : corolla 5 cleft, tube short, with a ring of hairs within below the stamens throat hairy, limb spreading or reflexed, segments obtuse, villous near the b-tse : anthers linear, cuspidate : ovary 2 celled with numerous ovules*

Neilghernes in woods near the Avalanche Bungalow, flowering February and March. The mature fruit I have not seen. The leaves on the flowering branch lets, are about 24 inches long and about half as broad ; below they are considerably larger; of a very firm rigid texture, the transverse veins large and prominent on both sides : the young shoots, and peduncles, thickly covered with an abundant resinous exudation. This, as compared with several other species in my herbarium, is a very distinct one: it comes nearest Moons *S. cete/era* of which I have an indifferent specimen but is I think distinct.

1064. (*bis*) *CANTHIUM NEILGHERRENSIS* (R. W.) shrubby or subnrboreous unarmed, branchletsobsoletely 4 sided glabrous . leaves short petioled, ovate, blunty acuminate, membranou3 ; nearly glubrous above, hirsutulate beneath : peduncles axillary, about the length of the petioles, bearing a small umbel of from 5 to 7 flowers, furnished with subulate bracts : calyx limb truncate 5 toothed : corolla 5 cleft, throat hairy : stamens short nestling among the huirs : ovary 2 celled, 1 pendulous ovule in each: stigma capitate: drupe glabrous obovate compressed succulent.

Sisparah on the Neilghernes in jungles flowering most part of the year. Leaves 4-5 inches long about half as broad, ending in a short obtuse acumen, thin and membranous : flowers small white very hairy in the throat fruit succulent glabrous pale yellowish or cream coloured

1065. *PAVETTA BRUNONIS* (Wall.) soft and villous all over : leaves obovate : stipules and brarteaas broad, membranous: peduncles tncholomous, having the branches dense and corymbose : lobes of the calyx subulate. —G. Don.

Northern slopes of the Neilghernes flowering April and May. This seems clearly the plant described by Mr Don, the only difference being that here the lobes of the enlyx are not subulate, I do not however think it can be kept distinct from *P. Rothiana*, supposing this to be truly YYallich's plant, it differs from Roths charac-

ter and description, but not sufficiently so, at least in my estimation, to constitute it a distim I species. In Roth's plant the leaves are described as elliptic sprinkled with short hairs, here they are obovate shortly and bluntly acuminate and clothed on both tides with soft short villh. This seems the only difference: in Ins the calyx is described as very minute " dentibus inangulis obtusis" which is the case here. There is no station assigned to Roth's plant, Neilghernes is* appended to tins—but I have other specimens from Malabar and Mysore, the latter being the country, where most of Heyne's plants were collected The similarity of the two plants, to each other did not strike me when naming the drawing, otherwise I think, I should have given this the older name.

1066. *IXORA POLYANTHA* (R. W.) shrubby, every where except the inflorescence glabrous, leaves elliptic oblong obtuse or sometimes bluntly acuminate: stipules acuminate or subulate, pointed : corymbs terminal, contracted, many flowered, branches and tube of the calyx densely hairy : scanose bracts and ovate lanceolate acuminate lobes of the calyx glabrous : calyx limb 4 parted, divisions subulate pointed : corolla glabrous, tube long, slender, limb 4 cleft, segments obtuse reflexed : style exerted, stigma 2 lobed.

Calicut, Malabar, flowering in March. I have not seen the growing plant, but judging from a coloured drawing and specimens it seems to be a very handsome shrub The larger leaves exceed a foot in length and are about 6 inches broad. The very dense hairy corymbs, scanose bracts, and large 4 parted limb of the calyx, at once mark this as a peculiar and distinct species.

1067. *OPHIORRHIZA ERIANTHA* (R. W.) suffruti-cose, erect, nearly glabrous, except the young shoots and inflorescence : leaves elliptic, lanceolate ucuminate, tapering at the base : stipules about the length of the petioles subulate : bracts long filiform and with the calyx and corolla hairy .- corolla funnel shaped, tube glabrous wiithin, much longer than the dilated 5 cleft limb : stamens and style included : stigma deeply 2 cleft.

Western slopes of the Shevagherry mountains under the shade of brush wood. Leaves from 5 to 6 inches long, and from 1J to 2 broad thin and membranous, terminating in a slender ucumen:cymesterminal compact hairy : anthers linear blunt; seed irregularly angled.

1068. *OPHIORRHIZA ROXBURGUIANA* (R. W.) suffruticose erect or somewhat diffuse ; young shoots and corymbs villous : leaves from ovate to oblong-lanceolate, acuminate, glabrous, except the veins, on the under surface : Stipules lanceolate acute, shorter than the petioles : corymbs terminal congested, villous: bracts nanow linear lanceolate and with the calyx hairy ; corolla funnel shnped, tube much longer than the dilated 5 lobed limb, villous without hairy within : style and stumens included : anthers Imeai acute : stigma dilated 2 lobed.

Shevagherry mountains with the preceding near the base on the western face, August 1836. Tins though a nearly allied species is quite distinct from the preceding.

1069. *OPHIORRHIZA GRANDEFLORA* (R. W.) SuffrU-ticose erect glabrous : leaves ovate lanceolute acuminate: stipules minute triangular: corymbs terminal glabrous : bracts linear subulate and like the calyx glabious : corolla funnel shaped, a few hairs neai the base, and along the veins ;tube much longer than the dilated limb, glabrous within : style and stamens included : stigma tapering to a point 2 cleft.

Shevagherry mountains with the 2 preceding species. The corolla m tin* 13 nearly an inch and half long. It

is distinguished from the preceding by its minute stipules, glabrous calyx, and the want of hairs within the tube of the corolla.

LAWIA (R. W.)

Gif CHAR.—Calyx limb 5-6 parted. Corolla tubular gibbous at the apex, limb 5-6 cleft. Stamens 5-6 attached to the very base of the corolla, filaments very short. Ovary 5-6 celled; ovules numerous; placentas free attached by a short pedicel to the inner angle of the cell. Seeds numerous, small, IT regularly shaped, (resembling grains of gun powder) black.

Herbaceous plants, puberulous all over; leaves longish petioled, oblong-oval, acuminate at both ends, membranaceous, transversely veined; deep green above, glaucous beneath. Stipules triangular acute. Cymes terminal twice or thrice tricotomous lax, each division embraced by two connate membranaceous bracts. Flowers yellow pedicelled, small: calyx tube short campanulate; limb deeply cleft into 5 or 6 narrow somewhat subulate divisions: corolla tubular about the length of the calyx 5-6 cleft, somewhat hairy within, yellow. Stamens very short, apparently scarcely attached to the corolla: style short: stigma large 5-6 lobed, segments acute.

In dense jungles about Courtallum and Shevagherry, flowering and bearing ripe fruit in August and September. I have denominated this very distinct genus to my valued correspondent J. S. Law, Esq., of the Bombay Civil Service; an enthusiastic Botanist, who in the midst of the fatiguing duties appertaining to the office of a Collector, still finds some leisure for the prosecution of his favourite pursuit, and has made many valuable additions to my collection, from that side of India, of plants not found to the Eastward of the Ghats. This genus seems clearly referable to the tribe Hamelies of D. C. and is the only one so far as I know belonging to the Flora of the Indian Peninsula.

1070. LAWIA ACUMINATA (R. W.)

Courtallum and western slopes of the Shevagherry mountains, flowering in August—see *Calcutta Journal of Nat. History*, vol 6.

1071. SCUTEA RHEEDIANA (R. W.) shrubby, armed with a few scattered recurved prickles: leaves subopposite approximated, from broad ovate to orbicular, tipped with a minute point, conspicuously, parallel-veined, bright green above subglaucous beneath: ovary 2 celled; fruit 2 celled: seed compressed.

Neilgherries abundant near Kaiue Falls, apparently in flower at all seasons.

This seems very distinct from *S. Indica*. When naming it I thought it Rheed's plant, to which it bears a considerable resemblance, but he represents the fruit with 5 seed, in both his figures, a form I have not yet met with, and, if that part of his figure is correct, I doubt whether his plants belong to this genus. This I have never seen with more than two. It is at once distinguished from *S. Indica*, by the venation of the leaves, which in this is prominent on the upper surface, running in parallel curved lines from the costa to the margin; while in that, it is barely conspicuous and at irregular distances: the leaves in this are besides ovate, or approach that form, while in that they are cumate or obovate: this is nearly unarmed, while the ramuli of that are constantly furnished with numerous stout recurved prickles.

1072. POLANISIA BURTOPPENSIENSIS (Munro) stem together with the leaves thickly covered with prickly hairs; leaves simple 1 oblong-lanceolate acuminate; radicle ones attenuated into a petiole; caulme sessile: stamens 10-12 * siliqua linear, not compressed, sessile, about the length of the peduncle.

Plains of Roobas* near Bhurtpore, flowering in September. 1 lowers rose coloured.—*Munro Hort. Agensu* p. 35

I am indebted to Captain Munro, H. M. 39th foot, for the drawings and characters of this, and the two following plants.

1073. CORCHORUS UUMIUS (Munro) perennial prostrate: leaves ovate crenate long petioled: peduncles 2 flowered: capsules linear, oblong 6-8 times longer than broad, nearly glabrous, 4-5 celled, 4-5, valved; septa nearly obstate.—*Munro, l. c.*

"A small prostrate plant growing in very hard dry soils. This may be *C. prostratus*. Hoyle who, however, gives no character."—*M.*

MONSONIA CHUMBALENSIS. (R. W. *Ervduim Chumbaleuse*, Munro).

1074. (ERODIUM CHUMBULENSE Munro.)—Annual, with a short decumbent stem covered with glandular hairs: leaves long petioled, oblong, cordate, crenate: peduncles 1 flowered, thicker towards the top, jointed near the base, furnished at the joint with two bracteas: sepals pointed: carpels including the awns nearly 2 inches long.—*Munro, l. c.*

Chumbul, near Agra in ravines. "I believe it is the first instance of an Erodium having been found on the plains of India."—*M.*

As this is certainly a species of *Monsoma*, I have changed Captain Munro's generic name but for the present retain the specific one, though I suspect it is identical with *Gauntwin Lawtanum* of Graham's catalogue, because the drawing differs somewhat from specimens of that plant communicated by Mr. Stokes of Bombay, under the name of *Monsoma Lawutna* a full description of which will soon appear in the *Calcutta Journal of Natural History* under the following specific character.

M. Lawiana (Stokes) densely clothed with lymphatic glanduliferous pubescence; leaves ovate-cordate, acuminate, dentate: stipules and bracts herbaceous: peduncles axillary 1 flowered: carpels obliquely truncated at the apex hispid.—The peduncles are long, jointed near the base, and when in fruit, twice bent, somewhat resembling the long form of the letter J inverted thus ?.

1075. VUGELIA INDICA (Gibson M.S.S.) leaves ovate obtuse roundish at the base perforate.—R. W.

Found by Dr. Gibson of Bombay, near Illeura, to whom I am indebted for the specimens from which the drawing was taken. The station given is "Humical Ghaut" leading down to Sungunnure in the Deccan.

A large shrub from 6-10 feet high with cylindrical ramuli and ovate obtuse coriaceous glabrous perfoliate leaves. Inflorescence paniculately spicate, flowers closely congested on the extremities of the branchlets forming a conical spike. Calyx five sepaled with cylindrical corrugated on the margins. Corolla tubular 5 cleft estivation convolute; lobes reflexed obcordate mucronate. Stamens included. Ovary superior one celled with a solitary ovule pendulous from the apex. Style

filiform stigma 5 cleft. Capsule 5 valved separating from the seed. Seed ovate, pendulous; embryo fallacious, enclosed in a fariuateous albumen.

I have to apologize to Dr. Gibson (or not introducing some alterations and corrections which he suggested on the drawing being submitted to him for companionship with growing plants. Tins originated in Ins letter having been mislaid and supposed lost when sending the drawing to the printer. Since then I have found it, and will do what I can towards correcting the first error by introducing some extracts here, premising, however, that the outline of the figure coiredly represents the specimens first sent and thul the errors are confined to some of the details.

" 1st. The leaves are considerably too lanceolate only the younger ones are generally in uinmale the older ones rounded and sometimes crenaie."

" 2d. The leaves have not the net work of veins shown, but simple cross veins faintly visible; colour of the leaf light glaucous or sea green texture u I most coriaceous " [The venous net work is certainly inure distinct in the drawing than the specimen, but being on a white ground that is unavoidable, it however exists m the original.]

" 3'l. Foliamftjorafirme, semper margine retroversa."

" 4>h. The inflorescence is much too pumcular it should be more of a spike with a few branchlets, rather converging than diffuse, the inflorescence til so is too rounded at the ends it should be considerably more conical." [As regards the outline of the inflorescence the figure is correct for the spernneu, which was the most luxuriant of those sent. For the rest I cannot so well speak now as most of the flowers, owing to its havini got wet and injured in coming, fell off almost immediately after it was opened.]

"5th The dime remark applies to the petals as drawn previous to expansion; they are pointed, not rounded and ventneose as in the drawing. Estivation is convolute as in *Apocyn**."

These remarks are introdut ed in the hope that they will tend, wuh theaidofthc figure, to convey a more correct idea of the varying forms of the plant, than even the rao>tcorrect figure of any one of them could give.

1076 VERNONIA CONYZOJDES (D. C.) suffruticose, erect, striated, shortly pubescent: leaves ovate, or oblong lanceolate, acumui .ted, attenuated into a short petiole, serrated; glabrous above puDescently villous beneath: corymb <omponent, ramous, polycephalous: scales of the involucre linear lanceolate, acuminated, pubescently villous, shorter than the disk.—*D. C. Prod.* 5. 25.

On the plains, this is comparatively a small plant; on the Neilghernes, especially, when growing among bushes where it finds support, I have seen it 10 or 12 feet in height Flowering time February and March, flowers rose coloured.

1077. VERNONIA PECTENIPORIFIS (D. C.) shrubby, branches terete smouttiish, younger ones angled, pubescent: leaves short petioled, lanceolate, acuminated, pclinatffly and deeply serrated, membranaceous; glabrous Hboie pilose beneath: cymes terminal, corymbose, naked: <Hpituln long pedicel led, many flowered, ovate: scales of the mvolucrm dry, glabrous, ciliated, ovate, oblong, silimctite.—*J. C. Pittd* 5 p. 31.

I have tomtptired the NeiUherry plants from which th#> drawing WHO m i e with the Omdi^ul one examined and fimnfil by DeCmtllolle and cannot find any permanent difference, where a number of specimens are under examination: I therefore think the two plants should be uited as 1 species. *V. rcUcuyormu* being the older

published name by 2 years and moreover feeling sure that this species, I adopt it.

1078. VERNONIA NILGHERRYENSIS (D. C.) herbaceous, roundish, subpuberulous. leaves short petioled ovate acuminate, prickly serrated; rough above, tawny coloured beneath: cymes terminal panicle-shaped, branches very ramous polycephalous: capitulae ovate crowded 2-5 flowered: scales of the involucre dry, oval oblong acute, glabrous, pilose at the apex: nchemum glabrou«: external series of the pappus very short deciduous.—*D. C. I. c.*

A large annual, common in hedges on the Neilghernes, flowering in March and April: flowers pale pink. This plant is so exceedingly like *Decanuium dteigent* that they can only be distinguished by a reference to the generic character.

1079 VERNONIA SALVIPOLIA (R. W.) shrubby tomentose: leaves long narrow lanceolate, rugose, glabrous above, densely wlute—tomentose beneath: <orymb axillary and terminal inked or wuh a few small scattered leaves: capitulse numerous, densely aggregated, subsessile, many flowered: involucre sul>cumpantuhite tomentose: scales lanceolate, subacute, callous at the apex: achsmum glabrous somewh.it 4 angled, the sides sprinkled with glutinous points, exterior pappus paleaceous.

Courtallum This species is nearly allied in habit to *V. Wightuinu*, Arnutt, but is certainly most distinct m its characters.

1080. DECANEURUM RETICULATUM (D. C.) stem suffruticose, ere<t, ruinous, every where rough with bristly hairs: leaves sessile, ovate, mucronate, and mucronately sub dentate; rough above, densely whitish tomentose beneath; nerves and veins scabrous reticulated: peduncles few, axillary and terminal, copitulae closely embraced by numerous foliauous bracts; interior scales of the involucre scariouse, glabrous, longer than the bracteas.—*D. C. Prod.* 5. p. 866.

Neilghernes, frequent on the banks of streams all over the hills, and in flower nearly all the j ear; but in greatest perfection from June to September. Plant from 2 to 4 feet high flowers purple.

1081. DECANEURUM COURTALLENSE (R. W.) stems Bcnbrous, suffruticose, erect, ramous: leaves attenuated into the petiole, ovate lanceolate obtuse, sightly mucronate-dentate; rough above, softly whitish tomentose beneath, at first umlormly white afterwards reticulately veined: peduncles axillary 1-cephalous cu pi tulae closely bound by several ovate-obtuse mucronate 3 nerved bracts: interior scales of the involucre scariouse, glabrous, longer than the bracts.

Courtallum flowering in February, this species seems intermediate between *D. reticulatum* and *molUbul* very distinct Iroin both.

1082. DECANEURUM MOLLE (D. C.) stem herbaceous erect, somewhat scabrous, tomentose towards the apex: leaves attenuated into the petiole, ovate lanceolate acuminate, coursey and irregularly serrated; above setosely scabrous or nearly glabrous; beneath whitish tomentose: interior scales of the involucre scariouse, glabrous, subarite.—*I. C. I. c. p.* 67

Tins seems to be a widely distributed and variable species. I lime specimens from the Southern extremity of the Peninsula and others communicated by Mr. Law, from the vicinity of Bombay. Between the Southern and Northern forms there u considerable dif-

ferre nee but not enough, it appears to me, to constitute them distinct species the principal one being derived from the comparative size of the cupitula which may be accidental and confined to ray specimens.

1083. *DDCANEURUM SILUETENSE* (D. C.) stem herbaceous, erect, ramous: leaves shortly petioled, oblong lanceolate acuminate at both ends, remotely bristly serrated, above glanduloso-scabrous; beneath along the nerves scabrous: cupitula at the apices of the branches, usually solitary subcorimbose: interior scales of the involucre oblong mucronate; exterior ones filiform subulate subpatulous a few scattered on the peduncle. — *D. C. I. c. p. 113*.

Cow tulium—February 1836—The remote Geographical station of my plant from that whence the original was obtained made me hesitate for some time to consider them the same but the characters generally correspond so well that I cannot separate them, though this has white pappus and thin red, a difference perhaps depending on at oriental circumstances connected with the preservation of the specimen. The stems in my plant somewhat resemble the *athema* in having prominent nerves and furrows between.

1084. *DECANEURUM DIVERCENS* (D. C.) stem herbaceous, erect, velutino-scabrous, paniculately branched: leaves short petioled, elliptic, acuminate at both ends, dentate; glabrous above, reticulated torn on the lower surface: branches of the panicle leafy, elongated, diverging and themselves paniculate: capitula crowded on the extremities of the branches, 7-8 flowered: scales of the involucre oblong acutely mucronate nearly glabrous: achsma glabrous, glandulose.—*D. C. I. c. p. 68*.

Neilghemes frequent. It may almost be called a shrub and does not appear to be an annual. D. C. inquires, an *potms vtrnonia spales V. nniliflore proximo*? The plant here represented certainly is not a *Venwma* but *V. multiflora* and perhaps *V. Nilgherryensu* may possibly be *Decaneuta*. The latter is not distinguishable by any mark except the smooth achania and it seems to me young specimens only are found to represent it.

*

1085. *MONOSIS WIGHTIANA* (D. C.) Arboreous, branches terete, velutino tomentose: leaves petioled ebovate subcuneate, cuneate and obtuse or subcordate at the base, entire, penninerved, glabrous and somewhat velvety on the nerves above; velutino hirsute beneath: panicle very racemose, capitula sessile at the apices of the subcorymbose ramuli: scales of the involucre obtuse, tomentose on the back.—*V. Cl. p. 77*.

A large tree, abundant on the Eastern slopes of the Neilgherries below Coonoor.

1086. *ELEPHANTOPUS SCABER* (Lmn.) stem dichotomous, ramous; stngoso villous: leaves scabrous, radicle ones crenate, cuneate, attenuated at the base; cauline ones lanceolate; floral ones broad cordate acuminate canescent.—*D. C. I. c. p. 66*.

A widely diffused plant—found in Malabar, abundant at Courtallum, in Ceylon, Maulmain, Malacca (?) and elsewhere.

1087. *ADENOSTEMMA LATIFOLIUM* (D. Don) stem erect ramous puberulously—hirsute towards the apex: leaves petioled, cuneate or subcuneate at the base, broadly ovate rhomboid or subcordate, scarcely acute; coarsely serrated and puberulous on the veins: panicle corymbose hairy polycephalous: scales of the involucre subacute, rough on the back: achsma mucronately tuberculate.—*D. C. I. c. p. 112*.

Neilgherries in low lying humid ground and on the banks of streams frequent.

1088. *ADENOSTEMMA RETICULATUM* (D. G.) stem erect subtetragonous glabrous, the very diverging branches of the panicle glanduloso—puberulous: leaves ovate, coarsely toothed, rigid, the prominent reticulated nerves beneath puberulous: scales of the involucre linear oblong obtuse scarcely pubescent: achsma smooth.—*D. C. I. c. p. 113*.

This like the preceding is found on the Neilgherries, but I greatly doubt whether they should be kept distinct the only character of any weight is that taken from the seed, and it is of very secondary value.

1089. *CALLESTEPHUS WICHTIANUS* (D. C.) leaves sessile, oblong linear entire or subserrated, shortly mucronate: branches leafy compressed at the apex, minutely puberulous: exterior scales of the involucre foliaceous, linear oblong, not ciliated, scarcely longer than the interior.—*D. C. I. c. p. 275*.

A rather common plant in many places in the Southern provmres; about Coimbatore it is not unfrequent, flowering during the cool season after the rains.

1090. *ERIC i RON WICUTII* (D. C.) stem erect shortly ramous. leaves oblong, the inferior ones attenuated at the base, subserrated, somewhat obtuse; superior ones enure, acute, all puberulous on both sides: capitula pedicelled subracemose: scales of the involucre rough on the back, linear subulate, equalling the disk: lignite very slender, longer than the disk: achania glabrous.—*D. C. I. c. p. 286*.

On the Neilghemes not unfrequent in moist pastures, flowering during the rainy season. Lignite pale purple several series, branches hispid plant greyish white.

1091. *MYRIACTIS WIGHTII* (D. C.) sparingly pilose: inferior leaves ovate with a long cuneate attenuation at the base, coarsely mucro-serrate; the superior ones oblong enure sessile; the apices of the teeth and of the leaves themselves callosomucronate.—*D. C. I. c. p. 308*.

Neilghemes not unfrequent in pastures, minute forms of it growing in and on stony ground sometimes resemble the Daisy. Radicle leaves ovate attenuated into the petiole the inferior cauline ones cuneate at the base, sparingly dentate, the upper ones subsessile acuminate at both ends: capitula terminal solitary, 4-6 lines in diameter: involucre somewhat hairy reflexed after blooming: ligule white about 2 lines becoming revolute in drying.—*D. C.*

1092. *BLEPHARISPERMUM PETIOLARE* (D. C.) leaves petioled, ovate—lanceolate acuminate: glomerules several long peduncled.—*D. C. I. c. p. 368*, Courtallum 1836.

De Candolle in his generic character describes the capitula as 2 flowered in place of 4—viz. 2 male and 2 female, the former central: each flower is furnished with a partial palisade while a shorter common involucre appertains to each capitulum.

1093. *BLEPHARISPERMUM SUBSESSILE* (D. C.) leaves elliptic, attenuated at both ends subsessile: glomerulus terminal solitary subsessile, with foliaceous bracteal longer than the capitulum.—*D. C. I. c.*

Bellary in and on stony soils—October 1834.

Dr. Arnott proposes to remove this plant from the genus and make it the type of an intermediate one between *Blepharispermum* and *Athronma*. I am unacquainted with the latter except by description, but think

this species better with it than the former, and I think it might without impropriety be referred there, by which the necessity for a new genus would be avoided

1094 *SPHRANTHUS HIRTUS* (Willd) leaves obovate serrated, roughish on both sides, prolonged into serrated wings glomeruli ovate globose, peduncles three times as long as the glomeruli usually furnished with serrately cleft wings—1) *C I c 5 369*

This is a widely distributed plant, generally found in rice fields, flowering during the cool season

In this species there are 2 or 3 central hermaphrodites (lower, surrounded by about 10 or 12 female ones) the glomerulus is usually purple of an oval shape, and shortly hairy all over

1095 *DICHIROCEPHALA CHRYSANTHEMIFOLIA* (D C.) erect ramous, the whole plant rough from close set short hairiness inferior leaves lyrate pinnatifid the superior ones oblong, cordately semamplexicaul, coarsely serrated, the upper ones entire peduncles much longer than the capitula — *D C I c 5 372*

Frequent on the Neilgherries about road sides and in neglected places, apparently in flower most part of the year

1096 *DICHIROCEPHALA LATIFOLIA* (D C) stem erect, sparingly pilose, leaves obovate attenuated into the petiole, coarsely toothed, often inciso-pinnatifid at the base, flowering branches ramous nearly naked, pedicels rigid divaricated longer than the globose capitula — *D C I c 5 372*

Neilgherries very common The capitula of this are scarcely half the size of the preceding, but the leaves are much larger. Tins, in suitable situations is a luxuriant growing plant, the other is always an erect rigid one

1097 *GRANGEA MADRASPATANA* (Poir) stems procumbent or dittuse, the extremities villously pubescent — *D C I c 5 373*

A common plant near the borders of tanks all over Southern India

1098 *CYATHOCLINE LYRATA* (Cassme) inferior leaves lyrate, upper lobes of the leaves larger, obovate — *D C I c 5 374*

This so far as my own observation extends is a rare plant The specimens here represented were gathered on the banks of a stream in Ojunge valley, on the Neilgherries, generally past flower, in August

1099 *BLUMEA HIFACEFOLIA* (D C) every where hairy stem herbaceous erect terete simple leaves callously dentate, the interior ones obovate obtuse, attenuated into the petiole, the superior ones oval or oblong, aruate, sessile or semamplexicaul capuula sessile, crowded, funning an ovate oblong thytse scales of the involucre linear, acuminate, smoothish, longer than the disk — *D C I c 5 442*

Rather frequent on the Neilgherries in moist soil near springs or on the banks of streams and water courses. It is either a variable plant in habit, or there are other species so nearly allied that it seems almost impossible to distinguish them by written characters. The plant represented seems to be the true form, further described by D C. as follows "Herbaceous, about a foot high leaves more hairy beneath involucre purplish on the margin female flowers in a tremble, slender style exserted undivided, males 5 in the centre ovary pubescent

1100 *BLUMEA PTERODONTA* (D C) stem herbaceous terete ramous, scarcely puberulous, viscid towards the extremities leaves elliptic oblong glabrous, subserate, decurrent, forming a long deeply and acutely dentate or cleft winged branches leafy, subamplexicaul, with one or few capuula at the apex, pedicels naked exterior scales of the involucre oblong foliaceous short, the interior ones scanose linear acute, a little longer than the flowers — *J L I c 5 448*

Neilgherries near Kaitie falls, a widely distributed plant occurring equally on the plains and mountains and D C saw specimens from Madagascar

1101 *BLUMEA ALATA* (D C) stem herbaceous erect ramous and, like the leaves, clothed with short redish pubescence leaves elliptic oblong, dentate, decurrent, forming wings along the stem peduncles axillary one or few headed, racemously amplexicaul capitula suberect exterior scales of the involucre lanceolate, foliaceous, squarose, pubescent, interior linear stunose as long as the flowers — Flowers purple males 10 or 12 — *I C I r. 5 448*

Neilgherries not unfrequent Of this species there are 2 varieties referred to by D C / Scernua and *y Napalensis the plant represented belongs to the former — "stems herbaceous erect ramous, like the leaves clothed with short redish pubescence leaves oblong acuminate, denululate, decurrent, forming wings along the stem, peduncles axillary one or few headed racemously amplexicaul recurved, capitula cernuous exterior scales of the involucre lanceolate foliaceous pubescent*, the interior ones long shining scanose recurved at the points, at length patent" "This species seems very near *B. vernmuouies*, are they not varieties of the same species differing in the degree of clothing, the one "tota dense vellutino-hirsuta" the other (*V. alata*) "pube brevi subrufapubescenti-velutinis"

1102 *CESULEA AXILLARIS* (Roxb) *D C I C 5 482*

Mysore in marshy soil, the specimen represented was gathered in the reservoir of a luitious hill fort I have met with this plant in other places but it is far from common. Tins may possibly be a distinct species, as it differs from Roxburgh's figure in the form of the stigma, here it is spathulate included within the tube of the corolla there filiform exserted As however, in all other points, it agrees with Roxburgh's figure, I have referred it to his species under the impression that the slight difference may be attributable to the artist who made the drawing

1103 *SIEGESBECKIA ORIENTALES* (Linn) leaves ovate, cumate at the base, acuminate, coarsely toothed, the upper ones oblong lanceolate exterior scales of the involucre twice the length of the interior — *D C I c 5 495*

This is a widely distributed plant in India, it is also found in China, the Mauritius, Society Islands and in Chili. It is principally interesting as having been mimed by Linnaeus in derision of the high pretensions of one of his contemporaries who contemned his sexual stem

1104 *XANTHEUM INDICUM* (Roxb)

The faint bearing involucre oval, pubescent between the prickles, and at the base of the beaks beaks hooked at the points — *D C I c 5 523*

A large coarse rank growing plant found among rubbish and dunghill* The genus, among *Lomposet**, is a very abnormal one, and has by one Botanist been referred to *Viticace** and by another to *Lwurdace**. It

seems as if it might justly be removed from us present station to form the type of a new order

1105 MOONIA AENOTTIANA (R W) shrubby, erect, ramous leaves opposite, unequally pinnatifid, the terminal lobe large, deeply 3 cleft pinnae lanceolate, acuminate, coarsely inciso-serrated, glabrous flowers of the ray numerous achsna entire at the apex — *R W M S S*

Neilghernes and Pulney mountains in clumps of single—on the former common near the Avalanche Dungalow and in almost every clump of jungle from thence to near Sisparah

ill *hticophyllu* (Arnott) suffruticose⁷ leaves opposite, petiolate, entire or biternately divided, with mucro-ile serratures flowers of the ray about 5 achsnae marginate bit ornate at the apex Ceylon — *Am pugil* *D C pod* 7-289

1106 WEDELIA URTIC.FOLIA (D C) herbaceous subsucculent leaves petioled olate lanceolate coarsely and unequally serrated, stenosely hispid on both sides, acuminate often incurved at the apex peduncles solitary 1 cephalous scales of the involucre 10 in two series, arum mate, rough on the back palise of the receptacle much acuminate arhdni i surmounted by a stert denticulate calyculus — *J) C I c* 539

ft Wightu peduncles about the length of the leaves leave* shortly acuminate at the base spannny stngose — *D C*

My specimens of this plant are from the Neilghernes, Pulneys and Shexagherry mountains—showing us Alpine tendencies

1107 WEDELIA CALEJ.DULACEA (Lessing) lertxes oblong—lanceolate, attenuate 1 towards the base, stngosely pilose on both sides, with a few serratures at the apex peduncles 1 cephalous, axillary, solitary, three times longer than the leaves exterior scales of the involucre oblong, subacute, longer than the disk calyculus of the achsmum substipetute, dentic late — *D C I c* 539

A widely diffused plant—lanes in the leaves being obtuse or acuminate entire or more or less serrated or cut or even, but rarely, almost 3 lobed — *D L*

1108 WOLLASTOMA BIFLOIA (D C) leaves petioled ovate, at the base shortly of the apex long acuminate, acutely serrated, above scabrous from scattered hairs, nearly glabrous beneath peduncles one to three, 1-cepbalous, one terminal and 1 2 from the superior axils scales of the involucre two series, oblong lanceolate achsmum bald or with a single arista — *D t I c* 5546

1109 SPILAMNES CALV* (D C) stem ascending, repntat the base hirsutulous at the apex leaves petioled, ovate obtuse, serrated or renate, nearly smooth, ciliated at the base, peduncles thrice the length of the leaves capitula ovate discoid achsnae glabrous bald — *D C I c* 5625

A widely distributed plant very common on the Neilghernes

This plant is scarcely distinguishable from *S oleracia* except by the achsna which in this is glabrous in that ciliate in the margin The analysis under B in the accompanying plate are those of *S oleuiau* taken from plants collected in Coimbatore, where in common plantations, it is not unfrequent, showing that it is truly a native of India which D C questions

P S—Through some blunder on the part of the transferred the dissections of *S ealva* have been altogether suppressed Those on the plate all belong to *S oleracia*

1110 GLOSSOCARDIA BOSWALLEA (D C) a herbaceous diffuse many stemmed annual, with alternate pinnatifid leaves, linear at the base, and solitary capitula on short naked peduncles flowers yellow — *D C* 5631

The specimen figured is an unusually luxuriant one and does not give a very good idea of the plant, as usually met with, growing in and sterile pastures where it lies flat on the ground spreading all round the root I believe I owever that it is simply a luxuriant variety of the same species grown in more fertile cultivated soil

I have not met with it in the immediate vicinity of Coimbatore but it abounds at Ootaculmund, a village a few miles distant

1111 AJUIMESIA GLIDRATA (Wall) suffruticose, erect, imbricate and younger lentic beneath subvillous, radical leaves, and the lower cauline ones slipellately cleft, lanceolate—cuneate, acutely trifid at the apex racemes slender subsecund forming a panicle capitula cernuous pedicel led smallish globose scales of the involucre ovate, margined, the interior ones with a membranaceous margin — *D C I c* 6100

Very frequent on the Neilghernes flowering after the rains inferior leaves obovate cuneate deeply and coarsely toothed the middle ones usually 3 5 parted, the middle lobe higher more or less deeply 3 cleft, the outside ones subulate, the upper floral leaves simple, lanceolate acute anthers of the male flowers free

1112 AUTIMESIA INDICA (Willd) suffruticose erect leaves greyish tomentose beneath, the lower ones pinnatifid, the middle trifid, the upper ones undivided and like the lanceolate lobes of the lower ones dentate or incised capitula ovate racemously panicled panicle leafy spreading, racemulose before blooming pendulous the young involucre subtomentose, afterwards glabrous, the exterior scales foliaceous acute, interior membranaceous obtuse corolla naked — *D C I c* 6114

This is a common enough plant but, so far as I recollect, generally seen only about the habitations of men in gardens &c apparently never under cultivation, but as if only lowered to remum by sufferance, not being considered a weed The only figure I can find is in Rump Hero ambu 91 & 2.

1113 HELICHRYSUM SUDDIEIOIUES (D C) stem suffruticose erect ruinous mostly towards the apex leaves sessile ovate lanceolate acuminate entire, 7—0 nerved, glabrous above whitish tomentose beneath corymbs compound polycephalous at the apices of the stems and branches capitula ovate, densely crowded scales of the involucre oval obtuse, about equal, a little longer than the disk — *D C I c* 6201

A rather common plant on the Neilghernes forming dense dumps or bushes from 4 to 6 feet high The white stems and undersurfaces of the leaves contrasting with green upper ones and large clusters of yellow flowers, render this a conspicuous plant The leaves are from 3 to 4 inches long, 8 10 lines broad receptacle alveolate shortly fimbriate flower of the outer series female or sterile, the rest hermaphrodite style and stamens included pappus 1 series pilose scabrous achaema glabrous

1114. *GNAPHALIUM HYPOLEUCUM* (D. C.) stem cretete, scabrous below, ramos and tomentose above : leaves linear acuminate, somewhat revolute on the margin, roughish above, nivo tomentose beneath, adimite, semi-ainplexicaul at the base, subdecurrent: oapitula congested on the apices of the branches sub-sessile plomerules corymbosely paniced : scales of the involncrum yellow, oval oblong obtuse, a little longer than the disk.—*D. C. I c. 6. 222.*

Neilghernes about Kotergherry and the lower slopes, less fiequent towards the highest ranges Easily distinguished by the leaves green above and white beneath and the yellow flowers, females many series, Hermaph. few.

1115. *GNAPHALIUM MARCFSCENS* (R. W.) shrubby, somewhat diffuse at the base, branches ascending terete, the lower portions clothed with numerous persistent withered leaves: withered leaves revolute on the edges, linear subulate; green ones narrow lanceolate acute, glabrous above, tomentose beneath ; thinly scattered on ihe flonferous blanches not decunent: floriferous branches umbellate at the apex, capitula aggregated on the apices of the ramuli; scales of the involucrum ovate lanceolate, woolly at the base, nivo-scariose towards the apex : marginal floiets 2 series : styles Dot exserted ; achsnia obovoid puberulous: pappus umlbim scabrous.

Neilghernes.—This species if, to either, belongs to the section Axunthina. It might perhaps with about equal propriety be referred to either *Anaphalis* or *Gnaphalium* or to neither I can not ho we v*r identify it with any species of the former genus and, as it is my behef the two genera are not distinct, I place it here in preference to addmgit to a genus which I think must ultimately be reduced. I return that genenc name, for the following 4 species, not because I approve of it as applied to them, but because it has already been guen and because I do not think this the place to make innovations except on the surest ground. I therefore so far adopt D. C 's genus though I consider it, as it now stands, untenable.

1116. *ANAPHALIS NOTONIANA* (D. C.) Woolly all over: stem fruticulose leafy to the top, leaves sessile subdecurrent, broud linear or oblong, obtuse, with the thickly woolly margin revolute : corymb terminal compound dense: scales of ihe involucrum many series, imbricated, whitish scanose acute, crisp at the apex, at length stellately patulous —Pappus rough, white, involucrum white.—*D. C. t. c. 6. 273.*

Neilghernes—rather rare I have given D. C. character as I find it, but remaik the discrepancy between the involucrum, as conectly shown in the drawing, and the character. The plant namul by him in my herbanum is evidently the same species but in a much younger state, whence peihaps the mistake. The character should have been "*rn/hi t ult-scanosis obtusis apice subenspis*" &c. as shown b\ the specimen he examined and described.

1117. *ANAPHALIS WIGUTIANA* (D. C) stem suffruticose at the base, erect, It ily to the apex, pilosely scabrous at the base, woolU at the apex : leaves sessile or subadnate, oblong, lineai, obtuse, piiosely scabrous above, whitish woolly beneath ; the nerve beneath often prominent, rough ; the upper ones callously hooked at the point: corymb terminal truly compound, but most densely polycephulous: sr.iles of the involucrum oblong, somewhat acute, white, a little longer than the disk.—Receptacle naked, female flowers many series,

exterior; central ones 10—12: pappus 1 series : achsneum round, subpuberulous: involucrum white flowers yellow.—*D C. I. c. 6—273.*

Neilghernes common. A somewhat variable plant especially as concerns the degree of roughness rigidity and size of the leaves, dependent of course on ihe varying fertiliy and moisture of the soil in which it grows.

1118. *ANAPHALIS⁷ ELLIPTIC A* (D C) every where clothed with while tomentum: stem lamous, shirt, fruticulose at the base : leaves elliptu , mucronaie, entire, with the tomentum rubbed off the 5—7 nerves, odnate, or shortly decurrent: capitulu densely congested, forming an ovate terminal cor) mb, surrounded by leaves: scales of the mvolurum acute, scanose at the apex, redish white.—*D C I c. 6-274*

Neilghernes not unfrequent, found on the highest range, in pastures and by road odes on Dodabetta and elsewheie. It appears to me that this and *A. oblonga* are different states of the same species. The specimen of *A. elliptica* examined by D. C. was in a very young state, that of *oblonga* more advanced and perhaps more luxuriant. When full blown the glomerulus is not embraced by the leaves, but is borne on an elongated leafy stalk, the upper leaves much reduced in size and I find on the same specimen some leaves in which only one nerve can be detected and others with three or more: that character is moreover a very difficult one tomuke our, owinsj to the quantity of tomentum with which in the recant state they are usually covered and would appear, from the abovp fact, less valuable when made out than might a priori be supposed, I think they ought to be united.

1119. *ANAPHALIS ABISTATA* (D. C.) stem ramos, suffruticulose at * he base, erect; leafy to the apex; scabrous at the base tomentose at the apex: leaves long linear, anstato—mucronate at the apex, revolute on the margin, cordately dilated at thebase, shortly decurrent; scabrous above with the midrib subtomentose; beneath whitish tomentose and the midrib scabrous: capitula densely congested, forming an ovate compound terminal corymb: scales of the involucrum obtuse, white and rose coloured, glabrous Flowers whhin the involucrum 15-18, of which 5-6 are hermaphrodite the rest exterior about 2 series female: leaves about 2 inches long and 2-3-hnes broad.—*D. C I c. 6—274.*

Neilghernes on the Northern slopes near Nedawuttem not unfrequent by the road side; readily distinguished when growing by the deep rose colour of t'ie involucre, when seem before quite blown. When blown and the seed maturing the tips of the scales become pale or nearly white, the base however retains its colour.

1120. *CARPESIMUM NEPALENSE* (Les*ing) hirsuto-villous : leaves elhptico-lunceolate, acuminate, dentate, attenuated into the petiol : capitals subcernuous, campanulas: interior scales of the involucrum subacute —Petiois and branches villosa-hirsute. leaves pale and more villous beneath : capitula 4 lines broad.—*D. C.I.c 6-281.*

A common plant in all the woods about Ootacmand.

1121. *GYNURA NITIDA* (D. C.) glabrous; stems th.ckish terete at the base; branches elongated, subangular, nearly naked at the apex : leaves lanceolate, attenuated at both ends, short petioled, coarsely serrated.* corymb terminal 5—7 cephaloue: involucrum cylindrical, a little shorter than the flowers, four times

as long as the subulate bractioles.—Receptacle naked, areolate : involucre 6—7 lines long, purplish.—I). C. l.c. 6—299.

Neilghemes—Pulney Mountains, &c. This is a large succulent plant, several feet in height, which I have met with in several alpine situations, but I do not recollect finding it on the plains.

1122. GYNURA WALKERI (R. W.) shrubby, erect, stems naked at the base terete, marked with numerous scars of fallen leaves, leafy towards the apex : leaves long petioled, ovate lanceolate, acuminate, entire or only slightly crenulate on the margin : corymbs terminal, large, loose, many cephalous : involucre cylindrical shorter than the flowers, much longer than the slender subulate bractioles

Neilghemes not unfrequent in woods, usually in moist soil near streams, also in Ceylon. The stems at the base are woody, but soft and juicy, often upwards of an inch in diameter, and 6 or 7 feet in height, terminated by large corymbs. The leaves are from 4-6 inches long and about half as broad, of a light yellowish green, probably owing to the plant generally growing under the shade of surrounding trees. Flowers white. It appears to be in flower nearly all seasons.

I first became acquainted with this plant through Ceylon specimens, communicated by Colonel Walker, to whom I at that time dedicated the species and at this distance of time, full eight years after, confirm my first suggestion.

1123. EMELIA SCABRA (D. C.) stem ascending, leafy and densely hirtellous at the base, naked, smooth at the apex : lowest leaves lyrate, cauline ones cordately semi-amplexicaul, ovate lanceolate, rather obtuse, dentate : rough on both sides from scattered hairs : corymbs terminal 5-7 cephalous : involucre, scarcely shorter than the flowers : about 100 flowers within the involucre — I). C. l. c. 6—303.

An obscure weed, not by any means uncommon, but almost always appearing as solitary plants.

1124. DORONICUM WICHTII (D. C.) glabrous, stem erect, sub-simple, angularly, serrated at the base ! leaves lanceolate acute, coarsely dentate, subrevolute on the margin ; the lower ones attenuated at the base, those above amplexicaul : corymbs few-flowered ; the pedicels bractiolate at the apex : scales of the involucre linear, subacute : ligules 8-10, flat : achenia glabrous.—Ligulae 6-7 nerved, styliferous*, but probably abortive, destitute of pappus.—D. C. 6, 322.—*Mudaiuc usglubii* D. C. 6, 440.

Neilghemes in pastures and near the banks of water courses where the soil is moist flowering towards the end of the rainy season.

1125. DORONICUM ARNOTTII (D. C.) stem simple, erect, striated, rough below, glabrous above : leaves close set towards the base, cordately semi-amplexicaul : oblong 3-6 nerved, obtuse, dentate : rough on both sides : corymb terminal, few-flowered ; bractioles linear subulate : involucre subcalyculate*, scales about 15 linear : ligulae 10 oval, six-nerved, probably sterile by abortion : achenia glabrous.—Stigmata short included : flosculi very numerous : pappus redish.—D. C. l. c. 6. 322 —*Mudaiucti polijrephula* D. C. 6. 440.

Neilghemes, &c. abundant on the Northern slopes, near Nedawutem, flowering October and November.

1126. DORONICUM LESSENGIANUM (Am.) stem long subterete striated hairy : leaves cordate, amplexicaul,

oblong lanceolate, few-nerved, deeply and irregularly inciso-serrated : corymbs few cephalate, terminal : involucre hemispherical, scales linear subulate, the interior ones oblong lanceolate mucronately hispid : ligules 8-10, narrow oval, about 9 nerved.—D. C. l. c. 6. 322 —*Arnott's pugillus* —*Mudaractis scabra*, D. C. l. c.

Neilghemes, &c. flowering cool season after the rains. Allied to the preceding, but I think quite distinct.

1127. DORONICUM CANDOLIANUM (Am.) suffruticose, ruinous : branches striated nearly glabrous, few (1-2) cephalous : leaves whitish, hispidly pubescent, pinnatifid ; lobes short, oblong acute, occasionally shortly dentate : peduncles minutely bractiolate at the apex : involucre 1 series, scales lanceolate, whitish, hispid on the back : ligules 8-10, narrow, oval, 3-5 nerved.—I). C. l. c. 6. 322.—*Arnott's pugillus* —*Mudaractis pinnatifida*—D. C. 6. 439.

Neilghemes frequent in pastures. A very ramous somewhat diffuse plant, branches terete glabrous naked towards the base, very leafy about the middle, ending in slender somewhat leafy peduncles, bearing two or rarely three, nearly naked pedicel led, capitula : leaves oblong, narrow, pinnatifidly lobed, nearly to the base, revolute on the margin, hispid on both sides, but especially the under : peduncles leafy at the base, pedicels furnished with a few minute scattered bractioles. Scales of the involucre linear, pointed, coarsely hispid on the back : ligulae about 9, lanceolate, acute, 4 nerved.

1128. DORONICUM RUPESTRE (R. W.) suffruticose, erect, ramous ; branches near the base terete naked, above leafy : leaves long petioled ; limb lobed or somewhat pinnatifid attenuated into a long slender petiol, nearly glabrous above, nerves beneath bristly hispid : pedicels short leafy at the base, closely beset towards the apex with minute subulate bractioles : involucre 1 series calyculate, leaflets linear acuminate, nearly glabrous on the back : ligulae 8, linear lanceolate, obtuse, 4 nerved.

In clefts of rocks Shevagherry mountains flowering August and September. This species is perhaps too closely allied to the preceding, the more so, as having only once met with it leads to a suspicion that it might be a variety produced by local circumstances, as however I got many specimens and find the characters uniform throughout, and all most readily distinguishable from specimens of *D. Candolleanum*. I think I am quite justified in considering it a species. The Ligules are nearly twice the size, being much longer and broader : the leaves generally have the outline of a long petioled spatulate leaf cut lobed at the apex, many however are more distinctly pinnatifid.

1129. DORONICUM TENUIFOLIUM (R. W.) herbaceous, erect or ascending, ramous, glabrous ; leaves pinnatifid or bipinnatifid ; ligules linear acute, variously toothed or lobed, glabrous : corymbs few cephalate : capitula, peduncled, leaflets of the involucre linear lanceolate acute, glabrous, or slightly puberulous at the point, ligulae about 8, broad oval obtuse, 4 nerved.

Neilghemes, &c. This appears a very widely distributed plant on both the subalpine plains and mountains, of Southern India. My collection presents specimens from all quarters. It is not therefore to be wondered at that so common a plant should vary and should have received different names, viz *Semcwlenui*, *Ju/irtiBuim*, Fl. Ind. *Semcwlenui*, *timtifidus* Wild, Wall, D. C. *Sen lactiosus* Arnott. These synonyms may I think be depended upon, and as all have referred the plant to

Senecio in place of *Doronicum* I am enabled to restore Burman's specific name, which ought never to have been superseded. The same circumstance, namely, this being a *Doronicum* strengthens the suspicion that the two preceding plants, are merely alpine varieties of this, the original species.

1130. *SENECIO CORYMBOSUS* (Wall.—D. C.) stem scandant, terete araneose (appearing as if covered with cobwebs:) leaves petioled exstipulate, cordately suborbicular, shortly acuminate, subseirated; glabrous above densely tomentose beneath, 5-7 nerved at the base. corymbs axillary and terminal compactly polycephalous: involucrem 8-leaved, bracteolate at the base: ligulae none: achenia glabrous.—Petioles of the leaves 6-12 lines long, limb about 2 inches in diameter, 10 tubular florets —*D. C. I. c. 6. 364.*

Neilghernes in clumps of jungle climbing to a great extent over the adjoining trees. De Candolle asks is not this rather a *CacaUa*?

1131. *SENECIO WALKERI* (Arnott) stem scandent terete araneose toward-. the extremities: leaves exstipulate, petioled, cordiform, mute, callosa-dentate, glabrous, above flosculously uraneous: peduncles axillary, longer than the leaves; corymbosely-polycephalous: capitula discoid 6-7 flowered: scales of the involucrem 8 with a few subulate squamulae at the base: ligulae none achenia glabrous.—*D. C. I. c. 6. 364—Arnott's pugiltw—very near S. corymbosus*, but seems sufficiently distinct from the difference in nervation, the want of tomentum on the under surface of the leaves, and fewer florets in the capitula.

Neilghernes, &c. and in Ceylon climbing on trees.

1132. *SENECIO NEILGHERIANUS* (D. C.) stem erect suffrutescent, roughly striated at the base, leaves linear lanceolate acute, insutely tomentose beneath, rough above, the lower ones attenuated at the base semi-pinnatifid, the middle ones sessile, dentate, the upper auriculate-nplexicaul, nearly entire: corymbs lew-cephalous, pedicels bristly at the apex: scales of the involucrem linear, scarcely acute: ligulae 12-14 flat: achenia glabrous —*Ligulae 4 nerved, revolute when dry; pappus very white —D. C. I. c. 6. 368.*

Neilghemes in moist pastures near springs and water courses.

1133. *SENECIO LAVANDULAFOLIUS* (Wall. D. C.) stem erect terete hirsutely striated: leaves crowded, oblong linear, entire, revolute on the margin, tomentose beneath, hairy or hispid above; the upper ones linear distant: racemes corymbose simple: peduncles bractioled, involucrem nearly glabrous 15 leaved calyculate: flowers about 40, ligulae 15, long, spreading, 4 nerved: achenia glabrous.—*I. C. I. c. 6. 368*

Common in pastures on the hills flowering during the cool season.

1134. *SENECIO CANDICANS* (Wall) climbing, everywhere clothed with white tomentum, branches striated: leaves petioled, auricled with reniform stipule, cordate acute serrated, aramose above, afterwards glabrous; beneath niveous: panicle corymbose: bractae linear hubulue: pedicels diverging: involucrem white, lampanulue, sparingly bractioled at the base: ligulae 6, oblong flat: achenia glabrous —*D. C. I. c. 6. 369.*

Neilghemes, frequent in clumps of jungle climbing on the adjoining trees.

1135. *SENECIO INTIRMIUS* (R. W.) scandent

glabrous, leaves petioled glabrous triangular, acuminate, unequally crenately-dentate: petioles auricled at the base, with a large reniform stipule: panicles corymbose: bractea linear subulate: pedicels divaricate: capitula many flowered: involucrem calyculate: ligulae 12-14 oblong lanceolate obtuse: achenia papillose.

Neilghernes climbing on trees and bushes near the Avalanche Bungalow, flowering February and March

This species seems quite intermediate between *S. cutidicum* and *S. Wightiana* but is certainly distinct from both. It has the large reniform auricled stipules of the former, the glabrous habit of the latter, and differs from both in its numerous and large sized ligulae.

1136. *SENECIO WIGUTIANUS* (D. C.) glabrous, branches scandent, angularly situated: leaves petioled, ovate or elliptic lanceolate, acuminate, serrated, obtuse at the base or shortly cuneate; petioles with a small auricle at the base: panicle divaricate; pedicels bractiolate at the apex: capitulae small, 8-10 flowered; ligulae 3-4 small: achenia puberulous.—*D. C. prod. 6. 370.*

A widely distributed species, like both the preceding native of the Neilghernes, but descends to much lower levels, the specimen figured was obtained from the Malabar jungles.

1137, 1138. *CIRSIIUM ARGYRACANTHUM* (D. C.) leaves semi-umplexicaul serrately pinnatifid, ciliatospinulose, the lobes ending in strong spines; beneath and the stem arachnoideo-villous: capitula paniculately congested: bractea many cleft very prickly: scales of the involucrem terminating in strong spines —*D. C. I. c. 6. 640.*

Very common on the Neilgheries, about equally so on the Putney mountains. In moist rich soil it not unfrequently attains the height of 6 or 7 feet. It may be met with at most seasons in flower, but is in perfection in August and September. Flowers pale purple.

1139. *TRICHOLEPIS PPOCUMBENS* (L. W.) stem short flexuose lamous: branches diffusely procumbent, angularly striated, subglabrous: leaves shortly pubescent or subglabrous, those of the stem bristly, of the branches sinuately pinnatifid, the lobes spinulose: involucrem ovate; scales ovate at the base, arane, terminating in a slender prickle-like appendage: stamens a little longer than the corolla: stigmas exerted, diverging at the apex: anther smooth, pappus double, exterior of many setaceous; interior of 5 lanceolate paleae, nearly equalling the corolla.

Bellary in and stony soils flowering October and November.—Coimbatore in similar situations flowering January.

This seems most nearly allied to our *T. Candoliana* a figure and description of which is published in the Companion to the Botanical Magazine vol 1 P. 81. it seems however abundantly distinct.

The double pappus seems to associate this with *Miaobnchus* but the homogenous not heterogamous capitula keep them distinct.

1140. *DICOMA LANUGIVOSA* (D. C.) erect, very ramous, woolly: involucrem ovate, scales exteriorly subglabrous: paleae of the pappus serrated, scarcely twice the length of the very hairy fruit.—*I. C. I. c. 7. 36.*

Found in light gravelly soils flowering during the rainy and cool seasons rather common about Coimbatore.

1141. *SOKCBUS CILIATUS* (Lam D. C.) stem erect, glabrous, or rarely pilosely glandular towards the extremities of the branches, cauline leaves stem clasping, acutely dentate—ciliate, runcinate or undivided, the auricles acuminate. involucre and pedicels nearly glabrous: achenia along, the nerves transversely punctate—rugose — *D. C. I. c. 7.185*

Widely distributed over India especially among rubbish by wall sides in sheltered places.

1142. *SOINCHUS WIGHTIANUS* (D. C.) root lignous: stem ascending erect, somewhat angular, glabrous. leaves stem clasping, with roundish auricles, oblong-lanceolate, unequally and acutely dentate, glabrous, glaucescent; the upper ones neatly linear, the laxly corymbose pedicels and involucre glanduloso—pilose: achenia oblong striated, very slenderly transversely—rugose—*D. C. I. c. 7.187*.

Shady places—In cocoan it plantations at OotakalmunJ near Coimbatore rather frequent, flowering during the rainy and cool season. In the shaded rich soil of these plantations, this plant sometimes though rarely attains a height of nearly 4 feet but seems quite an annual

It seems quite distinct from the preceding.

1143. *PICBIS HIERACIOIDES* (Lim) stem erect, usually rough with barbed hairs, corymbosely ramous at the apex: leaves semi-amplexicaul lanceolate, coarsely dentate, rough: exterior scales of the involucre oblong Ux.—1) *C. l. c. 7.128*—*Var. <y Indica* Corymb much divanated.

Neighernes frequent, flowering during the rainy and cool seasons. This seems to be a widely distributed species both in India and Europe, I have specimens from Courtullum, the Pulney mountains and Neighernes and according to D. C. *P. ttamulosa* Wall. A Nepaul plant does not differ,

1144. *MULGEDIUM NEILGHERRENSE* (R. W.) stem erect glabrous, somewhat pumpled at the apex: cauline leaves runcinately pinnatifid, doubly crenate, dilated and somewhat stem clasping at the base, terminal lobe Bubrhomboid, attenuated upwards, mucronate, somewhat hairy on both sides especially on the veins beneath: floral ones entire lanceolate: pedicels hairy at the apex. capitula ovoid, scales of the involucre imbricate, exterior ones hairy on the back: achenia obovate compressed, ending in a long beak: pappus double, exterior short paliaceous; interior long slender setaceous—Plant from two to four feet high, flowers purple

Neighernes not unfrequent in jungly ground and by road sides flowering during rainy and cool seasons.

The double pappus of this species seems to indicate that technically it does not belong to this genus, but as its whole habit is strongly in accordance with it, I without hesitation place it here.

1145. *MICRORHYNCHUS GLABER* (R. W. *Lactuca glabra* D. C.) glabrous, stem naked, dichotomously branched about equal or a little longer than the leaves; leaves elongate-linear, somewhat rigid, acute, either entire or dentate. capitula corymbose long pedicel led cylindrical 7-8 flowered: involucre calyculate with lanceolate squamellae, squama; 5-6 linear lanceolate somewhat scanoe on the margin, thrice as long as the calyculus; achenia five angled obscurely beaked—Denticuh of the leaves sometimes nearly wanting oftener retrorse: leaves 2-3 inches long, 2-4 lines broad.—*D. C. I. c. 7.—135* under *Lactuca*.

Neigherries rather common to be met with in flower at all seasons but most abundant during the rains from July to December. I have ventured to remove this plant from the genus in which D. C. placed it as the achseum corresponds accurately with the one and not with the other. In *Lactuca* the achenium 11 flattened and abruptly lengthened into a long filiform beak, in this it is pentangular and scarcely beaked.

1146. *BRACHYRAMPHUS HEYNEANUS* (R. W. *Lactuca Heyncana* D. C.) stem erect, glabrous, terete, naked above. leaves rigid subradicle, runcinate, coarsely sitosochate; the rest glabrous stem clasping: capitula cylindrical short pedicel led remotely fasciated along the branches: achenia compressed striated slightly mucronate, shortly beaked—Achenia black scabrous pappus white very soft.—*D. C. 7.140*

Coimbatore and elsewhere by wall sides and hedges, flowering during the rainy season. The oblong mucronate achseum ending abruptly in a short thick beak, not a long filiform one has induced me to remove this also from the genus *Lactuca* with which it certainly does not associate but sorts well with *Biuthyramphus*

1147. *YOUNGIA NAPIFOLIA* (D. C.) glabrous or subhirsute at the base, stem erect, terete, loosely pumpled* and nearly leafless at the apex: radicle and inferior cauline leaves petioled, runcinate—lyrate, lobes oval oblong obtusely sinuate, mucronately unguate, the extreme ones confluent: involucre 8-phyllous minutely calyculate. achseum attenuated at the apex.—*D. C. I. c. 7.193*.

Coimbatore rather frequent about heaves and in neglected places where it meets with some shelter, flowering during the rainy season. I leave this species placed by D. C. though according to my own impression erroneously. DeCandolle suggests that it might almost be placed in the section *Myceus* of *Lactuca* along with the preceding. To my mind the whole section, and this along with them, would have been more appropriately referred to *Brachyramphus*, that is, if they all correspond with the sectional character "beak two or three times shorter than the achseum"

1148. *VICOA INDICA* (D. C.) leaves auricled at the base lanceolate acuminate serrated or nearly entire, more or less puberulous on both sides: ligulae twice as long as the disk.—*D. C. prod. 5.474*.

A very common plant to be met with all over India and generally in flower during rainy weather. Flowers bright yellow.

OLIGOLEPIS (R. W. not Cassini.)

GEN. CHAR. Capitula numerous heterogamous about 5 flowered. Flowers all tubular: females few (about 4) in the circumference, pedicelled, slender, 3-toothed: hermaphrodite solitary, sessile, 5-toothed subcampanulate. Style 2 cleft in the female, undivided in the herm. Achenia beakless, of the female terete hairy, of the disk absolutely 4 sided glabrous. Pappus none

Glabrous annuals with decurrent subspathulate serrated leaves and dense ovate oblong axillary glomerules. Involucre, usually, one scale to each lower, that of the hermaphrodite much larger, forming a common involucre to the capitulum, anastomosing-mucronate; those of the females linear obtuse mucronate or some-

times truncated, folded round the flower and adhering to the pedicel. Disk flower larger subcampanulate, texture fragile, cellular cells quadrangular (much resembling those of the sheath of a plantain leaf.)

1149 OLIGOLEPIS AMARANTHOIDES (R. W. *Sphenanthii amaranthoides* Burm f. *l. or a lnd. D. C. prod.*)

The specimens from which the drawing was made were somewhat deteriorated by age, and the analysis are not so complete as I could have wished, but enough, I think, is shown to prove that it is not a true congener of No 1094. They were gathered many years ago in rice fields near the sea coast at Negapatam.

Figure 4 of the plate is a portion of the disk corolla, slightly magnified.

1150 CYATHOCLINE LUTEA (Law's MSS) leaves nearly all radicle minute (mossy looking) sub-bipinnatifid pubescent: stem slender, erect, dichotomously branched, often with a capitulum in the fork, and one to three on the ends of the branches: flowers yellow.

Tannah distinct near Bombay, (Law.)—The whole plant rarely exceeds 3-4 inches in height but often bears 10 or 12 rather large capitula. It is a most distinct species both by habit and colour of the flowers.

1151. (A) DORONICUM TOMENTOSUM (R. W.) stem herbaceous erect subtomtose, at first simple, leafy, afterwards corymbosely branched; ramuli nearly naked: leaves rough, lower ones, elliptic tapering to the base: upper ones subovate-lanceolate, auncled and sub-amplexicaul, coarsely and unequally dentate, rough and slightly aramose above, densely white tomentose beneath: corymbs lax peduncles bractiolate: ligulae about 14 sterile, disk flowers numerous 5 cleft: pappus setaceous hispid: achsnum costate hairy.

North western slopes of the Neilghernes by the road side flowering September and October. Flowers yellow, ligula linear 4 nerved 3 toothed: stigmas wanting, or 2 lobed when present, apparently sterile disk flowers bisexual 5 cleft, tubular pappus nearly as long as the corolla silaceous rough: achenium linear costate hispid on the ribs.

1151 (D) DORONICUM RETICULATUM (R. W.) Herbaceous, erect, rumous, stem and branches glabrous: leaves somewhat rhomboidal, coarsely and unequally dentate, teeth mucronate; rough and aranosely pubescent above, tomentose between the veins beneath, veins glabrous: capitula laxly corymbose, longish pedicelled; bracts subulate: ligulae 10-12 sterile, throat hairy within, pappus none; disk flowers numerous, tube contracted, throat dilated, campanulate: pappus paliaceous hispid achenium ribbed conical hairy.

Tannah district Bombay, (Law) The difference of the shape of the pappus and corolla of this species seems to indicate that it might, were I so disposed, be made to form the type of a new genus, but such appears to me a most unnecessary refinement, the essential character of *Doronicum* 'ray flowers bald, disk ones crowned with pappus'—being here well marked the particular kind of pappus and shape of the corolla then form excellent specific characters. Both these species are referable to DeCandolle's genus *Madaractu* which however is not distinct from *Dotomcum*.

MADACARPUS (R. W.)

GEN. CHAR. Capitula radiate heterogamous. Ray flowers 1 series sterile: disk ones numerous hermaphro-

dite. Achsnia beakless, oblong, furrowed; without pappus—Herbaceous plants, capitula corymbose: involucre campanulate 1 series, stales linear lanceolate mucronate: receptacle convex, foveolate: corolla subhifundebuliform costs of the Achsnum hispid.—*W. Calcutta Jour. Nat. Hist.*

1152. MADACARPUS BELGAUMENSIS (R. W.)

BELGAUM- J. S. LAW, Esq.—I am indebted to Mr. Law for my specimens of this plant which in habit so much resembles *Dor reticulatum* that it was at first mistaken for that plant. Annual, erect, hirsute, leaves ovate crenate-dentate, auncled at the base, pubescent above, tomentose beneath. Capitula corymbose, scales of the involucre cohering at the base, linear, mucronate: receptacle COMICHI fouolale: hguale about 8, 4 nerved, style and stigma none: disk flowers tubular inludibuliform 5 cleft segments with a distinct midrib: anthers ecaudite, stigmas recurved truncated: achaema 10-nerved nerves hispid: pappus none.

APODYTES. Meyer—Bentham.

GEN. CHAR. Flowers bisexual, calyx small, unchanged. Petals 4-5 Stamens as many, alternate with them, none sterile. Ovary 1-celled. Fruit ovate-rem-formsubcompressed, bearing on one side a fleshy appendage.—Inflorescence terminal.—*Benth. Lin. Jr. vol. 18, p. 680.*

1153. APODYTES BENTHAMIANA (R. W.) leaves elliptic obtuse at both ends: panicles terminal, contracted, rigid, shorter than the leaves, style straight scarcely excentric: fleshy appendage of the drupe scutelliform.—*R. W. MSS*

Neilghernes rare A single tree observed in the woods near the top of the Hills behind the Avalanche Bungalow—flowering in February. Shevagherry August.

Arboreous, ramuli terete glabrous: leaves alternate, exstipulate, coriaceous, glabrous, oblong elliptic, obtuse at both ends from 3 to 4 inches long, including the petiole, by 1 inch broad. Panicles terminal, rigid, shorter than the leaves: Bracts minute or wanting: flowers white, 3 lines long, calyx minute 5-toothed: petals elliptic inflexed at the point, stamens length of the petals; anthers linear obtuse, longer than the filaments, adnate: ovary free hairy ovate 1-celled with 2 lateral superposed ovules: style slightly lateral straight: stigma truncated: drupe semiovalate, rent form, crowned with the persistent base of the style and furnished with a lateral scutelliform appendage one-seeded: seed pendulous obovate cuniate compressed: embryo minute in the apex of a large albumen radicle next the hilum.

1154. LEEA MACROPHYLLA (Roxb.) stem herbaceous erect angled, petioles and leaves glabrous. leaves simple broad cordate, dentato-serrated. cymes large terminal; berry, black succulent six or more celled; cells 1-seeded.

Walliar jungles, between Coimbatore and Paulghat abundant, flowering during the rains. Leaves nearly orbicular, when full grown from 12 to 18 inches in diameter, traversed by numerous large prominent veins.

DeCandolle quotes Roxburgh for this species, but must have had a wrong plant before him when he defined it, as he describes the leaves as pinnated.

1155. SOPHORA BEPTAPHYLLA (Linn.) shrubby or subarborescent: leaflets alternate 7-13 ovate oblong acuminate, glabrous above, pubescent beneath: stipules

rigid subulate: TEC ernes leaf opposed lax about the length of the leaves : bracts subulate : calyx cam panulate suboblique slightly 5-toothed • ovary 3-4 ovuled : legume villous, 2-4 needed attenuated at the apex much contracted between the seed : seed 2-4 oval bright shining red.

Neilghernes, in Jungles below Neddawutem Flowering during the rains and maturing its seed in October and November. The Neilgherry plant differs from the Ceylon one, in having the leaflets more oblong and pubescent on the under surface; to neither of which characters I attach much importance

The Linnean specimen of this plant seems to have been a very indifferent one. Arnott's character in his Pugillus is much more correct.

The above is principally applicable to the Neilgherry plant and was in great part communicated, along with the flowering specimen of the drawing, by Captain Munro who first found it on the Hills. The legumes were added from specimens I collected in October 1845.

1156. DALBERGIA LATIFOLIA (Roxb.) W. and A.—arboreous: leaflets 3-7, genitly 5, alternate, orbicular, emarginate; upper side glabrous; under when young minutely pubescent: panicles axillary, branched and divaricating, flowers on short slender pedicels: calyx-segments oblong, more or less obtuse: stamens 9 (or 10²), all united into a "heath" open on the upper side: ovary stalked, about 5-ovuled, glabrous: style slender, nearly as long as the ovary. stigma small: legume stalked, oblong-lanceolate, usually 1-seeded.

Paulgheat jungles, flowering during the rainy season. A most magnificent tree from which the well known Malabar blackwood is obtained, planks of which I have seen nearly four feet in breadth, after the removal of all white wood and these are not the largest obtainable.

My figure differs from Roxburgh's, in the smaller size and undulation of the leaves, it however seems to be the same species, only less luxuriant, according to IO description it seems to be more justly referable to Roxburgh's *D. emarginata* than to *latifolia*, but the wood of the former is not black, which I think fatal to their identity. It is possible however that the Malabar tree may be specifically distinct from the Bengal one, • point which my specimens does not enable me to determine.

1157. ACACIA LATROMIM (Willd.) W. and A.—somewhat arboreous, armed; thorns numerous, stipular, very large, terete, tapering, united at the base: leaves bipinnate; pinnae 3-5 pair, with a gland on the petiole; leaflets 6-15 pair, very small, narrow linear, obtuse, without any glands between the pairs: spikes axillary, usually in pairs, peduncled, cylindrical, longer than the leaves, many-flowered: corolla 4-5-cleft: stamens numerous, distinct. legume flat, thickish, oval-falcate, 3-4-seeded

Coimbatore frequent in sterile stony soils and in such situations always a scraggy thorny shrub. When in full flower in July and August, it exhales a most fragrant scent not unlike honey-suckle, quite perfuming the air for some distance round. In this district I have never seen it as a tree

1158. KALAHCHOE LACINIATA (DC.) W. and A.—leaves decomposed and pinnatifid, the segments oblong, acute, coarsely toothed, upper ones nearly entire: sepals lanceolate, acuminate, spreading, cyme panicked.

Frequent about hedges and low jungle about Ootakalraund, near Coimbatore, flowering during July and

August. In favourable situations it frequently attains the height of 3 or 4 feet with large spreading much divided leaves, the lobes of which are succulent and neatly cylindrical: flowers yellow. It is the glabrous form which is principally found here.

1159. HYMENODYCTION OBOVATUM (Wall, not Wight's Icones, No. 80) arboreous: leaves obovate, abruptly and shortly acuminate, glabrous, finely reticulated beneath with coloured veins, thickly congested near the ends of the branches stipules ovate glanduliferous on the margin very deciduous: racemes axillary spicate with one or two short branches: tube of the corolla contracted limb campanulate 5-cleft: stamens inserted on the throat, filaments much longer than the anthers

In dry and stony soils about Matecarry near Coimbatore, flowering during May and June, seed ripen about the close of the year.

This plant agrees so well with Dr Wallich's description of his, *H. obovatum* that I cannot hesitate as to the propriety of giving it in that species, and considering the plant figured table 80 of this work a new species to which I have given the name *H. utile* with reference to its extensive use, in this neighbourhood, in cabinet making under the English name of Bastard Cedar. It may be thus distinguished from the above to which it is closely allied.

HYMENODYCTION UTILE (R. W. *H. obovatum* Wight's Icones No. 80) leaves roundish ovate abruptly acuminate, glabrous above, villous beneath; stipules broad ovate obtuse, glanduliferous on the margin. panicles terminal loose, branches racemose, flowers pedicelled, bractiolate, fascicled: corolla subrotate, tube about the length of the calyx-limb filaments inserted on the throat a little shorter than the oblong ovate anthers.—*H. excelsum* Wight's Cat. No. 1264 and W. and A. prod, not of Roxburgh and Wall it is

Common in the Paulgheat jungles, often attaining a large size. The wood is nearly the colour of mahogany but of a loose texture soft and very hygrometric.

1160. AROSTEMMA COURTALLENSE (Am.) stem repent, extremities erect simple pubescent. leaves glabrous verticelled somewhat irregular, or two approximated pairs towards the apex • stipules obsolete, umbel peduncled 2-6 flowered shorter than the larger leaves: pedicels and calyx pubescent. flowers quaternary: filaments bent, anthers distinct, dehiscing by a double pore near the apex. Arnott. Annals of Natural History, vol. 3 p. 22.

The drawing was made in 1835 at Courtallura; where only I have met with the plant. Limb of the corolla white, tube yellowish green.

1161. GREENIA WIGHTIANA (W. and A.)—leaves almost quite glabrous on both sides except on the midrib and nerves.

Mergui—The specimens represented were received from the late Mr. Griffith and quite correspond with our original specimens, whence I suspect this is not a Peninsular but Tenebrion plant.

1162. OPHIORRHIZA HARRISONII (Wall.) stem, petioles peduncles and nerves, the underside of the leaves pubescent: leaves ovate or roundish ovate acutish: glabrous and green above, pale beneath: peduncles terminal corymbose, and dichotomously branched at the apex.—Root creeping—G. Don, diet; 3—S23.

Courtallum—Flowering during the rainy season.

ADDENDUM.

SOPHORA ROBUSTA (Rox) —The character and descriptions of Roxburgh's *Sophora robusta* figured No 245 of this work having been omitted in the Flora Indica, I here publish it having been furnished with a copy by Dr Wallich. It confirms the opinion formerly expressed that the plant is not a species of *Sophora*, but more nearly approaches *Ormosia*. It however widely differs from that genus in the character of the legume which is fleshy in this, woody in that. Besides this, there are others, apparently of less moment, but which seem to indicate that if the two were compared, more important ones might be found, in which case it may prove the type of a new genus between *Ormosia* and *Viburnum* but as I am unacquainted with both these genera, except by written characters, I can offer no opinion on this point. Roxburgh describes the seed as being "enveloped in a complete thick fleshy scarlet aril." The meaning of this is not very obvious unless we suppose that owing to the vague definition of the term, at the time he wrote, he applied it to a coloured fleshy testa, in place of to an enlargement of the placenta. This supposition seems the more probable, as the figure presents no indication of any growth or enlargement of the placenta.

"Leaves unequally pinnate, leaflets 4-5 pairs, lanceolate. Panicles terminal, legumes fleshy, 1-2 seeded.

Peuple the vernacular name in the Silhet district, where it grows to be a very large timber tree. Flowering in April and May, and the seed ripen in July.

Young shoots as well as all the other tender parts densely clothed with ferruginous down.

Leaves alternate, unequally-pinnate, 6-12 inches long.

*Leaflets** generally 4 or 5 pair, opposite, short-petiolate lanceolate entire, smooth, 3-5 inches long, by 1-2 broad.

Petioles round, downy.

Panicles terminal, and from the exterior axils, as long as the leaves ovate, composed of many, patent, simple, or compound, downy branches.

Stipules ensiform, caducous, ferruginous.

Flowers numerous, pretty large, short-pedicelled dull white.

Calyx bowl-shaped, 5-toothed very villous, permanent.

Corolla papilionaceous, banner nearly round, supported on a pretty long claw, with two callosities on the inside of its apex. *Wings* and *Keel* nearly equal, and rather shorter than the banner.

Filaments 10 distinct smooth, length of the pistillum ascending. *Anthers* ovate two lobed.

Germ short-pedicelled, oblong, very hairy, one-celled ovula two attached to the upper margin. *Style* as long as the germ, apex with a spiral turn. *Stigma* rather large glandular.

Legume generally one seeded, and then ovate, if two-seeded more lengthened, smooth, bright yellow, fleshy, size of a pullet's egg, one celled, two-valved.

Seed for the most part one oblong, enveloped in a complete, thick, fleshy, scarlet aril.

Pensperm none.

Embryo conform to the seed. *Cotyledons* equal, line of separation serpentine. *Plumule* two-lobed. *Radicule* patiliform, centrifugal.

from *Vr. Roxburgh's MSS. Flora Indica*

ERRATA

No 80 For *Hymenobovatum* (Wall) read *H. utriculata* (R. W.) see No 1159 for the character of the species.

No 829 for *Vernonia conyzoides*, read *Vernonia dendigulensis* (D. C. V. Candolleana Arnott not Martius,) fruticose, branches velvety-pubescent leaves oblong lanceolate subacuminate, attenuated at the base into a short villous petiole, hispidulous above, more or less pubescent, beneath serrated, serratures mucronate. Corymbs lax compound naked scales of the involucre mucronate pubescently hirsute at the point, arhatium glabrous, exterior pappus short paliaceous. *Am. populifolia* 28 -D. C. Prod. 7 p. 263.

These two are very nearly allied species, I had al-

most said only certainly distinguishable by the exterior pappus which in *V. conyzoides* is spreading, and so short that it does not exceed the diameter of the seed forming quite a setaceous ray round the apex, while in the other it is erect palmate, and nearly half the length of the seed. In *conyzoides* the achtnia are hairy in *dendigulensis* glabrous. These most essential parts of the character are not, I regret to say, very well brought out in either of the figures. No 829, was prepared by T. P. T. I. T. S. 111: absenCE in Europe, and was published before I had properly made myself acquainted with the characters of the two species. Of, h. tart. Of, h. difficulty, faSS the other sight would have been corrected.

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(A) <i>launifolia</i>	1605	(A) <i>cataglyphensis</i>	1195	(A) <i>glandulifera</i>	1207
(A) <i>Vahlana</i>	1607-8	(P) <i>lanceolata</i>	1198	(A) <i>Ribes</i>	1207
		(P) <i>ovalifolia</i>	1199	(A) <i>Tsienam-cottam</i>	1290
Rosaceae		(A) <i>symplectifolia</i>	1188	(A) <i>villosa</i>	1209
<i>Neuradia procumbens</i>	1596	<i>Gaultheria fragrantissima</i>	1196	<i>Mussaenda indica</i>	1206
MELASTOMACEAE		(A) <i>Gnaphalium</i>	1197	(A) <i>missouriensis</i>	1207
<i>Osbeckia hiapidiaria</i>	1612	(A) <i>Leavenworthii</i>	1195	(A) <i>Perrottetiana</i>	1206
CUCURBITACEAE		<i>Rhododendron arboreum</i>	1201	<i>Myrsine capitellata</i>	1210-11
<i>Bryonia Hookeriana</i>	1609	(A) <i>formosum</i>	1202	<i>Samara Rheedii</i>	1591
(A) <i>Mysorensis</i>	1609	(A) <i>grande</i>	1202		
ROSEACEAE		(A) <i>Gnaphalium</i>	1203	SAPOTACEAE	
<i>Axanthia Ceylanica</i>	1163	LENTIBULARIACEAE		<i>Isonandra Candoliana</i>	1220
(A) <i>elliptica</i>	1164	<i>Utricularia affinis</i>	1580	(A) <i>Pereha</i>	1589
(A) <i>longifolia</i>	1165	(A) <i>arcuata</i>	1571-7	(A) <i>Perrottetiana</i>	1219
<i>Coffea Wightiana</i>	1598*	(A) <i>bifida</i>	1584	(A) <i>polyandra</i>	1589
OPISTHACEAE		(A) <i>brachypoda</i>	1578-80	<i>Mimobops Elingi</i>	1586
<i>Diplocaea Walken</i>	1166	(A) <i>CBrulea</i>	1583	(A) <i>kexandra</i>	1587-8
COMPOSITE		(A) <i>capillacea</i>	1572	(A) <i>Indica</i>	1587
<i>Dichrocephala Schmidt</i>	1610	(A) <i>conferta</i>	1575	(A) <i>Rozburghiana</i>	1588
LOBELIACEAE		(A) <i>cyana</i>	1575	<i>Sapota Elingoides</i>	1218
<i>Lobelia aromatica</i>	1172	(A) <i>diantha</i>	1569	<i>Sideroxylon attenuatum</i>	1590
(A) <i>excelsa</i>	1172-3-4	(A) <i>fauciculata</i>	1568		
(A) <i>trichandra</i>	1171	(A) <i>filicaules</i>	1583	EBENACEAE	
(A) <i>trigona</i>	1170	(A) <i>glochidiata</i>	1581	<i>Diospyros Candolliana</i>	1221-22
CAMPANULACEAE		(A) <i>Gnaphalium</i>	1576	(A) <i>capitulata</i>	1224-1585
<i>Campanula Alphonan</i>	1177	(A) <i>humilia</i>	1572	(A) <i>chloroxylon</i>	1224
(A) <i>fulgens</i>	1179	(A) <i>macrolipia</i>	1580	(A) <i>dubia</i>	1223
(A) <i>ramulosa</i>	1178	(A) <i>mvea</i>	1582-3	(A) <i>montana</i>	1225
<i>Wahlenbergia ageratia</i>	1175	(A) <i>pedicellata</i>	1578	(A) <i>obovata</i>	1226
(A) <i>Indica</i>	1175-6	(A) <i>punctata</i>	1570	(A) <i>orixensis</i>	1225
GOODEVOTIACEAE		(A) <i>racemosa</i>	1584	(A) <i>ovatifolia</i>	1227
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<i>Vaccinium</i>	1179	(A) <i>squamosa</i>	1579	(A) <i>Neilgherrenia</i>	1228-9
(A) <i>affine</i>	1190	(A) <i>atellana</i>	1567-8	(A) <i>Smitthmanni</i>	1228-9
		(A) <i>uliginosa</i>	1573		
		(A) <i>uliginosa</i>	1573-4-5-9	ILICACEAE	
		(A) <i>Wallachiana</i>	1572	<i>Ilex Gardneriana</i>	1217
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		(A) <i>caruana</i>	1205	<i>Symplocos foliosa</i>	1234
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- Plate 1420, for CyiUnehe tubulou, read C- *Ittea*.
 Plate 1420—bis for do. do. do. do.
 Plate 1423, for Phelipna Bubaeaulis, read *Chriatisonia rubescens*.
 Plate 1424, for diriatisonia aurantiaca, read *Campbellio, atirantiaca*.
 Plate 1425, Tor————NeilgJierriea, read *C7a.-wn.pbcilia oytameidaz*.
 Plate 1465, for Vitex arborea, read *V. pubescens*.
 Plate 1467, for Wallrotfcia. leucoxyton, read *Vitex leucoxyton*.
 Plate 1472, for Clerodendron lenatom, read *C serratum*.
 Plate 1474, for Sphenodesme ferraginea, read *Sjr/k. barbata*.
 Plate 1475, for————pentandra, read *Sph. Wallichiana*.
 Plate 1476, Tor————acuminate, read *Sph. Jackiana*.
 Plate 1477, for————Jackiana, read *Sph. GriJfUhia<n4M..*
 Plate 1479, fo»Congea villoaa, read *Conge** -od-uAina..*
 Plate 1485, for Premna thyrsoidea, read *I*. Wightia.i*a..*
 Plate 1523, for Strobilantbea Neesi&na, read *Nasutiana*.

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jilstonia	1295	Bignoma Xylocarpa	1335-36	Christisoma	141>
jimarantkru oleraeas	1371-72	Blaberopus	1295	————— aurantiaca	1486
Anagallis arvensts	1205	Blepharis aBpenma	1534	————— calcarata	1426
————— arrulea	1205	Bhnhworthxa	1356	————— Lawn	1427
————— latifoia	1205	Bonnaya verbenefolia	1412	————— Ntxlghemca	1425
AndrographiB Ceylamca	1560	————— veronicifolia	1411	————— BubacauhB	1423-26-27
— ^ ————— lobelioides	1557	Boucerosia campanulata	1287	Cleghorma acuminata	1310
— ————— Neeaiana	1561	————— diffusa	1599	————— cymosa	1312
— — — — — W. C. C. B. U.	1559	————— lasiantha	1286	Clerodendron infortunatum	1471
— — — — — Wightiana	1558	————— umbellata	1286 7	————— phlomoides	1473
Andromeda fiexuoa	1195	Bouchea (Ch)HyderabadensiB	1462	————— serratum	1472
————— (P) formosa	1200	————— (R) martubnfolia	1461	Coffea Wightiana	1598
————— katagherensxs	1195	BrachylepiB nervosa	1284	Coleus barbatus	1432
————— (P) lanceolata	1198	Brewena evolulvides	1369	————— spicatuB	1431
————— (P) ovalifoia	1199	————— Roxburghn	1370-76	————— Wightn	1433
————— symploeifolia	1188	Bryonea Hookeriana	1609	Congea azurea	1479
AmaochiluB albidom	1436	————— MysorenBiB	1609	————— velutina	1479 or 1566
————— dysophylloides	1434	Buchnera hiBpida	1413	————— villosa	1479
— — — — — porpureum	1435	Buteraa rhannifolia	1521	————— tomentosa	1479-1565
————— BuffriticoBuin	1437	Callicarpa Wallichiana	1480	Conopholis	1419
Anodendron Candollianum	1309	Calonyction specioBum	1361	Convolvulaceaa	1356
————— pameulatum	1309	Calopnanes vagans	1526	Convolvulus capitulatus	1366
AnoplanthuB	1419	Calosanthos Indica	1337-38	— — — — — glomeratuB	1366
Anterrhmmn glaucum	1459	Calotropis gtgantea	1278	————— microphylluB	1367
jinthopterus	1179	————— H. m. m. m. m.	1278	————— rhymospermua	1368
ArdiBia CourtalensiB	1215	————— procera	1278	————— rufescens	1365
————— Doma	1212	Campanula A. n. n. n.	1177	Cordia cuneata	1379
————— humilis	1212	————— fulgens	1179	— — — domestxca	1378
————— httoralis	1212	————— ramulosa	1178	————— fulvosa	1380
— — — oUracea	1212	Campbellha	1419-1423	————— Leschenaulttt	1380
^ ————— paniculate,	1215	————— aurantica	1424	————— Myxa	1378
— — — pauciflora	1214	————— cytinoides	1425	————— obhqua	1378
— — — pentagons	1213	Campylanthus ramosiBBimus	1416	————— Perrottetttn	1381
— — — rhomboidea	1213	————— salsoloxdes	1416	————— Rothu	1379
- ^ — Solanacea	1212	CanBCora (C) grandiflora	1326	————— tomentosa	1378
————— umbellata	1212	— — — Lawn	1327	————— trxchostemon	1380
Argyreia aorta	1356	————— perfoliata	1327	————— Walhehn	1378
————— ag. gata	1356-9	————— tenella	1327	Cornus alt era	1211
————— ni. za	1356	Capsicum fastigiatum	1617	————— aylvistria	1211
————— fstiva	1356	Carallama attenuata	1268	————— Zeylanxea	1210-11
————— fulgens	1357	————— fimbrtata	1268	Cosmostigma acuminatum	1200
————— salera	1356-60	Carissa earandas	1289	————— racinaum	1270
————— apocuma	1360	————— eongeBta	1289	Cryptophragmium axillare	1476
————— ulmifolia	1358	————— paucinervia	1289,90	————— canBcens	1495
Arneibia hispidiBBima	1393	Caudxexa gyrandra	1303	————— serrulatum	1495
Artanema sesamoides	1410	————— trxehotoma	1303	CuBCuta arabica	1371
Aaystaaia Coromandehana	1506	Celsia Coromandehna	1406	————— ChinenBia	1373

<i>Cuscuta hyalina</i>	1372	<i>Exacum petiolare</i>	1324	<i>Jlix(P) Wightiana</i>	1216
— <i>suleata</i>	1372	— <i>pumilum</i>	1324	<i>Impatiens Gonghu</i>	1603
<i>Cylista scanosa</i>	1597	— <i>sessile</i>	1324	— <i>Jerdoniae</i>	1602
<i>Cyaanchem alatum</i>	1280	— <i>Zelamcum</i>	1322	<i>Ipfusia multiflora</i>	127b
— (<i>alialala</i>)	1279	<i>Fagritea Coromandelina</i>	1316	<i>Ipomcea 1356 bracteata</i>	1374
<i>Cynoetionum alatum</i>	1280	— <i>Malabanca</i>	1317	— <i>campanulata</i>	1375
— <i>Calhalata</i>	1279	— <i>Zey lamca</i>	1317	— <i>pileata</i>	1363
<i>Cynoglossum calistmum</i>	1394	<i>Goertnera Konegn</i>	1318	— <i>Wightu</i>	1364
— <i>furcatum</i>	1395	<i>Gardnera Walhcbu</i>	1313	lucubra <i>itonbvnda</i>	1355
— <i>mieranthum</i>	1395	<i>Garuga pinnata</i>	1594-95	— <i>permollia</i>	1355
<i>C yrtandra lanugmosa</i>	1355	<i>Gaulthenea fragrantiesima</i>	1196	<i>Isonandta Candolliana</i>	1220
<i>Cystanche</i>	1419	— <i>Gnffithiana</i>	1197	— <i>Percha</i>	1201
— <i>lutea</i>	1420	— <i>Leschenauullu</i>	1195	— <i>Perrottetiana</i>	1219
— <i>tubulosa</i>	1420	— <i>ovahfolia</i>	1195	— <i>polyandra</i>	158
<i>Datura fastuosa</i>	1396	<i>Gaylussacia dependena</i>	1179	<i>JasminuinaiBne</i>	1255
— <i>Stramonium</i>	1396	— <i>serrata</i>	1184	— <i>aureum</i>	125
<i>DecalepiB Hamiltonn</i>	1285	<i>Gentiana pedicellata</i>	1328	— <i>auunculatum</i>	1254-55
<i>Dichrocephala Schmidu</i>	1610	— <i>Gentiana</i>	1419	— <i>Ingnoniacium</i>	1258
<i>Diclipte-a bivalvis</i>	1551	<i>GcsncriacEB</i>	1419	— <i>brae teat um</i>	1248
— <i>cuneata</i>	1552	<i>Gieekia moluginoides</i>	1168	— <i>brevilobum</i>	1254-55
<i>Didyplosandra</i>	1515-16-19	— <i>pharnaciodes</i>	1167	— <i>chryBanthemum</i>	1258
<i>DidyraocarpuB Humboldtiana</i>	1351	<i>Gmelina arborea</i>	1470	— <i>Courtallense</i>	1252
— <i>lyrata</i>	1350	— <i>Rhtedu</i>	1470	— <i>erectiflorum</i>	1251
— <i>ovahfolia</i>	1351	<i>Goldfusse</i>	1492	— <i>flexile</i>	1252-53
— <i>Rottlenana</i>	1348	<i>Goldfusaia Dalhousiana</i>	1509	— <i>grandiflorum</i>	1257
— <i>tomentosa</i>	1449	— <i>decurrens</i>	1522	— <i>laurxfohum</i>	1247
<i>Dmetus racnosus</i>	1376	— <i>penstemonoides</i>	1510	— <i>Malabancum</i>	1250
<i>Diospyros Candolliana</i>	1221-22	— <i>tristiB</i>	1508	— <i>myrttfohum</i>	1247
— <i>capitulata</i>	1224-1558	— <i>Zeokenana</i>	1517	— <i>ovalifolium</i>	1256
— <i>chloroxylon</i>	1224	<i>Gomphostemma encarpum</i>	1457	— <i>revolutum</i>	1258
— <i>dubia</i>	1223	— <i>Heyneanum</i>	1456	— <i>ngidum</i>	1247
— <i>montana</i>	1225	— <i>oblongum</i>	1457	— <i>Rottlenanura</i>	1247
— <i>obovata</i>	1226	<i>Gymnema Decaisneana</i>	1271	— <i>tetraplms</i>	1247
— <i>orixensts</i>	1225	— <i>hireutum</i>	1271-72	<i>Jatropha peltata</i>	1169
— <i>ovahfolia</i>	1227	— <i>sytvestre</i>	1271	— <i>villosa</i>	1169
— <i>Utrasperma</i>	1221-22	<i>Gymnostach) um alatum</i>	1525	<i>Jerdoma Indica</i>	1352
<i>Dipsacus Walken</i>	1166	— (<i>eylamcum</i>)	1494	<i>Jubtia Imda</i>	1245
<i>Dipteracanthua patulus</i>	1505	— <i>polyanthum</i>	1494-1525	<i>Klugia Notomana</i>	1353
<i>DyBophylla aunculana</i>	1440	<i>Halema Perrottetn</i>	1334	<i>Lantana alba</i>	1464
— <i>crasnfolia</i>	1444	<i>Haplanthus Neilgherryensis</i>	1556	— <i>Indica</i>	1464
— <i>tetraphylla</i>	1444	— <i>tener</i>	1556	<i>Lapidagathia crutata</i>	1414
<i>Ebermiera glauca</i>	1488	<i>Harveya</i>	1419	<i>Lathraa squamuna</i>	1419
<i>Ecdysanthera glanduhfera</i>	1307	<i>Hehgme Rheedu</i>	1303	<i>Lavandula (Ch) Burmanoi</i>	1438
— <i>Griffithn</i>	1307	<i>Heliotropium brevifolium</i>	1389	— (Ch) <i>Lawn</i>	143*
<i>Echinosperrum cffilestinum</i>	1394	— <i>Coromandelianum</i>	1388	<i>Legendrea</i>	1356
<i>Ehretia aspera</i>	1383-84	— <i>ltnifolmm</i>	1391	<i>Lepidagathis laxa</i>	1564
— (X) <i>cuneata</i>	1385	— <i>Malabancum</i>	1387	— <i>longifolia</i>	1564
— <i>lffivis</i>	1382	— <i>manfrliuin</i>	1390	— <i>nervosa</i>	1620
— <i>ovahfolia</i>	1383	— <i>Kottlen</i>	1392	— <i>Walkenana</i>	1530-1620
— <i>umbetlulata</i>	1384	— <i>scabrum</i>	1389-90	<i>Lepistemon flavesce^s</i>	1352
— <i>vininia</i>	1385	— <i>supinum</i>	1387	<i>Leptacanthus Walken</i>	1507
— <i>Wightiana</i>	1384	— <i>tenue</i>	1391	— <i>alatns</i>	1527
<i>Ellertoma Rheedu</i>	1295	— <i>Zeyl snicum</i>	1386	<i>Letostachya Wallichu</i>	1543
<i>EinbeJia Basaal</i>	1209	<i>HemiadelphiB polysperma</i>	1492	<i>Lettsomia</i>	1356
— <i>Gardnenana</i>	1208	<i>Hemichoriste montana</i>	1538	— <i>aggregata</i>	1359
— <i>glanduhfera</i>	1207	<i>HemideBmus pubescens</i>	1320	— <i>setosa</i>	1360
— <i>Ribet</i>	1207	<i>Hemigraphis latebrosa</i>	1504	<i>Leuca helianthemifolia</i>	1435
— <i>Tajenam-cotlam</i>	1209	<i>Holarrhena Codaga</i>	1297	— <i>Indica</i>	1451
— <i>villosu</i>	120	— <i>Malaccensis</i>	1298	— (A) <i>lancesfolia</i>	147
<i>Endopogon capitatus</i>	1490-90	— <i>pubescens</i>	1297	— (A) <i>rosmarimfoha</i>	1455
— <i>fohoBUB</i>	1496-1501	<i>Hopta</i>	1237	— (A) <i>Buffruticosa</i>	147
— <i>kypoleucas</i>	1497	<i>Hoy a par vi flora</i>	1269	— (A) <i>ternifolia</i>	1453
— <i>rhamnifolias</i>	1521	— <i>Uneans</i>	1269	— (H) <i>urlicffifol.a</i>	1451
— <i>Strobilanthes</i>	1496-1000	<i>Humbertia</i>	1356	<i>Leueotha Katagh erensis</i>	1195
— <i>viscosus</i>	1498	<i>Hurnboldtia BrunoniB</i>	1606	— <i>Neilgherrenae</i>	1243
<i>Epigym Gnffithiaoum</i>	1308	— <i>launfolia</i>	1605	— <i>Xepatensc</i>	1244
<i>Epiphygus</i>	1419	— <i>Vahlana</i>	1607-8	— <i>Perrottetu</i>	1244
<i>Epithema Ceyl&nica</i>	1354	<i>Huntena laneecolaria</i>	1294	— <i>vulgare</i>	1243
<i>Lnanthera</i>	1557	— <i>Roxburghiana</i>	1294	<i>Limnophila hypencifolia</i>	1409
<i>Erythracanthufl obtuBUB</i>	147	<i>Hygrophilla obovata</i>	1489	<i>Linociera Malabanca</i>	1246
<i>Erythrsa Roiburghii</i>	1325	— <i>saliufolia</i>	1490	<i>LigUBtrum intermedia</i>	1245
<i>Ezacum bicolar</i>	1321	<i>Hyobanchec</i>	141^-23	— <i>macTophylla</i>	124
— <i>Courtallense</i>	1323	<i>Hypoestes Malaccensis</i>	1554	— <i>ramiftora</i>	1247
— <i>Perrotletu</i>	1322	<i>IIn Gardnenana</i>	1217	<i>Lippia (Z) nodiflora</i>	1463

Lobelia aromatic*	1172	Phelipsea cytmnde*	1425	Sareolobus canstus	1273
— exels*	1172-3-4	— fulva	1420	— — — globosus	1273
— nicotiana	1172	— raroosa	1419-20-1618	Spathodia arcuata	1340
— trichandra	1171	P hilly rea robust a	1242	— — — Rheedii	1339
— — — tngona	1170	Fhloganthus latifolins	1537	Sphenodeeme acuminata	1476
Leranthacea.	1419	— — — thyrtstforus	1537	— — — barbata	1474
Lycium Afrum	1403	PhyiiehiluB serpyllua	1493	— — — fenuginea	1474
— — — Europeum	1403	Piceoma	1241	— — — Griffithiana	UJ7
— — — Indicum	1403	Plectranthus cotisa	1430	— — — Jakima	1476-7
— — — Ruthemcum	1403	— — — racemosa	1430	— — — ptntandr*	1475
Lysunachia (E) Leschenaultu	1204	— — — scTophulariouUs	1429	— — — — — triflora	1478
— — — ttmOa	1585	— — — strxaius	1429	— — — — — Walbfcana	1475
Lythospermura	1377	— — — Wightii	1429	Stemodia viscoBa	1408
Maba Ehnus	1226-9	Pogostemon Heyneanam.	1440	Stenosiphomum Cenfertum	1503
— — — Neilgherrensis	1228-9	— — — hirsutum	1442	— — — dtandrum	1496-1508
— — — Smeathmanm	1228-9	— — — xotundatum	1441	— — — Russelliaaum	1503
Maehanea	1179	— — — Bpeuoaum.	144.1	Stereospermum Chelonoidea	1341
Ma»a Indica	1206	Povana pamadtia	1376	— — — BUftveolea	1342
— — — missioms	1207	— — — racemosa	1376	Striga Orobanchoides	1414
— — — PerrotUtiana	1206	— — — volubihis	1376	Strobilanthes	1492-6,1510-1522
Marcellia	1356	Pottisia Hookenana	1306	— — — asper	1518-23
Manpa	1356	— — — ovata	1306	— — — campanulatus	1562
Mazus iurculoeus	1407	Prenmacordifoha	1483	— — — ciliatus	1517
Melissa umbrosa	1447	— — — glabenma	1484	— — — decurrens	1517
Meyenia Hawtaymana	1487	— — — integrifolia	1469	— — — flabratus	1517
Micrargena Wightu	1417	— — — serratifoha	1469	— — — Grahamianus	1520
Microranea biflora	1446	— — — thyrsoidea	1485	— — — Htyneanus	1520-1619
Micropyxis pumila	1585	— — — tomentosa	1468	— — — luridus	1515-16
— — — tenella	1585	— — — Wightiana	1485	— — — micranthes	1519
Mimusops Elingi	1586	Prunella vulgaris	1448	— — — Mys or ens is	1519
— — — — hexandra	1587-8	Puneena coagulans	1616	— — — Neesianus	1523
— — — — Indica	1587	Ramphicarpa longiflora	1415	— — — Perrottetianus	1513 23
— — — — Roxburghiana	1588	Rhaphidospora glabra	1554	— — — rugosus	1619
Mitrasachme Indica	1601	Rhododendron arborea	1201	— — — Bessilis	1511
— — — — Malaceensis	1601	— — — formosum	1202	— — — sessiloides	1512
Milreola Oldenlandioides	1600	— — — grande	1542	— — — Wightianus	1516
— — — pamculata	1600	— — — Griffithianm	1203	— — — Wightianus	1514-18
Mollugo stneta	1168	Rivea ornata	1356	Strophanthus brevicaudatus	1302
MoorcToftia	1356	— — — tiliBfolia	1358	— — — ^ — — — dichotomus	1299
Myrsins3 capitellata	1210-11	RoBtellulana diffusa	1539	— — — — — Griffithn	1300
Neuracanthufl Lawn	1531	— — — gracilis	1541	— — — — — longicaudatus	1299
— — — — tnnemuB	1532	— — — hedyotidifoha	1540	— — — — — WightianuB	1301
Neurada procumbens	1596	— — — molhssima	1539	Sykesia Kontgn	1318
Jfottlaa	1241	— — — — — procumbens	1539	Symphorema polyandrum	1474
Olea glandulifera	1238	— — — — — simplex	1542	SymplocoB fohosa	1234
— — — Imocieroides	1241	Ruelha punctata	1563	— — — — — Gardnenana	1231-34
— — — — polygama	1239-40	Run^ia Arnottiana	1550	— — — — — microphylla	1232
— — — — robusta	1422	— — — — — latior	1548	— — — — — monantha	1236
Olnnea	1241	— — — — — pectinata	1547	— — — — — nervosa	1235
Oligopholis	1419-21	— — — — — Wightiana	1549-50	— — — — — obtusa	1233
— — — — — tubulosa	1422	Salvadora persica	1620	— — — — — pendula	1237
Ophilia corymbosa	1329-30	Samara aurantiaca	1210	— — — — — pulcra	1230
— — — — — flattor	1330	— — — — — lata	1210	— — — — — racemoMa	1235
— — — — — elegans	1331	— — — — — Rheedii	1591	Syrmgea	1241
— — — — — Grisebaehiana	1330	Sapota Elingoides	1218	Teucnum tomentosam	1458
— — — — — minoT	1332	SarcoBlenma BTunomanum	1282	Thxbaudia	1179
Ophioxylon Belganmense	1292	— — — — — intermedium	1281	— — — — — srtigera	1181
— — — — — Ceylamcam	1291	Scevola uvifera	1613	Torenia Jlsiatia	1346
— — — — — macrocarpum	1292	ScTophularxacem	1419	Tournefortia Edgeworthn	1386
— — — — — Neilgherrense	1291	Scutellana nvulana	1450	— — — — — reticosa	1386
Orobanchacea	1419	— — — — — violacen	1449	— — — — — subulata	1386
Orobanchee	1419	Seamone emetic©	1283	— — — — — vendiflora	1386
Orthosiphon bracteatus	1428	Seddera evoluloides	1369	— — — — — Zeylamca	1386
Osbeekia hispidissima	1612	Sencostoma pauciflon	1377	Turrea villosa	1593
Ozococcus macrocarpus	1188	Serreaa incana	1592	Tylophora asthmatica	1276
— — — — — palustru	1188	Sesamum lacmiatum	1345	— — — — — Iphisia	1277
Panjanelia multijuga	1343	— — — — — prostratum	1346	— — — — — molhssiraa	1275
— — — — — Rheedii	1343-4	Sideroxylon attenuatum	1590	— — — — — parviflora	1274
Parsonia	1303	Solanacete	1419	Utnculana affinis	1580
Pediculana Perrottetn	1418	Solanum denticulatum	1397	— — — — — arcuata	1571-7
— — — — — Zeylamca	1419	— — — — — ferox	1399-400	— — — — — bifida	1584
PeriBtrophe montana	1553	— — — — — Jacquinu	1401	— — — — — brachypoda	1578-80
Peronema canescens	1460	— — — — — (N) pubescens	1402	— — — — — ciBrulea	1583
Phehpva calotropidu	1420	— — — — — yerbaseifolium	1398	— — — — — capiUace*	1572

Utricularia conferta	1575	Utricularia a uliginosa	1573-4-5-9	Vaccinium (A) sttigera	1181
Utricularia diantha	1569	Utricularia Wallichiana	1572	Vaccinium (A) veiosum	1185
Utricularia fasciculata	1568	Vaccinia	1179	Vaccinium (A) verticillatum	1181
Utricularia glauca	1583	Vaccinium	1179	Vaccinium (A) Wallichianum	1180
Utricularia Griffithii	1576	Vaccinium (A) affine	1190	Verbascum virgatum	1404,5
Utricularia humilis	1572	Verbascum arbor turn	1188	Vincetoxicum Arnottianum	1614
Utricularia macrolepis	1580	Vaccinium {A} Donmanum	1191	Vismia robusta	1242
Utricularia nivea	1582-3	Vaccinium {A} Dunallianum	1194	Vitex altissima	1466
Utricularia pedicellata	1578	Vaccinium {A} Griffithianum	1192	Vitex arborea	1465
Utricularia punctata	1570	Vaccinium {A} hirsutum	1182	Vitex leucozydon	1467
Utricularia racemosa	1584	Vaccinium {A} Leschenaultii	1188	Vitex pubescens	1465
Utricularia reticulata	1571	Vaccinium (A) Malaccenae	1186	Wahlenbergia ageratis	1175-6
Utricularia Sraibiana	1577	Vaccinium (A) Neilgherrense	1189	Wahlenbergia indica	1175-6
Utricularia squarrosa	1578	Vaccinium (A) obovatum	1193	Wallrothia	1467
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EXPLANATION OF PLATES-

VOL. IV.—PART I.

1163. AXANTHER CEYLAMCA. (R W) arborescent, ramuh terete or oboately 4-bided, glabrous. stipules minute, triangular. leaves lanceolate, acuminate, glabrous on both sides, finely reticulated with slender bowmsh temlets J inflorescence umbellate, umbels simple, axillary, usually paired peduncles about the length of the petioles: calyx cup-shaped, entire or blightly toothed • corolla rotate, 5-cleft. ovary 5 celled, surmounted by an ovoid, fleshy, disk. style none J stigmas 5 berry globose, about the size of a rather large pea.—A. W. *Calcutta Journ. Nat. Hist.*, Vol. 7.

H A B—Ceylon.

Obs—I gathered specimens of this in 1836, and afterwards received others from Colonel Walker, f at first, on account of its bisexual flowers, supposed that this was Blume's A cor) mbosa: discrepancies between his character and my specimens induce me now to look upon it as a distinct species. It is quite distinct from *A. Blumcana*, which it much resembles in its general outline, though distinguished by many characters taken from the inflorescence and flowers, but especially by the venation, which in this, resembles a Terminalia, in that, a Lasianthus.

1164. Ax A NTH Ea ELUPtiCA. (R W.) arborescent? rainuh terete, glabrous, or very sparingly pubescent: leaves elliptic, shortly and abruptly acuminate, glabrous above, paler and villous beneath, especially on the somewhat prominently reticulated veins, pennnerved • stipules linear lanceolate, longer than the petioles, deciduous: corymbs short, subcapitate, solitary or paired: calyx cup-shaped • corolla rotate. anthers apiculate: style exceeding the disk J stigmas 5, connivent. ovary 5-celled.—A. *JV. Calcutta Journ I c.*

H A B—Ceylon, 18 36.

Obs—This species I found in Ceylon, and as far as I can make out from my collection, it has not been met with in any other country. The rigid form, coriaceous leaves, and almost capitate inflorescence, distinguishes it from all the others. The leaves are about five inches long, by from one and a half to two broad. The bisexual habit, a point by which it approaches *A. corymbosa*, BL, separates it from all his other species.

1165. AXANTHES LONGIFOLIA (R. W) arborescent? rarauli obsoleiely 4-angled, glabrous. stipules lanceolate hairy, longer than the petioles. leaves ovate lanceolate, acuminate; about three times longer than broad, pennnerved, glabrous on both sides, J corymbs axillary small, dichotomous, hairy, involucrate at the division; bracts coarsely hairy • calyx cup-shaped: corolla rotate, 5 cleft: ovary sterile, flat, or somewhat concave above, 5-furrowed, surmounted by a filiform style.—A. W. *Calcutta Journ I. c.*

H A a.—Mergui, Griffith.

Obs—The inflorescence of this species much resembles that of the former, but is much smaller, being under an inch in length, scarcely longer than the petiole, the larger leaves are from nine to ten inches long, by about three broad, ending in a tapering acumen, and quite glabrous on both sides. My only specimen is a male, but the ovary is so nearly

perfect, that mere change of season seemfc only want* ing to make it produce fertile flow ere.

1166 DIPBACUS WALKERI. (Arnott) Stem prickly and towards the extremities hairy • leaves pinnatifid softly pubescent on both sides; lobes oblong-elliptic somewhat obtuse, serrated, the terminal one lanceolate leaflets of the involucre spreading much shorter than the globose capitulum • paleoe ovate murronulate ciliate, shorter than the corolla.—*Am. Pvgillug Walpers 2 p 332.*

Ceylon in pastures flowering April and May I gathered it in company with Colonel Walker in 1835, during a short vibt to the Island.

1167. GISFKIA PHARNACIODEB. (Lin.) procumbent very diffuse. leaves succulent, obovate lanceolate, obtuse. flowers axilfdry, aggregated, short pedicel led — A. W. *Calcutta Jf>urn V. 7, p 162.*

A very common weed growing in pasture ground, and about old walls in flower at all seasons but especially during rainy weather.

1168. GISBKIA MOLUGINOIDES. (R W) erect or ascending; leaves linear lanceolate corymb axillae; peduncles about the length of the leaves, flowers' longish pedicelled.—K. W. *I c.*

Deesa. Stocks, to whom I am 'ndebted lor the spe* cimen.

This plant, in habit resembles, *Mollugo strict a*, but seems more erect, leaves clothed beneath with short appressed hairs. sepals membranous on the margin imbricating: corolla none, filaments dilated at the base, anthers adnate; ovary of five one-celled carpels with a single erect ovule in each. styles adherent to the inner angles of the carpels: stigma pubescent relex* ed. utricles setosely hisped: seed somewhat reniform polished black embryo annular, embracing a copious farinaceous album.

The dissections through a oversight do not represent a detached seed but as seen enclosed in the uti icle.

1169. JATROPHA VILLOSA. (R. W. *I. peltata* R. W. not Kunth.) fruticose, erect, ramous, without visced glands • leaves peltate, suborbicular, obtusely 5-7 lobed, entire, softly villous on both sides ralyx lobes lanceolate entire, villous, vahate in aestivation: corolla tubular, hairy within • stamens 8, filaments anlted to near the apex, interior anthers extrorse.

And stony plains, at the foot of the hills near Coimbatore, in low shrubby jungle, flowering during the hot season (April and May). This is a low nearly naked •hrub, except on the ends of the branches, where it bears a few alternate peltate leaves and its terminal corymbs. It is generally glabrous, except the leaves, which ara softly villous on longish exstipulate petioles, somewhat orbicular in then- outline, obtusely 5 to 7 lobed and from 3 to 5 inches across. The flowers are pale yellowish coloured. the exterior series of anthers introrse, the interior extrorse, stigma large, 6 lobed.

The want of viscid glands, the valvate cestn atiori and extreme interior anthers seem to indicate this as the type of a new genus, but so far as the latter point of structure is concerned* I suspect an error in *obj*

tervation, as I find a fiimilar structure in *Curcas* though there also they are all bldid to be introrbe

1170 LODKLIA TRIGONA (Roxb) glabrous, branches diffuse, erect, or ascending and like the stems trigonous leaves auoseasile ovate subcordate repandly dentate, teeth mucronulate pedicels slender, longer than the leaves bibractiolate at the base tube of the calyx ohcnical, lobes linear, acuminate about the length of the tube corolla small glabrous, longer than the calyx anthers enclosed, all bearded at the apex capsule obovoid — *D C Prod*, 7 360

In moist pastures on the borders of rice fields frequent, aUo abundant in swampy grounds on the Nt-ilghernes

This is usually a low diffuse plant growing amongst grass, stems weak and succulent, the leaves succulent when growing, but thin and membranous when dry I lowers pale blue The habit of the plant is well represented in the drawing

1171 LOBFLIA TBICHANDRA (R W) erect, ramo is, every where, except the anthers, glabrous or only slightly pubescent sle*n and branches terete lei\ es obovate lanceolate serrated, shortly acuminate, tapering below into a bhortish petiole racemes axil* lai\ loose bracts foliaceous, lower ones longer than th* pedicels, upper ones shorter or altogether wanting pedicels ebractiolate calyx tube subglobose, 1 bes of the hmb lanceolate, serrated, about the length of the tube of the corolla lateral lobes of the corolla deeply cleft, narrow linear acuminate, middle ones shorter, broader, lanceolate anthers clothed with short bristly hairs, the lower pair slightly pi nice)late.

Sisparah on the Western slopes of the Nt ilghernes flowering from January to April A large sized her. haceous annual from 4 to 6 feet high, ramous from near the base Lower leaves from 10 to 12 inches long and about 3 broad, acuminate Flowers white, the lobes of the corolla tipped with rose I have specimens of what appears to be a variety with glabrous anthers and the corolla less deeply divided

1172 LOBELIA AROMATICA. (MOOD'S Cal) etein simple, erect, terete, glabrous at the babe, to mento6 above leaves eubsessile lanceolate acuminate, inMy glanduloso-serrated, uljous on both bides racemes terminal, spicate many flowered, bracts foil aaceous denticulate pedicels ebractiolate and like the calyx and corolla tomentose calyx- tube hemisphere ral, lobes subulate, bubdenticulate, about 1 3d the length of the corolla lateral lobes of the corolla linear acute, central ones cohering two inferior anthers pimcellate, all otherwise glabrous

Cej Ion in the central alpine regions—4 Korales—Moon

Flhll species seems intermediate between *L. excelsa* and *nicotian ifohu*, but is readily distinguishable from both by its tomentose racemes and flowers, and want of bracteoles

1173 4 LOBKLI A EXCELS A (Lesch) stem very large herbaceous erect leaves lanceolate, shortly petioled, narrow at the base, acuminate, denticulate, puberulous above, tomentose beneath racemes foliaceous pubescent, many flowered bracts long acuminate glanduloso-denticulate, twice the length of the pedicels lobes of the calyx erect, linear lanceolate, denticulate, thrice the length of the hemispherical tube,

equaling the length of the tube of the pubeeceen. corolla—/) *C Prod* 7—331

Very common on the Neilghernes A tall ungainly looking plant, flowering during the ram6, from May to September but to be met with in flower at all seasons The stems are annual but the roots seem perennial the stems are currently met with from 6 to 8 feet high, but may often be seen from 10 to 12 feet, flowers pale yellowish tinged with lilace, pubescent than half supenor

1)75 WAHIENBERGIA AGERSTIS (AJph DC) stem erect, ramous from the base, pilose below lower leaies approximated, narrow linear nearly entire, undulated on the margin, peduncles usually dichotamous wrth very short bracts tube of the calyx glabrous obovoid, shorter than the erect linear narrow lobes corolla funnel shaped about a twice the length of the lobes of the cal) x capsule obovoid — *D C Prod* 7—p 434

Neilghernes frequent, in flower at nearly all seaong, flowers pale blue I am not quite sure that this is identical with the Nepaul plant or rather, whether I ought not to have viewed this as *W Indica* rather than the following which is a much less common plant on the hills and is perhaps a new species If howe\er this is *W Indica*, then it seems probable the two species ought to be united as this corresponds well will with the character m all except in the station.

1176 WAHLENBERGIA INDICA > (Al D C) stem ramous below and like the leaves pilose leaves-linear entire acuminate peduncles 1 flowered glabrous calyx glabrous, tube ovoid, lobes narrow acute corolla tubular about a half longer than the calyx, capsule obconical — *D C Prod* 7 434

Neilghernes in moist pasture land In the operation of transfer this figure has been represented much too hairy, in the original it was delicately pilose On this account it would probably have been better to have suppressed the figure, but it is hoped this explanation will suffice to correct the error of the existence of which I was not aware until the whole impression had been printed off.

1177 CAMPANULA ALPHONSII (Wall) decumbent one-flowered stem pubescent, cauhne leaves sessile, subJanceolate acute, denticulate, pilose above, incanous beneath calyx pubescent, divisions acute serrated or sometimes lobed, about half the length of the campanulate puberulous coiolla *D C Hod* 7 473 (very slightly altered)

Neilghemes forming dense tufts in clefts of rocks The specimen represented is very different from the one described by *D C* though unquestionably the same species, I have therefore in the character ventured to make one or two slight alterations but I suspect scarcely enough to give a correct idea of the species

1178 CAMPANULA RAMULOSA (Wain stem erect. pilose, ramous leaves lanceolate sessile, crenatodentate, \eius prominent beneath pedicels axillary and terminal calyx pilose, lobes broad acute sub-dentate about half the length of the cylindrical MIIIOUS corolla capsule turbinate drooping *D. C Prod* 7 473

Neilghernea, in woods and about hedges in shady places The original specimens of this species were from Nepaul but so far as character enables me to decide the Southern plant does not differ.

1170 CAMPANULA PULGENS (Wall) stem erect, about a foot high, hairy leaves lanceolate acuminate at both ends beneath petiolets, serrated flowers sessile axillary solitary or three together, appressed towards the apex lobes of the calyx suberect enure, about the length of the infundibuliform glabrous corolla—*D. C. Prod.* 7 p. 477

Neilgherries, on grassy slopes and pastures frequent. I have another form, apparently, of this plant with the flowers congested into a capitulum. Flowering season June and July during the rains but not limited to that season as it may be found in flower at nearly all seasons. The Neilgherry plant seems to differ from the Bengal one in the calyx being considerably shorter than the corolla, which leads to the suspicion of its being a distinct species though, from its agreeing so well with the character in other respects, I cannot venture on giving it a new name.

VACCINIUM

DUNAL, in his monograph of the Order *Vaccinacae*, retains *Agapetes* and *Thibaudia*. Endlicher, Miesner, and Linriley unite them. Kunth is followed by Miesner in expressing a doubt as to whether *Ceratostema* is distinct from *Thibaudia*, and Hooker states that he "cannot understand what are the essential distinguishing marks between them." Among the following are species which have been referred by different Botanists to *Ceratostema*, *Agapetes*, *Thibaudia*, *Gnylussacia* and *Vaccinium*. To determine among so many genera it became indispensable to examine the characters of all with much care. After the closest scrutiny and careful dissection of the flowers of all the Indian species in my collection side by side with several acknowledged *Vaccinia* from both America and Europe, I found it utterly impossible, from the characters given, to make out more than one genus among the Asiatic ones, the structure being the same in all. By Roxburgh these would perhaps have been all referred to *Ceratostema*. Wallich refers them to *Thibaudia* while Don and Dunal form the genus *Agapetes* for their reception. Had long tubular flowers been a constant feature, I might on that account, aided by geographical distribution have followed these authors, and assuming that as its essential character, kept up their genus. This however is far from being the case and therefore as a generic character is useless. And on turning to Dunal's character of *Vaccinium* I find the corolla described as "campanulata, uiccolata vel quinquefidua."

In all the Indian ones it is either urceolate or cylindrical. He describes the stamens as "limbo calicis inserta," which is the case in all the Indian ones I have examined, and the fruit "Bacca calyce vestita globosa 4 aut 5 loculans loculis polyspermis, rarisime 10 loculans loculis monospermis" which, except the last clause is equally applicable to the fruit of all I have had an opportunity of examining. The ovary unfortunately, is not referred to in the character of either genus. The concluding clause of the character may perhaps account for Professor Lindley's referring one of the species to *Gnylussacia*, which, while that clause remains as part of the character of *Vaccinium* seems scarcely a distinct genus, the fruit having 10 cells with 1 seed in each being its essentially distinguishing mark. In all other points Dunal's characters of the 2 genera are nearly word for word the same, and the abortion of all the ovules but 2 in each of the 5 cells converts *Vaccinium* into *Gnylussacia* and, unless care is bestowed in the examination, even

that is not necessary in a transverse section of a nearly mature fruit almost always presents the appearance of 10 cells with one seed in each and I feel nearly certain that an examination of the ovary will shew that but few of Dunal's 29 species have it. I think with a single ovule in each *G. dependens* an authentic specimen of which was most obligingly communicated to me by Mr. Gardner of Ceylon, has a 4 celled ovary with numerous ovules and is in fact a species *Vaccinium* with very short anther tubes.

Whether *Ceratostema* can be kept distinct I am unable to say but, judging from the really essential points of the character, apart from the numerous non-essential ones introduced by Dunal I think not. *Thibaudia* has one good distinguishing mark in the union of the filaments between themselves and their attachment to the base of the corolla. But if that is to be taken as the essential character of the genus, then both *Maclurea* and *Anthopterus* should be associated as subgenera, the collateral marks deduced from the calyx and corolla being but of generic value in a far off where these organs are so variable.

Influenced by such considerations I have without hesitation referred all the Indian species to *Vaccinium* with the subgeneric appellation *Agapetes* to mark their Watic origin. The following I consider the correct characters of the genus and would use all species in which they meet as genuine species.

Calyx adherent, limb 4 5 lobed. Corolla tubular 4 5 cleft. Stamens 8 10 epigynous, anthers adnate, 2 celled often furnished with 2 bristles on the back, the cells ending in a tube open at the apex. Ovary 4 5 celled, placentas ascending, usually, bearing the ovules on the margin. Berry 4-5 celled, often spuriously 10 celled through the adherence of the walls to the thickened placentas. Seed several in each cell testa coriaceous or somewhat bony albumen fleshy embryo orthotropous, radicle next the hilum.

Trees shrubs, &c &c

According to this character it is of no moment whether the lobes of the calyx are large or small, whether the corolla is long or short, thick or thin the anthers may or may not be bristled, but are always expected to have the cells more or less prolonged into tubes, and to have the number of cells of the ovary equal to those of the lobes of the calyx and corolla, with, more or less distinctly free ascending placentas and a plurality of ovules. Such is the genus *Vaccinium* as understood by me when naming the following and several other still unpublished species in my herbarium.

1180 VACCINIUM (AGAPETES) WALLICHIANUM (R. W.) leaves subsessile, lanceolate acuminate, entire glabrous, congested toward the ends of the branches racemes axillary, erect shorter than the leaves flowers tubular, drooping, and with the pedicels and calyx sprinkled with longish hairs pedicels dilated cup shaped at the apex antheri rough, without bristles, ending in two long tubes cohering nearly half their length stigma dilated.

Selhet. I am indebted to Dr. Wallich for the specimen from which this drawing was made, but without station or name. Thence therefore dedicated it to him. The leaves are from 2 to 3 inches long, and about one broad, the flowers dark pink about an inch. In some points it seems to correspond with Roxburgh's *Ceratostema vanegata*, but judging from Royle's figures of that species, is certainly distinct if this is the true plant.

1181 VACCIVIUM (A) VERTICILLATUM (R W) *Agipptes wHicrtlata* Dn *Ihibaudia settigera* Griffith M^S) Sterna shrubby leaves verticillate, lanceolate, acuminate, minutely denticulate, acute at the base. Mmra racemoso corymbose pedmcles and calyx hispid, corolla glabrous, " corolla about an inch lang 5 lob d, lobes short, filaments slightly cohering anthers bifid, stigma simplish (sub sim- l-x Y'-D C Prod 7, 55 i

Pundua mountains, Walhch, Khasya, Gnfnth 1 am indebted to Mr Griffith for my specimens

It is with considerable diffi lence I have adopted the present in preference to Mr Griffith's name, as the two species seem \ery nearly allied if actually distinct *V (A) setigera* is said to ha\ e the leaves elliptic lanceolate attenuated, obtuse at the base, but in *verticillata*, acute at the base, that added to verticillation is the principal character and they associate in the specimen before me. There is another point in which the specimen agrees with the latter, the filaments in it are glabrous while in *setigera*, they are said to be bearded

The magnified corolla is represented much too hairy, an error entirely oning to the imperfection of our lithograph), for in the original drawing it is shown fearcely even pubescent some of the young unexpanded flnverts ha\ e a few scattered hairs near the point the expanded ones, unless when seen under a considerable magnifier, appear quite glabrous

1182 VACCIMUM (A) HIBSUTUM (R W) leaves ellipse-lanceolate, entire, glab-ous or subp- lieuent, racemes erect, cor) mbose, many flowered fl ?wers tubul n, long pedicel led pedicels shorter than the peduncles, blender and like the calyx and corolla, hairy filaients short, anthers pubescent, without bristles, ending in two-long tubes cohering nearly half their length

Silhet > I received the specimen along with the above, No 1180, from Dr Wallich, without station or rianae. Fh iugh rather imperfect I have ventured to in'nduce a figure of it, being so very distinct from all I have seen, nor does it correspond with any defenbed species

1183 VACCIMUM (A) SERPENS (R W) shrub- hy, procumbent branches terete, the young shoots clothed with coarse dark brown hairs leaves coriaceous, subsessile, distichous, subcordato-ovate, obtuse, mucronate, glabrous on both sides, recurved, and slightly denticulate on the margin flowers axillary, foitnry or rarely paired pedicels shorter than the 1 paxes, slender, hairy calyx tube 5 winged, lobes of the limb membranaceous ovate, ciliated, with glandu lar hairs corolla tubular filaments short, pubescent anthers without bristles, cells short ending in long filiform tube*

Boot an, Phullong Woods, Griffith

This seems quite procumbent probably growing like ivy on trees. The leaves are from 8 to 10 lines long and half as broad, ovate, or sometimes slightly cordate at the base when dry, somewhat corrugated on the surface, convex above, each ending in a bnstle. The dned calyx is brownish, scanose and translucent when wetted, the lobes decurrent forming wings to the tube, corolla about 15 lines long, glabrous within

1184 V\refNHM (A) SKRRATUM (R W *Gujitn>\nc?a strata* Lindley, Rijlc, Danal) Stem

fruticose leaves approximated, narrow lanceolate, serrated, acute ngid, coriaceous shining, shortly petioled bracts coloured, subulate racemes axillary, few flowered flowers withering, long pedicelled, whit* isb green — D C Prod 7, 5a8

Khasya, Griffith

A careful comparison of the specimens with Rjyle'fl figure and with the character of the speciee satisfies me that this is really his plant, in which case the analysis shows that it is a true *Vaccinium* and that Dr Lindley muBt have been led, by dibsecting mature fruit, into the supposition that it had a 10 celled ovary

1185 VACCIMUM (A) VENOSUM (R W) shrub- by, glabrous branches terete leaves and racemes congested on the ends of the ramuli leaves subses sile, elliptic oblong, acute at the base, tapering to a point, serrated, rigid, coriaceous, veins above (when dry) prominent with the interspaces somewhat bul. late racemes, axillary, congested on the ends of the branches, about the length of the leaves flowers numerous, ovate, small, short pedicelled, with a minute subulate caducous bractea and 2 bracteolea calyx glabrous, lobes triangular corolla slightly hairy within, filaments about half the length of the anthers anther cells rough, without bristles, calcarate at the base, stigma obtuse.

Dootan, Griffith

A very distinct species easily recognized by its strongly veined somewhat bullate leaves, and numerous small flowers, leaves 3 to 3} inches long and about 1 broad, very rigid, fhwers about 2} lines long, the pedicel about the same. The want of bristles to the anthers places it near *V. serratum*, the spur to the anthers is peculiar

1186 VACCINIUM (A) MALACCENSIS (R W) shrubby glabrous, ramuli slender terete leaves gla- brous, petioled, ovate lanceolate, acute at the base, acuminate, finely serrated racemes linger than the leaves, many flowered, solitary, from the axils of the upper leaves flowers drooping, short pedicelled, bractea bracts fallacious lanceolate longer than the pedicel* pedicels hairy with a bractiole about the mid- dle corolla ovate villous filaments hairy, anthers without bristles style length of the stamens, stigma simple, fruit globose, about the size of a pea

Malacca, Griffith

The largest leaves on my specimens are about 2} inches long and 1 broad at the broadest point whence they tap<r to both ends. The longer racemes rather exceed that length flowers numerous, about 3 lines long, often shorter than the adjoining bractea. The want of bristles to the anthers associates this with *V. serratum* but in other respects it is quite distinct

1187 VACCINIUM (A) ODOVTOCERUM (R W) arboreous, glabrous, branches strongly marked with the'prominent scars of fallen lea\ es leaves coriaceous, linear-lanceolate, shining, slightly denticulate, short petioled racemes axillary, rachis about the length of the petiols, pedicels slender, longer than the peduncle flowers tubular, drooping corolla 5 cleft variegated with darker zig zag lines stamens longer than the tube horns of the anthers furnished near the muL die with two retrorse bristles, anther cells and filaments pubescent

Khasya, Griffith

Apparently a handsome species. The flowers

from the wood of the preceding year, covering the branches below the leaves. The most distinctive peculiarity of this species is the position of the antherial bristles, half way up the tube in place of on the back of the anther cell. The leaves are about 6 inches long by about 1 broad.

USS. VACCINIUM (A) LESCHENAUTII (R. W.) *V. arboreum* Leach, not Michx. *Agapetes arborea* Dun in D. C. Prod. *Andromeda symplocifolia* Wall. L. No. 1522, arboreous older branches glabrous, greyish white, ramous pubescent-villous: leaves shortly petioled, ovate-elliptic, serrated, acute, paler beneath, hairy on the costa: racemes axillary and terminal, about the length of the leaves.

Neilgherries, frequent, flowering March and April, but usually to be met with in different situations in flower and fruit at all seasons. The berries which are about the size of red currants and are agreeably acid and make excellent tarts, much resembling in taste those made with the cranberry *Oxycoccus palustris* or *O. macrocarpus*.

1169. VACCINIUM (A) NEILGHEHRENSIS (R. W.) shrubby, glabrous, except the pubescent young shoots and leaves: leaves lanceolate, acute at the base, acuminate at the point, racemes longer than the leaves, axillary, usually confined to the extremities of the branches: flowers whitish or rose coloured, short pedicelled, usually furnished with a large foliaceous bractea: corolla ovate, slightly pubescent: filaments hairy, anthers bristled, tubes dilated towards the apex.

On the low banks of streams Neilgherries: abundant along the banks of the Pycarrah river for a mile or two above and below the Bungalow. Flowering during the dry season, from February till April. It is nearly allied by its technical characters to the former, but is evidently quite distinct. The large foliaceous bracts supplies the best distinguishing mark, but both in habit and locality it differs.

1190. VACCINIUM (A.) AFFINE. (R. W.) shrubby, every where glabrous: leaves short, petioled, from ovate lanceolate acuminate to elliptic lanceolate, pointed at both ends, crenate-serrated towards the point: racemes axillary or more frequently from the previous years' wood about the length of the leaves: flowers secund drooping, pedicels as long as the flowers: bracts foliaceous, lanceolate, caducous, with 2 subulate bracteoles at the base of the pedicels, corolla ovate: filaments slender, subulate, as long as the anthers and tubes, sparingly pubescent at the base: bristles nearly half the length of the tube: anther cells roughish, small in proportion to the size of the tubes.

Khasya—Griffith. This is very nearly allied to the following, from the same country, the difference being confined to the stamens; in this the filaments are as long as the anthers and both hairy—in that the filaments short covered with matted hair, and the anthers glabrous or nearly so.

1191. VACCINIUM (AG.) DONNIIANUM. (R. W.) ramous virgate terete glabrous: leaves short petioled, obovate-lanceolate acuminate, coriaceous, crenate-serrated racemes axillary cernuous about the length of the leaves, many flowered: flowers drooping: corolla glabrous, villous within: filaments short, thickly covered with coarse matted hair: anthers glabrous:

bristles short, tubes thick: style exceeding the stamens: stigma dilated.

Khasya, Griffith. This species is nearly allied to both the preceding and following, but I think differs specifically from both.

1192. VACCINIUM (A.) GRIFFITHIANUM. (R. W.) shrubby, ramous, branches terete, glabrous, except the pilose extreme ramous. leaves elliptic pointed at both ends, finely serrated, conaceous, glabrous: racemes axillary foliaceous, many flowered. flowers short pedicelled, ovate, drooping, each furnished with a leaf like bractea and two bractiols: calyx lobes ovate serrated corolla ovate, filaments hairy, about the length of the anthers: anthers bright red ending in thick tubes

This seems much allied to *V. Leschenaultii*, but is I think quite distinct.

1193. VACCINIUM (A.) MONASTICUM. (R. W.) shrubby, procumbent diffuse, glabrous: ramuli slender, very leafy: leaves short petioled, obovate-cuneate, entire, subnervolate on the margin: flowers axillary solitary drooping, pedicels about the length of the leaves: calyx and corolla glabrous, stamens exserted, filaments very short, anther cells united at the base forming a spur, bristles tied: tubes about twice the length of the anther cells: berry globose about the size of a small pea.

Cheera Punjee.—Griffith.

In habit this seems to approach *Arc. uva-ursi* but otherwise, is a true *Vaccinium*, and certainly cannot be mistaken for any other I have seen.

1194. VACCINIUM (AG.) DUKALLIANUM. (R. W.) arboreous or shrubby, glabrous: leaves elliptic-lanceolate, ending in a long slender acumens, entire, coriaceous, changing to a pale yellow brown in drying: racemes axillary, gemmate at the base, shorter than the leaves: scales of the buds ciliate concave. corolla campanulate: filaments short, broad, pubescent: anthers setigerous about the length of the corolla. berry orbicular small.

Butan.—Griffith.

This a curious and very distinct species, most easily recognised by the peculiar acumens of its leaves, and, in dried specimen*, by the unusual pale brown colour it acquires during that process.

The scaly buds from which the racemes spring are also peculiar in this species and bring it towards *Rhododendron*. Fig. 5 of the plate represents outside and inside views of one of the scales.

Fig. 5. GAULTHERIA LESCHENAUTII (D. C. G. *ovatifolia* Wall. W. No. 1523. *Andromeda Kataghtensis* Hook Icon. 246. *Leucotha Kataghtensis*, D. C. Prod. 7, p. 60b. *Andromeda flexuosa* Moon) glabrous, ramous subtergous: leaves petioled ovate or obovate, terminating in a gland, crenulate, punctate beneath: racemes axillary or lateral pubescent, a little shorter than the leaves, erect: bracts concave acute glabrous, one under the pedicel, two near the flower. U. C. Prod. 7-593.

Neilgherries, abundant and to be met with in flower at all seasons. It is a considerable sized ramous shrub with very thick coriaceous leaves and pure white flowers. Berries blue.

I have adopted D. C. specific name in preference to Wallich's catalogue name as having a specific character attached on the same grounds Hooker's specific name held priority had he correctly recognized

the genus It seems curious that D C shrub have overlooked the identity of Hooker's plant with his own as the figure is most characteristic, especially when aided, as it is, by a good character and description The oldest name is undoubtedly Moon's, but he also referred it to a wrong genus

1196 GALLTHERIA FRAGRANTISSIMA (Wall) glabrous? erect, somewhat cornered leaves elliptic oblong, acute at both ends, dentate, corymbose racemes axillary, bracts straight puberulous, about half the length of the leaf, bracts concave, 2 under the calyx, one under the pedicel D C Prod 1 c

Ceilon—Col Walker There are some slight differences between the Ceylon and Nepaul plants, but not sufficient to apprehend to constitute them distinct species

1197 GAULTHERIA GRIFFITHIANA (R W) shrubby, glabrous leaves short petioled, elliptic lanceolate acutely serrulate, coriaceous racemes axillary, corymbose, erect, much shorter than the leaves, puberulous bracts acute, concave with the veins ciliate, bractlets somewhat remote from the flower filaments short, ventricose in the middle, hair)

Butan, Griffith

This species seems very distinct from all the Indian ones differing in the form and in the delicate serration of the leaves, the short racemes, ciliate bracts and calyx, but especially in the bellied filaments

1198 ANDROMEDA (PIERIS) LANCEOLATA—(Wall) leaves lanceolate, acute at the base, acuminate, entire on the margin racemes simple, flowers secund corolla oval cylindrical, pubescent D C Prod 7, p 599

Khasya, Griffith

If this is really Wallich's plant which the shape of the leaves renders somewhat doubtful the specific name seems less appropriate than his usually are It may however be merely a broader leaved form as I have another specimen of apparently the same species With lanceolate leaves and it corresponds in other respects

Being unable to detect any sufficient generic difference, I have followed Lindlicher in reducing the genus to *Andromeda*

1199 ANDROMEDA (P) OVALIFOLIA (Wall) leaves oval, obtuse at the base, acuminate, entire on the margin racemes simple, flowers secund subpubescent corolla oval cylindrical, puberulous DC Prod 1 c

Nralla, Countess Dalhousie apparent¹), judging from a finely preserved specimen, a beautiful tree

1200 ANDROMEDA (P) FORMOSA (Wall) leaves lanceolate, acute at the base, acuminate, semi-lanceolate, coriaceous, glabrous racemes paniculate thyrsoid corolla ovate D C Prod 1 c

Butan, Griffith

Leaves crowded, 2-3 inches long, racemes delicately pubescent, lobes of the calyx with a marginal nerve

1201 RHODODENDRON ARDORBUM (Smith) arboreous, leaves lanceolate, glabrous, scaly beneath flowers compact corymbose ovary pubescent tomentose 8-10 celled D C Prod 7—720

Isilghemee, very frequent Flowering in great

perfection in March and April Leaves rusty coloured beneath, flowers deep crimson The tree itself, apparently from usually growing in exposed situations had a gnarled stunted appearance, its compact capitula of flowers always terminal

1202 RHODODENDRON GRVNDE (R W) Arboreous, everywhere glabrous except the lenticular scales, the inner series of which are densely tomentose externally leaves oblong lanceolate, cuspidately acuminate somewhat obovate, (the broadest part nearer the apex than the base) petioled, entire, coriaceous, whitish scaly beneath corymbose terminal capitulate bractlets obovate cuspidate tomentose corolla subcampanulate, limb 8 cleft lobes emarginate stamens 16 the length of the tube stigma dilated, ovary 10 celled

Butan, Griffith Mr Griffith briefly characterises this species in the single word "magnifique," which idea I have attempted to convey in the specific name In this the same relative proportion of parts exist as in *R. arboreum* that is the number of stamens and cells of the ovary are equal and double those of the calyx teeth and lobes of the corolla, but in this they are a half more numerous, this mark equally distinguishes it from *R. formosum* which is 10- androus

1203 RHODODENDRON GRIFFITHIANUM (R W) arboreous, glabrous, branches terete leaves coriaceous, crowded on the ends of the branches, oblong oval, acute at both ends, mucronate racemes terminal lax, flowers longish pedicelled calyx entire, scutelliform corolla campanulate, 5 lobed, spreading stamens 15 (>) shorter than the corolla anthers truncated opening by pores, ovary hairy 10 celled

"Butan, a beautiful species, 1045—of journal"—Griff MS

Every flower in my specimen has so suffered from attacks of insects that I could only find one in a fit state for dissection, and from it we learn that this species has a 5 lobed corolla, 15 stamens and a 10 celled ovary Here is a marked departure from all the other sections of the genus hence, if further acquaintance with the species establish the correctness of these numbers, this must form either the type of a new section or of a genus.

1204 LYSIMACHIA (EPHEMERUM) LESCHKAULTII (Duby in D C Prod V 8) erect ramous, leaves opposite or ternate lanceolate, sinuate (?) entire, acuminate, glabrous, short petioled flowers racemose crowded bractlets linear subulate, acuminate, much shorter than the pedicels calyx much shorter than the campanulate corolla, divisions linear lanceolate acuminate, lobes of the corolla obovate obtuse, entire stamens equal exserted style filiform D C Prod

Neigherhnes, frequent in low moist or even marshy soils and generally to be met with in flower Plant herbaceous perennial from two to three feet in height Flowers on first opening red dish-white, streaked with darker lines afterwards acquiring a rather deep lilac tinge

1205 ANAGALLIS LATIFOLIA (LINN) roots herbaceous decumbent, ramous branches elongated, 4 sided slightly winged leaves opposite or ternate broad ovate, semiamplexicaul, subacute, spreading peduncles longer than the leaves, calyx a little shorter than the corolla, lobes narrow linear-lanceolate acuminate corolla nearly twice as long as the stamens, lobes

obovate obtuse, finely serrulate filaments hairy capsule about the length of the calyx *D C Prod*

Neilghernes, in corn fields and other cultivated lands flowers blue Duby asks if this is a genuine species > I he question is not easily answered but so far as my slender acquaintance with *A arvtnsis* enables me to judge, I confess I feel disposed to answer in the negatne, though, on slightly comparing my Neilgherry specimens with European ones of *A armnsis* there does appear some difference This more nearly approaches the variety *A carulea* if indeed it is not that very plant, of which however I have not a good specimen to compare The Indian plant is much more luxuriant than the European

1206 MCESA INDiCA(Alph D C) leaves ovato-elliptic acuminate, coarsely dentate, membranaceous, subnervulate on the margin racemes axillary and terminal, simple or ramous at the base, glabrous, twice the length of the petiole bracts lanceolate acuminate, shorter than the pedicel, bractioles ovate acute lobes of the calyx ovate aubciliate corolla 5 cleft 3 times the size of the calyx, lobes obovate subciliate bpread-ing ovary semisupenor stigma capitate sublobate — *D C Prod* 8 80

Alpine jungles in various parts of the peninsula, on the Eastern slopes of the Neilgherry rather frequent Between this and *M Perrotettana* I can discover no satisfactory difference This may indeed be that plant as it grew on the Neilghernes, but I have numerous specimens from other localities which seem all, with but slight variations, to correspond with it I have therefore adopted the older name though I suspect the newer might have been safely given The genus indeed seems a very difficult one, different specimens varying in appearance but scarcely affording specific marks of distinction

1207 EMBELIA GLANDULIFERA (R W By in error *E Ribes* on the plate) glabrous leaves ovate, lanceolate, obtusely acuminate, entire, furnished with numerous glands on either side of the mid rib flowers polygamous, and hermaphrodite, small, panu cled or racemose parades axillary, sparingly branched or sometimes reduced to a simple raceme lobes of the calyx ovate, acute petals elliptical, puberulous, tomentose on the margin, fruit small globose

Neilghernes &c

This species is so nearly allied to *E Ribes* that when naming the figure I supposed it that species On subsequent more careful comparison however with good specimens of the Ceylon plant I have seen reason to change my mind and view the continental plant as distinct from the insular species The axillary sparingly branched inflorescence forms a distinguishing mark of some, but I think only secondary importance, the presence of glands along the mid rib I consider the essential character, as I find it constant in specimens from the Neilghernes, Bel-fraum, and Mahabhshwar Hills, but absent in all my Ceylon specimens as well as in others received from Mergui and Malacca They are not always so numerous as they are represented in the drawing, neither does the inflorescence usually partake so largely of the racemose character, but still I believe the figure true for the specimen represented *Mcua nnsionis* D C is referable to this species, if a specimen in my herbarium, so called, is correctly named But of that I am uncertain The flowers of both this species and *E Ribet* are polygamous but I am uncer-

tain whether there are male and bisexual plants, or that the same plant produces both kinds of flowers according to the season at which they blossom I suspect the latter however to be the case

1208 EMBELIA GARDNERIANA (R W) young branches and petioles ferrugeneo hirsate leaves ovate, rounded at the base, crenulato-serrated, coriaceous, glabrous, except the spanngly hairy cobta, retu culately veined peduncles axillary short fetrugineo-tomentose racemes capitate pedicels about as long as the peduncles, glabrous calyx much shorter thae the glabrous corolla petals obovate obtuse longer than the stamens, sprinkled with purplish coloured spots

bisparh on the western slopes of the Neilghtrnes in clumps of jungle, rare *b* lowering February and March

A diffuse shrub, remarkable in the genus for the venation of the leaves which, when dry, form a quite a net work of white lines In habit it associates with *Chonpetalum* but its quinary flowers seems to keep it distinct I have dedicated this very distinct species to Mr Gardner of Ceylon who accompanied me when it was found and gathered the first flowering specimens Thro* an oversight of the draftsman the branches are represented glabrous in place of clothed with short hairs

1209 EMBELIATSJERIAM COTTAM(Alph D C) glabrous leaves ovate, entire (bcarcelly) coriaceous, short petioled racemes axillary solitary, shorter than the leaves flowers subsessile crowded, polygamous petals ovate lanceolate spreading, villous within anthers pointed

Hab Malabar' I am uncertain regarding the station as the specimens were collected and the drawing made while I was in England, but I believe in Malabar The few specimens I have corresponding with the figure are all male flowered, which will I think account for the differences between my figure and Rheede's In these specimens the leaves are not coriaceous but that may perhaps be owing to their being still young, scarcely full grown In some other specimens which I doubtfully refer to *h Basaal*, and in one, which is I suspect the fertile plant of this species, they are somewhat coriaceous

These two species seem too nearly allied, the only difference I can see being in the shape of the leaves which in thii are more distinctly ovate, in that somewhat elliptico lanceolate sub acuminate

The specimen figured seems an intermediate form which might serve to unite them, in which case I should propose to dedicate the united species to the original discourser

They are also very nearly allied to *E villosa*, of which I possess a specimen from the Himalayas, this being glabrous that pubiscent is the only difference I can see

1210 CHORIPXTALUW AURANTIACUM (Alph. D C) leaves ovate lanceolate, eubacuate at both ends, entire, conaceous, long petioled racemes much shorter than the leaves, longer than the petiols, bracts acuminate as long as the pedicels, petals linear lanceolate reflexed filaments longer than the petals, much longer than the anthers — *D C Prod*

Neilgherne also Malabar, flowering during the dry season When in full flower the branches are quite covered with the numerous lacemes of bright orange coloured flowers Tht leaves vary considerably in

ire, being from three to six inches long by from 1} to 2 broad, usually ending in a blunt acumen

According to Professor Arnott the genus *Chonpt** *alum* Alph D C is identical with the genus *Samara* Linn and that this plant, consequently, ought to be called *Samara aurantifolia*. To this view I am not yet prepared to accede, unless the genus *Myrsme* be added, as I feel all but certain that *S fata* Lin is *Mymn* capitellata*. Wall, and Alph. D. C.—*Cor. nus Zeylanica fyc. Burm Zeyl. tab. 31.*

1211. MYRSINE CAPITELLATA. (Wall) leaves elliptico-obovate entire, coriaceous, glabrous, narrowing into the petiole fascicles numerous, 5-8 flowered, bracteate: bracts imbricated, ovate—flowers short pedicelled; teeth of the calyx ciliate: lobes of the corolla lanceolate acute, two or three times larger than the calyx, exceeding the stamens.—D C. *Prod. 8—95.*

Leaves 4-6 inches long, acute or obtuse, everywhere punctate, those of the margin larger—flowers polygamous the fascicles, owing to the bracts, resembling small cones. Nepal.

& *Grandijlora*, leaves smaller, lobes of the corolla 4 times longer than the teeth of the calyx, Neilghernes, D C I c.—*Cornus Zeylanica syhestrxs alt era Sfc. Bmm Zeyl. tab 31.*

Ootacamuna, frequent in clumps of jungle, flowering February and March, when the naked branches, below the leaves, are quite covered with its numerous compact capitules of flowers, an appearance which the artist has not been successful in representing The branch in fruit conveys a better idea of its appearance in that stage.

1212. ARDISIA HUMILIS. (Vahl.) leaves obovate lanceolate, obtuse, subentire, coriaceous, contracted at the base into the petiole • racemes umbelliform, axillary and terminal, reflexed, shorter than the leaves lobes of the calyx orbiculate, subciliate: lobes of the corolla lanceolate, subacute, twice the length of the calyx.—D C *Prod 8—129.*

Eastern slopes of the Neilghernes, in subalpine jungles, in moist soil near the banks of streams, flowering March and April. This is beautiful and somewhat variable plant but is not likely to be confounded with any other species. Its showy rose or rather light purplish flowers shining black fruit and large bright thinning leaves makes it a most conspicuous shrub. In favourable situations it becomes a small tree. That from which the specimens represented were taken was nearly 20 feet high. It is a widely distributed and conspicuous plant and has receded several names as *A Solanacia, littoralis, Doma, oleracta, umbellata, &c*

I am uncertain to which of D. C.'s varieties this belongs but think his last.

1213. ARDISIA RHOMBOIDEA, (R W); leaves rhomboidal acuminate, contracted below into the petiole, glabrous, slightly crenulately undulate on the margin. racemes axillary, much shorter than the leaves, few flowered • pedicels umbellate, bracts lanceolate acute • lobes of the calyx ovate, subciliate, three times shorter than the corolla • lobes of the corolla broad, ovate acute, longer than the stamens: fruit globose small.

Shevagherry Mountains in dense jungles, flowering August A glabrous shrub, leaves from 2 to 3 inches long and from 6 to 8 lines broad, at the broadest

part, whence it suddenly contracts towards each end, without pellucid dots, flowers small In some respects this approaches *A. pentayona* but is I think quite distinct.

1214. ARDISIA PAUCIFLORA. (Heyn D. C.) leaves long elliptic, narrowing at both ends, entire: racemes axillary scattered few flowered, much shorter than the leaves, pedicels umbellate, longer than the flowers. lobes of the calyx ovate-acute, subciliate. corolla two or three times longer than the calyx. Branches virgate, terete, puberulous at the extremities, leaves 3 to 4 inches long, pellucid-punctate, mixed with other larger reddish ovate semipellucid ones.—D C *Prod 8—127.*

Courtallum, flowering in August and September.

The plant figured here corresponds well with the character but wants the "punctis majonibus rubescentibus ovatis semipellucidib" which I consider an important character though the want of it seems scarcely sufficient to authorize my considering this a new species, unless I had authentic specimens of the other to compare, which I have not.

1215. ARDISIA COURTALENSIS (R. W.): leaves obovate cuneate bluntly acuminate entire, subsessile: panicles longer than the leaves terminal lax, branches umbellate (not paniculate) few flowered; pedicels umbellate 4-5 times longer than the flowers, spreading. lobes of the calyx ovate, pointed, ciliate, of the corolla ovate, subcuspidate longer than the stamens.

Courtallum.—August and September. In Bupalpine jungles.

This species so nearly approaches *A pamcuhta* in its general characters that I should probably have been induced to consider it a form of that species had I not possessed authentic specimens from the Calcutta garden. The best and most easily recognized distinction is the composition of the panicle: in this each branch ends in a simple umbellate raceme, in this it forms a secondary smaller panicle: in this therefore the panicle is simple in that compound. Other distinctions are not wanting when the two plants are compared, the dense panicles with their numerous reflexed branches, and short pedicelled drooping flowers of that and the loose ones of this, with their long pedicelled spreading flowers, show at once the difference.

The upper 4 or 5 leaves forming a verticil round the base of the panicle, are from 7 to 9 inches long, and from 2 to 2½ broad, the fruit I have not seen.

1216. ILIX (P) WIGHTIANA. (Wall): glabrous, leaves ovate elliptic or elliptic acuminate entire, coriaceous: umbels numerous axillary or from the scars of fallen leaves, pedicels about the length of the peduncles, often longer. flowers often polygamous by abortion, corolla 5-6 cleft, berry 5-6 seeded.

Neilghernes—frequent: to be met with in flower at nearly all seasons, but in greatest perfection in all March and April.

A large umbrageous tree everywhere glabrous, leaves from an inch and half to two inches long, coriaceous, shining above paler and dull beneath, usually ending in a short abrupt acumen. Flowers very numerous, small, white; at certain seasons nearly all males, at others generally bisexual. Berries about the size of a pea, red when ripe. I measured one tree 18 feet in circumference at about 6 feet from the ground.

1217 ILIX GARDNERIANA (R W) subarborescent glabrous leaves ovate lanuolate or subcordate, ending in a tapering acuminate umbels axillary or aggregated on the naked branches, pedicels often shorter than the peduncles sparingly hairy calyx and corolla 5 lobed the former sprinkled with short hairs in the clumps of jungle near Sispara on the Western slopes of the Nilgherries, flowering in profusion in February

A small tree or large shrub, and at the time we gathered the specimens figured, one of great beauty. It was not then in fruit, indeed most of the flowers seem males. It seems very nearly allied to the preceding but differs in habit, in its much larger, more membranous, and long acuminate leaves, and also in larger and more conspicuous flowers. At first I felt disposed to consider this a variety of *M. ighhana*, viewing the larger size of the leaves and flowers as depending on the plants being younger and more luxuriant, an error which Mr Gardner first pointed out, I therefore dedicate the species to him

1218 SAPOTA ELINGOIDES (ALDC) branches often spinous, ramuli ferrugineo tomentose leaves acute at both ends, glabrescent, entire flowers axillary few, pedicels the length of the petiole and like the calyx clothed with rusty coloured pubescence lobes of the calyx ovate, acute the 3 exterior ones broader corolla about twice the length of the calyx, 5 cleft, lobes erect, ovate, acute, tube, externally, pilose anthers apiculate, sterile stamens oblong subulate, the length of the stamens, the back and margins pilose—*D C Prod* 8-176

Nilgherries, in almost every wood about Otacumund in flower and fruit at all seasons

A large tree with rough cracked bark, hence much covered with both parasitic and epiphytic plants of all kinds. The flowers except from their number are not conspicuous, and have no beauty. The fruit is about the size of a crab, and not unlike one, agreeing moreover in the sour austere taste of that fruit. It is made into pickles, and the natives cook and eat it in their curries. The spines are axillary from 1 to 2 inches long the leaves from 1 to 2 inches, scarcely coriaceous, flowers solitary, or 2-4 together, white, anthers extrorse, ovary hairy, 5 celled, with a single ascending ovule in each, three or four of which usually abort before the fruit attains maturity

1219 ISONANDRA PERROTTETIABA (ALDC) leaves elliptic narrowing at both ends, apex obtuse, base acute, glabrous above, slightly pilose beneath flowers sessile, lobes of the calyx ovate rotundate, silky, corolla deeply 4 cleft—*D C Prod* 8-188

Nilgherries, in jungles, about Sispara and the Avalanche, flowering February and March

Arboreal the ramuli clothed with rusty coloured silky hairs, leaves from 3 to 4 inches long, shining above, dull or silky beneath, flowers small, sessile, forming dense capitulae on the leafless branches, calyx of a brownish rusty colour, corolla white, style exserted, ovary 5 celled with 1 ovule in each, fruit usually 1 seeded, obovate. The analysis of this, as regards the calyx, is not quite correct

1220 ISONANDRA CANDOLLIABA (R W) leaves obovate, oblong, bluntly acuminate, tapering at the base, glabrous beneath flowers sessile, lobes of the calyx very unequal exterior ones much larger and hairy corolla deeply 4 cleft, lobes emarginate, much

longer than the stamens, anthers pubescent at the apex

Nilgherries, about Otacumund and Pjcarrah, in clumps of jungle, flowering in March and April

This seems almost too nearly allied to the former, but still the two plants when lying side by side seem perfectly distinct, even in the fruit, they besides occupy different stations, and I have never met with them together

1221 22 DIOSPYROS CANDOLLIANA (R W) arboreal, glabrous, leaves elliptic oblong, obtusely acuminate, flowers axillary, aggregated in the leaf axils calyx 4-5 cleft, lobes of the male simple, of the female revolute on the margin corolla, tubular 4-5 cleft, tube exceeding the stamens stamens of the male 10, filaments united by pairs at the base, anthers oblong, apiculate, of the female 4-5, sterile ovary 4 celled (always >) style simple stigma 2 lobed seed ovate, compressed, testa slightly corrugated on the surface albumen deeply convolutedly furrowed

Malabar, flowering and in fruit in June

A very distinct species, allied by its geminate stamens to *D. tetrasperma*, but differing in the quinary structure of its flowers. Leaves from 4 to 6 inches long, and from 1 to 2 broad calyx clothed with rusty coloured hairs. The ovary is 4 celled in pentamerous flowers, I thence infer that is the regular number—fig 11 of 1222 is a section of the seed and testa.

1223 DIOSPYROS DUBIA (Wall) ramuli tomentose leaves ovate elliptic, obtuse at both ends, slightly pilose above, beneath and the petiole pubescent male flowers short peduncled, lerna sessile calyx 4-5 cleft, tomentose on both sides, lobes acute erect corolla twice the length of the calyx, externally pubescent—The bark of the older branches pale, furrowed as if corky leaves 3-5 inches long, 1 to 2 broad Flowers pale, tomentose stamens 13-14 often geminate

Nilgherries and Serramunlee Hills, near Dindigul I have not been so fortunate as to meet with the female plant

In drying it turns to a pale yellowish colour, the calyx and corolla are clothed with pale rusty coloured hair. The stamens in some flowers seem to be hypogynous, occupying the centre of the flower without a rudimentary ovary, in others the rudimentary ovary is distinctly present with the stamens attached round the base, scarcely if all adherent to the ovary, hence I presume Dr Wallich's doubt as to its being a true Diospyros

In the printed figure, owing to the imperfection of Indian Lithography, the hairy parts are represented much more densely clothed than they ought to be. The older leaves are thinly sprinkled with hairs, the younger ones pubescent

1224 DIOSPYROS CAPITULATA (R W) fruticose, ramuli tomentose, older branches glabrous leaves oval, short petioled, pubescent above, tomentose beneath flowers numerous, axillary, subsessile, capitate calyx hairy, 4 parted corolla, deeply 4 cleft lobes obtuse, hairy on the back, stamens 16, alternately long and short, anthers oblong, bilaminated at the point, rudimentary ovary, obaotetel 4 lobed, female not seen

Balaghaut mountains near Madras

This in its inflorescence and general appearance approaches *D. chloroxylon* R, but seems quite distinct

It is at once distinguished from all the species with which I am acquainted, by its anthers being prolonged at the apex, and cleft into two thin lamellae leaves about an inch long and 8 lines broad obtuse at both ends, becoming blackish in drying capitula of flowers usually sessile, but sometimes borne on a short peduncle from 6 to 10 together

1222 DIOSPYROS MONTANA (Roxb.) leaves ovate acute, obtuse at the base, glabrous, membranaceous racemes reflex-patulous nearly twice the length of the petiole, male 5-6 flowered, female one flowered bracts and lobes of the calyx ovate, acute, ciliate corolla of the male twice the length of the calyx sometimes length of the tube—Leaves 1 to 2 inches long, from 1 inch to an inch and quarter broad, narrowing towards the apex Flower buds ovoid conical, Stamens of the male flowers lanceolate, geminate, not two anthers to one filament Female flowers tetrandrous, ovary globose, 8 celled, styles 4, divided, according to Roxburgh, at the apex

Courtallum, subalpine forests

Several circumstances tend to make me now doubt whether this is Roxburgh's plant, or even a variety of it It unquestionably corresponds in most points with his description, but the form of the calyx does not correspond, and the stigmas are not cleft Willd. now has given a brief character and very imperfect description of another plant, which he recognised as a distinct species, under the name of *Diospyros orthensis* From his character it scarcely appears that they are different, but it is not probable that he would have described two specimens of the same plant as distinct species may not this therefore be the female plant of *D. orthensis* of which he might not have had a specimen This I can only advance as a conjecture, and as my plant agrees in so many points with Roxburgh's description, I retain his name, but with a mark of doubt attached.

1226 DIOSPYROS OBOVATA (R. & W.) glabrous, except the pedicels and calyx leaves broad obovate obtuse, tapering towards the base, coriaceous, entire flowers axillary, sessile, aggregated in dense capitula, calyx deeply 4 lobed, lobes unequal imbricated, interior pair glandular at the apex corolla 6 lobed, about the length of the calyx, lobes obtuse stamens 18, filaments very short, anthers apiculate a large free, style like, rudimentary ovary in the centre

The female of this species is still unknown to me, but as it seems a very distinct one and may be easily recognised from the figure I have thought it desirable to give it a place here The peculiar calyx seems to render it probable that it may form the type of a new genus when better known

1227 DIOSPYROS OVALIPOLIA (R. & W.) glabrous, bark greyish, corrugated leaves oval glabrous slightly coriaceous flowers aggregated on short peduncles on the naked branches calyx hairy, 5 lobed corolla twice the length of the calyx, 5 cleft Stamens numerous, subhypogynous, filaments short, bearing two linear acute geminate anthers hermaphrodite, flowers like the male with a 2 celled ovary

1228 29 MABANEILGERBENSIS (R. & W. M. Ebnus on the plate) ramuli slender glabrous leaves elliptic lanceolate, obtusely acuminate, membranaceous, glabrous flowers axillary, males several, females solitary calyx campanulate, 5 lobed, hairy on both sides

corolla tubular, 3 lobed, about twice the length of the calyx stamens 6, subhypogynous unequal, hairy at the base ovary 3 celled, ovules paired, stigma 3 lobed, berry 3 seeded

Woods about Coonoor on the Nilgernes

When naming the drawing, I did not sufficiently advert to some points of the specific character nor to the description given by Rumphius, being unfortunately satisfied with a comparison of the figures which sufficiently accord His oversight led to the mistake of naming the figure *Af Ebtnus*, which I did not discover in time to have it corrected The much larger flowers of this sufficiently distinguish the two species It seems nearly allied to *M. Smeathmann*, but I, I think, quite distinct

1230 SYMPLOCOS PULCHRA (R. & W.) shrubby, diffuse ramuli, leaves, peduncles and bracts clothed with long brownish hair leaves ovate oblong, acuminate, slightly cordate, setosely serrated peduncles axillary filiform, several flowered (3.4) calyx lobes ciliate, corolla glabrous, ovary pubescent, 3 celled

Sispara on the Western slopes of the Nilgernes, on the banks of streams flowering in Kbrua

A beautiful species, the snow white flowers contrasting with excellent effect with the brownish tawny coloured under surface of the leaves against which they press in the growing plant

1231 SYMPLOCOS GARDNERIANA Arboreous, ramuli ferruginous-tomentose leaves petioled, elliptic acuminate, denticulate glabrous above, tomentose beneath the costa beneath, pubescent on the lamina, veined (4th series of veins visible under the lens) racemes axillary, about half the length of the leaves flowers crowded, bracts, bracteoles and calyx tomentose style the length of the stamens, stigma capitate

In woods between Ootacamund and Pycarrah, on the Nilgernes, flowering in February A considerable tree of great beauty when covered with its numerous white flowers and deep green leaves

1232 SYMPLOCOS MICROPHYLLO (R. & W.) fruticose, ramous glabrous leaves elliptic obtuse, serrated, coriaceous, glabrous, or with a few hairs on the costa beneath, raceme axillary about twice the length of the petiole, pilose bracts ovate, obtuse, and like the calyx pubescent lobes of the calyx suborbicular, ciliate corolla scarcely longer than the stamens

Nilgernes, high on the hills behind the Avalanch Bungalow on the banks of small streams, flowering in February

A very ramous bush 5 or 6 feet high, and when found was covered with its numerous fragrant white flowers, leaves from 1 to 1½ inch long, and from 8 to 10 lines broad, slightly crenato-serrated. Fruit I have not seen

1233 SYMPLOCOS OBTUSA (Wall) leaves elliptic obovate, orbicular above, tapering towards the base, subdenticulate racemes axillary, twice the length of the petiole, simple, and like the flowers glabrous lobes of the calyx roundish—Leaves 13-15 inches long 12-15 lines broad, veins prominent beneath, no quaternary ones bracts caducous tube of the calyx obconical, flowers subsessile, lobes of the calyx ciliate—*D. C. Prod.* 8, 255

Nilgernes, frequent in woods about Ootacamund, flowering during the dry season, April and May.

1234 SYMPLOCOS POLIOSA (R. W.) very ramous, ramous terete, marked with numerous elevated scars of fallen leaves, very leafy on the extremities. leaves ovate lanceolate, acute or somewhat acuminate, coriaceous, serruloidentate, glabrous except a few scattered hairs on the costa racemes axillary, several congested on ends of the branches, about twice the length of the petiols, hairy: flowers crowded, sessile, calyx tube short, glabrous, lobes unequal, one longer, ovate obtuse hairy on the back: corolla glabrous, about the length of the stamens • ovary hairy, 3 celled, with about 4 perilocular ovules in each.

Neilgherries, rare, flowering during the dry season.

This species resembles *S. Gardneriana*, but appears quite distinct. I am not well acquainted with the tree, the specimens having been procured by a native collector.

1235 SYMPLOCOS NBKVOSA (A. Ph. D. C.) leaves oblong, lanceolate, acuminate at both ends, crenate-denticulate, very glabrous, shining above, beneath the veins and venulae areolate: racemes simple axillary, twice the length of the petiols, and with the ovate acute bracts, pilose. lobes of the calyx ovate, oblong acute, hairy on the back.—Leaves 3-5 inches long, 12-15 lines broad, the broadest diameter often beyond the middle, petiols, about 6 lines long Bracts caducous, 2-3 lines long, bracteol oblong, solitary at the base of each flower.—Nearly allied to *S. racemosa*, but different, the 4th series of veins conspicuous in Herbaceous specimens leaves less coriaceous, tube of the calyx and lobes longer, bracteols narrower, the apex of the ovary not free, glabrous.—D. C. Prod., 8, 256.

Neilgherries, in woods about Ootacamund, and towards Pycarrah. Flowering during the dry season. It differs in some points from the Nepaul plant described by D. C. The leaves are serrated, not remotely dentate, and the calyx is obtuse not acute. Whether a comparison would furnish other points of difference sufficient to constitute this a distinct species I am unable to say The difference between it and specimens I have named *S. racemosa*, seem to indicate that it is not distinct from *S. nervosa* of Nepaul.

1236. SYMPLOCOS tetraANTHA (R. W.) fruticose, very ramous, glabrous, leaves short petioled, elliptic lanceolate, acuminate, serrated: flowers axillary, solitary sessile. calyx glabrous, lobes ovate pointed, much shorter than the corolla: corolla 5 parted, lobes roundish, obovate, the length of the stamens. stigma capitate.

Shevagherry Hills, near Gourtaum, flowering in August. A leafy very ramous shrub, leaves from 1* to two inches long, ending in a tapering acumens, about 8 lines broad. The solitary flowers of this species at once distinguishes it from all the other Indian ones with which I am acquainted.

1237. SYMPLOCOS PRNDULA (R. W.) arboreous, glabrous; leaves, from oval obtuse to somewhat obovate, entire, coriaceous: peduncles axillary, short, few (2-4) flowered flowers pendulous, tubular calyx ciliate; corolla 5 lobed: stamens numerous, about 3 series, inserted on the throat, exerted, filaments compressed contracted filiform at the apex, style rather exceeding the stamens, stigma capitate; ovary two celled, ovules superposed fruit oblong.

Pulney Mountains and Ceylon, flowering September.

According to Mr. Bentam's review of this genus,

(Lin Trans., vol. 18) this is the only genuine species of *Symplocos* yet found in India, all the preceding ones being referable to the Linnean genus, *Hopea*, which he thinks ought to be restored and kept distinct. In this view I most fully coincide, as the difference between the two forms is too great to admit of their ever being viewed as true congeners, or even subgenera of one genus. Alph. DeCandolle however having in his revision of the genus united them, I have thought it better to adopt his genus, as it stands, than incur the risk of adding to the existing confusion, by partial changes. This species differs from the character of the genus in having a two not 3 celled ovary, but agrees in all other respects, it will therefore form a section of the remodelled genus *Symplocos*, agreeing in that peculiarity with Al. DeCandolle's section *Palura* of the present one.

1238. OLEA GLANDULIFERA (Wall) leaves elliptic, acute at the base, acuminate at the point, entire, glandulose beneath in the axils of the nerves panicles axillary shorter than the leaves glabrous calyx four toothed. stigma capitate—Petiols 9-10 lines long leaves 4-5 inches long, 15-18 lines broad, fruit ovate, somewhat pointed, about 4 lines long.—D. C. Prod., 8, 283.

Neilgherri, in woods near the Avalanche, flowering March and April, the fruit of the preceding year still on the trees. A low tree with a fine spreading head. Leaves pea green, flowers numerous, small, white Panicles numerous, axillary, congested towards the ends of the branches shorter than the leaves. Ovary pubescent. The glands on the under surface of the leaves form the most characteristic feature of this tree. The original specimens from which the character is taken were gathered in Nepaul, but seem to agree well with our plant.

1239-40 OLEA POLYGAMA (R. W.) polygamous, leaves obovate cuspidate, tapering at the base, short petioled, entire, coriaceous; those of the male plant smaller, tending to lanceolate * panicles axillary, many flowered, those of the male larger and more diffuse • hermaphrodite flowers somewhat larger corolla 4 cleft, ovary ovate, with a distinct style and capitate stigma: in the male all trace of ovary wanting fruit.

Neilgherries, in woods between the Avalanche and Sisparah, flowering February and March.

A small, but when in flower, a very beautiful tree, being then, especially the male, covered with innumerable flowers, the fertile tree is much less conspicuous. Bark greyish, smooth: leaves glabrous, coriaceous, terminating in a rigid point, acquiring in dry* a ferruginous tint beneath, and brownish above. Panicles cymose, each division terminating in a cluster of from 8 to 10 flowers. The fruit I have not seen.

1241. OLEA Litfocieroides (R. W.) leaves short petioled, elliptic oblong, abruptly acuminate, entire, glabrous, somewhat coriaceous, transversely veined: peduncles axillary, much shorter than the leaves, trichotomous, each division terminating in a capitulum of flowers • flowers sessile, calyx 4 lobed, ciliate corolla deeply 4 parted, the divisions long linear subulate, united by pairs to the filaments, three or four times the length of the stamens ovary ovate, style short, 2 cleft at the apex drupe oblong bony, 1-seeded * seed albuminous, albumen horny, embryo fohaceous, nearly the length of the albumen.

Courtallum, in dense forests, flowering in August.

A small tree or large shrub, flowers white. It was not without considerable hesitation that I placed this species among the Olives, from which it seems to be well distinguished by the form of the corolla, and my first thoughts were to constitute it the type of a new genus. Further consideration, however, and a closer examination of the distinctive characters of the genus induced me to place it here, as being its most suitable station. The drupaceous fruit removes it from the *Synnhea*, the albuminous seed from the *Chionanthea*, with which the flowers would otherwise associate it. Among the genera of *Otetece*, it might have been with equal, or perhaps, greater propriety, referred to either *Picconia* or *Notelaea*, but after comparing it with the characters of each, it seemed to differ nearly as widely from both as from *Olea*, with the character of which it accords in every point except the corolla, and therefore seems to form the transition from the one to the other having the fruit and habit of *Olea*, and the deeply parted corolla of *Picconia* and *Notelaea*.

1242 *OLEA ROBUSTA* (Wall. *Phillyrea robusta*, Roxb. *Visiania robusta* D. C.) leaves elliptic, oblong, acute at the base, acuminate at the apex, entire panicles terminal, large, diffuse, rachis and pedicels pubescent, style clavate, fruit subcylindrical. —Arboreous, wood very hard, leaves 3-4 inches long, 1 to 1½ broad, flowers somewhat fragrant, fruit size of a bean. —D. C. *Prod.* 8, 289.

A not unfrequent, usually small sized, tree, in alpine Vingles in Southern India, the specimens figured were gathered on the Eastern slopes of the Neilgherries, where it is to be met with in flower or fruit at all seasons.

The genus *Visiania* of De Candolle only differs from *Olea* in the fruit. He remarks of it—"Genus inter *Oleam* et *Phillyream* medium priori dispositione florum et albumine carnosio, posteriori putamine charactere affinis." From this it appears, it only differs from *Olea* in having a paper-like fragile putamen, while *Olea* has a hard bony one, a distinction to which I cannot attach generic value.

1243 *LIGUSTRUM NEILGHERRENSE* (R. W.) subarborescent, glabrous, leaves ovate, elliptic, acute or cuspidately acuminate, coriaceous, thyrses on the ends of the branches lax.

Neilgherries, on banks of streams, flowering during the rains in May and June. A small tree or large shrub, leaves often subalternate, from 1 to 2 inches long, and about 1 to 1½ broad, the larger ones usually terminating in a short acute acuminate point, flowers numerous, fragrant and large for this genus.

Very nearly allied to the following, as the extreme forms of each seem to pass into each other. They appear distinct, the one being common and very constantly retaining the form of a shrub in nearly all situations, while the other is very local and attains a much larger size. It appears to me that D. C. has included both under his character of *L. Perrottetii*, I have limited that name to the more generally diffused species, which is more correctly compared to *L. vulgare*, which it much resembles.

1244 *LIGUSTRUM PERROTTETII* (D. C.) branches puberulous at the apex, leaves elliptic, obtuse at both ends, or subacute, glabrous, coriaceous-carnosulous, the thyrses terminating the branches, compound compact. D. C.

Neilgherries, frequent. to be met with in nearly

all situations, on hilly pastures and banks of rivulets, and very uniform in its habit in both.

A ramous leafy shrub, from 2 to 4, or 5 feet high, leaves from 1 to 1½ inch long, by about 6 to 8 lines broad, of a dark green color, usually obtuse at both ends, but occasionally somewhat acute. Ramuli numerous, short, each terminating in a compact thyrsus of fragrant white flowers, fruit oval, obtuse at both ends, about the size of a small bean.

D. C. hints that perhaps *L. Nepalense*, is a native of the Neilgherries, I have not met with any plant corresponding with his character, "branches softly villous," and "leaves villous beneath."

1245 *LINOCIERA INTERMEDIA* (R. W.) leaves elliptic, acuminate at both ends, long petioled panicles axillary, diffuse about as long as the leaves, flowers aggregated on the points of the ramuli, sessile, often male by abortion, ovules ascending, stigma capitate, 2 lobed, fruit oval, one seeded.

Eastern slopes of the Neilgherries frequent, flowering during the rainy season. —Arboreous, glabrous, leaves opposite, from 6 to 8 inches long, including the petiole, panicles axillary, varying much in size, the larger ones being about the length of the leaves, flowers numerous, white, frequently sterile by abortion, and then the panicles attain their greatest size, fertile panicles are generally shorter than the sterile. Plotters small, ovules ascending. I am uncertain whether this last structure is general throughout this 'Tube' but if so, the direction of the ovules afford a mark by which it can when in flower, be distinguished from the *Oleaceae*, ascending in this, pendulous from the apex of the cell in that.

This species seems exactly intermediate between *L. macrophylla* and *ramiflora*, but is more nearly related to the former.

1246 *LINOCIERA MALABABICA* (Wall. Alph. D. C.) leaves elliptic, obtuse, cuneately attenuated at the base, glabrous on both sides, racemes axillary, much shorter than the leaves, few flowered, the ramuli bearing 1 to 3 sessile flowers on the apex, pedicels and calyx pubescent, petals linear channeled. Petioles about 2 lines long, leaves 2 inches long, and about 15 lines broad, fruit oval, obtuse at both ends, about the size of a bean. —D. C. *Prod.* 8, 292.

Courtallum and Wottern Slopes of the Neilgherries, flowering February and March. A rambling shrub, leaves from 3 to 6 inches long, 12, 15 lines broad, somewhat obovate, cuneate, ending in a short blunt acuminate point. Flowers white, having the appearance of 4 slender, lanceolate petioles, united 2 and 2 by the short stout filament, fruit ovate, oblong, smooth.

1247 *JASMINUM RIGIDUM* (Zenker D. C. *1 myrtifolium* Zucc. D. C. *1 (etaphis* Wight and Gardner, *Lalcul Journal of Science*) glabrous, erect, or subsucculent, leaves ovate or oval, ribbed at the base, submucronate at the point, branches axillary, and terminal, 3-6 flowered pedicels about the length of the tube of the calyx, lobes of the calyx 4-6 linear, subulate, erect, as long as the tube, corolla about 5 times longer than the tube of the calyx, lobes six, elliptic, submucronate, about a third shorter than the tube. Leaves short, petioled, from 10 to 12 lines to an inch and half long, from ½ or 1 to 1½ inch broad, shining, tuberculous, 4 nerved, the lateral ones the larger, flowers white, fragrant, about 15 lines long.

Neilgherries, not infrequent about Coonoor and

Kotergherry, and other phres about the same ele\ a. tion, flowering during March and April, but generally to be met with in (lower at other seasons

This, as may be supposed from the synonym⁹ is a polymorphous specits I have it in all forms, and on comparing a number of specimens, Lut growing under different circumstances, hnd them all mere \anations of the same species Growing in chfts of rocks with but little soil, and stunted in us growth by the absorbed heat, it becomes / *mijrtifolittm* In rocky places, but with a hrger admiMure of soil it is *J ngidum*, while in rich dtep soil, sheltered and shad, ed by trees, it becomes diffuse with scandent branches, and is then / *tetraphis* The latter is the form represented in the plate, and is thus characterized by us "Scandent, glabrous, shining, branches and branchlets roundish petiols gemculate leaves oblong, lanceohte, acute at the base, attenuated at the apex, (obscurelj) 3 nerved flowers from 3 to 1, terminal, sessile, lobes of the calyx 4, rarely 2 o\ 4, subulate, erect, about half the length of the tube of the corolla, limb of the corolla 5 6 lobed lobes lanceolate, acute, shorter than the tube " Nearly allied to / *launfohn*m, Roxb , from which it chiefly differs in its sessile flowers, and fewer calycine lobes 1< lowers white, fragrant, leaves from 2 to 2 J inches long, and about 12 lines broad " —WandG, *Culcutta Journal of Natural litstonj*, vol 27, pg 55.

1248 JASMINUM BRACIATUM (Roxb) scandent, branches terete, elongated, vel\ety leaves ovate, oblong, acute, villous, with short petiols fascicles terminal, Gubsessile, 3 5 11 flowered, bracts broadly o\ ate, cordate, subfascicled calj x lobes D 7, subulate tube of the corolla twice the length of the calyx, lobes 5 oblong, obtuse, apiculate Btyle xserted, entire —D C Prod Aboo Stocks

I am indebted to Mr J & Stocks for my specimens of this plant They upon the whole agree so well with Roxburgh's character and description, that when naming the drawing, I felt little hesitation in adopting his name, the very remote stations, however, of the two plants, and the short st) le now leads me to doubt Us correctness In the figure the leaves are represented much too hairy, a fault mainly owing to the lithographer They are villous on both sides, and hairy on the coata beneath ihe lobes of the corolla vary from 8 to 9, the draftsman has generally conferred the latter number, perhaps because the one he took for dissection had that number

1249 JASMINUM ROTTLEIANUM (Wall) every where except the flowers h ury, branches terete leaves elliptic, obtuse at the ba»e, acute at the apex, petioh jointed in the middle peduncles 3, terminal, bearing fascicules of flowers on the apex bracts linear lanceolate acuminate calyx pubescent, lobes subulate tube of the corolla thrice the length of the calyx lobes, lobes 5 7, oblong, mucronate, ab mt one«lthird the length of the tube —D C Prod Bracts lanceolate, of a pale whitish hue, pubescent, the leaves are softly pubescent rather than hairy, much more so beneath than on the upper surface, u inch on old leaves becomes nearly glabrous

Slopes of the Neilghernes rather frequent, and to be met with in flower at nearly all seasons A rather extensively scandent species, usually met with in moist soil among trees

1250. JASMINUM MALABARICUM (R. W) Bean-

dmt, branches terete, leaves broad, cordate, euborbicular, i uspidately acuminate, glabrous pctiol jointed in the middle peduncles axillary and termiual, cymoBt 7 0 fl)wered flowers crow ded, subb»e&sile, erect bracts subulate cal>x campanulate 5 lobed, lobes subulate, relieved at the apex about one-third the length of the tube of the corolla lobes of the coiolla ovate, cuspidate aDout half the length of the tube

Malabar Coa&t near Calicut, flowering in March and Vpnl

An extent/ely scandent species, everywhere except the inflorescence, glabrous leaves from 2i to 3 mchea m diameter, ending in a short abrupt slender acumen.

1251 JASMINUM PRECTIFLORUM (Alph D C) glabrous, leaves ovato lanceolate, subcordate, long, acuminate peduncles on the ends of the branches, ternate, with from > 7 erect condensed flowers on theape^v bricts linear, subulate, somewhat longer than the pedicels lobes of the calyx 6, linear subulate tube of the corolla 3 lines longer than the calyx , lobes 6 7, oblong, acuminate, half the length of the tube An extensively scandent shrub, extremities of the branches 1 sided, leaves 3-5 inches long, 15 20 lines broad, petiols 4-6 lines long, jointed near the bise cymes shorter than the adjoining leaves bracts and lobes of the calyx erect flowers white, fragrant — Alph D C inD C Prod

NeilghemeB, ascending to an elevation of about 6000 feet, flowering dunnng the hot season

This when in full flower is a very hindsome speciee Its large shining dark green leaves and numerous pure white fragrant flowers, render it a conspicuous object among the dense jungle in which it usually grows.

1252 JASMINUM COURTALLENSIS (R W) fro* ticose, Scandent, Klabrous, ramuli terete leaves petioled, tnfoliolate, leaflets petioled, broadly ovate, rounded at the base, blunt, the lateral pair a little smaller than the teiminal one panicles axillary, numerous towards the ends of the branches, many flowered, flowers subsessile calyx campanulate, 5 toothed corolla 5 lobed, lobes obtuse anthers short, ovate, mucronate style xserted, stigma globose berries globose, about the size of a pea

Courtallum, flowering August and September. A beautiful species nearly allied in habit to *I flexile*, but abundantly distinct, differing in the form of its leaves, calyx, corolla, anthers, style and Btigma

1253 JABMINUM FLEXILE (Vahl)scandent, ghubrous leaves petioled, tnfoliolate, leaflets pctiolate, ovate, oblong, acuminate, shining, the lateral ones about half the size of the terminal, petiols flexicose racemes axillary, brachiate, thrice the length of the leaves calyx campanulate, minutely and acutely 5-6 toothed — D C Prod Tube of the corolla about an inch and half long, 5-7 lobed, anthers subsessile, ob« long, cuspidate, style shorter than'the tube of the corolla, stigma oblong, obtuse, rough

Courtallum, in denoe jungle, near the bottom of the falls, flowers nearly all the year, but in greatest per* fection during the cooler months

1254 JASMINUM BREVILOBUM (Al D C) branches terete, pubescent or hairy leaves trifolio-, late, the lateral pair minute often wanting the terminal one ovate, very obtuse, or subcordate at the base, raucronate at the point, usually hairy on both sides, more rarely pubescent or sobglabrous above. flowers

lompactly fascicled on the ends of the branches, se§«
tile calyx campanulate, obtusely 5 lobed, hairy tube
of the corolla 4 or 5 times longer than the calyx, lobes
of the corolla elliptic, 3 or 4 times shorter than the
tube, anthers nmronate, stigma oblong forked at
the apex, cells of the ovary two seeded, berry purple,
globose

Ootacamund, Neilghernes, frequent in clumps of
Jungle climbing extensively

This is a variable plant as regards the foliage, it
certainly belongs to the 3-foliolate section, and ranks
next *I aurtculatum*, though from the abortion of the
lateral pair of leaflets, simple leaved specimens are of
frequent occurrence. Such must have been the case
in the one from which D G took his character as he
has given it simple leaves. They also vary much in
the degree of hairyness, being sometimes nearly gla-
brous, at others to the full as hairy as represented in
the plate. The shortly lobed calyx and 2 ovuled cells
of the ovary clearly associate this with the *Tnfoho-*
lata as these peculiarities are common to nearly all
of them

1255 JABMINUM AFFINE (R W) scandent sub*
glabrous, branches terete leaves petmled, 3 foliolate,
leaflets broad, ovate, subcordate, mucronate, the ter-
minal one much larger corymbs axillary, 3 9 flower,
ed numerous towards the ends of the branches, there
forming a terminal panicle calyx short obtusely 5
lobed lobes of the corolla lanceolate, acute, about i
the length of the tube anthers ovate, mucronate,
style much shorter than the tube of the corolla, stigma
linear, furrowed, cells of the ovary 2 ovuled

Lower slopes of the Neilghernes, and on hills
about Coimbatore. This, if really a distinct species,
seems to occupy a station intermediate between /
brevilobum and / *aurtculatum*, but at the prtsent mo-
ment, I feel doubtful whether they are not all three
but one species. There are technical differences be-
tween this and *I aunculatum*, but not, I fear, of suffi-
cient specific value, though sufficient to induce me
when naming the drawing, to consider them distinct
species. The difference of inflorescence, and
very different geographical position occupied by *I*
brevilobum on the summits of the highest mountains,
while the others descend to the plains, seem to point it
out as distinct, though its structural characters agree
with those of the other two

1256 JABMINUM OVALIPOLIUM (R W) scan*
dent, villous, branches terete leaves trifoholtte, leaf*
lets ovate, oblong, tapering slightly at the base, acu-
minate, villous on both sides, the axils of the veins
beneath often furnished with hairy glands, lateral
pair sub lanceolate, much smaller than the terminal
corymbs axillary, 3-9 flowered, numerous towards the
extremities of the branches calj x campanulate, slight-
ly 5 lobed corolla about 7 lobed, lobes oval or sub
obovate, obtuse, about 4 the length of the tube, an-
there oblong, Btyle the length of the tube, stigma
subexserted, claiate or subcapitate, cells of the
ovary 2 seeded, ovules pendulous from the apex of
the cells

Malabar flowering in April. This is nearly allied
to the former, but is at once distinguished by the
form of the style and stigma, which, judging from other
specimens, seems the only mark on which reliance
can be placed, for in other respects, if some specimens
I have referred here on the strength of that character, be
truly referable to this species, it is a variable plant

In them the leaves are scarcely half the size, obtuse I
both ends, and glabrous on both sides, the mfloures*
cence, however, is the same in both. These latter formi
are not unfrequent in hedges, about Coimbatore, flower-
ing during the rainy months from July to November,

1257 JASMIVUM GRANDIFLORUM (Lin) gla-
brous, at length scandent branches somewhat an-
gled leaves pinnate, leaflets 4 pairs with an odd
one, oval, mucronulate, the outer ones confluent, the
terminal one acuminate, panicles terminal, corymbose,
few flowered lobes of the calyx subulate, 3-4 times
shorter than the tube of the corolla, lobes of the
corolla oval, obtuse—Corolla white, reddish be-
neath— D C Prod

Courtallum, but I believe cultivated, nor do I recol-
lect of ever having met with this plant in a truly wild
state

1253 JASMIN UM REVOLUTUM (Sims *I btgnot-*
ctum Wall *I aureum* ? Don's Prodrumus,) glabrous,
not scandent, branches angled, leaves alternate, pin-
nated, leaflets 3, 5, 7, 11, ovate, or ovate oblong,
acuminate panicles terminal, opposite the leaves,
corymbose calyx acute and acutely denticulate, lobes
of the corolla subrevolute on the apex—Flowers yellow,
fragrant— D C Prod

" Var 0 *penmsulare* (Alph D C) leaflets obovate,
oblong, narrowing at the base, acute at the apex,
flowers few, Neilghernes frequent. An erect shrub,
2 4 feet high, flowers solitary, or three or four "

Neilghernes, abundantly distributed all over them,
and always to be met with in flower, but in greatest
perfection during the rains. Under the name *I re**
volutum, perhaps, two species are confused, but as I
am unacquainted with the original form, and as I infer
that Alph D C would not have referred this plant to
it unless he had good grounds for so doing, I adopt
his name, and bring here Wallich's *I bignoniaceum*,
which must be identical with Var 0 of Alph D C.
though referred by his father to a different Section,
as there is no other plant having the slightest resem-
blance to it on the Neilghemes. D C refers here
/ *chrysanthemum* Roxb. I also bring Don's *I aureum*
here, though doubtfully, as he says, the leaves are
opposite, which however, I suspect is an error, as I
have a Nepaul specimen, accurately according in all
other points with his character, but with alternate
leaves

1259 CBROPKOIA DECAISNEANA (R W) twin-
ing* glabrous leaves lanceolate, acuminate at both
ends, acute, hispid above, from short scattered rigid
hairs, glabrous beneath umbels pendulous, G flower-
ed, pedicels demicated, longer than the peduncles,
flowers large, ascending, mottled with purple spots,
calyx lobes setaceous, corolla chvate, largely ventn*
cose at the base, lobes of the htab cohering at the
point secondary lobes of the staminal crown about
half the length of the primary, erect, slightly cleft at
the apex, tipped with purple

Neighernes, on the road side leading from Sisparah
to Malabar, but rare, flowering March and April. An
extensively twining, somewhat succulent shrub, leaves
from 6 to 8 inches long, about 1 broad, corolla nearly
3 inches long, about J of which forms the dilated
base, secondary lobes of the crown yellow, tipped
with purple without, deep purple within follicles
long and slender, not much thicker than whip cord.

1260 *CEROPEGIA JUVCEA* (Roxb) glabrous, twining, subcarnose leaves small, sessile, lanceolate, acute, peduncles few flowered sepals subulate, corolla claiate, ventricose at the base, the lobes ligulate, nearl> as long as the tube, connate at the apex, cihate exterior lobes of the staminal crown short, united to the middle, pilose, interior ones linear, hooked at the ape*, follicles alternated, glabrous, brachiate —Dec in *D C Prod*

\ widely distributed plant on the plains of India. The specimen here represented was gathered near Coimbatore, and has been introduced as presenting one of the richest flowering specimens I have seen. The plant being succulent, and possessing an agree, able acid taste, is much eat by the Natives as a sort of salad

1261 *CEROPEGIA PLSILLA* (W and A) herbai ccous, glabrous, erect, 2 6 inches high root tuberous leaves linear, lanceolate, succulent flowers axillary, tsotlar), erect corolla ventricose at the base, tube c> hndncal, longer than the lobes of the limb exterior lobes of the staminal crown cihate, shorter, the interior ones, longer than the gynostegium follicles erect, about two inches long, attenuated at the point.

Neilghernes, in pasture ground, but rare I found it more abundant on the banks of the Pycarrah river than elsewhere, but there too it requires to be closely looked for The specimen figured is a large one of the plant.

1262 *CEROPEGIA CILIATA* (R W) sutfruticose, twining root tuberous, stems glabrous, leaves short, petioled, ovate, lanceolate, attenuated towards the point, coarsely pubescent on both sides, hairy on the veins beneath, ciliate on the margin peduncles axil* lary, about half the length of the leaves, hispid, umbels 6 10 flowered calyx lobes subulate, shorter than the ventricose base of the corolla corolla glabrous, lobes cohering at the points, shorter than the tube exterior lobes of the staminal crown emargu nate, cihate, interior ones clavate, recurved at the points follicles about 3 inches long, linear, tapering towards the point.

On cliffs of rock at Katie Falls, Neiighemes, flowing June and July The ciliation of the margins of the leaves, a constant, though from the shortness of the hairs, not a conspicuous feature in this plant, has unfortunately been altogether overlooked by the artist in other respects the figure gives a correit idea of the plant.

1263 *CEROPEGIA INTERMEDIA* (R W) fruticose, twining leaves ovate, lanceolate acute, glabrous on both sides peduncles shorter than the leaveB, Bveral flowered sepals subulate, about the length of the ventricose portioa of the corolla limb of the corolla shorter than the tube, lobes subspathulate, cihate, united at the pome, forming a globose head exterior lobes of the crown obsolete, interior ones long, spathulate, hairy towards the base

Serramallie, near Dindigul, flowering October

This species seems nearly intermediate between *C bulbosa* and *C accummata*, but abundantly distinct from both.

1264 *CEROPEGIA MUNRONII* (R W) fruticose, slender, tn ming leaven short petioled, narrow, lanceolate, acute, succulent> flowers large, solitary, short, peduncled corolla ventncose at the base, tube short,

contracted in the middle, limb long, deeply cleft into five slender lobes, ciliated with glanduhferous hairs, exterior lobes of the corona inconspicuous, interior ones ligulate, twice the length of the column

Neilghernes or Coorg jungles This species is only known to me through the accompanying figure, and a single flower for which I am indebted to Captain Munro, but without character or station I behexe, however, he found the specimens on the Western Slopes of the NeiJghemes or Coorg jungles, both of which he explored,

1265. *CEROPEGIA ELEGAM* (Wall) twining, glabrous, leaves ovate-oblong, or oblong lanceolate, attenuated or shortlj acuminate, acute, somewhat bucculent, ciliolate peduncles equaling the petiole, few flowered tube of the corolla ventncose, curved at the base, purplish speckled, lobes subdeltoide, acuminate, cohering at the apex, often cihate exterior lobes of the staminal crown, ligulate, approximated, interior onts longer, inflexed, more or less united at the points follicles very long, slender, glabrous, subornlose pollen masses brownish coloured — *D C Prod*, s, 042

Neilghernes, frequent The specimens hgured vi ere gathered in Kotergherry, on the Eastern descent I have however met with it in many other places It varies considerably in the colour of its flou ere, the limb being sometimes purple, at others pale, the cinjr are as often wanting as present, and seem to sepaiate readily.

1266 *CEROPEGIA WALKFJMJ* (R W) fruticose twining, glabrous leaves long petioled, ovate, acuminate, somewhat succulent peduncles about the length of the petiole, terminating in a few flowered umbel pedicels nearly equaling the peduncle, furnished at the base with a subulate bract tube of the core Ua abruptly contracted above the ventncose base, gradually dilating upwards, throat campanulate, lubes deltoide cohering at the points, the margins folded back exterior lobes of the crown about the length of the interior, interior recurved at the apex follicles long, slender.

Ceylon, flowering in April. I first found this beautiful species in jungles on the banks of a stream by the road Bide going to Kandy, with General Walker, but I am indebted to Mrs. Walker for the drawing, and dissections from which the plate is taken I he tube of the corolla u speckled all over, with purple spots.

1267 *CEROPEGIA SPIRALIS* (R W) suffruticose, erect, glabrous root tubuous leaves long, narrow, lanceolate, acute flowers large, sohtarj, short peduncled tube of the corolla ventncose at the base, lobes of the limb long, subulate, spirally twisted, cihate at the base exterior lobes of the cron n shorter than the column, intenor dilated at the base, ligulate and free above

Balaghaut Hills, near Madras, flowennng, July and August. My specimens of this plant were few and only one, that here represented, in flower, hence the want of dissections The figure is however, in other respects so characteristic, that there can be no diffi- culty in recognising the plant from it

1268 *CARALLUMA ATTENUATA* (R W) erect, stems 4 aided at the base, subterete towards the apex, sparingly ramous flowers confined to the ends of the branches, cernuous or drooping lobes of the corolla lanceolate, fimbriate on the margin.

In and plains near the foot of the Neilghernes flowering March and April though frequent in that local it is far from being KO local in its distribution as I have repeatedly met with it everywhere. Through some error the dissections have not been added which however is not of much consequence as in this the structure does not differ in any essential point from the rest of the genus. But probably another opportunity of supplying the deficiency will offer.

This species is, in our contributions to Indian Botany p 34, referred to *C. finbnata*, Wall further acquaintance has satisfied me that it is a distinct species. It grows in very and stony soil generally among tufts of low thorny shrubs in which situations it not unfrequently attains a height of from 2 to 3 feet though from 12 to 18 inches is its usual height. At the base, the leaves are always 4 sided and fleshy, the flowering extremities subterete and attenuated towards the point. Flowers usually dioecious, dull purple, thickly fimbriated on the margin, follicles slender, about half a foot in length.

1269 HOYA PA RVI FLORA (R W.) scandent. Leaves approximated, fleshy, glabrous, narrow lanceolate, blunt pointed flowers few, generally paired, from a short thick peduncle, pedicels shorter than the leaves. Corolla glabrous leaflets of the crown ovate pointed, the apex resting on the stigma.

Courtallum flowering September

The specimens from which the drawing was made grew in thick shady jungle, thickly matted over a large stone as a species it seems to approach *H. Uncaris* but the leaves are glabrous and lanceolate in place of hirsute and linear.

1270 COBMOSTIGMA ACUMINATUM (R W.) shrubby twining leaves broad ovate or cordate at the base acuminate, sparingly sprinkled on both sides with short hairs, the veins especially beneath more thickly clothed peduncles a little longer than the petiole, rigid hairy, pedicels short, cernuous, stout in proportion to their length corolla marked with purple spots.

Balahaut Hills near Madras and Ceylon Flowering April and May

This seems almost too nearly allied to *C. racemosum* from which it principally differs, so far as yet known, in its inflorescence. In this the peduncles and pedicels are short, rigid and somewhat tomentose, in that, both are long, slender and nearly glabrous. The wide difference in geographical distribution is further in favour of their being kept distinct.

1271 GYMNEMA DECAISNEANA (R W G. hirsutum Dec in D C Prod not W, and A) twining tomentose leaves ovate or ovato-elliptic, subacuminate, acute hirsute above, sub tomentose beneath peduncles axillary, about the length of the petioles umbels compact, many flowered throat of the corolla furnished with fleshy prominences filaments without glands at the base stigma conical, prolonged beyond the anthers.

Neilghernes, in flower most part of the year. An extensive climber, not unfrequent in jungles about Koonoor and Kaitie Young branches and under surface of the leaves cinched with short tomentum, upper surface, calyx and petioles hirsute, flowers pale yellowish. This species seems to hold an intermediate place between *G. sylvestre*, and *G. hirsutum*, but differs from both.

1272 GYMNEMA HIRSUTUM (W and A) voluble leaves, ovate or subcordate, hirsute above, tomentose beneath umbels short pedicelled, many flowered tube of the corolla furnished with foliaceous scales, the filaments with two black fleshy glands at the base, stigma depressed, scarcely exceeding the anthers.

subalpine jungles, in the southern provinces of the Peninsula. Nearly allied to the former in habit and general appearance, but differs in the interior appendages of the flowers, in the filaments being much narrower, and furnished with two obovate black glands at the base, and lastly, in the flattened stigma of this, and the conical one of that.

1273 SARCOLOBUS GLOBOSUS (Wall) leaves ovate oblong, or oval, shortly acuminate, sprinkled above with short hairs umbels few flowered, flowers conglobate corolla rotate, introrsely villous follicles large, globose, mucate.

Malacca, Griffith. I am indebted to the late Mr Griffith for my specimens of this plant, which he had named *S. cannatis*. As they are without fruit, and the two species very much resemble each other in all other respects, he may be right, but I think not, as the corolla in this is hairy within, while in *S. cannatus* it is glabrous. The following notes taken when examining the plant, leave room to suspect that it is neither.

Calyx 5 parted, corolla rotate, tube crownless, hairy within, gynostegium exerted, stigma hemispherical, mammillose in the centre, dilated on the margin, forming acute angles on which the free erect corpuscles are inserted. Anthers with a broad membranous margin, nearly covering the stigma corpuscles linear, free except the point of attachment, pollen masses obovate compressed, attached to the corpuscle by a long annularly contorted stipe. Leaves oblong, ovate, subacuminate, acute, nearly glabrous.

1274. TYLOPHORA PARVIFLORA (W and A) voluble, glabrous, branches slender leaves ovate, broad at the base, or slightly attenuate or subcordate, abruptly acuminate at the apex, acute, glabrous, somewhat undulated on the margin petioles longish, furnished with a minute gland at the origin of the limb peduncles shorter than the leaves, flexuose, bearing two or three filiform pedicels at the flexures flowers small, leaflets of the staminal crown broad, elliptic obtuse pollen masses ascending stigma convex follicles glabrous—Dec in D C Prod, 8, p 607.

Courtallum, Malabar &c, not unfrequent, flowering during the autumnal months.

1275 TYLOPHORA MOLLISSIMA (Wall) voluble, every where clothed with long soft pubescence leaves oval or elliptic, sometimes obscurely cordate, shortly acuminate, mucronate, acute at the apex peduncles twice or thrice the length of the leaves, flexuose, bearing on the flexures an umbel either sessile or springing from an oblong receptacle pedicels filiform, flowers small, leaflets of the staminal crown truncated, or rounded at the apex pollen masses transverse stigma obtuse, follicles pubescent—Dec, in D C Prod, 1 c.

Neilghernes, twining extensively among bushes, almost always in flower, also Serra Malta, near Dinigul.

1276 TYLOPHORA IPHTSIA (Dec in D C Prod *ipkism multiflora* W and A) voluble, glabrous leaves ovate or ovato lanceolate or subcordate at the base, acute or abruptly cordate at the apex, glabrous, succulent, petiols glanduliferous at the origin of the limb peduncles about the length of the smaller leaves, subflexuose, usually with short secondary peduncles bearing two or three flowers pedicels short, stout, flowers small, dark dull purple, leaflets of the staminal crown shorter than the gynostegium pollen masses globose, pendulous from the apex, of a flexuose terete funiculus stigma muticous follicles glabrous, ventricose at the base, attenuated towards the apex

In clumps of jungle, frequent about Ootacamund, flowering during the autumnal months

The peculiar character of the pollema led me when I first became acquainted with this species, to suppose it formed the type of a new genus, an error which a more intimate acquaintance enabled me long ago to correct

1277 TYLOPHORA ASTHMATICA (W and A) iclimb, glabrous or pubescent, branches slender leaves ovate or roundish, abruptly acuminate, often cordate at the base, glabrous above, petiols subterete, eglandulose peduncles shorter than the leaves with two or three sessile, few flowered umbels towards the extremity flowers largish, long pedicelled laciness of the corolla acute leaflets of the staminal crown fleshy depressed, embracing the base of the gynostegium prolonged at the apex into a tooth equalling the gynostegium pollen masses transverse, small, globose, stigma obtuse, follicles divaricating, attenuate glabrous—*Dec in D C Prod*, 8, p 611

A very abundant and widely diffused plant, to be met with in nearly all situations and in flower at all seasons Though easily recognized, it is from its liability to variation difficult to define In the recent state it is most readily distinguished from a nearly allied species, by its reddish or dull pink coloured flowers, and the toothed leaflets of the crown, the other having greenish flowers, and obtusely rounded edentate coronal leaflets The roots partake, in an eminent degree of the properties of Ipecacuanha

1278 CALOTROPIS PROCERA. (R Br C *Hamil toniana*, W and A) lobes of the corolla patulous, revolute on the margin leaflets of the crown of the stamens equalling the short depressed gynostegium, the circulate portion short, often acuminate—*Dec in D C Prod*, 8, 535

A widely distributed plant, very abundant in the Bellary districts whence the specimen figured was obtained, but quite unknown in the Southern provinces of the peninsula where it is replaced by the equally common *C. gtagantea*

1279 CYNOCOTONUM CALLIALATA (Dec Cywan *chum Callialata* Ham W and A) twining, glabrous leaves ovate or oval, shortly acuminate, cordate, with a narrow sinus at the base, glaucous beneath, above glanduliferous at the petiol, diphyllous in the axils peduncles half the length of the petiola, flowers umbelled, mouth of the staminal crown 10 lobed, the lobes opposite the anthers bifid, the alternate ones

shorter stigma subapiculate entire follicles winged—*Dec in D C Prod*

Slopes of the Neilghemes Courtallum, &c, twining among hedges and bushes The draftsman seems either to have altogether overlooked the axillary leaf, or they must have been wanting in his specimen The genus *Cynocotnum*, is separated from *Cynanchum* on account of some differences in the structure of the crown but which to my mind do not possess more than sectional value.

1280 CYNOCOTUM ALATUM (Dec in D C. Prod *Cynanchum alatum* W and A) twining, puberulous, ramuli bifanously puberulous, leaves ovate, or oval, acuminate, more or less cordate, glaucous beneath, above and the petiols sprinkled with hairs peduncles short, seldom exceeding the petiol, many flowered, pedicels longer than the peduncles staminal crown truncated, 10 crenate, the alternate denticular a little shorter stigma apiculate, cleft follicles flattened on one side, the angles winged—*Dec in D C. Prod*, 8, 529

Courtallum flowering during the rainy months The leaves are represented much too hairy in the figure, on the young ones hairs are pretty thickly scattered, but the older are nearly glabrous, the artist has not observed the difference and made all alike too hairy

This seems to be a rare plant, as I have not met with it except at Courtallum

1281 SARCOSTEMMA INTERMEDIUM (Dec in D. C Prod) twining umbels terminal, pedicels and calyx whitish lobes of the corolla oblong, undulated, glabrous exterior staminal crown 10 toothed, teeth equal, leaflets of the interior ovate, equalling or exceeding the anthers stigma conical, apiculate, obscurely cleft, follicles linear, oblong, bluntish—*Dec in D C Prod*

Not unfrequent in and jungles all over India, and in hedges by road sides, twining extensively over trees or bushes The flowers are pure white, and when the plant is in full flower, from their numbers and compact arrangement, very ornamental

1282 SARCOSTEMMA BRUNOMANUM (W and A) twining, umbels lateral, sessile, the pedicels and calyx canescent lobes of the corolla ovato-lanceolate, glabrous exterior staminal crown subpiculate, 10 crenate, the alternate denticula subobscure, interior shorter than the anthers stigma apiculate, subentire.

Coimbatore, in and jungles, flowering during the dry season, also in other similar localities, extensively over the southern provinces but generally rare Like the other it twines extensively over any support it may find The flowers and umbels are smaller and less conspicuous than in the other These plants are most frequently met with growing among the milk hedges (*Euphorbia Tirucalli*) and being like it leafless and succulent, are often, by careless observers, supposed to be the flower of that plant This mistake might be productive of unpleasant consequences, for the acedemous plant being eatable, is sometimes eat by the natives as a salad, if the *Euphorbia* was by mistake substituted, it would blister the mouth, and probably cause extensive and obstinate inflammation of the fauces, the juice being very acrid.

EXPLANATION OF PLATES.

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1383. *SECAMONE EMETICA* (R. Br.), twining glabrous: leaves lanceolate or elliptico lanceolate tapering downwards to the petiol: cymes shorter than the leaves, five or many flowered: corolla glabrous: leaflets of the staminal crown cultriform, half the length of the gynostegium: stigma apiculate. follicles slender, attenuated at the apex.

Subalpine jungles, not unfrequent, twining extensively over low trees and bushes.

1284. *BRACHTLEPIS KERVOSA* (W. and A.), young shoots and under surface of new leaves clothed with soft pubescence: cymes very hairy, furnished with numerous minute bractiols.

Common on the Neilgherries about Coonoor and Kotergherry and generally about that elevation, (6,000 feet) Flowers small, purple, surrounded with much whitish hair. Leaves very dark green and shining above, below reticulated with strong dark coloured veins, at first pubescent, afterwards glabrous.

1285. *DECALEPIS HAMILTONII* (W. and A.)

Balaghaut mountains near Madras.

A very ramous, twining, glabrous shrub: ramuli terete, slightly sulcated, thickened at the joints: leaves obovate cuneate, retusely acuminate, coriaceous, finely veined beneath. Cymes racemose: bractiols numerous, minute, ovate, pubescent: flowers small, lobes of the corolla spreading, exterior pubescent, densely hairy within.

1286. *BODCEROSIA LASIANTHA* (R. W.), quadrangular erect, very ramous: angles prominent, denticulate: flowers umbelled, longish pedicelled: corolla rotate, four lobed, externally glabrous; densely clothed with shaggy pubescence within, lobes at first ciliate with longish jointed caducous hairs: gynostegium exerted.

Nuggur Hills, Madras.

Nearly allied to *B. umbellata*, but quite distinct in its very ramous habit and its densely hairy corolla.

1287. *BONCEROSIA CAMPANULATA* (R. W.), stems simple erect, 4 sided, angles dilated somewhat wing-like with gland like denticulae. corolla campanulate; tube conical, glabrous on both sides; not marked with transverse bars: gynostegium short, not exerted beyond the tube.

Station unknown.

This seems still more nearly allied to *B. umbellata* than the preceding, but is, I think, quite distinct. The simple stems with broad thin angles, and the want of transverse brown bars, added to the tubular form of the corolla, which is more distinct in the specimen than in the figure, all combine to prove it distinct. I received the specimens without the station being marked.

1288. *CHILOCARPUS CEYLAIUCUS* (R. W.), shrubby, cimerous: leaves petioled, elliptic, tapering to

both ends, bluntly acuminate, glabrous, shining above, dull (when dry) rusty coloured beneath, parallelly veined, corymbs axillary, cymose: calyx lobes broad, ovate, obtuse, ciliate: corolla deeply 5 cleft, stamens inserted on a thickened ring near the bottom of the tube, included: filaments incurved: anthers ovate pointed: ovary obtuse: stigma oblong acute fruit—.

Ceylon. I gathered the specimens here represented in March, 1835, but without fruit. Since the figure was printed I have received others from Mr. Gardner, but still without fruit, hence it is still doubtful whether this is a true *Chilocarpus*, or a species of *Willoughbia*.

1289. *CARISSA CONGESTA* (R. W.), fruticose, erect, ramous: branches dichotomous, armed with long tapering simple spines: leaves petioled, broad ovate or suborbicular, obtuse, glabrous, very smooth, membranous, the veins scarcely visible in the dried specimen: peduncles short, terminal, about 3-flowered, several congested on the points of the branches slightly pubescent: calyx lobes ovate, acute, ciliate, much shorter than the corolla: corolla hairy within the tube, throat glabrous: filaments hairy, anthers apiculate: stigma capitate, hairy.

Coorg. Jerdon, A. boo. Stocks.

This seems a very distinct species, intermediate between *C. carandas* and *paucinervia*, but certainly distinct from both. I am only acquainted with it through Herbarium specimens, communicated by Messrs. Jerdon and Stocks.

1290. *CARISSA PAUCINERVIA* (Alph. D. C.) branches subdichotomous, armed: leaves elliptic, oblong, acute at both ends, mucronate, glabrous, short petioled, few veined oblique: peduncles terminal and axillary, much shorter than the leaves, 3-5 flowered, pedicels longer than the calyx puberulous: calyx 5-cleft, slightly pilose, laminae lanceolate, acuminate.

Neilgherries, abundant near Kaitie falls, flowering during the hot season, April and May, but I believe generally to be met with in flower. A low somewhat diffuse very ramous thorny bush: leaves elliptic oblong, mucronate, smooth and shining, light pea green, from $\frac{1}{2}$ to $\frac{1}{2}$ inch long, and about half as broad—flowers white with a slight dash of rose, berries about the size of a small bean, oval, dark purple.

1291. *OPHIOXTLON CETLAHICUM* (R. W.), shrubby, erect, glabrous: leaves opposite or verticelled, 3-4 together, elliptico-lanceolate, acuminate, at both ends, acute, dark green above, glaucous beneath, pinnately veined: corymbs longish peduncled cymose, axillary, solitary or two or three together from the upper axils: flowers pedicelled: lobes of the calyx narrow lanceolate or somewhat subulate: corolla hypocrateriform, lobes of the limb broad obovate obtuse, about the length of the tube; tube hairy in the throat: ovary 2-celled, 2-parted united at the apex, two ovules in each cell: berries connate at the base,

ovoid, about three lines long, nuts smooth.—Flowers white.

Ceylon. I gathered the specimens here represented in March, 1816, I think at Neuera Ellia. This species seems very nearly allied to the following, but appears quite distinct.

1292. *OPHIOXTLON NEILGHERREWSE* (R. W.), shrubby, erect, glabrous, rather sparingly ramous; the leaves confined to the terminal ramuli, older branches naked leaves oblong, elliptic, broader towards the apex, acute at both ends, shortly acuminate, glaucous beneath, corymbs axillary, cymose, trichotomous, solitary or two or three together - corolla hypocratenform, tube about twice the length of the limb, hairy within, lobes of the limb oval, obtuse: ovary 2-celled, cells cohering, 2 ovuled: berries connate at the base, 1-seeded, ovoid, dark brownish purple when ripe: seeds oblong, tapering at both ends, bony, smooth.

Neilghemes. Frequent about Coonoor and Kotergherry, and generally over the hills about that line of elevation (6,000 feet), flowering in greatest perfection during the rainy season, (July to September,) but may be met with at most seasons. Flowers pure white, and usually accompanied by full grown fruit. Fruit about the size of a small bean 2-3 lines long.

My collection still contains two undescribed species, the specimens however are scarcely sufficiently complete for full description. One of these from the Pulney mountains is not in flower, but is distinguished by its large fruit, the nuts of which are nearly half an inch long - the other from Belgaum is not in fruit, but the flowers are very different from the preceding species. These two may be thus designated and defined

1. *Ophiorylon macrocarpum* (R. W.), shrubby glabrous, leaves broad obovate elliptic, abruptly acuminate acute, corymbs axillary lax: calyx lobes linear subulate: nuts obovate slightly compressed, tubercled: corolla——.

This species is nearly allied to both the preceding but differs in its large tuberculated nuts—4-5 lines long and 2 broad—which are fully twice the size of those of either of the above.

2. *O. Bdgaumtst* (R. W.)» shrubby, erect, glabrous: leaves elliptic, oblong, obtuse or acuminate* corymbs long, peduncled, compact, many flowered ° flowers longish pedicelled: calyx 5-cleft, lobes dilated imbricating* tube of the corolla long, slender, lobes of the limb before expansion involutely imbricated, forming a round capitulum: stamens inserted about the middle of the tube.

My specimen of this, which is a very indifferent one, was communicated by Mr. Law. It is allied to the alpine group, but quite distinct from the three preceding ones, as shown by its compact inflorescence, very numerous capitate alabastra and broad imbricating, somewhat truncated, lobes of the calyx. The fruit I have not seen.

1293. *ALYXIA CEYLANICA* (R. W.), shrubby, glabrous, dichotomously branched: leaves opposite, obovato-elliptic, acuminate acute, tapering into a short petiol flowers axillary, solitary, longish, pedicelled: drapes two, compressed, each from two to four-seeded.—The dissected seed is inverted in the figure.

Ceylon. Colonel Walker. This I believe is the only species hitherto found in Ceylon, and am not

aware of any species of the genus having yet been found in the Continent of India. Dr. Wallich, however, found one at Amherst

1294. *HUNTERIA ROXBURGHIANA* (R. W.), shrub - by, branches slender, glabrous leaves long, petioled, narrow elliptic o-lanceolate, slightly involute on the margin, finely veined, shining above, dull below, (becoming rusty coloured in drying), corymbs axillary, much shorter than the leaves, many flowered, bracts ovate acute: lobes of the calyx ovate acute: tube of the corolla about three times the length of the calyx, hairy within at the insertion of the stamens, lobes ovate obtuse: berries ovoid, tapering at both ends, two seeded

Courtallum, flowering August and September. The venation in the figure, though correct as to outline, is too conspicuous; in the specimen it is much less distinctly seen. I am uncertain whether this may not be *H. lanceolata*, Wallich, a Mergui plant, but I think not, as I have another species from that country which in some respects agrees better with the character though not so well in others.

ELLERTOHIA. (R. W.)

CALYX 5-cleft, lobes ovate acute without glands. Corolla hypocratenform, 5-lobed, sinistrorsely convolute, tube ventrose near the middle. Stamens five included, filaments short, anthers lanceolate, cohering round the stigma, cordate at the base, longer than the filaments. Nectary 0. Ovaries 2 distinct, united at the apex by the style, oblong, furrowed, 2-cleft at the apex. Style filiform. Stigma conical pronged into a 2-cleft apiculus. Follicles terete divaricated with two rows of seed. Seed compressed, peltate, winged at each end. Radicle superior. Scandent shrubs with opposite or 3-4 verticelled leaves, leaves elliptic, acuminate, coriaceous, glabrous, corymbs axillary or several from the ends of the branches, longish peduncled, cymose, many flowered: bracts minute, ovate acute: flowers short pedicelled.

The essential distinctive character of this genus is the winged seed, in other respects it is closely allied to *Jilstonia* and *Blaberopus*.

I have dedicated the genus to J. Ellerton Stocks, Esq., of the Bombay Medical Establishment, a very promising young Botanist, to whom this work is indebted for some very interesting communications. I have adopted the sub-cognomen, Ellerton, lest *Stocksia* might be confounded with the existing genus *Stokesia*.

1295. *ELLERTOIIHA RHEEDII* (R. W.)—Rheede Hort. Mai. 9 tab. 14.

Malabar. The specimens from which the drawing was made were collected at Quilon.

Rheede's figure has been variously quoted as *Ecchites*—*Aganosma*—*Alstoma*, but for want of specimens to re-examine and properly describe its structure, the plant has hitherto been virtually unknown, the figure being our only guide to a knowledge of its existence, and, so far as the corolla is concerned, the delineator does not seem to have been very attentive in representing all he saw or might have seen.

1296. *WRIGHTIA WALLICHII* (Alph. D. C.) leaves elliptic-obovate, acute at the base, obtuse apically acuminate, pubescenti-tomentose: cyme tomentose:

lobes of the calyx broad ovate, rounded, externally pubescent half the length of the glabrous tube of the corolla, the ovately rounded scales about half the length of the lobes: coronal appendages 10, ligulate, glabrous, unequal, the larger ones opposite the lobes 5 crenate at the apex, about 4 times shorter than the lobes, the alternating ones a little shorter and narrower, 2-cleft: anthers hairy on the back.—Branches terete retuse towards the extremity: leaves 3-4 inches long, 15-18 lines broad, smoothish above, pur-purescent tomentose beneath, petioles 2-3 lines long: lobes of the corolla velvety: follicles about half a foot long, connate, cylindrical, rough with white spots, pointed.

Slopes of the Neilghemes—flowers white. Plants of this occur by the road side from about the middle of the ascent to the elevation of between 4,000 and 5,000 feet. The upper surface of the leaves, which in the figure is represented glabrous, is clothed with very short pubescence, giving them a velvety feel.

The original specimens of this species were collected in the Tenassim provinces, but the Neil-ghen? ones do not seem to differ, at least not specifically.

1297. *HOLARRHENA CODAGA* (G. Don, Dicy.), leaves ovate elliptic, short petioled, obtuse at the base, acute or acuminate at the apex, pubescent: cymes many flowered: lobes of the corolla oblong about the length of the tube: cells of the ovary separate: follicles 8-12 inches long, glabrous, tapering near the extremity.

Malabar, frequent, flowering in great profusion during March and April.

Alph. DeCandolle asks, Is this distinct from *H. pubescent*? I suspect not; it is a variable plant especially in regard to the amount of pubescence, being sometimes quite glabrous. At other, as in the specimen figured, decidedly pubescent. Perhaps under these circumstances I erred in adopting Don's name which is more recent than Wallich's, but I felt sure that this is Rheede's plant, and therefore gave him his name the preference.

»

1298. *HOLARRHEWA MALACCENSIS* (R. W.), glabrous, very ramosus: leaves petioled, oblong ovate, very obtuse or sub cordate at the base, subacuminate, acute at the apex: cymes loose on the ends of short lateral ramuli, peduncles and pedicels glabrous. corolla pubescent, tube three or four times the length of the calyx, longer than the ovate, obtuse, oblique lobes, cells of the ovary cohering

Malacca. Captain Wight

This species is I fear too nearly allied to the former. Since the plate was printed, I have received additional specimens of the Malabar plant, which very closely resemble this, so that the principal distinction between them rests in the ovary: in that the cells are free to the apex, in this they are united throughout, the follicles of this I have not seen, but if they too are united, this may be considered a good species.

1299. *STROPHANTHUS LONGICAUDATUS* (R. W.), glabrous: leaves elliptic-oblong, acute at both ends: cymes terminal, dichotomous, few flowered: bracts caducous, calyx lobes broad-ovate below, ending in a subulate point: corolla funneshaped, caudae very long (4-5 inches), appendices deeply 2-lobed, lobes pointed, entire on the inner margin, scarcely exerted

beyond the tube, aristae a little longer than the anthers, anthers hairy on the back.

Malacca, Captain Wight

This species is allied in habit and general appearance to *S. dicholomus*, but differs in the form of the calyx, the appendices, the proportionately shorter arista of the anthers, and above all in the very long caudae of the petals.

1300. *STROPHANTHUS GRIFFITHII* (R. W.), glabrous, leaves conacious, obovato-subcuneate, obtuse, at the base, abruptly acuminate, acumen sometimes acute, oftener blunt* cymes terminal, dichotomous, calyx lobes ovato-lanceolate: corolla infundibuliform, caudae very long: appendices broad at base, crenate on the margin, not exerted, aristae about the length of the anthers: anthers glabrous on the back.

Malacca, Griffith.

This is allied to the former in the great length of the caudas but is amply distinct in all other respects.

1301. *STROPHANTHUS WIGHTIANUS* (Wall.), shrubby twining glabrous; bark warty: leaves elliptic, acute at both ends, shortly acuminate: lobes of the calyx ovate about one-third the length of the tube of the corolla: corolla glabrous within, appendices exerted, deeply 2-cleft, lobes filiform: aristae of the stamens filiform longer than the anthers • style somewhat ligulate with a crisp marginal wing. follicles large obtuse, warty all over, seed with a long apiculus.

Tra vane ore, frequent about Quilon in low bushy jungle. I am not acquainted with follicles and seed of any other species, so that I am unable to institute any comparison, but, as here represented, the follicle is not exaggerated, the seed is somewhat magnified. The ovary is somewhat incorrectly represented in so far as it seems to show but a single ovule in each cell, which is far from being the case, an easily corrected defect, but unfortunately overlooked when sending the drawing to the printer.

1302. *STROPHANTHUS BREVICAUDATUS* (R. W.), shrubby diffuse glabrous: leaves ovate elliptic, abruptly acuminate crisped on the margin: cymes terminal dichotomous: bracts and calyx lobes broad ovate acute: corolla glabrous infundibuliform, throat campanulate, caudae very short: appendices short, cleft to the base, lobes filiform included: aristae shorter than the anthers: style villous.

I am uncertain whence I obtained the specimen, as the station by some oversight is not marked, but I believe from Mergui.

1303. *HELIGME RHEEDII* (R. W.), twining glabrous: leaves ovate acute, short petioled: corymbs tnchotomous many flowered: calyx lobes ovate obtuse ciliate, with an ovate scale on each: corolla rotate, ventricose at the base, hairy within. stamens exerted, filaments spirally twisted round the style: anthers sagittate, slightly adhering to the stigma: ovary 2-ceUed, cells cohering, embraced by 5 ovate hypogynous scales: style filiform, stigma capitate, bound with a membrane at the base, apiculate, follicles 2-ceUed, seed comose at the apex.

Malabar, in low jungles, vide Rheede Hort Mai. 9 tab 10.

When naming this plant I overlooked the second section of *Parsonia*, "Filamenta inter se spiraliter, dextrorsum contorta," a structure not indicated in the generic character, otherwise I should probably have

placed this plant in that genus with whiffTTt sufficiently accords. Now however that I have become acquainted with it, I still leave this plant in Blume's genus, under the impression that a peculiarity so marked, and at the same time of such rare occurrence, will lead to the removal of that section from *Parsonia* to be united to *Heligme*. If *Parsoma* is retained as it now stands, this species must unavoidably be transferred to it and the genus *Heligme* be reduced as it is clearly not distinct.

This is certainly the plant figured by Rheede, Hort MaL Vol 9 tabs. 9 and 10. Hamilton considers these different species, and in his MSS. designates the one tab. 9, *Caudicia gyandra*, the other *Caudicia tnchotoma*, the former name sufficiently expressive of the spirally contorted filaments. It is in allusion to these figures that I have dedicated the species to the original discoverer.

1304. *AGANOSMA ELEGANS* (G. Don.), leaves obovato-elliptic acute, cuspidate, subacute at the base, glabrous: cymes shorter than the leaves; flowers crowded: bracts lanceolate acuminate, the length of the pedicel: pedicels and flowers externally whitish-pilose: lobes of the calyx as long as the pedicels, long-lanceolate, about the length of the tube of the corolla.—Branches glabrous: leaves 2-2½ inches long, 10-12 lines broad, glabrous, reticulated with numerous coloured nerves and nervulaB: lobes of the calyx 3 lines long [in my specimens they are nearly ½ an inch or 6 lines] f of a line broad: tube of the corolla externally pilose, hispid within, lobes ovate acute, about the length of the tube, glabrous within: ovary shorter than the nectanal scales, pilose above.

Not uncommon in subalpine jungles; Courtallum, foot of the Neilghernes, Malabar, &c. An erect ramous shrub 6-10 feet high: flowers pale yellow. It seems rarely to produce fruit as, though I have now specimens from various localities, none are in fruit. The venous reticulations of the leaves forms one of the best specific characters.

1305. *AGANOSMA BLUMII* (Alph. D. C.), leaves oval, acutish at both ends, beneath and the ramuli pubescent: corymbs terminal, spreading, lobes of the calyx as long as the tube of the corolla.

Balahaut mountains, near Madras. I am not quite certain of the identity of this and Rheede's plant, but I feel quite certain that it is distinct from the preceding, though the character and figure do not show that so clearly as the specimens, the difference between which is obvious at first sight.

1306. *AGANOSMA DONIANA* (R. W.), every where glabrous except the inflorescence: leaves elliptic, cuspidately acuminate: corymbs terminal, compact, pilose: lobes of the calyx linear lanceolate pilose, longer than the externally pilose tube of the corolla: lobes of the corolla shorter than the tube, nectanal scales all united, about the length of the very hairy ovary: follicles terete, tomentose, divaricated.

This species is nearly allied to *A. elegans*, but is certainly distinct and readily distinguished by its much smaller flowers and united nectanal scales.

1306-&W. *POTTIA HOOKERIANA* (R. W.), glabrous, leaves subcordate ovate cuspidately acuminate: panicles cymose terminal or from the axils of the upper leaves, lax, many flowered, smooth and glabrous: bracts small subulate: calyx 5-cleft, much

shorter than the tube of the corolla, slightly ciliate, numerous minute glands within near the base: nectanal glands not cohering.

Mergui, Qnffith.

This species, though very nearly allied, seems distinct from *P. ovata*. The most marked peculiarity consists in its numerous calycine glands; here they form a continuous row all round the cup of the calyx, there only one or two to each lobe, here the extremities of the ramuli are glabrous, there pulverulent-velutinous. A comparison of the two plants will perhaps elicit other points of distinction.

1307. *ECDYSANTHERA GRIFFITHII* (R. W., *E. glandulifera*, R. W. Ic. 1307.), leaves obovato-lanceolate acute, tapering towards the base, short petioled, glabrous (when dry yellowish beneath), calyx lobes ovate acute and, with the peduncles, pedicels, bracts, and corolla, pilose: calycine glands numerous: corolla sinistrorsely convolute: nectary cupuhform entire, crenate: ovary pilose, follicles long slender moniliform.

Malacca, Griffith.

When naming the drawing, which I did before writing the description, I committed the egregious blunder of overlooking the direction of the aestivation, and apart from that, finding the plant agree in so many particulars with the character and description of *E. glandulifera*, considered it that species, and named it accordingly; an error which I beg may be corrected. So perfect is the agreement between the two plants that excepting the aestivation, nectary, and form of the seed, which are scarcely obovate, DeCandolle's description might almost be copied for this species. The points of distinction, however, are of sufficient importance to establish this as a distinct and well marked species.

EPIGYNUM. (R. W.)

CALYX tubular 5-cleft, lobes eglandulose. Corolla epigynous hypocratenmorphic, 5-lobed; aestivation dextrorsely contorted. Stamens 5, inserted near the base of the tube; anthers sagittate, adhering to the stigma. Nectary an epigynous fleshy disc, embracing the base of the style, and covering the apex of the ovary. Ovary adherent to the tube of the calyx, 2-celled with numerous ovules. Style filiform. Stigma pyramidal acute, slightly 5-winged, furnished at the base with a short reflexed membrane. Fruit? A diffuse glabrous climbing shrub, with opposite entire ovate-elliptic short petioled leaves. Corymbs axillary, shorter than the leaves: flowers numerous, crowded, and with the peduncles and pedicels clothed with appressed hairs. Calyx 5-cleft, lobes ovate acute. Corolla three or four times the length of the calyx, hairy on both sides, obtuse before expansion, lobes much contorted in aestivation.

This genus seems allied to *Ecdysanthera* § 3, in the form of its corolla, but the position of the ovary almost excludes it from the order. Mr. Brown long ago adverted to the affinity existing between Apocynaceae and Rubiaceae; this genus may be looked upon as in some measure forming the connecting link between them, having the habit and flower of the one and the inferior ovary of the other. It adds one more to the examples already existing, showing the necessity of not attaching too much importance to the circumstance of an ovary being free or adherent.

1308. EPIGTWDM GRIFFITHIAITOM. (R. W.)
Mergui, Griffith.

Glabrous: leaves elliptic sub-obtuse, corymbs axillary pubescent* flowers apparently white or pale yellow, corolla before dehiscence ventricose at the base and apex.

1309. ANODENDEOW CANDOLLIANUM (R. W.), glabrous, branches terete, leaves oblong ovate rounded at both ends, cuspidately acuminate at the apex, long petioled: panicles axillary, branches cymose: flowers small, calyx lobes lanceolate, all eglandulose. Malacca. Captain Wight.

This species seems very nearly allied to *A. paniculata*, but is, I think, distinct. The flowers are much smaller, the tube of the corolla, as compared with the lobes, longer, and the free apex of the filament seems peculiar to this species. The follicle and dissections of the seed, given in the plate, are taken from *A. paniculatum*, the specimens of this species not being in fruit.

CLEGHORNIA,

Calyx 5-lobed with 5 didymus glands alternate with the lobes. Corolla hypocratenform, 5-cleft ex-appendiculate sinistrorsely convolute in aestivation. Anthers subsessile attached near the base of the corolla, sagittate at the base, cuspidate at the apex, pilose on the back; adhering to the stigma. Nectary of 5 glands, cleft at the apex. Ovaries 2, glabrous, ovules numerous. Style short. Stigma large, obtusely apiculate, constricted in the middle, not membranous at the base. Follicles long, somewhat ventricose above, tapering to a point. Seed comose at the apex, oblong, pointed at both ends. Albumen sparing, embryo axile, cotyledons fohaceous, radical superior. Diffuse, glabrous shrubs with opposite, membranous, petioled, acuminate, penninerved leaves, axillary panicled corymbs; minute bracts; and small white flowers, slightly hairy in the throat.

In its technical characters this genus seems to approach too near *Echites*, but the species are very different from the American ones I have seen. Influenced by this consideration, as well as by the remark of M. Alph. DeCandolle, that all the species of *Echites*, except doubtful ones, are from America, I have thought it the safer course to keep them distinct from that already overgrown genus, leaving it for those better acquainted with the older genus to decide whether in so doing I have acted judiciously; the figures, which are correct, supplying the means of comparing the two.

The genus is dedicated to Dr. Hugh Cleghom of the Madras Medical Establishment, a zealous cultivator of Botany, but more especially directing his attention to Medical Botany

1310. CLEGHORNIA ACDMEVATA (R. W.), ramuli slender, glabrous • leaves from ovate obtuse, or subcordate at the base to elliptic, shortly and abruptly acuminate: corymbs axillary cymose, shorter than the leaves: lobes of the calyx and corolla ciliate: anthers subulate, pointed, nectanal glands distinctly 2 lobed at the apex: follicles long, fusiform, acute.

Ceylon, 1836.

The reticulations, shown on the under surface of the leaves in this figure, represent the meshes too small, the tertiary veins not being so numerous and the quaternary series being scarcely visible to the

naked eye. The subsequent addition of the following species has rendered the specific name less appropriate than when first imposed.

1312. CLEGHORNIA CTHOSA (R. W.), diffuse, glabrous, elliptic, obtuse at both ends, terminating in a short, abrupt, blunt acumen: cymes lateral, long peduncled, trichotomous: calyx and corolla glabrous, anthers cuspidate, nectanal glands slightly cleft at the apex.

Ceylon, 1836.

This species is certainly nearly allied to the preceding, but appears distinct, the difference of the inflorescence is very marked. I collected the specimens of both these species in the course of a short visit to Ceylon in 1836. I have specimens of what appears to be a third species from Mergui, but the flowers are too young for satisfactory determination.

1313. GARDNERA WALLICHII (R. W. m Wall, pi. as. rar. 3 tab. 281), glabrous voluble: leaves oval acuminate at both ends, acute: cymes axillary, peduncled, much shorter than the leaves: flowers tetrandrous: berry globose.

Frequent on the Neilghemes, flowering March and April.

It is an extensive climber ascending to the tops of the highest trees and then covering them with its numerous branches and very dark green foliage. Flowers of a dull yellowish colour.

1314—15. BEAUMOWTIA JERDONIANA (R. W.), leaves obovate, abruptly acuminate, obtuse at the base, coriaceous, glabrous: cymes terminal many flowered: calyx 5-cleft, with two subulate glands at the bottom of each division; lobes narrow lanceolate, acute, pubescent on both sides: corolla large, infundibuhform, with a short narrow tube.

Coorg Jungles. T. C. Jerdon, Esq., Captain F. Cotton, Engineers.

I am indebted to these gentlemen for the specimens from which the accompanying figure was taken; they were gathered in June. Judging from them, only, this seems indeed to be a magnificent plant quite distinct from the Bengal one, *B. grandiflora*, the flowers of which are even smaller than those of this, at least as exhibited in Dr. Wallich's figure in his *Tentamen Nepalense*.

An extensively climbing shrub. Leaves obovate, 8—10 inches long, broadest above the middle and abruptly terminating in a short narrow acumen, perfectly glabrous on both sides, firm and coriaceous. Cymes terminal, many of the flowers, in the dried specimens (which only I know), ebractiolate, but probably the bracts are deciduous and have separated in drying. Calyx deeply 5-cleft with ten linear subulate glands at the base, alternate with the lobes; lobes narrow, lanceolate, acute, pubescent on both sides, from 12 to 15 lines long. Corolla large, apparently about 4 inches long, wide above, gradually tapering towards the base where it ends in a short narrow tube. Stamens shorter than the corolla. Filaments slender. Anthers cohering round the stigma, sagittate, with curved spurs at the base. Nectanal glands broad ovate, obtuse, about the length of the blunt hairy ovary. Follicle cylindrical, somewhat tapering at the apex, 9-10 inches long and about 3 in circumference. Seeds ovate, compressed, pilose, comose at the apex. Embryo

about the length of the seed: cotyledons oblong, fohaceous: radical superior.

The two species may be briefly distinguished thus:

B. grandijlora, calyx lobes broad ovate, foliaceous; corolla campanulate.

B. Jerdoniana, calyx lobes narrow, lanceolate; corolla infundibuliform.

1316. *FAGRAA COROMANDELINA* (R. W.), arborious, glabrous: leaves succulent, spatulato-oblong, slightly retuse at the apex, short petioled: stipules intra-fohaceous, closely embracing the stem: peduncles terminal, ternate, 3-flowered* corolla subcampanulate, lobes revolute, obtuse, stigma peltate* berry elliptic, tapering at both ends, pointed with the persistent base of the style, fleshy: seeds small, subglobose, rough: embryo shorter than the fleshy albumen. radical superior.

Courtallum and Coonoor, Neilghemes, flowering during rainy season. A small rather ungainly stunted looking tree, bearing all its leaves on the ends of the young ramuli. Leaves fleshy, 4-6 inches long and 2-3 broad near the apex, peduncles usually 3 from the end of the branch each with 3 large white flowers. Corolla nearly 3 inches long, something between campanulate and wide infundibuliform. Stamens and style exerted. Berry elliptical, about 1/4 inch long, filled with fleshy pulp in which the numerous minute seeds nidulate. Seeds small nearly globose, testa rough, albumen copious, embryo axillary, terete, radical superior.

1317. *FACRJA MALABARICA* (R. W.), leaves obovate cuneate, subapiculate, longish petioled: peduncles axillary and terminal, about 5 together, elongated, 3-flowered: corolla infundibuliform; tube slender at the base, about twice the length of the calyx; limb dilated, lobes spreading: stamens and style about the length of the corolla: stigma peltate • ovary 2-celled.

Malabar-Rheede, Hort. Mai. 4 tab. 58.

These two are nearly allied species, but I think quite distinct from all those yet discovered. The last seems in some respects to approach *F. Zeylanica*, but, so far as I can determine from Lamarck's figure, is quite distinct. The larger leaves are about 10 inches long tapering gradually into the petiol. The number and length of the peduncles, and slender form of the flowers, at once distinguish this from *F. Coromandclina*, which is altogether a different looking plant.

1318. *GJERTNERA KONEGII* (R. W. *Sykesia Ronnegii* Am.), leaves obovate, oblong or oval, shortly acuminate, attenuate at the base: panicles compound, tnchotomous, pedunculate, minutely puberulous, shorter than the leaves: tube of the corolla about twice the length of the calyx: anthers exerted, filaments conspicuous.

Ceylon.

I collected specimens of this and of what appears two other species of the genus in 1836. The others are not in a good state and still remain undetermined. Some years ago Dr. Amott published this plant under the generic designation of *Sykesia*. Since then Endlicher referred it to *Gartneria* DeCandolle, however, retained the genus, but his son took a different view of the matter and could not see why his father had kept it up. Under these

circumstances I was induced to re-examine the characters of the two, and compare those of this plant with both. The result led to the belief that they are not sufficiently distinct; on which account I have adopted the older generic name.

1319. *WRIGHTIA ROTHII* (G. Don.), leaves oval lanceolate acuminate, and, with the cymes, pubescent on both sides: lobes of the calyx oblong obtuse, pubescent, shorter than the tube of the corolla: scales lanceolato-subulate, pubescent: scales of the crown linear cleft, scarcely pubescent, about the length of the anthers* anthers pubescent on the points.—Ramuli pubescent, brownish, the pubescence on the new leaves purplish, on the older ones greyish. Corymbs lax, dichotomous. pedicels about an inch long: corolla everywhere pubescent, lobes oblong obtuse, nearly half an inch long. D. C.

Nuggur Hills, near Madras.

In the magnified figure of the expanded flower the lobes of the calyx are represented too small in proportion to the tube of the corolla and the anthers probably a little too conspicuous.

The interior surface of the anther is, as in *W. tinctoria*, hairy, which would have led me to doubt this being the plant named bad M. Alph. DeCandolle stated, as the result of his own examination, "anthers apice solum pubescentibus," but as it is copied from Roth, who describes the exterior surface only, I do not think the circumstance militates against this being indeed the true plant

1320. *HEMIDESMUS PUBESCENS* (W. and A.), ramuli slender, twining, hirsuto-pubescent, leaves ovate roundish ovate or oval, cuspidate, paler beneath, pubescenti-velutinous: cymes usually flubsesile, few-flowered: scales of the corolla attached to the tube: flowers dark purple.

The station whence the specimen figured was obtained is not noted, but I found the plant in jungles near Vendaloor, (Smith's Choultry), between Palaverum and Chin pic put, and M. Perrottet found it at Kuhutti on the Neilghemes. The whole plant is clothed with short soft pubescence, but I have only ventured to have it shown on a single leaf and part of the stem, being fearful of my Madras lithographer.

1321. *EXACDUM BICOLOH* (Roxb.), stem 4-angled: leaves sessile, ovate, subacute, 5-nerved with smooth margins: calyx deeply 4-cleft, segments subulate with ovato-lanceolate wings* corolla white, tipped with blue; lobes elliptic oblong cuspidate, three times longer than the tube, which is a little shorter than the calyx.—Corolla large, nearly two inches in diameter, cymes terminal subcontracted * middle internodes usually shorter than the leaves. Gnsb. in D. C. Prod.

Neilghemes, below Kotergherry, rare, in pastures about a mile below Nedawuttim abundant, flowering during the autumnal months.

1322. *EXACUM PERROTTETII* (Gnsb.), stem straight, 4-angled, simplish* leaves sessile, oblong lanceolate acuminate, 5-nerved with smooth margins • calyx deeply 4-cleft, segments subulate with semi-lanceolate wings* corolla rose coloured or blue, lobes obovato-elliptic cuspidate, 4 times longer than the tube. Gnsb. L. c.

Neilghemes, Goonoor, Kaitie Falls, &c, frequent. Stem erect, about two feet high, simple below the cymes and cymules from the upper axils: internodes shorter than the leaves: pedicels about an inch long with a small bract, corolla about 1½ inch in diameter, anthers like those of *£. Zelamcum*: capsule erect, ovoid-globose.

1323. *EXACDM COCRTLLENSE* (Amott), stem dichotomously branched, branches with 4 very narrow wings: leaves oblong, lanceolate, acuminate: inflorescence leafy: laminae of the corolla obovate obtuse, stamens 5* fructiferous pedicels straight: capsule oblong ovate, narrowing towards the apex.

Courtallum. A beautiful species with somewhat succulent leaves and deep blue flowers. Older plants show a tendency to become diffuse, the branches resting on the ground with the floriferous extremities ascending.

1324. Fig. 1. *EXACUM SESSILE* (Lin.), stem simple, roundish: leaves short cordate obtuse sessile, obsoletely 5-nerved: calyx 4-parted exalate, segments obtuse very short reflexed: lobes of the corolla obovate obtuse: flowers subsessile.

Ceylon. Colonel Walker.

Fig. 2. *EXACDM PETIOLARE* (Gnseb.), stem simple 4-sided: leaves long petioled, broad ovate, obtuse, 5-nerved. calyx 4-parted, segments acute with truncated, semi-ovate, transversely-veined wings at the base: lobes of the corolla elliptic acute: flowers pedicelled.—Petioles ddated into the limb about half an inch long, leaves about 1½ inch long, 1½ broad, triangular ovate from the base, a little shorter than the internodes.

Belgaum. Law.

Fig. 3. *EXACUM PUMILUM* (Gnseb.), stem 4-sided: leaves sessile, oblong lanceolate bluntish, 3-nerved, the last shorter one nerved: calyx 4-parted, segments, subulate, wingless: corolla small, purplish, lobes roundish ovate obtuse: style elongated.—Stem about a span high simple at the base: upper leaves oblong linear, often only 2 lines fpng, the middle ones about an inch and 4 or 5 lines broad: pedicels terminal, from half an inch to 1 j long, forming a terminal cyme, bibractiolate above the middle [these I do not find in my specimens]: lobes of the corolla three times longer than the tube, which is about the length of the calyx: anthers oblong straight, opening by a minute double pore, afterwards spitting longitudinally.

Bombay or Belgaum, I am uncertain which. For the specimen figured, which is larger than that described by Gnsebach, I am indebted to Mr. Law of Bombay, so often mentioned in this work.

1325. *ERYTHRJA ROXBURGHII* (G. Don), stem straight, diffusely ramos lower leaves rosulate, obovate oblong obtuse, cauhne ones linear acuminate cymes once or twice dichotomous, patulous lateral flowers ebractiate* tube of the corolla, about the time of expansion, somewhat exceeding the calyx, lobes narrow, oblong acute.

Frequent on the table land of Mysore. I do not recollect meeting with it on the lower plains. Flowers, so far as I have seen, always white and the stigma bi-lamellate. I am particular in mentioning the colour of the flower and form of the stigma, as Grisebach places this in his 2d section,

part of the character of which is "Corolla rosea # * stigmat capitulato," whereas it more properly belongs to his 1st: "Corolla rosea ranus alba. # * Stigmatis bifidi lamelhs plains."

1326. *CANSCORA (CYCLOPHYLLUM) GRANDIFLORA* (R. W.), stems above furnished with 4 narrow wings, diffusely ramos* leaves lanceolate acute, 3 nerved, floral ones orbiculate, perfohate: flowers ternate subsessile, calyx broadly winged.

Coorg and Western provinces of Mysore Jerdon. Flowering May and June.

A large and handsome species apparently extensively diffuse or seeking support from neighbouring bushes. Allied to *C. perfoliata* in the form of its bracts, but at once distinguished by the broad wings of the calyx.

1327. Fig. 1. *CANSCORA LAWII* (R. W.), diffuse, very ramos, wingless: leaves suborbicular cuspidate, bracts subulate, minute flowers all pedicellate calyx wingless the subulate teeth scarcely half the length of the limb of corolla. style filiform exserted, exceeding the exserted fertile stamen* stigma bi-lamellate: corolla rose coloured.

Belgaum. Law

Nearly allied to *C. diffusa*, but differs in the form of its leaves, its much larger flowers and the greater length of the fertile stamen, which is here exserted while in *diffusa* it scarcely exceeds the others. The leaves of *diffusa* are ovate lanceolate, and the limb of the corolla is scarcely longer than the teeth of the calyx, stamens all nearly equal and as long as the style.

Fig. 2. *CANSCORA FERFOLIATA* (Linn.), stem 4-winged, ramos from the base * leaves oblong lanceolate acute, floral ones roundish: central flowers short pedicelled: calyx wingless.

My specimens of this are from Mysore and Malabar.

Fig. 3. *CANSCORA TENELLA* (R. W.), stems obsoletely winged, diffuse, and very ramos* lower leaves broad ovate acute, those of the flonferous ramuli linear lanceolate or minute, subulate * flowers long and slenderly pedicelled: calyx wingless: dentate; teeth acute, about one-third the length of the lobes of the corolla: style scarcely the length of the tube, stigma incluse.

Malabar and Mysore

This in technical characters very nearly approaches *C. diffusa*, but is most distinct in appearance, which, however, the figure does not so well preserve owing to the draftsman having made the upper leaves much too large; even the lower ones of the branch selected are too large, being taken from the lower part of the stem. The pedicels, too, of the figure, are about twice the thickness of those of the plant, a defect for which the transferer is accountable. While the leaves of the plant are less than half the size of those of *C. diffusa*, the flowers are fully twice as large, the lobes of the corolla much more obtuse

1328. *GENTIATA PEDICELLATA* (Wall.), stem loosely ramos, glabrous * leaves elliptico-lanceolate, the broader ones anstate at the apex, smooth on the margins, the lowest ones rosulate * flowers pedicelled calyx campanulate 5-cleft, lobes ovate cuspidate, recurved at the apex, shorter than the clavate

tube of the corolla: corolla blue, the tube furnished with 5 projecting, triangular! acutely mucronate lobes: plicae emarginate: capsule obovate, rounded at the apex.

Neilghemes, frequent in pastures flowering at all seasons. The bright blue flowers render this a conspicuous plant even though the foliage can scarcely be distinguished from the surrounding herbage. It seems to have a wide geographical range, extending on alpine ranges from the Himalayas to Ceylon. I have now gathered it on the Neilghernes, Pulney mountains and Neura Ellia in Ceylon. I think it is also found on the higher hills in Coorg and Mysore.

1329. *OPHELIA CORTMBOSA* (Griseb.), stem 4-sided, ascending, branches divaricate: leaves spatulate-elliptic, roughish, 3-nerved; the lower ones largest, the stem ones short sessile: cymes subfastigate few-flowered, pedicels spreading, segments of the calyx linear acuminate, half the length of the corolla corolla 4-parted, blue, segments obovate-elliptic mucronate: foveae minute, orbicular, solitary, covered with a scale, fimbriate at the apex, and themselves bound with short fimbriae: filaments linear.

Neilghemes, not unfrequent during the rainy season in pastures and about the outskirts of woods. The upper branches of this are not fastigate, but often nearly horizontal, the flowers only looking to the sky, in which respect it differs considerably from the following, which Grisebach has joined with it.

1330 *OPHELIA GRISEBACHIANA* (R. W.), erect, simple below, ramous above, fastigate: leaves opposite or ternate, lanceolate, acute, or sometimes narrow linear, 3-nerved: corymbs many-flowered, compact: calyx lobes subulate-pointed, nearly as long as the corolla. corolla 4-cleft, divisions lanceolate acute, foveae covered with a scale and bound with long fimbriae round the margin.

Pulney mountains, among long grass, flowering September and October.

This species seems to me to go far towards showing that Grisebach's variety *O. elatior* of his *O. corymbosa* is a distinct species, that is, if I have not erred in considering the plant figured No. 1329 his *O. corymbosa*.

1331. *OPHELIA ELEGIRS* (R. W.), erect, ramous above, obsoletely 4-sided: leaves sessile, narrow ovate lanceolate, tapering to a slender point, 3-nerved; lateral nerves close to the margin: branches ascending, slender, bearing at each joint lateral, few-flowered cymes, forming together a large many-flowered leafy panicle: calyx lobes narrow lanceolate acute, about } the length of the corolla lobes of the corolla ob ovate cuspidate- foveae bound with longish coarse hairs * flowers pale blue.

Pulneys, flowering August and September. A very handsome species when in full flower, forming, as it does, a rich panicle of light blue flowers, streaked with deeper coloured veins. It seems very distinct from all the other species.

1332. *OPHELIA MINOR* (Griseb.), stems subterete, erect, filiform, glabrous, sparingly ramous: branches erect 1-3 flowered leaves short cordato-ovate, or

ovate, glabrous, obscurely 3-nerved, cauline ones sessile: cymes terminal, lax, 3-5 flowered; the axillary pedicels shorter * segments of the calyx lanceolate-oblong, acute, about half the length of the corolla: corolla 4-parted, blue; segments elliptic-oblong, acute, suberect: foveae orbicular paired distant, most minute; margins naked: filaments linear, shorter than the corolla.

Neilghemes, in wet marshy grounds.

It seems to me doubtful whether this ought to be admitted into the genus. The total want of style and the ail-but absence of foveae militate against it. They are double, always most minute, often wanting, and when present, unlike those of all the other species, being, so far as I have seen, mere tufts of pubescence, not foveae, and so small that aid of a magnifier is required to see them. In a genus where the character of the foveae forms so important an item in the generic character, so wide a departure, as is here presented, from the normal form seems to merit a higher than specific value.

1334. *HALENEA PERROTTFITII* (Griseb.), stem erect, ramous: leaves ovate-lanceolate acute, 5-nerved, subsessile: pedicels axillary and terminal unequal, filiform: segments of the calyx lanceolate acute: spurs thickish, half the length of the corolla, comiculato-obtuse, spreading and ascending at the point, corolla pale blue; lobes ovate mucronate, stigmas small, distinct at the apex

Pulney and Neilgherry mountains, common among long grass and about the outskirts of woods in both places.

This plant often attains a considerable size, two or three feet high, and very ramous, becoming altogether a large annual. The specimen figured was selected on account of its small size, as better suiting the space allowed in these plates

1335—36. *BIGNONIA XTLOCARPA* (Roxb.), arborescent, glabrous except the pubescent branches of the panicles and bracts: leaves 2-3 pinnate, petioles angled; leaflets petiolate, ovate or oblong acuminate, entire, membranous, penninerved, reticulately veined: panicles subcorymbose, branches dichotomous: calyx unequally 5-toothed. corolla campanulate, shortly tubular, lobes somewhat undulated, roundish: capsules siliquiform, linear, roundish, in curved, tuberculate.—A handsome tree* flowers white, fragrant: capsule about two feet long from 1—1 1/2 inch broad.

Neilghemes, flowering in April. I have only met with this tree twice—in Orange valley and on the Eastern slopes by the road side about 4 miles below Coonoor.

It is suggested that it may be a species of *Tecoraa*, a point I am unable to decide as I scarcely know in what respects the two genera differ.

1337—38. *CALOSANTHES INDICA*. (Blume)

Sandy plains in Malabar.

A glabrous tree with opposite bipinnate leaves; leaflets short petioled, subcordato-ovate acuminate, entire. racemes terminal, erect * flowers large, whitish within, exteriorly streaked with red, fringed calyx coriaceous, tubular, truncated: tube of the corolla short, throat campanulate; limb 5-lobed sub-bilabiate, somewhat fimbriately cut on the margin sta-

teens 5, all fertile, scarcely exerted: anthers cells pendulous from the apex of the filaments (this structure is not clearly shown in the plate), stigma bilamellate: capsule siliqueform, very long, compressed, 2-valved; septum paralleled to the valves: seed bound with a circular membranaceous wing.

1339. *SPATHODEA RHEEDII* (Wall.), arbonous glabrous: leaves unequally pinnate, 3-paired; leaflets oval-lanceolate, acuminate, petiolulate, entire: racemes terminal, short, about 3-flowered: corolla with a long slender tube, capsule sihqueform, sub-cylindrical, erect or more or less curved—Corolla white, 5-6 inches long, capsule about 8 inches long, septum thickened in the middle, hence the capsule is somewhat 4-celled. wing of the seed thickish, opaque, truncated.

Malabar—near Tilhcherry, &c.

My figure differs somewhat from Rheede's, but not I think to such an extent as to lead to any doubt of the identity of the species.

1340. *SFATUODEA ARCUATA* (R. W.), arbonous, leaves unequally pinnate, 4-5 pairs leaflets from ovate subacute to orbicular, unequal at the base, entire, softly pubescent when young, afterwards glabrous • racemes terminal, elongated, many-flowered: calyx cylindrical oblique, pubescent externally tube of the corolla slender, limb funnel-shaped, 5-lobed, fimbriated on the margin: capsule arcuate compressed, 8-12 inches long by about 1 broad.

Goimbatore district, flowering during the autumnal rainy months. Calyx about an inch long, corolla between 2 and 3 inches, very deciduous; usually expanding in the evening and dropping off in the morning; rarely producing fruit. The one introduced into the figure was an old one found on the tree, but the seed all gone. I believe it is more frequent in the jungles towards Paulghaut than in Coimbatore. In this district I have only seen two or three trees. From the character of the fruit this species seems to approach *Bignoma*.

1341. *STEREOSPERMUM CHELONOIDES* (Q. C.), arbonous, glabrous- branches terete: leaves unequally pinnate, 4-paired, leaflets elliptic cuspidato-acuminate: panicles terminal, loose, the extreme ramuli 3-flowered- calyx coriaceous, 2-3 lobed or 5-toothed: corolla campanulato-bilabiate, ciliate: capsule very long roundish, glabrous, with a spongy septum.—Flowers fragrant, yellow capsules a foot or more in length.

A considerable tree, not unfrequent in the jungles between Coimbatore and Paulghaut, flowering during the rainy spring months.

1342. *STEREOSPEBMUM SUAVIOLENS* (D. C.), arbonous. leaves unequally pinnate, 24 pairs, leaflets oval acuminate intre: panicles terminal, loose, subrachiate: calyx 5-toothed: corolla hairy or woolly, capsule sihqueform, cylindrical, septum corky, cylindrical.—Flowers dull purplish, very fragrant, leaves vary from broad ovate shortly and abruptly acuminate, to oval lanceolate long acuminate, entire or subserrate, pubescent or glabrous: panicles pilosely viscid or glabrous.

A not uncommon tree, but apparently often cultivated for the sake of its fragrant flowers. D. C. seems to think that several species may be confused under this name.

1343—44. *PANJANELIA RHEEDII* (R. W.), arborious: leaves unequally pinnate, leaflets unequal sided acuminate: calyx campanulate, 5-lobed, lobes emargate at the points: corolla campanulate, sub-bilabiate, 5-lobed \$; lobes dilated and crisp on the outer margin, furnished on the edges with a line of dense woolly tomentum; externally tube glabrous, limb pubescent: longer stamens connivent: capsule 12-15 inches long, winged, cuspidate: seed orbicular, compressed, winged.

Malabar, not unfrequent in the jungles between Coimbatore and Paulghaut, flowering during the rainy months, July and August.

A glance at this figure, as compared with Dr. Wallich's figure of *P. mtitt/ugo*, must satisfy any one, that they are different species. My figure does not look much hker Rheede's than Wallich's, but the station is the same, and some allowance must be made for the different periods at which they were prepared.

1345. *SESAMUM LACINIATUM* (Khen.), stem prostrate hispid, all the leaves lacimately three-parted. D. C. prad.

Balaghaut mountains, Camatic. DeCandolle remarks of this species, which he had never seen, "Valde affine videtur *S. indici* var *a* nee forsan satis distmctum." A view in which I cannot coincide, for, to me, it appears most distinct from all the endless forms of that species.

1346. *SESAMUM FROSTRATUM* (Retz), leaves orbiculate, crenated, hispid above, mveo-tomentose beneath: flowers solitary peduncled: stem diffuse. Sprengel.

Sand-hills along the Sea coast, frequent in such situations near Madras towards the Adyar.

It is remarkable that the identity of a plant so easily procured, so often sent to Europe, and so really well figured by Plukenet 140 years ago, should still be considered sub-judice. In 1705 Plukenet figured a specimen from Madras. About 70 years after Retz obtained specimens which he named and published, quoting Plukenet's figure. In 1800 Willdmow expelled it from his sp. plant, because it coincided in various particulars with *Torema asiatica*. In 1821 Roth restored it to the genus, Springel kept it there with an improved character, and finally, in 1845, DeCandolle places it among his "species exclusae"¹ as being a misnamed specimen of *Torema asiatica*. The figure and analysis now given will, I trust, set the question at rest in all time coming. The recent leaves, like those of *Pedahum murex*, when soaked in water for a few minutes, renders it thick and mucilaginous.

1347. *iEsCHYNANTHUS CETLANICA* (Gardner), leaves lanceolate acute at the base, obtusely acuminate at the apex, lateral nerves few oblique: umbels 2-3 flowered, pedicels about the length of the calyx, glabrous: calyx 5-parted glabrous, lobes linear, corolla glanduloso-pubescent, 4 times longer than the calyx, lobes rounded, ciliate, spotted: stamens exerted, filaments puberulous. seeds furnished with a single thread at each end. Gardner, Calcut. Journal.

Courtallum, during the rainy autumnal months. Also in Ceylon, whence Mr. Gardner's specific name.

1348. *DIDYMOCARPUS ROTTLEIANA* (Wall.), stemless, incanous: leaves spathulato-obovate, crenate, densely clothed on both sides with white tomentum: scapes erect, hairy, sub corymbose, drooping at the apex: flowers smallish, corolla subinfundibuliform, 5-lobed: capsule——.

Shevagherry hills, near Courtallum, flowering August.

This species seems very imperfectly defined by both Brown and DeCandolle and, if I mistake not, includes two of the following species. I am uncertain whether I am correct in appropriating the name to this or the following species, but I apprehend, that of the two, this will be found to consort best with the character though by much the rarer plant. Its rarity indeed makes me doubt whether this is the true species, the other is much more common. Brown in his synopsis of the genus lays considerable stress on the circumstance of the capsule, in the first instance, splitting along one side and the valves long cohering on the other, which he considers of sufficient moment to distinguish the peninsular species from all the others he defines, but I find it common to all the peninsular species I have examined, except the present, the mature capsule of which I have not seen, but observe the same tendency in a half grown one.

1349. *DIDYMOCARPUS TOMENTOSA* (R. W.), leaves obovato-spathulate doubly crenate, reticulately dull whitish tomentose above, densely ferrugeneo-tomentose or woolly beneath: scapes erect, dichotomously cymose, many flowered, hairy above calyx 5-cleft, lobes linear obtuse, clothed with glandular hairs: corolla subcampanulate 5-cleft, lobes suborbicular: fertile stamens shorter than the tube: ovary about the length of the calyx stigma dilated* capsule cylindrical about 1½ inch long, pointed, hairy, splitting along one side only—Flowers bluish purple.

Alpine situations, forming dense patches in moist clefts of rocks, &c. The specimen figured was gathered at Kaitie falls on the Neilghemes, in February. I have since received many specimens from hills near Coimbatore, and have often met with it in similar situations.

1350. *DIDYMOCARPUS LTRATA* (R. W.), stemless* leaves large, lyrate, finely crenate, pubescent-pilose on both sides, especially on the veins* scapes erect shorter than the leaves, dichotomous, branches racemose, hairy: calyx 5-parted, lobes lanceolate acute, pilose* corolla tubular, curved, somewhat ventneose beneath, equally 5-lobed. capsule terete or slightly compressed, 8—10 lines long, hairy; splitting along one side only.

Courtallum, in moist shady places, flowering August and September.

This appears a very distinct species, the large lyrate pilose leaves and small flowers, at once distinguishes this from all the others of this section of the genus.

1351. *DIDYMOCARPUS OVALIFOLIA* (R. W.), leaves petioled, oval, obtuse at both ends, crenato-serrate, penninerved, slightly pilose on both sides, more densely so on the veins beneath—scapes about the length of the leaves umbellately 3-0 flowered,

villous: calyx deciduous, 5-parted, lobes lanceolate pilose: corolla tubular, ventricose beneath, contracted at the throat: stigma scarcely dilated: capsule long slender, pubescent, dehiscing on one side.

Courtallum, flowering August and September. A very beautiful species conspicuous on account of the large size of its flowers. It is nearly allied to *D. Humboldtiana*, Gardner, (Calcutta Journal), but I think quite distinct.

JERDOWIA. (R.W.)

Calyx 5-parted, lobes narrow lanceolate. Corolla subinfundibuliform, 4-lobed, the posterior one larger emarginate. Stamens 4, all fertile. Filaments dilated, anterior pair broader, furnished with a broad descending tooth. Anthers 2-celled, and, cohering at the apex, form a disk-like crown over the stigma, cells divaricating. Ovary embraced at the base by a cup-shaped disk, 1-celled, with 4 parietal placentae, 2 at each side. Ovules attached to a slender filiform podosperm. Style short. Stigma dilated, peltate, concealed under the cohering anthers. Capsule——.

A small, herbaceous, stemless plant. Leaves petioled, oval obtuse at both ends or slightly cordate at the base, the younger ones pubescent all over, the veins and margins only of the older ones clothed with long redish hairs. Scapes erect, filiform, longer than the leaves: pedicels short, subumbellate, surrounded with subulate pilose bracts. Calyx fringed with moniform hairs, lobes narrow lanceolate or subulate. Corolla infundibuliform, limb somewhat bilabiate. Filaments incurved at the apex, dilated below, the anterior pair pubescent.

I am indebted to Mr. Jerdon for my specimens of this interesting little plant which, as forming the type of a new genus, I have much pleasure in dedicating to the discoverer; an honor well merited by his extensive researches in all branches of organic natural history. Though Botany is the last to which he has given his attention it has already reaped considerable advantage from his energetic application to the study of plants. The affinities of this genus in the order are still somewhat obscure, partly owing to the unusual structure of the ovary, and partly to the want of mature capsules. The stamens, too, are peculiar as regards the filaments and anthers, but especially the latter, which are more in accordance with those of *Bignoniaceae* than *Cyrtandraceae*, the order to which I for the present refer it, more on account of habit than structure, as both the anthers and ovary are opposed to that location.

1352. JERDONIA INDICA. (R. W.)

Western slopes of the Neilghemes, flowering March and April.

1353. *KLDGIA NOTONIANA* (Alph. D. C.), stem succulent, marked on one side with a dense villous line: leaves semicordate at the base: calyx five-lobed, the upper lobe furnished with a winged crest at the base.

Frequent on the Neilghemes in wet marshy ground, near rills and Bprings. Flowers deep blue. The following description is abridged from the very full and accurate description of Mr. Gardner,

published in the Calcutta Journal of Natural Science.

Annual, erect, 1 to 2 feet high. Stems succulent, very watery, a row of villi on one side, particularly near the ends of the branches. Leaves alternate, petioled, raembranchaceous, nearly entire, semicordate or oblique at the base, acuminate; above sprinkled with adpressed hairs, glabrous beneath. Racemes opposite the leaves, flonferous towards the apex, each pedicel with a small subulate bract at its base. Calyx 5-cleft: tube 5-angled, the upper one with a broad wing-like crest near the base. Corolla monopetalous, unequally bilabiate; tube white; upper lip much smaller, dentately truncate: lower one broadly elliptical, obtuse, entire, with two cavities at the base; colour deep blue, with a yellow blotch at the base; about 15 lines long. Stamens 4, anthers all perfect, 2-celled, cohering. Ovary free, 1-celled, with 2 parietal placentae, each dilating into a broad ovuhferous lamina- ovules very numerous: stigma cup-shaped. Capsule enclosed within the persistent calyx; 1-celled, 2-valved; dehiscence locubcidal. Seeds minute, pendulous, testa reticulate.

1354. EPITHEMA CEYLAIHCA (Gardner), pilosely hispid all over* inferior leaves opposite, or solitary by abortion, petioled, broad ovate cordate, doubly serrato-dentate, the upper ones opposite, sessile: peduncles terminal 1-3, elongated, spicate at the apex: spikes dense, secund, circinate, bractiate at the base: bracts cordate, cuculate, obtuse, dentate.

Neilghemes, on moist shaded rocks, on the banks of the stream at Burlear, abundant Courtallum on similarly situated rocks. Ceylon, "in clefts of moist rocks in forests."

This is a curious and interesting genus, the peculiarities of which I had not studied when the drawing was made which is therefore defective in one or two minute points.

1355. ISANTHERA PERMOLLIS. (Nees. *Cyrtandra lanuginosa*, Br. in Wall. List. *Is. fionbunda** Gardner, Cal. Journal.)

Courtallum, in shady moist jungles. Western slopes of Shevagherry mountains in similar situations, in great profusion, flowering in August.

Suffruticose, erect, simple, glabrous below, woolly tomentose above: leaves congested towards the apex, short petioled, alternate, obovato-cumform, acute or shortly acuminate, minutly serrated, pinniveined, pubescent above, tomentose beneath, tomentum in the dried specimen rusty or tawny coloured. Peduncles axillary, about the length of the petiole, slender drooping, cymes many-flowered calyx 5-parted, lobes lanceolate acute, woolly, nearly as long as the corolla. Corolla 5-lobed, lobes suborbicular. Stamens 4, didynamous, inserted on the bottom of the tube, filaments recurved. Anthers subglobose, 1-celled, dehiscing transversely. Ovary free attenuated upwards, 1-celled, or imperfectly 2-celled placentae 2, parietal, expanding within into a flat ovuhferous lamina, revolute on the margins: style short, stigma simple, blunt. Capsule 2-valved, 1-celled, dehiscence locuhcidai. Seed minute, elliptical, compressed or angular, from mutual pressure, testa brown reticulate.

So far as can be learned from description, unaided by figures or specimens, the Indian and Ceylon specimens seem not to be distinct. On which account I have quoted, but with a doubt, Mr. Gardner's *I. fionbunda* as a synonym to Nees' *L. permollis*.

CONVOLVULACEA.

Under No. 839 I offered some remarks on the geneTa *Rvea* and *Argyreia*. At that tune I had not been enabled to enter critically on the examination of the order and could suggest no remedy for what I then considered erroneous, viz. the loose way in which M. Choisy had referred species to his newly constructed genera, *Rivea* and *Argyreia*. Since then I have been enabled to examine the subject with more care and have published the result in a brief article in the Calcutta Journal of Science for July, 1847, which I shall reproduce here for those who may not have seen the original.

RIVEA, ARGYREIA and LETTSOMIA.

Mr. Choisy, in his Memoir on Indian *Convolvulmacea*, in taking up Loureiro's genus, *Argyreia*, has changed its character so essentially, that every one of Loureiro's genuine species must now be excluded. I say *genuine*, because if Choisy is correct in referring *Argyreia festiva*, Wall, to *A. aorta*, Lour., which I doubt, then that is not a true species of his genus, which, as defined by himself, has a 4-celled ovary, while *A. feshva* has it 2-celled.

Loureiro's character of the fruit of *Argyreia* is "bacca subrotunda exsucca *A-locviarU*," Choisy's, "ovarium 2-loculare 4-spermum." If the berries in Loureiro's plants have four cells, it is obvious the ovary must have had at least an equal number: hence, in assigning a 2-celled ovary to *Argyreia*, Choisy has altogether suppressed the original genus, and set up a most distinct one in its place, while at the same time he has added to the confusion by placing in his new genus, numerous species with 4-celled ovaries and fruit. In fact, nearly the whole genus, as it now stands in DeCandolle's Prodrum, will, I apprehend, be found *not* to come within his generic character.

It is a curious fact, that Roxburgh fell into a similar error in regard to his genus *Lettsoria*, which, according to his definition, has 2-celled ovaries, while nearly all his species have them 4-celled. When both he and Loureiro wrote, the same importance was not attached to that point of structure that Mr. Choisy has shown it deserved, and their error is easily traced to too rapid generalization. Loureiro must have examined a species with a 4-celled fruit, and took it for granted all the others had the same structure. Roxburgh on the other hand, when drawing up the character of his genus *Lettsomia*, seems to have had a species before him with a 2-celled ovary, and assumed that all the other species with baccate fruit had likewise only two cells. He consequently associated under that character many species with 4-celled ovaries, and only two or three having them 2-celled. M. Choisy, in the course of his examinations, met with some species having four cells, others having two cells: of the former he has constituted the genus *Rivea*, of the latter his genus *Argyreia*. But falling into the

same error as Louieiro and Roxburgh, he has generalized where he should have dissected, and has thereby been induced to bring together, under his essential generic character "ovarium 2 loculare," numerous species having ovum 4 loculare.

With a view to the correction of these blunders, with the least amount of inconvenience to the science, I propose retaining all the three genera, which can be very well done by merely slightly altering the character of *Rivea*, and leaving the other two as defined by their original founders. For example, Choisy gives to *Rivea* a capitate or lamelliform 2 lobed stigma and 4 celled ovary. I propose substituting the word *linear* for *capitate*, and referring all indehiscent fruited, convolvulaceous plants having the 4 celled ovary, with linear cylindrical, or lamelliform stigmas, to *Rivea*, those with 4 celled ovaries and capitate 2 lobed stigmas, to *Argyreia*, and lastly, those having 2-celled ovaries and capitate 2 lobed stigmas, to *Lettsomia*. With this modification, *Rivea* stands in exactly the same relationship to *Argyreia*, that *Convolvulus* does to *Ipomaea*, while *Lettsomia* forms the transition from *Argyreia* to *Ipomaea*, having the indehiscent fruit of the one, and the 2 celled ovaries of the other.

The characters of these three genera will then stand thus —

RIVFA — Fruit indehiscent Ovary 4 celled Stigmas 2 linear, cylindrical or lamellate

ARGYREIA — Fruit indehiscent Ovary 4 celled Stigmas capitate 2 lobed

LETTSOMIA — Fruit indehiscent Ovary 2 celled Cells 2-seeded Stigma capitate 2 lobed

Thus limited, the genera *Manpa*, *Legendrea*, *Marcelha*, *Bltnkworthia*, *Humhertia*, and *Moorciqflia*, will probably all be absorbed by *Lettsomia*, along with some of the species now referred to *Argyreia*, such as *A. acuta* (Ch \ *A. aggregata* (Ch)), *A. festiva* (Wall), *A. setosa* (Ch), *A. effipfica* (Ch) \ thus limited, our genera will possess precision of outline very favourable for the determination of their species as they now stand, that is wanting, and determination is consequently most difficult, whence we now find species of *Argyreia*, as here limited, referred to *Rivea*, *Argyreia*, and even to *Ipomaea*.

1353 RIVEA ORNATA (Choisy), stems climbing leaves petioled orbiculate cordate or reniform, glabrous above, whitish tomentose beneath peduncles elongated, spicately panicle of umbellate sepals ovate lanceolate bluntish, 5 G lines long, conaceous, externally villous corolla slender, tubular, berry smooth

Balaghaut mountains, Madras

My specimen differs in one or two points from the above character, the peduncles are short and the lobes of the calyx acute, but as it agrees in other respects, I consider these differences of secondary importance, and refer them without hesitation to that species

1357 ARGYREIA FULGENS (Choisy), tomentose or villous leaves lanceolate long acuminate, glabrous nigrescent above (in drying), argentic tomentose beneath peduncles shorter than the petiols, brachiately and loosely many flowered bracts narrow lanceolate or wanting sepals villous ovate very obtuse, the exterior ones the smallest, clothed with white villi

Courtallum, flowering in August and September

The specimen is represented glabrous which it is not, the branches being clothed with a pressed white villi and the under surface of the leaves are, from the same cause, somewhat shining silky white. Properly speaking no part of the plant is tomentose, the ramuli being villous, the under surface of the leaves scencious

1358 ARGYREIA TILLIAFOUA (Roxb *Rivea tillofoha* Ch), twining, greyish pubescent leaves roundish cordate, sometimes obtuse, sometimes acuminate, pubescent beneath, petioled peduncles short, 1-3 flowered sepals roundish obtuse, afterwards enlarging, corolla inflated cylindrical fruit conaceous, enclosed within the enlarged calyx

Coimbatore and elsewhere, in low moist soil, flowering during the autumnal rains, and maturing its fruit in December and January

This is a large diffuse species and, when in full flower, a very handsome one, becoming, however, very much the reverse as the fruit, or rather enlarged calyx, as large as walnuts, approach maturity, after which the fructiferous ramuli decay to give place to a new series which make their appearance with the rains of June and July

1359 LETTSOMIA AGGREGATA. (Roxb *Argyreia aggregata*, Choisy), procumbent diffuse or climbing, incano tomentose leaves ovate cordate, glabrous above, incano tomentose beneath, obtuse peduncles a little longer than the petiols capitate many flowered capitulae approximated on the ends of the branches bracts involucrate, ovate orbicular very obtuse, whitish, about 3 lines long sepals ovate obtuse externally white, exterior ones a little longer corolla about twice the length of the calyx stamens long, exserted, ovary 2 celled with 2 ovules in each cell

Courtallum, Pulney mountains, Mysore, &c

A diffuse shrub, climbing over trees or sometimes spreading extensively over rocky ground, flowering during the autumnal rains. Flowers pink coloured, berries red, often one seeded by abortion, inclosed in the enlarged persistent calyx. The cymose capitulae are too much spread out in the drawing to give an accurate idea of the plant as seen growing

1360 LETTSOMIA SETOSA (Roxb *Argyreia setosa* Choisy), adpressed hairy leaves cordate ovate, or roundish cordate acuminate, glabrous above adpressed strigons beneath peduncles longer than the petiols, rigid, cymosely many flowered bracts uniform orbiculate, obtuse, externally hairy, embracing the pedicels and flowers sepals externally strigous, ovate orbiculate obtuse coriaceous, 2-3 lines long, enlarging with the fruit corolla campanulate 9 lines long, contracted within the calyx, lobes acute, silvery without

Malabar Aboo Stocks

This I believe, is the same species as that figured No 851, all except the dissection of the ovary which, under the erroneous belief that the plant figured belonged to *Aig. spectosa* was added from a genuine specimen of that species, that plate therefore, except as showing a somewhat different form of this plant, may be considered cancelled to be replaced by one of the species named so soon as I can get good specimens which I have not at present

Flowers pink coloured within, the outer surface densely clothed with white silvery ham.

1361. *CALONTCTION SPECIOSUM* (Choisy), stem extensively scandent: leaves large, very glabrous: peduncles long: sepals equal anstate.

Coimbatore district, not unfrequent near villages, but probably introduced, as it is frequently cultivated under the name of Moon Flower, in allusion to the flowers opening in the evening and dropping off in the morning.

1362. *LEPISTEMON FLAVESCENS* (Choisy), stem herbaceous, twmmg, hairy: leaves cordato-ovate, entire or three-lobed, stngoso hispid above, nigrescent: cymes peduncled, axillary, dense, shorter than the petiols: corolla 5-6 lines long, tubular, inflated at the base, glabrous, or externally pubescent on the teeth.

Mergui. Griffith.

The distinguishing feature of this genus is the large hairy scales at the base of the filaments and as no figure exists of it, I am happy to have the opportunity of figuring one.

1363. *IPOMJEA PILEATA* (Roxb), stem slender, villous: leaves cordato-acuminate mucronulate, often glabrous, petiolate: peduncles scarcely the length of the petiols: flowers 5-6, sessile in a perfohate boat-shaped receptacle: bracts obovate, hairy: sepals intricately hairy, the exterior ones larger, ovate, interior linear, about 3 lines long: corolla tubular campanulate: capsule glabrous.

Quilon, Malabar.

The leaves of my specimens are decidedly pilose, perhaps scarcely so much so as shown in the figure, but they are far from glabrous.

1364. *IPOHJEA WIGHTII* (Wall), stem terete, elongated, retrorsely pilose: leaves cordato-acuminate acute and mucronulate at the apex, the inferior ones oblong, with the margin sinuately dentate, the younger ones 3-lobed, all lanuginose, above, whitish tomentose beneath, 2-3 inches long, petiols long hairy: peduncles longer than the petiols, 2-5-flowered: bracts linear anstate, 4-6 lines long, acute, hairy, and as if embracing a capitulum. sepals oblong linear, anstate, acute, hairy, 5 lines lone: corolla campanulate, rose coloured, about an inch long: capsule pubescent seed glabrous.

Neilghemes, Mysore, &c.

This species is figured m Walhch's splendid Plant. Asiat. rar, but from a very luxuriant cultivated specimen. The accompanying figure was taken from native, but dried, specimens, hence it may err somewhat in the opposite direction as regards the size of the flowers.

1365. *CONVOLVULUS RUFESCENS* (Choisy), stems rusty red: leaves hastato-cordate, acute at the apex, mucronulate, sinuate on the margin, 2 inches long, the auricles crenato-lobate; petiols 7 lines long, peduncles short 1-3-flowered: bracts minute: pedicels 3-6 lines long. sepals ovato-acuminate, cihate, acute, 3 lines long; exterior ones pubescent corolla 5-6 lines long • capsule glabrous.

Neilghemes, not uncommon.

A procumbent plant, spreading to a considerable extent among long grass.

1366. *CONVOLVULUS GLOMERATUS* (Choisy), root straight: stems many, prostrate or ascending, 1-2 feet long, terete; simple, glabrous- leaves ovate or sub-roundish, short petioled, acute at the apex, 6-10 lines long, 3-4 broad, glabrous or the upper ones scarcely pubescent: flowers glomerate; capitula from about the middle to the ends of the branches, axillary, peduncled: peduncles 3-10 lines long, terete, villous bracts ovato-lanceolate acute, villous, 4 lines long; a little longer thap the capitulum: capitula with from 10-12 sessile flowers; and acute hairy bracts, sepals lanceolate acute, lanato-villous, 2-3 lines long: corolla a little longer than the calyx: seed glabrous.

Scind. Stocks.

The specimens from which the drawing was made were communicated by Mr. Stocks. They differ in some points from M. Choisy's character, but as they perfectly correspond with a "Umo Itinerana" specimen, named *Convolvulus capitulatus*, I have no doubt of this being the true plant.

1367. *CONVOLVULUS MICROPHYLLUS* (Sieb.), stems elongated, hairy, many springing from one root: leaves lanceolate, attenuated at the base into a minute petiol, 3-6 lines long, scarcely 2 broad: flowers axillary, sometimes solitary sessile, sometimes 2 or 3 on a rudimentary ramulus: bracts linear hairy, two lines long, sepals linear acuminate, hairy, broad at the base, 3 lines long, corolla scarcely twice the length of the calyx, villous: capsule globose, glabrous.

Scind. Stocks.

I have not, as in the preceding, an authentic specimen with which to compare the one figured, but it seems to accord so well with the character as to leave little room for doubt as to its being the species named.

1368. *CONVOLVULUS RHYNIOSPERMUS* (Hochst), stems herbaceous 6-8 inches high, terete, ramous or several from one root, pubescent, leafy: leaves elliptico-lanceolate, sometimes acute, sometimes obtuse at the point, mucronulate, nearly glabrous, an inch long; petiol very short, villous • peduncles axillary woolly, very ohort, one-flowered, scattered over nearly the whole branch: bracts and sepals elliptic acute, 2-3 lines long, the younger ones woolly within.

Scind. Stocks.

1369. *SEDDERA EVOLVULOIDES* (R. W. *Brewena evolvuloides*, Choisy), stems suffrutitose ramous • leaves ovato-lanceolate, sessile, glabrous, 3 lines long, acute: flowers axillary, solitary, short peduncled: sepals ovate, equal, acute, often recurved, about a line long: corolla very small.

Sea Coast, near Tutichoreen, and many other places.

Though not properly speaking common, it can scarcely be called a rare plant The circumstance of M. Choisy having referred this species to *Brewena* seems to indicate that these genera scarcely deserve to be kept distinct

1370. *BREWERIA ROXBURGHII* (Choisy), ramous, ramuli ferrugineo-v&Uous. leaves ovato-cordate sub-acuminate, ferrugineous, long petioled: peduncles about the length of the petiolef, 3-or many-flowered

sepals ovato-acuminate or ovato-rotundate, subequal, 3 lines long: corolla rufescent, narrow at the base.

Travancore and Mergui. Specimens were communicated from the latter station by the late Mr. Griffith.

1371. CUSCUTA ARABICA (Fresen. pL aeg.), stem thread-like: capitula of flowers sessile; each flower sessile or pedicelled calyx $\frac{1}{2}$ line long, fleshy: corolla a little longer than the calyx, 5-cleft; marcescent round the base of the capsule, lobes straight, acute: stamens sub-exserted; scales of the corolla scarcely conspicuous or wanting.—Stems yellowish white: calyx white: stamens inserted on the throat, short: stigmas sub capitate: capsule globose, 4-sided.

Scind. Stocks. Parasitic on *Jlmarantkus ohractus*, &c

1372. CUSCUTA HTALINA (Roth), peduncles about 3-flowered; flowers pedicelled: corolla hyaline, longer than the calyx, lacineae lanceolate.—Stems filiform, corolla 4-5 cleft, about twice the size of the calyx, stamens attached to the throat of the corolla with over-lying scales—scales fimbriated on the margin: flowers whitish or pale yellow: capsule globose.

Palamcottah, on stems of *Amaranthus oleractus*. This form seems intermediate between Roxburgh's *C sulcata* and Roth's *C. hyalina*; it does not agree with the description of either, but I prefer referring it to the latter, as the principal point of difference consists in the number of parts of the flower, quaternary in his, quinary in mine, most likely accidental. In other respects may seem to agree very well.

1373. CUSCUTA CBINENSIS (Lam.), stems slender, filiform—fascicles of flowers lateral, glomerulate or sometimes loosely panicle, each flower minute, sessile or subsessile: calyx 5-lobed, lobes ovate oblong obtuse, $\frac{1}{2}$ a line long: corolla campanulate, scarcely twice the length of the calyx, 5-lobed: minute pемcellate scales inserted on the throat

Ceylon, parasitic on *Vinea rosea*. Apparently a widely distributed and rather variable species, as it has several names.

"Fascicles of flowers squamate at the base: calyx scanose shining, with the lobes angled (Lam.) carnososulcate (Roxb.): lobes of the corolla often reflexed, sometimes lanceolate-ovate, sometimes linear acute: stamens exserted, inserted on the throat by a short filament: styles straight or slightly diverging, withering on the apex of the capsule—capsule round—corolla deciduous not marcescent round the capsule.*¹ Ch. in D. C.

1374. IPOALEA BRACTEATA (R. W.), herbaceous, twining, everywhere clothed with long pubescence. leaves long petioled, round cordate mucronate: peduncles about the length of the petiols, cymosely 3-flowered: flowers sessile, small, the lateral ones, each furnished with 3 ovate cordate, obtuse, fohaceous bracts: sepals about the length of the corolla, corolla subcampanulate, tube glabrous, limb somewhat pubescent on the angles stamens incluse.

Quilon.

1375. IPOMAEA CAMPANULAS (Linn.), stem stnated, glabrous, ramous: leaves cordate acute, large,

glabrous, reticulated beneath with redish veins, long petioled peduncles many-flowered, spicately racemose, as long as the petiols; pedicels afterwards thickening, black sepals about an inch long, ovato-orbicular, equal, glabrous: seeds silky.

Eastern slopes of the Neilghemes.

A large and very handsome species—flowers white, Unged with rose, purplish near the bottom of the tube. The only figure yet published, so far as I am aware, of this species is Rheede's, and that seems so far characteristic as to leave but little room to doubt that this is his plant. I do not feel equally sure of its being identical with the Timour one from which M Choisy's character is drawn.

1376. PORANA RACEMOSA (Roxb.), herbaceous, twining, glabrous or pubescent: leaves cordate acuminate, cauhne ones long petioled, floral ones (bracts⁵) sessile, stem clasping, panicles racemose, loose, flowers long pedicelled: sepals ciliate, at first acute, afterwards enlarging corolla tubular campanulate, limb 5-parted, spreading—ovary 2-seeded: style filiform stigma capitate seed solitary embryo contorted.

Eastern slopes of the Neilghemes, between Burliar and Coonoor.

There seems little room to doubt that this plant is identical with the Nepaul one, so far at least as can be made out from description and specific character. While examining it, I was led to scrutinise the characters of the genus more closely than when publishing my figure of *Porana volubilis* and very unexpectedly found that that plant, so far as the characters derived from the style, stigmas, and ovary show, is a genuine species of the more modern genus, *Brewena*, as a comparison of the analysis of that figure (No. 347), which I have again verified, with those of the accompanying figure, No. 1370, of *Brtwria Roxburghxx*, will at once show. This fact, if rigidly followed to its consequences, must give rise to a troublesome alteration of names and a great addition to an already abundant list of synonyms. *Porana volubilis* of Burman being the type of the genus, and minutely according in structure with Brown's *Breweria*, it necessarily results that it is equally the type of that genus, consequently all the species of the latter, under the law of priority, must be referred to the former, thereby reducing the genus *Brewena*. This alteration will, I presume, have the effect of restoring Sweet's genus *Dinetus*, established for the reception of *Porana racemosa* and *P.pamculata*.

These remarks are based on the supposition that Choisy is correct in referring my figure No. 347 to *Porana volubilis*, a point which I cannot verify for myself by comparison with Burman's figure, my copy being imperfect and wanting that plate (No. 21). My plant certainly corresponds, in every particular but one, with Roxburgh's description, namely, in having a 2- not 1-celled ovary, and both correspond with Burman's description, so far as it goes, whence I infer Roxburgh has fallen into an error in that particular.

SERICOSTOMA. (J. E. Stocks¹ MSS.)

Calyx 5-parted, lobes unequal, the 2 larger ones exterior in Estivation. Corolla sub-hypocratenform,

5-cleft; lobes imbricated in aestivation; throat closed with hairs radiating towards the centre. Stamens inserted on the sinuses, filaments short, anthers versatile, at length exerted. Ovary deeply 4-parted, lobes distinct from the style with one erect ovule in each. Stigma capitate, two lobed. Nuts 1-2, by abortion, angular within, convex and granular on the back, acuminate at the apex, stipitate at the base, shorter than the persistent calyx, seed erect, radicle minute, superior, cotyledons ovoid, thick.

A Scindean under shrub. Stems woody at the base, decumbent; ramuli herbaceous, clothed with adpressed hairs. Leaves sessile, linear lanceolate. Racemes short, with a terminal bract, opposite the leaves, sub-scorpoid, 2-5-flowered, one of the flowers more remote. Corolla white, lobes of the limb very hairy, lacero dentate at the apex; throat thickly beset with slender, silky, crispy hairs.

I am indebted to Mr. Stocks for the specimens from which the accompanying figure is taken and also for the above generic character.

This new genus seems very nearly allied to *Lithospermum*, differing principally in the unequal lobed calyx, the very hairy throat of the corolla, and the stipitate nuts, points which I now suspect are scarcely of generic value when so strongly opposed by habit, as we find them in the present instance.

1377. SERICOSTOMA FAUCIFLORUM. (Stocks.)

Baikur near Deesa, Scind.

1378. CORDIA MTXA (Linn.), branches terete, glabrous: leaves petioled, ovate, on young trees repandly-dentate, afterwards entire; smooth above, roughish beneath: panicles terminal or lateral: flowers somewhat pedicelled, 5-cleft, polygamous: calyx oblong, campanulate, silky within: tube of the corolla about the length of the calyx, lobes oblong linear; stigmas dilated erose on the margin: drupe ovoid mucronate.—Buds tomentose. Drupe yellowish or pale; flesh viscid, nut two celled.

The fruit, according to Roxburgh, when cut, have a heavy disagreeable smell, but are eat by the natives when ripe. The tree is not very uncommon in some parts of the Coimbatore district, flowering in December. The flowering season is of short duration, and many of the flowers are sterile and soon drop. They are also very apt to separate when drying, so that it is difficult to preserve specimens.

1378 CORDIA OBLIQUA (Willd. *C. tomentosa*, Wall, *C. Wallichii*, G. Don, D. C., *C. dorMslua** Roth), branches and young shoots glabrous, somewhat irregularly angled or nearly terete* leaves petioled, suborbicular, quite entire, rounded or cordate slightly oblique at the base, smooth and glabrous above, when young villous beneath: panicles supra axillary on the young shoots calyx oblong, campanulate, before opening densely tomentose on the apex, 5-lobed—tube of the corolla shorter than the calyx, limb 5-cleft, lobes linear stigmas long, exerted, dilated, drupe——

Malabar, flowering in March.

A careful comparison of this plant with Willdow's figure and description leaves scarcely a doubt on my mind that it is really his plant

Neither can I hesitate in admitting it to be Wallich's *C. tomentosa*, and as both he and Roth have their specimens from the same source, Hyne's Herbarium, I think there is strong reason to infer that Roth's *C. domesha* must also be referred here, unless, which seems not improbable, the two species were mixed in his collection.

This last supposition seems the more probable, as I can scarcely discover an adequate specific distinction to keep them both up unless that is found in the difference of the flowering season and in the fruit, which I do not know. Feeling confident that this is really Willdow's plant, I have given it a place here, though I doubt its being distinct from *C. Myxa*, simply with the view of aiding towards clearing up a doubt with respect to the two plants.

1379. CORDIA ROTHII (Raem. and Sên.), leaves sub-opposite entire, from lanceolate obtuse to spatulate, tapering to the base, petioled, scabrous: corymbs terminal, afterwards axillary, dichotomous, divaricated: flowers 4-5-cleft, pedicelled: calyx obsoletely 4-5-toothed; those of the fruit campanulate, repandly denticulate on the margin: drupe roundish, smooth, about 4-celled.

Mysore, flowering in May and June.

A very distinct species, well named *C. cuniata* by Hyne, many of the leaves being nearly cumate in their outline.

1380. CORDIA FULVOSA (R. W.), branches glabrous, terete, young shoots and leaves, petioles, peduncle and calyx, before expansion, clothed with short fulvous pubescence: leaves petioled, ovate, obtuse at both ends, sometimes sub-orbicular entire or repandly toothed, smooth, dull or somewhat hoary, being thinly clothed with very short pale fulvous pubescence; corymbs terminal and axillary; flowers congested on the points of the ramuli: flower buds villous on the apex, obovate: calyx sub-campanulate irregularly 4-6-toothed: corolla deeply 4-6-cleft, lobes obovate emarginate, glabrous, tube hairy: stamens as many as the lobes; filaments glabrous, inserted on the mouth of the tube: anthers large, cells somewhat divaricated at the base: ovary 4-celled. stigmas filiform: fruit (immature) imbraced at the base by the enlarged cup-shaped calyx, apiculate.

This species seems to rank next *C. tnochostemon*, associating in the peculiar fulvous pubescence with which both are covered, but differing in the form of the foliage and glabrous filaments. It seems also to associate in many points with *C. Leschenaultii* to which I at first referred it, but on more careful examination cannot quite reconcile it to the character of that species.

1381. CORDIA PERROTTETII (D. C.), branches terete, the younger ones, petioles, and peduncles velutino-scabrous, rufescent: leaves petioled, elliptic, obtuse at both ends, entire, scabrous above somewhat velvety beneath, the young ones tomentose: panicles terminal sub-racimose, shorter than the leaves: calyx oblong obtuse, irregularly toothed, tomentose on both sides, tube of the corolla equal to the calyx, 4-cleft, lobes oblong reflexed: stigmas long, exerted. D. C.

Bellary, flowering September and October.

The lobes of the stigma in this species seem on first opening to cohere by pairs and afterwards separate. The plant here represented seems to correspond in every thing with DeC.'s character, except the size of the leaves; in his they are said to be 3 inches long and 1¹/₂ broad, in mine they scarcely exceed half that size. This difference is in itself of small moment, but it may be indicative of the existence of other differences to which the character does not allude.

1382. EHRETIA Lfvis (Roxb.), arboreous, glabrous: leaves petioled, from oval to oblong lanceolate, acuminate at both ends, smooth, shining above: corymbs axillary, dichotomously many-spiked: pedicels and deeply 5-cleft calyx slightly hairy: corolla rotate, lobes reflexed. stamens exserted.—Leaves from 3 to 6 inches long, from 1¹/₂ to 3 broad; petiols from $\frac{1}{2}$ to 1¹/₂ inch long, axils of the veins sometime hairy or furnished with a gland, flowers sub-sessile, second on the numerous circinate spikes: drupes about the size of a large pepper corn; red when ripe.

Neilghemes, on the eastern slopes, flowering during the cool season December and January.

1383. EHRETIA OVALIFOLEA (R. W.), sub-arboreous, glabrous; leaves short petioled; from oval obtuse at both ends to somewhat obovate, or ending in short blunt acumen, smooth on both sides: corymbs terminal or axillary, dichotomously branched, circulate* flowers second, short pedicelled: calyx deeply five-cleft, slightly hairy: corolla rotate, limb reflexed: stamens exserted: style about the length of the tube of the corolla scarcely exserted: drupe red when ripe, about the size of a small pea.

Coimbatore, flowering during the rainy season, from August till October: fruit ripe March and April.

A small very ramous tree, leaves from an inch to 1¹/₂ or 2 inches long and about half the breadth, smooth and glabrous on both sides, the older ones somewhat coriaceous. This species seems nearly allied to *E. aspeia* from which, however, it seems quite distinct.

1384. EHRETIA WIGHTIAISA (Wall), shrubby, glabrous, ramous slender, smooth leaves elliptico-lanceolate, sub-acuminate above, tapering below into longish slender petiol, quite entire, smooth on both sides: corymbs terminal, compact, dichotomous; branches revolute: flowers second, sub-sessile* calyx 5 lobed much shorter than the tube of the sub-hypocartenform corolla: stamens exserted: style equaling the tube- drupes, immature, about the size of a large pepper corn.

Courtallum, flowering August and September.

Mr. G. Don remarks that this species is nearly allied to *E. umhelMata*, Wall. That species, judging from the description, Alph. D. C. has removed from this genus to *Ilix*, then, acting on Don's remark and not having seen a specimen, has equally excluded this species from the genus *Ebetia*, in which he has certainly fallen into an error.

1385. EHRETIA (XERODERMA) CUNIATA (R. W.), shrubby, branches virgate terete, glabrous, nigrescent, smooth, leaves obovate cumate, retuse, sub-sessile, glabrous and smooth on both sides, quite

entire, coriaceous: flowers solitary, axillary, on the ends of short leafy branches, sub-sessile: calyx 5-parted, lobes ovato-lanceolate, equaling the tube of the corolla, glabrous: corolla 5-cleft, lobes ovate obtuse: stamens attached near the bottom of the tube, scarcely exserted: style filiform: stigma capitate: fruit dry, 4-seeded.

Banks of the Caverry river near Errode, flowering February.

A small, very ramous bush, growing on the banks and on sand-banks in the bed of the river. Appears very nearly allied to Wallich's *E. wroinuz*, but, so far as I can make out from the discretion, quite distinct.

1386. TOURWIFORTIA RETICOSA (R. W.), shrubby, climbing- branches terete and with the under surface of the leaves sparingly covered with short appressed pubescence: leaves short petioled, ovato-lanceolate acuminate, acute, round at the base, dark green above, pale beneath and marked with a delicate net-work of brownish purple veins: peduncles leaf-opposed, dichotomous; branches divaricating, spikes corymbose, circinate calyx 5-parted, lobes ovate, hispid- corolla 4 or 5 times longer than the calyx, hairy, obtusely 5-lobed. stamens 5, inserted near the base, included: fruit—.

Western slopes of the Neilghemes, below Nedawuttem, flowering in April, and in Coorg, (Jerdon).

A large climbing shrub. One I saw was 10 or 12 feet high: leaves 4-6 inches long, about 1¹/₂ broad, sparingly sprinkled with hairs above, pubescent beneath. What I gathered as fruit proved on examination the nidus of an insect. This species seems most nearly to approach *T. vindiflora*, but is quite distinct, as shown at once by the comparatively large flowers and small calyx.

The plant figured No. 892, under the name of *Hdiotropium Zeylanicum*, is, I now find, a species of *Tournifortia*, which may be thus defined:

TOURNIFORTIA (MESSERCHMIDIA) ZEYLAKICA (R. W. *Hdiotropium Zeylanicum*, Burm.), suffructuose, erect, ramous, hispid: leaves oblong-lanceolate, piloso hispid on both sides: spikes elongated gimate circinate* tube of the corolla 5-cleft, about twice the length of the calyx; lobes subulato-acuminate, toothed in the sinuses: pericarp dry, consisting of 4 one-seeded nuts.

Frequent in cultivated land about Coimbatore, flowering during the autumnal rains and throughout the cool season. I also met with it in the Bellary district.

This species seems very nearly allied to both *T. subulata* and *T. Edgeworthii*, if indeed they be not all the same species. The mode of aestivation of the corolla found in this species is common to this last section of *Tournifortia* and to the first (Catimas) of *Heliotropium*, as they stand in DeC.'s prodromus, forming a beautiful transition connecting link between the two genera. In both the tips of the segments of the corolla are long and narrow and, before the full expansion of the flowers, are folded down into the tube.

I believe we are indebted to DeCandolle for first noticing this curious aestivation, which seems so peculiar as almost to justify the removal of these sections from their respective genera to be united to form an intermediate genus.

1387. *HELIOTROPIUM SUPINUM* (Lin), stem herbaceous, decumbent: leaves oval obtuse, plicate, margin absolutely crenate, incanous beneath, villous above spikes sub-solitary: calyx 5-toothed, closed, falling along with the enclosed fruit: fruit 1-3 pyrenes, 1-3-seeded.

(*I. Malabancum*, stems ascending* leaves in can omentose, hairy on both sides: calyx very hairy.

A widely distributed plant, the Indian variety extending from the foot of the Himalayas to Cape Comonn, while the original species seems equally widely distributed over the Southern States of Europe and the Northern ones of Africa and Asia Minor; it is also noted as a Cape plant.

1388. *HELIOTROPIUM COROMANDELIANUM* (Retz), stems herbaceous, erect or diffuse and with the leaves adpressed, villous: leaves obovate oblong, entire, mucronate- spikes ternate, conjugate, or solitary, ebracteate. lobes of the calyx somewhat unequal, corolla longer than the calyx: style scarcely any. nuts sub globose, hispid at the apex.

A common plant, generally to be met with in flower at all seasons, but in greatest perfection during rainy weather.

1389. *HELIOTROPIUM SCABRUM* (Retz), procumbent, diffuse, strigous leaves alternate, somewhat oblique, entire; towards the ends of the branches sub-opposite: flowers small, congested on the ends of the branches, concealed among the leaves: sepals sub-unequal, hairy corolla scarcely exceeding the calyx, sub-ventricose: anthers apiculate: stigma dilated, shortly apiculate: nuts 4, roundish, glabrous.

Coimbatore, frequent, flowering during rainy weather

This appears a very distinct species. The stems are always spreading, hairy, leaves small, sub-sessile, ovate or sub-cordate, hairy on both sides, congested about the ends of the branches, where they surround the small white almost sessile terminal flowers: flowers small, several congested^ on the apex of the branches, never racemose or spicate- limb white, throat hairy, tube yellow, approaching to orange colour.

DeCandolle asks whether *H. bretz*^*Wuim*, Wall is *H. scabrum*, Retz., but gives neither the character nor description of the latter to enable any one to judge- thus in effect suppressing the older name in favour of the newer, supposing- them to refer to the same plant, and in the event of their being referable to distinct plants suppressing this one altogether because he happened not to know it! I have introduced into the plate two forms, one more, the other less luxuriant.

1390. *HELIOTROPIUM MARIFOLIUM* (Retz), suffruticose, diffuse, ramuli, leaves and calyx adpressed- strigous- leaves linear lanceolate acute, entire, revolute on the margin: racemes sub-spicate solitary, flowers alternate, bracteate: bracts lanceolate deciduous, longer than the calyx, strigous • calyx 5-parted about the length of the tube of the 5-lobed plaited corolla • stamens inserted on the throat • anthers connate, apiculate: nuts globose, covered above with short rigid hairs.

Coimbatore, not unfrequent, flowering during rainy weather at any season.

Lehman seems to have taken up a form of this species and described it as *H. scabrum* of Retz, from which it is most distinct.

1391. *HELIOTROPIUM LIWRFOLIUM* (Lehm.) suffruticose, erect, sparingly ramosus, glabrous, 4-sided towards the apex: leaves linear acutish, entire, revolute on the margin, sparingly adpressed strigous on both sides: racemes sub spicate, solitary, short, bractiolate: calyx very short, slightly hairy lobes of the corolla acutish, tube ventricose, pilose: nuts glabrous or sometimes roughish.

Flowers short pedicelled: corolla thence as long as the calyx, limb white, tube yellowish. The difference between this and *H. tenue*, seems very slight, I believe, however, this is the true plant from which the character of the species is taken.

1392. *HELIOTROPIUM ROTTLEI* (Lehm.), shrubby, stems short, erect at first, afterwards dividing into many divaricating somewhat horizontal branches; ramuli and leaves whitish strigous: leaves sub-sessile, ovato-lanceolate acutish, revolute on the margin: spikes lateral 1-2 inches long, circinate- flowers sub-sessile, secund, the under side of the rachis bearing the bract: bracts ovate, strigous, appressed- calyx 5-parted, lobes ovate, acute a little shorter than the tube of the corolla- corolla pilose externally, throat closed with ham. fruit strigous, globose: nuts 4, globose exteriorly.

Coimbatore, frequent In flower at all seasons.

A very distinct but not easily described or represented species. The figure here given is very characteristic of the more usual form, having a number of branches rising direct from the root, and after ascending an inch or two dividing and spreading out horizontally, each, after giving off a floriferous branch which becomes a raceme, lengthening outwards. I have seen bushes covering several square feet of surface.

1393. *ARNEBIA HISPIDISSIMA* (D. C.), whole plant most hispid, from rigid bristles intermixed with pubescence, stem ramosus from the base, erect: leaves lanceolate somewhat blunt, the floral ones narrower acute: spikes terminal, solitary, sub-seund: lobes of the calyx sub-linear, (unequal in my specimen, R. W.) about half the length of the long tubular villous corolla: style bifid: nuts rugous, somewhat 3-sided. Root slender, simple, red: plant 4-6 inches high: bristles white: corolla yellow: anthers inserted, either within the tube or on the throat: nuts imperforate at the base. D. C. prod. x. p. 94.

Scind, common. J. E. Stocks, to whom I am indebted for the specimen here represented.

This specimen seems to agree in all essential points with the character except the calyx, the lobes of which are very unequal in size, occasionally even more so than shown in the figure, giving reason to suspect that this is a distinct species. As however I have not a specimen nor full description to which I can refer for information, I do not feel justified, with my present imperfect knowledge, in giving this a new specific designation, though, from the tendency said to exist in this plant to variation in the position of the stamens either within the tube or on the throat, there is ground for suspecting that two

species are confused—the one with included stamens and the lobes of the calyx equal, the other with exerted stamens and the lobes unequal, as here shown.

1394. *ECINOSPERMUM CLEPTIDUM* (R. W. Cynoglossum calesmum Lind), sparingly pubescent, except on the veins on the under surface of the leaves and younger branches—stem erect, ramous: radical leaves large, reniform-cordate, entire, smooth, about 9-nerved at the base, somewhat cuspidate at the apex; cauline ones ovato-lanceolate, sessile: racemes ebractiate, dichotomous: calyx 5-parted, lobes ovate bluntish tube of the corolla about the length of the calyx, limb 5-cleft spreading; lobes orbicular: nuts ovate, depressed, bound with a membranous wing, glochidiate on the margin and furnished with prickles on the middle—Apparently biennial, one or two feet high: leaves smooth and nearly glabrous fructiferous pedicels reflexed corolla apparently blue with a paler margin: scales on the throat obtuse, inflexed at the point.

Belgaum and Bombay.

I am indebted to Mr. Law of Bombay for the specimen here figured, he sent it from the latter place as a species of "Cynoglossum probably C. calesmum," Lindley.

The plant agrees so well with the character of that species that Mr. Law's conjecture seems correct, except for the circumstance of this being, as I understand the genus, a true *Eckinospermum*. Under the impression that it may be Lindley's plant I have retained his specific name.

1395. *CYNOGLOSSUM FURCATUM* (Wall), stems ramous, adpressed, pubescent or tomentose, the hairs on the lower part reflexed: leaves glaucescent, adpressed-pubescent; radical ones petioled, oval-lanceolate, acute at both ends; cauline ones sessile, the upper ones half-stem-clasping, ovato-cordate: racemes paired, slender, ebractiate, secund, hairy.—Flowers purple, scales of the throat two-lobed.

Neilghemes, very common, rising from one to three feet high, and in flower at nearly all seasons.

This species appears very nearly allied to *C. tmcraanthum*, from which indeed it seems scarcely to differ, I believe, however, this is the true *C. furcatum*. If I have not confounded the two species this has an extensive range of geographical distribution, extending from the Himalayas to Ceylon, and is generally to be met with in alpine regions throughout that wide extent of country.

1396. *DITURA FA3TU09A* (Nees), annual; leaves ovate acuminate, repando-dentate, unequal at the base, and like the stems puberulous; fruit drooping, tubercled.

Common about Coimbatore, distinguished from *D. Stomomum* by the fruit drooping in this, erect in that.

1397. *SOLANUM DENTICULATUM* (Blume), stem suffruticose inferior leaves solitary, upper ones paired, smoothish, one of them larger, oblong acuminate at both ends, the other smaller, somewhat obovate: flowers fasciculately-aggregated, lateral: calyx minutely 10-denticulate, furrowed.

Neilgherries, not unfrequent in clumps of jungle in moist soil near springs and streams.

1398. *SOLANUM VERBASCIFOLIUM* (Linn.), shrubby leaves ovate-oblong acuminate, entire, tomentose, surfaces discoloured axils leafless* corymbs sub-terminal, dichotomous, peduncled: calyx half 5-cleft. Nees.

Neilghemes, frequent about the elevation of Coonoor (6000 feet), less so above that zone, generally to be met with in flower and fruit at all seasons. Usually a tall straight bush, but sometimes a small tree with a bushy head; flowers pale yellow or a kind of dirty white.

1399, 1400. *SOLANUM FEROX* (Linn.), perennant-herbaceous, woody at the base: leaves paired, cordate, sinuately angled, woolly tomentose and prickly on both sides • peduncles intra-foliateous and, like the short pedicels calyx and berries, hairy.

Courtallum, flowering August and September, and Neilghemes always in flower.

1399. *SOLANUM FEROX*, majus. (Nees.) Courtallum.

1400. *SOLANUM FEROX*, minus. (Nees.) Neilghemes.

Nees Von Esenbeck views these two forms as but varieties of the same species. I think there is room for dissenting from that view, but yet I, for the present, adopt it as my opportunities of examining the correctness or otherwise of his opinion have not been such as to satisfy me on the subject. One circumstance is worthy of note, namely, that the former of these plants, No. 1399, has not, so far as I am aware, been met with on the higher range of the Neilghemes, while the other is quite common. That difference of habit, combined with its glabrous fruit, causes me to doubt the correctness of Nees' decision in this instance.

1401. *SOLANUM JACQUINI* (Willd.), herbaceous, perennial: stem procumbent, ramous, prickly • leaves ovate oblong, sub-cordate, sinuato-pinnatifid, at first sparingly stellato-hispid on both sides, afterwards smooth shining and quite glabrous, furnished on the disk with numerous long, straight prickles: margins unarmed: racemes prickly, extra-fohaceous, few flowered. Calyx campanulate, 5-cleft, armed, lacines broadly ovate cuspidate, spreading in the fruit.

A rather frequent plant, generally met with in open exposed situations, flowering during the cool season and ripening its fruit during the earlier months of the year. Berries red, succulent

1402. *SOLANUM (NICTETERIUM) PUBESCENS* (Willd.), shrubby, unarmed, clothed all over with short somewhat viscid tomentose-pubescent leaves ovate acute, entire or sub-repand racemes corymbose, lateral: the lower anther larger.

Coimbatore: very common in the low jungles on arid soil near the foot of the hills in this district, and generally in similar places extending all along the range of mountains, nearly to Cape Comorin. It sometimes attains the size of a rather large bush, 6-8 feet high, very ramous: branches

tending to fastigate- more frequently it is a small, ragged, stunted-looking shrub: flowers blue, anthers yellow, bemes red.

1403 LTCIOM TNDICUW (R. W), shrubby, ramous, branches spreading, flexuose, spinous at the apex: leaves fascicled, obovato-lanceolate or sub-spathulate, short petioled. peduncles axillary, solitary or 2-3 together, about the length of the 5-toothed calyx, corolla erect, infundibuliform, about thrice the length of the calyx, contracted near the base: stamens sub-unequal, the longer ones sub-exserted, inserted below the middle of the tube: filaments pilose, not thickened at the base: anthers short, sub-versatile ovary 2-celled- ovules numerous: stigma capitate: fruit globose, by abortion, 2-seeded (always *)• seed compressed-remform, muncate on the back.

Guzerat and Cambay, flowering chiefly in autumn, September, and October. Stocks.

I am indebted to Mr. Stocks for the specimen from which the drawing was made. The original *L. Indicum* being removed from the genus and this being, so far as I am aware, the only truly Indian species of the genus, and nearly allied to *L. Afrum*, I have given it a geographical specific designation. Judging from the specimens only, this appears to be a low, somewhat spreading, very ramous shrub; each flexure of the larger branches giving origin to a tuft of leaves and smaller branch terminating in a spine. The leaves in some specimens, are more decidedly lanceolate than in the one figured. The flowers which are small and of a slender form appear from the dried specimens to be pale yellow, but as they were unaccompanied with any notes, I am uncertain on that point.

P. S. When preparing to send the above to press, I received the following character and notes on this species from Mr Stocks. On reconsidering the character of *L. Europaum*, with the aid of Mr. Stocks' notes, it seems not improbable that this plant may yet turn out to be a mere variety of that species.

"LYCIUK EUROPJEUM (Linn⁹), shrubby, stunted, thorny, branches weak, flexuose, pendent, branchlets spinous, young shoots pubescent* leaves alternate (or fasciculate on the under-eloped buds) lanceolate or narrowly obovate, obliquely flexuose. flowers solitary or fascicled- corolla (white) with its tube twice as long as the calyx: filaments bearded at the base. (From Scind plant.)

"Scind and Guzerat, from Deesa to Cambay, delighting in a salt soil.

"Probably *L. Europaum* of Royle's Illustrations, mentioned as growing about Delhi Probably **L. Europaeum*, L.? or *L. Ruthenicum*, Murray⁵ Hab pres de Jerusalem* of Decaisne in enumeration of Bove's plants, Ann. Sc. Nat. u. vol. IV. 352.

"Identical with a *Lycium* in Schimper's Herbarium gathered near Djedda.

"Most likely distinct from *L. Europaum* in its white flowers and bearded stamens Varies much in the size and shape of its leaves, in their smoothness or pubescence, in the evenness or waviness of their surface, and in their texture. Calyx with 5-6 minute irregular ciliate teeth. Stamens 5-6, unequal in height Style sometimes exserted. Fruit dull-yellow or coral-red, globose, bursting the calyx at one side, pulpy, size of a swan shot. Cells 3-8-seeded. Seeds flat lenticular. Flowers chiefly in autumn (Sept Oct.)."

EXPLANATION OF PLATES.

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1404-5. *VERBASCUM VIRGATUM* (Withering), stem sub-viscoso-hispidulous or glabrous at the base: leaves oblong, glabrous, or glanduloso-hispid beneath; the inferior ones petioled, dentate, or sinuato-pinnatifid, the superior ones sessile or cordato-amplexicaul, or shortly decurrent: racemes glanduloso-hispid; pedicels 2 or 3 together, rarely solitary, shorter or about the length of the calyx: filaments clothed with violet coloured woolly hairs (violaceo-lanatis)

Neilghemes, frequent, flowering during the rainy season.

This plant not unfrequently attains the height of from 6 to 7 feet, though from 3 to 4 is the more common size. Flowers yellow, nearly sessile, the short, bent filaments densely clothed with purplish coloured, woolly hairs.

1406. *CELSIA COROMANDELINA* (Vahl.), ramous, below clothed with whitish pubescence or woolly, above viscid: radical leaves lyrato-pinnatifid, the superior ones and bracts oblong, ovate, or orbicular, dentate: racemes sub-paniculate; pedicels longer than the calyx: calyx lobes ovate, oblong or serrated.

Common all over the country, flowering during the rainy season.

A plant so widely distributed and, apparently, growing in all sorts of soils, from the marshy paddy bank, up to arid gravels of Coromandel, is naturally variable in its aspect. The form here represented may be viewed as the most usual and normal one, but the specimen selected is a small one.

1407. *MAZUS SURCULOSUS* (Don), stoles creeping: leaves inciso-crenate, rugous, hispid, somewhat crisp on the margin; those of the sterile branches orbiculate: lobes of the calyx ovate, obtuse, shorter than the tube* corolla scarcely twice the length of the calyx.—Radical leaves from 1½ to 3 inches long, obovate, oblong; those of the stoles small.

Himalayas, Mussuree, flowering in July.

I am indebted to Mr. Edgeworth, of the Bengal Civil Service, for the drawing from which this figure IB taken. It was sent with many others, a few only of which, I regret to say, I have as yet been enabled to publish in this work.

1408. *STEMODIA VISCOSA* (Roxb.), erect, pubescent, viscid: leaves sessile, ovate, oblong, or lanceolate, acute, narrower towards the base; at the base dilatato-cordate, stem clasping: flowers axillary, solitary, the upper ones racemose. pedicels twice the length of the calyx.—Plant from 10 to 15 inches high. Stem angled. Leaves often temately verticelled, the lower ones from 1½ to 2 inches long, the upper ones decreasing in size. Corolla 4-6 lines long, deep blue. Style much dilated at the apex.

Frequent in moist or marshy grounds, near fields, borders of tanks, &c.

This, according to Bentham (D. C. Prod.), is the only Indian species of *Stemodia*. This genus is distinguished from *Limnophila* by the dehiscence of its capsule—septicidal in this, locuhcidal in that. So far as this species is concerned, it seems to be a distinction of little value, as it seems to open both ways at the same time, splitting into 4 parts, but with this difference that the locuhcidal division extends to the base, the septicidal only as far as the top of the placenta, hence it appears to me it might, except perhaps in habit, have accompanied the other Indian species, leaving *Stemodia* as an American, *Limnophila* as an Indian genus.

1409. *LIMNOPHILA HTPERICIFOLIA* (Bentham), glabrous, rooting at the base, ascending: leaves sessile, ovate, oblong, obtuse, cordately semiamplexicaul at the base; the floral ones smaller: racemes terminal or axillary: flowers sessile, becoming remote: calyx deeply 5-cleft, divisions lanceolate, the posterior one larger.—Herbaceous, repent at the base, scarcely branched, 1-2 feet high. Leaves about an inch long, punctuate. Corolla 7-9 lines long. Style winged at the bract with 2 acutish falcate auricles. Capsule short, valvate, bifid.

Kotergherry, Neilghemes, in swampy ground, flowering in August.

1410. *ARTANEMA SESAMOIDES* (Benth.), leaves petioled, oblong or ovate-lanceolate, entire, or serrated: pedicels shorter than the calyx* corolla sub-campanulate, twice or scarcely thrice the length of the calyx.—Herbs from one to two feet high, stem acutely 4-angled. Leaves 3-5 inches long, 6-18 lines broad. Calyx at opening from 2 to 3 lines long. Corolla 6-8 lines long.

Malabar, in wet soil, flowering in June.

1411. *BOITNATA VERONICIFOLIA* (Sprengel), stem decumbent at the base or creeping; flonferous branches ascending* leaves subsessile, narrowing at the base, or the inferior ones petioled, oblong, somewhat fleshy, acutely serrated, or the inferior ones sub-entire* flowers racemose, capsules ascending, two or three times longer than the calyx—Stenle filaments hooked at the point. Capsule 8-10 lines long, curved, acute.

Common every where in wet ground on the banks of water courses, rice fields, &c., flowering during the rainy and cool seasons

1412. *BONNATA VERBEN^FOLIA* (Spreng), erect, ascending or decumbent: leaves subsessile, or the inferior ones petioled, oblong, lanceolate or approaching to linear, somewhat fleshy, entire or serrated flowers racemose* capsules ascending, (erecto-patentibus, Benth) two or three lines longer than the calyx.

Common, like the preceding, in wet soil, and flowering at the same seasons. It is nearly allied to it in character and habit, but still seems quite distinct.

8. PHILLIPAA. Calyx bracteolate, tubular, 4-5-toothed. Corolla nngent, upper lip 2- under 3-lobed, spreading.

9. EPIPHEGUS. Flowers polygamous. Calyx bracteolate, urceolate, 5-toothed. Corolla bilabiate, upper lip entire, under 3-lobed.

IV. HTOBANCHEEJE.

10. HTOBANCHE. Calyx bracteolate, deeply 5-cleft. Corolla nngent, upper lip long, entire, under small, obscurely 3-toothed. Anthers deflex, pendulous, 1-celled'

11. CAMPBELLIA. Calyx bracteolate, tubular, 5-toothed. Corolla sub-bilabiate, 5-lobed. Anthers deflex, pendulous, one-celled! opening by a pore at the apex.

12. CHRISTISOZUA. Calyx tubular, 5-toothed. Corolla infundibuliform, sub-bilabiate. Anthers 2-celled, one sterde, subulate. Placentae free, retolute.

13. HARVETA. Calyx inflato-campanulate, 5-lobed. Corolla tubular, sub-bilabiate, 5-lobed. Anthers 2-celled, one stenje, subulate. Ovary 2-celled, with 3 fleshy placentae in each.

14. AULATA. Calyx tubular, 5-cleft. Corolla tubular, 5-lobed. Anthers 2-celled, one sterile, subulate. Ovary 2-celled, with a single axillary, placenta in each. [Obs. Mr. Bentham remarks of this genus, "placentae in diversis specie boa magis minus ve bilobae," which seems to indicate that it is correctly referable to this order]

P. S. After the above was written, I received the 11th VoLof De Candolle's Prodrromus containing the article *Orobanchaceae* by M. Reuter. On looking over it, perhaps rather hurriedly, I do not observe anything tending to invalidate the views I have ventured to advance, except with regard to the genera of my section *Orobanchea* which, if I rightly understand, he considers have all decarpellary ovaries, while I suppose there are as many carpels as placentae, each placenta being formed by the union of the edges of 2 carpels the same as occurs in most other ovaries having parietal placentas. Nor can I see upon what grounds we are to adopt other views with respect to this family I must certainly admit that it is unusual for the same species and even the same individual to furnish in so many flowers, examples of 4-5 and 6 carpels to the ovary, which I find in *Orobanche*. But I believe it is equally rare to find similar variations in the number of placentas to each carpel, and for the simple reason that the one is, with very few exceptions, dependent on the other, the carpellary margins only, except in these few instances, being placentiferous. One circumstance, to which he seems to have paid much attention, merits notice, namely, the position of the lobes of the stigma in relation to the floral axis, which he finds right and left in some, anterior and posterior in others, implying that in the former the *placenta* are anterior and posterior, and right and left in the latter. In *Orobanche* they are right and left, and in *Conopholts* and *Anoplantkus* anterior and posterior. How are these differences to be accounted for? I am unable to say, but their existence goes far to show that, so far as our information on

that point of structure yet extends, bttle benefit is likely to result from its study as an ordinal character, however valuable it may prove as a generic one. The fact, however, of the stigma being simply two-lobed, seems to throw much doubt on the correctness of the views I have been led to take as to the plurality of carpels, but does not altogether invalidate them, as each lobe may be formed from the union of two adjoining carpels, but it seems more in accordance with analogy, as regards the rest of the order, to suppose that each carpel has two placentae placed a little within the margin. But that theory will not account for cases, of which I have seen many, in which 5 placentae occur. Were they constantly in pairs 2-4-6 that explanation might be admitted, but in cases where an odd one occurs, it cannot be accounted for on that principle though easily explained on the principle I have supposed, viz. "plurality of carpels with the placentas formed in the usual way along the line of union of each pair." This view is further supported by the fact, that I have occasionally observed a tendency to dilatation, or spreading to the right and left, of the margins of the placentae in *Orobanche*. But on this question further observation is required, and for the present enough has been said to call attention to the subject.

1420. CTSTANCHE LUTEA (Link and Hoffnans. *C. tubidosa*, R. W. m Icon. *Philtppaa Ivka*, Desf\ scape simple, fleshy, sulcated: bracts opaaue, ovato-lanceolate, substnated, longer than the calyx: calyx campanulate, lobes ovate, obtuse: corolla narrow at the base, tubular, arched outwards, dilated at the throat, 5-cleft, lobes ovato-rotundate equal, spreading: stamens hairy at the base: anthers large, obsoletely mucronate: stigma capitate, emarginate. (Reuter in D. C. Prod.)

"Scape furrowed, thick and fleshy, bracts elongated, acuminate, amplexicaul at the base and, like the shorter bracteoles, downy, translucent at the edges, and sometimes obscurely toothed. Calyx J the length of the corolla, its segments rounded, often obscurely crenate. Corolla bent outwards from the middle, lower-half tubular, erect, upper-half bell-shaped, inclining outwards; throat very wide with two dimples anteriorly; bmb slightly 5-cleft, with equal, rounded, turned down lobes; bottom of the tube with the insertions of the stamens densely woolly. Anthers apiculate, all cohering by the woolly hairs fringing the pollen clefts. Style with a clubbed, compressed, nodding tip and a somewhat bilobed stigmatic surface.

"Sand, in loose, sandy soil, on roots of *Salsolas*—grasses, and *Calotropis Hamiltomi*, &c. *P. calotropis* (WMEgworthy)

"A fine species, varying from 6 inches to 6 feet, from the point of attachment to the apex of spike. General colour yellow with an occasional tinge of purple* colour of flowers generally yellow, with a tinge of purple before expansion; or sometimes muslin white with two yellow streaks. Carpels each with two bisenate placentae, when a third is present (which is rare) it is situated anteriorly. Capsule about an inch long with numerous seed, like coarse gunpowder." Stocks¹ MSS description which accompanied the drawing of Fig. 1420-6w.

A comparison of the placentation shown in transverse sections of the ovary of this, with that of No. 1353, which presents a placentary structure, quite in

accordance with that of *Phehpcta ramosa*, the typical species of the genus, will at once explain in reasons for restoring the genus *Cyslancke*, as distinct from *Phehpcta*, to its place in the system. Mr. Stocks considers the ovary of this plant dicarpillary, to me it seems to confirm the view above expressed that it is 4-carpillary, but may have more, just as a 4-merous species may occasionally present a 5-merous flower. My draftsman has stumbled on such a one. Mr Stocks* presents the normal form, and mine the abnormal, and probably that of mine had a 5-carpillary ovary. The want of hairs in the bottom of the tube of the corolla of my figure is, I suspect, attributable to an oversight of the draftsman, which has induced me to change the name first given (*C. tubulosa*), to that given by Mr. Stocks, but still not without some degree of hesitation, as it appears possible, that, if both are really species, which I doubt, both are here represented. It is to be hoped Mr. S. will be able to clear up the doubt that now hangs over *C. tubulosa*, as distinct from *C. lutea*, which the written characters scarcely suffice to distinguish.

After my own figure was printed off, I received from Mr. Stocks the above description and the beautiful drawing of No. 1420-bis. The latter being made from recent plants, and giving a much better idea of the appearance and habit of the plant than one taken from a dried specimen, I have also printed. The group of young plants, Fig. 11, is an interesting addition to the analysis. The differences of aspect of the two specimens is striking, but are, I believe, variations only. The want of hairs in the base of the corolla of my drawing I have since found to originate in an oversight of the draftsman.

1421. JEGINETIA PEDUNCULATA (Wall.), glabrous, scape simple, furnished with a few attenuated scales, floral scales triangular: calyx spathaceo-monophyllous, split on the anterior side; corolla equalling the calyx, tube inflated, limb 5-cleft, lobes about equal, reniform, denticulate: filaments glabrous: stigma large, cordato-peltate: Peduncles 1-flowered, equaling or exceeding the scape. Flowers large, tube yellow, limb obscurely violet, calyx filled with a viscid fluid. Stamens incluse. Capsule ovate.

Courtallum, in Bamboo jungles, flowering August and September.

OLIGOPHOLIS. (R. W.)

GENERIC CHARACTER. Hermaphrodite, ebracteolate. Calyx tubular, 5-toothed. Corolla mfundibuliform, sub-nngent, 5-lobed. Stamens didynamous, incluse; anthers 2-celled, 1 fertile; the other sterile, subulate. Ovary one-celled, embraced at the base by a cup-shaped disk: placenta 2, large, fleshy, nearly filling the whole cavity, covered on all sides with minute ovules; style sub-davate; stigma peltate Capsule—seed.

Herbaceous, parasitical plants, with erect, slightly ramous, nearly naked stems, only furnished with a few scales (whence the name), peduncles axillary, longer than the floral scale, ebracteolate. Corolla tubular, ventricose above, more than twice the length of the calyx. Filaments thickened below with a ring of hairs at the base.

1422. OLIGOLEPISTUBULOSI. (R. W.)

Courtallum, parasitic on roots of Bamboos³ flowering September.

Erect, or ascending, glabrous plants, from 6 to 10 inches high, bearing towards the apex a few, long* ish, peduncled flowers. The original drawing, taken from fresh specimens not having been coloured, I can scarcely recall at this distance of time the colour of the flowers, but believe it was purple

1423. CHRISTISONIA SUBACADLIS (Gardner), stems very short, thick, scaly peduncles 3-4, shorter than the scales, 1 flowered • corolla 2-2', inches long, tube Blender, shortly exerted beyond the calyx; thin, expanding into a large sub-bilabiate, 5 lobed limb stamens 4, glabrous anthers glabrous, cells calcarate Stigma capitate ?" Benth scrofed Ind.

The figure seems to agree with this description except the anthers which, since sending the drawing to the Lithographer, I find are incorrectly represented in the figure, the cells of the upper pair being distinct, one apparently sterile and calcarate, the other fertile, the lower pair 2-celled as here represented; in short the draftsman had succeeded in extracting one anther of the inferior pair from the aglutinated mass, and has taken the liberty of representing all the rest the same, and therefore far from the truth, a liberty only excusable on the ground of the specimens being few and not very well dried. I suspect, when better known, this will form the type of a genus. The large, loose calyx, want of bracteoles, and peculiar anthers combine to justify this conclusion. I at first considered it a true Phehpaea

CAMPBELLIA. (R. W.)

Calyx tubular, 5-lobed, bibracteolate. Corolla sub-infundibuliform, bilabiate; the upper lip more or less deeply 2 lobed, the under 3-lobed. Stamens didynamous, incluse; anthers 1-celled, pendulous, opening by a pore at the apex. Ovary spuriously 2-celled at the base, 1-celled at the apex; carpels deeply inflexed, placentiferous margins reolute; style simple; stigma capitate. Cap»Je, like the ovary, imperfectly 2-celled. Sc*d oblong, testa loose, reticulate, produced at tiv ends into a wing albumen copious; embryo minute.

Herbaceous plants, parasitic on the roots of others. Stems simple, scaly. Flowers axillary, peduncled, aggregated towards the apex of the stem, each furnished with two bracteols. Stamens shorter than the corolla. Style hooked at the apex; stigma clavate, drooping.

This genus is very nearly allied to *Hyobanche* from which it is principally distinguished by the form of the corolla. It is nearly allied to *Chnitisoma*, from which it is separated by its 1-celled anthers and bracteolate flowers, a character not unworthy of notice, though of only secondary rank

I have named it in honor of Dr. William H Campbell, LL.P., the first Secretary of the Edinburgh Botanical Society, and his brother Captain J. Campbell, of the Madras Establishment, long an active collector of plants for the use of his brother and other Botanical friends.

1424. CAMPBELLIA ADRANTIACA (R. W.), stems simple, covered on all sides with closely appressed, sub-orbicular scales; floral ones or bracts broad, obovate, bracteoles lanceolate, entire* flowers sessile, stipulate: corolla scarcely exceeding the calyx pubescent within, five-lobed: stamens scarcely didy-

namous, filaments pilose: style the length of the stamens, pilose, stigma clavate.

Neilghemes, in a small clump of jungle by the road side near Nedawuttim, flowering in August and September. As seen growing, this is a peculiar looking plant, the deep orange coloured tops only appearing above ground. This colour is derived from the bracts and calyx, the corolla being pale yellow, nearly white. One of the anthers in the dissected flower is represented 2-celled, this is, I believe, an error of the artist, as I have, since the plate was printed, examined recent specimens, and find them 1-celled, as shown in the detached figures of the anthers, drawn at the same time with the rest of the picture.

1425. CAMPBELLIA CTTINOIDES (R. W. *Phdipita ? cyinxodes* Reuter in D. C. Prod. 10, p. 14. *Chnstisoma Nalghemea*, Gardner, Cal. Journal, v. 8, p. 157), erect, glabrous, covered with appressed, broad, ovate, obtuse scales: flowers pedicelled: bracts sub-orbicular, shorter than the lanceolate bracteoles; calyx tubular, irregularly 5-7-toothed: corolla 2-lipped; upper lip emarginate, under broadly 3-lobed: stamens length of the corolla; filaments glabrous; anthers deflexed, 1-celled: style hooked at the apex, stigma clavate: testa of the seed reticulato-scrobiculate.

Neilghemes, parasitic on roots of *Strobilanthis*; frequent in woods near Pycarra, flowering in May. Flowers bright yellow. This, though in general appearance like the preceding, is certainly distinct. The peduncles, which at first are short, elongate as the fruit advances towards maturity.

1436. CHRISTISONIA CALCIRATA (R. W.), glabrous, erect, scaly, scales ovate, not imbricating, more numerous towards the base: flowers long, peduncled, ebracteolate: calyx tubular, five-lobed, limb persistent: corolla tubular, 2-lipped; upper one longer, emarginate, under 3-lobed, tube externally pilose: stamens didynamous, incluse, filaments pubescent at the base; anthers 2-celled; cells divaricated, the lower one sterile, prolonged into a conical spur: style filiform, exserted. stigma 2-lobed; lobes right and left of the axis: capsule globose, crowned by the persistent limb of the calyx. Flowers blue or purple.

Tannah, near Bombay. J. S. Law, Esq. I am indebted to Mr. Law for the specimens from which the drawing was taken. It seems not improbable that some parts of the analysis may be found faulty, as they are difficult plants to dissect from dried specimens.

The upper anthers of *C. subaculis* somewhat resemble these, and I should not be surprised to find that here also the lower pair will be found to differ somewhat from the upper.

1427. CHRISTISONIA LAWII (R. W.), stemless, or early so, base of the sub-sessile flowers ebracteolate, embraced by a few loose scales: calyx tubular, toothed: corolla tubular, more than twice the length of the calyx, limb 5-cleft, lobes nearly equal, sub-orbicular: stamens didynamous, lower air much shorter; anthers 2-celled, one of the cells entire, subulate, the other ovate, pointed: style exserted: the stamens; stigma bilamellate, lobes right and left of the axis.—Flowers bluish purple.

Tannah, near Bombay, J. S. Law, Esq., to whom

also I am indebted for the drawing, from which my figure is taken, with the exception of the analysis. I suspect the section of the ovary is not quite correct, and think it should more resemble that of the preceding plate.

This species in habit seems nearly allied to *C. nibacavlia*, but is, I believe, quite a distinct species.

The want of bracteoles in this genus, seems nearly constant throughout, as I observe they are only once noticed in any of Mr. Gardner's genuine species, and I have only once seen them. As the generic characters taken from these organs are as yet rarely permitted to occupy a higher than second or even third rank, I the less regret being constrained, in this instance, contrary to the course I have followed with the other genera of the order, to exclude them from the generic character, owing to some uncertainty, as to their constancy. It seems probable, should the genus be much enlarged by future discoveries, their absence or presence will furnish excellent sectional characters.

1428. ORTHOSIPHON BRACTEATUS (R. W.), suffrutescent, erect, ramosus, tomentose towards the ends of the branches, leaves sessile, obovate, oblong, obtuse, crenato serrated, pubescent on both sides, venoso-reticulate beneath: racemes terminal, short, verticillasters about 3-flowered, covered before expansion with a large fohaceous, deciduous bract: tube of the corolla about thrice the length of the calyx, upper lip much larger than the lower, somewhat 3-lobed, middle one emarginate; under lip entire, inflexed at the point

Shevagherry Hills, flowering August and September. This, if truly a species of *Orthosiphon*, is very distinct from all the others I have seen, though I do not think the differences of generic value.

1429. PLECTRANTHUS WIGHTII (Benth.) herbaceous, erect, ramosus. leaves petioled, broadly ovate or rounded, acuminate, cordate at the base, smooth on both sides or pubescent; the inferior floral ones conformable; (the superior ones and bracts membranaceous, rotundato-spathulate, shorter than the peduncles and pedicels: panicles very ramosus, many-flowered: fructiferous calyx decimate, oblong incurved, striated, glabrous, with the mouth obliquely bilabiate: the teeth nearly equal, ovate: stamens exserted.—Leaves from one to two inches long or, on young, luxuriant plants, larger, usually longish, acuminate; serratures obtuse or acute: panicles large, loose: flowers white, speckled with red points, tube of the corolla about as wide, as long, the upper lip ascending, 4 lobed, each lobe marked with two red spots at the base, the inferior narrower, longer, concave. Stamens free, exserted.

Neilghemes and Pulney mountains, frequent, flowering during the autumnal months. The small size of the flowers prevents this from becoming the garden favourite, which it deserves to be. The specimen selected by the draftsman is rather too young to furnish a correct idea of the specific characters. It is distinguished by Mr. Benth. from *P. acroptidoides*, on the one side, and *P. stratus*, on the other, but with an extensive series of specimens before me, from different stations, and authentic specimens of all the three species to compare, I find I cannot unravel them.

1430. PLECTRANTHUS MACRJEI (Benth.), herbaceous

ous, ramos, rufo-villous. leaves short, petioled; ovate, acute, dentate, rotund at the base, softly pubescent on both sides; the floral ones conformable: panicles ramos, many-flowered. calyx declinate, oblong, sub-bilabiate, teeth sub-equal, ovate; the fructiferous ones incurved, striated, villous: corolla thrice the length of the calyx; tube gibbous above the base, abruptly bent at the middle: anthers 2-celled—Whole plant clothed with reddish, soft, pubescence. leaves soft, sometimes entire, sometimes irregularly toothed. Cymes loose, axillary, opposite, common peduncle, villous: filaments free: inferior lip of the corolla elongated, longer than the stamens.

Neilghemes, frequent in low, moist grounds, and on the banks of ditches. Flowers very numerous, pale blue, much enveloped among the pubescence which clothes the racemose cymes. In such situations this is a rank growing plant, often attaining 5-6 feet in height.

Between *P. coctsa* and *P. Macrdri*, the difference seems slight, if indeed they are specifically distinct. I have referred the plant figured to the latter on account of its leaves being rounded, not tapering at the base, but possibly it may be neither, though I think it both.

1431 COLEDS SPICATUS (Bentham), stem procumbent at the base, branches ascending, pilose: leaves petioled, obovate, fleshy, narrowing at the base, floral ones membranaceous, concave, covering the flowers, afterwards deciduous. spikes simple, elongated, dense, verticillasters 6-10-flowered, approximated: fructiferous calyx deflexed, hispid; throat villous within; the upper tooth rounded, decurrent, inferior ones lanceolate, acute, equal, tube of the corolla defract; inferior lip stipulate, cymbiform.—Leaves fleshy, 1 to 2 inches long, entire or slightly crenate near the apex, pubescent on both sides. Spikes 4-8 inches long, all the verticillasters approximated: floral leaves broad, acute, ciliate, otherwise glabrous.

Coimbatore district, frequent in very and soil, under the shade of low, stunted jungle, flowering during the cool months and ripening its seed in February and March. It exhales a strong and peculiarly heavy, disagreeable odour.

1432. COLEDS BARBATDS (Bentham), stem shrubby at the base, tomentosely hispid. leaves petioled, ovate, crenate, narrower at the base; softly tomentose, the younger ones strigoso-hispid, floral ones membranaceous, broadly ovate, acuminate, comose on the ends of the branches, afterwards deciduous: racemes simple, verticillasters 6-flowered, distant; fructiferous calyx deflexed, hispid, throat villous within, upper tooth ovate-decurrent, inferior ones lanceolate, acute, sub-equal: tube of the corolla defract, inferior lip large, stipitate, cymbiform.

Neilghemes, frequent, and I believe to be met with in flower at all seasons. It is a luxuriant growing plant, and rendered conspicuous by the number and size of its flowers, but still it has a common, weed-like, unornamental look.

1433, COLEDS WIGHTII (Bentham), stem pubescent, leaves petioled, ovate, crenate, rounded or sub-cordate at the base, thick, rugose, hispid on both sides, the floral ones deciduous—the simple, terminal, panicle-like racemes, the lax, cyme-like

verticillasters, with a common peduncle and its branches elongated on each side, the floral calyx longer than the pedicels, and also the decimate fructiferous ones, all pubescent: upper lip of the calyx ovate, flattish, the inferior ones lanceolate, acute, equal, scarcely united at the base—throat of the corolla large, the lower lip nearly 4 times the length of the upper.

Neilghemes, in moist soil, about the outskirts of woods, not unfrequent. There are several species with which this may be easily confounded, the best distinguishing marks are, the pubescent racemes, and large lower lip of the corolla.

1434. ANISOCHILDS DTSOFHTLLOIDES (Bentham), stem procumbent at the base, branches ascending, Benceo-villous: leaves sub-sessile, from oblong, lanceolate, obtuse, to sub-spathulate, entire, narrow at the base: spikes axillary and terminal, peduncled: inferior lip of the calyx minute, truncated, upper one deflexed.—Every where clothed with soft, silky pubescence, leaves from an inch to 1½ long, by about ½ an inch broad, tapering at the base: flowering spikes cylindrical, about the thickness of a quill, densely covered with minute flowers; bracts lanceolate, acute, pubescent, deciduous, as long as the obscurely 5-toothed calyx. Corolla purplish, scarcely exceeding the calyx, 5-cleft, the lower lobe a little larger. Stamens shorter than the limb of the corolla, scarcely exerted. Fructiferous calyx inflated, lower lip entire, upper one obtuse, deflexed.

Neilghemes, on the Eastern slopes, near Coonoor, flowering during the cool season, January and February.

1435. ANISOCHILDS FURFUREUM (R. W.), stem procumbent at the base, branches ascending or erect, senceo-villous: leaves petioled, obovato-spathulate, obtuse or sub-orbicular, entire, fleshy: spikes axillary and terminal, peduncled: bracts lanceolate, acute, pilose, about the length of the calyx: flowers purple, corolla marcescent, tubular, flipped; upper 4-lobed, erect, under entire, deflexed. stamens exerted: under lip of the fructiferous calyx minute, upper larger, deflexed, 3-toothed.

Neilghemes, on the eastern slopes, about Coonoor, on large stones covered with vegetable earth, flowering February and March.

The specimen selected by the draftsman is defective, as not showing the general habit of the species, which is usually, but not always, procumbent, with ascending or erect branches. The specimen is evidently an erect branch of a very luxuriant plant. This is perhaps too nearly allied to the following, but I have kept them distinct, partly on account of the difference of colour of the flowers, purple in this, white in that, and partly on account of the unusual feature of the marcescent corolla in this, deciduous in the other.

1436. ANISOCHILDS ALBIDDM (R. W.), stems decumbent, branches ascending, senceo-villous: leaves sessile, ob ovate, spathulate, tapering at the base: spikes axillary and terminal: bracts lanceolate, acute, about the length of the calyx: flowers white, corolla deciduous, tubular, 2-lipped, 4 and 1, tube pilose within: stamens exerted, upper lip of the fructiferous calyx deflexed, 3-toothed, teeth reflexed at the point.

Neilghemes, about Coonoor and Kaitie, flowering

February and March, flowers white or pale straw colour.

This plant so nearly resembles the preceding, that it is with considerable hesitation I describe it as a distinct species, though I believe it to be so. The herbarium marks are very unsatisfactory, but recent plants appear amply distinct.

1437. *ANISOCHILUS SDFEDTICOSUM* (R. W.), suffruticose, erect, ramos, young shoots and leaves densely villous: leaves short, petioled, ovate, lanceolate, prominently veined beneath, when dry deeply reticulated between the veins: spikes numerous, long, peduncled, congested on the ends of the branches: corolla tubular, deflexed from the base, 2-lipped; upper lip 3-lobed, the middle lobe larger, emarginate, under entire, obtuse: stamens the length of the corolla under lip of the fructiferous calyx minute, upper much larger, entire, round at the apex, deflexed.

Sisparah, on the western slopes of the Neilgherries, on rocky cliffs, among long grass, flowering December and January. Stems apparently annual, from two to three feet high, but the roots seem perennial, as old, withered plants were noticed with young shoots at the base.

1438. *LAVANDULA (CILETOSTACHYS) BURMANII* (Benth.), delicately pubescent, with leafy stems: leaves bipinnatifid, segments linear, entire, the floral ones membranaceous, dilated at the base, ending in a long, setaceous acumen: spikes denticulate: flowers solitary, alternate, approximated

Copper mountains, Bellary, Mysore, Coorg.

A herbaceous plant, apparently annual, from 1 to 3 feet high. Stems 4-sided, somewhat hispid, very leafy towards the base, sparingly so above. Spikes terminal, ramos, floral leaves furnished with a long, bristly acumen. Calyx striated, afterwards somewhat ventricose. Corolla slender, longer than the calyx, 2-lipped, the upper one emarginate, the lower 3-lobed.

1439. *LAVANDULA (CH.) LAWII* (R. W.) herbaceous, pubescent* stems erect, leafy at the base, 4-sided: leaves obovate, pinnatifid, divisions unequally serrated, often broader and 3-lobed at the apex; floral ones dilated at the base, striated, pointed* spikes terminal, simple, compact, flowers alternate solitary.

"Hills at Satara, flowering in November." Law.

This is nearly allied to the preceding, but is evidently a distinct species, as at once shown by the pinnatifid, not bipinnatifid foliage, the very compact spikes, and the broader, scarcely acuminate floral leaves; the calyx and corolla coincide.

1440. *POGOSTEMON HETREANUM* (Benth.), stem ascending, pubescent: leaves glabrous, or narrowed at the base, irregularly crenate: verticillasters subsessile, interruptedly spicate: spikes panicled: bracts ovate, slenderly nerved, about the length of the calyx: calyx pubescent, teeth ovate: filaments bearded.

Neilgherries, frequent about Kotergherry and elsewhere, about that zone of elevation, flowering during the rainy season, or from June until November, as well as at other times.

1441. *POGOSTEMON BOTTJIDATUM* (Benth.), villous, stem ascending: leaves roundish, doubly crenate, truncated or cordate at the base, the upper floral ones shorter than the calyx: racemes simple, verticillasters equal, distinct (sub-remotis)* bracts linear subulate: teeth of the calyx lanceolate villous: filaments bearded.

Neilgherries, frequent about the outskirts of woods, and in neglected, broken ground, flowering most part of the year, but in greatest perfection during March and April.

A low growing plant, somewhat spreading at the base, afterwards ascending, leaves softly villous, racemes 2 to 6 inches long, compact towards the apex, flowers small, white.

1442. *POGOSTEMON HIRSDUM* (Benth.), clothed with adpressed hairs; stem ascending: leaves petioled, ovate, acuminate, serrated, rounded, at the base; floral ones shorter than the calyx: racemes simple, verticillasters equal, distinct, bracts linear, subulate: teeth of the calyx lanceolate, acute, hispid: filaments shortly exerted, bearded.

Neilgherries. The specimen selected for representation, seems to be a luxuriant form, greatly exceeding in size my specimens, a circumstance which for some time led me to doubt whether it was the true plant, the more so as the original specimens of the species are from Neuera Ellia in Ceylon. The difference however of locality and even the season of the year, at which the specimens were gathered, might cause considerable difference in appearance, the consideration of which circumstances led me to adopt the name here given, in preference to viewing this as a new species, not having an authentic specimen to compare.

1443. *POGOSTEMON SPECIOSUM* (Benth.), pilosohispid; stem erect: leaves broad, ovate, cordate at the base, doubly crenate: racemes simple: verticillasters terete, loosely approximated: bracts minute: teeth of the tubular, nearly glabrous, calyx subulate: filaments naked.

Common about the outskirts of woods, on the Neilgherries, usually in moist soil, flowering during the rainy and cold season.

1444. *DYSOPHYLLA TETRAPHYLLA* (R. W.) densely pilose, stem ascending, simple or sparingly branched* leaves quaternate, sessile, linear, subulate, entire, revolute on the edges; floral ones lanceolate-spathulate, pubescent, about the length of the flowers: calyx elongated: calyx pubescent, teeth short, pointed: filaments long, exerted portion bearded.

Station uncertain, but I think Malabar.

This species approaches *D. crasifolia*, but seems quite distinct. It is represented glabrous, which is far from being the case in the original, but I have so often suffered from the uncertainty of lithography in this country, that I am constrained to follow that course, only showing that part of the character on a small portion, and unfortunately in this case a portion of the stem has not been so shown with the leaves.

1445. *DYSOPHYLLA AURICULARIA* (Blume), clothed with soft, spreading hairs; stems procumbent or ascending: leaves opposite, sub-sessile, ovate, oblong, coarsely serrated; floral ones ovate-lanceolate, about the length of the flowers: spikes very dense

the ovate, villous teeth of the calyx connivent after flowering.

Neilghemes, frequent: flowering during the rainy and cool season.

1446 MICROMERIA BIFLORA (Bentham), suffrutescent, very ramous, caespitose, branches ascending, pubescent or pilose: leaves sessile, ovate, acute, flat or revolute on the edges, rigid, glabrous, subcordate at the base, the superior ones shorter than the flowers: verticillasters loose, few-flowered, bracts equalling the pedicels: calices pedicelled, sub-secund, delicately pubescent, or slightly pilose; throat villous within.

Very common on the Neilghemes, and always in flower.

A low growing, very branchy plant, forming dense tufts of matted branches, from 4 to 6 or 8 inches long, the extremities thickly covered with its small, ovate, translucent, dotted leaves, from among which its numerous, pale reddish, blue or pink flowers project. Calyx strongly ribbed; segments acute. Corolla nearly twice the length of the calyx, obscurely 2-lobed, the upper one emarginate, scarcely larger than the three lobes of the lower. Stamens include, anther cells devaluated. Acbaenia seated in a cup-shaped disk.

1447. MELISSA UMBROSA (Bieberst), herbaceous, diffuse, pubescent or villous: leaves petioled, ovate, serrato-crenate, rounded at the base: verticillasters equal, globose, many-flowered: bracts minute, or the exterior ones subulate, about half the length of the calyx.

Common in moist woods all over the Neilghemes and Pulney mountains.

A diffuse plant, the branches procumbent at the base, afterwards ascending: leaves dark green above, paler beneath, flowers pink coloured.

This plant has a very extended geographical range, extending from Europe to Ceylon. In tropical countries confined to the higher alpine ranges.

1448. PRUNELLA VULGARIS (Linn), leaves petioled, ovate or oblong, entire, dentate, or incise-pinnatifid: teeth of the upper lip of the calyx truncated, anstate, or sub-mucous, or rarely sub-lanceolate: corolla from a half to twice as long as the calyx.

A very common plant by road sides, and in pastures on the Neilghemes.

This, like the preceding, is a very generally distributed plant, being, in the language of Mr. Bentham, found "fere in toto orbe terrarum," and is introduced here as a rare example of a plant so universally diffused.

1449. SCUTELLARIA VIOLACEA (Heyne), stem erect or ascending, pubescent: leaves petioled, cordate-ovate, crenate; somewhat hispid above, pubescent or nearly glabrous beneath; the floral ones sessile, ovate, shorter than the pedicels: racemes lax, simple: flowers opposite, secund.

Neilghemes, not unfrequent in shady, damp woods, generally to be met with in flower, but most abundant and in greatest perfection during the autumnal months.

The leaves have often a purplish colour beneath, the flowers white, or with a tinge of rose colour. Whole plant rarely exceeding from 12 to 18 inches in length.

1450. SCUTELLARIA RIVULARIS (Wall.), glabrous, procumbent at the base, branches ascending, simple: lower leaves petiolate, ovate roundish, or like the middle ones ovate-lanceolate, obtuse, entire, or crenate, broader and cordate at the base, the upper and floral ones smaller, narrow at the base. flowers opposite, secund, sub-racemose: calyx and corolla glabrous.

Neilghemes, in moist pastures near streams. Frequent near the old Tappal station between Pycarrah and Neddawuttum.

A low growing, diffuse plant, but little conspicuous, to any but the botanical eye, among the grass and weeds among which it is usually found. Flowers white, flowering during the rainy months.

1451. LEUCAS (HEMISTOMA) URTICIFOLIA (Brown), herbaceous, slenderly whitish tomentose: verticillasters many-flowered, globose: calyces somewhat villous, membranaceous: mouth oblique, prolonged below, cleft above; teeth 8-10, very short, setaceous.

A common weed about hedge rows and neglected places in Coimbatore, flowering during December and January. Herbaceous, from 1 to 2 feet high, erect, ramous; stems and leaves of a pale whitish hue, from being clothed with white pubescence. Flowers white, small, forming numerous dense heads all along the branches. It seems scarcely distinct from *L. indica*, a Madagascar plant.

1452. LEUCAS (ASTRADON) LANCEAFOLIA (Desfont.), stem erect, reddish, tomentose: leaves oblong, lanceolate, entire, green, pubescent above, whitish, tomentoso-pubescent beneath: bracts as long as the calyx: calyx rufo-villous, mouth truncated, pubescent, teeth very short, and like the bracts rigidly mucronulate.

Neilghemes, on the skirts of woods and clumps of jungle, often from 4 to 8 feet or more in height, and very ramous.

In its general aspect this is a striking plant, forming great masses of vegetation, distinguished by the deep green of its leaves, and the rusty colour of its inflorescence, flowers white, the upper lip thickly covered with white hairs. Flowering during the autumnal months, in great profusion.

1453. LEUCAS (ASTRODON) TERNIFOLIA (Desfont), stem woody at the base, branches densely tomentose: leaves ternately verticilled, sessile, oblong, lanceolate, entire, silky white on both sides, but most beneath: bracts linear, subulate: calyx silky, mouth truncated, villous, teeth very short, spreading.

Common all over the Neilghemes, but most abundant about Kotergherry. On a comparison of numerous specimens, I find no permanent difference between this and *L. helianthemifolia*, ternate and opposite leaves, being I may say general, ternate below and, on large full grown plants, opposite above. It is at once distinguished from all the other Neilgherry species, by the copious, white, silky hair with which it is every where covered. It varies in height from 1 to 2 feet.

1454. LEUCAS (ASTRODON) suffruticosa (Benth.), branches rufo-villous, leafy at the base: leaves sessile, oblong, lanceolate or linear, entire, green, hispid above, whitish tomentose beneath: bracts subulate: calyx rufo-villous, mouth truncated, teeth short, spreading.

Common in pastures on the Neilghemes.

A low plant, from 8 to 12 inches high, readily distinguished by the leafy base and long, rusty-coloured, almost naked branches, ending in 1 or 2 capitate verticillasters. Flowering during the autumnal months.

1455. *LEUCAS* (AsTRonoN) *ROSMARINI FOLIA* (Benth.), suffruticose, branches adpressed, villous: leaves sessile, linear, entire, scabro-hirtous above, whitish, tomentose beneath * bracts lanceolate, linear: calyx villous, mouth truncated, villous, teeth very short, scarcely spreading.

Neilghemes, in and soil. Very abundant by the road side, on the shoulder of the hill above Kaitie pass, flowering at nearly all seasons, but in greatest perfection about the end of the year.

1456. *GOMPHOSTEMMA HEYNEANUM* (Wall.), stem erect: leaves elliptico-ovate, rugous, above softly, beneath densely floccoso-tomentose: verticillasters congested into a terminal spike, or the lower ones somewhat remote, sub-axillary; floral leaves bract-like, broad, ovate, longer than the calyx* calyx campanulate, softly tomentose, teeth ovate, lanceolate, scarcely shorter than the corolla.

Walhar, among bushes in the Bungalow compound, abundant, flowering in July and August.

From 2 to 4 feet high, flowers bluish, with a purple tinge.

1457. *GOMPHOSTEMMA OBLONUM* (Wall.), stem erect: leaves oblong, elliptic, rugous, hispidulous above, densely tomentose beneath; the floral ones conformable: verticillasters axillary, remote, few-flowered: calyx campanulate, tomentose, with long, linear, lanceolate, acute teeth: corolla thrice the length of the calyx.

Courtallum.

The original specimens of this species are from Burmah, and possibly this may not be that plant but the character, so far as it goes, agrees so well, that I cannot venture to consider it a new species, merely because the serration of the leaves is not mentioned in the character, the more so, as that is equally overlooked in the definition of the preceding which has them serrato crenate. It agrees well with the character generally of *G. enocarpum*, but has glabrous achaenia; it may however be a variety of that plant, which is from the same station.

1458. *TEUCRIUM TOMENTOSUM* (Heyne), suffruticose, erect, branches tomentoso-pubescent: leaves ovate, rounded at the base, villous above; tomentoso-pubescent, whitish beneath, or rarely sub-glabrous racemes paniculato-ramous * calyx decimate, pilose, bilabiate, the upper tooth broadest

Neilghemes, abundant on the hill behind Kelso Cottage, in poor, arid soil. Flowering after the rains.

A sufficiently conspicuous plant, from the almost naked, sterile soils in which it luxuriates, attaining in such places, from 1 to 2 feet in height and, under the shade of trees, is even higher than that. The leaves are of a pale green colour, and acquire a whitish hue from the white pubescence with which they are clothed, flowers pale rose colour, or sometimes nearly white.

1459. *ArTERRmiam GLAUCUM* (Stocks' MSS.),

roots perennial, stems ascending, puberulous: leaves succulent, elliptical or ovate, entire, usually attenuated into the petiol, sub-mucronate at the apex, slightly pubescent on both sides flowers axillary, peduncle about the length of the petiol, at length deflexel. segments of the calyx very unequal, upper one broadest: corolla ecalcarate- capsule oblique, globose, shorter than the enlarged calyx, anterior cell dehiscent, polyspermous, posterior smaller, compressed, 3-4-seeded. seed obcomcal, truncated at both ends, longitudinally 5-angled; angles transversely furrowed. Stocks' MSS.

Rocks in Scinde.

A smooth looking, glaucous plant, six inches to a foot high, with succulent, brittle leaves. The leaves are variable in shape, being sometimes sub-spathulate, and have an unpleasant smell. Upper sepal cordato-ovate, wrapping over the others, lateral sepals lanceolate, a little narrower than the inferior ones. Corolla $\frac{1}{2}$ an inch lon^a, of a dingy white, with purple veins. Capsule size of a garden pea, with ruptile dehiscence. Stocks.

1460. *PFRONEMA CANESCENS* (Jack. Mai. Mis eel.). Malacca, Griffith—Sumatra, Jack.

"A large tree, wood hard and tenaceous. Leaves opposite, pinnated, nearly 2 feet long, leaflets 7-9, alternate or sub-opposite, lanceolate, acute, somewhat recurved, entire, glabrous above, whitish and reticulately veined beneath, 8-9 inches long; petiols winged, finely tomentose; wings decurrent from the insertion of the leaves. Panicle large, composed of opposite cymes, delicately tomentose, cymes trichotomous. Bracts narrow, acute. Flowers inconspicuous white, tube of the corolla scarcely longer than the calyx." Jack.

Having obtained a specimen of this little known plant, I have taken advantage of the circumstance to endeavour to make it better known. The plant figured, though from a new station, seems to correspond sufficiently with the above description to authorize its being considered the same species.

1461. *BOUCHEA* (RHAGOCARPUM) *MARRDBIFOLIA* (Schauer), dichotomous, cano-villous, branches roundish; leaves ovate, sub truncated at the base, slightly prolonged into the petiol, coarsely serrato-dentate, reticulately rugous: spikes lateral and terminal, often very long, slender, loosely flowered, bracts linear, subulate, about twice the length of the calyx: calyx shortly toothed capsule obtuse, incluse —Leaves about an inch broad, petioles about $\frac{1}{2}$ an inch, beneath prominently reticulated, teeth broad, obtusely angled, acute. Calyx narrow, about 3 lines long, teeth acute, and like the herbaceous costs and scanose margins of the bracts, villous. Tube of the corolla scarcely twice the length of the calyx; limb small, capsule a line and half long, obtuse, nigrescent, cocci half round, striated, areolate at the apex. Schauer in D. C. Prod. 11-558.

Scinde. Stocks. I am indebted to Mr. Stock* for the drawing and specimens of this plant, which had not previously been figured.

1462. *BOUCHEA* (CHISCANUM) *HYDERABADENSIS* (Walpers), suffruticose, sparingly pubescent, branches obsoletely 4 angled. leaves ovato-elliptical, cuneately narrowing into the petiol, acutely and coarsely serrated, glaucous beneath spikes terminal, perianctled, pedicels short, minutely bracteolate. brads

lanceolato subulate, margin membranaceous, roughly ciliate, two or three times shorter than the calyx: calyx plicately five-angled, truncated with live subulate, unequal teeth: corolla large: capsule the length of the calyx, liner compressed at the apex, smooth.

Serramalhe hills, near Dindigul, Mysore, in shady jungles, &c.

I have met with this plant several times in sub-alpine jungles, but it is far from common, flowers rose coloured, and from the plant usually growing in clumps, sufficiently conspicuous. The fruit in my specimens are not quite mature. The figure represents a healthy plant, it is only when in a state of monstrosity, so far as I have seen, that the character "spicibus dig i tali bus confertiusculis" becomes applicable.

1463. *LIPPIA* (ZAPAMA) *NODIFLORA* (Rich.), roughish, with adpressed, biacuminate hairs, stems herbaceous, filiform, ramos, procumbent; rooting at the joints and ascending: leaves cuneato-spathulate, entire at the base, above rounded, obtuse, or sub-acute, equally and sharply serrated, obsolete veined, flat: peduncles axillary, solitary, filiform, exserted: capitula ovoid, and at length cylindrical: bracts closely embracing the tube of the corolla, equal, obovate or sub-rhomboid-cuneate, mucronato-acuminate or muticous; the upper margin broadish, membranous, glabrous or finely ciliate: calyx two-parted, slightly bicannate; carinae puberulous.

In moist soil every where, especially on the banks of streams. This plant is truly cosmopolite within the tropics.

A procumbent, often succulent plant. With minute, white or pale rose coloured flowers, collected into compact heads, which go on lengthening with age, those first opening having passed into seed before the last opens. Calyx translucent, membranous, as long as the tube of the corolla. Capsule ovoid, slightly adhering to the lobes of the calyx, two-seeded. A plant so common, is almost necessarily variable, the specimen however figured may be looked upon as an average form. *

1464. *LANTANA INDICA* (Roxb.), shrubby, straight, 4-sided, hairy: leaves opposite, cordate, serrate, rugous: peduncles solitary, axillary, shorter than the leaves: heads ovate: bracts ovate, lanceolate: nut 2-celled. Roxb. Fl. Ind.

A common plant, widely diffused over the Indian peninsula, flowering during the rainy and cool seasons.

The plant here represented is certainly Roxburgh's, I have therefore retained his name and character. But since the plate was printed, I have received D. C. Prod. Vol. XI. in which I find it reduced to a synonym of *L. alba* by Schauer, with the following character.

L. alba (Miller, *kc*), straight, branches virgate and with the peduncles 4-sided, rough and stngose: leaves opposite, short petioled, elliptic, or roundish, ovate, or sub-cordate; acuminate, coarsely crenato-serrate, rugous, hirt-scabrous above, whitish, villous beneath: peduncles axillary, rigid, spreading, thickened above: capitula hemispherical, spicately elongated: bracts ovato-roundish or elliptico-ovate, acuminate, half the length of the corolla, exterior ones involucrate, fohaceous, spreading.

This is a variable plant, seen growing on the open ground, it is a low, spreading, procumbent shrub, but if near support, in hedges or among bushes, it often attains the height of 6 or 8 feet, and is then one of considerable beauty on account of the profusion of its heads of pure white flowers.

On the higher slopes of the Neilgherries, the flowers are usually colored, and look so different from the plant of the plains, that one is almost led to doubt their identity, but on comparison, I could not discover specific marks by which to distinguish them.

1465. *VITEX PUBESCENS* (Vahl. Schauer. *V. axborea*, Roxb. R. W. Icon.), ramuli 4-sided, channelled, and with the petiols and young leaves pubescent or slightly tomentose: leaves long, petioled, 3-5-foliate; leaflets elliptic or ovate, oblong, attenuato-acuminate, rounded at the base, sub-sessile, coriaceous, pennnerved, glabrous, shining above, pale, finely puberulous beneath: panicles whitish, powdery tomentose, terminal, compound, ovato-pyramidal, compact: cymes interspersed with fohaceous bracts longer than the calyx: calyx cyathiform, sinuately 5-toothed: corolla twice the length of the calyx, inflated; inferior lip straitish, villous at the base. Schauer in D. C. Prod.

A large tree, found in subalpine forests, exposed to the influence of the south-west Monsoon. Malabar, &c. I have also specimens from Mergui and Malacca, communicated by the late Mr. Griffith.

This tree attains a great size, and the timber is said by Roxburgh to be exceedingly hard and durable.

1466. *VITEX ALTTSSIMA* (Linn fil.), ramuli, compresso-tetragonous, channelled, with the petiols and back of the leaves whitish-woolly: leaves long, petioled, infoliate; leaflets elliptic or elliptic-oblong, attenuato-acuminate, at both ends, sub-sessile, entire, ronnaco-membranaceous, pennnerved; finely pubescent, and at length glabrous above: panicle terminal, compound, spreading, pyramidal, white with dense tomentum: cymes sub-sessile, compact, minutely bracteolate, interruptedly verticillate: calyx 5-lobed; lobes obtuse, spreading: corolla small, the inferior lip straightish, somewhat woolly.

A considerable tree, not uncommon in subalpine forests, flowering in August and September, during the prevalence of the south-west Monsoon rains. The specimen represented was gathered on the Shevagherry mountains in September.

1467. *VITEX LEUCOXYLON* (Linn fil., *Wdlroklia*, Roth, Walpers, R. W. Icon.), ramuli and petiole pulverulento-puberulous, and like the cymes and young leaves frosted (prumose)* leaves long, petioled, 3-5-foliate; leaflets elliptic or ovate, oblong, elliptic, shortly and obtusely acuminate, attenuated into a long petiole, entire, sub-coriaceous, pennnerved; glabrous, shining above, pale, and, especially on the veins, finely stngoso-puberulous beneath: cymes axillary, long, peduncled, corymbose, devancato-dichotomous, many-flowered: calyx patelliform, 5-toothed: corolla twice the length of the calyx, inferior lip spreading, densely hairy.

This, so far as I have observed, is a rather rare Indian tree. Courtallum, Malabar, Tanjore, &c.

The genus *WdUrothxa* was separated by Roth from *Vitex*, on what always appeared to me very insufficient grounds, but being adopted by all subsequent writers I, contrary to my own judgment, followed in the train. M. J. C. Schauer, in his revision of the order, has reduced the genus and restored the species to *Vitex*, a course which I have much pleasure in following, the differences being of specific rather than generic value.

1468. *PREMRA TOMENTOSA* (Willd.), ramuli, young leaves and cymes every where tomentose: leaves petioled, ovate or ovate oblong, long, acuminate, entire, venoso-rugous, stellato-pubescent on both sides, sparingly above, copiously beneath, panicles large, terminal, many-flowered, compact

A common shrub, or small tree in the Coimbatore district, flowering during the hot season. Leaves of a pale yellowish green, pubescence, with which all the young parts is clothed, brownish yellow, tending to rusty. Flowers small, white.

1469. *PREMNA INTEGRIFOLIA* (Linn, *P. serratifolia*, Lm. Schauer), arboreous, the trunk and older branches armed with opposite spines, unarmed ramuli, panicles and petioles pubescent: leaves short, petioled, ovate or oval, shortly and obtusely acuminate, rounded towards the base, entire, or crenato-dentate, the adult ones glabrous on both sides, shining above, dull, opaque beneath: panicles terminal, loosely corymbose calyx bilabiate, the upper lip acutely bidentate, inferior oftener entire* tube of the corolla cylindrical, twice the length of the calyx. Schauer in D. C. under *P. serratifolia*.

A small tree, not unfrequently met with on the plains of India, especially towards the coasts. The flowers which, but for their mass, forming large corymbs, somewhat resembling the Elder, would be sufficiently inconspicuous, exhale a heavy, disagreeable smell, and with their pedicels, are slightly bedewed with a viscid secretion.

Linnaeus made two species of this tree, the one "*P. folius integerrimis*," the other "*P. folius serratis*." The figure represents the former of these, but as both seem to form but one species, I have not hesitated to adopt Schauer's definition of the latter for my plant, as it is so minutely applicable that one might almost suppose that the specimen from which it was taken, was gathered from the same tree with the one represented.

1470. *GMELMA ARBOREA* (Roxb.), arboreous, unarmed, ramuli and young leaves covered with a greyish, powdery tomentum* leaves long, petioled, cordate or somewhat produced and acute at the base, acuminate, the adult ones glabrous above, greyish tomentose beneath, with 2-4 glands at the base panicles tomentose, axillary and terminal raceme like, cymes decussate, trichotomous, few-flowered* bracts lanceolate, deciduous: the acutely dentate calyx, eglandulose.

A small tree, not unfrequent in the Paulghat jungles, and generally distributed in Malabar.

The drawing was made from a specimen obtained near Koonoor on the Neilghemes, and seems to correspond sufficiently with both Roxburgh's figure and description. I advert to this, as I understand Sir W. Hooker has made a new species under the name of *G. Rheedii*, of what I suspect can at best be viewed

as a variety of this species, that is, he views the plant he figures and describes as identical with Rheed's Hort. Mai 1 tab 41, but as having no affinity with Roxburgh's Cor. Plants, tab 24> As I have not seen either his figure or description, and have only portions of Roxburgh's and Rheed's figures, copied from the originals, not the entire plates to compare, I am not in a position to offer an opinion on Sir William's views, but on comparing my specimens with Roxburgh's description, can see no reason to doubt their belonging to the same species, though there be considerable discrepancy between their leaves and those of Roxburgh's plant, as shown in his plate. The differences however are not such as I think ought to have specific value attached, if the other characters correspond, the more so, as I find among my specimens intermediate forms connecting the two extremes, and showing that they belong to the same species, and thence that such slight differences in the outline of the foliage can scarcely be admitted as of itself affording a sufficient specific mark.

1471. *CLERODENDRON INFORTUNATUM* (Linn), ramuli tetragonous, and like the branches of the panicles, petioles, and nerves of the leaves, whitish, strigoso-tomentose: leaves long, petioled, roundish or ovato-cordate, or the upper ones ovate, or even attenuated at the base, not at all cordate, entire or shortly acuminate-dentate, strigoso-hirtellate on both sides* panicles terminal, spreading, large, naked, cymes laxly flowered, bracteoles caducous* calyx strigoso-pubescent, 5-nerved, ventricose at the base, squamato-glandulose, 5-parted, segments lanceolate, slenderly acuminate: corolla strigoso-villous, and glanduloso-punctuate, many times longer than the tube of the calyx; segments of the limb sub-unguiculate, sub-secund, 3 times shorter than the tube.

Frequent in forests and sub-alpine jungles, but also occurs at a great elevation on the Neilghemes. Flowers white, berries purple. Generally to be met with in flower, but like most other plants, in greatest perfection during the rains.

1472. *CLERODENDRON SERRATUM* (Sprengel), ramuli quadrangular, furrowed, and with the leaves glabrous* leaves opposite or ternate, chartaceous, short, petioled, ovate, oblong or even lanceolate, cuneato-attenuate, entire at the base, acuminate, remotely mucronato-serrato-dentate, somewhat shining above, pale beneath. panicles terminal, raceme-like, whitish, from mealy pubescence: lower bract, and bracteoles foliaceous, pale, membranaceous, acuminate, bracts ovate, roundish, bracteoles lanceolate. cymes two or three times infid, loose calyx cup-shaped, sub-truncated, very shortly 5-toothed. tube of the corolla cylindrical, more than twice the length of the calyx.

A rather common plant, in shady woods and sub-alpine jungles. Abundant on the Neilghemes and there, growing in open pasture ground, a very conspicuous object.

The leaves are deep green, the flowers blue, deeper at the apex, becoming paler downwards, sometimes with a considerable tinge of rose, which adds greatly to the beauty of this already handsome plant. The shrub varies from one to six feet in height, rarely so low as the first, or higher than the last.

1473. CLERODENDRON PHLOMOIDES (Linn), rauh terete, and, like the petioles and peduncles, whitish tomentose: leaves membranaceous, opposite, petioled, ovate, or ovato-rhomboid, acuminate, somewhat obtuse, entire at both ends, irregularly and bluntly serrated in the middle; glabrous above, puberulous beneath: panicles terminal, large, fastigiate, leafy below: cymes inchootomous, lax, bracteoles oblong: calyx glabrous, campanulato-ventricose, half five-cleft, segments sub-ovate, acute: tube of the corolla sub-glandulose, thrice the length of the calyx.

A common shrub, to be met with nearly all over the peninsula, most frequent in hedge-rows, often in such situations attaining the height of 8 or 10 feet, when not supported rarely exceeding half that height. When in full flow it is a handsome shrub, each branch being terminated by a large panicle of white flowers, the pale almost cream colour of the calyx and bracts still further contrasting with the lively green colour of the leaves.

STMPHOREMEJE.

This small group of plants, brought together as a sub-tribe of *Vxtxt*[^] ought, it appears to me, to constitute the type of a tribe, or even a separate order, allied to, but distinct from *Verbenacea*, differing as they do from the rest of the order in the inflorescence, the ovary, the placentation, and the seed. It is thus defined by Schauer, in D. C.'s Prod.

"Sub-tribe SYMPHOREMEJA, cymes contracted glomerate, few-flowered; involucre. Corolla regular or bilabiate. Stamens 4-5, or indefinite. Capsule coriaceous, indehiscent, 1-seeded by abortion.—Flowering shrubs with simple leaves."

This definition, so far as it goes, seems correct. The cymes might, perhaps, with equal or greater propriety have been called simple umbels, and, having an involucre, they convey the idea of an umbel, rather than that of a cyme. The involucre itself; constitutes a peculiar feature, erroneously described in the generic character of *Sympkqrema* as "6-8 phyllum," but correctly in the description of the species, as being composed of 2 bracts and two bracteoles to each. Such is indeed the composition of the involucre in all the three genera. In *Symphorema* and *Sphenodesme* it is composed of 2 opposite bracts, each furnished with two somewhat smaller bracteoles: each leaflet bearing a sessile, axillary flower at the base, and a single flower in the centre, without a fulcrum. In *Congea* one of the bracteoles of each bract aborts, while the opposite, contiguous pair often unite, reducing the four parts to three, giving the appearance of a 3-phyllous involucre.

In the numerous specimens of both *Symphorema* and *Sphenodesme*, I have examined, I have always found the involucre 6-phyllous, and only once (No. 1478), with fewer than 7 flowers and never more. In *Congea*, the involucre is four, or, by the union of the 2 bracteoles, reduced to 3-phyllous, with from 5 to 7 flowers; that is, a flower to each leaflet, and a central odd one unsupported, or two to each bract, one to each bracteole and the odd one. Both Roxburgh and Schauer describe the glomerulus of *Congea* as 6-9-flowered, I have not yet met with more than 7, nor fewer than 5 in any glomerulus, of either of the three species I have examined,

thence infer that the statement has originated rather in loose generalization, than actual and careful counting to determine the point.

Does the composition of this involucre throw any light on the vexed question of leaves and stipules of Gahaceae, or in any way tend to clear up the difficulty there experienced in determining what are leaves and what stipules.

The umbellate inflorescence and characteristic involucre, seem of themselves to constitute this, at least, a peculiar tribe, if not a separate order; but when to these are added the semi-one-celled ovary and remarkable placentation, approaching that of *Myrsintaceae*, and the farctuose seed, nothing seems wanting to justify its elevation to the dignity of a tribe: it is my impression even an order, amply distinct from true *Verbenaceae*. As a tribe, the structure of the ovary and placentation place it between *Vdtce*(E) and *Jlvicennea*, as it corresponds with that of the latter, viz. "Ovula in loculo gemma, ex apice axeos pendula amphitropa," and to that extent is more nearly allied to the latter, than to the former, in which Schauer places it as a sub-tribe.

The following abbreviated essential characters of the genera I had prepared before Schauer's Monograph reached me, and as they differ slightly from his, I introduce them. To complete the illustrations of the tribe, I have given the analysis of *Symphorema polyandrum*, in No. 1474.

STMPHOREMA. Involucre 6-phyllous, 7-flowered. Corolla regular, many-cleft; segments indexed in aestivation. Stamens equalling the number of lobes of the corolla, alternate with them.

SPHENODESME. Involucre 6-phyllous, 7- rarely 3-flowered. Corolla sub-irregular, 5-lobed, imbricate in aestivation. Stamens 5, inserted on the throat of the corolla, alternate with its Lobes, shortly exserted.

CONOEJA. Involucre 4- or, by union of the lateral pair, 3-phyllous, 5-7-flowered. Corolla bilabiate, upper lip much produced, 2-parted, imbricate in aestivation. Stamens 4, didynamous, long, exserted.

When naming the plants represented in the accompanying figures, I had not seen Schauer's Monograph. On comparing my plants with his descriptions, I find he had already named several differently from mine, hence the following alterations have become indispensable. No. 1474. 5. *barbata*, (Sch.) 1475. *S. tVallichwna*, (Sch.) 1476. & *Jaekuina*, (Sch.) 1477. 5. *Griffithiana*, (R. W.)

1474. SPHENODESME BARBATA (Schauer, *S. frugxnea*, R. W. Icon.), ramuli, nerves of the leaves, and inflorescence every where clothed with reddish or rusty coloured hairs: leaves sub-coriaceous, short, petioled, oblong, usually narrowed a little at the base, obtusely acuminate, sub-mucronate at the apex, septupli-multiph-veined; the younger ones hairy on both sides, the older ones becoming glabrous above; glanduloso-punctuate beneath: panicles simple, racemose, terminal, single or temate: peduncles filiform, axillary, solitary, longer than the involucre: leaflets of the involucre six, oblong, obtuse, attenuated at the base: calyx cup-shaped, 5-cleft; lobes apiculate, retuse, mucronate on the back.

Malacca. Griffith. I am indebted to Mr. Griffith for the specimen represented.

The peculiar clothing and inflorescence of this

species are remarkable. Leaves 2-4 inches long, 1½ to 2 broad. Peduncles about an inch and half long: leaflets of the involucre unequal: calyx about 2 lines long, lobes slightly cleft at the apex, very hairy externally, sparingly so within. Corolla scarcely everted, the lobes pubescent without, throat hairy, stamens 5, exserted, apex of the ovary villous.

The analysis of the species is taken from flower-buds before expansion, hence I presume the slight discrepancies between the figure and character.

In the left hand corner of the plate is an analysis of *Symphorema polyandrum* introduced for the purpose of exhibiting at one view the differences between the three genera, and showing how widely *Symphorema* differs from the other two, though in habit and general appearance BO like.

1475 SPENODESME WALLICHIANA (Schauer, 5. *pentandra*, R. W. Ic.), ramuli, pubescenti-tomentose: leaves coriaceous, short, petioled, ovate, oblong, obtuse at the base, narrow acuminate, quintupli-septupli-veined; glabrous, shining above, beneath bearded in the axils of the veins: panicles large, bracteolate, leafy below: bracts ovate: peduncles filiform, as long as the involucre, and like it and the flowers glabrous: leaflets of the involucre linear, oblong, sessile, obtuse: calyx cup-shaped, 5-nerved, very shortly 5-cleft, truncated, ciliate.

The drawing was made from a specimen received from the Calcutta Botanic Garden. The species has not previously been figured.

1476. SPHENODESME JACKIANA (Schauer, 5. *acuminate*, R. W. m Icon.), ramuli, pubescenti-tomentose: leaves coriaceous, short petioled, oblong, obtuse at the base, attenuato-acuminate at the apex, quintupli-septupli-veined; glabrous, shining above, beneath pubescent, or becoming glabrous, bearded in the axils of the veins: panicles large, brachiate, leafy below: bracts oblong, peduncles filiform, about equal to, or a little shorter than the involucre, and like it thinly sprinkled with hairs: leaflets of the involucre linear, lanceolate, sessile, obtuse, scarcely mucronulate: calyx glabrous, tubuloso-campanulate, 10-nerved, 10-toothed; five teeth lanceolate, reflexed, 5 broad, triangular, acute, erect.

Malacca. Griffith.

The bracts of the specimen accidentally taken for representation, had all fallen off. That part of the character is however correct, as I find another specimen quite in accordance with it.

This is nearly allied to 1475, but is certainly distinct, calyx about 4 lines long, venoso-reticulate, 5 of the veins supplying the reflexed teeth a little larger, within seneco-villous round the ovary, otherwise glabrous: tube of the corolla as long as the calyx, throat very woolly within, segments spreading: stamens 5, shortly exserted.

1477. SPHENODESME GRIPFITHIANA (R. W. S. *Jacktana*, R. W. Icon., not Schauer), ramuli 4 sided, sub-pubescent, densely pilose on the joints: leaves oblong, lanceolate, sub-cuneate towards the base, acuminate above, glabrous on both sides, except tufts of hair in the axils of the veins panicle brachiate, loose, leafy below, bracts lanceolate, acute, shorter than the peduncles: peduncles filiform, about (be length of the involucre, and like it pilose:

leaflets of the involucre unequal, sub-scanose, linear spatulate, obtuse: calyx campanulate, 5-cleft, pubescent-tomentose; lobes bidentate at the apex, with a reflexed tooth on the sinus: corolla glabrous.

Mergui. Griffith.

Allied to the preceding (1746), but differs in the involucre and calyx, and glabrous corolla. Leaves 3-6 inches long, tapering somewhat towards the base, acuminate, pointed at the apex, glabrous, except the tufts of hair in the axils of the veins below. Panicles large, brachiate, the branches slender, 4-sided, sides slightly furrowed, pilose; peduncles and involucre copiously pilose. Calyx sub-tomentose, the lobes bidentulate at the apex, with a minute, reflexed tooth on the sinus (not well shown in the figure). Corolla scarcely exserted, glabrous. The drawing of the corolla, being taken from a young flower, may not be quite correct on this point.

1478. SPHENODESME TRIFIORA (R. W.), ramuli glabrous or slightly vellutino-pubescent: leaves short petioled, lanceolate, acuminate at both ends, acute, glabrous, or the younger ones almost inconspicuously velutinous, not bearded in the axils of the veins: panicle large, brachiate, leafy to the last divisions, bracts ovate, and, like the short, rigid peduncles, involucre and calyx vellutino-pubescent: leaflets of the involucre very unequal, elliptic, attenuated at the base, bluntish at the apex: umbels 3-flowered¹ Calyx tubular, 5-lobed, 10-nerved, nerves of the lobes larger; lobes triangular, acute; tube pubescent within: corolla exserted, pubescent, throat hairy- stamens and style exserted.

Malacca. Griffith.

This is readily distinguished from all the other species by its 3-flowered umbels. Leaves from 4 to 6 inches long, and 1½ broad, tapering at both ends: calyx about 3 lines long, when dry of a pale brownish yellow colour, clothed with short, velvety pubescence. In the figure No. 1, the pubescence is represented much too long and coarse.

CONGEA. (Roxb.)

When naming the subject of 1479, I had not seen Schauer's Monograph. He, I find, reduces *C. villosa*, Roxb. and *C. azurea*, Wall., referring both to *C. tomentosa*, Roxb. I am unable to say how far he is correct in considering *C. villosa* and *azwrtia* identical, not having an authentic specimen of the former, but I certainly cannot coincide with him in combining *C. azurea* and *tomentosa*, which I consider quite distinct, and therefore presume he has fallen into error through the imperfection of his materials. To prevent, as far as I am able, the extension of the confusion likely to arise from this accidental error, I have determined to give a figure of *C. tomentosa* for comparison with Wallich's *C. azurea*, the drawing of which is taken from an authentic specimen. To these I add one of what I now consider a new species. The numbers of these two after-thought plates, would necessarily remove them far from this place, but, for the convenience of immediate comparison, I shall anticipate their publication, and insert them here. The plants from which the drawings are made may be thus briefly distinguished:

C. azurea (Wall) leaves elliptic, acute, or sub-mucronate at the apex, slightly hispid above, softly velutino-pubescent beneath: leaflet* of the involu-

crura obovate, oblong, aub-cuneate towards the base, softly velutino-pubescent on both sides: umbels 5-7-flowered: calyx teeth narrow, lanceolate, acute.

C. tomerdota (Roxb.), leaves ovate, slightly cordate, acute, or sub-acuminate; hispid above, tomentose beneath. leaflets of the involucre oval, obtuse at both ends, tomentose above, softly pubescent beneath: umbels 7-flowered, calyx teeth short, blunt.

C. vdtina (R. W.), leaves ovate, acuminate, glabrous on both sides, coriaceous, leaflets of the involucre obovate, spatulate, dilated and cohering at the base, forming a cup ID which the flowers are seated, velvety on both sides; umbels 5-flowered: calyx, teeth very short, obtuse.

In all these I find indications of the compound nature of the third leaflet of the involucre, but in one specimen of the last, there are several instances of the bracteoles remaining permanently distinct, as shown in Fig. 2. B. Plate 1479, thus clearly explaining what might otherwise have remained a conjectural inference.

1579. CONOEA AZUHEA (Wall), ramuh terete, and like the branches of the inflorescence ferrugineo-tomentose: leaves short, petioled, ovate, acute or slightly cordate, occasionally sub-cuspidate, shortly pilose above, pubescent beneath: panicles large, terminal, tnchotomous: leaflets of the involucre obovate-cuneate, frequently one of them 2-veined and emarginate, the other 2 with a single couta and entire, all vdlous on both sides: umbels 5 to 7-flowered, calyx tubular, 5-cleft, segments long, narrow, lanceolate, acute, thickly clothed with long hair*on both sides, tube of the corolla shorter than the calyx, glabrous within, upper lobes of the limb much produced: stamens exserted; anthers truncated, dehiscing at the apex.

The specimens, from which the figure and character were taken, were received under this name from the Calcutta Botanic Garden. The colour of the involucre, if originally azure, has faded, and changed to a pale, rusty colour. Walpers adopts Wallich's specific name, and quotes Roxburgh's (*Villosa*) as a synonym, perhaps incorrectly. If otherwise, I do not understand on what principle the more recent is to take precedence of the older name. It is adopted here, because I know this to be really Wallich's plant, whde I am altogether unacquainted with Roxburgh's, whose description does not quite correspond with my plant, and because I do not think Walhch would have given it a new name, had he not felt sure it differed from Roxburgh's.

JErrotum.—For B. *C. vtiloa*, read *C. vdtma* (R. W.)

1479-2 or 1565. CONGEA TOMEHTOSA (Roxb.), ramuli and inflorescence tomentosa: leaves broad, ovate, slightly cordate, acute or sub-acuminate, hispid above, tomentose and pubescent beneath: panicles large, axillary and terminal: peduncles thick, pilose, shorter than the leaves of the involucre, umbels 7-flowered: leaflets of the involucre broad, oval, obtuse at both ends, tomentose above, densely pubescent beneath; one of them often more or less deeply divided rarely two parted to the base: calyx clothed on both Bides with long, Blender, jointed pubescence, 5-cleft; segments obtuse or scarcely

acute: tube of the corolla exceeding the calyx, hairy within. anthers dehiscing longitudinally.

Mergui. Griffith.

This character differs in some points from Roxburgh's description, but the specimens seem to agree so well with his figure that I can scarcely doubt the identity of the two plants. But still they may not be the same as his is a native of Coromandel, while mine is from the Tenasserim Coast. If on comparison they are found distinct, it must be admitted they are so very nearly allied that the figure of the one may be taken for that of the other. I am indebted to the late Mr. Griffith for my specimens.

Roxburgh describes the umbels of his plant as having from 6 to 9 flowers, whereas his figure only shows seven.

1479-3 or 1566. CONOEA VELUTIKA (R. W.), ramuli terete, glabrous; inflorescence velvety: leaves broad, ovate, acuminate, glabrous, shining above, shortly pilose on the veins beneath: panicles large, loose, terminal, branches dichotomous at the apex: peduncles about the length of the involucre, slender: umbels 5-flowered, leaflets of the involucre obovate, spatulate-, tapering below, dilated and cohering at the base, forming a cup, or sometimes 4-leaved and then free: calyx short, velutino-pubescent, slightly 5-cleft, teeth short, obtuse: corolla much exserted, throat hairy: anthen globosely 2-lobed, dehiscing by a short, longitudinal slit

Mergui. Griffith.

I am indebted to the late Mr. Griffith for my specimens of this very distinct species. In one of two specimens nearly all the umbels are 3-phyllous, in the other many of them are 4-phyllous, or in other words the bracteoles have not, as in the others, cohered. Fig. B. of Plate 1479, represents one of the latter, but under the erroneous name of *C. villosa*, an error which I beg the reader to correct. As regards foliage, my specimens are far from perfect, this being only one leaf to the two specimens and as it is an old one may not correctly represent the clothing which on it amounts only to a few short hairs, scattered ovei the veins on the under surface.

1480. CALLICARFA WALLICHIANA (Walpers), ramuli, cymes and petiols densely ferrugineo-tomentose: leaves conaceo-membranaceous, broadly ovate, roundish, or narrow, obtuse, or even acuminate at the base, long petioled, attenuato-acuminate, entire, or slightly repand, and minutely denticulate, reticulato-rugous; adult ones, except on the veins, glabrous above; densely woolly, whitish tomentose beneath: cymes many-flowered, bipartite, divancato-dichotomous, corymbose, peduncles half the length of the petiol: calyx truncate or slightly 4-lobed.

Travancore, frequent among low jungles, in arid, ferruginous soil, flowering in February and March. I have met with it in many other places. It » most readily distinguished from *C. lanata*, with which it has usually been confounded, by its entire, not dentato-serrate leaves. It attains the size of a considerable shrub, very conspicuous from the dense clothing of matted, white tomentum with which it is every where, except the upper surface of the leaves, covered, and its large clusters of pinky or pale lylac flowers which adorn its younger branches. Leaves, exclusive of the petiol, 6-10 inches, and from 3 to 4 broad, ending in a long, tapering acu-

•sa, the under surface thickly covered with stellate tufts of white hair intermixed with minute glands calyx clothed like the leaves corolla twice or thr^o the length of the calyx, pubescent externally sti^{man}* twice the length of the corolla borne* sraul about the size of black pepper corns

AVICBJUU, (Lmn.)

This genus associates with Symporeaw* in the character of its placent^{td}tion, but differs in the seeJ Much uncertainty seems to exist among Boituuu as to the limits of its species. Walpers tus 2 species, but assigns to one of these no fewer than 7 distinguishable varieties, Asia, Africa, America. Australia and the Phillip in© Islands, each contributing to the list The two plants here figured are considered by him identical, not even varieUea Blame has not given figures of his plants, hence i presume thiir supposed identity Schauer in hid Monograph describes 4 species, distributed undeⁱ two sections, vix.

1 "Dondita, stylos manifestus, post coroDs* lapsum e calyce exsertus

2 ~~stylus~~ stylus sub-nullus, stigmata in vertiic, of am fere sessilia,"

He, like Walpers, refers both to the same species which he calls *A gffinnah*[^] and places it m toe ^oM section along with *A tomeniota*, which name he re struts to the American plant On the correctLes* oi otherwise of that division, I am unable to oiler any opinion, never having seen it, but I am not prepared lo go along with him in viewing the two plants here represented as the same species though nearly allied. When namins^t the drawings, I adapted Hume's views and still, perhaps erroneously, retain his name He may be in error in considering the Java plant identical with the American >ne, put not in viewing his *A dba* as diitmt from his *A iomeniota*, if I have not erred in viewing these u his plants.

1481 AVICEIH*U TOMINTOSA (Lin Blume A *tffu-malv*, Lin Schauer), leaves obovato cuueale, obtuse, glauto lozmentose beneath BL

Malabar coast, and generally to be met with m salt marines on both coasts of the Indian penuu ila

K small treo or considerable shrub, with obovale, obtuse, coriaceous leaves, light green above, whitish or greyish beneath, petiols densely villous above peduncle* axillary and terminal, tnchotomously pan cW, branches short, stout, terminating in a single < apituluni or floriated and bean.ig several senile, lateral ones, bra*t* concave, coriaceous, 3 to each flowe-, and like the calyx l^bes, cJjate, calyx S-parted, lobes cvate obtuse, glabrous Corolla S'arrel) exceeding the calyx 4 cleft, bbes ovate, acute, pubescent on the biick, yellow stamens 4, about equa , aia^ely exserted, anthers globose, deeply furrowed between the cells. Ovary ovate, pubescent, imperfectly 4 celled, with 2 < VUCN in each, pen lulous from th« free apex rf an erect, central placonta style short, Hefi at the apex frm' oblique ovate, compressed, apiculate, roundish At tbs base, supported by tie persistent calyx and bracts

Schauer has remed for this species Linn^us' specific name "Offi inalis " and I think correctly, as it differs in some, pimls from the American pUnt t> wtuch he restricts LIDIUBUS* "tomeotosa " Lmne

himself however did not crunk then distinct, as he ~~afterwards~~ redact his A officmaln. In the Amen i an plant, the flawen are white, in the Asiatic one vello<v, a differen e which m so difficult a s;enus oiffut not to be overiookH in the determination of m speciea.

1482 AVICII* tiA ALta (Blume\ leaves oblong, k3ce<tlate, acute, ot iughtly obtuse glabrous whituh bereath 1)l

Telhi nerry, Malabar Coast

fn a Jdition to these brief characters, the habit of the tw(plans M vep ditUnct and is well preserved in the figures Admitting therefore that the Asiatic *pUnts are distinct from ihe A men can, they must equally be viewed *« dis*met from each other and niay perhaps be thus defined

A gffienudu (Lin.), leaves obovate ot obovato ciuieaie, conaceoui, glabrous above, glanco-pube scent be-ieath peduncles axillary, solitary or rubpaniced terminal, with several s#ssJe capitula, or a single terminal one bracts and lobes of the cai)x renacecus, concave, cihate, sub-acute corolla 4 cleft sUmens as lotig as the lobes, exserted >>:le hh^xA iht length of the ovary, slightly cleft at Uie apex* sgrcentu acute, approximated

Jl a/Ac (BI ru^), leaves oblong, cUptico-lanceolate, acute ct botli eodi glibrou* aboTe, wtiitish pulverulent beneath \edn« Jes temuusi, rtom the axils of the last puir of leaves of tlw branches, long, slender, flr>wen capiatr capitula compact, many flowered bracts and calyi villous on the back, densely (iliate corolla scarcely exi eediiig J)e calyx, 4-cleft lches acutuh stamens about half the length of the lobes, sub uuluse ovary den«e'y haur on the apex style short, 2-cJeft, lobes dilated, lanceolate, spreading

1483. PakMKA coEDiroLii (Roxb \ ramnh, cymes \rstl peDols, o* the younger leaves, vUous leaves fchort petioled cordate, or cordAto-ovate, acuminate, fitire., bullate glahious on both sides, shining above, ull and pale beneath panicles terminal, small, con'racted corymbose calyx cupnhaped, 2-lipped, both Ips roundish, entire corolla bilabiate, about the icngth of tne rube of the calyx —A shrub from 3 to C i6"t high, with slender, erect, simple branches, "illoiib above and terminating in, usually, a compact con mb of yellowinh flowers leaves from 3 to 6 inches long, the peUols and veins more or lees villosopube-icent, in my specimens scarcely bullate, calyx klabrous, when dry whitish or somewhat scanose- fike, the lips nearly equal, broad, rounded on the margin, and generally not so distinctly pointed as in the figure upper lip of the corolla rounded, entire, concave, the lower one 3lobed, the middle lobe larger, somewhat exceeding the upper, concave, throat densely villoos, sUmens and style about the length of the corolla

This plant is met with in hedges and among low bushes, but generall? solitary, the station whence toe upecimon represented came is not marked, but I have often met with it, occasionally in Coimbatore. It agrees R<>nently so well with Schauer's character and description that I feel disposed to suspect the dJfuce between the character and figure of the corolla as an accident*], perhaps a typographical error, as Roxburgh does not allude to it, but the shott style of my plant canaot be so accounted for

1484. *PREMNA GLABERIMA* (R. W.), every where glabrous, except a Blight vellosity on the inflorescence, leaves obovate, oblong, abruptly acuminate, acute, rigid, entire, somewhat shining above, pale whitish beneath, panicles terminal, lax, corymbose, ultimate divisions dichotomously cymose: calyx campanulate, obscurely 5-toothed, shortly villous: corolla bilabiate, upper lip emarginate, under 3-lobed, middle lobe the largest, throat hairy: stamens didynamous, the longer pair exserted: style length of the longer stamens, sub-clavate, 2-cleft at the apex

Courtallum, flowering in August.

Apparently a large shrub: leaves short, petioled, larger ones from 6 to 8 inches long and about 2½ broad, tapering towards the base, very glabrous, rigid or somewhat coriaceous, the younger ones, next the panicles, membranaceous; the floral ones and bracts subulate.

In the same paper witii the specimen represented were others differing greatly in form, but so far agreeing in habit that I am now uncertain whether they ought to be esteemed a distinct species or a variety. The leaves are equally glabrous, entire, and acuminate, but in place of being short petioled, oblong-obovate, are long petioled, ovate, rounded at the base or even sub-cordate, with axillary and terminal, long peduncled, lax, corymbose panicles. The bracts also are similar, but the flowers have all fallen off, so that I am unable to carry the comparison further. It however appears that the main differences are confined to the form of the leaves and that they are in fact different forms of the same plant, in which case the leaves should be described as "varying from ovate, rounded at the base, to oblong, obovate, tapering towards the short petiol."

1485. *PREMNA WIGHTIANA* (Schauer. *P. thyrsoides* R. W. Icon.), ramuli, cymes and petiols puberulous: leaves petioled, ovate, abruptly acuminate, rounded or slightly produced at the base, entire, or shortly toothed anteriorly, sub-bullate, glabrous, nitidulous on both sides: panicles terminal, thyrsoid: calyx sub-bilabiate, unequally 5-toothed* tube of the bilabiate corolla twice the length of the calyx.—Leaves about 3 inches long, membranaceous, sub-bullate between the secondary nerves. Panicles during fructification thyrsoid, elongated. Calyx cupola-like, about a line long. Corolla small, throat closed with hairs. Putamen of the drupe pear-shaped, verrucoso-tuberculate.

Courtallum, Dindigul, Serramallay, Travancore, &c. A small tree or large shrub, flowering during the autumnal rains, maturing its fruit during the cool season. Flowers and bruised leaves exhaling a heavy, disagreeable odour.

Before Schauer's Monograph reached me I had named this plant *P. thyrsoides*, a name which, being anticipated, must now give place to the older name. The thyrses or panicles of the specimen, selected for representation, seems to be much larger than the one seen by him, as he designates it in his character small (*pamculis terminibus parvis sub-thyrsoideis*), and indeed it is so much above the average size, that, did not my senses of specimens present every gradation, I should almost have been led to view it as a distinct species.

1486. *CHRISTISONIA AURANTIACA* (R. W.), erect, sparingly scaly, pilose: scales ovate, appressed,

glabrous: flower-stems corymbose, long, peduncled* peduncles bibracteolate near the middle: calyx tubular, pilose, 5-toothed, teeth mucronate: corolla tubular, externally pilose, limb about equally 5-lobed; lobes rounded, spreading: stamens didynamous, sterile cell of the anthers subulate, about twice the length of the fertile one, style exceeding the stamens, exserted, bent at the apex, stigma large hairy, umbellicate.

Neilghemes, among long grass by the road side leading from Neddawuttum to Goodaloor, also very abundant in the dense jungles surrounding Mr Ouchterlony's Coffee Plantations

In the former station it occurs in patches of a few plants, but in latter in masses, covering several square feet. I could not make out the plant on which it grew, or rather I should say it does not limit itself to one species. It rises to the height of 6 or 8 inches, the stems, bracts and bracteoles of a dull, brownish yellow, the calyx deep, reddish orange, tube of the corolla dark yellow, limb bright yellow within. Altogether it is a very conspicuous plant and one which I have not before met with

ACINTHACEÆ.

This large and eminently tropical order has recently been elaborately revised by that highly accomplished Botanist, Professor Nees Von Esenbeck. In the course of his investigations he has deemed it necessary to constitute numerous new genera, the limits of which it is not always easy to make out from verbal description. In the hope therefore of lightening the labour of acquiring a knowledge of so difficult an order, the species of which abound in India, and have hitherto been but sparingly illustrated by Botanical writers, I propose, in this and the following part, giving figures and analyses of most of the Indian genera. I cannot give all for want of specimens. Some of the genera, it appears to me, might well have been spared, but others, I apprehend, will yet require to be divided. This, however, I do not attempt, as such a proceeding would demand on my part an equally extended and careful revision of the whole, an undertaking for which I have neither time nor adequate materials.

I prefer, therefore, leaving the task to other* more favourably situated, trusting, however, that the materials I have been able to contribute may not prove wholly useless to future labourers in the same field, as I believe that, generally speaking, the accompanying figures and analyses will be found very nearly correct.

1487. *METENIA HAWTAYNIANA* (Nees), shrubby, procumbent, glabrous. leaves sessile, cordate, acute

Frequent on the Eastern slopes of the Neilgheries, also on the tops of the Ayamallay hills near Coimbatore.

The deep purplish blue of the limb of the corolla, and the numerous flowers which open at once, render [this a very conspicuous plant and one well worth cultivation.

1488. *EBERMERIA GLATICA* (Nees), racemes axillary and terminal, leafy: leaves oblong, entire, glabrous, attenuated into the petiol: stem, rachis of the racemes, spreading lanceolate-spathulate bracts and calyx glanduloso-pubescent.

Mysore, Coorg, &c.

This seems to be a rare plant. I have never myself met with it, and have only seen specimens from Mysore. The one selected for representation is small, but seems specifically identical with those from which Nees' character and description are taken. It appears a low, herbaceous annual, very ramous at the base. Branches at first leafy, each ending in a longish spike; on the leading shoot the spikes are axillary.

1489. *HYGROPHILLA OBOVATA* (Nees), stem herbaceous, erect: cauline leaves oblong, those of the branches obovate, obtuse, attenuated into the petiol, entire, slightly hirsute on both sides: flowers half verticelled: calyx 5-fid, the segments and the inferior lip of the corolla bearded.

Malabar, flowering during the rainy season, also Mergui and Malacca.

I have not an authentic specimen of this species, so that I am not quite certain of this being Nees' plant.

He divides the genus into two sections 1. "Verticillis riorum completis," and 2. "Verticillis dimidiatis," and refers *H. obovata* to the second. The specimen represented seems to unite the two sections, having the whorls both complete and dimidiate. In other respects it seems to accord well with the character. My specimens from Mergui, whence Nees had his, correspond with the Malabar plant.

1490. *HYGROPHILLA SALICIFOLIA* (Nees), stem herbaceous, erect, roughish round the joints* leaves lanceolate, acuminate at both ends, lineolate, hirsute on the veins beneath: whorls dimidiate: segments of the calyx subulate, hairy.

Quilon⁵ the station whence the specimens were obtained is not marked, but I believe Quilon is the place. The figure and analysis sufficiently show the forms of the parts, but not so clearly the peculiarity described by the term *Imtolatt*, "Omnia folia supra densissime lineolata et obsolete punctata." These "hneoles" are a number of closely appressed white lines, resembling hairs, but which adhere to the surface, and are covered by the epidermis. How they are produced it is difficult to say, but that they are not hairs is easily shown by subjecting them to the action of an acid which, the moment the cuticle is broken, excites in them a lively effervescence, though on so small a scale that it requires the aid of the microscope to see it. All the species of *Hygrophila* are provided with them as well as many other genera of this order.

1491. *ERYTHRACANTHUS OBTUSUS* (Nees), leaves oblong, obtuse at both ends, the costae, stem and petiols pubescenti-hirtous: racemes axillary and terminal, compound, equalling the leaves: stem creeping at the base.

Mergui. For the specimen here represented I am indebted to the late Mr. Griffith, who seems to be the only person who has yet found the plant. It is not in the best state for representation being somewhat too young to give a satisfactory idea of the inflorescence and fructification.

1492. *HEMIADELPHIS POLYSPERMA* (Nees), stem repent: leaves elliptic-oblong, glabrous, spikes on both branches and ramuli terminal: bracts obovate or oval, rough.

Mergui. Griffith.

My original specimen of *H. polysperma* is so imperfect that I can scarcely identify it as the same with the 009 represented, though I consider them the same. I have adverted to the circumstance in consequence of Nees describing the spikes as "semipolhcares pollicares," while in my specimens they are two or three inches long.

I am not sure that I perfectly understand his description of the stamens, but if I have not misunderstood him it does not quite agree with my figure beyond the circumstance of there being 2 short sterile filaments. His words are "Stamina tubo mfero inserta. filamenta basin versus ab altero latere membranacea, et ubi contrahuntur rudimentum altenu filamenti breve setaeum hirtum exsertia." The structure, as shown in the drawing, is the same as in many species of *Strobilanthes*, *Goldfusseae*, &c, with the exception of the short filaments being sterile, in place of antheriferous.

1493. *PHYSICILUS SERPYLLOM* (Nees), stem diffuse, creeping* leaves strigoso-hirsute, the stem one*; sub-orbiculate, the floral oblong, or oblong lanceolate, upper lip of the corolla bifid, lower acutely 3-toothed.

Bombay. I am indebted to Mr. Law for the specimen here represented. I have never myself met with the growing plant, and suspect it is rather rare or confined to certain localities. Nees had specimens from both Bombay and Mysore, the former collected by Mr. Law, the latter by Captain Campbell.

1494. *GYMNOSTACHYUM POLYANTHUM* (R. W.), flowers fascicled on the raceme, fascicles subapproximate, many-flowered, short, peduncled pedicels bibracteolate leaves petioled, sub-rotundocordate, glabrous, elmeolate on both sides* anthers oval, ecalcarate. stem and calyx glabrous.

Coorg. I am indebted to Mr. Jerdon for my specimens of this plant.

It seems nearly allied to *G. Ceylanica*, being like it sub-acauhne, the leaves nearly all radical, and the flowers fascicled along the raceme and sparingly branched rachis, but differs in the cordate, orbicular, glabrous, elmeolate leaves. Leaves deep green above, pale, almost whitish and strongly marked with prominent veins beneath. Rachis furrowed, glabrous* fascicles of flowers compact, pedicels short, with 2 minute bracteoles at the base. Calyx glabrous, segments subulate. Corolla much longer than the calyx, two-lipped, upper lip two-under three-cleft; tube hairy within. Capsule nearly as long as the corolla, slender, twelve-seeded. Seeds hairy.

1495. *CRYPTOFHRAGMIUM CANSCENS* (Nees), spikes axillary, passing into terminal bifid, secund-flowered, glanduloso-hirsute; leaves ovate, acutish, cuneiform at the base, repand, pubescent, capsule twice the length of the setaceous calyx.

Courtallum. Flowering August and September. Nees contrasts this with *C. sanrulatam*, and considers the two plants quite distinct. As I have not seen authentic specimens, I cannot dispute the justice of his decision, but so far as description enables me to judge, I suspect they will be found too nearly allied.

The leaves of my specimens are not serrulate, but they are as large as those of *C. serrulata*, exceeding 9 inches in length and 4 in breadth, pubescent on both sides, but scarcely scabrous: the capsules are more than twice the length of the calyx, though, certainly, not thrice the length. The pubescence on the leaves, as shown on the drawing, is rather too conspicuous.

1496. CRFPTOPHRAGNIUM AXILLA RE (Nees), cymes axillary, regular, glandulose, about the length of the petiole • leaves broadly ovate, acute at both ends, glabrous, punctulate.

Ceylon—March, 1836.

Further consideration leads me to suspect that this is not the true *C. axillare*, though agreeing in so many particulars. In Nees' plant the stems are said to be repent, a foot and half long here they are evidently diffuse, climbing, and probably many feet long. In his, the stems are 4-sided, with decurrent angles from the leaves, here they are terete, but angled: in his, the leaves with the petiole are 3½ inches long, and from 1½ to 2 broad, here they are about half the size; but it is a branch and then the leaves are said to be smaller: in his, the petioles equal the peduncles, here the leaves are almost sessile; in other respects it seems to quadruplicate with the description and comes from the same country, and is the only plant in my collection at all corresponding with the character of the species, a specimen of which, from my collection, Nees quotes.

ENDOPOGON, STENOSIPHONIDM.

These two genera, as they stand in Nees' Monograph, can scarcely be viewed as distinct though, at first sight, apparently, easily distinguished by the number of their stamens—2 in the former, 4 in the latter. But this distinction Nees has himself broken down by his *St. dwndrumj* regarding which he remarks, "ambigit inter Endopogones et Stenosiphomata sed calyx vix usque ad medium divisus," thus making the essential generic distinction rest on the greater or less depth of the clefts of the calyx, and not on the number of stamens, nor seed in the capsule, or in other words assigning generic value to a circumstance usually esteemed of scarcely specific note. To this high valuation I demur, and therefore in naming the following species, left the calyx comparatively out of consideration, and in lieu thereof made use of the number of seed in the capsule combined with the form of the corolla; viz. a campanulate limb, and long, slender tube, which is common to both.

Endopogon, corolla campanulato-infundibuliform, capsule 4-seeded.—Stamens usually two.

Stenosiphonidium, corolla campanulato-infundibuliform, capsule 8-seeded.—Stamens usually four.

Thus the number of stamens and seeds in the capsule divides, into two genera, a group of species which the form of the corolla unites. So far all is easy. But the tetrandrous *Stenosiphonidium* has at least one diandrous species, and according to my view, the diandrous genus *Endopogon* has a tetrandrous species in my *E. strobilanthifus*.

Here a new difficulty arises, *Endopogon* differs from *Strobilanthes* in the number of its stamens, and to some extent in the form of its corolla, the latter wanting the long slender tube, the limb being nearly the same in both. In my *E. Strobilanthes* there

are 4 stamens, and the capsule is 4-seeded, hence, as regards the stamens and capsule, it is a *Strobilanthes*, with the corolla of *Endopogon*, while the calyx and stamens are those of *Istenostphonium*. The two nearly allied species, *E. capitatus* and *ohausus*, have the stamens and capsule of *Endopogon* and the calyx of *Stenosiphonidium*.

Ought in such a case an additional genus to be constructed for the reception of these 3 plants, which are all so closely allied in habit as to appear inseparable; or are we rather to stretch a point and admit them into one of the already existing 3 genera? The latter has appeared to me the preferable course, hence I have referred them all to *Endopogon*.

They all coincide with *Endopogon* in the form of the corolla and number of seed, and two of them further coincide in the number of stamens, but they all differ in having a 5-cleft, not 5-parted, calyx. but to that I attach only secondary importance. The inconvenience attending this course is the introduction of a didynamous species into a diandrous genus, which, however, is partly palliated by finding Professor Nees introducing a diandrous species into a didynamous genus, so that analogy is in its favour. Influenced by these views, and attaching only specific, or at most, sectional value to the extent of adhesion between the lobes of the calyx, I submit for the consideration of Botanists, the following diagnostic characters of the three genera most named; the adoption of which will, I apprehend, obviate the necessity of an additional one in an order, perhaps, already overburdened with genera, some of them resting on imperfect observation of the structure on which they are founded. In saying that I think fewer might serve, it can scarcely be necessary to guard myself against being misunderstood in the opinion already expressed, that some of the existing genera may require subdivision, as that does not imply that all the existing ones will be found worthy of preservation.

ENDOPOGON. Flowers diandrous, rarely didynamous. Corolla campanulato-infundibuliform, with a long, slender tube. Capsule 4-seeded.

STROBILANTHES. Flowers didynamous. Corolla infundibuliform, tube short. Capsule 4-seeded.

STENOSIPHONIDM. Flowers didynamous, rarely diandrous. Corolla campanulato-infundibuliform, with a long, slender tube. Capsule 8-seeded.

The first and last differ in the number of seed, the second from both in the form of the corolla.

1497. ENDOPOGON VERSICOLOR (R. W.), bracts lanceolate, subulate-attenuate at the apex, and, like the calyx, densely glanduloso-hirsute: calyx 5-cleft, segments lanceolate: leaves long, petioled, broadly ovate, acuminate, crenate, glabrous above, white beneath

Neilghemes, flowering in March and April

This species is very nearly allied to *E. hypoleuca*, from which it differs in the much larger size of all the parts of the inflorescence, the long, lanceolate, subulate bracts, and the abundant viscid, glandular clothing of the ramuli and inflorescence, which is nearly wanting on my authentic specimen of that species. The under surface of the leaves is perfectly white, from a compact layer of very fine

appressed, matted pubescence. The characters, however, agree, generally, so well with those of *E. hypokucas*, that, but for having an authentic specimen for comparison, I should scarcely have ventured to consider them distinct. The character of the calyx associates it with *Slenosipkonium*, but it differs in all other respects.

1498. ENDOPOGON VISCOSUS (Nees), bracts oblong, lanceolate (the lower ones sometimes oval), obtusely unguiculate-cuspidate, carinate; as long as the calyx, rigid, and with the rachis, hirsute-glandulose: leaves oval-oblong, or oval-attenuated at both ends, hispid: seed oval. *Var. a. viscosissimus*, spikes very dense, villous: upper leaves shorter, oval, with a short point, stigmatose above.

Ceylon.

Var. a humilis*, spikes shorter, more compact; lower bracts somewhat oval; otherwise as in *a*. —Courtallum.

The drawing was made from one of the same set of specimens, as the one referred to by Nees under the second variety. It is a low, shrubby, very ramous plant. The whole height of one now lying before me is only six inches, another is about 9 inches high.

1499. ENDOPOGON CAPITATUS (R. W.), spikes abbreviato-capitate: exterior bracts leaf-like, limb glabrous, the dilated base, calyx, ramous, and petiole, thickly covered with rigid, glandular hairs: leaves ovate, acuminate, serrated; limb glabrous, densely imbricate.

Neilghemes, flowering March and April.

A large, ramous shrub, flowers pale blue, capsule about the length of the calyx, 4-seeded. In the figure it seems as if two-seeded, that is an error of the artist.

1500. ENDOPOGON STROBILANTHES (R. W.), spikes elongated, glabrous, exterior bracts foliaceous, oblong, lanceolate, or ovate, acuminate, longer than the calyx: calyx 5-cleft, segments lanceolate: stamens 4-didynamous: leaves broadly ovate, acuminate, serrated, glabrous, imbricate on both sides.

Neilghemes, flowering during March and April.

A large, ramous shrub, each ramulus terminating in a spike of pale blue flowers. In habit and in the foliaceous character, but not in leaf-like form of its exterior bracts, this species quite accords with both the preceding and following species; it also agrees in the form of the corolla, but differs in having 4, not 2 stamens. When in full flower it is a very handsome shrub.

1501. ENDOPOGON FOLIOSUS (R. W.), spikes abbreviato-capitate, glabrous; exterior bracts leaf-like; limb ovate, acuminate, serrated: flowers diandrous: leaves long, petioled, glabrous.

Neilghemes, flowering March and April.

In habit and general appearance like the two preceding species, differing from the first in being everywhere glabrous, and from the second in its capitate not elongated spikes.

The three form a very distinct section of the genus, characterized by their large, exterior, foliaceous bracts.

EXPLANATION OF PLATES.

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1502. *STENOSIPHONIUM DIANDRUM* (Nees), leaves ovate, crenato-dentate, glabrous: bracts oblong, somewhat obtuse, and, like the calyx, glanduloso-hispid: flower solitary, diandrous: filaments hairy at the base.

Courtallum; flowering July and August. Nees¹ specimens of this species are from Ceylon, hence a doubt exists as to this being identical with his. He remarks, "the species fluctuates between *Endopogon* and *Stenosiphonium*, but the calyx is scarcely divided down to the middle. Terminal spikes infid; the atdiary ones leafy at the base; smaller leaves roundish. Approaches, 3. *confertum*."

In habit it very nearly approaches *S. confertum*, from which it is kept distinct by its diandrous flowers.

1503. *STENOSIPHONIUM RUSSELLIANUM* (Nees, not R. VV. Ic. 873), leaves ovate, dentate, naked beneath: bracts rhomboid, obtuse, cuspidate, as long as the calyx.

This I believe is the true plant. The one figured, No. 873, under the same name is, I now find, & *confertum*, a species not published at the time that plate was named. I therefore request the reader to substitute the following, for the name and character there given.

873. *STENOSIPHONIUM CONFERTUM* (Nees, S. Russellianum, R. W. Ic), leaves broad ovate, dentate, naked beneath: bracts ovato-lanceolate or oblong, obtusely acuminate (shorter than the calyx) and, like the calyx, glanduloso-hirsute: flowers geminate or ternate. Nees, in DC. Prod. Pulney Mountains, Neilghernes, &c.

1504. *HFMIGRAPHIS LATEBROSA* (Neep), leaves ovate, coarsely senate: bracts ovate, lanceolate, as long as the calyx —The capitula or spikes, shortened to the form of heads, furnished at the base with two small sharply-serrated leaves, having a long, linear margined petiol. The lower pair of bracts a little broader than the rest, no bracteoles: lacinea of the calyx linear, ciliate and, like the bracts, 1-nerved, the posterior one longer: anthers with one aresta at the base, capsule two and half lines long, thin, 4-angled, six-seeded, from the base, shorter than the calyx. I have some doubts as to this being Nees¹ plant. A point I cannot now settle from not having the specimen, quoted as belonging to my herbarium, to compare. I may however remark that, if this be really a *Hemigraphis*, of which I think there can scarcely be a doubt, then Professor Nees has not correctly observed the anthers. These he describes in the following words, "anthers umloculares, loculo connectivo angusto canato adnato; supenorum staminum altero loculo in barbam loculo subjectum con verso; inferiorum staminum altero loculo ommno deficiente loculo perfecto basi cymbiformi mucronato." All the anthers of my plant are 2-celled, and

only the apex of the filaments, of the longer pair of stamens, furnished with a dense tuft of hairs, which Nees has, it appears to me, mistaken for the lower cell of the anther, as he certainly has done in the case of *Enanthera*.

1505. *DIPTERACANTHUS PATULUS* (Nees), stem erect; leaves ovate-oval or oval-oblong, obtuse, and, like the ramuli, more or less whitish-puberulous flowers fasciculato-temate or quinate (or solitary), short pedicelled: bracteoles oval or oblong, longer than the calyx.—Capsule glabrous, compressed and sterile below the middle, about 12-seeded. Seed convex, glabrous on the outside, somewhat concave and puberulous on the inner face. Corolla pale blue. In flower at all seasons, when there happens to be rainy weather.

A common and generally diffused plant, growing among rubbish and about neglected hedge rows, &c. The seed in this plate is represented much too hairy

1506. *ASYSTASIA COROMANDELIANA* (Nees), stem ramous, branches diffuse; leaves cordato-ovate, ovate, or suborbicular; lineolato-rough above: racemes axillary, long-secund, straight, calyx lobes acuminate.—Corolla about an inch long, funnel-shaped, yellow at the base. Capsule an inch long.

Slopes of the Neilghernes at a considerable elevation. The species, however, is common all over the country flowering during the rainy seasons. The specimen represented does not present a characteristic form of the plant; and for some time I supposed it a new species, but the species being variable I cannot find characters by which it can be kept distinct. The flowers in the specimen were nearly white, specked with reddish yellow spots: lilac is the usual colour.

1507. *LEFTACANTHUS WALKERI* (Nees), panicle densely glanduloso-villous: lobes of the perianth linear-filiform, the upper one a little longer: cauline leaves oval oblong, pubescent beneath; floral ones, at least the primaries, ovate, acuminate, small — Upper branches hairy, leaves with the petiol from G inches to a foot long 1 «J to 3 inches broad, acuminate or caudato-cuspidate, lacineae of the calyx narrow, very villous, the upper segment longer, straight—corol 9-10 lines long, cylindrical, ventncose, lobes of the limb sub-repand, dark pink, or purplish coloured.

The specimens represented are from the Neilghernes, where it flowered in great perfection during February and March 184a

1508. *GOLDFUSSIA TRISTII* (R. W.), ihrubby, erect, leaves unequal, elliptico-lanceolate, acuminate, acutely serrated, glabrous on both sides: inflorescence paniculato-spicate; spikes sub-capitate, long pedicelled, drooping few- (above 2-) flowered, involucrate: involucre leaves or bracts? lanceolate acute: lobes of the calyx long, ciliate at the apex: corolla infun-

dibuliform, limb regular, tube very hairy within; stamens monadelphous at the base; anthers oblong, capsule 4 seeded; seeds near the base, the lower ones often aborting, upper oblong, obtuse, sub-truncate, pubescent.

Western slopes of the Neilghemes under shade by the roadside, about 2 miles below Sisparah. Flowering February.

The generic distinction between *Goldfussia* and *Strobilanthes* is to me very obscure, and I am unable to say with certainty whether this species belongs to the one or other genus. At first I referred it to *Strobilanthes*, and later, on reconsideration, that I have changed for the worse. Leaves with the petiol 6 to 10 inches long, flowers pale blue. Each capitulum, usually only 2-flowered, has 3 pairs of opposite bracts, as shown at fig. 4 of the plate. The pubescence of the calyx is not very well shown in fig. 3, the hairs lengthen as they approach the apex and are there long and matted.

1509. *GOLDFUSSIA DALHOUSIANA* (Nees), leaves unequal, oval, acuminate at both base and apex, serrated and, like the herbaceous stem, hairy: spikes terminal (and axillary?) oval, glabrous; peduncles erect, straight: bracts roundish, concave, caducous.—Simla, flowering September.

The drawing was made from the original specimen named by Nees.

1510. *GOLDFUSSIA PENSTEMONOIDES* (Nees), leaves elliptic oblong, attenuated at both ends, unequal, serrated, multipinnate; spikes terminal, at first capitate, afterwards lengthening and becoming denuded; stem erect, straight, tetragonous.

Hathepoo, Sept. Edgeworth.

The drawing from which the plate is taken was communicated by Mr. Edgeworth, several years ago, but unavoidably left, with many others from the same skilful pencil, unpublished until the present time. As this was, at first, the only species of the genus intended to be introduced I, with a view to rendering the generic analysis more perfect, added, to those of the original drawing, dissections of *G. isophylla*, an authentic specimen of which I happened to have from the Calcutta Botanic garden. They will be found in the upper left hand corner of the plate.

STROBILANTHES.

This is a large genus. Nees has therefore found it necessary to divide it, and has grouped the 65 species known to him under 4 heads—viz.

A. *GENUINI*. Spikes dense strobiliformes.

B. *SQUARROSI*. C. *DENUDATI*, and

D. *PTERACANTHI*. Spikes laxae, folioseae, flexuosae cauleque saepe alatae vel sabalatae. These sections will be noticed under each of the following species by the addition of the sectional letter to their number.

1511. (A.) *STROBILANTHES SESSILIS* (Nees), suffruticose, very hairy, stem erect, 4-angled: leaves sessile, ovate, acuminate, crenate, spikes axillary, opposite and terminal; bracts ovate, cuspidate.—Stems 2-3 feet high, leaves scarcely an inch long, ovate or sub-cordate, crenate: spikes about an inch: calyx about $\frac{1}{2}$ an inch long, the lobes lanceolate, the two lower ones narrower. Corolla about an inch long, varying from pale blue up to purplish. Stamens

shortly monadelphous at the base, joined by a membrane. Capsule oblong, smooth, obtuse or somewhat attenuated at the base, 4-seeded in the middle.

1512. (A.) *STROBILANTHES SFSSILOIDES* (R. W.), suffruticose, very hairy all over, stem erect, four-sided: leaves sessile, rotundato-cordate, serrate, bullately Teticulate, coriaceous: spikes axillary and terminal, bracts broad cordate, cuspidate, entire.—Very like the preceding, but differs in being generally a larger plant, in the much coarser clothing, in the bullately reticulate leaves, the corolla being much hairier within. Spikes from 1 to 3 inches long, the margins of the upper bracts tinged with a purplish blush, flowers deep lilac coloured and very handsome. Neilghemes but rare, growing with the other.

1513. (A.) *STROBILANTHES PERROTTETIANUS* (Nees), shrubby, branches reddish, hairy: leaves ovate, caudato-cuspidate, undulato-crenate, hairy, very rough above: spikes axillary, opposite, secund, oval, nodding, dense, hairy; bracts ovate, acute, the interior ones larger, thinner, and coloured; stamens monadelphous.—An erect shrub, 3-8 feet high, thickly covered with brownish-purple bristles, becoming smoother by age: leaves 4-8 inches long, 1 to 2

long, tube narrow, throat narrow. Stamens incise united by a hairy membrane, capsule contracted at the base, compressed, 2-seeded in the middle.

Neilghemes, not unfrequent on the outskirts of clumps of jungle about Ootacaraund.

1514. (A.) *STROBILANTHES WIGHTIANUS* (Nees), shrubby, erect, very hairy, obtusely 4-angled or nearly terete; leaves ovate, petioled, undulato-crenate, rugous: spikes axillary, opposite and terminal: bracts foliaceous, ovate: corolla a little longer than the bracts, lobes emarginate.—Stems 2 to 10 feet high, very straight, erect, or sometimes with a tendency to spread, very hairy with long, thick, articulated, spreading bristles: leaves opposite, 1 $\frac{1}{2}$ to 3 inches long, about 1 inch broad, very hairy, rugose: peduncles axillary, short, spikes about the size of a cherry, ovate or sub-globose, cernuous. Bracts densely imbricated, spreading at the points, foliaceous; the interior ones membranaceous: corolla 8 or 9 lines long, nearly of the colour of that of *Hyocissus mager*, and like that reticulated with purplish veins, limb 5-lobed, lobes obovate, emarginate, equal, throat hairy within.

There are two varieties if not distinct species of this plant, the one tall, 4-8 feet, generally found in low marshy ground, as detached plants; the other in high and dry ground, forming dense clumps of low bushes. In the former the flowers are larger and more conspicuous: in other respects they seem so much alike that I refrain from viewing these as two species, though their habits are so distinct, under the belief that the differences depend on the localities in which they respectively grow.

1515-16. (A.) *STROBILANTHES LITJRIDU9* (W. R.), a large, ramous shrub; branches virgate, bearing the inflorescence on the lower naked portions: leaves oval, oblong, acuminate, pubescent on both sides, finely serrated: spikes ascending, one or two together, opposite: bracts large, orbicular emarginate or slightly

refuse at the apex, dark livid brown; bracteols linear, obtuse, about the length of the calyx * calyx 5-parted lobes lanceolate with a row of bristles on the back: corolla 5-lobed, lateral lobes reflexed, hence apparently bilabiate: stamens united by pairs at the base, all equal, exerted; anthers oblong: capsule about the length of the calyx, somewhat compressed, 4-seeded: seed orbicular, glabrous.

Neilghemes, in woods near Nedawuttem. Flowering January and February 1840*. When I visited the station in 1847 and J848, I did not find it in flower though I found the plant in abundance, hence it seems only to flower once in several years. Corolla deep purplish brown, scarcely exceeding the large dull lurid bracts.

[at first considered this the type of a genus near *Strobilanthes* and proposed calling it, with reference to the stamens, *Didyplosandra*, thinking that they, added to the peculiar habit, were sufficient to constitute this a distinct genus. But on comparing them with those of *S. Jfghtiana*, a species (of which I had specimens named by Nees himself) with which they correspond, it did not appear that the other differences were of generic value, or such as to call for its separation from that genus as now constituted. My own impression, however, is, that they, and some others to be noticed, ought all to be removed, and the genera *Goldfussia* and *Strobilanthes*, either united or recast on amended characters. As they now stand they can scarcely be said to be distinguishable.

1517. GOLDFUSSIA ZFNKERIANA (Nees), stem fruticose: leaves ovate, acuminate, acute at the base, callosio-senated, glabrous: spikes axillary, opposite, oblong, sub-involucrate, peduncled: bracts oblong and, with the subulato-acuminate, glabrous lacineae of the calyx, subciliate: corolla regular: second pair of stamens short.—Stems 4-sided, glabrous, smooth, minutely hneolate, infructuous at the joints: leaves somewhat unequal, including petiol, 3 or 4 inches long and 1½ broad, cuspidato-acuminate, acute at the base, ending in a channeled petiol, closely callosio serrulate, shining, minutely hneolate above: corolla about an inch long, blue. *

Neilghemes, towards the western passes, the Avalanche and Sisparah.

This species, if correctly named, is so very nearly allied to *Strobilanthes ciliatus* that, when naming the drawing, I regret to say rather too hurriedly, I gave it that name. After consideration induced me to change it, and I must now beg leave to propose the transfer of the original *Strob. alatus* along with it to *Goldfussia*, as it is not genically distinct from this species, neither is *S. glabralus* nor *S. decurrens*.

In the drawing the habit of this plant has not been very well preserved, and the flowers seem to me a little too large.

1518. (A.) STROBILANTHES ASPER (R. W.), shrubby, erect, four-sided, young shoots furrowed on two sides, older branches glabrous, ramuli hirsute: leaves unequal, ovate oblong, long petioled, acuminate, crenato-serrate, rough on both sides, venoso-reticulate: peduncles axillary, shorter than the petioles, trifid: spikes compact, ovate: bracts broad ovate, ventneose undulate, attenuated below into a winged petiol, cuspidato-acuminate above; bracteols linear-lanceolate, bristly, as long as the calyx: calyx 5-parted, segments lanceolate, ciliate: corolla twice

the length of the calyx, limb campanulate, Tentricose above, tube contrasted: stamens incluse, filaments hairy, capsule 4-seeded.

Neilghemes, in woods about Pycarrah. I feel uncertain whether I ought not rather to consider this a species of *Goldfussia*. The two genera seem to me, as they now stand in DeCandolle's *Prodromus*, quite interblended. This is certainly no true congener of *S. Wxghiiianus* though it perfectly associates with many others of the genus. The venation of the leaves is not sufficiently brought out in the figure; the portion fig. 10 gives the best idea of it, but the 4th series of veins is easily made conspicuous with the aid of a lens of low power.

1519. (C.) STROBILANTHES MICRANTHES (R. W.), suffruticose, or herbaceous erect, stems 4-angled glabrous; leaves long petioled, broad ovate, serrated, abruptly acuminate, decurrent on the petiol: somewhat hispid above, reticulato-venous and sparingly pubescent beneath: spikes axillary, opposite, drooping: peduncles refract near the apex: bracts ovate, lanceolate, acute; the lower ones fohaceous, pubescent, those above membranous, ciliate; bracteoles linear lanceolate, longer than the calyx: calyx lobes lanceolate, exceeding the corolla: corolla campanulate, shortly and orbicularly 5-lobed: stamens equal, exerted; filaments flattened, monadelphous at the base: anthers adnate; ovary 4-ovuled: capsule ?

Neilghemes. This species seems nearly allied to *S. mysorensis* and ought, I suspect, to be removed from the genus, along with several others having equal stamens, to form the type of a new genus. It appears to me they might all be associated with *St. lunda* in my proposed new genus *Didyplosandra*. This breaking up of Nees' genus I could scarcely venture upon while examining only a few of his species.

1520. (A.) STROBILANTHES GRAHAMIANUS (R. W.), shrubby, ramos, 4-sided, older branches glabrous tuberculate: leaves broad ovate, cuspidato-acuminate, slightly crenato-dentate, decurrent on the long petiols, stellato-hirsute above, pubescent beneath, reticulately veined: peduncles axillary or from the naked branches trifid, shorter than the petiols: spikes ovate oblong, glabrous - bracts orbicular, ventneose, the lower ones a little more remote, densely hneolate, sometimes hispid; bracteoles none: calyx segments lanceolate: corolla large, longer filaments very hairy: capsule short, compressed, 4-seeded, the lower pair much smaller, all pubescent.

I am indebted to the late Mr. Graham of Bombay for the specimen here represented. The species seems very distinct, but is nearly allied to *S. Hcyneana*. The numerous little tubercles or warts shown on the stem, being apparently the product of attacks of insects, ought not perhaps to have been noticed in the character.

1521. ENDOPOGON RHAMNIFOLIDS (R. W. *Buteraa rhamnifolia*, Nees), young branches and spikes softly whitish hirsute: bracts rhombea-oblong: petiols glabrous.—Stem glabrous below, tuberculate, towards the apex woolly hirsute: leaves, including the petiol, from 21 to 3 inches long, 1 inch broad, crenato-serrated, rough above with scattered bristles, glabrous beneath: the branches of the costal vein, (J on each side: bracts sub-cumate at the base, obtuse, or ending in a short acumen at the apex. Nees.

This drawing was prepared, in the hope of its furnishing me with the generic characters of *Buteraa*, my specimen being an authentic one (viz. Herb. Gardner, No 1219), named by Nees himself. It however appears from the analysis that Nees must either have fallen into a mistake in referring the species to *Buteraa*, or that there is no actual difference between it and *findopogon*.

1522. *GOLDFUSSIA DECURRENS* (R. W. *Strobilanthes*, Nees), herbaceous, stem 4-sulcated, slightly rough leaves oval acute at both ends, sub-dentate, glabrous, closely lineolate: spikes axillary, or temate-terminal, peduncled, oblong, drooping: bracts oblong elliptic, obtuse, broadly decurrent, glabrous, lineolate: flowers with the rudiment of a 5th filament.—Stems flexuose: leaves unequal, the larger one 5 to 8 inches long, entire or scarcely repand. peduncles at first simple, bibracteate about the middle, afterwards trifid, but usually single. Spike* about an inch long, cernuous or drooping: bracts opposite, oblong obtuse, decurrent on the peduncle: flowers solitary, sub-sessile, the pedicel furnished on each side with a short, tooth like bracteole, "stamina united by pairs at the base, and decurrent in a foliaceous ciliate wing." "Structura calycis ab affinis valde recedit." Nees.

This species is referred by Nees to *Strobilanthes*, but I cannot help thinking, as the result of hasty examination, I have therefore taken the liberty of transferring it to the genus *Goldfussia*, with which, as I understand these two genera, it accords better.

1523. *STROBILANTHUS NEESIANA* (R. W.), suffruticose ramuli subterete, glabrous: leaves unequal elliptico-ovate, acuminate, acute, sub-unequal at the base, coarsely crenato serrated, stellato-hirsute, densely lineolate above, lineolate and sparingly pubescent beneath: peduncles axillary, often trifid, numerous and sub-pamcelled towards the ends of the branches; bracteolate about the middle; spikes short, ovato-capitulate: bracts foliaceous, acuminate, retuse at the point, clothed with viscid pubescence: calyx and shorter bracteoles densely pilose: corolla sparingly pubescent without, bristly hirsute within: longer filament hirsute, ovary 4-ovuled.

Neilghernes. This species approaches both *S. Perrottianus* and *S. asper* but is amply distinct.

1524. *ADENOSMA VERTICELLATA* (Nees), stem ascending and, like the oval oblong serrulato-crenate leaves, hairy: flowers verticelled: lacinae of the calyx linear-spathulate, obtuse.—Leaves approximated, about an inch long, attenuated below into a short petiol, obtuse, crenulate, minutely punctulate, hairy on the costae and veins: exterior bracts longer than the interior, obovate, oblong obtuse, attenuated at the base, densely pubescent; bracteoles on the base of the calyx wanting or minute: calyx 2-3 lines long, lobes equal, pubescent, broader above: corolla 4-6 lines long, pubescent, purplish; upper lip vaulted, bidentate, the lower one broad, 3-lobed, the middle lobe larger; palate gibbous, hairy: capsule about 3 lines long, pubescent, 4-sided, many-seeded.

Mysore and Coorg. This species approaches *A. balsamia*, but seems amply distinct.

1525. *GYMPCOSTACHYUM ALATUM* (R. W.), stemless: leaves glabrous, all radical, humifuse, long pe-

tioloed, cordato-suborbicular, entire; petioles winged: spikes ascending flowers sessile, solitary, sub-alternate: calyx segments all equal, sub-pubescent, acute* corolla many times longer than the calyx limb, large, ventricose, upper lip emarginate, under 3-toothed anthers 2 celled, pubescent.

Coorg. The ovary represented fig. C, belongs to this species—the capsule fig. 7 to another. Figures 8, 9, 10, 11 and 12 are taken from very young flower-buds, long before expansion.

Along with this I received specimens of another species, very nearly allied to *G. cylantcum*, which I have named *G. polyanthum*, with the following character.

G. polyanthum (R. W.), glabrous, flowers fascicled, on slender glabrous racemes: fascicles short peduncled, sub-aggregate: fascicles furnished with minute subulate bracts, glabrous, leaves cordato-orbicular, subcuspidato-acuminate; petioles wingless—calyx lobes equal, subulate: corolla cylindrical, anthers 2-celled, cells parallel, distinct, except at the apex, ecalcarate. capsules slender, about 9 lines long, many-seeded—The capsule valve, shown fig. 7, is taken from this species. In one of the flowers examined I found 3 perfect stamens.

1526. *CALOPAANES VAGANS* (R. W.), shrubby, diffuse, climbing: leaves oval or sub-ovate, petioled, entire: peduncles axillary, longer than the petioles, cymose 2-5-flowered and with the calyx sub-viscoso-pubescent: calyx lobes subulate about half the length of the bilabiate corolla: anthers bi-calcarate.

Coorg, climbing among bushes. Ramuli 4-angled, rough on the angles: leaves from 1 to 2 inches long, slightly pubescent on both sides: corolla, before expansion (fig. 3), pubescent: seed hairy.

1527. *LEPTACANTHUS ALATUS* (R. W.), shrubby, panicles racemose, numerous on the naked branches, or in single axillary racemes on the leafy ramuli: leaves oval oblong, acuminate, entire, decurrent on the petiol, amplexicaul, glabrous: peduncles, bracts, and calyx, thickly beset with long bristly hairs: lobes of the calyx linear obtuse, much longer than the bracteoles: longer filaments hairy.

Coorg. Leaves from 7 to 10 inches long, dark green above, pale beneath; petioles winged with the decurrent limb of the leaf. A very distinct species, of which, however, for want of room, the figure gives an imperfect idea.

1528. *BARLERIA HOCHTETTERI* (Nees), fruticose, branches strigiloso tomentose, trichotomous at the apex; ramuli trifid, 3-flowered or one-flowered with 2 bracts: leaves oval obtuse sub-mucronate, strobilose: bracteoles lanceolate entire and, like the larger oval acute equal entire lobes of the calyx, glanduloso-pubescent; tube of the corolla smallish.—A low shrub, very ramous, branches whitish-pubescent, leaves from 1/2 to 1 inch long, 4-5 lines broad, obtuse: flowers horizontally nodding.

I am indebted to Mr. Stocks of Bombay for the drawing here published, and for specimens of this curious species; a native of Scinde and Arabia.

1529. *BARLERTA CODRITALICA* (Nees), stem fruticose, leaves oblong, attenuated at the base and apex, glabrous, shining: spikes axillary and terminal, short, glanduloso-hirsute: bracts and bracteoles, linear-subulate: larger lacinae of the calyx about equal,

oval oblong, attenuated at the apex: anthers of the shorter stamens imperfect, acute at the base.—A large shrub, branches dichotomous: leaves 5-7 inches long, 1½ to 2 broad ending in a long tapering point, flowers opposite, subsecund, sessile; bracts minute, subulate, bracteoles linear: larger lobes of the calyx viscoso-pubescent, palmately nerved, entire, bidentate at the apex: corolla nearly 2 inches long, lobes obtuse: anthers oblong incumbent: capsule about the length of the calyx, the angles pubescent near the apex.

Courtallam, flowering during the rainy season between July and September.

1530. *LEPIDAOATHIS WALKERIANA* (Nees), herbaceous, glabrous, leaves ovate, oblong, acuminate, obtusely dentate; entire at the base and attenuated into the long petiol: spikes axillary, trichotomously compound, crowded, peduncles shorter than the leaves: bracts herbaceous about half the length of the calyx, and like the oblong somewhat obtuse exterior lobes of the calyx, 3-nerved; bracteoles, like the bracts, narrower, somewhat acute, 1-nerved.

My specimens of this species are from Courtallam, and possibly may not be identical with Nees,* but the character seems to me to correspond so well with my figure as scarcely to admit of my entertaining a doubt on the subject

1531. *NECRACAWTHUS LAWII* (R. W.), shrubby, branches terete, glabrous, smooth: leaves sessile, subcordato-ovate, obtuse or ending in a short blunt acumen, slightly rough, pale whitish beneath: spikes sessile, capitulate, axillary, copiously pubescent: bracts large, sub-orbicular, about as long as the calyx; bracteoles none: calyx deeply two-lipped; upper two-parted, under three-cleft; lobes lanceolate: corolla sub regular, obscurely 2-lobed (plicate in estivation?), 5-toothed, teeth tipped with tufts of hair: stamens 4, include, hairy: anthers 2-celled; one of the cells of the shorter pair, sterile, divaricate, clavate: capsule 4-seeded.

Bombay, Law. "This though common, even in the Island of Bombay, does not seem to be in Graham's catalogue." Law, MSS.

I am indebted to Mr. Law for the specimen here figured. It seems to accord well with the generic character of *Muracanthus*, but is most distinct from Nees' only species. I dedicate it to the discoverer.

1532. *NEURACANTHUS TRINERVIUS* (R. W.), shrubby, branches terete, glabrous, smooth: leaves short petioled, sub-ovate, mucronate, glabrous: spikes axillary, secund, dense, the terminal one about the length of the leaves: bracts ovate, acute, coriaceous, rigidly 3-5-nerved, densely hirsute, bracteoles none: calyx sub-bilabiate, lobes lanceolate pubescent: corolla sub-bilabiate, obscurely 5-lobed; lobes tipped with a tuft of hair: stamens four, longer filaments hairy: anthers 2-celled, 1 cell of the shorter ones sterile, divaricate, ovary 2-celled, with two ovules in each.

Salsette, Bombay; Law. I am indebted to the same liberal contributor for both these very local plants, neither of which appears to have been hitherto described.

1533. *ÆTHEILEMA RENIFORME* (Nees), stem herbaceous, and like the ovate, unequal at the base,

leopard leaves, pubescent; one of the leaves smaller bracts reniform and with the upper ovate membranaceous lacina of the calyx ciliate.

The specimens here figured were gathered in Paulghat growing by hedge rows. The plant seems to be a rare one, as I have scarcely ever met with it. It is a ramous, somewhat diffuse, herbaceous plant, everywhere slightly clothed with very short pubescence, on the bracts and calyx only it becomes longer: bracts pale whitish coloured, membranous, seed ciliate.

1534. *BLEPHARIS ASPERIMA* (Nees), proper bracteoles quartemary, white reticulated with green lines at the base, alternate, cumform, trifid or lanceolate. Leaves opposite.

Mysore, Belgaum, Coorg.

Apparently a diffuse plant with very rough leaves every part more or less beset with bristly hairs, and a line of them running along each side of the branches from leaf to leaf, but neither so numerous nor so conspicuous as the lithographer has represented them in the figure. The opposite, not whorled leaves of this species, present a ready distinctive mark.

1535-36. *ACARTHOOIUM GROSSEI* (Nees), low, branches procumbent, ascending, and like the linear lanceolate, margin revolute leaves, very rough bracts rhomboid, spinosa-dentate, hirsute on the veins: spikes crowded on the centre of the ramifications, ovate, oblong, sessile.

Scind, Stocks.

Mr. Stocks sent me specimens and a drawing of this plant under the name of *A. hirtum*: on comparing them with the characters of *A. grossum* I certainly think they quadrate better with them, than with those of *hirtum*. But while I have arrived at this conclusion, I am hardly prepared to say that Mr. Stocks is wrong; on the contrary, on taking collateral circumstances into consideration, I would now, had I the plant to name, adopt his name in preference, and the more readily as I cannot see in what the two species differ. Perhaps my figures contain both.

1537. *PHLOGANTHUS LATIFOLIUS* (R. W.), shrubby, erect, 4-sided, glabrous: leaves long petioled, broad ovate, entire, cuspidato-acuminate, sub-truncate at the base: spikes trifid, axillary, shorter than the petioles: flowers sessile, opposite or alternate on the rachis calyx lobes subulate* stamens exerted* anthers apiculate, cells contiguous: ovary 12-ovuled: capsule linear, 12 seeded.

Coorg jungles.

In the generic character Nees gives it a 2-celled, compressed capsule, with the upper portion of the cells 4-seeded, and in his essential character "capsula a medio 4-sperma." In this species I find 12 seed, and in *P. thyrsiflorus* eight, whence it seems probable that, in this genus, the number of ovules will be found to supply good specific characters.

1538. *HEMICBORISTE MONTANA* (Nees), glabrous: leaves oblong, oval, entire, cuspidato-acuminate, tapering into the petiol: bracts and bracteoles, sub-herbaceous or membranous, obtuse, a little longer than the pedicel: flowers pedicelled; corolla deeply 2-lobed: stamens two (shorter ones altogether want-

ing in these specimens) inserted on the very hairy throat of the tube: capsule contracted, stipitate at the base, 4-seeded above the middle: seed rough.

Koondahs (Neilghernes), Wynaud, Coorg. I suspect the plant figured is a different species from the one described by Nees as he describes his as having "Folia opposita, inferiora 7-8 poll, longa, 2 ad suramum lata, oblonga, acuta, basi cuneatim inpeteolum attenuata integemma glabemma laevia." With the exception of the cuniate leaves, the two plants seem pretty well to agree with this description) but mine is diandrous his tetrandrous.

1540. *ROSTELLULARIA PROCUMBENS* (Nees), SteiDB procumbent or ascending and, like the ovato-lanceolate or oval, ciliate leaves, hirsute: spike sub-tetragonous. calyx 4-5-parted and, with the lanceolato-linear equal bracts, hirsute, ciliate: capsule oblong, equaling the calyx.—The essential distinctive mark of this species consists in the rigid setiform articulated pubescence, often reversed on the stems, with which every part, but especially the calyces, is covered.

A common and variable plant, very liable to be confounded with *R. dxffusa*, also with it *mollissima*; with the character of which last, the figure so much accords, that I feel doubtful whether I ought not rather to have referred it to that species.

The drawing was made at Ootaiamund, from native recent specimens.

1540. *ROSTELLULARIA HEDYOTIDIFOLIA* (Nees), item erect, divancato ramos from the base, ana, like the ovate sub-crenate acute leaves, roughish. •pikes terminal, and, towards the ends of the branches, axillary, short, interrupted at the base calyx 4-parted, lobes lanceolate, membranous on the margin, glabrous: bracts equaling, bracteoles shorter than the calyx, setaceous on both sides.

The station whence the specimens were obtained is not marked. It is a small, very ramos shrub, and is assuredly most characteristically named, the whole plant having a most Hedyotis-like appearance. The leaves turn black in drying. The figure conveys a good idea of the plant, with the exception of the spikes, which seem a little too large.

1541. *ROSTELLULARIA GRACILIS* (R. W.), repent, •terns erect, ramos, glabrom: leaves oblong, oval-lanceolate, pointed at both ends, sessile, entire, •lightly revolute on the margin, spikes terminal, short, bracts sub-lanceolate, subulate, pointed, longer than the calyx: calyx 5-parted, lacineae subulate, glabrous.

Station not marked with the specimens.

The figure conveys a very imperfect idea of the •tender graceful form of this species. The tallest of my specimens is nearly a foot long the leading shoot giving off a succession of branches, each of which is again more or less ramos and each terminating in a short secund spike. The leaves, as shown in the drawing, are too large, especially on the branches and ramuli, but preserve well the outline form. The species seems too nearly allied to *R. diffusa*, if indeed it » not one of the very many varieties of that species.

1542. *ROSTELLULARIA SIMPLEX* (R. W.), root somewhat repent; stems erect, simple, 4-sided, and, with the veins on the under surface of the leaves, more

or less thickly beset with rigid bristly hairs: leaves oblong, oval, lanceolate, blunt; glabrous above, but marked with numerous transverse lmeoles* spikes terminal, longish* bracts about the length of the calyx, and like it, pectinato-bristle ciliate on the margin: costa below beset with similar bristles. Station not known.

The pectinate bristles on the bracts and calyx, with the transverse hneoles on the leaves, added to the simple erect habit of the plant, mark this as a very distinct species.

1543. *LEPTOSTACHTA WALLICHII* (Nees), leaves oblong, or oblong oval, punctulato-rough above spikes glandulose: anthers muticous.—Shrubby, glabrous, ramuli terete, smooth: leaves 6 to 8 inches long, tapering at both ends, thin sub-membranous • panicles racemose, ramuli glanduloso-pubescent, flowers opposite; bracts and bracteoles shorter than the calyx.

1544. *ADHATODA NEILOHERRICA* (Nees), leaves lanceolate, sessile, glabrous, smooth * spikes terminal, 4-sided, bracts and bracteoles ovate, acuminate, yenos-3-nerved, glabrous.

Neilghernes, frequent in pastures about Ootacamund, where it is always in flower. A low, procumbent plant, lying flat on the ground, but rendered conspicuous from the grass, among which it grows, by its numerous pale coloured spikes, which ascend a little above the rest of the plant.

1545. *ADHATODA WYNAUDENSIS* (Nees), shrubby, stems terete, slightly lineolate; leaves oblong, attenuated at both ends, stngous above, the lower ones crenato-dentate - spikes axillary, spreading or drooping, occasionally diphyllous at the base, glanduloso-pubescent: flowers solitary opposite; bracts ovate, deciduous and, like the linear subulate bracteoles, shorter than the calyx.

Eastern slopes of the Neilghemes on the banks of the stream near Burliar. The general aspect of this plant is so unlike that of the other species of the genus with which I am acquainted, that it was long before I recognised this as a species of *Mhaioda*.

1576. *JURVICA LIVIDA* (Hamilton, Nees), leaves oblong, acuminate at both ends, glabrous, shining; petioles obtusely margined (or emarginate); spikes terminal. 4-sided bracts oval, long, cuspidate, repando-subdentate, ciliate, somewhat shorter than the capsule: upper lip of the corolla linear, reflexed.

Coutallum. A low growing shrub, leaves glabrous, 6-8 inches long, KJ broad, acuminate, glabrous, corolla pubescent, tube slender, about an inch and half long, upper lip narrow, under broadly 3 nerved.

1547. *RUNGIA PECTINATA* (Nees), stem diffuse, gemculato-repent: fertile bracts orbiculate, raembranaceous, mucronulate or muticous, 3-nerved, villous and ciliate with a broad entire membranaceous margin, sterile ones ovato-cuspidate, villous, subemargmate, 3-nerved; interior bracteoles entire, linear lanceolate, broadly membranaceous, emarginate, ciliate: leaves oval, obtuse, rough on the veins.

Hab ? The station whence the specimens were obtained is not stated, but I have others from Mergui, whence I infer Malabar as the most probable station. Nees describes the Btem as creeping;

my specimens, if the true plant, rather convey the idea of growing erect, or at all events loosely ascending.

1548. *RUNGIA LATIOR* (Nees), leaves subovate or oval, moderately attenuated at both ends, somewhat obtuse: stem diffusely repent: corolla longer than the bracts, upper lip acute: bracts uniform, obovate, retuse, shortly mucronate, 3-nerved, ciliate, margin membranaceous; "bracteoles subulatis."

Ootacamund, flowering during the autumnal months, growing among bushes and long grass, about the sides, streams, and the outskirts of damp woods.

I feel somewhat at a loss regarding the last two words of the specific definition, as I have not been able to find a trace of bracteoles beyond those shown at fig. 1 of the plate. The figures of the anthers are not good though, in the main correct as seen when simply lying on the field of the microscope. To show their proper structure they require to be separated, when it is seen that the appendage, shown on the back of the anther, is a prolongation of the upper cell, and that the lower one has an orbicular tip. I however believe that this is truly the plant named.

1549. *Rungia WIGHTIANA* (Nees), suffruticose, erect: leaves ovate oblong, much attenuated at the apex: bracts veined, the margins hyaline towards the apex, most delicately (subtilissime) ciliate; sterile ones oblong, acute, the fertile ones rhombocumform, obtuse; bracteoles membranaceous, oval, mucronulate; spikes lax, terminal

Courtallum, during the rainy months.

I am not sure that I rightly understand Nees' views of the bracts and bracteoles of this genus. In the generic character he says, "Spica quadrifaria bractiata * * ordinum duorum superiorum vacuis, inferiorum unifloris." I find in this species two rows of sub-lateral alternate empty bracts along the back of the rachis, one to each flower, other 2 rows on the opposite side, each with a single flower and two broad lateral membranaceous bracteoles in its axil. Fig. 4 of this plate shows the flower and bracteoles, figure 3, is the fertile bract; and fig 2 gives a view of a portion of the back or sterile side, with four of the sterile bracts. Hence it follows that to each flower there are two bracts, one sterile and one fertile, and two conformable bracteoles, not 4 bracts and two bracteoles, which the concluding words of the definition of *R. latior* gives us reason to suppose, as I find, what I conceive to be its bracteoles, not subulate, but obovate, acuminate, obtuse, like the fertile bract, but all three different from the sterile one.

In this species the fertile and sterile bracts are nearly conformable, the bracteoles much shorter and sub-orbicular. The capsule is not correctly represented, it opens like that of *Dicliptera*, No. 155, p. 52.

1550. *Rungia ARNOTTIANA* (R. W.), shrubby, erect, glabrous, branches terete: leaves broad elliptic, attenuated at both ends, decurrent on the long, and thence winged, petiol: panicles terminal, compact, branches trifid, spikes short, dense: bracts obovate, scarcely membranous on the margin, finely pubescent, bracteoles oval, mucronate, hyaline- calyx sub-villous, posterior lobe a little larger: upper lip of the corolla entire, pointed.

Courtallum. This species seems very near if not indeed too nearly allied to *R. Wightiana*, and may prove only a very luxuriant variety but, so far as can be judged from specimens, it is distinct

1551. *DICLIPTERA BIVALVIS* (JUSS.), leaves ovate oblong, acuminate, acute at the base, lineolate, hispid-scabrous: peduncles axillary, longer than the petiols, trifid: capitula 2 or 3-flowered: bracts broad ovate-roundish, anastato-mucronate, 5-nerved, hispid, margin naked.

Courtallum. A very distinct and easily recognized species.

1552. *DICLIPTERA CUNIATA* (Nees), leaves ovate, obtuse or acute at the base and, with the stem, minutely lineolate, glabrous: peduncles axillary, longer than the petiols, 3-5-cleft: common involucre shorter than the umbel, subulate; partial involucre diphyllous; leaves cumform, mucronate, pubescent-scabrous,

Courtallum, flowering during the autumnal rains.

1553. *PERISTROPHE MONTANA* (Nees), leaves oblong, attenuated at both ends, lineolate and, like the stems, glabrous, umbels axillary and terminal, five-cleft: capitula 3-5-flowered: involucre diphyllous; leaflets equal, ovate-elliptic, obtuse, mucronulate, glabrous.

Courtallum, flowering during the rainy autumnal months, flowers pink coloured. A beautiful species but rare. I have not found it in any other station. The flowers are nearly 2 inches long, and the involucre coloured.

1554. *RHAPHEDOSPERA GLABRA* (Nees), peduncles axillary, many flowered; leaves ovate, attenuated at the apex, glabrous.

A common plant, growing about hedge rows and clumps of trees all over the country, flowering during the cool season.

1555. *HTPOESTES MALACCENSIS* (R. W.), herbaceous, erect, stems 4-angled: leaves entire, ovate-lanceolate, acuminate, sub-villutous, acute at the base: spikes short, sub-capitate, axillary and terminal, the axillary ones short peduncled, with occasional solitary axillary flowers: bracts lanceolate, shorter than the tube of the villutino-viscid 1-flowered involucre: leaflets of the involucre cohering below, the inner ones smaller, all lanceolate: calyx 5-cleft, about the length of the tube of the involucre: upper lip of the corolla longer than the lower, acute or bidentate: stigma undivided.

Malacca, Capt. A. C. Wight. I have no knowledge of this species, nor indeed of the genus, beyond what the specimens supply.

1556. *HAPLANTHUS NEILGHERRTENSIS* (R. W.), herbaceous, ramous, declining; branches axillary, opposite, shorter than the leaves: flowers racemose on the ends of the branches and stem: leaves hispid, elliptic, oblong, acuminate, long petioled; petioles winged: flowers opposite from the axil of a minute leaf; calyx 5-parted, small and, like the numerous bracts, setaceous-hispid: bracts linear, 2-3-toothed at the apex: anthers two-celled, both polleniferous with a dense tuft of wooly pubescence on the back.

Neilghemes, and Coorg jungles; Monro, Jerdon. This species seems nearly allied by characters to *H. tener*, but is very distinct in habit. According to the generic character the anthers should have only one cell, "Anthers umloculares, connectivo loculoque altero abortivo tomentosis villosisve." I cannot speak with equal certainty regarding the others but in this species there are certainly two polleniferous cells. The corolla is scarcely 2-lipped, more properly 5-lobed, sub-regular.

1557. *ANDROGRAPHIS LOBELIOIDES* (R. W., *Enanthera*, Nees), herbaceous, diffuse, procumbent: leaves subovato-orbicular, mucronulate, flowers terminal, racemose.

Neilghemes, rather frequent in pastures, nestling among the grass, but quite conspicuous from its tufts of brownish purple flowers. Nees has separated this and a nearly allied species from *Andrographis* under the name of *ErtanUura*, on account of the anthers. "Anthers locus inferior abortivus in barbum lamforraem solutus." As this is certainly not the case in either of the two species, I have taken the liberty of restoring both to *Andrographis*. See plate 517. The tuft of wool in this species is on the back of the connectivum, but not well shown in the figure.

1558. *ANDROGRAPHIS WIGHTIIAIVA* (Am), herbaceous; stem and branches glanduloso-hirsute • leaves sessile, sub-cordate, attenuated towards the point or ovate, short petioled, glabrous, rough on the margin: racemes axillary and terminal, simple or bifid, flowers short pedicelled; lacineae of the calyx subulate: fruit about 12-seeded.

Malabar. A very distinct and easily recognized species, of which the figure gives a very correct representation. Its light slender habit is quite characteristic. Leaves pale, when dry almost whitish, beneath.

1559. *ANDROGRAPHIS * ISCOBULA* (Nees), suffrutescent, diffuse, ramous; and, like the oblong lanceolate leaves, glabrous: racemes terminal, tnfid, glanduloso-pubescent: flowers secund: capsule oval, 8-seeded.

Courtallum. A low diffuse ramous plant, flowering during the autumnal months at Courtallum. In the figure the second habit of the racemes has not been preserved, a defect partly attributable to too much care having been bestowed in the preservation of the specimens in which this distachyous form exists, but is also, in part, owing to the want of observation of the artist. The apparent hairs on fig. 8, are principally hneoles, not hairs.

1560. *ANDROGRAPHIS CEYLANICA* (Nees), herbaceous, stem hirsutulous: leaves oblong, lanceolate, usually short petioled, stngose above, pubescent beneath: racemes axillary and terminal, secund, glanduloso-pubescent: flowers pedicelled: lacineae of the calyx subulate: capsule oblong linear, hairy, 10-seeded.

Courtallum, flowering during the rainy autumnal months. In the figure the petiols are represented considerably too long, and the flowers are not shown secund though they are so in the specimen. Defects of that kind can scarcely be altogether guarded against in the case of native artists who have no idea of the consequence; and I can now only express

my regret that the hurry of official business prevented me looking better after his labours when making the drawings.

1561. *ANDROGRAPHIS NEFSIANA* (R. W.), herbaceous, erect, nearly simple, acutely 4-angled, glabrous except round the joints, where it is furnished with a ring of short brown hair: leaves hirsute, elliptic oblong, acute at both ends, short petioled panicles terminal, contracted; branches tnfid. calyx and corolla glanduloso-pubescent, capsule linear, hirsute, about 8-seeded.

Pulney Mountains, very abundant in moist soil, near the banks of streams, plant from 2 to 3 feet high, leafy towards the apex, very sparingly branched, each branch ending in a dense tuft of rather large brownish purple flowers. So far as I am acquainted with the genus, it is one of its finest species, hence I have dedicated it to the accomplished Botanist whose labours have thrown so much light on the whole order.

1562. *STROBILANTHES CAMPANULATUS* (R. W.), herbaceous, erect, ramous, four-sided; angles rounded • leaves broadly ovate, or sub-cordate at the base, cuspidately acuminate, pilose on both sides spikes axillary, capitate, peduncled: bracts glabrous, somewhat shining, sub-orbicular; bracteoles about the length of the calyx: flowers scarcely exceeding the bract, tube short, limb campanulate, equally 5-lobed and, like the longer filaments, hairy within.

Coorg. A small herbaceous plant, judging from 3-4 specimens, from 6 to 10 inches high, every where, except the bracts, which are smooth and polished, more or less pilose, lobes of the corolla revolute, short.

1563. *RUELIIA * PUNCTATA* (Nees), leaves oval, attenuated at both ends, entire or sub-repand, glanduloso-punctuate, and, like the four-sided herbaceous stem, hirsute: capitula terminal, bracteate, pubescent: bracts foliaceous, acute; bracteoles, linear oblong, closely ciliate: calyx 4- (?) cleft.

"Courtallum. *Strobilanthes* * Herb. Wight No 656." The specimens figured are those referred to. The longitudinal section of the ovary, showing only 4 ovules, at once proves that this is no *Ruelha*, the character of which is to have from 6 to 16 seed. I have notwithstanding retained Nees' generic name as, though deficient in that one technical character, it must possess, in considerable perfection, all the others by which the two genera are distinguished, and may therefore be admitted a representative of that genus, my other specimens being too imperfect to furnish a suitable figure.

1564. *LEPIDAGATBIS LONGIFOLIA* (R. W.), herbaceous, erect, branches terete, obtuse, except the inflorescence: leaves from elliptic acute at both ends, to long linear lanceolate, acuminate, quite entire: spikes axillary and terminal, lax, ascending or sometimes drooping, furnished along the back with a row of bracts and 2 unequal bracteoles on the pedicel of each flower, all, like the calyx, clothed with viscid pubescence: posterior lobe of the calyx larger than the anterior pair, cuspidate, lateral ones within the posterior lobe linear subulate: cells of the anthers calcarate.

Malacca, Griffith. This species seems to me to approach *L. laxa*, from which however it appears distinct. I am indebted to the late Mr. Griffith for the specimen figured which consists of two pieces, one with erect, the other with drooping inflorescence. I have taken the last on the supposition that it is the normal form.

1565. *CONGEA TOMENTOSA* (Roxb), see table 1479-2.

1566. *CONGEA VELUTINA* (R. W.), see 1479—3.

1597. *UTRICULARIA STELLARIS* (Lin. fil.), stems floating, utriculiferous; leaves filiform, verticelled-scape furnished at the base of the raceme, with a whorl of ovate floats or bladders, setiferous at the point: scales wanting below the floats: bracts membranaceous, obovate, embracing the base of the pedicel, no bracteoles: lobes of the calyx ovate obtuse, shorter than the corolla, entire: spur short, obtuse: capsule globose, about the length of the calyx: seed flattened, bound with a membranous wing. Flowers yellow.

In standing sweet water in the Tanjore district, and also in the dreares. So far as L have observed, it seems rare on the western coast.

1568. *UTRICULARIA FASCICULATA* (Roxb), stem and leaves as in *U. altillana* except that it wants the floats on the raceme: scape furnished with a few scales: bracts ovate, without bracteoles: calyx ovate obtuse, much shorter than the corolla: spur conical blunt, shorter than the lip: lips entire, lower one bullate near the base: fructiferous pedicel thickened, drooping: capsule globose, about the length of the enlarged spreading lobes of the calyx: seed 5-angled, bound with a narrow wing. Flowers yellow.

In sweet standing water in Malabar, apparently not unfrequent. The raised pallate or bullate portion of the lower lip, is tinged with a reddish, or deep orange, colour.

1569. *UTRICULARIA DIANTHA* (Raem., and Sen.), floating or terrestrial: leaves capillary utriculiferous when floating, linear subulate when growing in marshy ground: scape filiform, erect, usually 2-flowered: bracts ovate, bracteoles none; calyx obovate obtuse, not enlarging with the fruit: spur longer than the lower lip: lips entire, about equal, lower one bullate near the base: capsule spherical, about twice the length of the calyx lobes: seed compressed, orbicular, bound with a broad wing.

In standing sweet water in Malabar along with the preceding. The flowers of the two species, except as regards size, are much the same, and they are in other respects nearly allied species.

1570. *UTRICULARIA PUNCTATA* (Wall. DC), "leaves submerged, capillaceo-many-cleif, the extreme divisions filiform, curved, sparingly utriculiferous: scape erect, 4-5-flowered: scales and bracts oblong, auricled at the base, obtuse at both ends: pedicels as long as the flowers, much longer than the bracts, lobes of the calyx broad, oval, obtuse: corolla." Seed flattened, orbicular, bound with a toothed margin.

Mergui, Griffith.

The specimens from which the accompanying drawing was made are all imperfect as regards flowers, but the plants are in other respects perfect,

and seem pretty well to correspond with DC's character of the species. He doubts whether his plant belongs to his section "Lentibulana," a point which I will not attempt to determine because I do not think the section one of much value even as an artificial division. For myself I feel quite satisfied that this and the three preceding species form, with perhaps many others, a most distinct and peculiar group, distinguished by habit, calyx, corolla, capsule, and seed; in all of which respects they are very different from the following species. DeCandolle describes the bracts and scales of his plant as "auricled" at the base and obtuse at both ends. In my specimen they are attached by the base, whence there seems reason to suspect that I have misnamed my plant in applying his name. He further describes his plant as having 4-5 flowers; one of my specimens has the marks of 17 flowers, and all have more than six. These considerations, and especially the free base of the bracts and scales, lead me to suspect we have different plants before us, but yet they are both from the same station and very like in every thing except the insertion of the bracts, which circumstances added to the remark "tirades J lm. long supra inferiorem partem non tamen medio ad hanc solitaneae," induced me to adopt his name.

1571-1. *UTRICULARIA ARCUATA* (R. W.), erect, bifid, branches about equal: scales very minute: bracts subulate, small- calyx lobes equal, broad ovate, obtuse, much shorter than the corolla and spur, scarcely enlarging in fruit: spur long, slender, curved upwards under the broad suborbicular under lip of the corolla; capsule ovate: seed oval, rounded at the ends, longitudinally reticulate. Flowers blue.

Belgaum, Law. I know nothing of this species beyond what I learn from the specimen, for which I am indebted to Mr. Law of Bombay.

1571-2. *UTRICULARIA RETICULATA* (Smith), stems twining: scales remote: bracts and bracteoles ovate, acuminate, acute, much shorter than the pedicels* pedicels about the length of the flower, at first ascending, afterwards cernuous; winged towards the apex: calyx lobes equal, ovate acute, enlarging with the capsule, the lower one about the length of the spur: spur conical acute, descending; upper lip of the corolla large, suborbicular, or tending to obovate; under large, spreading, palatte galeate capsule ovate, compressed, inclosed within the enlarged calyx lobes: seed oval, obtuse at both ends, longitudinally reticulate. Flowers blue.

Malabar, flowering March, April and May. Frequent in rice fields where in large masses its numerous conspicuous blue flowers render it a very ornamental object.

1572-1. *UTRICULARIA WALLICHIANA* (R. W., *V capillacea*, Wall, non Willd.), filiform, slightly twining- bracts broad, ovate, acute; bracteoles subulate: flowers longish pedicelled, yellow: calyx lobes ovate, acute: spur tapering pointed, longer than the calyx: lips entire, upper one obovate, suborbicular. lower one broad, emarginate: capsule lenticular seed oval, obtuse at both ends, slightly longitudinally reticulate. Flowers yellow.

A low plant 3-4 inches high, growing among grass in marshy grounds. My specimens are from Courtallum, Serra Mallay, and Neilghernes. From the last the drawing was made.

I learn from Dr. Arnott that this is *V. capillacta* of Wall List, but it does not seem to be Willdenow's plant.

1572-2. *UTRICULARIA HUMILIS* (Vahl), scape angled, furrowed, erect: scales few, sub-lanceolate: bracts ovate acute: flowers short pedicelled: calyx lobes broad ovate, blunt, becoming nearly orbicular in fruit, about the length of the pedicel: spur nearly twice the length of the calyx, tapering, acute: lips entire, upper one subhnear, truncate, under sub-orbicular: capsule lenticular, drooping: seed oblong, ovate, nearly acute at one end, longitudinally reticulate. Flowers yellow^p

Ceylon, Mysore, Malabar. I have specimens from several localities but most abundant from Ceylon.

Vahl does not mention the colour of the flower, and those of my specimens have faded so much as to leave me in doubt on that point. The species is a very easily recognized one, but the draftsman has not succeeded in conveying a good idea of it though the figure is like the specimen. The broad ovate and ultimately nearly orbicular calyx lobes and pendulous fruit are very striking. My specimens vary in height from 2 to about 8 inches.

1573. *UTRICULARIA UUGENOIDES* (R. W.), stem simple or sparingly ramous, twining: scales few, ovate, acute; bracts broad, ovate, acute; bracteoles subulate, all much shorter than the pedicel: pedicels 4-7, secund, cernuous, filiform, about the length of the flower: calyx ovate, lanceolate, acute or cuspidate, about half the length of the spur: spur conical, longer than the under lip: upper lip subhnear, orbicular at the apex: capsule compressed, sub-orbicular: seed globose sub-scribiculo-reticulate. Flowers blue.

CourtaUum, in low wet ground twining on stalks of grass. I am not quite certain whether this is sufficiently distinct from *U. uligenosa*. In habit it is so, but in characters they very nearly approach.

1574. *UTRICULARIA ULIGENOSA* (Vahl), stem erect, simple, slender, with few scales: leaves linear, spathulate. scales oval, acute; bracts broad, ovate with two smaller bracteoles: pedicels twice or thrice the length of the bracts, cernuous: calyx lobes slightly unequal, broad, ovate, acute, the lower one shorter, about the length of the spur: spur conical acute, about the length of the lower lip: lips entire; upper one broad, roundish above; the lower galeate, very convex on the palate, hairy on the throat: capsule ovate, compressed: seed globose, finely reticulate. Flowers blue.

Neilghemes, in swampy ground, not unfrequent; I have also met with it forming dense masses of matted herbage floating on the surface of streams, but, in such situations, never in flower.

1575. *UTRICULARIA CONFERTA* (R. W.), cespitose, stems ascending, filiform, simple or sometimes sparingly ramous, intertwining: leaves linear-spathulate: scales minute, ovate, pointed: bracts and bracteoles like the scales, but larger: pedicels slender, winged towards the apex, cernuous or drooping, longer than the flowers: calyx lobes lanceolate, acute: spur slender about the length of the under lip, longer than the calyx: lips entire, linear, roundish; under broad, galeate, reflexed on the margins: capsule globose lenticular: seed globose, reticulate. Flowers blue.

CourtaUum, on rocks in mountain streams exposed to the spray from dashing water. My specimen* were gathered in August and in April, and in full flower at both seasons.

These three species are certainly very nearly allied and might all perhaps be included under Vahl's brief character of *U. uhgenosa*: "nectano conico, calycibus corollam equantibus, capsulis compressis, scapo anguloso subsimplici," Vahl. While at the same time none of them actually quadrate with his definition. Had the lips of either of them been divided I should have referred it to *U. graminifolia*. The second is perhaps more justly referable to Brown, *U. cyania*, than to *uligenosa*.

1576. *UTRICULARIA GRIFFITHII* (R. W.), scape ascending, lax, sometimes twining (5-G-flowered) • leaves linear, spathulate: scales few, minute: bracts ovate, acute: calyx lobes ovate acute, shorter than the pedicels: spur conical acute, descending, longer than the calyx, shorter than the lip. upper lip entire, obtuse; under dilated, orbicular, emarginate: capsule lenticular: seed lenticular, deeply foveolate. Flowers blue.

Malacca, Griffith, apparently a rather tall growing species, frequenting shallow water. Roots long and matted, scapes from 8 to 12 inches high, having a lax diffuse appearance not shown in the figure. The seed are remarkable, the testa apparently thick, and deeply foveolate, the foveae translucent on the margin, giving, when pretty highly magnified, the wing-like appearance shown in the plate.

1577. *UTRICULARIA SMITHIANA* (R. W.), scape ascending, somewhat voluble, terete: leaves few spathulate: scales remote, minute, ovate, pointed: bracts broad cordate; bracteoles narrow lanceolate: calyx lobes slightly unequal, the posterior one broader, obtuse, the anterior acute, shorter than the lax filiform pedicel: spur conical, about the length of the lower lip, longer than the calyx: lips entire, lower one galeate: capsule lenticular, enclosed within the enlarged lobes of the calyx: seed globose scribiculo

Malabar or Coorg, the exact station uncertain. This species is nearly allied to *U. ielicvlata*, but is certainly distinct. It attains the height of from 12 to 18 inches, the latter ones twine.

1578-1. *UTRICULARIA BRACHYPODA* (R. W.), erect, simple; scape angled, 2-4-flowered: scales scattered, minute: bracts and bracteoles broad ovate, minute: pedicels shorter than the flowers, ascending: calyx lobes broad ovate, about half the length of the spur, the posterior one blunt pointed: upper lip emarginate, lower large, flat, pubescent on the throat, about the length of the spur: capsule lenticular: seed globose, scribiculo-mute. Flowers blue^p

Qulon, in marshy ground. A small but very distinct species.

1578-2. *UTRICULARIA PEDICELLATA* (R. W.), leafless? scapes slender, erect, ramous, angled: scales longish lanceolate: bracts minute, ovate, acute, bracteoles subulate: pedicels longer than the flowers, filiform: calyx lobes ovate, acute, about the length of the spur: spur conical, shorter than the lip: lips entire, under one galeate, margins reflexed: capsule lenticular: seed globose, scribiculo

Couitallum, flowering February.

1579. *UTRICULARIA SQUAMOSA* (R. W.)_r scape erect, terete, furnished its whole length with numerous acute cernuus scales: bracts and bracteoles like the scales: leaves spatulate * flowers cernuus, 3-3 towards the apex, longer than the pedicels: calyx lobes lanceolate, shorter than the conical acute spur: lips entire, lower one sub-orbicular, galeate, spreading • capsule oblong, lenticular: seed globose, scrobiculate. Flowers blue.

Sispara, on the western slopes of the Neilghemes, on the marshy borders of rills and springs, rather frequent; flowering February and March. The numerous scales on the scape and the scrobiculate seed readily distinguish this from *U. uligenosa*, which in other respects it resembles.

1580-1. *UTRICULARIA AFFINIS* (R. W.) scape erect, angular, 4-5-flowered: scales few, appressed, acute: bract* ovate, acute: pedicels shorter than the flower, fructiferous ones winged at the apex: calyx lobes broad, ovate, blunt, shorter than the spur: spur tapering, acute, shorter than the lip: lower lip broad, suborbicular, slightly galeate: capsule lenticular: seed globose, deeply scrobiculate. Flowers blue.

Neilghemes. Flowering February and March, growing in tufts in marshy ground. This species seems nearly allied to *U. brachypoda*, but is, I think, quite distinct.

1580-2. *UTRICULARIA MACROLIFIS* (R. W.), scapes erect, simple filiform: scales ovate, acute, sub-foliateous: bracts ovate, acute; bracteoles subulate: flowers subsessile: calyx broad, ovate, bluntish: spur tapering, shorter than the lip: upper lip subcuspidate; lower sub-orbicular: capsule lenticular: seed subovate-orbicular, papillosely mucate. Flowers yellow.

Courtallum, August and September. Height from two to four inches. The scales on this species are unusually conspicuous, almost resembling microscopic leaves. The seeds, which are large for the genus, are covered all over with soft looking protuberances or papillae which, however, the artist has scarcely succeeded in correctly representing. •

1581. *UTRICULARIA GLOCHIDIATA* (R. W.), cespitose, erect, filiform: leaves orbiculato-spathulate; bracts attached below the middle, both lobes obtuse, lower much smaller; bracteoles obovate: pedicels about the length of the flowers, cernuus or drooping: calyx lobes very unequal, sub-orbicular: spur about the length of the broad crenato-dentate lower lip: upper lip shorter than the calyx, emarginate: capsule globose dehiscing from the base: seed obovate glochidiata.

Ceylon, March and April; the exact station whence I obtained this curious plant is not noted. It seems to me to form the type of a distinct section, if not indeed of a genus. My acquaintance with the rest of the genus is too limited to admit of my constituting it one, though, as regards the Indian division, it seems to merit that distinction.

1582. *UTRICULARIA NIVEA* (Vahl), nectary conical, obtuse, scape filiform, about 4-flowered: scales adnate, free at the base: capsules globose, cernuus." Vahl.

Ceylon, Malabar, &c. Though the specimen selected for representation does not very well quadrate with Vahl's character, I yet believe it is his

plant. The selection is accidental in so far as being the largest and best I had, to make a picture of, of a considerable number, and in the hurry of the moment it did not occur to me to represent along side one of the smaller more usual terms. The best distinguishing characters I find in the large spur, emarginate upper lip, and rough not reticulate angular seed. The peculiar attachment, by the middle, of the scales and bracts forms an excellent sectional character.

1583. *UTRICULARIA CURDLEA* (Linn), erect, angular, scape simple or sometimes bifid: scales and bracts attached by the middle: racemes at first short, very dense at the apex of the scape, at length elongating: flowers subsessile: calyx sub-veiled, lobes orbicular, much shorter than the corolla, spur longer than the orbicular spreading lower lip of the corolla, capsule globose, exceeding the lobes of the calyx: seed oblong, obovate, angular above, finely reticulate. Flowers white, nigrescent in drying, like those of *U. nivea*.

Ceylon, Malabar^p

This and 17. *Juicaules* are perhaps the same species, or if not, the characters so far agree as to render comparison desirable with a view to their being respectively accurately defined.

The two specimens introduced into the plate are the same species and show how much the aspect is changed by age and luxuriance.

1584-1. *UTRICULARIA RACEUOSA* (Wall), scape erect, 3-4 flowered: scales and bracts attached by the middle, unceolato-acute at both ends; bracteoles subulate: pedicels about the length of the bracts: lobes of the calyx ovate, obtuse: spur shorter, or about the length of, and concealed by, the revolute margins of the broad under lip: capsule globose, longer than the calyx lobes; seed globose, sub-scrobiculate.

Pulney Mountains, flowering September. I am doubtful whether this is really Wallich's *U. racemosa* which is from Silhet, as the specimens seen by Alph. DC. were not in flower, but it agrees well with the rest of the character.

1584-2. *UTRICULARIA RIFIDA* (Linn), "scape erect, bifid, 2-5-flowered: bracts minute, ovate: pedicels much longer than the bracts, as long as the flowers: lobes of the calyx ovate: upper lip of the corolla entire, reflexed on the margins; inferior one 2-lobed, revolute on the margin, palate prominent, keeled with the spur."

Malacca, Griffith. The figure does not very well quadrate with the above character, which is copied from DeCandolle's Prodr. Smith, however, says "bracteas solitary," which they are, and form a remarkable character. He also says, flowers yellow: this I cannot so well make out on my specimens as only very young flower-buds and mature capsules are found on them.

If *U. bifida* belongs to the section with the scales and bracts attached by the middle, it seems probable this is the plant, but not otherwise; and that point I cannot ascertain with certainty from the characters given, but as the original specimens are preserved in the Linnæan Herbarium the point can easily be ascertained. The deeply scrobiculate seed distinguishes it from all the other species of the section having orbicular calyx lobes, and scales and bracts attached by the middle.

The following; Conspectus of the above species of *Utricularia* was drawn up for, and published in, my Illustrations of Indian Botany. I reproduce it here under the impression that, as the essential distinctive features only are introduced, it may prove a useful aid in their discrimination by directing attention to the more important points of the character of each.

CONSPECTUS OF INDMN UTRICULARLE.

FLOATING (Calyx lobes herbaceous, not covering the capsule)

Calyx equaling the capsule, at length diverging. Seed peltate, wingless.

Scapes with a whorl of floats below the	flower.	-	-	-	-	-	-	-	-	U. stellans.
Scapes without floats.		-	-	-	-	-	-	-	-	U. fasciculata.

Calyx shorter than the capsule, appressed, seed flat, bound with a wing.

Scapes 3-4- or more flowered, seed-wing dentate. (The flowers of this species appear blue, all the others of this group have them yellow.)	Mergui.	-	-	-	-	-	-	-	-	U. punctata.
Scapes two-flowered, seed-wing entire.		-	-	-	-	-	-	-	-	U. diantha

TERRESTRIAL (Calyx lobes enlarging, becoming, in fruit, sub-scanose, converging and covering the capsule.)

Calyx lobes ovate, sub-acute ; scales and bracts attached by the base.

Seed finely reticulate, ovate, oblong.

Flowers some shade of blue (not yellow).

Calyx acute, seed elliptical, obtuse at both ends.

Spur shorter than the lower lip, descending.		-	-	-	-	-	-	-	-	U. reticulata.
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Spur equaling or exceeding the lip, arcuate, horizontal		-	-	-	-	-	-	-	-	U. arcuata.
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Calyx blunt, sub-orbicular in fruit, seed ovate, pointed at one end.		-	-	-	-	-	-	-	-	U. humilis.
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Flowers yellow (seed oblong, elliptical).		-	-	-	-	-	-	-	-	U. Walhchu.
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Seed finely reticulated, globose.

Spur as long or longer than the lower lip.

Caespitose, leaves sub-spathulate, scapes lax.	-	-	-	-	-	-	-	-	-	U. conferta.
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Distinct, sub-aphyllous, scape sub-voluble.	-	-	-	-	-	-	-	-	-	U. uliginoides
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Spur shorter than the lip, scape straight, erect		-	-	-	-	-	-	-	-	U. uhginosa.
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Seed scrobiculate, flowers blue

Scales on the scape few, appressed.

Pedicels longer than the flower.

Spur about the length of the lip.

Upper lip of the corolla sub-orbicular. Seed simply scrobiculate (flowers as large and like those of <i>U. reticulata</i>).	-	-	-	-	-	-	-	-	-	U. Smithiana.
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Upper lip linear, truncated, seed foveolate (flowers much smaller than those of the above plant: apparently aquatic, growing in shallow water).		-	-	-	-	-	-	-	-	U. Gniffithn.
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Spur much shorter than the lip, pedicels long.	-	-	-	-	-	-	-	-	-	U. pedicellata.
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Pedicels shorter than the flower.

Flowers subsessile or very short pedicelled; upper lip of the corolla emarginate.		-	-	-	-	-	-	-	-	U. brachypoda.
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Flower distinctly pedicelled, upper lip of the corolla entire*	-	-	-	-	-	-	-	-	-	U. affinis.
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Scales of the scape numerous, sub-cernuous (not appressed).	-	-	-	-	-	-	-	-	-	U. squamosa.
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Seed papillosely hispid, flowers yellow (scales on the scape sub-florescous).	-	-	-	-	-	-	-	-	-	U. macrolepis.
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Calyx lobes obovate or sub-orbicular, bracts and scales attached by the middle or above the base.

Seed glochidiate, scales attached a little below the middle, lower lobe obtuse (seed ovate oblong, acute at one end* lobes of the calyx very unequal* spur conical: upper lip emarginate, under sub-orbicular, spreading, 5-toothed: leaves orbiculato-spathulate, scape fleshy) .	-	-	-	-	-	-	-	-	-	U. glochidiata.
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Seed reticulated not glochidiate, scales attached by the middle, acute at both ends.

Flowers sub-sessile.

Spur longer than the lower lip.

Flowers somewhat remote, sub-racemose.	-	-	-	-	-	-	-	-	-	U. nivea.
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Flowers congested, spicate on the apex of the scape (the flowers of both these are nigrescent in drying, but do not appear to differ in colour, hence I suspect an error in the name <i>carulea</i>).	-	-	-	-	-	-	-	-	-	U. caerulea.*
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Spur shorter or about the length of the lip (lip large revolute on the margin, covering and nearly concealing the spur).	-	-	-	-	-	-	-	-	-	U. racemosa.
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Flowers longisb, pedicelled, seed scrobiculate.	-	-	-	-	-	-	-	-	-	U. bifida.
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• *U. carula* and *filicaulis* appear to be varieties only of the same species. The former young with the first flowers only open, the latter old with the short spike elongated into a fructiferous raceme. My specimens show, I think, the transition

1585. MICROFYXIB TPELLA (R. W., ~~Centunculus~~ *Untlla*, Duby in DC. Prod.), small, erect, simple or ramos from the base; branches erect: leaves broad, ovate, subacute, entire, sub-sessile or contracting into a petiol: flowers axillary peduncles slender, shorter than the leaves lobes of the calyx linear-lanceolate, acuminate-subulate, about equaling the corolla: corolla deciduous, urceolate at the base, capsule equaling the calyx. Duby.

Pulney Mountains, September I learn from Dr. Araott that this plant is identical with Wallich's *Lynmachia tntlla*. The analysis which accompanies the figure will at once show that its flowers are quinary not quaternary and hence that it is a *Micropyxis* not *Centunculus* which has tetramerous flowers. Both Dr. Amott and Sir W. Hooker agree in considering this identical with *M pumila*, a Brazilian and Australian plant, information on which I should certainly have acted had not the specific name "tenella" been already given.

1586. MIMUSOPS ELINGI (Linn.), leaves elliptic, oblong, obtusely acuminate, glabrous * fascicles axillary, 3-6-flowered; pedicels shorter than the petiols, rusty-pubescent: lobes of the calyx lanceolate, acuminate, equal, the four exterior ones externally ferrugineo-velutinous, glabrous within, equaling the corolla.

Widely diffused over India. The specimens figured grew in Coimbatore where, however, it is rather rare. It has been already figured by both Roxburgh and Rheede, and might have been dispensed with in this work except for comparison with the two following.

1587. MIMUSOPS INDICA (Alph. DC), branches glabrous; leaves approximated on the ends of the branches, oval-obovate, very obtuse, emarginate, glabrous, with 2-3 flowers, in the axils: pedicels glabrous, reflexed, shorter than the petiols. lobes of the calyx reflexed, three exterior ones ovate acute, glabrous, on both sides, sub-velutinous on the margin: three interior ones narrower, ovate, whitish on the back: corolla about the length of the calyx; 13 exterior lobes reflexed, 6 interior ones erect: sterile stamens deeply bifid.

Coimbatore, in forests about the foot of the adjoining hills, flowering March and April. This so nearly accords with the figure of Roxburgh's *M hexandra* that for a long time I supposed it that species and still suspect that it really is so, but at the same time it must be admitted, that neither the magnified figure of the flower nor the description of Roxburgh's plant, agrees with the flower of this species, while with some very slight differences it closely agrees with Alph. DC's character of *M Indica*, I therefore adopt his name. In the analysis there are two sets of flowers represented, one with 6 the other with 8 stamens, they were both taken off the same branch. The characteristic feature of this plant is the very short pedicels of the flowers and the deeply divided glabrous sterile filaments.

1588 MIMUSOPS ROXBURGHIANA (R. W.), leaves ob vato-oval, obtuse at both ends, or sometimes slightly cordate at the base, short petioled, glabrous: fascicles 2-3-flowered, axillary; pedicels filiform, about thrice the length of the petiols: calyx 6-8-lobed; lobes ovate, acute, about the length of the corolla, ferrugineo-velutinous lobes of the corolla

lanceolate, acute: sterile stamens about the length of the filaments, broad obovate, fimbriated on the margin: fruit globose, depressed above, about six-seeded.

Coimbatore district, in the neighbouring jungles, flowering March and April.

The flower of this species agrees so well with the magnified flower of Roxburgh's *M hexandra* as to give rise to a suspicion that his figure is made up of two plants. The short petiols, long pedicels and very different form of the fruit, show that this is undoubtedly a distinct species. Like the two preceding species the flowers vary in the number of their parts.

1588-6w. DIOSPOTROS CAPITULATA 9 (R. W.), for the character of this species see No. 1224. When the male plant was figured, the female specimens were overlooked, I have therefore* to complete the representation of the species, introduced it in this place. It only differs from the male in having solitary flowers. The specimens are unfortunately all in fruit.

1589 ISONANDRA POLTANDRA (R. W.), arboreous leaves oblong, oval, acuminate, glabrous: fascicles axillary, 3-5 flowered, pedicels shorter than the petioles- calyx 4-lobed, about the length of the corolla, very obtuse: corolla 8-cleft: stamens 16, all fertile* anthers cuspidate: ovary hairy, 8-celled, with a single erect ovule in each.

Malacca, Griffith. The specimens from which the drawing was made were received from the late Mr Griffith without any note regarding the tree.

The species is allied to Sir W. Hooker's *Percha*, but differs in the greater number of the parts of its flower and cells of the ovary.

1590. SIDERXYLON ATTENUATUM (Alph. DC), branches ferrugineo-puberulous at the apex: leaves obovate, oblong, entire, acuminate at the base, coriaceous, shining above; the younger ones ferrugineous on both sides, the older ones glabrous: pedicels axillary, aggregate, about 4 times shorter than the petioles, and like the calyx ferrugineous: lobes of the calyx roundish: corolla deeply 5 cleft, glabrous, a little longer than the calyx, lobes obtuse: interior lacinae irregularly lobed.

Malacca, Griffith. This species is introduced principally for the sake of the genus which I have not hitherto had an opportunity of introducing into this work.

1591. SAMARIA RHEEDIT (P. W.), shrubby, scandent, floriferous ramuli sub-bifarious, ascending-leaves petioled, ovate-elliptic, entire, sub-acuminate, glabrous, coriaceous * spikes axillary, usually solitary, numerous towards the extremities of the ramuli; from 1 to 2 the length of the leaves - flowers short pedicelled, each furnished with a small ovate bract: calyx lobes broad ovate, dentate on the margin: lobes of the corolla scarcely cohering at the base, ovate obtuse, ciliate towards the apex: stamens scarcely exceeding the petioles: anthers glanduloso-cuspidate: drupe about the size of a pea, one-seeded.

Malabar, Neilghemes, flowering during the rainy season. Flowers greenish white. On the supposition that this is Rheede's *Pu Walk* 7. tab. 42. I have dedicated the species to the original discoverer.

The specimen represented is somewhat different from his, but this is partly owing; to luxuriance and perhaps a little to the ingenuity of the artist, but among the specimens brought from the Hills, from which the figure was made, many were equal to this though different

1593. *SERRJEA INCANA* (Cavan), leaves petioled, cordate, 3-lobed, denticulate, whitish: peduncles shorter than the petioles: petals dark purple at the base.

Scinde, Stocks.

As this genus has not yet been met with in India, but may yet be found, I have introduced this plant for the purpose of making it known to Indian Botanists. The following is Decaisne's revised generic character, very slightly modified.

Involucel 3-leaved, leaflets broad, cordate, concealing the calyx, valvate in aestivation. Calyx tubuloso-campanulate, 5-cleft. Petals convolute in aestivation. Tube of the stamens columnar, adnate to the base of the petals, 5-toothed at the apex, stamiferous its whole length. Style filiform, 5-cleft, longer than the stamina! tube, reflexed, obliquely truncated at the apex, stigmatose. Ovary simple, 5-celled; cells 2-ovuled; ovules attached to the inner angle. Capsule loculicido-5-valved, cells sometimes 1-seeded by abortion. Seed reniform, villous. Dece. Annal. des Sciences, vol. 4, page 70—with full description and remarks.

1593. *TURRJSA VILLOSA* (Bennet, Plant. Jav. Rar.), leaves ovate, sub-acuminate, somewhat pubescent above, ferrugineo-villous beneath, teeth of the staminal tube obsolete stigma globoso-uxceolate, crowned with a broadish disk, long exserted.

Travancore hills. The date on which the specimens were collected is unfortunately not noted, but I think it was March or April. The figure seems to agree so well with Mr. Bennet's description, as scarcely to leave room to doubt that this is really his plant, though the stations, from which the specimens were obtained, are remote.

1594-95. *GARUOA PINNATA* d" and ? (Roxb.).

Coimbatore district, flowering; during the hot season. This being the only species of the genus can have no specific character. In this district it is a considerable tree, growing in jungles near the foot of the neighbouring hills. It comes into flower when the tree is destitute of leaves. The male figure shows it in that state. The female one shows it with the fruit considerably advanced towards maturity and the tree clothed with foliage.

1596. *NEURADA PROCDMBENS* (Linn.).

Scinde, Stocks. I am indebted to Mr. Stocks for my specimens of this curious plant. Having been found so close to our confines I think it probable it may ere long be found on the left bank of the Indus. The figure in Lamark is a very indifferent one, not by any means well calculated to convey a correct idea of the habit of the plant, a point on which I think my artist has been more fortunate.

1597. *CTLISTA SCARIOSA* (Alton), racemes shortly peduncled, about as long or a little longer than the leaves calyx twice as long as the corolla, tube short, campanulate, segments very large, thin and

scanose, reticulated with coloured veins; upper one broad, 2-lobed, the lobes ovate, obtuse; lower the largest, cymbiform, lateral ones much smaller than the others, cordato-ovate.

The specimens from which the drawing was made were obtained from Coorg or Mysore, the station not mentioned. In the dissected flower, one of the smaller lateral lobes of the calyx is badly represented, so that it appears in the place of the large 2-lobed upper one (that opposite the figure 3-). The petal with the hastate base is the vexillum, the others the wings and keel. It is a rare plant in the Southern provinces.

1598. *COFFEA WIOHTIANA* (Wall), shrubby, bushy, rigidly and shortly branched with occasionally short axillary abortive or spinescent branchlets: leaves ovate, glabrous, stipules subulate, rigid and spinescent; flowers usually solitary, sessile, axillary or at the apex of short 2-leaved axillary branchlets: limb of the calyx with about 10 minute teeth not increasing after flowering: corolla 5-cleft, pubescent or viscous on the outside, glabrous within, segments linear oblong, obtuse* anthers attached by the middle of their back to the tube of the corolla, linear, entirely included • style not half the length of the corolla; stigma bipartite, lobes linear berry somewhat didymous. W. and A.

Coimbatore district, not unfrequent in and plains near the foot of the hills, flowering March and April. In similar localities it extends southwards to Courtallum.

In this district the flowers are exceedingly deciduous, the first crop making their appearance before the leaves. It is difficult to make good specimens.

1599. *BOUCEROSIA DirrusA* (R. W.), ramos, diffuse, procumbent, tetragonal: flonferous ramuli ascending; angles subacute, dentate, teeth minute, umbels terminal, simple, many-flowered- flowers sub-sessile- calyx small, 5-parted, lobes subulate corolla tubular, limb delicately transversely rugous, finbeated on the edge.

On arid rocky mountains near Coimbatore, at an elevation of about 2,000 feet, flowering April and May. Flowers dark purplish brown, variffigated within with fine almost inconspicuous whitish lines

The larger detached umbel, fig. 10, is taken from specimens which flowered in rich soil in my garden. The very diffuse habit, a single plant covering many square feet of surface, the minute cauline teeth, small calyx lobes, and distinctly tubular corolla of this plant, combine to mark this species as very distinct from any of its Indian congeners.

1500. *MITREOLA PANICULATA* (Wall), stem sub-quadrangular, glabrous; branches roughish pilose leaves ovate-oblong, acuminate, narrowing at the base into the petiol; margin and veins roughish pilose, bracts and lobes of the calyx lanceolate, margin and back slightly pilose: corolla about the length of the calyx: capsule lunate with the lobes inflexed, rough on the inner angle: seed elongato-compressed.

Mysore, Cleghom. I am indebted to Dr. Cleghom for the drawing and a specimen of this plant, from which last I was enabled to add the analysis of the flower. I am indebted to Mr. Law of Bombay for a specimen, but in fruit only, of which appears to be *M. oldenlandindu*. It looks different from this one

but as I have only a single specimen of each form, and that of the former not good, I feel uncertain as to whether I ought to view them as species or varieties. Alph. DC. lays much stress on the direction of the lobes of the capsule, that is, whether inflexed, as represented here, or straightly diverging (capitulae lobis recte divergentibus). In Mr. Law's specimen they are not divergent, hence my uncertainty as to whether a species or variety.

1601-lrt. MITRASACHME IHDICA (R.W.), glabrous, erect, ramous; branches somewhat flexuose, compressed, two-edged: leaves sessile, ovato-lanceolate acute: peduncles longer than the leaves, one-flowered: corolla about thrice the length of the calyx, pilose within: stamens included, stigma two-lobed: seed numerous, peltate, scrobiculate.

The exact station whence the specimen represented was obtained is uncertain, but I have specimens from various localities, Jaulnah, Arcot, Coimbatore, &c, and varying somewhat in form according to the soil. Some luxuriant ones so far resemble the next as at first sight to make me feel doubtful as to these being distinct species. The different forms of the inflorescence and seed removed the doubt Fig. 12 of the plate is the section of the stem.

1601-&/ MITRASACHME MALACCENSIS (R.W.), sub-pilose; stems ascending or erect, simple or rarely ramous, terete: leaves opposite, ovato-lanceolate, acute, united and slightly vaginate at the base: peduncle terminal, longer than the stem, paniculato-racemose 8-12-flowered; flowers long pedicelled. Corolla tubular, 3-4 times as long as the calyx, pilose within: stamens subincluse: stigma 2-lobed: seed globose, tuberculato-roughish.

Malacca, Griffith. The specimens, from which the accompanying figures were taken, were received from Mr. Griffith without a label. In the magnified figure of the leaves, the draftsman has committed a gross blunder in representing them subalternate and quite distinct at the base; they are opposite, connate, and slightly vaginate or, as it were, pterifoliate.

1602. IMPATIEWS JERDONIJE (R.W.), epiphetic, diffuse, sub-procumbent, except the ascending flowering branches, glabrous: leaves ovate, acute, bristle serrate: peduncles axillary, erect, 2- or rarely 3-flowered, pedicels longer than the peduncle and leaves: lateral sepals lanceolate; anterior, or spur one, saccate, ventricose, contracted at the apex into a spur-like point, proper spur none, petals deeply 2-lobed, the anterior lobe larger; posterior petal gahate, mucronate.

On branches of trees and moist rocks on the Sisparah Ghaut of the Neilghemes.

The drawing was made by Mrs. Jerdon from plants which flowered in Major Cotton's conservatory at Ootacamund. The posterior sepal or helmet and the petals, projecting from the throat of the large anterior hollow sepal, are yellow, the lateral sepals green, and the lower saccate sepal dark red. It is most nearly allied to *J. Walkertia* both having the anterior sepal saccate and destitute of limb or, perhaps, I should rather say, the spur is so much produced that it absorbs the whole of the limb in its formation. The species in which this formation occurs might, it seems to me, form a convenient section.

1603. IMPATIEWS GOWGHII (R.W.), erect, ramous, glabrous; leaves ovate, serrated, short petioled, aggregated towards the summit of the branches: peduncles axillary, filiform, umbellately 4-6 flowered, longer than the leaves, viscid: flowers small; lateral sepals minute, subulate; superior one broad abcordate, mucronate; lower much shorter than the petals, acute, furnished with a short conical spur, anterior lobes of the petals much larger than the posterior: capsule glabrous, few-seeded.

Pycarrah, Neilehernes, in moist shaded places on the right bank of the river. I received the drawing and specimens from which this figure and character are taken many years ago from Mr., now the Hon'ble Captain Gough, and published the species in my Illustrations, Vol 1, p. 160. I have since then repeatedly gathered the plant in the locality indicated. It is a diffuse growing plant, very ramous, slender, seeking the support of adjacent plants and then sometimes attains the length of from 12 to 18 inches. The flowers are small, pale rose coloured.

1604. AILANTHUS MALABARICA (DC), leaves abruptly pinnated, glabrous; leaflets quite entire, ovato-lanceolate unequal-sided, oblique at the base, abruptly acuminate: male panicles large, somewhat contracted: peduncles and calyx pubescent: petals glabrous, much longer than the calyx, obovate: stamens glabrous, filaments longer than the petals: anthers small: samara oval, oblong, obtuse at both ends.

Travancore, flowering during the hot season. I am indebted to General Cullen, Resident of Travancore, for the specimens from which this plate was prepared, which unfortunately were all males with only one or two samara. Thus imperfect, it was not my intention to have published this plate until I had obtained specimens of the female, but was induced to do so under the impression that the work was to close with this part, which I now trust will not be the case. The bark is rough, very thick, and studded with bright garnet looking grains, apparently of a resinous nature but which do not burn like resin, nor do they dissolve in either spirits or water, whence I infer it is of a peculiar chemical composition, still to be ascertained.

1605. HUMBOLDTIA LAURIFOLIA (Vahl.), branchlets tumid, joints 6-stulose; leaflets 3-5 pairs, ovate-oblong acuminate: back lobe of the stipules unequal sided, one end longer than the other, and acute, petals free.

Ceylon. I gathered the specimens from which this drawing was prepared in 1836, flowering in March and April; I have not seen it on the Continent. I am not sure that I rightly understand that part of Mr. Brown's character which relates to the back lobe of the stipules, "stipularum lobo postico hinc productione, acuto," and have therefore modified that part of the character, as given in our Prodromus, to suit the specimens before me.

1606. HUMBOLDTIA BRUNONIS (Wall.), branchlets solid, equal: leaflets 2 pairs, cuneate oblong, with a short obtuse acumination: back lobe of the stipules nearly equal sided, and rounded on both ends: petals three.

Malabar. I first met with this tree, or one that I believed to be it, but not in flower, in the pass between Quilon and Courtallum. I have since received specimens from the western slopes of the Neilghemes and from Coorg. Several years ago Captain Munro sent me a specimen from the latter station with the following note attached: "*H. Brunonis*. I send a specimen of this as requested. I found the plant in great abundance at the foot of the Sumpayjee Ghaut in Coorg, but I could only find two specimens in flower. I send one. I have also found it on the (name illegible) (ghaut in Canara, and on the Koonda Ghaut, Neilghemes." The specimen figured is from Coorg.

1607-8. *HOMBOLDTIA VAHLIANA* (R.W.) branchlets solid, equal: leaflets 4 pairs, ovate, oblong, acuminate: back lobe of the stipules nearly equal sided, round at both ends, petals 5, nearly equal, scarcely equaling the calyx lobes, caducous.

Neilghemes. In jungles about Coonoor.

This species is very distinct from both the others; from the first it differs by its solid branchlets, and from the second by its pentapetalous flowers, 4-paired leaves, and very different shape of the leaflets. The spikes are usually geminate, secund.

1609. *BRYONIA* MrsoREitsis (Khm. Herb. Mad.), stems glabrous smooth: tendrils simple: leaves cordate, repand-toothed, usually 5-angled or lobed; slightly scabrous: male flowers in a simple or proliferous umbel at the apex of a long slender peduncle; female very shortly peduncled, solitary, often in the same axils with the males, rarely several umbellate at the apex of a long peduncle: calyx tube and ovary narrow oval: berry longish oval, glabrous, copiously marked before maturity with small shallow pits: seeds smooth, surrounded with a zone quite flat on the sides.

Mysore, climbing on hedges, &c. This species is so nearly allied to *B. Hookeriana* that I formerly expressed my belief of their being but varieties of the same plant differing merely in the shape of the berry. It having since then been suggested that the difference forms a good specific distinction, I have thought the best course to follow, to rectify my error, if such it be, is to give figures of both. This one can be compared with No. 758, which is the form described under *B. Hookeriana*.

1610. *DICHOCEPHALA SCHMIDII* (R.W.), procumbent, diffusely ramous, glabrous: leaves obovate cuneate, slightly dentate at the apex: capitula globose, sessile, axillary and terminal.

"Neilghemes, on the banks of dry ditches near the dyke of Ootacamund lake, and also on the margin of a tank near Bellicul. Schmid." I am indebted to the Rev. Dr. Schmid for my specimens of this very distinct species, which I have much pleasure in dedicating to the discoverer. In the first named station he found it several years ago, but latterly it seems to have disappeared from that locality. The specimens sent were obtained from the other.

1611. *ATALANTIA FLORIBUNDA* (R.W.) shrubby or subarborescent, very ramous, spinose: thorns straight, about 6 lines long, axillary: leaves oval, emarginate or subovate: racemes axillary, short, many-flowered, flowers longish pedicelled: ovary stipitate 4-celled with 1 ovule in each, orange about the size of a nutmeg.

Ootacamundagum, near Coimbatore. Flowering during the rainy season, October and November. The flowers of this species are much larger than those of the other two: the ovary, which is somewhat cylindrical and 4-celled with a single pendulous ovule in each, is prolonged downwards considerably beyond the base of the cells. In other respects it much resembles *A. monophylla*.

1612. *OSBECEIA HISPIDISSIMA* (R.W.), suffrutescent, erect: branches 4-sided, thickly covered with strong inflexed bristly hairs, leaves sub-sessile, oval-lanceolate acute at both ends, 5 nerved, hispid on both sides, especially on the veins beneath: hairs thick and wiry like those of the stem: corymbs terminal, few-flowered: calyx stellate-hispid, 4-cleft, lobes ciliate, petals 4, large, spreading, stamens 8, anthers prolonged into a longish beak.

Mysore, Cleghorn. I am indebted to Dr. Cleghorn for the drawing and specimens, from which the plate and specific character of this very distinct species were prepared.

It is at once distinguished from all those of both India and Ceylon, with which I am acquainted, by the extreme hairiness of its stems, which is not adequately brought out in the figure, and the texture of the hairs with which the leaves are covered: the larger leaves on my specimen are about 7 inches long and two broad, 5 nerved, with a more slender one binding each edge. The flowers are large, dark crimson, anthers prolonged into a long curved beak; the fruit I have not seen.

1613. "*SCJEVOLA UVIFERA* (Stocks), shrubby, branches decumbent at their origin, axils almost smooth: leaves oval or obovate, like the branches, fleshy and smooth: flowers in cymes about the length of the leaves, peduncles a little compressed, bracts fleshy, linear: border of the calyx entire or 5-6-crenate: lobes of the limb of corolla h'mbnate at their base: filaments smooth, anthers with the connective ending in a hooked tip: ovary with 10 streaks, style hairy at the base: stone of the purple fruit pear-shaped and rugose on the surface.

Hab. Mouths of the Indus, among sand-hills by the sea at Kurrachee. Flowers white, scentless. A large epigynous gland in the line of the stamens and opposite the anterior or odd lobe of the corolla. Lobes of stigma right and left of the axis. Cells of ovary anterior and posterior.

The indusium, undeveloped in the youngest buds (figure 5), grows rapidly over the lobes of the stigma which remain stationary in their development (figure 6), but soon take on growth and the pollen is shed on them before the flower opens (figures 7 and 8), and even after this they continue growing and project beyond the indusium (figure 9). Seed erect with albumen.

1. Flower.
2. Anther.
3. Ovary.
4. Ovary cut vertically.
5. Stigma in very young bud. Its lobes are uncovered by the indusium.
6. Stigma and indusium in buds further advanced. Mouth of indusium open. Lobes of stigma small.
7. and 8. Stigma and indusium just before the expansion of the flower. Mouth of indusium closed. Lobes of stigma well developed.

9. Stigma and Indusium in flower. Lobes of stigma have grown and project beyond the Indusium.
10. Horizontal section of fruit
11. Vertical section of fruit
12. Section of stone of fruit showing the seed.
13. Cross section of the seed. a. Albumen, b. Cotyledons.
14. Embryo.
15. Diagram of flower.

Figs. 1—9, magnified

Figs. 10—14, natural size"

The figure and preceding description were both communicated by Dr Stocks.

1614. *VINCETOXICUM ARNOTTIANUM* (R. W. Con-
tub.), suffruticose, climbing; branches terete, glabrous; leaves succulent, short petioled ovate or oblong-oval, obtuse or emarginate, upper ones on the flonferous ramuli often lanceolate, acute or mucronate; umbels sub-sessile, many-flowered* flowers dark purple corolla clothed within with white pubescence. staminal crown deeply five-cleft, lobes as long as the gynostigium with a broad sinus between stigma apiculate. Beluchistan, Stocks.

This species was first taken up from rather imperfect specimens, whence some alterations have here been found necessary to adapt the character to the species. I am indebted to Dr. Stocks for the specimens from which the drawing and revised character were taken.

1615. *PEDALIUM MUREX*. (Linn.)

Coimbatore, and generally over Southern India, especially near the sea coast, and in light moist sandy soils.

This plant is figured by Rheede (Hort Mai 10, 72) and by Burmann (Fl. Ind. tab. 45), but in no later work that I am aware of. It is however well described by both Roxburgh and De Candolle.

The fresh plant has the property of quickly rendering water or milk in which it is immersed, thick and mucilaginous, without however altering the taste or colour of the liquid. Thus prepared, and sweetened with a little sugar, the infusion forms a very agreeable and cooling drink, much used by the Natives to relieve the heat of urine of gonorrhoea. Roxburgh tells us that venders of butter milk are in the habit of diluting their merchandize with water and then thickening the mixture with this plant, which makes the adulterated article seem rich and of the best sort.

PUNEERIA. (Stocks.)

"GEN. CHARACTER. Flowers dioecious by abortion. Calyx 5-cleft, increscent but not inflated in fruit. Corolla campanulate, with the divisions of the limb valvate in aestivation, and bent inwards where their tips join in the centre. Stamens five, inserted near the bottom of the tube of the corolla with tufts of hairs on each side of the filaments at their points of origin. Ovary 2-celled with many-ovuled placentae. Style simple, stigma bilamellate. Berry tightly invested by the calyx; its apex uncovered. Seeds ear-shaped. Embryo bow-shaped or nearly ring-shaped, in the midst of fleshy albumen, with linear cotyledons and a long radicle.

An under-shrub, most densely covered with minute stellate hairs, arranged in tufts which form a short ash-grey covering over the whole plant. Leaves lanceolate-oblong, unequal at the base, of a thick

tough texture, sometimes appearing to spring in pairs (pseudogeminate), with the upper and lower surfaces alike. Flowers dioecious, fasciculate, with the peduncles bending downwards. Male plant—Calyx shorter than the tube of the corolla. Stamens as long as the tube. Ovary rudimentary with no style. Female plant—Calyx as long as the tube of the corolla. Stamens rudimentary with exceedingly short filaments and with anthers effete and void of pollen.

1616. "*PUNEERIA COAGULANS* (J.E.S.), this plant is recognised at a considerable distance by its dusty ash-grey hue, which in the young leafy shoots has a bluish tinge. There is not a shade of green in the whole plant. It forms ramous bushes 1-2 feet high, flowering in February and ripening its fruit in March." J. E. S.

The berries of this plant are used in Beluchistan to coagulate milk for cheese making. Two or three of them are rubbed up with a little milk which is then stirred into the whole quantity to be coagulated. Its generic and specific names are derived from this property. *Punter* (cheese), hence, *Puneeria*, and *coagulanSf* from its quality of coagulating the milk to make cheese.

I am indebted to Dr. Stocks for my specimens and a short memoir, by him, on the plant, published in the Journal of the Bombay branch of the Royal Asiatic Society from whence I have copied the generic character and above points of information.

1617. *CAPSICUM FASTIGIATUM* (Blume), shrubby, branches 4-sided, fastigiate, diverging, pubescent-scabrous: calyx of the fruit sub-cylindrical, truncated: fructiferous peduncles sub-geminate, erect* berry oblong, cylindrical, straight: leaves oval or lanceolate, acuminate at both ends, minutely serrulate-ciliate.

Bolumputty jungles, near Coimbatore, flowering and in fruit from August till October, perhaps longer. A small ramous herb from one to two feet high. Capsule, when ripe, deep red. The fruit is very pungent, but the Natives do not use it when they can get the common chillie, assigning as their reason that it is unwholesome.

1618. *PHELIPAEA RAMOSA* (Myers) scape ramous, sparingly scaly: flowers ranged in loose elongated spikes. calyx 4-toothed, teeth ovato-triangular, acuminate. Corolla tuberculoso-funnel shaped; lobes of the hps ovate, obtuse, nearly equal, ciliate: style slightly glandulose; stigma retuse, 2-lobed.

I am indebted to Dr. Stocks for my specimens of this plant, which were gathered in wheat fields, but the station is not mentioned. This species, though a very widely distributed one, has not yet, I believe, been found in India; it is not, therefore, by rights, entitled to a place here, but is introduced in connexion with the remarks on the sectional and generic characters of this order given under No. 1420.

1619. *STROBILANTHES RUGOSUS* (R.W.), shrubby, erect, ramous, ramuli sparingly pubescent, 4-sided, furrowed, angles blunt; older branches glabrous: leaves broad ovate, acuminate, coarsely crenato-serrated, decurrent on the petiol, rugous, hirsute on both sides: spikes globose, axillary, simple or compound; when compound peduncles trifid or sometimes twice trifid. lower bracts remote, sterile, reflexed, all obovate, rounded above, glabrous; bracteoles none: calyx lobes lanceolate, subcuneate: corolla scarcely exceeding the bracts, capsule 4-seeded, upper pair sometimes aborting.

Coonor, Neilghemes, in woods. At first I considered this plant amply distinct from *S. Heyneanus* (of which I have not an authentic specimen), but closer comparison of the dried specimens with the character of that species has given rise to doubts as to their being really distinct. There are no doubt differences, but in the absence of specimens to compare, I do not feel certain that they are of specific value. In the growing state it is a striking plant; the very deep dark green of the exceedingly rugous leaves (a feature not well preserved in the drawing) contrast strongly with the numerous pale rose-coloured capitate spikes, and deep blue of the small flowers. It is said by the Natives to flower only once in several years.

1620. LEPIDAOATHIS NERVOSA (R.W.), herbaceous, diffuse, glabrous: leaves ovato-oblong, attenuated towards the apex, decurrent on the petiol, crenato-serrated, unequal: spikes terminal, once or twice trichotomous, contracted into a capitulum. bracts and bracteoles scanous, glabrous; bracts elliptic, obtuse, 5-nerved, the exterior pair of nerves marginal; bracteoles equal, as long as the bracts, 3 nerved: posterior lobe of the calyx much larger than the others, 3-nerved; middle pair narrow, subulate, anterior lanceolate - corolla (when dry) scarcely exceeding the bracts.

Ceylon. This species being from Ceylon and, I believe, among Col. Walker's plants, I at first supposed it *L. Walkei*, but on comparing it with Nees' character could not reconcile the two, especially in what regards the bracts and calyx: "bracteae herbaceo-chartaceae calyce duplo brevioribus;" neither does it quadrate with two other species from the same country, though all seem nearly allied. Viewing it therefore as a new species, I have named it with reference to the nerved bracts and bracteoles.

1621. SALVADORIA PERSICA (Linn), leaves oblong, narrow elliptico-lanceolate succulent, glabrous: panicles terminal, compact: flowers sessile, bracteate: bracts caducous: corolla persistent* fruit——.

Scinde, Stocks. Arabia, Persia, Egypt.

Small trees with the stem slightly tumid at the articulations. Leaves linear, opposite, leathery, entire, very obscurely veined. Flowers sessile, minute, in loose panicles. Calyx inferior, 4 leaved, minute. Corolla membranous, monopetalous, 4-parted. Stamens 4, connecting the petals into a monopetalous corolla; anthers round, 2-celled, bursting longitudinally. Ovary superior, 1-celled, with a single sessile stigma; ovule solitary, erect. Pericarp berried; 1-celled, indehiscent. Seed solitary, erect. Embryo amygdaloid, without albumen; cotyledons fleshy, plano-convex, fixed a little below their middle to a long axis, the radicle of which is inclosed within their bases.

There are, I believe, only 3 species of this genus, of these one is common in India the other two are natives of the countries west of the Indus. In my Illustrations of Indian Botany I have made some remarks on them, suggested by an examination of specimens of all the three plants, which, for the sake of those who may not have the means of consulting that work, I republish here. Two of the three are represented in the accompanying plate, viz. the flowering specimen, *S. Persica*, and the one in fruit, *S. Stocksii*.

Remarks on Genera and Species. To this genus, six species are assigned in botanical works; *S. Persica*, *capitata*, *hiflo*, *Surinamensts*, *paniadal*, and

Indica. Of these, the first constitutes the original type of the genus, the second and third, so far as I can make out from description, do not belong to it, the fourth rests on the authority of Sprengel, and has been referred, by Alph. DC., to *Weigeltia*, a genus of *Myrsineae*; and lastly the 5th and 6th seem to be the same or very nearly allied species. The first and last have long been confounded. The first notice to that effect, I find in Racmer and Shultes in these words, "Planta Roxburghii alia videtur quam *ilia* Forskah ex descriptione." Royle afterwards took the same view and called the one *S. Persica*, the other *S. Indica*, but without giving distinctive characters. He, however, as I understand him, calls, perhaps by mistake, the Indian plant figured by Roxburgh, *S. Persica*, and the Forskalian one, *S. Indica*. As I happen, through the kindness of Mr. Stocks (who sent me specimens of the Western plant from Scinde), to have both species before me, I am enabled to clear up the doubts and uncertainties which have so long hung over them. The typical forms of the two plants may be distinguished at a glance, the Western or Persian one having long narrow elliptico-lanceolate leaves, and compact spicato-panicled inflorescence, or, in other words, a sessile flowered panicle; while the Eastern or Indian one, has broad ovato-oval obtuse leaves, and large diffuse racemose-panicled inflorescence, that is, pedicelled flowers on the floufeious ramuli. The berries, moreover, of the Persian plant, are described as yellow or black, those of the Indian one are red. I now have specimens of the Indian form, from both Cambay and the Circars, and thence extending south to within a few miles of Cape Comorn (how far north it goes I am unable to say), and every where corresponding with Roxburgh's figure and description. To this species, therefore, I restrict the specific name *Indica*, to the other, or long narrow leaved and sessile flowered form, I assign the specific name of *Persica*.

But I have a third nearly intermediate form, also from Scinde, which, being only in fruit, I am as yet uncertain how to dispose of. It has the broad short blunt leaves of the Indian plant, but the panicles are much more compact, and the pedicels scarcely half the length. It seems a distinct species. The above species may be thus defined:—

SALVADORA PERSICA (Linn. *Cissus arborea*, Forsk.), leaves oblong, narrow elliptico-lanceolate, succulent, glabrous: panicles terminal, compact: flowers sessile, bracteate: bracts caducous: corolla persistent: fruit——. Scinde, Arabia, Persia, Egypt.

SALVADORA INDICA (Royle? R. W. *Salvadora Persica*, Roxb.), arboreous, leaves broad ovate-oval, obtuse, glabrous, panicles terminal and axillary, diffuse; flowers longish pedicelled: bracts sub-persistent: berry about twice the length of the calyx, red, embraced by the marcescent corolla.

India, everywhere in low lying damp ground, usually near cultivation.

SALVADORA STOCKSII (R. W.), leaves ovato-oval, mucronate: panicles compact, terminal: flowers short pedicelled: corolla deciduous: fruit three or four times the length of the persistent calyx.

Scinde, Stocks. I consider this a perfectly distinct species, as shown by the deciduous corolla, large size of the fruit, and compact form of the panicles. In these definitions I have limited myself to the characters simply required to distinguish one species from the other. Of the two last I shall give figures in the Icones.

EBBATA.

The following discrepancies occur between the names on the plates and in the letter press, which the reader is requested to correct.

Volume V.—Part I.

<i>Plate.</i>	<i>Letter Press.</i>
1635. <i>Eria pubescens</i> ,	<i>E. polystachya</i> .
1669. <i>Vanda parvifolia</i> ,	brides <i>Wightiana</i> .
1727. <i>Monochilus</i> ,	<i>Cheirostylis</i> .
1745. <i>Saccolab. guttatum</i> ,	<i>S. BheediL</i>

The five following corrections have been suggested by the Reviewer in the Gardener's Chronicle (Dr. Lindley ?)

1736. <i>Oxysepala ovalifolia</i> ,	<i>Bolbophyllum clandestinutn</i> .
1737. <i>Aggianthus Marchantioides</i> ,	<i>Forpax reticulata</i> .
1748. <i>Appendicula Hasseltii</i> ,	<i>Agrastophyllum species</i> .
1750. <i>Pattonia</i> ,	<i>Wailesia</i> .
1751. <i>Cytheris Griffithii</i> ,	<i>Calanthe vestita</i> .

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1776. <i>iErya floribunda</i> ,	<i>Pseudanthus brachiatus</i> .
1779. <i>Achyranthes veridis</i> ,	<i>A. bidentata</i> .
1792. <i>Suoeda Indica</i> ,	<i>S. monoica</i> .
1796. <i>Halimcrmmia</i> ,	<i>Suceda</i> .
1897. <i>Melanthesa truncata</i> ,	<i>M. turbinata</i> .
1908. <i>Gynoon triandrum</i> ,	<i>G. Jussieuanum</i> .
1918; Tulostoma 1919	Dalzellia.

1854. *Sarcostigma*. Dr. Arnott informs me in a letter that this genus is identical with *Jenkinsia* (Griffith, Calcutta Journal v. 4, p. 231.) In this I think he is wrong, or at all events premature, as he had not seen the seed. *Jenkinsia* has copious albumen, *Sarcostigma*, unless I have observed very incorrectly, is exalbuminous.
1873. *ROTTLERA PELTATA*, this if not Roxburgh's plant, will probably be found referable to Dalzel's *Rottlera Mappoides*.
1880. *Microelus*. This I learn from Dr. Arnott is *Bischafia*, Blume, a much older name than ours and which, therefore, it must, for the future, bear.

The ~~"PIM"~~ on the undermentioned plates need to be corrected as follows :

No. 1765. <i>P. morindifolia</i>	No. 1878-79. <i>Goughia</i>
— 1767. <i>C. argentia</i>	— 1885. <i>Baliospcrmum</i>
— 1773. <i>E. caudatus</i>	— 1890. <i>Trigonostemon</i>
— 1781. <i>C. tomentosa</i>	— 1894. <i>P. Niruri</i>
— 1789. <i>Obione Stocknii</i>	— 1895-3. <i>F. Madrapatensis</i>
— 1790. ————— <i>Konegii</i>	— 1897. <i>M. turbinata</i>
— 1795. <i>S. spinescexp</i>	— 1899. <i>A. multiflora</i>
— 1813. <i>B. dipetala</i>	— 1907. <i>G. velutinum</i>
— 1826-27. <i>Alseodaphne semecarpifolia</i>	— 1908. <i>triandrum change to Jussieuanum</i>
— 1828. <i>B. Boxburghiana</i>	— 1911. <i>Amanoa</i>
— 1838. <i>Lepidadenia glabrata</i>	— 1918-1. <i>P. subulatus</i>
— 1843. <i>A. melochina</i> —————	— 3. <i>H. griseum</i>
— 1848. <i>S. bicolor</i> —————	— 1919-1. <i>Dalzellia Zeylamica</i>
— 1859. <i>Gnidia eriocephala</i> —————	— 3. <i>D. Lawii</i>
— 1868. <i>A. neriifolia</i> —————	*. <i>D. pedunculosa</i> .
— 1869. <i>A. retusa</i>	

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Samydeae F. 1849.
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Chenopodiaceae F. 1786-1796.
Polygonaceae F. 1797-1810.
Poelostemaceae F. 1916-1920.

Aristolochiaceae K 1858.
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Lauraceae F. 1818-1847.
Hernandiaceae F. 1854-1855.
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Thymelaeaceae F. 1859-1861.
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EXPLANATION OF PLATES.

VOL. V - PART I.

ORCHIDEJE.

This very interesting order of monocotyledonous plants is, deservedly, a universal favourite with both cultivators and Botanists. With the former on account of the numerous flowers of surpassing beauty which it provides, and with the latter, on account of the endless variations of form and combination which its few and simple elementary parts furnish for his consideration and study. To master these, however, is a work demanding both time and patience on the part of the inquirer.

Being well aware of this, as well as of the interest which attaches to this order I have been induced, at the risk of falling into many blunders, to devote an unusually large space of this work to its elucidation even at this late stage of my progress (the present being the concluding volume) while so many others of great interest and difficulty still remain untouched.

Reduced to its elements, the flower of an Orchid (I use the term collectively of the whole order) is sufficiently simple, consisting of a perianth (the floral leaves) of six parts; one, rarely two, and still more rarely, three fertile stamens: a stigma: and an ovary. The perianth is disposed in a double series, the three exterior parts being equivalent to the calyx (sepals) the three interior to the corolla (petals) one of which from differing more or less in form colour and texture from the other two has, from being usually placed in front and in the most dependent part of the flower, received the name of the Lip. This last with its appendage, the spur, is the most important piece of the six forming the perianth, from its generally furnishing marks, often of great value, in the discrimination of genera, which the others seldom do. Were the flower complete in all its parts, it would have three perfect stamens in place of which, it has usually only one, and that so masked that persons who have not studied the family scarcely know how or where to look for it. It is in the centre of the flower forming part of the thick, more or less elongated body called the column, having its anther, or polleniferous portion, resembling, in many cases, a little cap containing the pollen lying on the top. On the side of the column next the lip, if attentively looked for, will be seen a slight moist somewhat glistening glutinous depression; that is the stigma. The stamens and pistil are therefore combined to form the column. In *Satynium* this structure is somewhat departed from, the stigma being terminal and two-lobed, and the cells of the anther quite distinct.

The pollen is very variable and, to the Botanist, is the most important part of the organization, as we shall by and by see.

These few elementary parts vary so much among themselves in form, position, and combination, as to have enabled Botanists, in the course of their researches, to construct from them about 400 genera, for the accommodation and more easy discrimination of probably not fewer than between three and

four thousand species. Amidst 10 great a number of variations, it is almost impossible for words to convey to the mind an adequate conception of the innumerable minute points of difference which mark the narrow boundaries between so great a number of genera, the aid therefore of the pencil becomes nearly indispensable. Under this conviction I have deemed it advisable to give analyses of as many genera as I could, and have fortunately been able to produce representations of upwards of 70, a great number certainly when it is considered that Wallich's list of Indian plants includes only 63 genera. I have still in my possession, drawings of several others, but not the specimens from which to complete their generic analysis. This statement is not made in the spirit of boasting, far from it, but simply to show that though much as has already been done, towards acquiring a knowledge of Indian Orchideas, much still remains to be done and thereby encourage our successors to persevere, having the assurance of still finding a rich harvest of novelties, to reward their diligence.

To assist those who may not have studied the floral structure of the order, or who may not have the means of consulting books, descriptive of its organization, I shall here give a very brief account of it, merely sufficient to enable any one to understand the following dissections.

To prevent misunderstanding, it is necessary to premise that I view the flower in the position it usually presents itself when looked at in front, that is, with the lip next the beholder and more or less dependent. On looking at the flower from behind, it is the most remote anterior portion. The lip being anterior, the odd sepal and pair of petals are posterior, or next the axis or stalk. Such is the usual position, but sometimes it is reversed and the lip is at the top of the flower, and then is next the stalk, or posterior, as in *Polystachya* and *Satynium* (the lip forms the hood or galea of the last) the flower is then said to be *retro-pinnate*, though that in truth is the normal position of the flower. The usual position is produced by the ovary receiving a half twist which brings the lip from the upper to the lower side: or in other words places it in the front (anterior) in place of the back of the flower. How this change is brought about it is not always easy to say, but we may for convenience assume that it is often the result of gravitation, for being the bulkier and heavier part, it has a natural tendency to seek the lowest side and in doing so twists the young and pliable ovary.

Beginning from without we find three sepals, these are either all distinct and equal, or the two anterior ones are large or small, divided or entire, are spreading or appressed to the lip, are more or less united either directly to each other or through the medium of the prolonged base of the column, in the latter case forming a spurious spur or in those cases where the columnar process is broad what is called a *mentum* or *chin*—many of the *Dendrobium* afford examples of the former and *Cerioperafusca* of the latter. Some-

times all the three are united into a tube or vase inclosing the other parts of the flower, as in *Jiggethianthi* L. These variations supply generic characters. The posterior sepal is usually free, variously shaped, sometimes spreading but often erect, more or less boat shaped and then forming a sort of hood or helmet (galia) over the column, as if to protect it from the weather, whence it is occasionally said to be galeate.

The three petals are placed within and alternate with the sepals, the posterior or odd sepal having the pair of petals next it, that is on the posterior side of the flower. They, like the other parts of the flower, vary in size and form, sometimes larger sometimes smaller than the posterior sepal. They are sometimes conformable in size and shape, at others very different, as in the case of some of the *Habenarias*, where we find them divided into segments, nearly to the base. occasionally they approach the posterior sepal and combine with it to form the helmet, and in some rare instances they are wanting as in *Monomena* (a genus I have not yet seen) and *Aptalon* (No 1758), in such cases their absence furnishes good generic characters, and their variations, excellent specific ones.

The anterior petal or lip presents no end of variations nearly all of which are pressed into the service in the construction of genera. It is large or small, membranous and petaloid or herbaceous, or fleshy, spreading or folded, constricted or jointed in the middle, (hence hypophylla for the lower half, and epichilla for the upper, and mesophylla for the middle), simple, entire, or variously lobed, furnished with a spur or without one; furnished with glands, hairs, plates, (lamina) or crests or plain, and lastly very generally differing either in kind or intensity of colour from the other parts of the flower. In a word, so numerous and various are the modifications of the lip that it seems quite impossible to classify them, but nearly all are employed in the description of an orchideous flower, and so constantly that any description of one without special reference to this part would be most incomplete.

The column, which is placed in the centre of the flower, is a compound body composed of the sexual apparatus of the flower cohering into a single central body. It varies considerably in form, being sometimes long, sometimes short, erect or oblique, and in the latter case often furnished at the base with a process or sort of spur to which the lip is attached and to which, when present, the lateral sepals very often cohere. It is produced by the union of the stamens and pistil, and presents several variations noted in generic characters. The apex is very generally flattened or more or less concave for the reception of the anther, whence the term *dinandrium*, or anther bed, which in such cases is applied to it.

Orchids have three stamens, but, except in a very few genera, two of these are rudimentary and only one perfect. All the three, along with the style, are usually incorporated in the column, but the posterior one only is, with the few following exceptions, perfect.

In *Cypripedium* the lateral ones are perfect, and the posterior rudimentary, and in *Euphroboscys* (No 1732) they are all three perfect and distinct. Here also we find variations. The anther is terminal, erect, or turned down on, and very slightly adherent to, the apex of the column, or adnate, or it is dorsal, apparently owing to the elongation of the apex of the stigma, or rostellum, as it is called, or, as in the case of *Oxyaepala* (No 173b), and some others, both filament and anther are free.

The pollen, like all other parts of the flower of this curious family, is subject to modifications and, for the purposes of classification, its variations are most important. It is either powdery or granular, or composed of a definite number of little waxy masses (*Pollinia*) which on removal of the cells of the anther, or what I shall, in reference to its position, call the *anther cap*, are seen lying on the apex of the column either altogether distinct, or cohering by means of some cellular matter, forming a strap like body (*caudicle*) through the medium of which it is connected with the stigma (placed in front of the column), sometimes the strap is furnished with, or rather adheres firmly to, a disk like gland of the stigma, but which readily separates from it, with the caudicle. The following extract on the application of the pollen to the classification of the order with which I shall conclude these notes, I take from Lindley's "Vegetable Kingdom".

"In classifying this order, the most important characters appear to reside in the pollen, which in many is consolidated into firm waxy masses of definite number in each species, and in others is either in its usual loose powdery condition, or is collected in granules, or small wedges, the number of which is far too great to be counted. Of those with waxy pollen masses, some (*malazea*) are destitute of any visible processes by which the masses are brought into contact with the stigma, others (*Epidendrea*) have strap shaped caudicles which are either bent down upon the masses themselves, or serve to hold them together, without, however, forming any organized union with the stigma, while the remainder (*Vandta*) have a caudicle which adheres firmly to a gland found on the upper margin of the stigma, and separating freely from that organ. The genera with powdery, granular, or stult pollen cannot be classified so conveniently by modifications of that part, but are readily divided into three natural tribes by peculiarities of the anther. In some (*Ophtat*) the anther is erect, not hinged to the column, but continuous with it, and stands above the stigma, the pollen masses having their points directed to the base of the lobes of the anther, in others (*Ilretkuset*) the anther is hinged to the column, upon the end of which it is placed transversely like a lid, and in others (*Meottea*) it is also hinged to the column but is stationed at its back, so as to be nearly parallel with the stigmatic surface. If to this we add that *Cypripedca* have two anthers while all the others have one only, we find the order divided into seven tribes of which the following is a tabular view.

I Anther one only

A Pollen masses xerax

a No caudicle or separable stigmatic gland

I *Malaxea*

b A distinct caudicle, but no separable stigmatic gland

II *Epidendrea*

c A distinct caudicle, united to a stigmatic gland

III *Vandta**

B Pollen powdery, granular, or sectile

a Anther terminal, erect

IV *Ophre**

b Anther terminal opercular

V *Arethuseas*

c Anther dorsal

VI *Neotte**

II Anthers two

VII *Cypripede**

1022. *OBEROMA BRDNONIANA* (R. W.), leaves ensiform, succulent, nearly as long as the raceme: stem compressed at the base, furnished near the apex with a short narrow falcate sheathing leaf or common bract, raceme compact: bracts ovate, denticulate, acute: sepals ovate, obtuse, reflexed, a little longer than the narrow lanceolate petals: lip entire, broad, cordate at the base, obtusely 3-lobed at the apex, the middle one small or sometimes obsolete. Flowers olive brown, the left somewhat darker towards the centre.

Iyamally Hills near Coimbatore, flowering June and July.

A large and handsome species; flowers large for the genus; lip and sepals dark brownish-coloured, petals pale yellowish. It appears quite distinct from all the described species, and is certainly very different from all the following. As being the most conspicuous of the genus, so far as I know it, I have taken the liberty of dedicating it to the President of the Linnean Society, the first of living Botanists.

1623. *OBEROPHIA PLATYCAULON* (R. W.), leaves long, narrow ensiform: stem flatly compressed, nearly as broad as the leaves: raceme lax, flowers longish pedicelled: bracts ovate, acute, the length of the ovary, fimbriate on the margin: sepals ovate, lanceolate, acute: petals linear, narrower and slightly shorter than the sepals: lip 3-lobed, lateral ones obtuse, middle larger 3-toothed, the middle one the least. Flowers whitish or pale yellow.

Pulney Mountains, flowering September. The remarkably compressed stalk of the raceme and the peculiar lip of this species easily distinguishes it from all the others represented here.

1624. *OBERONIA LINDLETANA* (R. W.), leaves ensiform, short, very succulent, slightly falcate: stem compressed, spike drooping towards the apex, densely covered with innumerable small sessile flowers: bracts ovate, somewhat obtuse, sub-denticulate on the margin: sepals broad, ovate, obtuse, entire: petals narrow linear: lip broad cordate at the base, crenate, two-lobed at the apex, with a minute tooth between; all furnished with numerous minute opaque glandular (?) dots. Flowers straw colour, lip dull orange.

Iyamally Hills near Coimbatore, flowering August and September.

The leaves of this species are very succulent, and with its long drooping raceme afford good distinguishing marks, which are amply confirmed by an examination of the flowers. This species is remarkable on account of the opaque gland-like points scattered over the flowers. The bract is represented too pointed in the figure. I dedicate the species to the founder of the genus.

1625. *OBERONIA DENTICULATA* (R. W.), leaves broad, ensiform, stem short, fleshy, compressed, spike very long, closely covered with minute sessile flowers: bracts ovate, serrato-dentate: sepals and petals unequal, ovate, obtuse, reflexed: lip irregularly triangular, denticulate, somewhat two-lobed at the apex, each lobe bidenticulate. Flowers dull orange colour.

Iyamally Hills near Coimbatore, flowering July and August. Of this species I have given two figures to show how it varies in size. The lip of the smaller one differs from that of the larger, but in all other respects, except in size, they seem sufficiently to accord.

1626. *OBERONIA VERTICILLATA* (R. W.), leaves narrow, ensiform, sub-falcate: raceme erect, or inclined, short peduncled: flowers verticillate: bracts ovate, lanceolate, acute, fimbriate on the margin: sepals short, broad, ovate, obtuse: petals sub-ovate, obtuse, longer than the sepals: lip oblong, slightly cordate at the base, 2-lobed at the apex, lobes broad, roundish, spreading, slightly crenulate on the margin. Ovary and sepals pale green, perianth dull orange.

Neilgherries, on branches of trees, flowering during the rains between July and October; also on the Pulney Mountains.

This seems a very distinct species. I at first supposed it *O. anthropophora*, but a more careful consideration of the characters of that species, led to the conviction of its being quite distinct.

1627. *OBERONIA WIGHTIANA* (Lindley in Herb. Wight), leaves broad, ensiform, acute: racemes very long drooping towards the apex: flowers scattered, short pedicelled: bracts broad ovate at the base, acute, denticulate at the apex: sepals ovate, obtuse, shorter than the linear obtuse petals: lip three-lobed, lateral lobes strap-like embracing the base of the column, middle one prolonged, ending in two obovate spatulate spreading lobes, crenulate on the margin. Flowers pale green.

Neilgherries and Pulney Mountains, flowering August and September.

The hgulate lateral lobes of the lip of this species is peculiar and at once distinguishes it from the following very nearly allied species, with which, if I mistake not, it was confounded in the first instance by Lindley.

1628. *OBEROMA ARNOTTIANA* (R. W.), leaves ensiform, sub-falcate succulent, racemes erect or slightly inclined towards the apex, scarcely drooping: flowers alternate, longish pedicelled: bracts ovate acute, sheathing at the base: sepals ovate, acute, about the length of the narrow linear petals: lip cordate at the base, 3-lobed; lateral lobes broad ovate, obtuse, middle one prolonged, forked at the apex. Flowers pale green.

Neilgherries and Pulney Mountains, flowering September. These two species were, I believe, mixed in the collection sent home and named as above by Dr. Lindley. Now that they are distinguished I have much pleasure in associating my friend with them by dedicating one of the two to him.

1629. *OBERONIA IMBRICATA* (Blume), "stem simple, leafy, leaves compressed, sheathing, closely imbricated, limb of the lip hgulate, denticulate." Blume.

Malacca, Griffith.

The leaves correspond well with the above too brief and imperfect character, but scarcely the lip, which is my reason for attaching the mark of doubt to the species. Should it be found not to be Blume's plant, it might then be called—

O. Gniffithii (R. W.), stem leafy, leaves imbricating: spike slender, drooping: bracts large, sheathing, broad ovate, denticulate: sepals broad ovate, obtuse, as long as the ovate lanceolate petals: lip broad, linear, obtuse, emarginate. The dissections of the flowers are taken from some obtained from a very young spike, the older spike, shown in the plate, is in fruit.

1G30. DIENU CYLINDROSTACHYA (Land.), stem one-leaved: leaf ovate, obtuse: spike denBe cylindrical: perianth flattened: lip excavate, thickened at the apex; nearly entire: column very short. Land.

Simla, Countess Dalhousie—Edgeworth.

The specimen represented on the left side of the plate [received many years ago from the late Countess Dalhousie, for the drawing of the figures on the right side, I am indebted to Mr. Edgeworth of the Bengal Civil Service. His figure was taken from a living specimen, mine from a dried one. In some parts, especially the lip, the difference appears considerable, but I consider myself fortunate in being thus enabled by contrast, to show how much can be made of well dried specimens. It is now upwards of 20 years since my specimen was gathered.

1631. MICROSTYLIS DISCOLOR (Lmd.), stem leafy, leaves ovate, oblong, abruptly petioled, undulate, plaited: lip ovate, entire, cucullate at the base: column two-horned at the apex: sepals and petals all turned to one side.

Ceylon, flowering July.

I am indebted to the kindness of Mrs. Colonel Walker for the opportunity of representing this plant, the original very characteristic drawing being from her pencil. The insertion of the name "Govindoo" at the foot of the page is the blunder of the Lithographer.

1632. MICROSTYLIS LDTEOLA (R. W.) stem leafy at the base; leaves ovate, subcordate at the base, acute, plicate: sepals obovate, obtuse, the middle one narrower: petals linear, obtuse, emarginate: lip somewhat 2-lobed, lobes broad, spreading, fimbriato-dentate. Flowers yellow.

Ootacamund, Neilghernes, flowering August. This species is nearly allied to *M. versicolor* but is certainly distinct. It grows under the shade of bushes and among long grass on the highest peaks of the Hills.

1633. LEPARIS BILOBA (R. W.), leaves 2 or 3, ovate, acute, undulate, plicate, cucullate: raceme erect, few-flowered: sepals ovate, acute: petals narrow linear, blunt pointed: lip spreading deeply 2-lobed. Flowers dull plumb colour.

Neilghernes, nestling among moss on the branches of trees, flowering July and August. Flowers longish pedicelled in proportion to the rest of the plant. It comes very near *L. atropurpurea* but the deeply 2-lobed lip keeps it distinct.

By some accident the names of Nos. 1634 and 1635 have got transposed, I must therefore beg the favour of the reader's correcting them as follows:

1G34. ERIA PUBESCENS (R. W. E. *polystachya* in Icon.), stem leafy, short, clothed at the base with sheathing scales: leaves lanceolate tapering at both

ends, acute, marked with strong longitudinal veins racemes slender, drooping; rachis and pedicels pubescent: flowers resupinate; bracts as long as the pedicels, lanceolate acuminate: sepals and petals a little longer than the lip, glabrous, falcate, attenuated towards the point, 3-nerved: lip oblong, three-nerved, sub-coriaceous at Jie base, contracted in the middle; limb lanceolate acute, margins membranous reflexed. Flowers white, perianth tipped with pink.

Western slopes of the Neilghernes, flowering August and September.

This species is very nearly allied to the next, but is quite distinct.

1635. ERIA FOLYSTACHYA (Ach. Richard *Eyubecens* in Icon.), stem thickened pseudo-bulb-like at the base, loosely sheathed; leaves terminal, from oblong elliptical acute to obovato elliptical, somewhat obtuse, glabrous: spikes axillary, about the length of the leaves, erect, clothed with short pubescence: bracts lanceolate acute: sepals ovate, attenuate at the point, pubescent, exceeding the lanceolate petals: lip ovate lanceolate, about half the length of the petals.

Neilghernes, western slopes, flowering August and September.

Though my figure differs somewhat from that of M. Richard, I believe they both represent the same species, and both being taken from dried specimens may easily account for the difference. The lip, which is peculiar, and supplies a character by which this is at once distinguished from 1634, is most erroneously represented, not as regards form, but as regards proportion to the other parts, the petals especially. Had its proper proportions been preserved it would have been only about half the size. I find it most difficult, I may almost say, impossible, to teach the artist the art of preserving proportions in magnified figures.

1636. ERIA PADCIFLORA (R. W.), caespitose, stems erect, succulent, jointed, thickened at the apex, with a leaf at each joint, last joint thickened, tuberos, surmounted by two leaves, from between which rises the short 1- or 2-flowered raceme: leaves ovate, oblong, obtuse: flowers longish pedicelled: sepals about equal or slightly longer than the narrow linear petals: lip somewhat corrugated furnished with two lamellae near the base. Flowers white.

Growing on moist rocks, forming dense masses exposed to the spray of the river below the Kaitie Falls, Neilghernes, flowering August and September. Flowers pure white. A very distinct and peculiar species. The stems become like pseudo-bulbs at the apex, and then flower in their season.

1637. ERIA RETICOSA (R. W.), caespitose, stemless, pseudo-bulbs orbicular, depressed, enclosed in a net-like sack: leaves about two, elliptic, spreading: scape filiform, 1-flowered, furnished at the apex with a large somewhat boat-shaped bractea: flowers large, resupinate, expanding: sepals and petals about equal, exceeding the obscurely 3 lobed lip. Flowers pure white, lip and column yellow, bract brownish.

On branches of trees about Pycarrah in profusion, flowering in May and June, in truth it teems

to be met with more or less in flower the greater part of the year. It is a plant of great beauty when seen in perfection. Its most peculiar feature is the net enclosing the pseudo bulbs. It is so remote in habit from the other *Erias*, that it was some time before I could reconcile myself to placing it in that genus.

1638. *CXLOOTNF HERVOSA* (Ach. Rich), pseudo-bulbs ovate, covered with coriaceous scales leaves broad elliptic acute, or sub-acuminate, striated and nerved, coriaceous, usually two, sheathing at the base: scape somewhat longer than the leaves, 2-6-flowered: flowers large; bracts shorter than the flowers, ovate, acute, persistent, striated: sepals oblong-elliptic, about equal, acute: lip, like the sepals, 3-lobed, lateral lobes small, the middle one oval, lanceolate. Flowers pure white, bract reddish-brown.

Neilghemes, flowering May and June.

This when in full flower is an exceedingly handsome species, the large pure white flowers, the lip only being tinged with orange, the brownish bracts, and dark green foliage present a (harming combination. It abounds on the rocks overhanging the falls at Pycarrdh, also at the Avalanche. The specimen represented flowered in Connbatore, the roots having been brought down some weeks before.

1639. *CELOGIKF CORRUGATV* (R. W.), pseudo-bulbs caespitose, ovate, reticulately corrugated: leaves oblong, elliptic, sub acuminate • racemes about the length of the leaves, 3-G-flowered: bracts caducous or wanting flowers large, sepals and petals conformable, oblong, ovate, acute * lip 3 lobed, lateral lobes small, middle one produced, ovate, obtuse, the claw furnished with three longitudinal undulato-crenate, coloured crests.

Courtallam, Pulney Mountains, Neilghemes, flowering August and September.

The limb of the lip is marked with orange and yellow lines like the crests, the rest of the flower is pure white. The peculiar feature of the species is the deeply corrugated, wrinkled pseudo-bulbs, whence I have taken the name.

1640. *CSLOGYNE ODORATISSIMA* (Lind), pseudo-bulbs caespitose, ovate, leaves lanceolate, petioled, length of the 2- or 3 flowered raceme bracts boat-shaped, divaricate, petals linear, lanceolate lip 3-lobed, 3-crested, middle lobe undulated, orbicular, column entire. Flowers white, lip tinged with yellow.

Dodabetta, Neilghemes, on branches of trees flowering throughout the rainy season from May to October.

This very pretty species forms large masses sometimes covering continuously several feet of the branch on which it grows, covered with numerous racemes of its pure white flowers. The pseudo-bulbs are green, intermixed with sheathing scales of uniform colour. Flowers expanding, petals narrower than the sepals.

1641. *CELOGYNE ANOUSTIFOUA* (A. Richard), pseudo-bulbs aggregated, ovoid oblong, the older ones naked, the younger sheathed, one- or two-leaved at the apex: leaves linear, lanceolate, acute, channelled at the base, spotted beneath with white points:

scape terminal, length of the leaves, 2-4-flowered: bracts linear, persistent, divaricate: lip erect, 3-lobed, lateral lobes oblong, obtuse, middle one larger, acute, narrower below, furnished with two sinuous longitudinal crests. Flowers white, lip tinged with yellow.

Neilghemes, on branches of trees in clumps of forest near Neddawuttim.

My figure differs so much from Richard's as to lead me to doubt their identity, especially as regards the form of the lip, acute in his, very obtuse in mine. If I have erred in naming this, it is from confounding two specimens much alike, one, but from which the flowers have all fallen, perfectly quadrates with his figure, the other, less exactly corresponding but still apparently the same, having flowers, was selected for representation and named without again carefully comparing the character throughout until copying it. Are they really distinct or does an error exist in that part of his figure⁵ This question can, I fear, only be answered, in this country, by again obtaining fresh flowering specimens, of the more correctly corresponding form.

1642. *DEKDRODIDM FILIFORME* (R. W.), caespitose, pseudo-bulbs depressed, flattened, sub-orbicular, netted on the surface: leaves 2-3, ovate, oblong, somewhat obtuse, slightly cuspidate • raceme erect, filiform, few, 2-3- to many- (10-12) flowered: bracts ovate, acute, longer than the ovary; sepals much attenuated, subulate, pointed, dilated at the base, adnate to the process of the column forming a short obtuse saccate spur: petals about equaling the sepals and nearly thrice as long as the narrow ovate lip. Flowers straw colour.

Neilghemes and Iyamally Hills near Coimbatore, on branches of trees. I am also indebted to Mr. Law of Bombay for specimens from that neighbourhood, but the station not stated.

The plate exhibits three forms, all more or less differing but still evidently the same species. The bracts are more boat-shaped than represented in the drawing. The figure of the column and lip is more highly magnified than the other dissections. It is seen in nearly correct proportions in the front view of the artificially-opened flower.

1643. *DENDROBIUM HDMILE* (R. W.), caespitose, pseudo-bulbs ovate, covered with the sheaths of fallen leaves, leaves often wanting, when present one or two from the apex of the bulb, linear lanceolate, about the length of the scape: raceme erect, 4-8-flowered: bracts small, linear, subulate: lateral sepals acute, sub-falcate, forming with the process of the column an acute spur, posterior devancato-lanceolate- petals lanceolate, narrower than the posterior sepal: lip large, three-lobed, middle lobe crenulate, crisp, sub-orbicular, lateral ones entire, or slightly crenate. Flowers greenish-yellow, tipped with pink, lip pink with darker crimson lines.

Iyamally Hills, on trees, flowering July and Aug

Except that this belongs to Lindley's first section, having the pseudo-bulbs bearing the leaves, it seems to approach very near *D. denudans* and *alpestre*, from the latter it is certainly distinct, I am not quite so certain in regard to the former, the pointed divaricating spur of this species is its most striking feature.

1644. *DENDROBIUM JERDONIANUM* (R. W.), erect, stems jointed, thickening upwards, internodes about the length of the leaves: leaves ovate lanceolate, succulent, forked at the apex: racemes axillary, short, 2-3-flowered: bracts minute: flowers long pedicelled, calcarate, lateral sepals much produced at the base, posterior one and petals equal, all linear lanceolate, acute: lip sinuately undulated on the margin, obovate, forming with the long base of the column a short conical spur. Flowers deep orange colour, lip conforming, or a little redder.

Coorg Jungles, Jerdon. Iyamally Hills, flowering August and September.

The specimens from the two stations differ in the size of the flowers, but in both they are spurred, and have the same long narrow form and agree in colour, hence I consider them mere varieties.

1645. *DENDROBIUM ALBUM* (R. W.), erect, jointed: stems enlarging from the base to the apex, internodes much shorter than the leaves: leaves oblong, elliptic, acuminate: flowers axillary, paired, long peduncled: sepals ovate, acute; lateral ones falcate: petals obovato-elliptic, obtuse, larger than the posterior sepal: lip 3-lobed, lateral lobes entire, obtuse, middle one cucullate, ovate, acute, saccate at the base, ciliate. Flowers pure white.

Iyamally Hills, flowering September.

This is one of the handsomest of the genus I have yet met with, the large pure white flowers and dark foliage are very conspicuous. It seems to be rather rare, as I have only once obtained specimens.

1646. *DEVDROBIUM AURIUM* (Lindl.) stems round, pendulous, internodes short, leaves linear, oblong, obliquely emarginate at the point: flowers paired: sepals ovate, obtuse: petals undulated, obtuse, larger than the sepals: lip cucullate, limb ovate, obtuse, undulated, entire pubescent within.

Ceylon, flowering in January.

I am indebted to Mrs. Colonel Walker for the very beautiful and characteristic drawing of this handsome species.

1647. *DENDROBIUM MACROTACHTUM* (Lindl.), stems terete, pendulous: leaves oblong, acute, flat: flowers paired, fragrant, forming a spurious raceme: sepals linear oblong, acute, the upper sepal larger: lip unguculate, limb somewhat fiddle-shaped, silky to the touch, middle lobe elongated, acuminate, flat.

Ceylon, growing on trees, flowering in July.

In a beautifully coloured drawing of the plant here represented, the flowers are greenish-yellow coloured, with the lip and points of the sepals and petals tipped with pink.

I am indebted to the same accomplished lady, Mrs. Walker, for the drawing from which the plate is taken.

1648. *DENDROBIUM RAMOSSISSIMUM* (R. W.), erect? ramous, lower part of the stem naked, smooth, dark shining brownish-coloured, ramuli leafy: leaves narrow, linear, lanceolate, acute: racemes terminal, short, few-flowered: flowers small: sepals ovate, lanceolate, acute, broader than the lanceolate acute, entire petals: lip oblong, obtuse, contracted near the apex, forming a sub-orbicular terminal lobe. Flowers yellow.

Coorg Jungles. Jerdon.

I only know this plant from dried specimens and it is not improbable many of the leaves have fallen off, giving it a more naked appearance in the plate than when growing. Judging from the specimens, it seems to attain a height of from 18 inches to 2 feet and is ramous from the base. It seems quite distinct from all the described species, and I have seen no other like it in India.

1649. *DENDROBIUM GRAMINIFOLIUM* (R. W.), rhizoma creeping, stems ascending, leafy: leaves sheathing at the base, linear, lanceolate, acute: raceme terminal, slender, 4-6-flowered, flexuose: bracts much shorter than the pedicels, ovate, acute: flowers calcarate; sepals and petals equal, acute: petals narrow, lanceolate: lip cucullate, 3-lobed; lateral lobes small, blunt, middle, orbicular crenate, somewhat crisp on the margin; claw united with the prolonged process of the column forming a conical spur.

Courtallum, August and September.

This is a grassy looking little plant from 4 to 8 inches high, flowers white. The circumstances in which it grew, whether on trees or mossy stones, was not noted, but the mode of its extension seems rather unusual in the genus; a long slender creeping jointed rhizoma, from the joints of which spring tufts of roots and an upright grass-like stem, bearing on the apex a short flexuose raceme, from the angles of which the flowers spring.

1650. *BOLBOPHYLLUM NEILGHERRENSE* (R. W.), rhizoma creeping, pseudo-bulbs ovate, irregularly angled, somewhat corrugated: leaves oblong, elliptic, obtuse, emarginate: spikes cylindrical, shorter than the leaves: flowers numerous, congested: bract lanceolate acute: lateral sepals much larger than the posterior, oblique; posterior broad, ovate, sub-acute: petals small, broad at the base, ovate, acuminate, sub-denticulate: lip 3-lobed, lateral ones spreading, triangular, acute, much smaller than the broad ovate obtuse, somewhat tongue-shaped, hispid middle one. Flowers dull yellowish-green.

Neilghernes and Malabar. As my specimens were obtained through the Native Collector the exact station is not known.

The drawing was unfortunately taken from a dried specimen, and does not give a very perfect idea of the inflorescence and flower, and the lip is too acute.

In the growing plant the raceme is dense and cylindrical. The sepals of a dull brownish-yellow colour, the lip broad pointed and of dirty brownish-green, sprinkled with short hairs. It is evidently very nearly allied to *B. Careyianum*, but apparently quite distinct.

1651. *BOLBOPHYLLUM FUSCOPURPUREUM* (R. W.), rhizoma creeping, pseudo-bulbs ovate, angular, congested: leaves broadly elliptic, contracted at both ends, emarginate: raceme much longer than the leaves, 4-6-flowered, drooping towards the apex, flowers longish pedicelled: lateral sepals about twice as large as the ovato-lanceolate posterior one: petals ovate at the base prolonged into a long filiform acumen, terminating in a little fleshy knob: lip 3-lobed, lateral lobes short obovate or sub-spathulate, middle one fleshy, nearly equaling the sepals, sub-spathulate or tongue-shaped, entire, hispid. Flowers dark reddish-brown, lip brownish-purple.

Neil^hernes, on trees and rocks along the banks of the Kartairy river below Kailie, and also below Neddawuttim on the N. western slopes, where Mr. Jerdon first detected it. The petals of this species are very unusual, and the middle lobe of the lip in the fresh plant gives so much the idea of a tongue, that I am told the "Tongue orchis" is the name by which it is known to Mrs. Jerdon.

I am indebted to the accomplished pencil of Mrs. Jerdon for the drawing, the dissections were prepared by my draftsman.

1652. *CIRRHOPETALUM MACRAI* ? (Lind.), petals apuulate, naked: sepals all acuminate. leaves oblong, lanceolate, obtuse, emarginate, about the length of the scape. Lind. Flowers pale green with brownish-red veins.

Ceylon, Nuera Elba, on trees, flowering May.

I am indebted to the kindness of Mrs. Colonel Walker for this and several other drawings of this family.

I am now doubtful whether I have correctly named this species as the figure does not very correctly correspond with the description. The lateral sepals are said to be elongated, much acuminate, and the petals falcate, a little smaller than the posterior petal neither of which is very conspicuously the case in the figure, but the flowers are said to be umbelled, a point more easily observed. Lip in this plant small, recurved, thick and fleshy. The colour of the flowers, as noted by Mrs. Walker, is "yellow-streaked and dotted with deep red." Lindley describes his as pale green with brownish-red veins.

1653. *CIRRHOPETALUM ALBIDTJM* (R. W.), leaves oblong elliptic, obtuse, emarginate - flowers umbelled, scape about the length of the leaves: bracts somewhat boat-shaped, shorter than the pedicels: sepals all acuminate, posterior a little shorter than the lateral ones: petals broad, ovate, obtuse: lip short, fleshy, sub-sagittate. Flowers very pale, greenish-yellow or nearly cream colour.'

On moist rocks, St Catherine's Falls, near Kotergherry, flowering August and September.

1654. *CIRRHOPETALUM NEILGHERRENSE* (R. W.), leaves linear, obtuse, emarginate, 3-nerved. scape shorter than the leaves: umbelled, 6-8 flowered: lateral sepals very long, broad, ovate, at the base, tapering to a point, posterior one ovate, acute, nearly twice the length of the broad, sub-obovate blunt petals: lip short, cordate, ovate, recurved, hairy on the back: prolonged base of the column pubescent within. Flowers at first pale greenish-yellow, tinged with pink, marked with darker lines, afterwards becoming reddish or light rusty coloured; process of the column red.

Kartairy below Kaitie, on moist rocks, a very pretty species, very distinct from the preceding.

1655. *CIRRHOPETALUM FIMBRIATUM* (R. W.), leafless³ pseudo bulbs cespilose, irregularly angular, depressed * scapes slender, erect, furnished with remote appressed scales umbels many-flowered, orbicular, lateral sepals long linear, cohering to near the point, posterior ovate, acuminate, and, with the conformable but smaller petals, fimbriate on the margin:

lip ovate, obtuse, fleshy, shorter than the petals Lateral sepals often cohering, cream-coloured with darker lines, petals, lip, and posterior sepal, red.

Coorg Jungles, flowering January, Jerdon. The figure of this plant, though so far characteristic as readily to distinguish the species, is not, correctly speaking, a good one. It was taken from dried specimens. After the plate was struck off, I saw a much better one from the pencil of Mrs. Jerdon, and regret exceedingly that I had not seen it in time to have substituted it for this one

It seems the most curious of the genus. The flowers all spread horizontally, and are so numerous and close set as to form a continuous circle, whence I am told Mrs. J. gave it the name of "Umbrella orchis," which had I known sooner I would have adopted.

1656. *CIRRHOPETALUM GRANDIFLORUM* (R. W.), pseudo-bulbs conical: leaf pedicelled, linear, subtruncate, emarginate: scape nearly twice the length of the leaves, 3-6 flowered: lateral sepals long, ovato-lanceolate, tapering to a point (about 1J inch long), posterior sepal ovate, acute, and, with the narrow almost subulate petals, ciliate* lip short, fleshy, recurved, cordato-ovate. Colour of the flower greenish, streaked and speckled with crimson, tending to purple, lip deep red, posterior sepal and petals yellowish.

Ceylon, on branches of trees, Nuera Ellia, flowering in May.

The figure and character is taken from A beautiful coloured drawing made by Mrs. Colonel Walker. She names it doubtfully, *C. Macrei*, which I think it can scarcely be, though agreeing in some points with the character of that species.

1657. *CIRRHOPETALUM WAIKFRIANUM* (R. W.) pseudo-bulbs ovate, surrounded at the base with brown fibrous appendages- leaf obovate, spathulate, petioled, fleshy: scape slender, erect, longer than the leaves, 3-4-flowered • lateral sepals long, narrow, subulate, pointed, posterior one ovate, acuminate, acute* petals minute, obtuse, sub-falcate: lip cordato ovate obtuse, fleshy, recurved: upper angles of the column produced into longish lanceolate processes. Ovary and petals red *, sepals yellow, streaked with shades of red, leaf light green, fleshy.

Rambaddu, Ceylon, on trees.

I have dedicated this species to the discoverers, Colonel and Mrs. Walker. The figure is taken from a coloured drawing kindly communicated by the latter, to whose accomplished pencil the Flora of Ceylon is very deeply indebted, as this work in many instances testifies.

1658. *CIRRHOPETALUM CAUDATUM* (R. W.), pseudo-bulbs ovate, leaves from oblong elliptic to strap-shaped, obtuse, emarginate: scape filiform, clothed with sheathing scales: bracts subulate, about the length of the ovary: lateral sepals very long, ending in very long spirally convolute filiform tails; posterior one and petals about equal, ovate, obtuse, and, with the base of the lateral sepals, ciliate with remote bristly hairs: lip oval 3-crested.

Malacca, Griffith.

In the Malacca collection, communicated by the late lamented Mr. Griffith, there are two plants

coinciding in the very peculiar distinctive feature, very imperfectly represented in the figure, the long thread like tails of the lateral sepals, but I am uncertain whether to view them as distinct species or only varieties. In appearance they differ, but that may be merely owing to difference in luxuriance or exposure of the stations where they respectively grew.

1659-60 PHAJAS BICOLOB(Lmd.), stemless, scapes longer than the leaves: leaves lanceolate, acuminate* sepals and petals lanceolate, acuminate- lip cucullate, bellied, entire, limb obtuse, cuspidate undulate on the margin, furnished towards the base with two flat plates. spur cylindrical, curved, emarginate at the apex, about the length of the ovary. Flowers yellowish, lip rose-coloured, spur yellow.

Ceylon, in pasture on the sides of hills.

I have two coloured drawings before me, both from the pencil of Mrs. Walker, in the one the colour corresponds with Lindley's description, the other has the sepals and petals purplish above, brownish pale-white beneath, the lip, externally, pale brownish-yellow, within, rose. Can the difference originate in the flowers changing colour after expansion °

This genus, so far as I am aware, has not yet been met with in the Peninsula, but as it may be expected in Malabar, I have introduced this species to make it known, if found.

1661. ARDNTERIA BAMBUSIFOLIA (Lmd.), lip furnished within with two fleshy undulated crested plates, and a shorter straight intermediate one: lateral lobes short, entire or sub-obsolete, middle one two-lobed, segments divaricating, crisp: petals lanceolate : leaves acuminate.

The specimens from which the drawing was made were from Ceylon, it is also found in Malabar. The above character is taken from Nepal specimens, but seems quite in accordance with our plant.

1662. APATORIA LINDLEYAITA (R. W.), petals linear, sub-spathulate, equaling the oblong linear lanceolate acute sepals* lateral lobes of the lip obtuse, roundish: middle one ovate, straight, with three crests extending nearly its whole length, and decurrent on the claw: the middle one thicker and higher than the others, lateral ones not marginal, bracts as long as the ovary, ovate, cucullate, acute.

Coorg, Jerdon, flowering December and January.

I almost fear this is too near Lindley's *Ji. acnūu*, the distinctive marks being apparently very slight, but still, so far as I can gather from the brief character, they seem distinct

1663. IPSEA BPICIOSA (Lind). This is the only species of the genus yet known. A native of Ceylon.

I have also a specimen, perhaps a new species, found on the Malabar Ghauts, but have not yet sufficiently examined it. The figure is taken from a drawing by Mrs. Colonel Walker. I gathered specimens in April 1836, in company with the late Colonel Walker. The genus is said by Lindley to be very peculiar, partly on account of the species having two-lobed, fleshy roots, like those of the Ophrydeae, a very unusual coincidence in Orchids, with waxy pollen. The figure does not exhibit that feature.

1664-65 CALAIFB PERROTTETII (A. Richd), leaves petioled, elliptic, nerved, plicate, acute scape longer than the leaves, furnished with distant sheathing scales* raceme loose: bracts ovate, lanceolate, length of the ovary, sepals and petals sub-equal, ovate, obtuse: lip 3-lobed, lateral lobes lanceolate, middle one much larger, truncately 2-3-lobed; lobes spreading; spur slender, straight, longer or about the length of the lip. Flowers light lilac, lip with a deeper tinge.

Neilghernes, frequent in clumps of forest, in moist soil, flowering July and August I have seen it in flower in woods about Coonoor in May, but very rarely at that early season.

It is a large plant sometimes nearly four feet high, the leaves from a foot to a foot and a half long and from 4 to 6 inches broad Flowers delicate pale lilac colour. It is perhaps too nearly allied to *C. veratrifolia*, Lindley, if indeed it be not that species, which however has a four-lobed lip.

1666. EULOPBIA RAMENTACEA (Lind.), leafless • bracts subulate, shorter than the ovary: flowers erect - sepals and petals linear, spathulate, acute - lip 3-lobed, the middle lobe undulated, obtuse, plates of the disk three, broken or torn towards the point; spur obtuse, conical.

Coorg, Mysore, &c. This species is leafless when in flower; as in the case of some others, the leaves follow the flowers. The leaves here represented are those of the species but taken from a young specimen, which, apparently, had not attained sufficient maturity to dower that season.

1667-68. EULOPHTA MACROSTACHTA (Lind), leaves oblong, acuminate at both ends, plaited, somewhat 3-nbbed: scape simple, radical, longer than the leaves: sepals linear, lanceolate, acuminate: petals conformable, broad., sub-undulate: lip sub-orbicular, 3-lobed, lateral lobes about the length of the shortened, deeply-cleft middle one, two short petals near the base, spur short, roundish, obtuse, inflated. Flowers greenish-yellow, lateral lobes of the lip tinged and streaked with crimson lines, the middle lobes yellow.

Neilghemes, Ceylon. The specimen represented was found in dense jungle near the banks of the stream at Burlear on the Eastern slopes. I have also specimens from Ceylon.

This is a very pretty species when seen in perfection: the lip is curious. Lindley describes the middle lobe as "alte bilobo abbreviate," but it is not cleft but rolled back as attempted to be shown in the plate. The spur is also of a very unusual shape, a little round knob at the base of the lip.

1669. AERIDES WIGHTII (Lind. *Vandaparvi flora* R. W. in Icon.), leaves strap-shaped, oblique at the base, obtuse, 2 lobed with a tooth between: racemes straight, simple, many-flowered, longer than the leaves: sepals and petals oval, the anterior ones larger: lip funnel-shaped, lateral lobes adnate to the foot of the column, the middle one sub-cumate, roundish, 3-lobed at the apex; disk crested with several elevated transp lines; spur short, conical. Middle lobe of the lip deep lilac, capsules club-shaped six-angled. Flowers yellow.

Iyamally Hills, Coimbatore, flowering August and September.

The distinctive marks between *Vanda* and *Mndts* are not always very clearly defined, and when naming this drawing I was misled by its similarity to *Vanda spalulata*, and named it accordingly. I afterwards discovered my mistake and beg the reader to correct the name on the plate.

1670 VANDA WIGHTIANA? (Lind. MSS. m Herb. Wight), leaves strap-shaped, unequally 2-lobed at the apex: peduncles much shorter than the leaves, divaricate: sepals and petals sub-spathulate, sepals all equal, larger than the petals: lip 3-lobed; lateral lobes short obtuse, middle one sub-orbicular, saccate at the base: fruit oblong, conical.

Flowers yellowish dashed with dark crimson or purplish spots, lip nearly white with a red line at the base of the lamina.

Iyamally Hills and Malabar, growing on branches of trees.

The specimen in my Herbarium, named by Lindley, is in fruit only. Had he seen flowers he would perhaps have referred it to a different genus. It seems to me to associate better with *Saccolabium papillosum* than with any species of *Vanda* with which I am acquainted. I should not therefore be surprised to find this and the following removed to that genus.

1671. VANDA PULCHILLA (R. W.), leaves narrow, strap-shaped, deeply 2-cleft at the apex, segments divaricate: racemes short, many-flowered: sepals and petals all equal, obovate, cuniate: lip 3-lobed, lateral lobes short, obtuse, middle one ovate fimbriated, with a large inflated sack at the base. Flowers green or yellowish, passing into white, dashed with purple.

Pendulous by its long roots from branches of trees on the banks of the Kartairy river below the falls. An exceedingly beautiful plant but I fear scarcely referable to this genus.

1672. SACCOLABIUM PAPILLOSUM (Lind.), leaves strap-shaped, obliquely cuspidate at the apex: racemes short, capitate: sepals fleshy, linear, ovate, obtuse: spur of the lip obconical, obtuse, villous within, lamina ovate, fleshy, papillose, recurved. Flowers white and tinged with yellow and purple.

Malabar, on branches of trees usually pendulous by its long roots.

1673 SACCOLABIUM RUBRUM (Lind.), leaves channeled, bowed, bidentate at the apex: racemes erect, many-flowered: sepals and petals ovate, obtuse: spur of the lip cylindrical, obtuse, incurved; lamina oval, acuminate, fleshy at the apex, bicomulate at the base. Flowers deep rose colour, leaves mottled with purple, pale on the under surface.

Neilgherries, frequent on branches of trees, flowering during the rainy season, or from May until October.

I am not sure that I understand Lindley's character of the Up, especially the "base bicorniculate," nor whether this one possesses that character. In other respects this plant seems to correspond well with the character

1674-75. SACCOLABIUM SPICIOSUM (R. W.), leaves strap shaped, obliquely emarginate at the apex: panicle large, lateral branches few-flowered, terminal one long, drooping at the apex, many-flowered: sepals broad ovato-elliptic, obtuse, petals rhomboid-spathulate lip 3-lobed, lateral ones small sub-orbicular, furnished with a recurved plate, middle one sub-triangular, crenate, reflexed on the margins, truncate at the apex * spur tapering, shorter than the lip, hooked outwards, fruit short obconical, surmounted by the marcescent perianth. Flowers rose coloured, fading off towards the margin, lip much deeper, approaching crimson.

In forests about Paulghat in the Malabar District, flowering July and August.

An exceedingly handsome species. The lip is nearly twice as large as the sepals, somewhat ventricose above, from the margins being recurved. The scale at the base is paler and curved backwards towards the column. It seems to form the connecting link between brides and Saccolabium.

1676. SACCOLABIUM PANICULATUM (R. W.), leaves strap-shaped, somewhat channeled, obliquely 2-lobed at the apex: panicles racemose, many-flowered, much longer than the leaves. sepals and petals sub-orbicular, obovate obtuse: petals smaller than the sepals: lip ovate attenuate towards the point, with 2 small sub-orbicular lobes at the base, and a fleshy gland like appendage closing the throat of the spur * spur conical, about the length of the lip. Flowers nearly white with a light tinge of pink, lip streaked with crimson.

Iyamally Hills, on branches of trees, flowering September and October.

I have another drawing before me taken from what appears a stunted less perfect specimen of the plant in which the anterior sepals are represented larger than the posterior, and all more ovate than in the accompanying plate. They agree in other respects, whence I consider it a mere variety, by which this species approaches & *newum*, Lind., but which is a much smaller, the leaves being only 2½ inches long and 1 of an inch broad. My specimen may therefore perhaps be more properly viewed as a large variety of the latter.

1677. BRIDES LINDLEYANA (R. W.), leaves fleshy, coriaceous, sub-elliptic oblong, oblique, deeply emarginate at the apex: racemes erect, many-flowered: sepals and petals obovato-suborbicular, anterior sepals somewhat larger and, like the lip, thick and coriaceous: lip three-lobed attached to the point of the prolonged base of the column: lateral lobes small, ovate; middle one large ovate, ventricose above, crisp on the margins with a large fleshy lobe at the base, closing the spur: spur short, rigid, inflexed under the lamina: capsules large, obovate, long pedicelled. Flowers pinkish-lilac, deeper on the MM, fading off to nearly white on the margins, lip the same, but much deeper coloured.

On clefts of rocks bordering the Kartairy Falls below Kaitie, also on rocky clefts on a high hill over Coonoor, flowering nearly the whole year, at least I gathered it in April, and I have it now, Nov, in flower in pots in Coimbatore

It is a very handsome species, worthy of being dedicated to the accomplished author of the "gen-

era and species of Orchideous plants " I had at different times two drawings made of this beautiful plant; by some accident both were, at different times, sent to the lithographer who, knowing no better, printed both. This explanation seems called for to account for the appearance of two plates of the same plant. The loss however is mine. My location, 300 miles from the press, prevented the discovery of the blunder in time to prevent it.

1678. *POLTSTACHTA LUTEOLA* (Hooker), spike pumpled, leaves oblong, lanceolate, many-nerved, shorter than the scape: flowers and ovaries glabrous. Flowers pale yellow.

Iyamally Hills, near Coimbatore on branches of trees, flowering August and September—also on the Pulney Mountains during the rains.

Lindley places this genus in the tribe *Malaxidea*, remarking that "the pollen masses are in reality four in number and he loosely side by side, two in each cell of the anther," and objects to the correctness of Sir W. Hooker's figure which represents them "adhering to a common pedicel and gland, 4 in number, and not lying side by side, but upon each other." My drawing was prepared long before I knew the genus, and had the pollen exactly as represented by Hooker. Lindley's remark induced me to re-examine it in dried specimens when I found Lindley's statement correct, and unfortunately had the drawing, as I supposed, corrected. Subsequently I received living specimens of the following, No. 1679, and found that they corresponded with Hooker's figure. This led me to suspect that I had unjustly charged the artist with incorrectness of observation and had by my alteration, in that particular, spoiled my drawing, the pollen in that being truly Vandeous, that is, furnished with a caudicula and gland, and therefore placed the genus here as being its proper place. Since sending the drawing to the Lithographer, I have had another opportunity of examining the fresh pollen of this one, and find my suspicions verified, this also having a caudicula and gland.

1679. *POLTSTACHTA FURPUREA* (R. W.), spike pumpled, leaves coriaceous, linear oblong, obtuse, emarginate, shorter than the scape: flowers and ovary glabrous: lip pubescent within: gland of the pollen scutelliform, orbicular, caudicula short: capsules ovoid. Flowers purplish or rather perhaps dark lilac, lip much paler.

On the top of Iyamally, a high hill about 3000 feet of elevation, with the following, on branches of trees, flowering in June, and on several subsequent occasions from the same range of hills.

1680. *DIPLOCENTRUM RECURVUM* (Lind.), "leaves folded, fleshy, recurved: racemes pumpled recurved: flowers small: spurs obconical, incurved: upper sepal and petals nearly equal, anterior sepals larger, unequal-sided: lip ovate, entire, acute, much larger than the sepals; flowers deep pink, fading off on the margins to white, lip crimson.

Iyamally Hills, flowering from May to September.

It is difficult to say whether this be really Lindley's plant, but it seems to correspond with his description so far as it goes. Its actual identity can only be determined by comparison of specimens.

1681. *DIPLOCENTRUM LONGIFOLIUM* (R. W.), leaves linear, strap shaped, channeled, obtuse, oblique, the apex emarginate: racemes axillary, erect, sparingly branched, longer than the leaves: sepals and petals ovate, nearly all equal, obtuse: lip entire, undulated, obtuse or emarginate, capsules obovate, pendulous, connectivum prolonged into a flat very obtuse appendage with the cells at the base. Sepals and petals dull brownish, tinged with pink, lip dull pinkish-lilac.

On branches of trees, Orange Valley, Neilgherries, also Iyamally Hills, flowering June and July.

1682. *DIPLOCENTRUM CONOESTUM* (R. W.), leaves short, sub-elliptic oblong, deeply emarginate or 2-lobed at the apex: racemes longer than leaves, axillary, sparingly branched, erect, many-flowered: flowers congested, small: sepals and petals ovate: lateral sepals oblique, larger than the petals: lip ovate, tapering, truncated at the point; connectivum of the anther prolonged, truncated at the apex: caudicula long subulate; gland very large, somewhat 2-lobed. Colour not preserved but like the preceding.

Iyamally, on branches of trees, flowering during the rainy months, July to October, rare.

1683. *JECEOLADES TENERA* (Lind.), caulescent leaves oblong, fleshy, emarginate; spikes 3-4-flowered, horizontal, shorter than the leaves: posterior sepal erect, helmet-form, anterior ones leaning on the lip, equal; petals parallel to the helmet and like it; all distinct at the base: lip shorter than the sepals, three-lobed, cucullate, lateral lobes erect, emarginate, truncated; middle one fleshy, 3-lobed, flat with 2 callosities at the base: spur short, incurved. Flowers brownish-yellow with crimson points, lip white.

Nuera Elha, Ceylon, on trees, flowering March.

This plate is taken from a drawing by Mrs. Col. Walker, with the following note attached. "Sepals and petals greenish-yellow streaked with brownish-red.—Lip fleshy, 3 outer lobes pure white, the other part yellow, streaked with pink. Column and anthers red and yellow. Leaves thick and fleshy, on some plants larger and on others smaller than here represented."

1684. *SARCANIHUS FILIFORMIS* (R. W.), pendulous, leaves terete, filiform, spike simple, ascending, much shorter than the leaves: sepals narrow lanceolate, posterior one larger: petals ovate, orbicular, obtuse, much larger than the sepals, lip three-lobed, lateral lobes erect, obtuse, middle one ovate, acute, reflexed; spur slightly recurved, obtuse, as long as the flower: capsule sub-cylindrical, clavate. Flowers orange-yellow streaked with darker crimson lines.

Anamally forests, pendulous from branches of trees, flowering September and October.

I am indebted to Major Cotton (Civil Engineer) for the specimens here represented. I suspect the large capsule represented does not belong to the plant.

1685. *SARCANTHUS ROSEUS* (R. W.), pendulous: leaves round, subulate, of very firm hard texture; racemes spicate, ascending, compact; anterior sepal lanceolate, acute, posterior one linear obtuse: petals broad, orbicular: spur of the lip straight, inflated at

the point, produced into an ovate acute fleshy plate, with a large globose callosity at the base, gland of the pollen large, capsule small, ovate. Flowers rose-coloured, petals green at the base within.

Neilghemes, pendulous from branches of decaying trees, near Neddawuttim, flowering August and September.

According to the generic character the species should have the spur ^ two-celled within (*calcaremtus* & *biloculan*). This character is an obscure one and not likely to be much sought after. I have however looked for it in these 2 species and, so far as I understand the author's meaning, find it wanting, but nevertheless consider both species of the genus. In No. 1747 will be found what appears to be another species, though a very different looking one, in which the spur is traversed the greater part of its length by a partition which partially divides it into two cells and is what, I suppose, Lindley means by the above phrase. If so, then it is wanting in both the above plants and, if its presence is considered indispensable to the admission of a species into the genus, both, and probably also the following (No. 1686) must be excluded. Leaving out that character, the great spur, or more properly, the saccate lip, forms a natural and easily-recognized character, but I have found in other genera, as for example, in some species of *Saccolabium*.

1686. *SAHCANTHUS WALKERIANUS* (R. W.), erect⁹ leaves linear, channeled, strap-shaped, very oblique and 2-lobed at the apex * raceme erect, shorter than the leaves, few-flowered: flowers long pedicelled: posterior sepal larger, galeate: spur large (lip saccate) plates of the lip nearly obsolete, the anterior one tooth-like. Flowers minute, pink with a bright green spot on the anterior lobe of the lip. The larger pollen masses red, the smaller ones yellow.

Neuera Blha, Ceylon, on trees, flowering August.

I am indebted to Mrs. Colonel Walker for the original drawing which, as representing a form so different from the other two, I have thought it desirable to preserve.

1687-88. *CYMBIDIUM ALOIFOLIUM* (Swartz), leaves ensiform, coriaceous, oblique, obtuse: racemes pendulous, many-flowered: bracts minute: petals and sepals lanceolate somewhat obtuse: lip revolute, lateral lobes acute, middle one oblong, obtuse: plates interrupted, clavate, arcuate towards the base. Petals and sepals yellowish-red, lip dark lilac, tending to purple.

On branches of trees. The specimens figured were taken from the branches of a tree (recently blown down) near the foot of the Neilghemes. The raceme is here represented erect in place of pendulous, which it should have been, for want of room.

1689. *CYMBIDIUM TRISTE* (Wild, not R. W. Icon. No. 911), leaves terete (sub-cylindrical) umbels subsessile: sepals and petals connivent, fleshy, oblong, boat-shaped, lip oblong, twice the breadth of the sepals. Flowers pale pink, lip at first conformable, afterwards lilac.

Iyamally Hills, flowering September and October or probably from July till October

After this plate was printed I had the good fortune to receive specimens, at the same time, of both this plant and that figured No. 911, and was grieved to find that I had misnamed both by transposing

the names, the first error of course leading to the second. Such being the case I must request the favour of the reader's correcting the name on the plate as above, and substituting for that given with 911 the following-

911. *CYMBIDIUM TENUIFOLIUM* (Wild. C. biste R. W. Icon), leaves sub cylindrical (terete), umbels sub sessile, sepals linear obtuse, spreading, mucronate below the point, shorter than the oblong, linear, obtuse, sub-falcate petals and lip: lip oblong, concave, with three callosities on the disk, auricled at the base, membranaceous, two-lobed at the apex. Sepals yellowish-green, lip purple, streaked with paler lines.

Branches of trees, eastern slopes of the Neilghemes and Iyamally Hills, flowering from July to October.

1690. *CYRTOPERA FDSICA* (R. W.), leaves long lanceolate, plicate: scape straight, many flowered sepals linear lanceolate, acute, longer than the broader, ovate lanceolate petals: lip obsoletely 3-lobed, lateral lobes short roundish, middle one oblong, undulate, pointed, the disk covered with minute papillae: base of the column prolonged, obtuse, forming with the lip a large inflated spurious spur Sepals dull reddish-brown or lilac, ascending; petals and lip much paler.

On rocky clefts among turf in rich vegetable soil by the Kartairy Falls near Kaitie, Neilghemes. The rhizoma is very large, somewhat ovate and flattened; the scapes and flowers appear first and are succeeded by the leaves, scapes from 12 to 18 inches high, and in large specimens exceeding two feet, flowering May and June. I also saw it, but rare, on rocky chits on the top of the high hill east of Coonoor.

It seems a very distinct species. I may here mention that a species very nearly allied to *C. flava* has been found on the Travancore hills. The only specimen I have seen was communicated by General Cullen and is given in a subsequent plate.

1691. *ACERAS ANGUSTIFOLIA* (Lind.), leaves linear lanceolate acuminate, spike elongated, flowers small, all looking one way (secund) * petals subulate: lip pendulous, twice the length of the sepals, bifid at the apex, the middle lobe shorter, flowers greenish.

Simla, Himalayas, Countess Dalhousie.

This genus has not yet been found so far south, but as it may yet be I have taken advantage of the circumstance of my having good specimens to give a figure of the only known Indian representative of the genus.

1692. *PLALANTHERA IANTHA* (R. W.), stem leafy • leaves broad cordato-ovate, obtuse, stem-clasping-diminishing in size towards the apex, where they resemble large bracts: flowers axillary, solitary, sessile: posterior larger sepal and petals united, helmet-like, ovate obtuse; lateral ones falcate longer than the lanceolate acute petals: lip broad obcordate, apiculate, limb equaling the claw, pubescent at the base, spur short, conical. Flowers deep lilac, leaves similarly tinged and striated with darker lines.

Neilghemes, in pastures, flowering August and September, also in Malabar.

The dull purplish tinge of the leaves added to the much deeper and brighter colour of the flowers, gives a peculiar and striking aspect. It seems nearly allied to *P. obcordata*, and still more nearly to the following, but I believe them all three distinct. Is it not rather a *Gymnadema*?

I suspect both these plants might with equal or greater propriety have been referred to *Gymnadema* but I confess I do not know how to distinguish them. I at first placed them in that genus and fear I have changed for the worse.

1693. *PLALANTHERA AFFINIS* (R. W.), ~~stem leafy~~: leaves ovate, acute, sessile, three-nerved: diminishing in size towards the apex: flowers small, axillary, sessile: sepals and petals galiate: posterior sepal ovate, scarcely exceeding the length of the narrower lanceolate acute petals: anterior sepals slightly exceeding the posterior: lip broad, obovate, slightly pointed, disk pubescent, claw ciliate: spur short, obtuse, inflated.

Pulney Mountains, flowering September.

The flowers of this species are much smaller and fewer, less compactly congregated, than in the other in which the apex of the stem at length almost assumes the form of a raceme, the leaves being reduced to the size of ordinary bracts.

1694. *PLALANTHERA BRACHYPHYLLA* (Lind.), leaves 2, radical, fleshy, reniform, orbicular: scape clothed with acuminate scales: bracts ovate, acuminate, cucullate, as long as the flowers: sepals ovate roundish, the upper ones obtuse, the lateral ones acute, pendulous: petals smaller, ovate: lip deeply 3-cleft, shorter than the sepals, three times shorter than the clavate spur, ovary beaked. Flowers greenish-white, spur green.

The specimen represented grew on the Neilgherries, but I have repeatedly met with the plant in other localities.

1695. *PERISTYLIS LAWII* (R. W.), stem loosely vaginate at the base, three or four-leaved in the middle, above naked: leaves oblong lanceolate, acute, scape exceeding the leaves, thin: sepals linear lanceolate, obtuse, narrower than the petals: lip equaling the sepals, 3 lobed at the apex, lobes all equal, or the middle one a little broader, spur short, bladdery.

Belgaum. I am indebted to Mr. Law of Bombay for my specimens of this plant

1696. *PERISTYLIS spiralis* (A. Richard), stem slender, leafless at the base, loosely vaginate: leaves 3-4 elliptic-lanceolate, acute, sheathing at the base; scape above clothed with acuminate scales, passing into bracts, spike spiral, flowers small: bracts lanceolate acuminate, as long as the flowers: sepals ovate, oblong, obtuse: petals lanceolate, acute * lip saccate at the base, 3-cleft, fleshy, the middle lobe a little broader, all linear obtuse. Flowers greenish-white

Neilgherries, in pastures, not (infrequent

1697. *PERISTYLIS RICHARDIANUS* (R. W.), stem leafy from the base: leaves ovate, lanceolate, acute, scarcely sheathing at the base: spike somewhat compact: bracts broad, ovate, acuminate, shorter than the ovary: sepals and petals equal: lip 3-lobed, lateral lobes filiform, subulate, erect, longer than the

sepals; middle one short, fleshy, conical, blunt-pointed, furrowed in front, shorter than the inflated bladdery spur. Sepals green, petals and spur greenish-white.

Neilgherries, in pastures.

The aspect of the lip of this species is very peculiar, recalling to mind the head and very long horns of some of the antelope tribe. It seems very distinct from all Richard's species.

1698. *PERISTYLIS EXILIS* (R. W.), stem naked or slightly vaginate at the base, leafy in the middle: leaves lanceolate, acuminate, acute, tapering at the base into a short, petiol, slightly sheathing: scape very long and slender, furnished with a few remote scales: flowers numerous: bracts ovate, acute, about half the length of the ovary: sepals and petals ovate, bluntish, about equal: lip concave at the base, 3-lobed; lateral lobes long, filiform, acute, ciliate at the point, middle one much shorter, straight; spur short, inflated at the apex, with a narrow neck.

Pulney Mountains, flowering September.

The whole plant varies from 15 to 40 inches in height and is very slender in proportion to its length.

1699. *PERISTYLIS ROBUSTIOR* (R. W.), erect, lower half of the stem naked, with the exception of three or four sheathing scales: above leafy to the base of the spike: leaves 8-10, lanceolate, acute, shortly sheathing at the base, spike short, thin: bracts ovate, acuminate, very acute, nearly equaling the ovary: sepals and petals lanceolate, equal, somewhat broader towards the point: lip 3-lobed, lateral lobes filiform, pendulous, middle one subulate, much shorter; spur about the length of the sepals, bladdery at the apex, contracted above into a narrow neck.

This species is certainly very nearly allied to the former but is a stronger and larger plant, altogether more rigid; the flowers however seem nearly the same.

1700. *HABENARIA FOLIOSA* (A. Richard), stem leafless at the base, vaginate, sheaths loose: leaves elliptic, acute, sheathing at the base, decreasing in size above: spikes dense, bracts ovate, acute, convolute at the base, longer than the ovary: sepals ovate, the posterior one broader and shorter than the lanceolate lateral ones: petals deeply 2-cleft, anterior lobe thinner and shorter: lip 3-parted to the base; lobes filiform, subulate, equal: fleshy processes of the column long, obtuse: spur inflated, length of the ovary. Flowers greenish or dirty white, petals, especially the extremities, green.

Neilgherries, on elevated dry knolls among short stunted grass, flowering July and August.

The plant selected for representation is, for the convenience of suiting the size of the plate, a rather small one.

1701. *HABENARIA TRINERVIA* (R. W.), leaves cordato-ovate, acute, 3-5-nerved: raceme rather short: bracts ovate subcucullate, acuminate, longer than the flowers; sepals broad ovate, posterior one orbicular, lateral ones oblique: petals 2-parted, lobes linear, falcate, obtuse, both ascending parallel, the anterior ones shorter: lip 3-parted, lobes nearly equal, somewhat divaricate; the lateral ones broader towards the apex: spur a little shorter than the ovary, inflated. The flowers from the specimen appear yellowish-green.

Belgaum, Law.

I am indebted to Mr. Law for my only specimen of this very distinct species. It comes near *H. dxytiata* from which however it seems quite distinct, especially as regards the petals. The 3 centre nerves of the leaves are much more conspicuous than shown in the plate, while the exterior pair, being thin, are much less so.

1702. *HABENARIA PERISTYLLOIDES* (R. W.), leaves few, 4-6, linear ovate, acuminate, congested near the base, scape clothed with a few ovate acuminate scales: racemes compact, short: bracts ovate, acute, about half the length of the ovary - posterior sepal ovate, obtuse, broader than the lanceolate ascending lateral ones: petals obtuse, shorter and broader than the lateral sepals: lip three-lobed, lateral lobes filiform, divaricated; middle one shorter, fleshy, ovate, pointed: spur clavate, about the length of the somewhat rostrate ovary. Flowers white, capsule oval.

Pulney Mountains, September.

The peculiar character of the lip, so completely that of *Peristyles*, at first led to the belief of this plant belonging to that genus, and has furnished the specific name.

1703-4. *HABENARIA HEYNEANA* (Lmd., *H. Perrottetiana*) Richd.). Under No. 923 of this work I have transcribed Dr. Lindley's character of this species. The plant there represented did not quite accord with the character, but did so in so many points, as left no doubt on my mind of its being that species, it may perhaps be *H. Perrottetiana*, Richard. On going over my Herbarium, selecting materials for this work, I found numerous specimens, all more or less agreeing with the character, but none, unless perhaps E. of the accompanying plate, that seemed actually to correspond with the character, while at the same time none, except A. was deemed sufficiently distinct to admit of its being distinguished as a species. Under the impression that it was so, a specific name was assigned to that plant, but on comparing several specimens with the other forms, I soon found it difficult to draw distinctions sufficiently permanent to admit of their being considered of specific value. The size and form of the leaves varied more or less in every specimen, while the second raceme, large cucullate ventricose acuminate bracts, more or less deeply 3-parted lip, with the curved lateral lobes and the nearly equal sepals and petals were present in all. Under these circumstances I could scarcely fail arriving at the conclusion that all the varying forms were referable to but one species; and that I have endeavoured satisfactorily to illustrate by selecting 4 of the most prominent forms and placing them side by side, in one plate. Should other Botanists think that I have erred in taking this view it affords materials for the correction of my error.

1705. *HABENARIA VERIDIFLORA* (R. Brown), radical leaves numerous, narrow, acute, recurved: raceme loose, many-flowered: bracts subulate, the length of the pedicels: sepals ovate: petals similar, smaller: lip 3-parted, a little longer than the sepals, lateral lobes horizontal, filiform, middle one longer: spur filiform, pendulous, the length of the ovary.

The station of this plant is not marked. The drawing was taken from a specimen named by Dr. Lindley.

1706. *HABENARIA ELLIPTICA** (R. W.), radical leaves elliptico-lanceolate, acute, attenuated at the base, those above bract-like, smaller, sub-cucullate, acuminate: bracts ovate, lanceolate, acuminate, acute, about the length of the ovary: raceme loose, many-flowered; flowers sub-pubescent within: sepals ovate, anterior ones reflexed, larger than the posterior one and petals: petals broad ovate, obtuse, about the length of the anterior sepals, lip 3-cleft, lobes equal: spur filiform, pendulous, the length of the ovary.

Pulney Mountains, in pastures, flowering September. The plant attains the height of from 12 to 15 inches, flowers greenish-white.

1707. *HABENARIA AFFINIS* (R. W.), radical leaves elliptico lanceolate, pointed, tapering below into a short sheathing petiol, slightly undulated; stem clothed with numerous ovate much acuminate foliaceous scales: raceme many-flowered, loose: bracts shorter than the ovary, acute sepals and petals about equal; posterior sepal gahate, anterior ones reflexed. lip 3-cleft, longer than the sepals; lateral lobes subulate, middle one narrow lanceolate: spur incurved or even hooked at the point, filiform, a little more than half the length of the ovary.

There is no station attached to this specimen, but it is my impression that I obtained it from Mr. Law from Belgaum. In the magnified figures the artist has sadly missed the proportions as regards length between the spur and ovary. The plant seems very nearly allied to *H. elliptica*, with reference to which I have given the specific name *affinis*.

1708. *HABENARIA OVALIFOLIA* (R. W.), radical leaves sheathing at the base, oval, acute above, attenuated below into a short petiol: stem clothed with a few distant scales: racemes lax, many-flowered: bracts ovate, acute, shorter than the ovary: sepals and petals about equal, posterior sepal and petals gahate, anterior one reflexed, deeply 3 cleft, lobes lanceolate, lateral ones reflexed, pendulous, middle one ascending, erect' spur filiform about the length of the slender ovary. Flowers a dull pale pea green.

Malabar and Anamally Hills, flowering July and August.

This plant is uniform in form but variable in size; plants from one to four feet may be met with in a single clump of specimens, for it is often found gregariously disposed. It seems very distinct from all those described by Lindley.

1709. *HABENARIA PLATYPHYLLA* (Spreng), radical leaves orbicular, acute, horizontal: spike dense, many-flowered: bracts setaceous-acuminate, half the length of the ovary: lip 3-toothed, middle one linear acute, lateral ones short, toothless: sepals equal, spur filiform, very long, thickened at the point.

Neilgherries, Iyamallay, and elsewhere, flowering from July to September. Flowers white.

1710. *HABENARIA PLANTAGINEA* (Lind.), radical leaves oblong, or oblong lanceolate, acute or obtuse, spike lax, secund: bracts membranaceous, acute, half the length of the ovary: lip three-cleft broadish, middle lobe linear, acute, the lateral ones round, denticulate, about equal: sepals about equal, ascending: spur filiform, pendulous, longer than the beaked ovary. Flowers white, spur green.

Ceylon, Tinnevely, Travancore, Iyamallays, Bombay and elsewhere. I have specimens from all the stations mentioned.

1711. *HABENARIA CYPHOLOTES* (Lind. *H. tincho-anantha* Richd. not Lind.) leaves oblong, acuminate, channeled; raceme oblong densely many-flowered: bracts cucullate, acuminate, longer than the ovary: lip 3-lobed pubescent the middle one linear acute, the lateral ones roundish fimbriate-ciliate. upper sepal and petals converging, galeate, pubescent, anterior sepals sub-triangular, tomentose within, twice as large: spur pendulous, clavate at the apex, longer than the lip. Flowers white.

Neilghernes, not unfrequent in pastures, flowering August and September.

The tomentose lining of the lateral sepals at once distinguishes this species from all the other Indian ones I have seen.

1712. *HABENARIA FIMBRIATA* (R. W.), stem leafy throughout: leaves ovate acuminate, channeled: raceme short, compact, many-flowered: bracts ovate, acuminate, the lower ones foliaceous, somewhat cucullate, longer than the ovary, upper ones shorter: sepals broad, ovate-cordate, obtuse, the posterior one galeate, lateral ones sub-oblique, spreading, glabrous: petals ovate, obtuse, shorter than the sepals: lip orbicular 3-lobed, middle lobe dentate, obtuse, lateral lobes broad, semi-orbicular, fimbriated on the margins, spur filiform, longer than the ovary. Flowers white.

Neilgherries, flowering during the autumnal rainy months.

In habit and general appearance this closely approaches the preceding, but the flower is very different. The raceme is not represented compact enough in the drawing.

1713. *HABENARIA RICHARDIANA* (R. W.), stem leafy at the base, scaly above: leaves ovate, somewhat sheathing, acute: raceme short, lax, few-flowered: bracts ovate, lanceolate, acute, membranous, shorter than the ovary, sepals ovate, posterior one shorter, galeate, acute, lateral oblique, reflexed, obtuse: petals broad, ovate, obtuse, erect, lip 3-cleft, middle lobe dentate, entire, shorter than the lanceolate diverging acute fimbriated lateral ones: spur filiform, pendulous, longer than the ovary. Flowers white, diverging from the axis.

Neilghernes, on rocky ground among grass, also on the Anamallies.

This species very nearly approaches the next in several particulars, but is, I think, quite distinct, though it grows in similar places, and even sometimes intermixed.

1714. *HABENARIA MONTANA* (A. Richard), leaves sheathing, oblong, lanceolate, channeled, 3-5 approximating, passing into long lanceolate much acuminate sheathing scales: raceme lax, few-(4-6) flowered: bracts oblong linear, very acute, shorter than the very long ovary: sepals glabrous, lateral ones broad, ovate, lanceolate; posterior ovate, pointed, galeate: petals lanceolate lip 3-cleft, middle lobe lanceolate, acute; the lateral ones broader, truncated at the apex, unequally cut: spur longer than the ovary. Flowers white.

Neilghernes, in moist rocky ground, in many localities.

Neither of the magnified figures gives a good idea of the lip of this species which is most characteristic. The one in the lower right hand corner is the nearest correct, the one above a variation. The magnified flower on the left is introduced to correct the imperfections of that given, No. 927, to which plant it belongs. That drawing was made 14 years ago, when much less conversant with the order than now, and on the supposition it was but a variety of Richard's plant, unfortunately published under his name and character. Recent investigation has led to the detection of that error which may be corrected by the reader substituting the following name and character.

1715. *HABENARIA DECIMENS* (R. W.), stem leafy at the base- furnished with lanceolate much acuminate acute scales: leaves linear, lanceolate, acute raceme lax, few- 4-6 flowered, bracts ovate, lanceolate long acuminate, shorter than the ovary: posterior sepal and shorter petals converging, galeate, lateral ones larger, oblique, falcate, reflexed: lip 3-cleft, middle lobe straight, pointed, rough, shorter than the broader semi lanceolate denticulate lateral ones: ovary attenuated at both ends, ventricose in the middle, scarcely half the length of the long filiform spur. Flowers white.

Pulney Mountains (where the drawing was made, September 1836), Malabar, Neilghernes

The plant attains the height of from 18 inches to two feet, but is usually somewhat less. It is readily distinguished from *It. montana* by the length of the spur, a feature not sufficiently preserved in the original drawing, the want of which misled me in the first instance.

1715. *HABENARIA JERDOKIANA* (R. W.), leaves radical, orbicular, sub-cuspidate, few (two in the only specimens I have seen), scape clothed with short acute scales: spike remotely few-flowered, bracts acute: posterior sepal and converging small petals galeate, lateral ones broad, ovate, reflexed: lip much longer than the sepals, deeply 3-parted; lobes all filiform, lateral ones divaricated, horizontal, middle one shorter, straight, spur clavate, shorter than the ovary.

Malabar. Jerdon.

I am indebted to Mr. Jerdon for my only specimen, the one represented, of this very curious little plant and as being one of the most curious of the genus, I have thought it a fit subject with which to commemorate the aid I have received from him towards illustrating this interesting family.

1716. *SATTRIUM PERROTTETIANUM* (A. Richard), cauline leaves sessile, broad, ovate, acute, plaited, loosely sheathing at the base, diminishing above: flowers loosely spicate; bracts longer than the flowers, ovate oblong, acute, erect or oftener reflexed; lateral sepals ovate, lanceolate, acute, middle one linear oblong: petals linear, obtuse: spurs length of the ovary, stalk of the stigma (gynostem) round, longish. (Richard.) Flowers and bracts deep pink.

Neilghernes, frequent in low moist pastures.

This is a difficult genus, as the species are very apt to vary. Distinguishing specific marks have been taken from the forms of the leaves and relative lengths of the spurs and ovary. These, it appears to me, supply uncertain characters, though certainly not to be overlooked, unless combined

with others, derived from the sepals and petals, which seem, so far as I have yet had recourse to them, to furnish more constant, and upon the whole easily ascertained distinctions. On this point, however, I wish to speak with some degree of reserve, as I was not aware of their value, and did not attend so much to them as I ought, when I had an opportunity of doing so, on the growing plants, and therefore make the remark now, principally for the purpose of directing attention to these organs on the part of future investigators.

1717. *SAIYRIUM ALBIFLORUM* (Rich.), cauhne leaves ovate oblong, acute, sessile, sheathing at the base, gradually passing into ovate, acute bracts: spikes round, compact: bracts the length of the flowers, ovate oblong, acute, reflexed: lateral sepals thick, oblique, unequal sided, sub-falcate, obtuse; middle one obovate, oblong, obtuse: petals linear, obtuse: spurs length of the ovary, gynostem short; upper lip of the stigma 2 lobed; lobes, very obtuse. Flowers white, bracts greenish-red.

Neilghemes, in similar places and often intermixed with the preceding, flowering from July to September.

1718. *SATYRIDM WIOHTIANUM* (Lindley), stem naked at the base, sheathed: cauhne leaves ovate, acute, somewhat coriaceous, sessile, loosely sheathing at the base: spike dense: bracts the length of the flowers, somewhat concave, broad, ovate, acute: lateral sepals oblique, ovate, obtuse, middle one narrower, obtuse: petals narrow obtuse, spurs shorter than the ovary: upper lip of the stigma obtuse, scarcely emarginate, gynostem short. Flowers deep pink, bracts dull lilac.

Neilghemes, with the others, and flowering at the same time.

The compact spike and small size of the flowers readily distinguish this species from the other pink-flowered ones, but the transitions are occasionally so gradual as to demand reference to other distinguishing marks for their determination.

1719. *DISERIS NEILGHERRENSIS* (R. W.), stem erect, 3-4-flowered; leaves cordate, acute, crenate, stem-clasping: posterior sepals and petals cohering, galeate, reflexed on the margins: lateral sepals spatulate, spreading, undulate on the margin, sub-cuspidate, pubescent at the base: lip fleshy, ascending, concealing the column, dilated, deeply 2-lobed above, below ending in an orbicular cuspidate appendage. Flowers pale reddish-white, spotted with crimson points; leaves light pea green.

Neilghemes in woods on large mossy stones, and moist loose vegetable soil. Not uncommon in the woody ravine behind Kelso Cottage. I have also met with it in other places but it is upon the whole a rare plant, flowering July and August.

An exceedingly beautiful plant and certainly difficult, as regards its analysis, to represent. *D. tripetaloides* has also been found this season in considerable abundance, near Coonoor, by the Rev Mr. Johnson, also on the Goodaloor Ghaut, by Mr. Jerdon. Though these two have some points of resemblance they are very distinct.

1720. *POGONIA CARINATA* (Lind), leaf cordate, 7-nerved * scape many-flowered: lip rhomboid, somewhat 3-lobed, veined, wooly within, the middle lobe crenate.

Coorg, December and January. Jerdon.

This plant flowers before producing its solitary leaf, hence the want of that organ.

Roxburgh, who is the authority for this plant (if this is indeed his), under the name of *Epipactis can-nata*, gives the following character. "Hoot a single simple sub globular white bulb: leaf radical, solitary, cordate, smooth, 7-nerved: scape many-flowered: lip rhomboid sub-trilobate, middle lobe half the length of the whole, crenate: capsule oval, 6-winged." Flowers large, sepals and petals unilateral, linear lanceolate, pale green: lip with purple veins and spots on a pale greenish yellow ground: bracts ensiform, as long as the peduncle and ovary.—Roxb.

1721. *CEPHALANTHERA ACUMINATA* (Lind), bracts setaceous acuminate, the upper ones shorter than the ovary: upper half of the lip (epichilium) cordato-ovate, obtuse, bearded at the point, the base with five elevated lines: ovary smooth.

Simla, Himalayas, Countess Dalhousie.

I am uncertain whether this is a different species from the one from which Lindley took his character or that the character of the lip is liable to vary, as his character does not agree with my drawing. I infer the latter is the case as both of us have our specimens from the Himalayas.

1722. *EPIPACTIS MACROSTACHYA* (Lind.), leaves oblong, acuminate, stem-clasping, many-nerved: raceme long, many-flowered: bracts foliaceous, the lower ones double the length of the flowers * lower half of the lip (hypochillium) roundish, upper half ovate, acute, smooth at the base, shorter than the sepals.

This is a Nepaul species, but I do not think the specimen figured is from that locality, its station is unfortunately not mentioned.

The specimen is evidently a very poor one, and seems scarcely to accord, in some points with the character, so that I should have hesitated about publishing it under this name had not Dr. Lindley himself so named it. But being so named, it is desirable that it should be published, for, if this is obtained from a southern station, as I believe it is, it becomes doubly interesting and the deficiency may be merely attributable to its growing in a less favourable climate.

1723. *EPIPACTIS DALHOUSI** (R. W.), leaves cordato-obovate, acute, stem-clasping, many-nerved: raceme loose, many-flowered. bracts foliaceous, ovate, lanceolate, acuminate, the lower ones about twice the length of the ovary, the upper ones shorter: lower half of the lip (hypochillium) concave, sub-inflated, upper half (epichilium) cordato-orbicular, crenate, pointed tuberculate at the base.

Simla, Countess Dalhousie.

So far as I understand Lindley's character, this is a very distinct species from all his Himalayan species.

1724. *SPIRANTHES AUSTRALIS* (Lind), radical and cauhne leaves linear or linear-lanceolate, obtuse or acute, sometimes ensiform: flowers spiral, glabrous, or oftener pubescent: bracts ovate, longer than the ovary: lip oblong, dilated at the apex, crisp, pubescent above. Flowers white.

Neilghemes, abundant in pastures, flowering from June till October.

Out of this very variable plant M. Richard has constituted two species, both of which are, I believe, included in this plate, but which, however distinct in the case of single specimens of extreme forms, are still unquestionably but one species. Lindley at one time made a third but which he afterwards reduced, viz., & *Wighiana*. The three divisions of the plate contain 1st, (left figure) *S. Wighiana*, Lind., 2d, *S. longispicula*, Rich., and 3d, *S. denaa*? (Rich.) or perhaps the 1st and 3d may both go to form his *denaa*. Richard adds a third species which I have not yet seen, viz. *S. Australia*, with purple flowers. Perhaps there is some mistake here, as it was carefully looked for this season, but in vain, but even supposing such to be found it is not by any means clear that it is a distinct species as this one varies in the colour of its flowers.

1724-~~W~~. ZUXINE BRACCTATA (R. W.), erect, leaves long, narrow linear, slightly sheathing at the base, membranous: spike cylindrical, compact, many-flowered: bracts broad naviculate at the base, tapering to a long acumen, the lower ones often twice or thrice the length of the flower, with a conspicuous costa: posterior sepals and petals gahate, somewhat saccate; anterior sepals free: lip fleshy, claw long without callosities, lamina of 2 oblong, obtuse, spreading lobes. Colour unknown, but apparently white.

Syndibad, Stocks. Flowering February.

I at first supposed this *Z. sulcaia*, but the form of the lip and want of callosities on the claw are adverse to that supposition. My specimens vary from 3 to 10 inches in height. The spike is scarcely represented dense enough.

1725. ZUXINE BREVIFOMA (R. W.), erect: leaves narrow, linear, acute, about twice the length of the interodes, some of the lower ones slightly sheathing: spike short, compact bracts membranous, longer than the flowers, linear acute, posterior sepal and petals connate, gahate, convex at the base: lip fleshy, limb sub-orbicular, cuspidate, claw without callosities.

M> sore, Jerdon. Flowering December and January.

The plant is represented too large and stout and the upper leaves too large. In habit it approaches *Z. sulcaia* and may be a variety of that plant but I think not.

1726. ZUXINE ROBOSTA (R. W.), erect, leafy, leaves broad at the base, stem-clasping or slightly sheathing, approximated, 3-nerved, slightly coriaceous, acute: spike about half the length of the plant, bracts broad, foliaceous, longer than the flowers, or the upper ones about equaling them: posterior sepal and lanceolate petals connate, gahate; anterior sepals free: lip fleshy, limb orbicular, claw dilated, somewhat lobed at the base: capsule short, thick, and ventreose.

Mysore, Jerdon. January.

The respective habits of these two species have not been well preserved in the drawings; nothing can be more evidently distinct than the aspect of the plants themselves, though so much alike in the figures.

The former slender and short leaved, the latter thick and stout in proportion to its size. This has partly happened owing to the tallest, not the most characteristic specimens, of each having been selected for representation. The upper leaves of the pre-

sent one (1726), are too short, they having generally a tendency to lengthen as they ascend. The specimens vary from 2 to 7 or 8 inches in height.

1727. CHEIROSTTLIS FLABELLATA (R. W. *Mono-Mis jlabellatum*, R. W. in Icon), leaves ovate, 3-nerved, acute, reticulately v-ined: scape pilose, few-flowered on the apex; lip orbicular, limb spreading, deeply 2-cleft, lobes digitately 4-5-cleft, claw with two callosities at the base: column furnished in front with four arm-like processes. Flowers white, leaves brown, tinged with pale red, and reticulated with darker coloured veins.

Kartaury Falls, Neilghemes, among decaying leaves in the wood at the bottom of the Falls, flowering in February. It has since been found by the Rev. Edmund Johnson, flowering in November, near Coonoor.

I inadvertently overlooked the union of the sepals when originally naming this plant and referred it to the neighbouring genus *Monochilus*, an oversight which I must beg the favour of the reader to correct. The lip of this species differs a little from the character of the genus but not enough to entitle it to a new generic denomination.

The pollen which the draftsman has represented as cleft, solid pollinia, is granular. The lip in aestivation is curiously rolled inwards, and is inclosed within the tube of the sepals. The number of flowers on each scape is from 4 to 8; petals pure white, the ovary green.

1728. MONOCHILUS AFFINE (Lind), stem pilose, leaves ovate, petioled, nerved: scape furnished with some sheathing scales: spike secund, few-flowered, bracts roundish, cucullate, acuminate, membranaceous, as long as the pubescent ovary: sepals ovate, acute, petals rounded at the apex: lobes of the lip oblong, coarsely crenate, with two involute, subulate callosities. Flowers white.

Courtallum, in dense woods, flowering August and September. It was part of the specimens collected when this drawing was made to which Lindley refers and any discrepancies that may be remarked between the character and the figure is attributable to the one being taken from recent the other from dried specimens.

1729. GOODYERA PROCERA (Hooker), caulescent, glabrous, leaves lanceolate, acuminate, shorter than the scape: spike long, dense, cylindrical: bracts ovate, acuminate, longer than the ovary: flowers sub-globose- sepals and petals roundish, convex, obtuse: lip bellied, the apex with a callous point, hairy within, the upper angle of the column acuminate. Flowers white, anther red.

Burlear, Eastern slopes of the Neilghemes, on the banks of a stream, flowering July and August. I have found it at different seasons. It is a widely diffused plant. I have gathered it on the Neilghemes, Courtallum, Malabar and Ceylon, and have specimens from other places.

1730. GOODTERA OVALIFOLIA (R. W.), roots repent, leaves ovate acuminate or oftener a, nearly, perfect oval, with a short point; petiol about half the length of the limb, dilated, sheathing at the base: spikes long, slender, thinish (subraia), pubescent: lower bracts as long as the ovaries acute, sepals somewhat pubescent, ovate, acute, the posterior one

and linear petals galeate lip shorter than the superposed lateral sepals, 3 toothed at the point, furnished within with a fimbriated appendage * ovary cylindrical, pilose. Flowers appear white within the sepals, exteriorly with a reddish tinge, leaves often tinged with purple.

Courtallum, in dense forest, flowering August and September.

It appears to come near *G. tlongata*, Lind, but he seems uncertain whether that really belongs to the genus. This I consider a true species.

1731. ANJECTOCHILUS SETACEUS (Blume), leaves coloured, ovate or oval acute, two-coloured: spike straight, few-flowered, and, like the sepals, pubescent, lip many-cleft, bristle like on the margins, rounded at the base with a conical emarginate sack. Sepals greenish-white, edged and tipped with red; lip white: leaves dark brown or even black, traversed with netted golden-coloured veins.

Ceylon, abundant in shady woods about Kandy.

I am indebted to Mrs. Colonel Walker for the drawing, and with it the opportunity of making known the genus to the readers of this work.

EUPHROBOSCES (Griffith).

GEN. CHAR. Perianth posticous, connate, fleshy. Sepals linear, oblong, lateral ones keeled. Petals narrow, lanceolate, (reflexed at the apex) Lip simple entire, semi convolute, continuous with the oblique base of the column. Column vertical, attenuated in front into a long two-legged rostellum (anther in rostellum bicorne longum attenuatum), stigma vertical. Anther dorsal, beaked. Pollinia 8, waxy, globose; with a long caudicula and linear gland.

Epiphytically caespitose plants, pseudo-bulbs turbinate, the new ones 3-4-leaved • leaves fleshy, oblong, emarginate: scape sub-clavate, erect: flowers spiked, one-bracteate minute, greenish. Griffith, Calcutta Journal of Nat. History, Vol. 5, 371-72.

I have thought it advisable to give Griffith's character in full, as I find it does not correspond with my dissections, though in other respects the plant seems identical. The following are the notes I made while examining this plant.

Perianth connate, six-parted in 2 rows, exterior series, sepals, larger, the anterior pair connately winged on the back, interior series, petals, somewhat smaller, sub-lanceolate, anterior one, lip, 3-nerved. Stamens 3, sessile, opposite the sepals, each containing 8 globose waxy pollinia, attached to a long slender caudicula furnished with a linear gland. Column very short (even with the base of the petals and stamens) with a forked rostellum as long as the anthers and to the apex of which, in course of time, the glands of the caudicula become attached. Ovary 1-celled, placentiferous margins revolute, free within the cell.

Comparing this with the dissections, two discrepancies will be remarked. The stamen at No. 7, is represented as double each half with a caudicula and four pollinia, and secondly the detached pollen has only 4 masses to the caudicula. In both respects the drawing is wrong, as will be at once observed on comparing fig. 7 with the anthers of figure 6, which are correctly shown 1-celled, but dilated and ventricose below to enclose the large pollinia. In other respects the drawing is correct.

According to Mr. Griffith's character, there is only one perfect stamen, "Anther parallel with the column, dorsal, fleshy, prolonged into a long beak." In place of one, I find three such anthers. Can it be that, as compared with mine, his plants were to that extent deficient, or were the anterior anthers overlooked in a hurried dissection. In either case it is extraordinary, first, as it seems improbable that two plants to all appearance so perfectly identical, should differ so widely in so essential an organ; and secondly, it seems about equally improbable that such an accurate observer as Griffith should commit such an oversight. But considering the former the more improbable of the two, I may remark that this seems one of the most curious of Orchideous plants. It has 3 perfect stamens furnished with ceraceous pollen and these attached to a caudicula and gland like those of Vandeeae. Lindley rejects *Ilvostaxa* as a genus of Orchideae; this seems an equally anomalous plant; can it also be similarly rejected so as in that way to preserve the symmetry of the order? For myself I think not.

1732. EUPHROBOSCES PIGMAA (Griffith).

The specimens from which the plant was first described were from Nepaul, and flowered in the Botanic Garden at Calcutta. Those from which my drawing was taken were gathered by Mr. Jerdon on the Malabar Ghauts.

1733. *Myrtilanthus stricta* (Lind), stem terete: spike secund, dense, many-flowered: lip with a scrotiform callosity in the middle: perianth woolly, short, margins of the column winged, introflexed: leaves 1 or 2 linear lanceolate, sessile.

The specimen figured was communicated by the late excellent Mr. Griffith from Malacca. He also furnished me with others from Mergui, Assam, and Khassia.

1734. *Phreatia uniflora* (R. W.), repent, pseudo-bulbs globose, about 2-leaved: leaves obovate, cuspidate: scape longer than the leaves, 1-flowered: bract large, cordato-ovate, acuminate: lip lanceolate acuminate, 2-nerved.

Khassia Hills and Chunassangi, Griffith. I only know this genus from the specimen figured.

1735. *Liparis elliptica* (R. W.), pseudo-bulbs oval, compressed, costate on one side, 2 edged, truncated at the apex, 2-leaved: leaves elliptic, cuspidate, nerved, sub-plicate, about half the length of the scape: scape sub-erect, raceme many-flowered: bracts ovate, subulate, about the length of the ovary: sepals sub-equal, ovato-elliptic, cuspidate, petals narrow, linear, pointed: lip irregularly 3-lobed: lobes undulated, pointed, the middle one larger. Flowers greenish-yellow, approaching to straw-colour

On branches of trees about Coonoor, Neilghemes. Flowering from August to October.

This species seems very nearly allied to *L. viridiflora* of Ceylon. The pseudo-bulbs are naked, fleshy, costate on one side, two-edged—i. e. tapering off towards each side. Fig. 10. of the plate is a transverse section of the pseudo-bulbs.

OXTSEPALA (R. W.).

GEN. CHAR. Sepals equal, ovate, long subulato-acuminate, sub-connate at the base. Petals narrow,

linear, obtuse, scarcely half the length of the sepals. Lip unguiculate, cordato lanceolate, entire, ecalcarate, articulated with the prolonged base of the short column. Stamen posterior, free to near the base, anther globose, 2-celled, supported by the distinct, fleshy, subulate filament. Pollinia 2, waxy, globose. Scamlent, ramous, jointed epiphytes; stems clothed with sheathing scanose scales from beneath which the flowers protrude. Pseudo bulbs scattered on the branches, 1 leaved. Leaves obovato-elliptic obtuse, emarginate, coriaceous. Flowers short pedicelled, one or two from each scale covered at the base with minute scales and furnished at the apex with a large, somewhat boat-shaped, ovate bract. Sepals membranous (in dried specimens translucent), much attenuated towards the point.

This is an interesting plant from its so clearly explaining the structure of the column of orchideous plants, through the separation of the stamen from the stigma. In most orchids these two sexual organs are united into a single body, with the variously formed anther lying on the top. Here the two sets of organs are respectively free and distinct, as in other bi-sexual flowers I cannot refer it to any existing genus, though I think it approaches *Cocklia* in some points, which however has not, so far as I can learn from the character, the free stamen of my plant.

1736. OXYSEPALA OVALIFOLIA (R. W.).

I am indebted to the late Mr Griffith for my specimens of this very curious plant which I think were fathered in Malacca but unfortunately the label is lost. They may have been from Khassya. They are from one or other of these stations.

AGOELANTHUS (R. W.).

GEN. CHAR. Sepals equal, cohering, tubular; the lateral ones connate with the prolonged base of the column. Petals shorter than the sepals, spatulate, unguiculate, inclosed within the tube of the calyx. Lip articulated with the prolonged base of the column, broad ovate rounded, papilously hispid at the apex, truncated and furnished at the base with a subulate tooth-like process, three-nerved in the axis. Column erect, concave above. Anther 2-celled, cells obsoletely 4-celled with 4, or by abortion⁹ fewer obovate pollinia in each. Stemless plants, pseudo-bulbs aggregated, depress-flattened, netted all over; leaves small, 2-5, sheathing, ovate, acute, membranous bracts sub-orbicular, cuspidate, parallelly many-nerved, flowers tubular, vase-shaped (whence the name) dull brick red colour, externally glabrous, pilose within- petals obovate, spatulate with a Jongish claw, pubescent the lip when spread out is somewhat trowel-shaped at the base and orbicular at the point.

The thorn like process at the base of the lip, not well shown in the figure, is very peculiar. The number of pollinia seems inconstant as shown in the two figures, 12 and 13, and I have seen as few as four, always presenting the spatulate outline shown in the plate. Fig 14 was introduced by the artist, without reference to me on the supposition that it was the kai (fruit) the usual form of which in the order it does not much resemble, but which it may be. As I did not see it, I thought it best to retain it when preparing the drawing for transmission to the press.

1737. AGGELANTHUS MARCHANTIOIDES (R. W.).

Growing in broad patches somewhat resembling a *Marchantia* (which suggested the specific name) on moist rocks on the Iyamallay Hills towards Paulghat. Flowering July and August.

LICHHORA (R. W.)

GEN. CHAR. Sepals adhering at the base, posterior one larger, somewhat galeate; lateral ones connate with the prolonged base of the column, ovate, obtuse: petals linear, lanceolate, shorter than the sepals: Up sub-rhombio-ovate acutish, articulated with the long base of the column. Anther terminal, 2-celled, with 4 pollinia in each. Stemless plants; pseudo-bulbs thin, flat, adhering like lichens to the branch on which they grow (whence the name), leaves paired, broad ovate, sub-orbicular, cuspidato-pointed, reticulately veined, large in proportion to the rest of the plant, glabrous. flowers axillary, paired, short pedicelled, hairy* bract obovate, somewhat boat-shaped, densely ciliate, lateral sepals hairy within.

I am indebted to Mrs. Jerdon for the drawing from which figures 1, 2, and 3 are taken, 1 and 2 show the plant natural size, and 3 considerably magnified. Along with the drawing I received specimens preserved in spirits, from which the dissections were made. Figs. 5 and 6 do not seem to correspond, which however is attributable to the want of skill in the artist in representing two different stages of dissection, and the number of specimens was too limited to admit of several flowers being examined. Leaves at first green afterwards changing to purplish brown. Flowers tawny coloured.

1738. LICHWORA JERDONIAWA (R. W.)
Malabar Mountains, on branches of trees. Flowering———. Jerdon.

1739. SPITHOGLOTTIS PUBESCENS (Lind.), leaves binate linear, lanceolate, narrow at the base, striated, shorter than the erect scape* raceme secund, bracteate: bracts minute, acute- sepals ovate acute: petals oblong* lip saccate at the base, the lateral lobes oblong, erect, middle one with 3 keel-like appendages, two tubercles at the base, cumate, and a little longer: peduncles, sepals, and ovary pubescent.

Khassya Hills. Griffith.

The dried specimens from which the drawing was made are very indifferent ones but as being the only representatives of the genus I have, were employed to illustrate it for the sake of those Indian Botanists who might not otherwise have an opportunity of making themselves acquainted with its aspect and characters.

BROOMHEADIA (Lindley).

GEIT. CHAR. Perianth cylindrical, connate (1½ inch long, white) Sepals and petals linear, oblong, channeled, curved. Lip cucullate, 3 lobed, articulated with the base of the parallel column, lobes retuse, yellow with yellow glands in the disk, the lateral ones shorter, ovate, (violet-coloured) the axis pubescent, column fleshy, broadly winged, obtuse. Anther 2-celled, dehiscing longitudinally, the back conical, articulated with the column. Pollinia two, reniform, excavated behind, sessile on a broad triangular

raembranaceous gland. Bulbless caulescent epiphytes, leaves in two rows (distichous) narrow emarginate: spike terminal, distichous, flexuose, long peduncled, many flowered, bracts tooth like very short, rigid.

This character is copied from the commentaries of Meisner's *Genera Plantarum*, page 289-90, which had I not had the aid of Mr Griffith's name would have left me in doubt whether this was truly Lindley's plant, nor can I feel quite certain, even with such aid, that it is so, as I have not seen his own description which is published in the *Botanical Register*, not in his genera and species. Like the preceding, the plant is introduced for the sake of the genus, being desirous of exhibiting figures of as many genera as I can of this very difficult order.

1740. *BOOMHEIDIA PALD9TR3* (Lindley), *Gramatophyllum Fmlaysomanum*, Land. gen. and species orchid.

Malacca. Griffith.

This, though the habit and general aspect of the plant seems to agree, may not be the true *B palustis* as I find I have what appears another species of the genus, but the specimens are too imperfect to be determined with certainty.

1741. *GHILOSCHISTA USNIOIDES* (Lind.).

Malabar, on branches of trees, flowering in April.—Low herbaceous, hairy, leafless, epiphytes: roots flattened, green, as if to supply the absence of leaves by performing their functions. Spikes erect, flowers whitish or somewhat cream-coloured. The lip of this plant is curious and difficult to represent I am not sure that this is the species named, but I have no means of satisfying myself on that point.

The larger figure of the plate was taken from dried specimens collected by myself, the smaller from a drawing of Mrs. Jerdon, taken from a living plant, gathered I think in Wynaud and on the North Western slopes of the Neilghemes.

JOSEPHIA (R. W.).

GEN. CHAR. Perianth globose, closed., Sepals equal, ovate, sub-orbicular, lateral ones incumbent on the lip. Petals obovate, oblong, obtuse, a little shorter than the sepals. Lip connate with the base of the column, fleshy, ventricose at the base, ecalcarate, constricted in the middle; limb entire, sub-orbicular, emarginate. Column erect, clavate, half round. Anther imperfectly 2-celled. Pollinia 4, parallel, oblong, clavate, sessile on the dilated shield like gland.

Epiphytic plants* leaves coriaceous, long petioled: scapes erect, panicled, many-flowered • flowers congested towards the ends of the branches, pedicelled and furnished with a minute ovate, acute, persistent bract. The flowers in this curious genus are annually renewed on the old scapes.—This fact I learn from Mr. Jerdon who has had it in cultivation for three years.

[I have named this genus in honour of my esteemed friend Dr. Joseph Dalton Hooker, author of the Antarctic Flora and *Rhododendrons* of Sikkim; now engaged in investigating the Flora of the Sikkim and Khassia portions of the Himalayan range where he has already collected about 3000 species of plants, and certainly one of the most rising Botanists of the present time. The genus seems nearly allied to *Agrostophyllum*, but appears distinct in habit, character, and Geographical distribution—the one species

being a native of the Neilghemies the other of the Pulney Mountains, while the only known species of Blume's genus is from Java.

1742. *JOSEPHIA LANCEOLATA* (R. W.), leaves elliptico-lanceolate, acute at both ends—scapes a little longer than the leaves, naked, panicled, branches of the panicle racemose * all the sepals sub-orbicular: lip emarginate. Flowers whitish, tinged with purple, lip reddish lilac.

Branches of trees below Nedawuttim, Neilghemes, flowering August and September.

1743. *JOSEPHIA LATIFOLIA* (R. W.), leaves coriaceous, broad oval, very obtuse or round above, tapering below into the longish sulcated petiole: scape panicled, about twice the length of the leaves, scaly, branches of the panicle short: flowers congested, subcapitate.

Pulney Mountains, on branches of trees, flowering August and September.

The analysis of this species is less complete than the preceding, having been made long ago (about 14 years), at a time when I was very imperfectly acquainted with this family.

1744. *JEKIDES CTI HIDRICUM* (Lind.), leaves round, somewhat cylindrical racemes short, about two-flowered, sepals ovate, obtuse. petals oblong, broader. lip cucullate, funnel-shaped, lateral lobes oblong, obtuse; adnate to the middle, ovate, obtuse, fleshy, middle one: spur straight, conical. Flowers white or slightly tinged with red, lip reddish, middle lobe yellow at the base.

Iyaraally Hills, Coimbatore, on branches of trees, flowering August and September. The flowers of this species are handsome, but too few to entitle it to be considered an ornamental plant.

1745-46 *SACCOLABIUM GUTTATUM* (Lind.), leaves long, channeled, unequally truncate, broad: racemes cylindrical, densely dowered, arched or pendulous: sepals ovate, twice the breadth of the petals, lip with a compressed truncated conical spur, pubescent within, lamina lanceolate, inflexed, sub-costate on the back, capsules oblong, hexagonal.—Lind.

Paulghaut jungles, on branches of trees. Flowering from June till October or longer.

On comparing the character, here given, of the lip with that shown in the magnified analyses a striking discrepancy will be at once observed, the lamina in Lindley's plant being "lanceolate inflexed," in mine it is broad obcordate, cuniate, spreading. For his plant he quotes Rheede's Hort. Mal. 12 tab. 1. When naming my drawing, I referred to that plate and, finding the two figures correspond, was so unfortunate as to rest satisfied without comparing my plant with the character and thereby overlooked that striking difference.

It is now clear to me, that the plant seen and described by Dr. Lindley is not Rheede's plant, and that they are probably different species. On this supposition I propose to designate this plant & *Rhtedii*, with the following character.

SACCOLABIUM RHEEDII (R. W.), leaves linear, channeled, denticulato-truncated or premorse at the apex: racemes pendulous, densely many flowered: posterior sepal ovate, lateral ones unequal sided, about twice the breadth of the lanceolate acute petals: spur saccate, compressed, conical, hairy on

the throat, lamina of the lip broad, obcordato-cum-ate, spreading: capsules obovate, subterete. Flowers pale pink dotted with deeper coloured spots: lip deeper pink.

1747. *SARCANTHUS PAUCIFLORUS* (R. W.), leaves linear, acute: spikes simple, pendulous, few-flowered, much shorter than the leaves: sepals obovate, acute, or somewhat boat-shaped, inflexed on the margins: petals narrower, obovato-lanceolate: spur reflexed, bulbiform, conical, curved outwards: lamina of the lip 3-lobed; lobes all obtuse, the middle one much larger. Sepals pale yellow with a red margin, lip white or slightly tinged with yellow.

Malabar, on branches of trees. Jerdon.

I am indebted to Mr. Jerdon for specimens and a coloured sketch of this plant which I thought it well to introduce here as affording an example of what appears a true *Sarcanthus* which those already figured under that name may not be considered, though, as I understand the genus, I believe they are.

1748. Owing to an error in numbering, this plate was left vacant and the omission not detected until the whole of the plates of the part were printed off I have therefore taken advantage of the circumstance to introduce to the acquaintance of my readers, 4 additional genera, with which I have myself in the interval, become acquainted.

1748-1. *AcRiopsrs IKDICA* (R. W.), lip ovate, cordate, somewhat undulated, entire, without a crest.

A. JAVANICA (Blume), "labellum basi columnis in tubum connatum, limbo patente cordato cnsolato."

The habitat of my plant is most unfortunately not noted, and the specimen is not perfect enough to admit of my enlarging on the points of distinction between this and the Java species. The genus is a very curious one. The two lateral sepals are united hence the perianth, exclusive of the lip, is only 4-leaved. The lip, in place of being free to the insertion, has a long furrowed claw, the edges of which adhere to the column leaving a tube between. The anther bed in place of presenting the usual form of a simply flattened or concave surface on the end of the column, on which the naked anther lies, is covered by a delicate vaulted membrane or veil, within which the anther nestles but is still visible, through its translucent texture, in the way I have endeavoured to show in the magnified figure No. 4, and also in No. 2.

1748-2. *PODOCHILDS HALABARICUS* (R. W.), leaves short, fleshy, imbricating, obtuse: spikes terminal, short, few-flowered, drooping: bracts broad ovate, somewhat cuspidate, shorter than the ovary: petals somewhat narrower than the sepals, lanceolate: lateral sepals connate, forming a short ventricose spur: lip entire constricted in the middle, upper half linear lanceolate, obtuse.

Malabar, on branches of trees, flowering during the rainy months. I am indebted to Mr. Jerdon for the opportunity of figuring this plant which is the first species of the genus found in Southern India. Two species, both (but especially *P. falcatus*) nearly allied, are natives of Ceylon.

1748-3. *APPENDICULA HASSELTII* (Blume), stems simple, terete - leaves broadly linear, retusely mucronulate, sheaths of the leaves edentulate. limb of the lip erect, crenulate.

Mergui, Griffith. I am indebted to the late Mr. Griffith for my only specimen of this plant. It is not improbable that it may not be identical with Blume's plant which is from Java, but as it seems to correspond with his character, I cannot on the mere ground of a geographical difference venture to view it as a new species. His characters are generally too brief but, so far as it goes, the two plants agree. It is proper to remark that the figure of the entire plant is somewhat reduced to bring it within my contracted space, to which I may add that most of the flowers of the capitulum were so far advanced that I had considerable difficulty in obtaining one fit for dissection, but still I hope that the analysis will on comparison with more favourable specimens be found correct.

1748-4. *ZOSTEROSTYLIS WALKER** (R. W.), lip ovate, lanceolate, involute on the margins, slightly pubescent, sepals linear or somewhat subulate, the lateral ones narrower, leaves ovate, acute, reticulately veined.

Adam's Peak, Ceylon. Gardner.

Of this plant I have a coloured drawing by Mrs. Col. Walker, and a specimen collected by the late Mr. Gardner, but communicated by Mr. Thwaites. The drawing is unfortunately without analyses those given therefore are prepared from the dried specimen and may not be found quite correct. The lip is reddish-purple; the sepals as green nearly as the leaves, the scape reddish-green. It seems very nearly allied to *Z. zeylanica*, Lind. but that has 3-nerved leaves, which this certainly has not; the lip in that is tomentose within and revolute on the margin, while in this, it is scarcely pilose and involute, neither, so far as is shown in the drawing, is it punctulate. The genus is an obscure one, and I doubt whether my dissections are sufficient to remove the difficulties, the more so as there is apparently a discrepancy between figures 2 and 3.

1749. *BOLBOPHILLUM TREMULOM* (R. W.), pseudobulbs ovate, somewhat corrugated, leaf ovate, lanceolate acute: scape straight: bracts small, ovate, acute: sepals ovato-lanceolate acute, pubescent: petals rhombio-ovate small, densely ciliate: lip articulated with the prolonged base of the column, linear, obtuse, the back toward the apex, covered with long tremulous hairs. Flowers yellow, passing into purple towards the margins of the sepals, lip purple.

Wynaad on trees, Jerdon and Major Cotton, who now has this species, with very many others, growing in his conservatory at Ootacamund. The specific name is in allusion to the long hairs on the back of the lip, which, when growing, are perpetually in a state of tremulous motion however still the air. It is a beautiful and curious plant, allied by the peculiarity of its lip to *B. Calamania* a Sierra Leone plant.

The figure of the whole plant is taken from a coloured drawing of Mrs. Jerdon's. All the analyses were prepared from a specimen preserved in spirits communicated by Mr. Jerdon. The hairs of the lip are jointed at the base (hence their mobility) as may be seen from the linear figure in the centre of the plate.

PATTONIA (R. W.).

Perianth spreading, posterior sepal boat-shaped (cymbiform) acute, undulated on the margin; ante-

nor ones slightly larger. Petals conformable, obovate-obtuse, cumate towards the base. Lip articulated with the base of the column, 3-crested on the disk, 3-lobed; middle lobe oval inflexed at the point, lateral ones sub-falcate, obtuse, with a broad sinus between them and the middle one. Column somewhat oblique, clavate, concave and slightly winged in front. Anther terminal, 2-celled; pollinia 2, globose. Terrestrial caulescent herbs apparently of large size: root——? leaves long narrow channeled, folded, bowed towards the point: stems erect, round, terminating in a long loose many-flowered raceme: bracts ovate, acute, deciduous: flowers large (about 3 inches across) long pedicelled: sepals and petals glabrous, lip hairy within. The plant turns black in drying and appears to attain a great size, a portion of the stem of my specimen measuring upwards of 2 inches in circumference.

This genus is dedicated to Mrs. Colonel Walker, under her maiden name Patton (the better known one of Walker being pre-occupied), a compliment well merited in return for the many contributions from her accomplished pencil illustrative of the Flora of Ceylon. I formerly so named a genus of Anonaceae, in my Illustrations, but further and more intimate acquaintance with that plant has satisfied me that the genus rests on imperfect observation and is untenable. I therefore suppress it in favour of the present, which I trust will be found more permanent, as it is more suitable, being an orchid, the family she has most delighted to study and delineate.

1750. PATTONIA MACRAWTHA (R. W.).
Malacca. Griffith.

The specimens are unaccompanied with any note or label. I should suppose, from their appearance, that it grows in humid or marshy soil, attains a height of 4 or 5 feet, and that the racemes are nearly half that length. The stems are glabrous, somewhat 4-sided, slightly channeled on two sides, the leaves are about a foot and half long, folded, tapering to a point and, when growing, are probably sword-shaped. The colour of the flowers is unknown to me.

1751-52. CYTHERIS GRIFFITHII (R. W.), scape erect, hairy, many-flowered: leaves, . . . bracts ovate lanceolate, acute, externally hairy • spur slender annularly involute: lip spreading, 3-lobed; lateral lobes obtuse smaller than the dilated obcordate middle one —Pseudo-bulb ovate; scape from 1 £ to 2 feet high, furnished towards the base with a few sheathing scales: flowers large, pedicels slender longer than the bracts. There are no leaves attached to the specimen. They seem to come after flowering.

Mergui. Griffith.

This is a very distinct species from *C. cordifolia*, Lindley, which has a slender stem about a span high small flowers and a short clavate obtuse spur.

The detached magnified flowers seem at variance with the attached ones appearing as if the lip was *antrous* while in the others it is *poshous*. The error rests with the artist and which, in the hurry of other occupations, I overlooked.

1753. CTMBIDUM ERECTUM (R. W.), leaves ligulate, succulent, rigid, deeply and obliquely emarginate: raceme erect, many-flowered: bracts small, fleshy: sepals linear, somewhat obtuse; narrower

than the lanceolate acute petals: lip 3-lobed, middle one pubescent and revolute at the apex, lateral ones acute; lamellae linear, straight.

Iyattally Hills, near Coimbatore, flowering in August and September.

This species belongs to Lindley's section *Eucymbidium* and approaches *C. aloifolium* but is evidently a very distinct species. Its erect rigid habit, thick fleshy ligulate leaves, broad short scales at the foot of the scape, at once proclaim it distinct. The colour of the flowers, is nearly the same in both, a blending of reddish and yellow deepening nearly to purple along the middle line; limb of the lip purplish red, yellowish near the base.

1754. CTRTOPERA CULLFNII (R. W.), leaves oblong, lanceolate acute, plaited: scape slender, angular, somewhat drooping towards the apex; flowers numerous, loosely racemed, long pedicelled, bracts ovate-subulate; sepals obovato-lanceolate, narrower than the obovate very obtuse petals: lip 3-lobed, middle one somewhat smaller, 3-crested.

Travancore, flowering during the rains.

I am indebted to General Cullen, Resident of Travancore, for my specimens of this gorgeous plant. It is nearly allied to *C. fiava*, with which I at first confounded it. Like it the flowers are yellow and the scape appears before the leaves, but the appearance of the plant so far as I can learn from comparison with Dr. Royle's figure is altogether different. On these grounds I have dedicated it to the discoverer, a zealous investigator of the plants of that tract of country but more especially of the economical applications of the useful ones. The plant seems to be a large one some of the leaves being nearly 2 feet in length.

COTTONIA (R. W.).

GEIC. CHAR. Perianth spreading. Sepals broad obovate, obtuse. Petals smaller, sub-lanceolato-cuniate at the base. Lip ecalcarate constricted in the middle, Bub-pandunform; upper half larger sub-orbicular, emargate, cuspidate in the sinus; lower half orbicular bituberculate at the base. Column erect, clavate, margins dilated, membranous in front. Anther 2-celled, with a long blunt rostellum. Pollinia 2, unequally 2-lobed, posterior lobes smaller, caudicle filiform; gland orbicular. Capsule long, clavate drooping.

A caulescent epiphyte: leaves linear, distichous, obliquely emargate: racemes short, few-flowered, compact on the apex of very long branched peduncles: flowers pedicelled, flower buds globose. I dedicate this genus to Major Fredrick Cotton of the Madras Engineers, a most indefatigable collector and successful cultivator of Orchideous plants, and who has now a large, and for India, unique collection in his conservatory in Ootacamund.

This genus seems to me to approach *Saccolabium* by habit but differs from all the genera of that tribe in the total absence of even an approach to a spur, by the form of the column, and still more by the unusual form of the lip.

1755. COTTONIA MACROSTACHIS (R. W.)

Malabar near Telhcherry, Jerdon, to whom I am indebted for a coloured sketch of the plant and the specimens from which the dissections were made.

Stem erect, leaves strap-shaped, oblique and deeply emarginate at the apex: peduncles many times longer than the leaves, branched, each branch ending in a short raceme of rather large yellowish flowers, •treakcd with red; lip deep purple.

1756. *TANIOPHYLLUM JERDONIANUM* (R. W.), caulescent leaves linear, spikes ramous, many-flowered: bracts ovate, acute, exceeding the pedicel: sepals broad ovate: petals narrow, linear-lanceolate * spur large saccate, lip undulate: polhnia 4, attached to a large elongated gland.

Malabar, Jerdon. On branches of trees. Since naming this plant, further consideration has led me to doubt the propriety of placing it in this genus, but as it seems to approach nearer to it than to any other I must leave it here for the present until I am enabled by the acquisition of additional specimens to re-examine it, most of the flowers of the one I had having fallen off or been injured by insects.

1757. *CRTPTOCHILCS SANGUINE** (Wallich).

I am indebted to the late Mr. Griffith for the specimen here represented. He gathered it on the Khassia Mountains. It is so very inferior to the one figured by Dr. Wallich in his *Tentamen Nepaulense* that I should not have thought of introducing it but for my wish to present analyses of as many genera as I could get of this difficult and interesting family. It may perhaps, however, be a new species, a point I am unable from my materials to determine.

APETALON (R. W.).

GEN. CHAR. Perianth bilabiate. Posterior sepal large, 3 lobed, lobes very obtuse, middle one larger somewhat obovato-orbicular; anterior ones resting on the lip, cohering nearly half their length, the two forming a single sub-orbicular cleft sepal. Petals none. Lip shorter than the sepals, broad, truncated at the apex, disk fleshy and punctuate, margins petaloid. Column erect, clavate, anther terminal, 2-celled, cells slightly diverging. Pollen granular. A small terestridl leafless³ plant, scape erect furnished with a few stales and bearing three or four globose apparently unexpanding flowers on the apex: bracts ovate, large in proportion to the plant.

In this curious plant the petals seem to combine with the posterior sepal forming *one* of unusually large size. If this is the correct view of its structure it follows that all the parts usually found in the flower of an orchid are present in this one, but modified in their form and combination.

1758-1. *APETALON MINUTUM* (R. W.).

Near Sultan's Battery in Coorg, under a clump of Bamboos. Jerdon.

Whole plant about 3 inches in height of a pale green or whitish colour throwing out from the scaly base several long roots. The ovary is not twisted hence the flower is resupinate, though, for the convenience of bringing the parts better into view they are otherwise represented in the magnified figure, and for the same reason I have designated the large 3-lobed sepal *posterior* and viewed the lip as anterior, such being the usual position in the family.

I am indebted to Mr Jerdon for my specimens of this interesting little plant.

1758-2. *POONIA BIFLORA* (R. W.), leaf. scape about 2-flowered: sepals and petals lanceolate: lip obovato-rhomboid, obsoletely 3-lobed, glabrous; lateral lobes short, obtuse, middle one large, undulate, slightly retuse at the apex. Lip pale pink, deeper towards the apex, sepals and petals white.

Wynaud Jerdon.

This species seems nearly allied to *P. Juliana* but, so far as I can learn from Roxburgh's full description, is quite distinct.

PODANTHERA (R. W.).

GEN. CHAR. Sepals and petals equal, narrow lanceolate. Lip calcarate sessile, ovato-elliptic acute, 3 crested on the disk, eroso-dentate towards the apex. Spur short clavate. Column short truncated in front; posteriorly the thick fleshy filament is produced into an arched crest-like foot to the anther. Anther 2-celled, polhnia granular, with a longwh slender caudicula. Herbaceous, leafless, apparently parasitic, colourless plants, growing m dark forest among decayed vegetable matter. "Its whole aspect was fungoid-like, and of the same dead white colour, except a few faint spots of pink." Jerdon.

1759. *PODANTHERA PALLIDA* (R. W.).

Wynaud, in dense forests in black vegetable soil, Jerdon, to whom I am indebted for my specimens of this unique plant

Scape from 12 to 15 inches in length, many-flowered, clothed with short sheathing scales: bracts lanceolate about the length of the pedicels: sepals and petals linear, lanceolate, acute, lip large, marked with a few pale pink spots. Capsule ovate shorter or nearly the length of the sepals, placentiferous carpels bearing a placenta on each margin and dehiscing sepicidally. Nearly every capsule on my specimens seems to be in a diseased or monstrous state as shown in figures 10 and 11, the carpels of which have not united, each showing the two lines of abortive placentas on the margins.

1760. *CEPRIPIDIUM PCRPURATUM* (Lindl) A stemless leaves coriaceous, oblong, acute, striated, spotted, channeled: scape pubescent: dorsal sepal acuminate, cihate, revolute on the margin- petals oblong somewhat undulated, pubescent sterile stamen lunate.

Malacca. Griffith.

If this plant is correctly named it will tend to remove Dr Lindley'u doubts as to its being a native of the Malay Archipelago. It seems to correspond with his character so far as can be made out from a dried specimen.

CDLLENIA.

GEN. CHAR. Involucrum gamophyllous, tubular, three-toothed, deciduous. Calyx gamosepalous 5-toothed, corolla none Stamens numerous, filaments long exserted, united into a tube at the base, pentadelphous above; anthers minute, 1-celled, echinate, aggregated, forming numerous capitals on the exserted portion of the filaments. Ovary 5-celled with 2 or 3 superposed ovules in each; style equaling the stamens, woolly; stigma capitate. Fruit capsular, globose, echinate, 5-valved, 5 celled. Seed one or two in each cell, ovoid furnished with an aril; testa fleshy, albumen none; cotyledons fleshy, unequal; radicle inferior.

Arboreous, leaves alternate, elliptical, bright shining green above, silvery beneath from numerous adpressed scales (like *Elaeagnus*); flowers congested in compact clusters on the naked branches, short pedicelled; pedicels jointed at the base. Involucrum and calyx thickly clothed with adpressed brownish scales. Fruit about the size of a large orange, beset on all sides with hard prickles. Testa of the seed pale chesnut colour, soft and easily sectile, cotyledons unequal sized, one considerably larger than the other, radicle next the hilum.

I dedicate this genus to Major General Cullen, Resident at the Court of the Rajah of Travancore, who has long devoted his leisure to philosophical pursuits, among which economical Botany has enjoyed a large share of his attention, but is specially intended to commemorate the light which his meteorological researches have thrown on the relationship existing between climate and vegetation. He has established meteorological observations in 10 or 12 distinct stations throughout the provinces of Travancore and Cochin.

1761-62. *CULLENIA EXCELS** (R. W. *Durio Ceylanica*, Gardner).

[yamally Hills, in dense forest. Also Malabar and Ceylon, flowering February and March, ripening its fruit October and November.

A large tree, some of those examined were estimated at about 100 feet in height with a circumference at the base of about 15 feet. Bark inclining to smooth, brownish. Branches spreading and umbrageous, often drooping towards the extremities.

Leaves elliptic, oblong, with a short blunt acumen, bright pea-green above, silvery from numerous adpressed scales below. Flowers very numerous, almost covering the two or three years old branches. Fruit brown, capsule hard and woody but soon splitting when exposed to the sun or a dry atmosphere along one of the valves and exposing the chesnut-like seed.

The late Mr. Gardner found it on wooded hills near Galle and has published a full and excellent description of the tree in the 8th volume of the *Calcutta Journal* under the name of *Duno Ceylanicus* a mistake scarcely to be expected from so acute an observer and excellent Botanist. In his description of the anthers he has fallen into a grave error in supposing each capitula of anthers a single one and each anther a single pedicellate gram of pollen. When my drawing was made I had not good enough flowers to enable me to exhibit this error but I have since got them in a suitable state and have ascertained that they are as described in the generic character. The wood of this tree is beautifully white, but soft and apparently of little value.

Fig. 1. a fructiferous branch much reduced in size, the original was upwards of 3 feet long, 2. clusters of flowers, natural size—3. a fruit natural size—4. leaves, natural size—17, 18, 19, 20, are different views of the seed, all natural size. No. 6. shows an expanded flower with the place occupied by the involucre marked by a slight line. Figures 6 to 10 were taken from old flowers found on a fructiferous branch.

ERRATA.

on	For	Cymbid	tnstc(Willd)	read	tenuifohum (WiUd)
1689	—	—	tenuifohum (Willd)	—	triflte (Willd)
927	—	Habenai	la montana (Richd)	—	decipicna (11 W).
1634	—	Ena	polystachya (Richd)	—	pubescens (R W)
1635	—	—	pubescens (It W)	—	polystachya (Richd)
1609	—	Vanda	parviflora (R. W).	—	jEndes Wightianum (Lind)
1727	—	Monochilus.		—	Cheirostyhs
1745	—	Saccolabium	guttatum (Lind)	—	Rheedii (R. W)

In addition to these more important errors the names on several of the plates are incorrectly written, but can be corrected by a reference to the letter press. These latter errors originate with the Lithographer, who copies the ~~names~~, and the impossibility, at this distance (300 miles), of my revising what he writes

EXPLANATION OF PLATES.

VOL. V.—PART II.

1763-64. *PISONIA ACULEATA* (Linn. *Y. georgina*, Wall., list 6768 ?) Shrubby, glabrous, armed, spines axillary, hooked: leaves petioled ovate, tapering at both ends or somewhat bluntly pointed; flowers dioicous: fruit clavate, 5-ribbed; ribs beset with viscid glands.

A widely distributed, large straggling shrub, everywhere, except the new shoots and young leaves (which are finely pubescent) glabrous: branches armed with axillary recurved very sharp thorns: male flowers collected in axillary and terminal compact panicles; female panicles loose and spreading.

Roxburgh relates that he and Dr. Konig were once caught among its branches and, owing to its numerous strong hooked prickles, found it no easy matter to disengage themselves from its trammels, whence, not being at the time aware of its being a described plant, Konig, in his notes, gave it the name of *Tragevlaria horrida*. It is a native of both the East and West Indies.

I have doubtfully quoted Wall, list No. 6768 for this plant from knowing no other Indian species except the following, with which it can't be confounded.

1765. *PISONIA MOBINDIFOLIA* (R. Br. in Wall, list, No. 7130), shrubby or sub-arboreous; leaves ovate-cordate sub-acuminate, glabrous, (at first very pale or nearly white, afterwards light pea-green) : flowers in terminal panicles, hermaphrodite, tubular; limb slightly 5-lobed: stamens about 8, unequal, partly exserted: ovary usually sterile.

I have only seen this plant in cultivation. It is common in the gardens about Madras, and is called there, Tree Lettuce. It rarely flowers, and I have never seen the fruit. I believe it is known in the Calcutta Botanic garden under the same English name, but its native country is still unknown. The leaves sometimes attain \ great size, 8 to 10 inches long and 4 or 5 broad at the base. In taste somewhat resembles the Lettuce, but to my taste forms but an indifferent substitute. The ends of the branches being crowned with white leaves, when all the rest are green, gives it a peculiar appearance, which, added to free growth, seems to have rendered it rather a favourite. It attains the size of a small tree.

This I believe is the plant meant by Mr. Brown, and the name seems sufficiently appropriate.

1766. *BOEBHAAVIA BEPANDA* (Wild.), stems diffuse, climbing, glabrous: leaves cordato-ovate, sub-acuminate; sinuately repand: peduncles axillary, solitary, usually longer than the leaves, ending in a single umbel of from 4 to 6 flowers: flowers conspicuous, funnel-shaped, each supported on a longish pedicel; stamens 3 or 4, exserted: fruit clavate, glandulose.

A very common plant, widely distributed over Southern India, usually found climbing to a great extent in hedges and among bushes. In old plants the leaves are not developed on the extreme branches,

giving them the aspect of great panicles, hence, I presume, Choisy's character, "pedunculis floriferis laxam paniculam efformantibus; and again, "paniculse florum pedales;" both of which expressions seem to me incorrect. The flowers, which are the largest and most conspicuous of those of the Indian species of this genus, are a moderately deep-pink or rose-colour; the fruit is beset with viscid glands.

1767. *CEIXWIA ABGENTIA* (Moquin), herbaceous, rainous, glabrous: leaves sub-petioled, linear lanceolate, or nearly linear (seldom ovate), acute: spikes long peduncled, ovato-cylindrical or cylindrical, cuspidate: sepals longer than the bracts, slightly keeled, somewhat 3-nerved: utricle ovate pear-shaped.

In corn fields, but less frequent than the similar looking *Chamissoa pyramidalis*.

The plant figured does not quite correspond with the character, approaching in some points more nearly to that of *C. cristate*, but departs as widely in other*, so that I feel some hesitation in determining to which it ought to be referred. I believe however that it may be viewed as a variety of *C. argentia* if the two species are actually distinct, which may perhaps be doubted, but that is a point on which I refrain from offering an opinion, as I have only lately given my attention to this order, which I find a very difficult one, owing to many of the species being so liable to run into variations.

1768. *CELOSIA PULCHELLA* (Moq.)i stem herbaceous, branchy, glabrous: leaves ovato-lanceolate, ovate, or rhombio-ovate, acute, glabrous: spikes simple, interrupted, sub-flexuose: flowers sessile, solitary: sepals longer than the bracts, acute, slightly keeled, 1-nerved: utricles pear-shaped.

Courtallum, Neilgherries, and in moist soil in the vicinity of tanks and wet cultivation.

This species has been confounded with *C. polygorwides* from which it is very distinct. The specimen represented is more luxuriant than those described by Moquin Tandon, the spikes of which are said to be only about 2 or 2J inches long.

1769. *CHAMISSOA AJLDEDA* (Moq. not Mart.), stem herbaceous, branchy, ascending, glabrous: leaves petioled, long obovate, somewhat unifornn, blunt or sub-emarginate, terminating in a minute point: heads of flowers lateral or terminal, peduncled, somewhat globose, compact: flowers short pedicellvd • sepals scarcely exceeding the bracts, very acute, slightly keeled, 1-nerved: utricle ovate.

In sandy soil near the sea coast, not unfrequent • flowering during the rainy and cool season.

It will be seen from the analysis of this and the following species, that they do not quite correspond with the generic character, or rather, perhaps I should say, that the character is somewhat imperfect as regards the inflorescence of the Indian species. Here we find the flowers in groups of 3 together

from the axils of 3 larger bracts, that the centre one has but one bract while the lateral ones have each three, namely a larger exterior corresponding with the middle one, and two interior lateral ones thus giving only 5 bracts to the 3 flowers, in place of 3 to each, required by the character. In this species the bracts of the lateral flowers are longer than the calyx, and are prolonged into a long awn like point. As shown in figure 1, they appear almost like a middle large hermaphrodite flower with a female one on each side, which is simply owing to the lateral flowers being younger than the centre one. Figure 4, which is one of the lateral flowers more advanced, shows the true structure.

1770 CHAMISSOA NODIFLORA (Mart.), herbaceous, ascending, branchy, glabrescent leaves petioled, spatulate or spatulato-wedge shaped, or oblong, obtuse, with a short point, glabrous or more or less pubescent. Heads of flowers globose lateral and sub sessile or terminal and shortly peduncled flowers shortly pedicelled sepals somewhat longer than the bracts, acuminate, keeled, one-nerved utricles globose.

A common and most variable plant, at least as regards size. The specimen represented is a small rigid almost shrubby one, but presents a form not uncommon in poor sandy soils.

1771 CHAMISSOA DICHOTOMA (Moq.), suffrutescent or herbaceous, dichotomously branched leaves short petioled, ovate oblong, obtuse, short pointed, pubescent, finely ciliate, heads of flowers lateral sub sessile, globose, dense, flowers shortly pedicelled sepals equaling the bracts, keeled, keel rough utricles globose, seed smooth.

A diffuse procumbent or slightly ascending plant. The station of the specimen represented is not given, but I have specimens, differing somewhat in form, from Courtallum.

1772 CHAMISSOA ASFBBA (R. W. Celsia tuperia, Roth), stems herbaceous, branchy, ascending or more or less diffuse, rough with bristly hairs, or in old plants innocuous prickles leaves hispid, sub-sessile, from linear blunt to oblong, lanceolate pointed heads of flowers sub-sessile, globose, dense bracts as long or longer than the sepals, aristate, pilose sepals keeled, hairy on the keel utricles ovoid.

In corn fields in Mysore and Coimbatore. I look upon the plant represented as certainly the same species though it does not quite correspond with Roth's description. This I have ascertained from comparing it with other specimens which do accurately correspond, but which I had not before me when the drawing was made.

1773 EUXOLUS CAUDATIBB (Moq.), stem erect, angularly striated, glabrous, green leaves long petioled, ovate or rhomb-ovate, narrowing at both ends, bluntish, emarginate, glabrous, green spikes ascending, somewhat interrupted below, more compact and subcylindrical above flowers sessile, aggregated in dense glomerules, green bracts longer than the sepals utricles globose, pointed, very rough.

A common plant, frequent about Coimbatore in waste ground and among rubbish.

This very common plant is introduced for the purpose of illustrating by the analysis the difference between this genus and *Amarantus*. This is found in

the fruit. In this, the seed is enclosed in the thickened persistent indehiscent case or utricle, while in *Amarantus* the case splits all round, as in *Chamissoa*, permitting the seed to drop out. In modern botanical works the former has received the name of "Utricle," while the latter is designated "Pyxidium." In all other respects they are the same. In regard to the characters taken from the bracts and sepals of this species it may be remarked, in passing, that scarcely two plants are alike and that little trust can be placed in them. The species of *Euxolus* and *Amarantus* are most difficult to discriminate.

1774 BAN AIT A THYBSIFLORA (Moq), herbaceous, erect, branched, glabrous leaves rhomb-ovate or ovato-lanceolate, acuminate flowers tribracteate, spikes terminal, thysoid.

Eastern slopes of the Nilgier hills, from about 4000 feet of elevation upward*, not uncommon. The long pale whitish spikes of this plant render it a conspicuous object.

1775 PSILOTBICHUM NUDUM (Moq), stem suffrutescent, erect or sometimes climbing among bushes leaves short petioled, ovato-lanceolate or ovate, acute, glabrous spikes axillary, short, aclus flexuose flowers dense, very hairy sepals much longer than the interior short very broad oblique acuminate bracts.

In subalpine jungle, sometimes climbing to the extent of several feet among bushes or other support.

Moquin Tandon has two genera, the present and *Phlotus**, the distinctive characters of which are so much alike that I can scarcely tell to which this plant belongs, but I place it here on account of its having opposite leaves, those of the other being alternate. With that exception, it seems to me the written characters are about equally referable to this and to *Phlotus ovatus*, but of the latter plant I have not a specimen for comparison. Perhaps if I had, they might not appear so liable to be mistaken as they seem to be when judged of from written characters only.

1776 This plate furnishes an example of a very unusual error, that, namely, of embodying parts of two very distinct though somewhat similar looking plants. The plant forming the body of the plate was one species, while the flowers that furnish the analyses appertain to another.

This rather curious mistake I did not discover until long after the whole impression had been struck off. It originated in the accidental circumstance of the specimen represented having been mixed with a number of other*, which were given to the artist to select from, and being the most suitable in size was naturally chosen, while the flowers of the other, being larger and more easily dissected were taken for the analysis, the result is the combination in the same plate of 2 very distinct genera, but fortunately both appertaining to the same order and tribe. The plant forming the body of the plate furnishes the type of a new genus, while the dissections represent analyses of the old genus *Alma*. To correct this blunder, perhaps the most skillful proceeding would have been to cancel the impression, and substitute a new and correct plate. I have however thought it better, as the cost to me is the same, to give subscribers the benefit of my oversight by adding one representing the true *JSrva Jloribunda*, accompanied by dissections of the

new genus, which I propose designating *Pseudanilus*, in allusion to the deception which its Aerva-like flowers have played off on all previous observers. Pluknet has given (tab. 334 f. 5,) a most characteristic figure of the usual form of the plant with opposite brachiate branches and leaves. Linnaeus, who obtained specimens from Surat, and also had the plant growing in the Upsal garden, twice described it, first under the name of *Achyranthes*, and afterwards transferred it to the genus *Iuecebrum*. Roth obtained specimens from Heyne, and described it from them under the name of *Achyranthes*, but overlooked the flowers. Martius next took it up and placed it in Forskal's genus *Aerwr*, but still apparently without examining the flower; and lastly Moquin Tandon, in D. C. Prodromus, has described it, but apparently not the true plant, as he describes the flower he examined as being pentandrous and having "staminodia filamentis paulo breviora minutissima subtriangularia," a structure which does not conform with any of those I have examined. As however he gives many localities, it seems probable that the flower he examined belonged to a different species. He gives as stations, Philippine Islands, Nubia, Senegambia, Burmah, and many Indian stations. Having misled so many eminent observers, it well merits the name of deceiver.

PSBUDAIVTHUS.

GEN. CHAB. Flowers hermaphrodite, 3-bracteate. Calyx 4-sepaled; sepals equal. Stamens two_H free to the base; no staminodes; anthers roundish ovoid. Ovary 1-celled, 1-ovuled; style very short, stigma sub-capitate. Fruit a utricle, indehiscent, inclosed in the calyx, seed vertical, lenticular, testa crustaceous, embryo annular, radicle descending. Herbaceous, erect, ramous: branches like the leaves opposite, brachiate, or sometimes alternate, spikes axillary, aggregate, short white somewhat woolly: flowers very minute, bracts ovate concave, persistent sepals, white somewhat scarious, pubescent.

1776. PSBUDANTHUS BBACHIATCB (R. W., *Aerva brachiata*, Mart., Moq.)

A common and widely distributed plant.

The specimen represented owes the circumstance of its finding a place in this work, to the accident of its having alternate branches and leaves; had it presented the usual brachiate form the mistake could scarcely have happened. I am particular in directing attention to this point, to prevent its being supposed that this is the normal form.

I have specimens from various localities, Courtalura, Coimbatore, Mysore, &c., but with which I have only now become properly acquainted, having hitherto supposed it a form of *M. lanata*, from which however it is amply distinct.

1776-bis. 33BVA FLOBIBUNDA (R. W.), herbaceous, diffuse, procumbent, pubescent: leaves alternate, short petioled, varying from elliptical to obovate obtuse, slightly pubescent above, villous and pale beneath: spikes axillary, solitary or two or three together, in young plants about the length of the leaves, in older, often two or three times the length, very woolly, compact: bracts broad ovate, mucronate, pubescent on the nerve, glabrous on the margins: sepals oblong, elliptic, obtuse, 3-nerved, very woolly on the back: staminodes equaling the filaments, style short, stigma deeply 2-deft, lobes reflexed.

Courtalium, Mysore, Coimbatore, &c.

At first I considered this plant Moquin's ξ . variety of *M. lanata*, and named it accordingly; perhaps it is so, but on comparing it with what I presume to be the true plant it appeared to me distinct. I have therefore raised it to the rank of a species, retaining his name which seems very appropriate.

1777. ACHTBANTHES A8PEBA (Linn), stem suffrutescent, erect, striated, pubescent; branches spreading, somewhat 4-sided, pubescent: leaves short petioled, obovato-rotund, abruptly attenuated at the base, very obtuse, shortly acuminate, pubescent: spikes slenderly virgate, acute: flowers purplish-green, shining, awn of the lateral bracts about as long as the limb: calyx about twice as long as the bract: sepals obsoletely glabrous.

A very common plant all over India. When blooming the flowers are horizontal, but afterwards become reflexed, and the mature fruit are pendulous and appressed to the stalk. The bracts are at first soft and herbaceous, but afterwards become rigid prickly-like.

The leaves, beat to a pulp and applied as a dressing, are said immediately to relieve the pain caused by (he Bting of the scorpion. I have never seen it so applied and cannot vouch for the truth of the statement. The albumen of the seed, when bruised, breaks into angular fragments as represented under the magnified portions of the leaf: the larger one exhibits one of them more highly magnified, showing its granular structure.

1778. ACHTBANTHES BTJBBOFUSCA (R. 'V.), herbaceous, stems erect, ramous, round, pubescent; branches ascending: leaves ovate acuminate, short petioled, finely pubescent on both sides, spikes virgate, compact: flowers shining, pale greenish: awn of the bracts as long as the limb: calyx longer than the bracts, sepals 3-nerved, glabrous, staminodes truncated, fimbriated on the margin, about half the length of the filaments, style equaling the stamens.

Neilgherries, in moist soil. This species seems in appearance nearly allied to *A. fruticosa*, that is, so far as can be learned from written characters, but is abundantly distinct as shown by the analysis of the flowers. Figure 8 of the plate represents the albumen highly magnified, which appears to consist of a congeries of minute globular grains giving a cellular appearance to the magnified representation.

The stem and branches of the growing plant have a reddish-brown colour, whence the name; in drying, the red tinge fades and the brown becomes deeper.

1779. ACHTBANTHES BIDENTATA (Blume *A. viridit* R. W. in Icon.), herbaceous, erect, ramous; stems obsoletely 4-sided, furrowed between, somewhat hispid; branches long, slender, ascending: leaves short petioled, oval, acuminate, slightly pubescent on both sides: spikes long cylindrical, loosely flowered: flowers horizontal, greenish-brown (when dried): lateral bracts very minute, two-lobed, with a long rigid awn; lower one ovate naviculte, pointed: calyx longer than the bracts, 1-nerved: staminodes minute, truncated, almost entire on the margin, filaments about the length of the style.

Ceylon, Neilgherries, &c.

"When naming the drawing I unfortunately overlooked the correspondence, in some important points, existing between my plant and Blume's species, which

subsequent and more careful examination brought to light. Feeling now satisfied that the differences between them are not of specific value, I have adopted his name and beg the favour of the reader to change that on plate. To me it appeals that excellent characters are occasionally derived from the staminodes, but which Moquin generally throws into the background by not introducing them into the body of the character. Those derived from them and the bracts seem alone nearly sufficient to distinguish this species from all the rest, and as these organs in my plant correspond with Blumes character I deem it right to refer it to his species, though geographically so widely separated.

1780 *CENTROSTACHYS AQUATIC A* (Wall), leaves lanceolate, acute, roughish pubescent spikes long flowers pentandrous, with five staminodes furnished with a dorsal fimbriated appendage.

Northern Circars. I am indebted to Captain Campbell, 50th Regt N I, for the specimen from which the drawing was taken. As I have never met with this plant in the Southern Provinces, I infer it is rare or perhaps does not extend so far south, though Roxburgh says it is a native of Coromandel. As a genus, *Centrostachys* is separated from *Achyranthes* on account of its pungent perianth, having one of the sepals longer than the rest, membranous bracts and the staminodes furnished on the back with a fimbriated appendage. Should these be deemed insufficient, I would add that, in this species at least, the albumen is perfectly farinaceous and not, as in the species of *Achyranthes*, breaking into larger granular fragments as exhibited in the preceding plates.

The angular figure in the corner between figs 8 and 10 represents a portion of the testa highly magnified. It is certainly like the object seen, but on too small a scale for perfect accuracy of delineation.

1781 *CYATHULA TOMENTOSA* (Moq.), shrubby, erect, tomentose, branches round, densely tomentose leaves short petioled, ovate acuminate, shortly pointed, above pubescent, rusty coloured, beneath clothed with silky yellowish wool spikes long, obtuse, thick, compact above, interrupted below sepals 5-nerved, pilose, villous at the apex hooked bristles (glochids) 3-5, shorter than the calyx, pale yellow staminodes nearly as long as the filaments, ciliate on the margin.

Simla, Countess Dalhousie. I am indebted to the late Countess Dalhousie, for the opportunity of introducing this genus, which I have not met with in Southern India, though it would appear Hayne was more fortunate, as it is described by Roth from specimens received from that excellent Botanist.

1782 *CYATHULA CAPITATA* (Moq), herbaceous? erect, glabrous or slightly pubescent, branches 4-sided leaves petioled, oval acuminate, pubescent on both sides, deep green heads of flowers globose, compact flowers shining (when dry), dark yellowish-brown sepals glabrous, somewhat villous below hooked bristles 5-9, somewhat longer than the calyx, glabrous above pilose at the base staminodes about half the length of the calyx, bifid at the apex.

Simla, Countess Dalhousie. I feel some hesitation in referring my plant to Moquin's species on account of some differences in the structure of the flower, but as these are microscopic, while the more easily recognised features all agree, I do not think I would be justified in assigning to them specific value.

1783 *PUPALIA OBBICULATA* (R. W. Achyranthes orbiculata, Heyne, Wallich, *Cyathula orbiculata*, Moquin), stem prostrate leaves orbiculate, retuse, acute at the base, short petioled, densely villous when young, becoming smoother by age fascicles densely tomentose, many-flowered, globular, remote, with long blown bristles. Wallich in Roxb Fl Ind Carry Edit 2 507.

On sandy soils near the sea beach, not uncommon, near the mouth of the Adyar south of Madras.

An extensively spreading procumbent plant, the branches being often several feet long, round, pubescent or, in older plants, nearly glabrous, of a light brownish-green colour leaves obovate-orbicular or spatulate, very obtuse, when full-grown coriaceous and nearly glabrous, spikes terminal, long, at first compact, but becoming interrupted as the plant increases in length fascicles of flowers capitate, densely tomentose bristles when full-grown not simple, as in *Cyathula*, but compound, of a few pinnate, pale brown, sepals oval acute, 3-nerved, very hairy on the back. The albumen in this coincides in structure with that of *Achyranthes*.

1784 *GOMPHREN* GLOBOSA* (Linn), stem herbaceous, erect, very branchy, somewhat trichotomous, round, hairy leaves short petioled, oblong-ovate or tending to obovate-lanceolate, acute, mucronate, entire, pubescent peduncles simple, heads terminal, erect, solitary or sometimes 2 or 3 together, globose, 2-leaved flowers shining, purple calyx shorter than the lateral boat-shaped bracts sepals acute, 1-nerved, villous.

Cultivated every where, and known under the English name of Batbelor's buttons, now quite a weed in many gardens.

This plant, properly speaking, does not merit a place in a work on Indian Botany, as it is certainly not indigenous to India, but it seemed desirable to introduce a plant so generally known and by most persons supposed a native, the more so, as it differs so widely in its generic characters from all the Indian genera of the order. Here the filaments are united into a tube with the staminodes, exceeding in length the style and deeply-cleft stigma. In other respects it is a true member of the family.

1785 *COMETES SURATTENSIS* (Burm), leaves cuneate obovate or elliptic branchlets smooth stipules borne on the petioles ramuli of the involucrem of the fruit fascicled, the lower ones deflexed R. Brown in Wall PI As lar.

Scind, Stocks.

This curious genus is still unknown on this side of India, but as it may possibly exist here, in the same parallel of latitude, I feel much indebted to Dr Stocks for giving me an opportunity of introducing it into this work. For, though it is now well known to Botanists who have an opportunity of consulting the very characteristic figure in Wallich's splendid work, yet, as I fear few of my readers possess that advantage, I think it well to give it a place here. The genus is an old one founded by Burman, Fl Ind 1768, but until the publication of Mi Brown's paper, was virtually unknown, Burman's character, adopted by Linnæus, being incorrect and his specimen, even when examined by De Candolle, being pronounced a species of *Pupalva*.

Under these circumstances I deem myself fortunate in thus having an opportunity of extending our knowledge of so old, but little known, a genus.

1786. *CHENOPODIUM AMBROSIOIDES* (Linn.), stem herbaceous, erect, furrowed, branched; leaves petioled, ascending, oblong, attenuated at both ends, remotely sinuately-toothed or nearly entire; glanduloso-pubcrulous beneath; the upper ones linear lanceolate, entire: racemes glomerato-spicate, compact, leafy: fructiferous calyx closed, not keeled: seed obtuse on the margin, smooth, shining.

Coimbatore, in waste ground and among rubbish, flowering during the rainy and cool season, often three or four feet high, and exhaling a peculiar aromatic odour.

This plant does not quite correspond with the character, in so far as I find it polygamous, sterile flowers being mixed with the fertile ones, and the stamens of the fertile flowers being often without pollen; peculiarities not mentioned in either the generic or specific characters. Both forms of anthers are exhibited at figure 6, the upper ones being sterile. In these respects it approaches *Eagodia* but differs in others, giving rise to the suspicion that it may form the type of a new genus.

1787. *ATEIPLAX HETTBANTHA* (R. W.), polygynodioicous, herbaceous, erect, glabrous: leaves petioled, ovate, pointed, membranous: male spikes axillary, sometimes racemose, some fertile flowers mixed with the sterile ones, calyx 4-5 sepals or deeply 4-5-parted: stamens shorter than the lobes: female spikes long, slender, interrupted, glomerules 4-6 female with one or two male flowers in the centre: bracts of the females cohering near the base, ovate, blunt, enlarging with the fruit, at length suborbicular, glabrous.

Coimbatore, in salt clay soil and among old rubbish in the neighbourhood of brick kilns.

This species seems referable to Moquin's first section in which both forms of flowers are fructiferous, but seems very distinct from all his species/

1788. *OBIONE FEBA* (Moq.), herbaceous, ascending, striated, ramous; branches unarmed: leaves alternate, petioled, divaricate, ovato-lanceolate or deltoid-ovate, obtuse, entire, sometimes somewhat sinuate, thin somewhat mealy glaucous green: sheath of the bracts pedicelled, ovate, obtuse at the apex, denticulate below with the margin entire, disk inapendiculate, and obsoletely carinulate, sub-coriaceous.

China. I am indebted to Dr. Dorward of Madras, for my specimens of this plant. I introduce it here though not hitherto found in Coromandel under the impression that we may have several species in the salt soils near the coast, especially in the Tanjore and Tinnevely districts, and possibly this one among them. The difference between *Obione* and *Atriplex* is very slight, so slight that I think it would have been better to have followed Meyer in reducing it to the rank of a section of the older genus. In *Atriplex* the ends of the embryo are turned down, looking, if I may so say, towards the earth, while in *Obione* the seed seems to lie on its back with the ends of the embryo looking towards the sky. They may be thus represented: *Atriplex* o, *Obione* o; in all other respects they are the same.

1789. *OBIONE STOCKSII* (R. W.), stem shrubby, very ramous, ascending or diffuse, branches round, glabrous, unarmed: leaves alternate, short petioled, elliptic obtuse, tending to obovate, smooth, glabrous, turning white in drying, not powdery, sheath of the bracts conical, limbs orbicular, free, entire; disk smooth.

Scinde, Stocks, in salt marshy soils, apparently a low somewhat spreading very ramous shrub, the leading branches spreading, branchlets ascending. The surface of the leaves, when moistened and viewed under the microscope, seem as if covered with most delicate lace; they appear, from the dried specimen, to be succulent and veinless, the costa being scarcely visible. The bracts on the other hand, when viewed with transmitted light, show quite a network of veins. This species seems nearly allied to *O. Bekmgeri*, a Persian plant.

1790. *OBIONE KONEGII* (Moq.), stem shrubby, procumbent, striated, sparingly branched, unarmed leaves alternate, petioled, small, divaricate, obovato-orbicular, very obtuse, entire, scaly-white: theca of the bracts sub-sessile, obovate, the apex very obtuse, margin somewhat sinuate, disk muricate, somewhat coriaceous.

Sea coast near Tuticorin.

This is a straggling plant, its branches sometimes two or three feet long. It is at once distinguished from both the preceding by the bracts, which in this* are roughened with thickened projecting points, in those, quite even and foliaceous.

1791. *KOCHIA INDICA* (R. W.), herbaceous or suffruticose, erect, ramous; branches ascending, and like the ramuli, more or less woolly: leaves linear, lanceolate, sessile, villous on both sides: flowers axillary, one or two together in each axil, calyx very woolly, wing or disk exceeding the calyx, scarious, nearly glabrous seed black.

Coimbatore, in salt soils, flowering October.

The flowers are sometimes male by abortion of the ovary.

1792. *SUJEDA MONOICA* (Forsk.), stem shrubby, diffuse, branchy; branches erect, spreading, glabrous leaves long, terete, attenuate at the base, stiff, glabrous: flowers axillary, sessile, glomerate; male and female mixed: dried fructiferous calyx, scarcely or not at all inflated: seed lenticular or somewhat oblong, prominent at the point of the radicle, smooth shining black.

Sea coast, Tuticorin.

In his character of the seed Moquin has the words, "Semine subrostellato margine acutiusculo." By the term "rostellato," I understand a beak at the apex, which does not exist in my plant, but there is a prominence at the base, that is, at the point of the radicle: is it to that he alludes? or is this a different species? The male flowers in my specimens are few, the female ones very numerous.

1793. *CHENOPODINA INDICA* (R. W.), & shrubby, diffuse, procumbent, very branchy, glabrous: leaves succulent, small, oblong, somewhat clavate, obtuse, attenuated towards the base: flowers axillary, glomerate: stigmas two or three: fructiferous calyx globose, not inflated, green: seed depressed, glabrous shining brown.

Sea coast, Tinnevely District.

This seems to be the only Indian species, and seems to approach in many points *C. microphylla*, a Russian species; but which I think can scarcely be the same. This genus is distinguished from the preceding by the position of the seed, horizontal in this, vertical in that.

1794. *CIBOXTLON INDICUM* (R. W.), fruticose, erect, very branchy, glabrous, branches opposite, spreading: leaves fleshy, oval, sessile, acutish at both ends, glabrous; floriferous leaves exceeding the flowers: sepals ovate, bidentate at the apex: wing at first small, afterwards enlarging: filaments adhering at the base to the 5-toothed cup; anthers oblong, cuspidate: wings of the fruit orbicular, spreading, scarious, entire on the margin.

Coimbatore, flowering in January. I have specimens of what appears the same species from Scinde, communicated by Dr. Stocks. In Coimbatore the plant attains the height of between 3 and 4 feet, the branches throughout resembling the specimen figured, which is merely the top shoot of a larger plant. It is succulent, bright green, but turns nearly black in drying. This genus is very nearly allied to *Salsola*, from which it principally differs in the cup-shaped, nectary enclosing the base of the ovary.

1795. *SALSOLA SPIKECBNS* (Moq.), shrubby, ascending, glabrous, very branchy; branches alternate, divaricated, not jointed (ramuli spinescent pubescent): leaves scattered, very minute, ovato-3-cornered, obtuse, thick, glabrous, pubescent on the back; floral ones shorter than the glomemles: bracts somewhat longer than the floral leaves, shorter than the fructiferous calyx: flowers solitary, 5-androus; wings spreading, small, equal, obovato-cuniate, very obtuse, gnawed on the margin, delicately membranous, diaphanous.

Scinde, Stocks.

This is the only Indian *Salsola* I possess, and avail myself of it, to represent the genus. I do not however feel quite certain of the species, though I think I have correctly named it, the character appearing too prolix and involved. In the accompanying plate, No. 1. is a flowering branchlet, 2. the bracts and floral leaves, 3. the bracts detached, 4. appears to be a monstrosity or disease, perhaps caused by attacks of insects, of which there are several on the specimen. It is introduced as showing from what slight causes leaves become greatly modified; here they are changed in shape and texture, and clothed all over with long hairs, the normal form being short, succulent, and glabrous, in place of lanceolate and hairy. No. 5. is one of the leaves of No. 4. detached. The other numbers refer to the ordinary parts of the flower, and do not require further notice. The fruit-wings, as here shown, do not quite correspond with Moquin's character, but correctly represent those of the specimen. The plant is glabrous, and the wings beautifully diaphanous.

1796. *SUJEDA INDICA* (Moq.) shrubby, very diffuse, branchy; branches ascending, glabrous: leaves succulent, roundish, attenuated towards the base, obtuse or sub-clavate at the apex; the upper ones small oblong: flowers axillary, sessile, 3-5 glomerate on old plants, the extreme branches, from abortion of the leaves, racemoso-paniculate: bracts scarious, dentate

on the margin; fructiferous calyx fleshy, angular, seed lenticular, slightly rostrate, smooth bright shining black.

Sea coast, Tinnevely District, near Tuticorin. The leaves and flowers, which turn black in drying, are very succulent when green. In old plants the extreme branches are leafless, and entirely covered with flowers. These latter, in some of my specimens, have so generally become the nidi of insects, that out of *oi*, I dare say, upwards of one hundred examined not more than three or four had perfect seed. I have slightly altered Moquin's character in one or two points to make it correspond with my specimens, which, I believe, appertain to the true plant.

1797. *POLTGONUM AMBIGUDUM* (Meisn. in Wall. PL As. rar. vol. 3d.), spikes terminal, paired, very long, straight, compact: bracts long acuminate, dilated at the base, imbricated: flowers moderate sized, not expanding: leaves ovate, or ovate oblong, cordate, taperingly long acuminate, smooth above, nerved, puberulous beneath; margin obsoletely revolute, minutely crenulate: upper ones sub-sessile, oblong, lanceolate, somewhat stem-clasping.

Mussuri and Simla, Countess Dalhousie, and M. P. Edgeworth, Esq. I am indebted to Mr. Edgeworth for the principal portion of the accompanying plate, from whose drawing it was taken. I have added, from a specimen received from the late Countess Dalhousie, the branch on the right to show the amplexicaul leaves, and the sections of the ovary.

1798. *POLTGONUM BABBATUM* (Linn.), spikes virgate, sometimes paired, often paniculate, continuous, compact-flowered: bracts turbinate, imbricating, brown, fringed with white hairs, one- or two-flowered, about as long as the pedicels: flowers 6-8-androus, 3-gynous: calyx 5-cleft: achenium (seed) 3-cornered, smooth, shining: ochrea (sheathing stipule) loose, crowned with long bristly hairs: leaves oblong, lanceolate, rough: stem thick, jointed, erect, branched; rooting at the base.

A very common plant all over India, growing on the banks of streams and water-courses, and in such places always in flower.

1799. *POLTGONUM GLABBUM* (Willd.), spikes panicled, straight, continuous, loose, cylindrical, long, many-flowered: bracts somewhat imbricated, awnless: pedicels exserted: flower 6-7-androus; 2-3-gynous: calyx 5-cleft: seed lenticular, or rarely 3-cornered, the convex sides delicately punctuate, shining: sheathing stipules muticous, the upper ones exceeding the internodes: leaves lanceolate, glanduloso-punctuate: stem erect, simple, everywhere glabrous.

Very common in similar places with the last, the two very generally found growing together.

1800. *POLTGONUM STEICTCM* (AUioni), spikes loosely-flowered, sub-cylindrical, linear, interrupted at the base: bracts short, ciliate, glabrous, about 2-flowered; flowers small, 5-6-androus, 2-3-gynous, calyx 5-cleft, glandless: seed lenticular, rarely 3-cornered, shining: stipules (ochrea;) ciliate, sparingly adpressed, strigose: leaves lanceolate or linear, often roundish or subcordate at the base, nearly glabrous: stem prostrate or ascending, rooting at the base.

Neilgherries, common in low wet ground.

1801. *POLTGONUM DONII* (Meisn.), spikes often paired or paniculate, long filiform flaccid, interrupted: bracts somewhat remote, bristly, ciliate, one-flowered; pedicels exserted: flowers 8-androus, 3-gynous: seed 3-cornered, smooth dull-brown: calyx 5-cleft, the outer lobes glanduliferous: ochrea loose, hairy, long ciliate: leaves lanceolate, oblong acuminate, hispidulous beneath, ciliate on the margin: stem ascending, ramous, rooting at the base.

Neilgherries, on wet ground in woods.

1802. *POLTGONUM PEDUNCULABE* (Wallich), spikes short, ovate or roundish: peduncles paired, often dichotomous: bracts muticous; flowers 5-androus, 2-gynous: seed lenticular, shining, punctuate: ochrea somewhat pointed, beset with bristly hairs at the base: leaves erect, varying from broad ovate to linear lanceolate acute, rough on the margin: petiols about the length of the stipules; stem smooth, rooting at the base.

Neilgherries, frequent in woods in low wet soil.

This is so variable a plant, that I have been induced to give figures of three sufficiently distinct forms, which I find mixed in my collection of specimens.

1803. *POLYGONUM HOBBLDUM* (Hamilt), spikes short, compact, cylindrical, sometimes sub-globose: peduncles geminate or dichotomously panicled, divaricate: bracts ciliate, flowers 6-7-8-androus, 2-3-gynous: seed lenticular or obsoletely 3-cornered, faces convex, granulato-punctuate: ochrea bristle ciliate: leaves lanceolate, cordate, or sagittate at the base, scariose on the margin, middle nerve beneath with the petiol base of the ochrea and stem densely aimed with retrorse bristles.

Ootacamund, in shallow water, very abundant. In flower at all seasons, but seems very rarely to mature seed.

1804. *POLYGONUM NEPALENSB* (Meisn.), heads of flowers supported by the sessile cordate leaves: peduncles paired: scariose bracts and ochrea glabrous: flowers 6-androus, 2-gynous: limb of the calyx 4-cleft: seed compressed, sides convex, prettily netted, scrobiculate: upper leaves sessile, oblong/ cordato-stem-clasping; limb of the lower ones ovate, acuminate, decurrent, wing-like on the petiol, stem-clasping at the base; sparingly punctuate beneath, with pellucid glands.

Neilgherries. A very common weed in gardens about Ootacamund, flowering at all seasons.

1805. *POLTGONUM WALUCHTI* (Meisn.), heads of flowers paired; peduncles long filiform, glabrous: bracts scariose, obtuse, pointless: flowers 8-androus, sometimes 6-androus, 3-gynous; limb of the calyx 5-cleft: seed 3-cornered, sides granular: leaves not punctuate, glabrous, or slightly pubescent beneath, somewhat granularly-rough above, ovate, acuminate, or sub-cordate at the base, decurrent on the petiol; the margin and ochrea shortly ciliate: stem glabrous.

Neilgherries.

The points represented on the magnified portion of the leaf are granular asperities, not pellucid points.

1806. *POLTGONUM CHINENSIS* (Linn.), flowers 8-androus, 3-gynous: corymbs simple or panicled: peduncles roughish; furnished with foliaceous cordate bractlets: leaves sub-coriaceous, ovate, or oblong, acuminate, alternate or cordate at the base, more or less pellucid, punctuate; petiols short auricled at the

base, with a reniform foliaceous somewhat deciduous appendage: stem glabrous, suffrutescent, procumbent, extensively diffuse, or climbing if supported.

An extensively distributed plant, preferring alpine stations, but not confined to them, being abundant at Courtallum, only some 600 or 700 feet above the sea level.

The genus *Coccoloba* is distinguished from *Polygonum* by the fruit, which in the former is baccate, i. e., the calyx enlarges, becomes thickened and pulpy. In this plant it often undergoes that change and becomes of a deep purple or black colour. The first time I found this plant I, in consequence, named it *Coccoloba Indica*. Meisner, like Linnaeus, from the examination of dried specimens, determined that it was a true *Polygonum*, and I have here adopted that name, though not prepared to agree with them. This plant in truth forms the connecting link between the two genera, as seed are often matured without the calyx becoming baccate.

1807. *POLTGONUM MOLLE* (Don), panicles very branchy, leafless; racemes confluent: bracts 3-6-flowered, about the length of the pedicels: smaller segments of the calyx equal, narrow oval, acutish: ochrea equaling or somewhat exceeding the petiol, shorter or about the length of the internode: leaves oblong, lanceolate, shortly acuminate, velvety beneath, glabrescent above: stem fruticose, branchy, and with the branches peduncles and ochrea, pilose.

Simla, Countess Dalhousie.

The two lower leaves in the figure are misrepresented in the half only being shown villous, a blunder in part attributable to the lithographer who neglected the directions to represent them the same throughout. Errors like these are not easily guarded against while the artist and lithographer are working at so great a distance from each other: the one in Madras, the other in Coimbatore, 300 miles apart.

1808. *POLTGONUM INDICUM* (Roth.), fascicles axillary, 3-6-flowered; pedicels exserted: flowers 5-6-8-androus: calyx somewhat longer than the pedicel; lobes acute, diverging, the three exterior ones at length acutely keeled: seed thickened on the angles, sides ovate, shining, obsoletely punctuate, striated towards the apex: ochrea short, lacerated, slightly nerved; those of the stem evanescent: leaves lanceolate or linear, longer than the internodes, spreading: stem prostrate, radiating, woolly, very ramous.

A widely distributed and common plant lying flat on the ground, the stipules or ochrea* scariose, the flowers pink. It is variable in form and number of stamens. It seems scarcely distinct from the European *P. aviculare*.

The specimen figured seems to fluctuate between *P. herniarioides* and *Indicum*, and seems to connect the two species, if indeed they be species.

PTEBOPTBUM (Jaub. and Spach.).

GEN. CHAB. Perianth rotate, 5-parted, sub-petaloid, withering; lobes 2 series, unequal; two exterior ones, afterwards reflexed; interior ones shorter, adpressed to the ovary and fruit. Stamens 8, inserted on the throat of the perianth; 5 shorter, alternate with the lobes, persistent; anthers versatile, deciduous, 2-celled. Ovary free, 1-celled 1-ovuled, 3-winged, contracted at the base and apex; ovule attached to the base of the cell, atropous; styles 3, persistent;

capitate Achmum (fruit) coriaceous, 3-angled, coidato-ovoid, 1-celled, cell ending in an 11 u^iud neck, similarly winged, interrupted near tin middle by a deep siuns, the base and apex round-t d Seed erect, filling the cell, somewhat triangular, ^tipitate, beaked, albuminous, albumen wanting in the beak round the radicle Embryo axile, straight, (lavate, radicle superior, about twice the length of tht cotyledons—Erect, ramou* shiubs, branches alternate Leaves coriaceous, entiie, 2 stipuled, sometimes fascicled Floweis hermaphrodite, fascicled, 2-3 from each fascicle of leaves, pedicelled, pedicels articulated below the middle, thickened at the apex, vaginate with sheathing bracts at the base Fruit drooping

I have taken the liberty of abbreviating this generic character, which in the original is very long The most curious feature of the plant here iepre«ented is found in the fruit, which, at the neck, receives a twist, by which the upper half of the wing becomes alternate with the lower, giving the fruit the appearance of having six wings three above and three below In anothei species, this peculiarity is wanting, the fruit in it not being so contorted

1809 PTEROPYRUM OLIVERII (J and S), leaves fascicled, obovate or oblong, or spatulate, or somewhat roundish, linear, or flat terminal wings of the fruit almost concealed by the larger alternate lower ones

Scinde I am indebted to Dr Stocks for my specimens of this curious plant

As the genus has not yet found its way into general systematic works on Botany, I have felt it necessary to give the generic character It is given at full length in Walpers Annals of Botany, vol 1st, p 553

1810 RUMEX NEPALENSIS (Spreng), glabrous, verticels remote, many flowered fructiferous branches nearly leafless valves ovate, oblong, obtuse, reticulately-veined one of them obsoletely grain-bearing, furnished at the base with subuhte fimbriT, naked towards the apex, the bristles shorter than the breadth of the valve leaves acute, somewhat *aved, the lower ones ovate, oblong, coidate at the ba*c, the radical ones oblong, subcoidate upper ones lanceolate stem veiy ramous, fui rowed, thick

Ncilghemes, frequent, al&o on the Falney Mountains, but less common

BEGONIACE^E

This very curious order, consisting at present of 3 genera and about 160 species, has hitherto so completely set the natui al system of botany and its expounders at defiance, so fai as regards finding relationships is concerned, that I think I may almost hazard the assertion, that these are at the present moment about as little known as they were in 1789 when JUSSILU published his genera with the genus *Begonia* piced among his "plinth inceite sedis Since then many attempts ha've been made to find a suitable locition in the natural sries De Candolle placed it between *Chenopodiaceae* and *Polygonaceae* in which he has been followed byseveial excellent Botanists Link looks to the *Umbellifera* for affinities, Maitius to *Scavolet* neir *Campanylaceae*, Meisner turns thence to the *Eupkorbmeae*!, and thinks he has found the most suitable btition in their vicinity, Lmdley in nis

Nixus suggested their affinity with *Cucurbitaceae*, and has been followed by Endhcher and Bronpuiart the formei, however, with the remark that it is a difficult order not closely associating with any yet known, and whose true affinities are questionable Lindley, in his Vegetable Kingdom, still adhies to this view, and places the order in his Cucurbital alliance This I think by for the best station yet indicated, but still the affinity appears so remote, that for the present I am almost disposed to go so far as to say that it has no really near afhmty in the living flora of the earth, and that we must seek its relationships among the fossd remains of a former world

Lmdley in his character of the oider assigns 4 sepals to the male, and 5 to the female flowers This must be leceived with some latitude, as the numbeis differ in diffeient species In regard to the seed, they are sud to be without albumen, which, in those I have examined, i& not the case, the) having a rather large albumen in proportion to the size of the seed

On the subject of affinities, Lmdley's views seem at first eight very paiadoxical, but may after all, like many other paiadoxe*, piove very near the truth He says "the iclationship of *Detassa* is well made out, though it has a decidedly 1-celled ovary, with pauetal placenta; To this I demur Again, after stating that the mam objection to the association of Begoniads and Cucurbits in the same alliance Istlu apparent difteience of their placentation—axile in the foimer, parietal in the latter—he thus proceeds to show that the distinction is one of word&, rather than of essential structure "The ovary of such Begoniads (some species of *Diplochromum*) consists of three carpels whose dorsal suture is winged, and whose margins turn inwards for a considerable distance, each margin forming a plate or placenta over which the ovules are ananged This, with the exception of the wing proceeding from the dorsal suture, is the structure of *Cucumis* ' To understand this it is necessary to observe that the midribs of the caipellary leaves of a Cucurbit are opposite the points of attachment of the seed (sec a trans/cr*e section of a cucumber), and that the white line extending from the centre of the fruit to the seed, is not the partition between 2 cell", but is the two inflexed margins of the same caipcl as shown in *Diplochromum*, while the inteimediare triangular fleshy semeniferous portions are simply modified forms of the thin partition shown to exist between the cells in all the following transverse sections of the ovary and fruit of Begoniads

This view is certainly very ingenious, and is borne out by what we see in *Rhododendron* and some *Gesneiacetp*, wheie similar marginal inflections of the carpellaiy leaves exist This view of the structuie of a Pepo, which at once and for ever overturns the one which I foimerly advanced, leaves no doubt, when taken in connexion with the identity of form of the stigmas and some points of habit, that Begoniads and Cucurbits more nearly associate with each othei than either docs with almost any othei in the scies of natui al oiders There aie still however man) points of diffeience between them, though it must be admitted that a great step has been made towards becoming acquainted with their true relationships On the subject of the parietal position of the placenta of Cucuibits, I confes« I am not yet quite a convert to the doctrine, still less so after bein* told that the difference between those of a Pcpo and a Begonia is one of words lathei than of

essential structure, seeing that those of *Begonia* are so unequally axile, the only difference between parietal and axile placentation being that the carpels in the former case meet in the centres, and without proceeding further from placentae at the point of union of the two leaves, while in the latter the edges dip down to the centre, and there meeting, I think, form the placenta from the union of the two margins of the same leaf

1811 *BEGONIA GRAHAMIANA* (R. W.), root tuberous? stemless leaves long petioled, peltate, suborbicular, glabrous above, punctate and slightly villous on the veins beneath, ciliate on the margin petioles furnished with large scarious bracts at the base scapes exceeding the leaves, slightly hairy towards the apex, glabrous below cymes loose, many-flowered

Courtallum, in dense forests, flowering August and September

I dedicate this handsome species, of this, his favourite friend to the memory of the late Dr R. Graham of Edinburgh, one of its most successful cultivators and to whose skill in cultivating and accuracy in describing them we are indebted for much of our acquaintance with its numerous species. The peduncle is represented a little too rough

1812 *BEGONIA SUBPALTATA* (R. W.), root tuberous with a solitary (always¹) long petioled suborbicular sub-peltate leaf leaf serrated and with the petiole sprinkled with coarse short hairs, most numerous at the insertion of the petiole scape filiform, about the length of the leaf, ending in a few-flowered raceme

The station is not mentioned, but I think Malabar. In dried plants the leaves are most delicately membranous and transparent, and the hairs become so shrivelled that they are scarcely visible unless when viewed by transmitted light

1813 *BEGONIA DIPETALA* (Graham), shrubby, with leaves semicordate, somewhat angled, acute, doubly serrate, smoothish stipules semicordate, flow-ers dipetalous, wings of the capsule about equal, rounded

Not¹ however frequent at an elevation of from 4 to 6 thousand feet, in moist woods growing amidst moss-covered rocks and elsewhere

This is a very handsome species which I have found on many other hills, besides the Neilghemes. So often indeed, and so variable, that I suspect there are more than one Indian species characterised by the terms, "*Begonia dipetalis*". But in truth the genus is a most difficult one, as up to the present time, no well-executed monograph of its species exists to guide the colonial Botanist to a knowledge of the distinctive marks by which they may be discriminated. Dr Graham's figure in the Botanical Magazine, taken from a young plant, gives a very imperfect idea of the species. The stems are straight, rod-like, generally without a branch, the leaves, in the wild state, are rarely spotted as represented, and towards the apex almost every leaf is furnished with its cyme of male and female, beautiful rose-coloured, flowers

DIPLOCLINIUM (Lindley)

This genus was established by Dr Lindley, to include all those *Begonias* having a double placenta. It has not yet been admitted into systematic works, but as it seems to rest on a very sufficient and easily ascertained character, I readily adopt it here. In habit and in all other respects it seems to agree with *Begonia*, but as that genus is a very large one (upwards of 160 species) it is desirable to divide it by any feasible means within our reach, and the double placenta seems very properly taken advantage of for the purpose

1814 *DIPLOCLINIUM BILOCULARIS* (R. W.), herbaceous, erect, few-leaved (1 or 2), leaves petioled, sub-peltate, sub-orbicular slightly oblique, doubly and finely serrated, slightly acuminate, pubescent on both sides, more densely on the veins beneath cymes loose, many-flowered, male 4- female 5-petaled, ovary 3-winged, 2-celled

Mergui, Griffith

I am indebted to the late Mr Griffith for several specimens of this plant. They have all, except one, two leaves, and one of those on the plant represented is decidedly peltate, the other sub-peltate-cordate. The artist, in the upper figure, has represented the pubescence as too decidedly stellate, and in the other the pubescence is too sparing. In other respects the figure gives an excellent idea of the plant represented

1815 *DIPLOCLINIUM ABNOTTIANUM* (R. W.), stemless, root tuberous leaves orbiculate-cordate, crenato-serrate, above sprinkled with coarse jointed hairs, below glabrous except the hairy veins scape shorter or about as long as the leaves, few-flowered flowers all 4-petaled, wings about equal

Courtallum, in dense forest, flowering July and August

The hairs as they appear in this plate are not well represented, those shown in the following, No 1816, give a much better idea of them

1816 *DIPLOCLINIUM COKKITOLIUM* (R. W.), stemless, tuberous, (?) leaves long petioled, petioles furnished at the base with scarious stipules, glabrous, limb orbicular, crenato-serrate, deeply crenato-cordate at the base, sparingly sprinkled above with coarse jointed hairs scapes about as long as the leaves, cymose cymes loose, spreading, many-flowered flowers smallish male 4-petaled, female 3 or 4 wings equal

Malabar, in forests, flowering June

1817 *DIPLOCLINIUM LINDLEYANUM* (R. W.), stem erect, herbaceous, flexuose, branchless leaves semicordate, oblong, acuminate, mucronate-dentate on the margin, glabrous on both sides cymes axillary, loose, many-flowered flowers rather small, 4-petaled, wings about equal

Courtallum, and Malabar

This so much resembles Rhacodes figure (Hort. Mai 9—t, 86, quoted by Dryander and Roxburgh, for *B. Malabarica*), that I at first so named this plant, but the inflorescence is so different that I felt it necessary to relinquish that name. Dryander remarks on the strange circumstance of the female flowers having only 3 petals. I do not attach much importance to it, as it seems merely the result of accidental abortion, which may be seen in both male and female

flowers on the same plant. The *B. Malabarica*, Roxb., seems to be a species quite distinct from Dryander's, and Rheede's plant, but it is, like my plant, a *Diplociinium*, apparently more nearly allied to it than to Rheede's.

In these characters I, in referring to the lobes of the perianth, have followed my predecessors in calling them petals, which is not quite correct though so thoroughly petaloid in texture and appearance.

LAUKACEJS.

The formation of the flowers in this order being somewhat peculiar, I have in several of the following plates endeavoured to exhibit their distinguishing features by means of diagrams. A few introductory remarks explanatory of these diagrams and of the parts they are intended to represent, seem necessary.

In this order the flower is inferior, usually bisexual, with a six-lobed perianth, 12 more or less perfect stamens, and a 1-celled ovary with a single pendulous ovule. The lobes of the perianth form a double row or series 3 and 3, or rarely two or four in each. Each of these lobes has in front, 2 stamens, forming together 4 rows of 3 each: those of the 2 outer rows, next the perianth, are usually perfect with the anthers opening inwards, those of the third row opposite the first or outer are also usually perfect, but differing from the preceding in having two pedicelled glands at the base of the filament, and their anthers opening outwards. Those of the inner or 4th row, opposite the 2d, are rarely perfect, being usually antherless filaments, or what are called *staminodes*. In the following diagrams the stamens of the outer rows being normal (a filament and perfect anther) their places are marked by a small o, those having gland-bearing filaments by a double circle oo; and lastly the staminodes by a point. In some genera the anthers of both the interior rows are perfect and glanduliferous, the diagrams show these by the increased number of double oo. In some the inner row is altogether wanting, these are equally shown by the absence of points. These differences are employed as generic characters. Some genera have 1-sexual flowers; the analyses show these by representing separately the male and female flowers when both were procurable. Others have several flowers aggregated within an involucre, forming a head or simple umbel. *Cylicodaphne tetranthera*, &c., furnish examples of this arrangement.

In this order the anthers are 2- or 4-celled, not, as in other families, opening by slits or pores, but by valves which separate from below, and turn back towards the apex as shown in all the plates.

The ovary is superior and free, except in a few genera where it is more or less completely embraced by the tubular base of the perianth. (See *Cryptocarya*.)

In addition to these, Professor Nees, in his excellent and most elaborate monograph of the order (*Systema Laurinarum*), has availed himself, for grouping his genera into tribes, of the duration of the leaves, whether deciduous or evergreens—of the inflorescence, whether umbelled or panicled—of the dehiscence of the anthers, whether opening at the apex or below the apex—of the fruit, whether free or more or less inclosed within the perianth—the staminodes of the 4th series, whether wanting, imperfect, or distinctly 3-angular—the limb of the perianth, whether persistent or deciduous—in the former case, whether hardening into a cup or not hardening: and in the latter whether the bases of the lobes are persistent and truncated or altogether deciduous from the tube.

The leaves are also used in the limitation of these groups, whether, namely, they are triplinerved or penninerved, and reticulated. In *Cinnamomum*, they are 3-nerved or triplinerved: generally less distinctly so in the following. To show how these characters are used, I shall introduce verbatim Nees' Synopsis or Key to the Tribes, "Clavis Tribuum," in which he exhibits in a tabular form, their application in practice.

The characters employed for the limitation of the genera are sometimes very minute, and their value at first sight apparently so inappreciable, that I repeatedly thought, when I first entered on the study of the order, that sub-division had been carried to an unnecessary degree of refinement, an opinion which increase of knowledge, though it has not altogether removed, has certainly not strengthened, but it is one on which, considering my limited opportunities of studying the order as a whole, it would not have been safe to act. I have therefore as much as possible availed myself of named specimens for representation, and have only in two instances altered names given by Nees, but hope that in both cases the learned Professor will adopt the alterations.

Before concluding these introductory remarks, it may be well to advert briefly to an organ, if such it may be called, which, if I rightly understand, seems to have given the Professor some trouble; I allude to the pedicelled capitate glands of *Tetranthera*. These bodies he at different times calls both glands and staminodes, a most inconvenient confusion of terms. For myself I can see no reason for considering them any thing else than a modified form of the glands found in every genus in the order. But at the same time I look upon the modification as so peculiar, and of such rare occurrence, that I think it might have generic value attached. They exist in several, but not in all the species of *Tetranthera*, those in which they are present, at least so far as my experience extends, seem to me to form a distinct and well-marked genus, which might be beneficially separated from the rest of the genus. But to this I shall advert more at large by and by.

CLAVIS TRIBUUM.

Herbae aphyllae, volubiles,	.	.	.	.	.	•	Tribus XIII.	CASSYTEAE.
Arbores (ant fratices) foliosae,								
Folia decidua (demtis aliquot <i>Tetrantheris</i>)	■	■	■			•	Tribus X.	FLAVIFLOBAE.
Folia perennantia (exceptis aliquot <i>Tetrantheris</i> ,								
Inflorescentia umbellulata vel glomerata,								
Inflorescentia regulariter umbellulata, involucrata,				■		-	Tribus XI.	TETBANTHEHEAE.
Inflorescentia e gemma perulata, glomerata vel subracemosa,						-	Tribus XII.	DAPHNOLDINAE.
Inflorescentia paniculata,								
Antherae apice dehiscentes	.	.	.	.	.	-	Tribus VI.	ACBODICLIDIA.
Antherae infra apicem dehiscentes,								
Antherae latae, subsessiles,								
Antherae conformes ostiolis ab apice distantibus,				■		•	Tribus VII.	NECTAKDBEAE.
Antherae exteriores sub fructu pctaloideae,				■	■	•	Tribus VIII.	DICTPELLIA.
Antherae a filamento discretæ, locellis uno super altero positæ,								
Fructus (subsiccus) tubo perianthio magis minuvæ obtectus,						•	Tribus V.	CBYPTOCABYEAE.
Fructus perianthii tubo non indutus,								
Stamlnodia quarti ordinis nulla vel imperfecta, subulata aut								
subcapitata,	■	■	■	■	■	-	Tribus IX.	OBCODAPHNEAE.
Stamlnodia quarti ordinis capitulo distincto triangulari,								
Perianthii lirabus integre persistens								
i n cupulam durescens	.	.	.	.	.	•	Tribus III.	PHOEBEAE.
patulus nee iuduratus,	.	.	.	.	.	•	Tribus IV.	PEBSEAE.
(his folia peniinnervia aut incomplete nervosa)								
Perianthii lirabus deciduus,								
Basis laciniarum persistens truncata,				■	■	•	Tribus I.	CINNAMOMEAE.
Lacinae integrae a tubo deciduae,				■	■	•	Tribus II.	CAMPUOBEAE.
(his folia sunt definite nervosa),								
Generum conBpectum sub quaque tribuum loco citato invenies.								

As my collection is rather rich in species of this order, I might have added considerably to the number of plates devoted to its illustration, but now that the work is drawing to a close, this being the concluding volume, I felt desirous of aiding the researches of those Indian Botanists, less favourably Bituated than I am for determining them, by giving illustrations of as many genera of other orders as my now limited space will permit.

1818. GAMPHOBA omciNABCM (Bauhin Pinax), leaves triplinerved, shining above; axils of the veins glanduliferous: corymbs naked: flowers Externally glabrouB.

I only know this plant from description, and the figure copied from Roxburgh's drawing for which I am indebted to the kindness of Dr. Wallich, while superintendent of the Calcutta Botanical Garden.

1819. APOLLONIAS ABNOTTD (Nees ab Esenbeck), glabrous: leaves oblong, exquisitely acuminate at both ends, smooth.

Courtallum, flowering July and August.

This is the only Indian species of the genus known to Professor Nees. This genus is distinguished from the following by having 2- not 4-celled anthers.

1820. PHOEBE PANICULATA (Nees), leaves obovato-elliptic, acute at both ends, reticulate beneath, the midrib, ramuli, and loose dichotomous panicles rusty, tomentose: lobes of the perianth, and the fruit ovate.

Neilgherries, &c. I have specimens from several stations, those from which the drawing was made were gathered in woods about Ootacamund, where the tree, a considerable one, is not uncommon. The under surface of the leaves are rather closely netted with thickish veins, and of a deep rusty brown colour.

1821. PHOEBE LANCEOLATA (Nees, *Lauras lanceolaria*, Roxb.), leaves oblong lanceolate, or lanceolate, with a long acumination at both ends: finely pubescent beneath: corymbs glabrous, spreading: the interior stamens hairy.

The figure is copied from Roxburgh's drawing, for which with all the others marked "Roxburghianæ," from the same collection, I am indebted to the kindness of Dr. Wallich, to whom the readers of this work are under great obligations for the many favours of the same kind received from him. The tree is a native of Silhet, and Nepaul.

1822. PHOEBE VILLOSA (R. W., *Lauras villosa*, Roxb. Fl. Ind. 2. 310), arboreous; leaves alternate, petioled lanceolar, 1-nerved: panicles axillary, and several round the base of the young downy shoots, villous: berries spherical, of the size and appearance of a black currant.

A large tree, native of Chittagong. This species does not appear to have been seen by Nees, as it is not noticed in his "Systcina;" it seems, however, to be a species of the genus.

1823. PEBSEA GBATISSIMA (Gaert), leaves ovate, ovate oblong, or obovate, somewhat acute at both ends, reticulate, pubescent beneath, 9-nerved (novem costatis), glaucous: lobes of the perianth about equal, oblong: ovary glabrous: berry large pear-shaped.

The drawing was taken from a cultivated specimen and introduced for the purpose of illustrating the genus. The fruit acquires a much greater size than those in the plate. They are known under the curious English name of Alligator pear. The tree is a moderate sized one, very branchy. The genus *Persea* is a large one, but seems only to include two Asiatic species, and both of these from the Eastern Islands.

1824. *MACHILUS MACRANTHA* (Nees), leaves elliptic, acute, beneath glaucous, glabrous, penninerved: panicles large, pubescent, the ramuli divaricated, bifid. Neilgherries, on the Northern and Western slopes. The tree is a rather low one, but the branches spreading and umbrageous; the leaves and panicles large, terminal; fruit globose, somewhat depressed, about the size of a large currant.

1825. *MACHILUS GLAUCESENS* (R. W., *Phoebe glaucescens*, Nees), leaves oblong, lanceolate, acute at both ends, or acuminate; glaucous: panicles thyrsoid, forming terminal tomentose corymbs: fruit globose, slightly depressed, about the size of a small gooseberry.

Neilgherries, Western slopes.

I have ventured to change Nees' generic name, under the conviction that this is a true congener of the last, with which it so perfectly agrees that, but for the larger fruit of this, they are liable to be mistaken. My impression is that the plant named *Ocotea* (now *Phoebe*) *glaucescens* by Nees in my Herbarium, and which perfectly agrees with this, is not that species but one accidentally erroneously named, owing to the imperfection of the specimens. In this, when the fruit attains maturity, the leaves have become firm and coriaceous. Of the plant, in this state, I have specimens from the late Mr. Graham of Bombay labeled, "a large tree from the Ghauts."

Roxburgh appears to have fallen into a curious error with respect to this tree. His specific character is, "leaves alternate, narrow, lanceolate, triplinerved." While in his detailed description he describes them as broad lanceolar with "no tendency to the tri or tripli-nerve habit," hence the specific character seems to refer to one tree, the description to another.

1826-27 *P. ALSEODAPHNE BEMECARPIFOLIA* (Nees), leaves obovate, cuneiform, glaucous, glabrous, penninerved beneath: panicles terminal, cymosely umbelled on the ends of the branches.

I am indebted to Mr. Law of Bombay for the specimen represented in No. 1826, who sent it from Belgaum, that of 1827 I gathered at Courtallum. The larger one seems to correspond so well with the description of Heyne's specimen by Nees, but which had no station given, that I infer he must have found it in Mysore where he made considerable collections. The specimens of the smaller form were named by Nees "*Alscodaphno semecarpifolia variat ft folius lminoribus* (2J-3 iwUiccs, cum petiolo, longis, 10 lincas latis) paniculis depaupcratis simplicibus." The two plants, when laid side by side, are evidently only varieties of the same species, and are readily recognised in the herbarium by the whitish pulvcrulence or bloom on the under surface of the leaves, which contrasts strongly with the dark upper one.

1828 *BEILSCHMIEDIA ROXDUHGIANA* (NCCS, *Laurm bdoculans*, Roxb., Fl. Ind.), branchlets, naked at the base, lobes of the perianth oval.

Calcutta Bot. Garden introduced from Tipparah.

The above very brief diameter is sufficient to distinguish this from the only other species of the genus. Roxburgh's character *bcin*^ more descriptive of the trees, I introduce it also: "arboreous with a straight trunk, and many far-extended branches: leaves op-

posite and alternate, broad lanceolar, veined: racemes solitary, under the leaves, or axillary: filaments without glands: nectaries nine, anthers bilocular: berries oblong, glaucous." In this character the "filaments without glands, nectaries nine," may seem at variance with the introductory description of the stamens of this order, but a careful inspection of the magnified figure will show that the discrepancy belongs to the language used, not to the flower. This his detailed description shows. The filaments of the third row have each 2 large pedicelled globular glands, and the fourth row are the usual staminodes. The glands and staminodes are all by Roxburgh designated "nectaries," and the glands having in this species a distinct pedicel he seems to have viewed them as independent of the stamens to the base of which they appertain; the simple character therefore is: stamens 9, the 3 interior ones glanduliferous, glands pedicelled; staminodes three, bearing cordato-sagittate rudimentary anthers. The six glands and three staminodes make up Roxburgh's nine nectaries.

Nees objects to Roxburgh's specific name "*bilocularis*," on the supposition that it refers to the ovary or fruit, which however is not Roxburgh's meaning, he simply refers to the anthers, which are two-celled not 4, the form he had observed in the other species of his genus *Laurut*.

1829. *CRTPTOCARTA FLOEIBUHDA* (Nees), leaves oval oblong, abruptly short acuminate, coarsely venoso-reticulate and glaucous beneath; glabrous shining above; pubescent on the veins beneath: panicles axillary, the terminal one dichotomous, naked, yellowish tomentose.

Ceylon. All my specimens of this plant are from Ceylon. I have specimens of two others much resembling this, but apparently both distinct species, from Malacca. It is a curious genus, distinguished in the order by having the seed inclosed in, but not united with, the tube of the calyx, as shown in the longitudinal section of the fruit.

1830. *CETPTOCABTA GRIMTHIANA* (R. W.), floriferous branches, petiols and cosce of the leaves rusty tomentose: leaves coriaceous, elliptic oblong, abruptly ending in a longish, narrow acute acum, glabrous shining above, strongly reticulated, beneath mealy white between the reticulations; veins prominent, rusty pubescent: panicles axillary, racemose, much shorter than the leaves, densely rusty tomentose: ovary hairy: fruit globose? glabrous.

Malacca, Griffith. Apparently a considerable tree, but the specimens were unaccompanied by any note. The fruit shown on the plate had been perforated by insects, and when dissected were found mere shells, hence the doubt in regard to their forms, which when seen in a healthy state may be different.

In this species the staminodes are very acute.

1831. *HAASIA WIGHTII* (Nees), leaves elliptic, acute at both ends, finely reticulated, of the same colour on both sides: panicles shorter than the leaves: lobes of the perianth deciduous: fructiferous pedicels bt might, slightly thickening upwards, shorter than the peduncle of the panicle: staminodes present in the male flowers.

CourtaHum, flowering August and September.

⁴⁴ This species differs from the rest in having staminodes, and the lobes of the perianth deciduous, by which marks alone it agrees with *Haasia media*, Blume. Perhaps it is the type of a distinct genus." —Nees

The character of this genus is to have either hermaphrodite, or unisexual flowers, 2-celled anthers, and no staminodes. My plant has staminodes and hermaphrodite or bi-sexual flowers. The staminodes are large and conspicuous, flattened cordate at the base, perforated with pellucid points giving them quite a fohaceous appearance.

Nees describes the species as dioicous, and speaks of the ovary as rudimentary in the male flowers, such apparently is not the case in the flowers I examined.

I have another species from Ceylon so exactly corresponding in appearance, that it seems impossible to distinguish the two plants, but in it the staminodes are wanting, hence it is a true *Haasia* which the Continental one is not, in as much as it has parts not present in the original species. There is another plant in my collection, having much the habit of this *Haasia*, and wanting staminodes, out in it the anthers are 4 celled, showing that though it may belong to the "Tribe," it can scarcely belong to the genus.

1832 *SALSAFOLIA PAETHENOXYLON* (Nees, *Lauras porrecta*, Roxb.), leaves somewhat ternately pinnate, opaque young corymbs terminal, appearing about the period of the expansion of the young leaves (corymbis terminalibus subanthesi foliolosis). Nees

Native of Sumatra, Roxburgh

The appearance of the figure, which is copied from Roxburgh's drawing in the Calcutta Botanic Garden, does not square with either the above specific character or with Roxburgh's description. I extract the following from Roxburgh's description: "Leaves alternate, petioled, veined, permanent, oblong, entire, generally acuminate, firm, both sides smooth, the upper polished, the under glaucous—3-6 inches long from 2-3 broad. Panicles lateral, scattered round the base of the young shoots below their tender foliage, solitary long peduncled, expanding, small, composed of a few diverging branchlets. Lower flowers numerous, pedicelled pale yellow, calyx broader divided into six, alternately larger smaller, oblong, obtuse, expanding segment*, which are somewhat hairy on the inside. The drawing differs in showing the flatterous branch fully clothed with leaves, in other respects it corresponds with the description.

1833 *CTUCODAPHNE WIGHTIANA* (Nees, *Tetranthera Wightiana*, Wall.), umbel* racemose

Neiyyerri Courtallum, &c

A common rather large tree on the Neilgherries, at an elevation of from about 6000 feet to the top of the hills.

In this genus the flowers are dioicous. The male flower* usually 6 cleft, with 12 stamens the interior six glanduliferous, exterior six and no staminodes. The female ones have 6 glanduliferous staminodes. The under surface of the leaves and racemes is clothed with rusty-brown pubescence. Fruit glabrous, the berry half immersed in the cup-shaped truncated tube of the perianth.

There is as yet only one other species of the genus, a native of Java, which is distinguished by having the umbels close to the stem hence unlike *Haasia* it constitutes its specific distinctive character.

This genus seems to require revision, since, in regard to the variations of floral structure, found among the species now ranged under it, it appears rather complex and heteromorphic. When engaged in preparing the series of drawings for the elucidation of the genera of this order, I was, under the pressure of then existing circumstances, prevented going so fully into its examination as I could have wished, and have since done, otherwise I might have shown this more clearly than I have done, but still I think an examination of the plates appertaining to the "Tribe Tetranthereae," will tend to lead others to the same conclusion.

Compare for example the plates 1834 and 1835 with 1838, all of which are referred by Professor Nees to the genus *Tetranthera* and the difference between the two first and the last will be at once obvious. Compare again 1837 and 1838, which I have associated as species of the same genus, and the exact similarity will, I think, be equally obvious. According to my views, the two sets of forms cannot be associated under the same generic character, otherwise than by constructing it so loosely that almost all the tribe might be admitted into the genus.

Contrast now this group with No 1837, the type of a distinct genus in which the real essential character rests on the compressed or lamellar form of the glandular appendages of the six interior stamens, as contrasted with the thicker glandular form of those of the other genera. "Lepidodermis est genus inter *Dodecadeniam* et *Tetrantheram* verum, flore profusula eximio, diversum ab utroque *laminis petaloidis* plains obtusis subsessilibus loco glandularum terga staminum mtenorum obvallantibus, ita, ut senem quasi exhibeant petalorum, stamina sex exteriora ab interioribus separantur." This, as contrasted with the other, is to my mind too narrow a basis on which to establish a good genus.

To show this more clearly, I shall quote Nees's essential generic character of *Tetranthera*, under which he ranges a series of 44 species, many of them departing widely from the character. "Tetranthera, anthers 4-celled, cup of the fruit discoid. Three interior stamens biglandulose at the base. Leaves veined but not coarsely reticulate (folia venosa nec admodum reticulata). In his more extended character, he adds, "six gland-like staminodes attached by pairs to the three interior stamens, either sessile or stipitate."

On turning to the species ranged under this generic character, we find the four represented in plates 1834-35-36 and 38, not one of which, curiously enough, agrees with it. Then, as if to make the confusion greater, we find at the head of the character of the tribe, "Staminodia nulla." These discrepancies and want of precision of language, in calling the staminal appendages at one time glands, and at another staminodes when no true staminodes are present, make this a most difficult group of species to study though, when properly understood, I see no reason why it should be more so than any other, since they are susceptible of as easy distribution into several well-defined smaller groups or genera, according to the views of the monogaphist.

The normal structure of the flower is of this order is not difficult to understand, as the *djajp-aius* show, and those of this tribe, with a few exceptions, do not essentially depart from it. The exceptions are found in plates 1834 and 35, and a few others in which the

lobes of the perianth are wanting, and the number of stamens proportionably increased. But while they thus essentially correspond, they present numerous and interesting variations available for generic characters. For example: In this tribe the rule is for the glanduliferous stamens to have introrse anthers; *Cylicodaphne* has 6 of them, all extrorse, and is by that single mark thoroughly separated from all the rest. *Polyadenia* has all its stamens, 6-9, biglanduliferous and introrse. *Lauras* has a 4-cleft perianth and 2-celled anthers; and lastly, *Lepidadenia*, as I understand the genus, has 6 biglanduliferous stamens, and introrse anthers which distinguishes it from *Cylicodaphne*. Nees' essential character of *Tetranthera* is to have the 3 interior stamens glanduliferous, introrse, and no staminodes, but from these characters many of his species depart. I would therefore suggest that the genus be recast and the species distributed into the following groups, premising however that, as I know but few of the species myself, the groups are suggested and limited by characters deduced from Nees' descriptions.

1st. All those species corresponding with plates 1834-35 in wanting, or in having the number of lobes of the perianth reduced, and the number of stamens proportionably increased, and in having pedicelled capitate glands, I propose uniting into one genus to which Thunberg's original name, *Tomex*, might be given.

2d. Those having a perfect six-lobed perianth, 9 fertile stamens, the 3 interior ones glanduliferous, and no staminodes, to be combined under the existing name of *Tetranthera*.

3d. Those having a six-lobed perianth and 12 stamens, the six interior ones glanduliferous, even although the inner three are imperfect (only staminodes) yet, if the filaments are glanduliferous, I would still unite them all (without reference to the form or texture of the appendage) with the genus *Lepidadenia*—as done in the 4 new species I have added to that genus.

4th. Roxburgh's *T. monopetala* seems to form the type of a new genus. It has 9 stamens and 12 glands—namely, the six exterior stamens (those next the perianth) have each one gland, and the 3 interior ones each two, a little above the base. The interior six are normal, the exterior six so far abnormal as to justify generic value being attached. It is certainly awkwardly placed in a genus whose character is to have the 3 interior stamens, only, glanduliferous.

Difficulties unquestionably lie in the way of thus simplifying the distribution of the numerous species ranged under this genus, owing to the tendency to depauperation, or suppression of some of the parts, which some, if not indeed most, of the species exhibit; but still, I think, if the plan was attempted some means of obviating that difficulty might be discovered, and greatly lighten the labours of those engaged in determining either already-described species or finding a place for such as might be still unpublished.

1834. *TETEANTHRA TOMEWTOSEA* (Roxb.), flowers apetalous, umbels axillary, solitary, peduncled: leaves elliptic oblong, somewhat acute at both ends, beneath, with the petiole and young branchlets, whitish tomentose.

This tree has a wide distribution; the figure is taken from specimens obtained in alpine forests on the Bolamputti Hills near Coimbatore, but I have it also from Bombay, Ceylon, and Mergui.

This is a large and complex genus, exhibiting considerable differences in the flowers, in different species. The third or interior series of stamens have generally 2 glands at the base of each; but in this and some other species the perianth is depauperated and the number of stamens augmented; and the glands of the filaments, in place of being, as usual, sessile knobs, are elegant longish pedicelled, little spheres or globules: in the female the glanduliferous stamens are changed into somewhat strap-shaped staminodes, but retaining the glands.

1835. *TETRANTHERA LIGUSTRINA* (Nees), flowers apetalous, umbels axillary, usually solitary: leaves lanceolate obtuse, reticulately veined, glabrous, shining.

Neilgherries, frequent, Courtatoom, &c. The peduncles of the umbels are represented a little too long. Nees assigns to this species solitary peduncles, but the plants from which the drawing was made show a plurality though they, undoubtedly, appear in all other respects the same species. They were obtained from the Neilgherries, and the excess may be the result of excessive luxuriance.

1836. *TETRAHATHERA PAWAMANJA* (Hamilt.), perianth six-cleft, umbels axillary and lateral, racemose: racemes many-flowered, longer than the petioles: leaves oblong, acuminate at both ends: exterior filaments strigose.

Courtatoom. I introduce this species, though the figure is less perfect than I could have wished, as presenting a form very different from the preceding, and having the advantage of being named by Nees. The original specimens from which the species is taken up were gathered in Gualpara. Respecting my plant, Nees remarks, "variat foliis supra nitidissimis, racemis feminiis brevioribus (petiolo parum longioribus) rachi strictiori crassiorique." The flowers are too young to admit of satisfactory analyses being made from them, but I learn from Nees' description of the species that it will belong to the genus *Lepidadenia* if modified as above proposed.

LEPIDADENIA (Nees).

⁴⁴ Hermaphrodite. Stamens more than nine, the six inner ones furnished on the back with 2 sessile laminae. Anthers 4-celled. Inflorescence umbelled, involucre. Leaves veined, oblique." Nees.

When Nees constructed the above character he only knew one species, *Z. wigkiana*. My herbarium furnished me with several others, all agreeing in the essential characters of having umbellate involucre inflorescence, with the two interior rows of stamens glanduliferous, and introrse 4-celled anthers, but wanting the lamellate glands.

These, whether correctly or otherwise[^] have referred to this genus. Of the propriety of thus disposing of the two figured in Nos. 1839 and 40 doubts may be entertained as they are dioicous plants, and ought perhaps, on that account, to form the type of a distinct genus, but as so little is known of the original species I have thought it better to act on the views explained above than to risk the multiplication of genera in an order where they are already so numerous. The figures, so far as they go[>] will easily

suffice for the discrimination of the species, and should better acquaintance with them render their removal from this genus desirable, it can then be done.

1837. *LEPIDADENIA WIGHTIANA* (Nees), leaves ovate, oblong, somewhat tapering at both ends, obtuse, coriaceous, entire, glabrous, shining above, beneath finely pubescent, penninerved: umbels racemose: involucre 4-leaved, somewhat tomentose: flowers bisexual, stamens 12, the interior 6 all glanduliferous.

Neilgherries. I have not been so fortunate as again to find this plant in the course of my recent excursions on the Hills. The figure accurately represents the specimen originally described by Professor Nees.

1838. *LEPIDADENIA GLABBATA* (R. W., *Tetranthera glabrata*, Nees), glabrous leaves oblong, lanceolate acute at both ends, shortly acuminate, coriaceous; glabrous shining above, pale beneath, penninerved: peduncles axillary, racemose: involucre 6-leaved, silky pubescent: perianth 6-parted; stamens 12, all fertile, the interior six glanduliferous.

I have this species from several localities, Pulney Mountains, Neilgherries, and Mergui, from Griffith. The specimen represented agrees in every thing with Nees' description, except in what relates to the stamens, "Stamina fertilia 9, triplici serie, * * stamina sterilia 3 centro proxima, * * singulis glandulis obovatis subsessilibus a tergo stipita." In my plants they seem all fertile, but even were it otherwise, I esteem this plant a truer congener with *Lepidadenia* than *Tetranthera*, and have therefore taken the liberty of removing it from the latter genus.

1839. *LEPIDADENIA OVALIPOLIA* (R. W.), dioicous, leaves oval, obtuse at both ends, coriaceous, glabrous, shining above, pale (when dry, rusty-brown) beneath: umbels sessile, fascicled, axillary: involucre 4-leaved, slightly pubescent, perianth male, 4-6-parted, stamens 8-12, interior ones glanduliferous: female perianth 4- (always?) lobed, hairy within, bearing on the throat 4 sterile lanceolate glanduliferous stamens.

Ceylon. I have not, so far as I am aware, met with this plant on the Continent. This is one of those about which I feel doubtful as to the propriety of placing it in this genus.

1840. *LEPIDADENIA NEESIANA* (R. W.), branchy, slender, apparently drooping, obsoletely 4-sided, rusty-tomentose: leaves coriaceous, oblong, oval, obtuse at both ends, shortly acuminate, or retuse at the apex; smooth glabrous above, glaucous and pubescent, penninerved beneath: nerves, petiols, and umbels, rusty-tomentose: umbels axillary, short pedicelled, aggregate: involucre 4-leaved: perianth 8-cleft: stamens 16, the interior 8 glanduliferous, ovary apparently rudimentary.

Malacca, Griffith. The leaves as regards the under surface are almost identical with those of *Cylicodaphne Wightiana*. In the plate they are represented too acute and acuminate, neither has the artist succeeded in giving a good idea of the branch which, in place of being straight and rigid, is gracefully curved, but want of room to do it justice must bear part of the blame. But for the anthers being all introrse I should have referred it to *Cylicodaphne*. I do not look upon the extra number of parts as important in this order as they are liable to vary, and possibly flowers might even be found on the specimen with

the normal number. I have named it in honour of the founder of the genus.

1841. *ACTINODAPHNE AUGUSTIFOLIA* (Nees), leaves sub-verticelled, about six, oblong lanceolate, cuspidate-acuminate, glaucous, glabrescent beneath, nerves rusty-coloured: ramuli and petiols rusty-brown: fascicles of the flowers compound, lateral.

Courtallum, Neilgherries, fee.

This genus is distinguished from the preceding by the absence, even in form of staminodes, of the interior row of stamens. This is a very conspicuous species from the great length and fine form of the leaves, the bright and delicate colour of which contrasts well with the tawny-coloured flower-buds.

1842. *ACTINODAPHNE SPECIOSA* (Nees), leaves round, cuspidate, many-nerved, (inultuplinervibus) nerves thick below and, like the petiols and young branches, reddish-brown tomentose: flowers simply fascicled: staminodes in the female ones filiform, spatulate.

Ceylon. A considerable, erect, tall-growing tree. The leaves are very remarkable, large, nearly orbicular, very thick and coriaceous, almost woody, bullate, glabrous, somewhat shining above; below reticulated with numerous thick rigid veins, clothed like the branches, petiols, flower-buds, and flowers, with a thick coating of very dark rusty-brown coarse tomentum. In my specimens the flowers appear hermaphrodite, but the ovary is perhaps abortive, as Nees' were female, furnished with staminodes in place of fertile stamens.

I received my specimens of this remarkable looking and rare tree, from the late Colonel Walker, who was so much struck with its aspect that he was desirous, on the supposition that it must form the type of a new genus, that it should have the honor of bearing his respected name.

The figure does not convey a perfect idea of the aspect of the leaves, which indeed would be quite impossible with such artists as I have to work with.

1843. *ACTINODAPHNE MBLOCHIN** (Nees), leaves obovate, or elliptico-roundish, obtuse, somewhat triplinerved, rigid; the younger ones beneath, like the petiols and branches, brownish-rusty tomentose: female flowers simply fascicled, female staminodes oval, petaloid.

Ceylon. In this, as in the preceding, ray specimens are those of the male or hermaphrodite plant, while Nees' were female, with sterile stamens. It has somewhat the habit of the former but is very distinct.

1844. *LITSEA CETLANICA* 9 (Nees), leaves oblong, or lanceolate, attenuate at both ends, acuminate, triplinerved, glaucous beneath: ribs of the leaves petiols and young branches finely yellowish silky: flower-buds globose, contracted at the base.

Ceylon, Malabar, Western slopes of the Neilgherries, &c. In a former plate, 132, I gave a figure of the male plant taken from an indifferent specimen. In this one, I have given the female to complete the representation of the species. The genus, as regards the discrimination of the species, is far from easy, and as I have several more in my collection, I now regret that I did not introduce some others which I might have done, but happened unfortunately when working on this most difficult order to be otherwise

much engaged and pressed for time, which is the only apology I can offer for this and some other oversights which I have now reason to regret. •

1845. *LITSASA olonga* (Nees), leaves oblong, narrow at the apex, bluish acute at the base, triplinerved, uniformly coloured on both sides, scrobiculate reticulated and, with the ramuli, glabrous.

Courtaillum. The drawing was made from specimens named by Nees. They seem to differ but little from *Ceylanica*, except in being destitute of white bloom on the under surface of the leaves.

1846. *LEPIDADENIA Gibertiana* (R. W.), everywhere glabrous: leaves oblong lanceolate, bluntish or sometimes cuspidate, coriaceous, slenderly pinninerved, shining above, dull (when dried, brownish) beneath: umbels axillary, sub-racemosus on short peduncles, long pedicelled: involucre 4-lobed: perianth 6-lobed: stamens 12, six glandiferous: perianth of the fruit cup-shaped, truncated, fruit globose.

Malacca, Griffith. For the reasons stated above, I have referred this plant here. Its principal peculiarity consists in the great length of the pedicels of the umbels, in which respect it is an easily distinguished species. The analyses of the flowers are taken from buds not quite opened, and may be incorrect as regards the relative length of the stamens and lobes of the perianth. I suspect, too, that it is dioecious, but on that point do not feel certain. The leaves are represented too sharp-pointed, many of them being quite blunt.

1847. *CASSTHA FILIFORMIS* (Linn.), glabrous, spike simple, peduncled: flowers distinct, stamens of the outer series petaloid.

A parasitic herbaceous plant, extensively distributed over India, common in low shrubby jungles. In jungles of this description near the Red Hills, a few miles from Madras, it is very abundant.

It seems an unnatural proceeding to place this parasitic genus in the same family with the noble trees forming the bulk of this large order? but still it seems almost unavoidable so long as our ordinal characters are drawn from the fructification, for in truth there is nothing in either the flowers or fruit to justify its removal. The habit, however, is so very remote from that of the rest of the order, that there seems but too good grounds, on that head alone, for following Lindley in separating it even though the flowers are so perfectly Laurinus.

SCHMIDIA (R. W.).

GEN. CHAR. Bracts 2, free to the base, calyx entire, very short. Corolla tubular, opening obliquely; limb 5-lobed, reflexed. Stamens sub-didynamous, inserted near the middle of the tube, incluse; anthers 2-celled, straight, cells contiguous, parallel, prolonged below the point of attachment and each ending in a longish subulate spur; no rudimentary filament. Ovary 2-celled, with 2 ovules in each; stigma entire, truncated: capsule globose at the base, ending in a conical beak, 2-celled. Seed sub-globose flattened next the partition.—A twining shrub, leaves opposite, broad ovate-lanceolate, acuminate, subcrenate-dentate, 3-5-nerved, glabrous: racemes axillary, long, pendulous, many-flowered: bracts small, subulate; bracteoles large, sub-orbicular, reniform at the base, mucro-

nate (nearly an inch in diameter); when fresh, one-half of a dark brownish-purple, the other pale yellowish, or cream-coloured. Corolla tubular, exceeding the bracteoles, light blue, the lobes of the limb acutely turned back on the apex of the tube.

I have dedicated this handsome genus to the Rev. Dr. Bernard Schmid of Ootacamund, whose botanical collections have extended our acquaintance with the Flora of the Nilgiris and, but for the untimely death of Dr. Zenker, who had undertaken the publication of these extensive and valuable materials, would have proved of the greatest value to subsequent explorers of the Flora of these elevated regions.

Two genera, one of Grasses the other of Composite, have already, with the exception of a single letter, (the terminal t, which Dr. S. informs me does not belong to his name,) borne this name, and both are reduced. I trust this one will prove more fortunate. The genus is undoubtedly very nearly allied to both *Meyenia* and *Hexacentris*, but does not enter either.

1848. SCHMIDIA BICOLOR (R. W.).

Western slopes of the Nilgiris below Sisparah. It is an extensive twiner and most conspicuous on account of its long racemes and large 2-coloured bracteoles, which are very remarkable. It flowers during the latter months of the year, and the fruit is ripe in February. I suspect it is a rare flowering plant, as I have twice visited the station in February and March, and only found a few seeds: this season, 1850, I received specimens from three different persons, gathered in December and January.

1849. *CASEARIA ELLIPTICA* (Willd., D. C.), flowers 5-parted, ten-anthered: pedicels axillary, aggregated, 1-flowered: leaves elliptic-lanceolate, somewhat serrated, blunt, mucronate; the young ones velvety beneath.

A ramous rather large shrub, not uncommon in Southern India in jungles near the coast, especially in rather rich moist soil. It is frequent among the bushes usually found about old "Bowries" near pagodas. The leaves, if held between the eye and the light, are found perforated with numerous pellucid points in which there is a mixture of long and round ones, a peculiarity of such rare occurrence in the vegetable kingdom that it forms an ordinal character of much value. Roxburgh does not seem to have met with this species, as its flowers do not correspond with the character of those of any of his species.

1850. GYRINOPH WALLA (Gartner).

Ceylon. Of this genus this is the only species, hence it can have no specific character by which to distinguish it.

The genus is distinguished by its tubular 5-cleft perianth, 5 sessile anthers opposite the lobes, a long stipitate ovary attenuated at the apex, a flattened globose stigma, and a long stipitate coriaceous capsule.

The plant as seen in dried specimens is of a brownish-yellow colour, the leaves elliptic oblong, quite entire, somewhat obtusely acuminate at the point, marked with finely transverse veins. Flowers yellow, about half an inch long, hairy in the throat and at the base of the tube, like the ovary. Endlicher assigns it a 1-celled ovary and 2 pendulous ovules. I find in my specimen the ovary distinctly 2-celled with 1-ovule in each, attached to the partition as shown in the plate.

1851. *BLACKWELLIA TETRANDBA* (R. W.) I leaves ovate, bluntly serrated, abruptly sub-acuminate: spikes about the length of the leaves, erect: limb of the perianth 8-parted, the interior lobes larger, intermediate glands sessile on the throat: stamens four, exserted, stigmas 4, filiform.

The station whence my specimens were obtained is not mentioned, but I have it from several stations; the Pulney Mountains, I think, one of them. In the analysis the artist has represented a 3-carpelled ovary and four stigmas. This I find an error, as on re-examination I can easily find 4-placentas, not three, as shown in the plate. As however his skill in making these dissections is greater than mine, and his sight better, I hardly feel myself at liberty to set this discrepancy down as an error, since it seems possible he may have stumbled on an accidental variety. According to theory, there should either be 2 or 4, not three; the latter I found in several instances.

1852. *TUESIUM WIGHTIANUM* (Wall.), suffruticose, diffuse, procumbent: leaves narrow linear or somewhat subulate: flowers terminal, solitary on the points of the young shoots, 5-cl. % minute; lobes of the perianth ciliate. Anthers roundish, glabrous.

Neilgherries, frequent in grassy pastures. A very inconspicuous plant, but from its abundance not likely to be overlooked. This, so far as I am aware, is the only species of the genus found in Southern India. One species is described by Mr. Edgeworth from the Himalayas, but it is very different from this, having racemose flowers.

In this species the flowers are usually solitary, surrounded with a whorl of 4 leaves, the outer pair larger; sometimes there are two flowers from the same branch, but so far as I have noticed this is rather rare.

The hairy anthers which have accidentally found their way into the upper corner of the plate do not belong to this plant

1853. *OSTRIS WIGHTIANA* (Wall.), shrubby, very ramous, everywhere glabrous; young shoots 3-sided, with prominent sharp angles: leaves from oblong elliptico-lanceolate to c'liptic obovate, mucronate: male flowers umbellato-capitulate, peduncles axillary, shorter than the leaves, 6-8-flowered, female peduncles axillary, 1-3-flowered, lengthening as the fruit advances: ovary conical, limb of the perianth 3-lobed, spreading: anthers often polleniferous, style short, stigma 3-lobed.

An alpine plant, found on almost every high range of hills. I have specimens from all quarters, Ceylon, Ghauts near Bombay, Pulneys, Neilgherries, Belgaum, &c. It does not however seem to extend so far north as the Himalayas. Among my specimens I find some of the male flowers covered with short thick hairs as shown in the plate, others perfectly smooth. The difference I think accidental, and not of specific value.

1854. *SARCOSTIGMA KLEINII* (W. & A.) Courtallum, Alway in Malabar (near Cochin). This is the only species yet known of the genus, and the male flower has yet to be discovered. It is a climbing branchy shrub with alternate short petioled, oblong oval, acuminate, coriaceous, glabrous, leaves. The venation in the dried specimen appears raised and minutely reticulate from the shrinking of the parenchymatous matter of the leaf. The racemes

are usually paired, axillary, very long, interrupted; the flowers forming numerous sessile fascicles, not properly capitulate, as represented in the figure, but side by side on the rachis, without the least appearance of pedicel. The fruit is an oval somewhat flattened nut, about an inch long, and half an inch broad, the seed exalbuminous, filling the whole cavity. The stamens shown in the figure are rudimentary, without pollen.

1855. *HEBNANDIA SONORA* (Linn.), leaves peltate.

The specimen from which the drawing was made I received from Ceylon. I do not know whether it is indigenous there, but it is so in the Eastern Ljands, and is figured by Rumphius in his Herbarium Amboinense. It is introduced here with a view to giving Indian Botanists the means of determining by comparison, any new genus referable to this order. The glanduliferous stamens, similar to those of *Lauracea*, furnish a generic, not an ordinal, character. The other species have ovate leaves; hence the present is distinguished by the brief character given above.

1856. *ELJEAGNUS LATJOLIA* (Linn.), leaves ovate, oblong or elliptic, acute: flowers axillary, solitary or two or three together, fruit drupaceous, succulent, red.

Common in alpine forests, very abundant on the Neilgherries where it forms a large almost arboreous climbing shrub. I do not know in what respect this differs from Roxburgh's *E. conferta*, which, so far as I can judge from description, it greatly resembles. Possibly his plant is not distinct from the Linn&an one. The species of *Elcsagnus* are now numerous, but the distinctive characters not always very obvious as the species seem variable. The one here represented certainly is so. The fruit is edible, and moreover forms a good tart fruit.

1857. *PTRRHOSIA HOBSEELDII* (Blume), leaves alternate, oblong, acute, veined, rusty pubescent beneath: flowers capitato-panicled. Spreng.

Ceylon. I am indebted to Mrs. Col. Walker for the very perfect drawing from which this plate is taken. The male branch is somewhat reduced, the female one, fig. 10, about the natural size, as are figs. 1, 2, and 3; from 4 to 9 are all magnified; 4, female flower opened, 5, in its usual state, 6, germen and stigma, 7, group of female flowers, 8, male flower opened, 9, the same in its usual state.

This plant has thrice passed through the ordeal of naming. First, Willdenow called it *Horsfieldia odoratu*. Sprengel reduced that name and called it *Myrishca Horsfieldii*, which name I at first adopted; and then Blume gave it its present, which I hope may now be permanent, even though the distinction seems to be as much due to habit as to structural characters, which seem barely sufficient to keep the two genera distinct. The seed of this genus want the aromatic properties of the true nutmeg.

1858. *ARISTOLOCHIA LANCEOLATA* (R. W.), leaves short petioled, sub-cordato-truncated at the base, tapering to the point, glabrous: flowers axillary, solitary, or paired, pedicels exceeding the petiol: lip of the calyx linear obtuse, somewhat calcarate at the base.

No station is mentioned, but I think I obtained the specimens from the Balaghaut Mountains near Madras. As a species it is nearly allied to *A. Indica*, but I believe quite distinct.

1859. GNTDIA EBIOCEPHALA (Meisner, Gardner), shrubby, branches dichotomous, young shoots leafy: leaves alternate, short petioled, lanceolate, acute, mucronate; slightly tapering towards the base, glabrous on both sides: heads of flowers terminal, many-flowered, involucre: scales of the involucre ovato-lanceolate, acute; silky pubescent on both sides: flowers pentamerous, clothed with long white hairs.

A common plant in alpine and sub-alpine jungle. It is very common on the NeDgherries, but I have met with it in many localities; it is also a native of Ceylon, and I think of the Tenasserim Provinces. Professor Meisner described this plant, under the same name previous to Mr. Gardner, I therefore give him as the original authority for the name, but adopt Gardner's character, as being constructed to distinguish it from another which Meisner had not seen.

1860. GNIDIA SISPAHENSIS (Gardner), sub-arbo-reous, branches dichotomous, young shoots glabrous, leafy at the apex: leaves alternate, sub-sessile, oblong, obtuse or slightly retuse, glabrous on both sides: heads of flowers terminal, many-flowered, involucre: scales of the involucre ovate oblong, obtuse, silky-villous on both sides: flowers pentamerous, clothed externally with long brownish hairs.

Sisparah, Western slopes of Neilgherries, on the margins of woods, common. In its general aspect this plant is so like the other that it might be passed as such, but on closer examination it proves a very distinct species. The point that first attracted my attention was the difference in the colour of the hairs of the heads of flowers, tawny brown in this, almost snow-white in that: further examination showed many other minute differences.

1861. CANSJEBIA RHEEDII (Gmelin) shrubby, scandent, young shoots velvety: leaves short petioled, broad ovato-lanceolate, acute, glabrous, somewhat succulent: spikes axillary or paired, compact: rachis and tube of the calyx densely clothed with short appressed hairs: calyx 4-5-cleft, stamens 4-5: staminodes fleshy, somewhat 3-toothed at the apex: fruit oval, about the size of a common bean.

The plant here figured is not by any means rare in Southern India, and is evidently the same as Rheede's, Hort. Mai. 7-t. 2, but possibly not the same as Roxburgh's *C. scandens*, for which he quotes Hort. Mai. 7-t. 4. as most correctly representing it, remarking, at the same time, that the other, "7 tab. 2, appears to be the same plant." My impression is that they are distinct species.

This remark applies to the plate only, for I have not the description by me for reference. However that may be, I hope justice will in future be done to Gmelin by the adoption of his name which, so far as I can make out, can claim 7 or 8 years priority in its favour. There are however 2 species in India, one with fruit about the size of the common horse-bean, such as are here represented, and the other, having fruit as large as a full-sized olive. The former is the *Cayvera scandens* of Roxburgh, the latter, *Ximenea oladoides*, W. & A. Unfortunately I did not discover this until long after the plate was printed, otherwise both forms might have been included in it. The plant and flowers seem the same, or nearly so in both, the fruit only differs, and that most conspicuously, in size, and to some extent in structure.

When naming the drawing I inadvertently referred this genus to *Thymalece*, the order in which it was formerly placed, instead of to *Olacinece*, the one to which it really belongs.

The part represented at fig. 8 of the plate, is a group of young fruit, and is quite correctly shown, with the exception of the hairs, which do not belong to them. They have the appearance of some taken from a pod of *Mucuna*, or capsule of a *Stercidea* which had adhered to them in the vasculum, and which, through the carelessness of the artist, are introduced as if part of the plant.

EUPHOBBIAEJE.

This, though a very large order (200 genera and about 2500 species) and complex in its affinities, is yet one which may be said to be generally easily recognized by the almost constant presence of a few easily-observed marks.

The flowers are very constantly unisexual, or in other words the stamens and pistil are in different flowers. The ovary 13 about as constantly 3-celled, with the ovules—one or two—pendulous from the top of the cell. The seed moreover are generally albuminous.

It may, perhaps will, be objected to the first of these that, in *Euphorbia*, the type of the order, the flowers are bisexual, or have both male and female flowers within the same calyx. This is apparent, not real, the supposed calyx being a cup-shaped involucre, each stamen within which is a distinct male flower, and, as in those of a sun-flower or other Composita, they open in succession, never more than two or three being apparent at the same time, though the involucre is full of others progressively pushing to the light. They for the most part have each one or more bracts at the base of the pedicel, and in some species a rudimentary calyx at the joint where the pedicel ends and the flower begins. The same is the case with the fructiferous flower which is at first within the cup, then the pedicel gradually elongates until the ovary and styles, which in fact constitute the whole female flower, appear beyond it. Sometimes however it, too, has a distinct though rudimentary calyx, as shown in the following plates.

That this explanation, of the economy of these curious flowers, is not a case of stretching a point to support a fanciful theory may be learned from the Fig, which is just such another involucre, covered inside with flowers: females below; males round the apex. The Rose, too, furnishes an example of the same kind, the hip or fruit of which is an involucre studded all over with female flowers, each having its own style, which, protruding beyond the throat of the involucre, mixes with the exterior stamens and thereby fertilizes the ovary within.

The numerous genera of the order are grouped into tribes, first according to the number of ovules in each cell of the ovary, and then according to the greater or less perfection of the flowers.

The following are the essential characters of the "Tribes," which I copy from Lindley's Vegetable Kingdom.

1st. EUPHOBBIEJE. Ovule solitary. Seeds albuminous. Flowers monoecious, apetalous, male and female mixed in a cup-shaped involucre.

Dalekampsia is placed in this tribe, but does not well accord with its character. Judging from the Indian species only, this genus would require a tribe for itself.

2d. HIPPOMANEJE. Ovules solitary. Flowers apetalous, in spikes: bracts one- or many-flowered.

3d. ACALYPHEJE. Ovule solitary. Flowers apetalous, in clustered spikes or racemes.

4th. CEOTONKJE. Ovule solitary. Flowers usually having petals, in clusters, spikes, racemes, or panicles.

In this tribe the higher development of the flowers, as shown by the presence of petals, is made use of in grouping.

5th. PHYLLANTHEJE. Ovules in pairs. Stamens in the centre of the flower.

6th. BUXEJE. Ovules in pairs. Stamens inserted beneath the sessile rudiment of an ovary.

Illustrations of each of these tribes will be found in the following plates, in which I have made it a principal object to represent as many genera as possible; about 40 having found places, in this series, will give a fair idea of the Indian branch of the order. More of course might have been given, but other orders must in that case have suffered, as my space is now limited.

On the affinities of this order and the place it should occupy in the system of vegetables, two adverse opinions prevail, Jussieu and his followers believing that its proper place is in the diclinous apetalous class; while Lindley and those who coincide in opinion with him place it among the polypetalous orders, as one "losing its petals in part of its species." Lindley says, "But if, instead of considering the imperfectly developed genera of Europe as typical of the true structure of the order, we look to those of tropical countries, we find that the apetalous character by no means holds good in them..... upon looking through the genera described by Adrien de Jussieu in his monograph, it appears that out of 61 genera no fewer than 32 have petals. The tendency of the order is, therefore, at least as great to form petals as to want them. Now if this be so, and the separation of sexes is disregarded, it will be found," &c.

Such being the two sides of the question, I do not presume to sit as umpire between the adverse parties, but would ask in my own name, *Why disregard the separation of the sexes* why throw out of consideration a circumstance so very constant throughout the large assemblage of plants brought together under this family name P If separation of sexes is, as it generally is, viewed as an indication of diminished perfection in the floral development, then the very extraordinary circumstance of about 2500 species, all belonging to one natural order and all agreeing in that particular, seems at once to stamp the order as one which ought to occupy a lower grade in the series than those furnished with the most perfect and complex floral organization met with in the vegetable kingdom. Add to the universal imperfection of sexual separation, the want, in at least one half the species, of one of the floral verticels and in many others both, and we can scarcely, I think, help arriving at the conclusion that, in place of this being a polypetalous order, losing its petals in a part of its species, it is in truth a most unequivocal diclinous one, striving, as it were, to raise itself in the scale, by getting them in as many of its species as it possibly

can, and as if to show its inability to raise itself higher, we find in some genera petals in the male flower but wanting in the female. Coinciding then with those who view separation of sexes in plants as an indication of a lower grade of development than their union in the same flower, I would, in any arrangement I had to propose, place this order among the diclinous ones. This Lindley has done in his "Vegetable Kingdom" and, to my mind, thereby greatly improved on the arrangement of his Nixus, and the 2d edition of his Natural System, in which last and in Endlicher's Genera Plantarum, it has always appeared to me misplaced and stationed among unsuitable company.

1862. EUPHORBIA NIVTJLIA (Hamilton), branches round, naked below, leafy on the apex: stipulary spines naked, paired, spiral: leaves terminal tongue-shaped, mucronate, fleshy.

Arid rocky hills near Coimbatore, also frequent in similar localities in the Madura District.

This plant attains the size of a large shrub. The branchlets come off in whorls of four. The leaves are deciduous during the cool season and the plant is usually naked in January and February. In March, when being clothed with new foliage, the flowers make their appearance. The first that opens is usually sterile (that is, wanting the pistil), which is shortly after followed by two lateral fertile ones (furnished with both male and female organs), which ripen their seed in April and May. The stamens, or more properly the male flowers, are each furnished at the base with a large obovate cuneate fringed bract, but is destitute of the calycine appendage at the joint.

The leaves are from 4 to 6 inches long by from 1½ to 2 broad, near the apex, whence they taper towards the base; smooth shining glabrous, quite entire, succulent.

In the above description, I have spoken of the flowers as understood by Linnaeus and the older Botanists, not as viewed by modern ones, that is, as an involucre containing an indefinite number of monandrous male flowers surrounding a solitary female one, supported on a more or less elongated pedicel by which it is protruded beyond the cup of the involucre; the whole together forming not a single flower, but a capitulum, as in *Compositae*.

1863. EUPHORBIA TRIGONA (Roxb.), shrubby, erect, 3-sided with prominent repand angles: stipulary spines 2 or sometimes 4: leaves deciduous obovate, cuneate: peduncles above the axils, 3-flowered; the middle one sterile the lateral ones fertile: flowering after the fall of the leaves.

Rocky arid hills near Coimbatore, flowering February and March.

The drawing was made from a young plant which flowered in my garden. The leafy branch exhibits the plant in leaf, the flowering one was taken from a branch which flowered for the first time and only produced male flowers. The dissected flowers were obtained from wild plants, perhaps, too young, as the female flower is almost sessile not as usually seen, supported on a long pedicel.

The vertical section at No. 5, shows the gradation of male flowers which continue, for some weeks, successively to appear above the edge of the involucre. The tube of the involucre is filled with numerous petaloid deeply lobed and fringed bracts. The sterile flower is nearly sessile, the fertile ones pedicelled.

Roxburgh obtained the plants from which his description was taken from Malacca, but they seem to correspond so well with mine that I could not venture to view the 2 plants as distinct species. Figures 8 and 9 of the plate show the two kinds of flowers, as seen after the removal of the involucre.

1864. EUPHORBIA ROTHIANA (Spreng., *E. Iceta*, Roth.), leaves oblong lanceolate, tapering towards the base, glabrous: whorl 3-5-branched with occasionally several axillary branches below: branches 2 or, in old plants, 3 times dichotomous, with broad cordate sub-perfoliate bracts at each fork: flowers solitary in the fork: ends of the glands of the involucre prolonged, tooth-like: involucre ciliate on the margin: stamens furnished at the base with a filiform pubescent scale, seed glabrous.

A very common alpine plant, found on nearly all the higher hills that I have visited. I have specimens from Mahabliwar, and Ceylon, and from numerous intermediate stations. It seems curious that a plant so extensively distributed should be so imperfectly known. I cannot find any description that accords with this plant, and adopt the present name because I feel sure that I can quote an authority for it, but not a satisfactory one, in as much as Roth describes a rather rare variety; but on the other hand, Mr. Benth has, in Wallich's list, ranged Heyne's *E. fata*, and my *E. segetalis* (this plant) under the same number, as being identical. I do not however expect that when the genus has been thoroughly revised that the name here given can be retained. Roxburgh's *E. glauca* seems to be this plant, but I suspect not Willdenow's, which is from New Zealand. In characterizing this species, I have avoided the term umbel, as applied to the terminal whorl of floriferous branches, on the supposition that it is erroneous, as shown by the often many similar lateral branches which spring from the axils of the leaves below.

1865. EXCAECARIA CEENULATA (R. W.), arboreous, dioecious or rarely monoecious, leaves opposite, oblong, lanceolate, crenulate, acuminate, coriaceous, glabrous: male spikes axillary or from the ends of the branchlets, solitary: anterior bract entire, coriaceous on the margin, the small lateral ones and sepals membranous, fimbriate-serrated: female spikes axillary, 2-3-flowered: bracts and sepals as in the male.

A rather common small tree in alpine jungles. I have gathered it in many localities, but have rarely met with it exceeding a foot or 18 inches in circumference but tall in proportion; from 20 to 30 or even 40 feet in height. The whole plant is very milky and the milk very acrid. On one occasion, when cutting down a tree, I saw instantaneous and intense ophthalmia produced by a particle of the milk accidentally falling on the eye.

It seems curious that this tree should remain still undescribed, for I have often met with it.

In its relations it stands next to Griffith's *E. oppositifolia*, and is so near, that it seems difficult to define their limits, though certainly distinct. Griffith in his remarks on *E. oppositifolia* observes that "although it presents differences, especially in habit, from *Excacaria*, I have considered it best to refer it to that genus." To show the soundness of this conclusion I have given analyses (Fig. B. in the plate) of *E. Agdlorha*, the type of the genus, which will

show how perfectly identical the characters of the two plants are.

The figures 1,2,3, in the plate, are taken from young flowers not perfectly opened. Fig 7, exhibits one of those rare cases showing a tendency to a return to monoecious habit by the production of a female flower at the base of the spike. The character of the tree, if monoecious, is to have the female flowers on separate branches.

1866. FALCONEBA MALABIBICA (R. W.), stamens somewhat exserted: ovary 3-celled; petioles glanduliferous at the apex

Malabar, and Western slopes of the Neilgherries.

We are indebted to Dr. Royle for the genus *Falconera*, founded on two Nepaul trees. The peninsular species differs from both his in its 3-carpellary 3-celled ovaries, his having only two; in all other respects my plant perfectly agrees with his, and approaches so near *P. Wallickiana*, of which I have a male specimen, that I should probably have referred it to that species but for its 3-celled ovaries, and the petioles being glanduliferous at the apex, in place of the base.

Dr. Royle refers the genus to the order *Antidismee*, which somewhat surprises me, as it is evidently Euphorbiaceous, and indeed so near *Sapium* that I think it might have been admitted into that genus without much straining, and I almost suspect will yet be referred to it. The habit is adverse, and its very decided dioecious character may probably keep the two genera distinct, but scarcely the floral structure. In support of this view, I shall introduce into my next part illustrations of the genus *Sapium*.

1867. GELONIUM LANCEOLATUM (Willd.), leaves lanceolar, entire: flowers crowded but distinct: stamens numerous: capsules trilocular.

Balaghaut Mountains, near Madras.

Roxburgh, who describes this plant from Bengal specimens, does not seem to have met with it to the Southward. Willdenow, however, the authority for the species, received his specimens from Dr. Klein, whose researches did not extend much beyond Madras. The leaves are perfectly glabrous, quite entire, somewhat coriaceous, and in drying become of a pale greenish-yellow colour. In the plate I find I have erroneously quoted Roxb., in place of Willdenow, as the authority for the species.

1868. ADELIA NERIEFOLIA (Roxb.), shrubby; leaves alternate, linear lanceolate: spikes axillary, solitary.

In low moist soil on the banks of streams and canals, not uncommon. I have often met with it in the Carnatic. In the Coimbatore district it is frequent in such localities.

1869. ADELIA BETUSA (J. Graham), a low shrub, leaves alternate, sessile, obovate cuneate, retuse, slightly crenate: flowers axillary two or three together, stamens very numerous.

Banks of the Cavery about Erode, frequent, Deccan generally, Gibson; Circars, Walter Elliot, Esq.

The drawing is taken from specimens gathered on the banks of the Cavery, most likely the produce of seed carried down by the stream from the Deccan. I have not got the female plant.

1870-71 TBEWIA NUDIFLORJE (Linn), arboreal, leaves ovate oblong, acuminate, quite entire, glabrous male 1 acmes long, pendulous female flowers solitary 01 paired, styles 3-4, long plumose

An extensively distributed tree common about Coimbatore on the banks of tanks and near water courses, flowering during the hot Spring months

The history of this plant is curious. It was first made known through the medium of an indifferent figure in the Hort Malab (1 tab 42) Linnaeus thence took it up and named it, but apparently without having seen a specimen as his character is very faulty, and he places it in his class Polyandria Monogyna Burman (Fl Indica) followed and, apparently being equally unprovided with good materials, placed it in the class and order Monoecia, Tetrandria, quoting Linn and Rheede Willdenow, having got specimens, next described it in a periodical publication, under the name of *Rottlera Indica*. Subsequently, becoming aware that his *Jottlera* was the Linnaean *Trewia*, he reduced his genus and adopted the older one, but with a slight error in the generic character, "masculi, cal 3-phyllus". In the interval, Gmelin had obtained a fruit, a figure and analysis of which he published, but with the error of representing the seed exalbuminous. Roxburgh, being well acquainted with this tree, gave an amended and correct generic character, pointing out Gartner's error, by describing the embryo as "inverse and amply furnished with a perisperm" (albumen). Endlicher omitted it altogether in the body of his Genera Plant, but afterwards gave it in his 3d Supplement. And Lindley, in the second edition of his Natural System, misled I presume by Gertner, made it the type of a new order, in which he was followed by Meisner. Lastly, Dr Klotz, having obtained access to good materials, published a revised character, showing that it was truly a Euphorbiaceous plant, and has thus finally cleared up the botanical uncertainties which had previously attached to this very common tree.

In his generic character, Dr Klotz describes the calyx of the male flower as "diphyllus foliolis profunde bifidis". I have not at this time (November) recent flowers before me to determine this point, but so far as it can be made out from dried ones, carefully softened, I cannot make out that structure, the calyx appearing to me distinctly 4-sepaled.

1872 HEMICTYLIA BEPIABIA (W and A), a large ramous dioecious shrub, with alternate, elliptic, obtuse, coriaceous, glabrous, leaves axillary, usually aggregated, longish pedicelled flowers male flower 8-angled with 4 sepals female subsessile, peduncle afterwards elongating ovary seated in a fleshy disk, 2-celled, crowned with 2 sessile, semicircular, stigmas (hence the generic name), fruit diuapaceous, globose, one-seeded by the abortion of the other ovule seed somewhat lenticular, arilled at the base embryo central, cotyledons foliaceous, enclosed in copious albumen.

My specimens, which were obtained from the neighbourhood of Tuticorin, are deficient in female flowers, hence their absence in the plate.

The wood of this shrub seems to be very hard and close-grained, something like box.

1873 ROTTLEA PELTATA (Roxb), arboreal, leaves long petioled, cordato-peltate, acuminate, downy, racemes terminal and lateral, solitary (always?), capsules covered with villous filaments Roxb

Malabar, Nilgherries, and in sub-alpine forests along the Ghats, not infrequent.

This plant corresponds in so many important particulars with Roxburgh's description, that I could scarcely venture to give it a new specific name on account of the discrepancies it presents while unacquainted, except by description, with his plant. Mine differs in its panicled terminal inflorescence, and the lusty-brown colour of the pubescence on the young shoots and under-surface of the young leaves. That on the latter afterwards becomes pale, and in some specimens whitish. The inflorescence is also at first tawny but, like the leaves, becomes paler. The stigmas in my plant do not quite correspond, "styles three-cleft, segments hairy, stigmas simple," in his, in mine, the stigmas are large tongue-shaped and plumose, but on the other hand the capsules "covered with pretty long hairy filaments" is a character so marked and peculiar, combined in both with peltate leaves, that nothing short of an inspection of original specimens could set it aside. I have another species with peltate leaves, but not otherwise corresponding.

The female calyx in both is 4-lobed, in mine the number of cells of the ovary varies, three or four. I have not seen up fruit.

1874 CROTON UMBELLATUM (Willd), leaves ovate oblong, acuminate, entire, glabrous on both sides flowers umbelled, terminal.

Common talk, and elsewhere in sub-alpine jungles I am uncertain whether this shrub is a genuine number of the genus as now defined, but it is certainly Willdenow's plant, as I possess original authentic specimens thus named from Klein's Herbarium.

1875 FLJGGEA LEUCOPYBUS (Willd)

A common shrub in low stunted jungle, but so variable that I apprehend there are more than one species in India, though one only has yet been named and described. On the Eastern slopes of the Nilgherries a very distinct form occurs in great abundance, flowering during the earlier months of the year, and much more luxuriant than any I have seen on the plains. It is perhaps a distinct species, a point which I regret to say I have never determined by careful comparison. The plant here represented, corresponds, in regard to the female flower and fruit, with Willdenow's description, but not with Roxburgh's, as the latter assigns three 2-cleft stigmas and a 3-celled fruit in place of 2 two-cleft styles and a 2-celled fruit. If both are correct, it seems to imply that there are two species.

1876 PITHASIA ROXBURGHII (Wallich), leaves alternate, narrow oblong, acutely serrulate flowers tandroUs, filaments more or less coalesced drupes ovate.

Paulhant Jungles

The plant here represented I find accurately corresponds with Roxburgh's description, so far as my specimens permit comparison, for, unfortunately, I have not succeeded in finding the male tree. Dr Royle has published in his Illustrations of the Himalay in Flora, figures, under the same name, of what appear to me a distinct species. His plate represents a tree with elegant drooping branches, entire, somewhat elliptic, obtuse leaves, solitary female flowers, and globose fruit presenting altogether an

aspect very different from our tree. Though aware of these differences, when naming my drawing, I adopted the same specific name, under the conviction that this is really the plant Roxburgh describes.

In regard to the natural order of this genus, Wallich and Royle coincide in referring it to *Mynacaceae*. Endlicher considers it a sub-order, allied to *Antidesmea*, while Meisner makes it the type of the *Putranjivea* order. I do not clearly understand on what ground so much discrepancy of opinion prevails as I can see no reason for considering it other than a purely Euphorbiaceous plant of the tribe *Buxea*, with which it accords in every particular of the slightest moment. I find that I coincide with Lindley in this view, he placing the genus in the same order and tube that I had done, as the result of independent examination.

1877 SARCOCOCCA TBINEBUTA (R. W.), leaves bifarious, 3-nerved, oblong lanceolate, entire, acuminate at both ends, glabrous, spikes axillary, dense, about the length of the petioles, male flowers above, female below.

Neilgherries, Pulney Mountains.

This is a common and very pretty shrub on the Neilgherries, especially in woods where it appears as an undershrub. The leaves are a very bright lively green, somewhat paler beneath, the flowers pale yellowish, but certainly not conspicuous.

The only other species of this genus is a native of Nepal and Ceylon, and differs from this in having ovate acuminate not 3-nerved leaves. Apart from the flowers, which have no beauty, this is a rather pretty evergreen, always covered with lively green handsome foliage.

GOUGHIA (R. W.)

GEN CHAB Dioecious, male perianth rudimentary or wanting, consisting, when present, of a few almost inconspicuous scales attached to the apex of the pedicel. Stamens about 8 (sometimes 6 or 7 by abortion), filaments short, anthers large, oblong, mucronulate, 2-celled, bursting longitudinally. Female perianth 4-lobed, often rudimentary. Ovary free, 2-celled with two pendulous ovules in each, styles 2, short, reflexed, each ending in a flattened papillose stigma. Fruit sub-baccate, ovoid, crowned with the persistent styles, one-seeded by abortion. Seed ovoid, embryo minute in the apex of a large soft fleshy albumen, radicle superior. A rather small very ramous tree. Leaves alternate, elliptic, obtuse, entire, glabrous, dark green above, glaucous beneath, inflorescence racemose, raceme? axillary on the young terminal shoots of the season. Flowers small, anthers purplish or brownish-red, female, greenish fruit pulpy, purplish when ripe.

This very distinct genus was dedicated, in MS, upwards of 10 years ago, to my much esteemed friend Mr. now the Hon'ble, George Gough, at that time engaged, in company with Captain Munro, in exploring the Neilgherry flora, from whom I then received specimens. It affords me much pleasure, at this late date, to find it still an unpublished genus, and to be thereby enabled to publish it under the name it has so long borne in my Herbarium. Had I not felt uncertain as to the natural order, regarding which I found difficulty in satisfying myself, I should have published it long ago. At one time I thought it referable to *Antidesmea*, but not feeling certain I thought it well to delay its publication until I had leisure to examine

in detail the monochamædous orders. In the course of that examination I was led to the conclusion that my first view of its affinities was erroneous, and that it is a truly Euphorbiaceous plant.

Of this genus I possess two, perhaps three, species, viz the present, one from Ceylon, and one from Malacca. Of the Ceylon one I still feel somewhat uncertain, as it greatly resembles the Continental plant, and I have not seen male flowers, but the Malacca one departs so widely that I am doubtful whether it may not furnish the type of a new genus. The following copy of a note, attached to the specimen, which I wrote when I first examined it, will explain this. The specimen was sent by Mr Griffith, labelled simply, "*Goughia* ? Malacca". The reply to the query is, "I suspect not, the flowers here being regular, viz sepals 4, stamens 4, opposite the sepal, with a central elevated hairy receptacle or abortive ovary. In this plant, moreover, the pollen is globose and hispid, in the Neilgherry one, glabrous and angular. The habit and form of the leaves of the two, however, perfectly agree, with the exception of the inflorescence which in the Malacca plant is paniculate-umbellate, (each ramulus of the panicle only in simple umbel of 8 or 10 short pedicelled flowers). The female flower, when discovered, may reduce the value of these differences."

On reconsidering the question now, I attach less weight to the above differences than I did then, and think that a slight modification of the generic character will serve to retain them in the same genus. As regards habit and family likeness, they are brothers. The generic character, should the structure of the female flower admit of their union, might be thus modified: DIOECIOUS male-perianth, sepals 4, imbricating, or rudimentary or wanting. Stamens, in sepaled flowers, 4, opposite the sepals, when the sepals are wanting, 8 or sometimes fewer (6-7) by abortion when 4, inserted round the base of a rudimentary ovary anthesis, &c.

The specific differences will then be—

1 *O. Gnjjithana*, male flowers 4-sepaled, 4-androus. Leaves petiolled, sub-obovate, very obtuse, (turning yellow in dying) inflorescence panicled, each ramulus of the panicle ending in a small simple umbel of 8-12 short pedicelled flowers.

2 *G. Neilgherrensis*, male 8-androus, sepals rudimentary or wanting.

The Ceylon form, though it looks distinct, does not, the male plant being unknown, furnish sufficient specific marks for its separation from the Neilgherry one.

1878-79 GOUGHIA NEILGHEBBENSIS (R. W.)

A small tree common on the Neilgherries, Pulneys, Ceylon? flowering during the autumnal months, but may I believe be met with in flower at all seasons. The leaves have a tendency to turn yellow in drying like those of *Symplocaceae*, but after a time become dark-brown. Those of the Malacca plant are quite as yellow as a *Symplocos*.

1880 MICBOELUS ROEPEBIANUS (W. and A., Edn Phil Journal, *Styloxscus infoliatum*, Bennett, in Horsfield's Java plants, *Andrachne infolata*, Roxb. Fl Ind).

This is the only species of the genus and has a wide range Java, Bengal, Circar Mountains, and the Southern Peninsula as far as Courtallum, and I believe it extends considerably to the south of that

Mr Bennett, not being aware of our prior name, gave it the one quoted above, accompanied by a full description and some remarks on its affinities. The two generic names merit a passing notice. *Microelus*—a little nail—is in allusion to the rudimentary style of the male flower, the top of which is flattened like the head of a nail. *Stylodiscus* evidently alludes to the same structure, the dilated disk-like head of the male style.

1881 DALECHAMPsia VELUTINA. (R. W.), leaves deeply 3-lobed, cordate at the base, serrated, subglabrous above, venoso-reticulate whitish and velvety beneath, calyx of the female flower persistent, six-lobed, lobes very hairy, dentate on the margin. Hairs rigid, bustle-like.

Neilgherry? I am not quite sure in regard to the station. It appears a very distinct species allied, however, to a Cape species of which I have a specimen under the name of "*D. Capensis*, Spreng."

1882 DALECHAMPsia IKDICA (R. W.), leaves 3-foliolate, lateral leaflets gibbous, sometimes lobed externally, all serrated, cuspidate-acuminate, shortly and sparingly pubescent on both sides. Female, calyx persistent, 8-lobed in the lateral flowers, 10-lobed in the middle one, lobes serrato-dentate.

Indigul Hills. These are both rare plants, and, so far as I have seen, the only species of the genus natives of India. Lamark describes another, which he saw in Jussieu's Herbarium, said to have been found in India, but which seems never to have been met with since, and therefore doubtful as regards this being its native country. The rest of the genus, with very few exceptions, is of South American origin.

The genus is a very marked one, being at once distinguished by its two large 3-lobed pale yellow bracts enclosing both the male and female flowers. The male, on being reflexed, bring into view a sessile capitulum of male flowers seated in a cup-shaped involucre and 3 females, embraced by two somewhat similar but smaller undivided bracts, each furnished with from 6 to 10 linear dentate sepals beset with stiff bristly hairs and terminating in a long stout style and club-shaped, truncated stigma. As the seed advances to maturity the pedicels elongate, the sepals enlarge and become rigid, and surround the 3-celled capsule, much as the involucre of *Pavonia* does its capsule.

1883 MACABANGA INDICA (R. W.), dioecious, arboreous. Leaves stipuled, peltate. Stipules paired, broad ovate, cuspidate. Male flowers panicled, glomerate. Glomerules bracteate. Bracts petioled, glandulose. Calyx 3-parted, pubescent. Stamens 6-8, rounded at the base. Anthers flattened, tetradamous entire or slightly dentate, pubescent and punctate beneath, glabrous above, female panicles axillary. Flowers solitary or paniced, pedicelled, bracteate. Bracts sometimes pedicelled and glanduliferous as in the male. Calyx 4-parted. Capsule covered with resinous points.

Neilgherry. Courtallum, flowering during the autumnal months. The margin on the leaf is too distinctly dentate, at least for the average outline of leaves.

When preparing the letter press character, for the subject of this plate (which I have purposely made very full), I was led to examine more carefully than I had hitherto done all the specimens in my herbarium corresponding in their general aspect with the

one under consideration, and at the same time to compare the distinctive characters, which I did not previously quite understand, of *Mappa* and *Macaranga*—which I was prevented doing when naming the drawing preparatory to sending it to the Lithographer. The distinction I now find is confined to a single point of the structure of the female flower, and that without it, the two genera are undistinguishable. In *Mappa* the female flower has 2 or 3 styles, and the ovary as many cells. In *Macaranga* it has one style and a one-celled ovary. This solitary distinction is however strengthened by geographical distribution, *Mappa* being confined, so far as yet known, to the Eastern Archipelago while the Asiatic division of *Macaranga* seems equally limited to the Indian Peninsula. Blume, for example, enumerates 5 species of *Mappa* from Java, while I can produce four (including Roxburgh's *Osyris peltata*, No 817, of this work) of *Macaranga* from the Peninsula. As regards foliage, it may be stated that, judging from Blume's characters, the leaves of *Mappa* have a greater tendency to elongation and to assume an ovate outline than those of *Macaranga*—all of which are orbicular at the base with a rather abrupt acuminations at the apex. That shown in the plate, with the exception of the dentation which is too marked, may be taken as the outline of all the rest, which may be thus briefly distinguished.

1. *M. Indica*, flowers 6-8-androus, bracts glandulose. Neilgherry.

2. *M. tomentosa*, flowers 2-3-androus, bracts foliaceous, obovate, acuminate, tomentose. Malabar.

3. *M. Roxburghii*, flowers 5-6-androus, bracts ovate, acute, serrated. Ceylon.

4. *M. flexuosa*, flowers 3-5-androus, bracts at the forks of the panicles foliaceous, coarsely serrate, at the glomerules glanduliferous. Courtallum.

Of all these it is my intention by and by to give, in a single plate, analytical figures so as to show their differences by contrast.

Blume's genus *Pachystemon*, as regards the male plant, has so much the habit of this genus that I at first supposed it a monandrous species of one of the two genera.

It however differs not merely in the reduced number, but also in the structure of the stamen, which is didymous, that is, has a 3- in place of a 4-celled anther, like all the preceding. Like them the number of stamens differ, 1 being the usual number, but two are sometimes present.

1884 CLAOXYLON DIGTUM (R. W.), dioecious. Leaves alternate, ovate lanceolate, acuminate, sessile, glabrous. Male flowers glomerate, spicate. Spikes axillary, slender, about the length of the leaves. Calyx 3-parted. Stamens numerous. Females, spikes equaling the leaves. Flowers sessile. Calyx 4-lobed. Ovary 2-celled, with two long subulate styles. Capsule 2-coccos. Cocci subglobose, pubescent.

Ceylon. I know nothing of this plant beyond what I learn from the specimens which I gathered many years ago in Ceylon. They are unaccompanied by any notes, or memorandum of the plant, or where they were obtained.

1885 BHIOSPERMUM POLYANDRUM (R. W.), *Croton polyandrum*, (Roxb.), leaves oval, often lobed, toothed, or coarsely and remotely serrated. Spikes

axillary, about the length of the petiols, usually 1 or 2 female flowers at the base: stamens numerous, filaments compressed, dilated at the apex: anthers 2-celled: cells transverse: ovary 3-celled: style deeply 3-cleft: stigmas large, paired, spreading: capsule hispid.

Bengal, Scinde, Circar Mountains. The specimens from which the drawing was made were raised in the Horticultural Society's Garden at Madras. I think I have correctly named it. It certainly is not a *Croton*, and the present is the only genus with which it associates.

1886. CLAOXTLON MUEICATUM (R. W. *Croton muricatum*, Klein, M.SS.), arboreous dioecious? leaves opposite, oblong lanceolate, serrate, attenuate at both ends, glabrous, sprinkled below with numerous shining, resinous points: spikes axillary, male ones amentiform, longer than the petiols, female sub-racemose, about the length of the leaves, capsule triccous, each furnished with two rows of excrescences.

Courtallum, Ceylon, Bombay? Graham; Belgaum, Law. This plant, unless I am confounding two species under one name, seems to have a wide range. In regard to my Bombay specimens I feel some uncertainty, the capsules being larger and not regularly muricated as in the more Southern ones. The appendages on them more resemble the filamentous ones of *Rottlera peltata*, hence my doubt of the identity of that plant with mine. The resinous glands are also found in *C. digynum*. In both, too, the leaves are sometimes nearly entire, though generally in this coarsely serrate.

SABCOCXJIHUM (R. W.).

GEN. CHAR. Dioecious: male calyx gamosepalous, bursting irregularly, 3-5-toothed. Corolla 5-petaled, petals imbricating in aestivation, with 5 large alternate globose glands at the base. Stamens 10, in a double series alternate with the petals and glands, attached round the base of a large rudimentary ovary; anthers 2-celled, cuspidate; cells divaricating at the base, dehiscing longitudinally. Female calyx 5-sepalcd; sepals ovate, acute. Corolla 5-petalcd, petals inserted round the base of a thick fleshy 5-lobed disk. Ovary sessile, the base embraced by the disk, 3-celled, with a pendulous ovule in each; styles 3, spreading; stigmas six, recurved. Capsule 3-coccous, subglobose. Seed.—(The seed were not sufficiently mature though the capsule seems full grown.

Shrubs, with alternate, obovate oblong, somewhat cuniate, short petioled or sub-sessile, glabrous, coriaceous, entire, shining leaves, ending in a short blunt acumen: male racemes glomerate¹, interrupted: glomerules bracteate, bracts serrated: flowers short pedicelled; petals obovate, somewhat toothed on the margin, stamens longer than the petals: filaments subulate: sterile ovary 2-3-clcft, female racemes axillary: flowers bracteate: bracts ovate, stem-clasping, entire: sepals ovate, acute: petals orbicular, somewhat waved. Disk very thick and fleshy, whence the generic name, *Fleshy* bed.

1887-88. SABCOCLINIUM LONGIFOUUM (R. W.).

Alpine forests, exposed to the influence of the South-west monsoon, Western slopes of the Neilgherries not unfrequent, but I have specimens from many other stations.

A rather large shrub, flowering during the cool and rainy season, its seed seem to ripen during the hot season. I have known this plant many years, but only last year got specimens in a sufficiently perfect state to admit of my determining the genus; which, so far as I can make out, is very distinct from any yet published.

GIVOTIA (Griffith).

GEN. CHAB. Male. Calyx 5 sepals, imbricated. Corolla 5 petals, convolute, alternate with 5 large fleshy glands. Stamens about 15, monadelphous at the base, free above; anthers 2-celled, opening longitudinally. Female calyx and corolla as in the male, stamens none. Base of the ovary embraced by a fleshy 5-lobed ring. Ovary cells 1-ovuled. Styles 2-3-celled; 2-3, two-cleft, stigmatose within, fruit drupaceous, one-seeded.

A small ramous tree, leaves alternate, cordate or somewhat lobed, clothed with white stellate pubescence beneath, sub-glabrous above; petiols often furnished with one or two prominent glands. Panicles terminal, flowers congested or sub-capitate on the ends of the ramuli, pedicels jointed, usually furnished with a filiform bract. Stamens hairy at the base. Fruit oblong, about the size of a pigeon's egg, nut very hard, seed oily.

1889. GIVOTIA ROTTLEIFOHMIS (Griffith).

A common tree in sub-alpine forests all along the base of the central range of Ghauts, and to be met with in flower at nearly all seasons, but principally during the Spring and Summer months. The normal number of stamens is I think 15, but I have found 13, and the draftsman has represented 10, which I feel sure is a mistake.

When Mr. Griffith established the genus he had only seen female flowers, hence his character was deficient in what regards the male; that I have here supplied from native specimens.

The wood is very porous and considered of little value, but I have heard that the oil obtained from the seed is considered superior to either Olive or Almond oil for fine machinery.

1890. TRIGONOSTEMON HETERUTHUM (R. W.), lobes of the calyx of the male flower entire on the margin, of the female glanduloso-dentate: leaves quite entire: racemes axillary, paniculate.

Mergui, Griffith.

This species differs from Blume's *T. serratum*, the only other described species, in both the inflorescence and flowers, the calyx of the female differing so widely from that of the male.

PBLTANDRA (R. W.).

GEN. CHAR. Monceciou, male calyx 5-parted, corolla none. A large glandular disk lining the bottom of the calyx and embracing the base of the stamens. Stamens 5, monadelphous below, free and spreading above, equal; anthers 2-celled, opening longitudinally, no rudimentary ovary. Female. Calyx of the male, no corolla or rudimentary stamens: base of the ovary embraced by a fleshy cup-like disk. Ovary 3-celled with 2 pendulous ovules in each cell, styles 3, deeply 2-parted. Capsule 3-celled with 2 or, by abortion, 1 corrugated seed in each. Testa rough; albumen copious, embryo inverse, cotyledons foliaceous

with a longish radicle pointing to the lulum Suffu-
tucose plants leaves alternate, short petioled, ovate
Male flowers axillary, sub amentaceous, longish pedi-
celled ament or short raceme covered with ovate,
ciliate, imbricating, membranous bracts Female flow-
ers solitary, long pedicelled, usually seated at the base
of the male amentiform racemes

1891 PELTANDRA LONGIPES (R W), erect, ramous
leaves short petioled, ovate, acuminate, slightly den-
tate female peduncles much longer than the leaves,
filiform filaments united nearly to the apex

Qmlon, Malabar

The specimen represented is much smaller than
some others in my collection, but is on that account
better adapted for the size of my plate

1892 PELTANDRA PABVIFOLIA (R W), ~~erect~~
erect, angular, ramous leaves broad ovate, mucio-
nate, entire pedicels of the female flowers about
the length of, or a little longer than the leaves fla-
ments united about half their length

Malabar^p I am uncertain in regard to the station
which is not marked, but I think Malabar. Though,
as shown by the figure, so unlike the other, yet when
the specimens are placed side by side they present a
very evident family likeness

1893 AGYNEIA. BACCIFORMIS (JUSS fil, *Phyllan-
thus bacctiformis*, Lm, Koxb) biennial, diffuse, herba-
ceous stems tuangular leaves somewhat succulent,
stipules forked male flowers several in the lower
axils female usually solitary towards the ends of
the ramous filaments 3, united to the apex styles
spreading stigmas 2 lobed, reflexed

This is a common and variable plant, common in
grassy pasture near the coast, and is in flower all the
year The plant represented is a small one, as it is
occasionally to be met with nearly two feet long,
lying flat on the ground

1894 PHYLLANTHUS NIRURI (Linn), annual, erect,
ramous branches herbaceous, ascending 'flonferous
branchlets (pinnate leaves of old authors) filiform
leaves elliptic, mucronate, entire, glabrous flowers
axillary, male flowers minute, two or three with one
longer pedicelled female in each axil, terminating in
three transverse anthers capsule globose, glabrous,
J-angled with 2 seed in each cell seed tuangular,
albumen very abundant embryo axile

A common weed everywhere, and, where it has
moisture enough to grow, always in flower

The male flowers are minute and might easily be
overlooked beside the female ones which are more
conspicuous, hanging in rows below the leaves In
the evening or in dark cloudy weather the leaves
close like those of the sensitive plant

This, like several other species of the genus, bears
the leaves and flowers on a series of ramuli, different
from the others, so much resembling pinnate leaves
that they were for a long time considered such, the
authors not adverting to the circumstance that leaves
never bear flowers, and that their presence at once
shows that the rachis on which they are borne is a
branch, not the midrib of a compound leaf In the
above and following characters I have called them
flonferous branchlets or ramuli, in contradistinction
to the proper branches of the plant

It was an error of Linnaeus to call this plant *Niruri*,
seeing it is the *Kirgneh* of the Hortus Malabaricus,
and an even worse one, on the part of Willdenow
to call another plant, not even a native of India
Kirganelia

1895-1 PHYLLANTHUS RHIFIDI (R W, ~~Niruri~~
Hoit Mai 2 tab 27), shrubby, leaves oval obtuse,
mucronate stipules subulate flowers axillary, males
two or three, female, when present, solitary, large
and 1 longer pedicelled than the male filaments united
3 anthered at the apex, capsule globose

Malabar This species, if known, seems to have
been either confounded with others resembling it in
general appearance, or has been passed over as an un-
known plant Roxburgh (11 Ind) quotes Rheede's
figure (2 tab 27) for *P. multiflorus**, and in Dillwyn's
valuable review of the references to that work it is
quoted for an unpublished species of Roxburgh's *P.
scandem* (probably *P. muUiflorus* of his flora which
he characterizes as climbing) but whatever that
plant may be, it is not, under that name, admitted
into the Flora Indica After much consideration
I propose to quote this plate as a Synonym for my
plant, and 5 tab 44 for Roxburgh's *P. multiflorus*^
Anisoneia multiflora of a subsequent plate (No 1899)
This is certainly a *Phyllanthus*, which is not the case
of either *P. rhamnoides*, or *P. multiflorus*

1895-2 PHYLLANTHUS POLYPHYLLUS (Willd), flo-
niferous branchlets many-leaved leaves linear, ob-
tuse, mucronate, small flowers axillary, solitary
female ones above stems shrubby or sub arboreous
flonferous rachis somewhat compressed stamens
monadelphous anthers vertical, cohering crowned
with the prolonged connective

Sub alpine jungles Common toward* the foot of
the Eastern slopes of the Nilgiris in the ICS A large shrub
or small tree, so very like *Emblica officinalis* in its
general appearance and habit, that I for a long time
thought it that tree A single glance however at the
fruit is enough to show the difference

1895-3 PHYLLANTHUS MADRAPATENSIS (Lin),
leaves alternate, narrow cuneate stipularly scit-
scanose, peltate, flowers axillary, 3-5 males and one
female stamens monadelphous, connective prolonged
beyond the anthers, capsule glabrous

This is a very common plant, but the form repre-
sented is rather rare The leaves in the most usual
form are much broader at the apex, more cuneate, and
often somewhat retuse at the point, but notwith-
standing these differences I believe this to be simply
a narrow-leaved variety of that plant

1895-4 PHYLLANTHUS LEPROCAEPUS (R W), her-
baceous, erect flonferous branchlets spreading, many-
leaved leaves elliptic oblong, obtuse, ciliate stipu-
larly scales scarious, peltate, cordate at the base, acu-
minate anthers crowned with the prolonged con-
nective, capsule globose, scaly, rough

I have named this species, which greatly resembles
in its general appearance innumerable plants of *P.
Virun*, in allusion to its rough scaly capsules, which
of itself I find sufficient to distinguish it from all
others in my collection I suspect that when this genus
comes to be carefully revised, the elements or two
genera will be found among the 5 species represented
in these two plates

1896. EMBLICOFFICINALIS (Gaertner), arboreous, ramosus: floriferous branchlets many-leaved: leaves linear oblong, obtuse at both ends: flowers axillary, aggregate, small, yellowish.

This tree is frequently met with in gardens, the fruit being used by the Natives for pickling, and as a condiment. I have met with what appears to me another species, but as my specimens are not in fruit I feel uncertain on that point. The genus is easily distinguished from *Pkyllanthus* by the cup-like lobed disk which covers the ovary. The anthers, too, are slightly different from those of most of the the *Phyllanthi* in having a broader connective, separating the 2 cells to such a distance as to give each the appearance of 2 cohering. This structure and the elongation of the connective, mentioned in some of the preceding species, are well shown at fig. 2 of this plate.

1897. MELANTHESA TUBBINATA (R. W., *M. truncata*, R. W. in Icon., *Pkyllanthus turbinatus*, Roxb., Konig.), shrubby or arboreous: floriferous branchlets bifarious: leaves oval, obtuse, entire, sometimes slightly unequal-sided: flowerB axillary, frequently male and female in the same axil: male flower turbinate (top-shaped), six-lobed; lobes inflexed, nearly closing the orifice: stamens united, anthers adhering by their backs to the columnar filament: female calyx deeply 6-lobed, enlarging with the fruit: fruit before maturity baccate, when quite ripe, dry and capsular, 3-valved. Seed 3, angular, arilled at the base.

Neilgaerries, Malabar, &c. This plant, Roxburgh informs us, attains the size of a large tree among the mountains of Orissa. It is very common a little below Coonoor, on the Neilgherries, but there I have never seen it larger than a moderate sized shrub: can it be that I am confounding 2 species under one name P Roxb. quotes the Hort. Mai. 5, tab. 3, for his plant; I feel certain that that plate represents my plant even better than my own, and therefore unhesitatingly adopt Roxburgh's name.

By a mistake, when writing the name on the drawing, I wrote "truncata" in place of "turbinata." Fig. 12 of the plate represents the aril, but too large in proportion to the seed—at least when the seed has attained perfect maturity, which the one represented had not.

1898. MELANTHESA* BHAMNOIDES (Blume, *PhyU lantk. rhamnoides*, Retz., WilldP *P. vitis idaa*, Roxb.) leaves oval, rounded at the apex, acute at the base, glabrous: peduncles axillary, the inferior ones paired, male; upper ones solitary, female, about the length of the petiol: fruit embraced by the short calyx (Blume): berries globose, bright red, mealy when ripe.

A common plant near the Coast.

The bright-red fruit, when abundant, gives the shrub a rather lively and attractive appearance. I attach little or no value to characters taken from the relative position of the male and female flowers on the floriferous branchlets, as I find them about as often wrong as right. The best characters I know for this plant are, the prominent connective of the anthers, the large ovary, in comparison with the small calyx, and the red berries, not one of which Blume admits into his character, and therefore leaves room for doubting whether the Indian plant be indeed the same as the Java one, whence he takes his character.

Willdenow quotes Bonn. Zel. tab. 88, for this plant, which is a mistake, as it clearly belongs to his *P. multiflorus*.

1898. MELANTHESA OBIQCA (R. W.), leaves oblong, obtuse, unequal-sided, blunt, flowers axillary, Several together: male calyr. turbinate, lobes inflexed: filaments united; anthers adnate: female calyx six-lobed, enlarging with the fruit: stigmas 2-parted, reflexed.

This is perhaps too nearly allied to *M. turbinata*, but differs in the form of the leaves and in the male flowers, which seem scarcely half the size. They both appertain to Blume's 2d section, "stigmata semibifida," along with his *M. Ckinensis*.

The genus *Melaiithesa* is at once recognised, 1st, by the form of its male flowers which are top-shaped, forming a sort of cone, the marginal lobes of which are abruptly turned in over the opening and rest on the apex of the stamenoid column—and 2dly, by the ovary which is truncated or even concave on the apex, with the stigmas appressed to the surface.

1899. ANISONEMA MULTIFLOBA (R. W., *PhyU. multiflorus*, Willd., Roxb., *Raton Niruri*, Hort. Mai. 5 tab. 44., *Rhamnus Zeylanica*, &c, Bum., Zeyl. tab. 88.), shrubby, primary branches virgate, young shoots pubescent: floriferous ramuli angular: leaves nearly oval, obtuse, bifarious: flowers axillary, aggregated, several males and usually 1 female: male flowers purplish; berries 8-12-seeded, dark purple or black, soft and pulpy.—Sweetish tasted.

This is a common shrub near water, and when it has the support of bushes often climbs to a great height, hence the probability of this being Roxburgh's *P. scandens*.

This plant clearly belongs to A. de Jussieu's genus *Anisonema*, and I think there can be no doubt of this being *P. multiflorus* of Roxb. and Willdenow. My figure, to my eye, seems scarcely so characteristic of the features, if I may so say, of the plant as Burman's in the Th. Zeylanicus.

CEBATOGYNUM (R. W.).

GEN. CHAB. Monoecious. Perianth six-parted, lined within with a broad six-lobed disk, lobes free on the margin. Corolla and glands none. Stamens 3, filaments united below into a column, free and spreading above, anthers 2-celled: covered in (estivation by the free margins of the lobes of the disk: cells collateral. Female perianth six-parted in a double series. Corolla and glands none. Ovary truncated, 3-angular, 3-sided, 3-celled with 2 pendulous ovules in each. Styles 6, slightly adhering by pairs, springing from the outer angles, not the centre, of the ovary ("Styles from the horn of the germ and not from the centre, each 2-cleft," Roxb.). Capsule globose, 3-celled, 6-socded. Suffrutescent plants: floriferous branchlets alternate, spreading: leaves evate: flowers axillary, male and female mixed; at first two or three from each, afterwards becoming racemose in the lower axils.

1900. CEBATOQYNUM BHAMNOIDES (R. W., *PA. rhamnoides*, Roxb. not Willd.).

No station is given, the drawing of the plant and figs. 1,2 of the analysis were taken from recent spe-

cimens, the rest from dried ones. Roxburgh calls it "a small shrub a native of cultivated land, among other shrubs on the coast of Coromandel."

This plant seems so very distinct in its characters from *Phylkmthus* that I almost wonder at Roxburgh's passing it as such, and can only account for it on the supposition of his believing it Willdenow's *P. rhamnoides*, Roxburgh's *P. vitis idcea*.

Since writing the above I have seen recent specimens of a new species but not in good state. They have however enabled me to verify the view taken in the character of Roxburgh's nectaries, which he describes as being "six scales on the middle of the leaflets of the calyx, pointing inwards, before the flower expands, these cover the anthers like so many hoods," but which are simply the free margins of the large disk which lines the bottom of the calyx.

MACBJSA (R. W.).

GEN. CHAB. Monoecious. Male, perianth 6-parted, forming a double series. Corolla none. Six glands, alternate with the sepals. Stamens 3, free to the base; anthers extrorse, opening longitudinally. Female. Calyx as in the male. No corolla or glands. Base of the ovary bound by an annular disk. Ovary 3-celled 6-ovuled; styles 3, deeply 2-cleft; stigmas reflexed. Capsule 3-celled, six-seeded. Suffruticose, straggling plants, often, when supported, two or three feet long: leaves alternate, stipulate, stipules membranous, peltate: flowers axillary, several aggregated in each axil; usually 1 female and 3 or 4 males.

This genus is perhaps scarcely sufficiently distinct from *PhyllanthiUj* the principal difference being the free stamens of this, as opposed to the united ones of the other.

The genus *Macraa* of Lindley, an orchid, being reduced, I have dedicated this genus to that active Botanist. It is the more appropriate as several of the species are natives of Ceylon, the principal field of his labours.

1901. MACBJEA RHEEDII (R. W., *Nintri*, Hort. Mai. 10, 27.) Suffruticose, decumbent, straggling, glabrous: leaves sub-sessile, oval, obtuse at both ends: stipules peltate, orbicular below, ending in a longish tapering acumen: male flowers short pedicelled: female pedicels about the length of the leaves, ovary rough.

Pulney Mountains, September and October.

I look upon this plant as being undoubtedly Rheede's *ftintn*, vol. 10, tab. 27. That plate has been quoted by mistake, perhaps indeed a mere typographical error, by Roxburgh for his *Ph. multiflorus*. The plant here represented is somewhat more compact than Rheede's, but I have other specimens loose enough to bear comparison with his plate.

1902-1. MACILEA OBLOKGTIFOLIA (R. W.), suffruticose, diffuse, ramosus: branches ascending: leaves linear oblong, obtuse at both ends, mucronate: stipular scales broad ovate, acuminate, peltate: male flowers short pedicelled, female pedicels equaling the leaves.

Station uncertain, but I think the Pulney Mountains. The leaves in the figure are a little too broad in proportion to their length. They diminish progressively towards the apex, giving the whole branch a tapering aspect.

1902-2. MACHJEA WBTTFOLIA (R. W., *Ph. myrtifoliiu*, Moon's Cat), shrubby, erect, ramosus branches slender: leaves single or two or three, fascicled, oblong lanceolate, acute, mucronate: stipular scales cordato-ovate, slightly fringed: flowers fascicled, axillary, pedicelled, shorter than the leaves: glands of the calyx globose, rough.—Leaves about an inch long and from 1 to 2 lines broad.

Ceylon.

1902-3. MACBJSA GABDNBBIANA (R. W.), Buffuticose, diffuse: leaves sessile, ovate, obtuse at both ends, revolute on the margin, pale glaucous beneath: stipular scales deeply sinuato-cordate, ovate, acuminate, sub-dentate on the margin: filaments clavate: cells of the anthers diverging from the point: glands small, smooth.—The leaves are sometimes nearly round and occasionally, but rarely, at least in the dried specimen, scarcely revolute on the edge.

Ceylon, Neuera Ellia, Gardner.

1892-4. MACBSA OVALIFOUA (R. W.), suffruticose, ramosus; branches long, slender, diffuse: leaves sub-sessile, oval, obtuse at both ends, paler beneath: stipular scales irregularly angular, peltate, acuminate at both ends: calycine glands large, globose: anthers' cells slightly divaricated below.—Larger leaves about an inch long and 4 lines broad: flowers fascicled, male and female mixed.

Eastern slopes of the Neilgherries, abundant, ascending to the elevation of about 6000 feet, very diffuse, branches often from 2 to 3 feet long. This species seems very nearly allied to the preceding, but is, I think, distinct.

REIDIA (R. W.).

GEN. CHAB. Monoecious. Male. Calyx 4-sepaled, equal, imbricating in aestivation. Corolla none, 4 large glands alternate with the sepals. Stamens 2, filaments united below into a column two-lobed at the apex; each bearing a large 2-celled anther; cells widely divaricate, nearly horizontal (resembling 4 anthers), dehiscing transversely to the axis of the flower. Female. Calyx six sepals in two rows, persistent. Corolla none. Disk annular, fleshy, six-lobed, embracing the base of the ovary. Ovary 3-celled with 2 pendulous ovules in each; styles three, deeply 2-parted; divisions subulate, stigmatose. Capsule 3-celled: cells 2 or, by abortion, 1-seeded. Seed obovate, 3-angular.

Shrubs, branches ascending: floriferous branchlets Blender, spreading: leaves alternate: stipules minute, flowers axillary, male and female fascicled: females usually solitary, long pedicelled with several smaller short pedicelled males.

This genus is dedicated to Lieut. Colonel Francis A. Reid, the talented Secretary to the Madras Horticultural Society, and indefatigable director of its garden. Under his guidance a very general taste for Botanical pursuits has been established, leading to the rapid advancement of Indian Botany, by the introduction into cultivation of numerous hitherto imperfectly known Indian plants. Within the last few years the Society's garden, under his superintendence, has become a well-stocked Botanic garden.

To this genus belongs Roxburgh's *Phyllanthus tetrandrus*, and doubtless had Willdenow introduced descriptions of the flower into his characters, some of his species would also be found referable here.

1903. REIDIA FLORIBUNDA (R. W.), shrubby, ramous, branches virgate: floriferous ramuli spreading, many-leaved, and with the leaves pubescent: leaves ovato-elliptic, blunt, slightly unequal-sided, nearly glabrous above, pubescent and pale reddish beneath: flowers axillary, numerous, fascicled, several short pedicelled, males and one long pedicelled, reddish-purple, female in each axil, flowers pubescent: capsules globose, drooping, glabrous.

Neilgherries, on the Eastern slopes, about 2 miles below Coonoor, but rather rare. I have this plant from other localities, Fulney Mountains, &c. The artist has not been successful in conveying a good idea of the plant which is a very handsome one, but difficult to represent. The figure No. 4 represents the stamens with the anthers artificially separated to show the structure of that part of the flower, that is, to show that the apparent 4 anthers, as described by Roxburgh, in his *PhyU. tetrandrus*, are in truth only two with the cells placed end to end, lying horizontally across the flower.

1904-1. REIDIA FIMBRIATA (R. W.), shrubby, leaves broad ovate, acuminate, glabrous: flowers fascicled, axillary, male sepals broad ovate, membranous and fringed on the margin: female sepals like the male, the 3 interior ones fringed.

Western slopes, Neilgherries.

1904-2. REIDIA LATIFOLIA (R. W.), shrubby, floriferous branchlets congested on the ends of the primary branches, many-leaved: leaves ovate, acute, unequal-sided, glabrous: flowers numerous, axillary: females solitary in the lower axils, often wanting in the upper ones: sepals ovate, quite entire on the margin; capsule about the size of a small pea, glabrous.

Courtalluni, flowering during the autumnal months.

This species is also a native of Ceylon. The specimen selected is, for want of room, a small one, not much in accordance with the name. The floriferous branchlets are often inure than a foot long.

[N. B. The numbers on the plate have been transposed by the Lithographer. This figure is marked III in the plate, and the following "2;" these numbers require to be reversed.]

1904-3. REIDIA OVAUFOLIA (R. W.), a very ramous shrub: floriferous branchlets congested on the ends of the branches, leaves numerous, close-set, oval obtuse, unequal-sided (fig. 8.), glabrous above, pale glaucous beneath: flowers numerous, axillary: male sepals somewhat obovate, quite entire, glabrous: female like the male: styles 2-cleft, stigmas reflexed.

Courtallum. In this the female flowers are more numerous on the ends of the ramuli, and the styles are different from those of the preceding species. The leaves are represented too small for the average size. Fig. 8 is about the natural size of full-grown leaves.

1904-4. REIDIA FOLYFHILLA (R. W.), flabrous, ramous: floriferous branchlets congested on the ends

of the branches: leaves small, close-set, ovato-lanceolate, acute, slightly unequal-sided, glabrous: flowers axillary, aggregated: 2 interior sepals of the male and three of the female, membranous and fringed on the margin.

Ceylon, Thwaites. I only know this species by a single specimen communicated by Mr. Thwaites. It approaches *R. fimbriata* in the flowers, but is in all other respects widely different. In addition to the above, there are still two or three species in my collection.

GLOCHISANDBA (R. W.).

GEN. CHAR. Monoecious. Male flowers six-parted. Corolla and glands none. Stamens six, free to near the base, connivent round the rudimentary ovary; connective strap-like, prolonged beyond the anthers, sub-lanceolate; anthers 2-celled, adnate their whole length. Pistil rudimentary, 3-lobed, concealed by the connivent anthers. Female calyx as in the male. No corolla nor disk. Ovary free, six-celled with 2 ovules in each; style short, thick and fleshy, slightly six-lobed at the point; channeled in the centre.

Arboreous, ramuli somewhat flexuose, lax: leaves alternate, oblong, elliptic, acuminate, entire, glabrous: flowers fascicled in the axils; males numerous, pedicelled; females few, sub-sessile.

1905. GLOCHISANDBA ACUMDJATA (R. W.).

I am only acquainted with this tree through the medium of a specimen received from the Calcutta Bot. Garden, labeled "*Briedeliaspinosa*," evidently a mistake, as it has no resemblance to that plant, but has much the aspect of a *Glochidion*. This differs from that genus in the male flowers being distinctly hexandrous, with stamens free, not connate into a central column, and in having a well-developed rudimentary pistil: but at the same time, though thus amply technically distinct, it has so much the habit of *Glochidion* that I think, in the event of a revision of that genus, the character might be so far enlarged as to admit both this plant and the genus *Gynoon*, both of which I certainly think are true congeners though technically distinct. This I shall endeavour to show in the following remarks on these two genera.

GLOCHIDION, (Forst., GYNOON, A&r. de Jussieu.)

These two, as hinted above, are so near each other, as to be in fact indistinguishable by the characters of either Endlicher or Meisner. For this confusion I fear Dr. Arnott and myself are principally to blame, as we, in giving an amended character of *Gynoon* to admit what we considered a new species, broke it down, our supposed new one being a species of *Glochidion*. The genus *Gymon*, as it came from the hands of Jussieu, had monoecious flowers, the male having a 5-parted calyx, 3 filaments united at the base, distinct at the apex and 3 extrorse anthers adnate below the apex of the filaments. Female calyx 6-parted, 3 stigmas, convex outside, angled within, connate into an ovoid mass double the size of the ovary. Ovary globose, 3-celled; cells 2-ovuled. In all these particulars our plant more or less agreed, except that we gave it 6-stamens and a 6-celled ovary. The apparent difference in the number of stamens is easily reconciled, both plants are triandrous with the cells of the anthers so distinct and prominent that they each re-

"emblem a peifftxt anthei Jussicu descnbes them as i btament with 2 celled anthei*, oui«I now find, uut picciscly the same The discrepancy between the nunibci ot cells in the ovaui in the two plants, liowcvu, lcinams iiecoucila.ble, the one has 3- the otliei 6 celled o\ uie*, and until we consent to unite *Glochidwn* and *Gyrtoon* as a genu*, ha\ing 3-6 celled <j\anc*, om plants mu->t ie*pcaivcly take then places mditteicnt geneia In plate 1908 is lcpresented a lant I have tiom Cejlon, and which I stiongly sus-)ect ib Jussicus oniginal specie*, but which, whethei tli it identical species or not, is unquestionably a species of *Gynoon*, uid in the right hand corner is an malyMa ot the flowei ot oui *Gynoon Heyneanum* A coinpai i*on ot tlicfoiinci with Jussieus chaiaetei m^l I show that it i* a *Gynoon*, and ot the lattei, with the chaiaetci ot *Glochidion*, will equally show that it belongs to tint genus, with the exception ot the o\aiy being 5- in place ot 6 celled, i stiuctuic which I fint^l v«u I iblc, both forms occin- nung on the same bi inch It follow* thit the only dirteience between the two geneia, as will be seen by the accompanym₀ platis is that the one has a 3 the tliei a o-oi 6 celled ovaui e vciy aitiheial dib- it iction, and one indeed set a bide in Blume's chai- aetci ot the genus *Glochidion*, m which he says ⁴ Stigmata 3 12, ovanuin 3-6 mms 12 loculaie ' On tlu/jcgrounnds 1 would suggest that the 2 geneia should be united and meiely distinguished scctionally Plie pieccding though so widely distinct in the male flowei, might also peihaps be bi ought heie with advantage

1906 GIOCHIDION EILIPTICUM (R W), shrubby leaves elliptic oblong, glabrous, short pctioled flowers axilla* y, aggi cgate, male and female male pedicelled, female sessile, male penanth six-parted in a double senes lobes ovate obtuse female pubescent, pen- anth 6 cleft, embiacing the base of the ovaui styles united, conical, ovaui 4-6-cclld capsule oibicular, depieased m the ccntic, cells 1-seeded (?) by abortion

Milabai The diawmg and section of the fimt with the male flowei and divided stamens in the left coinei of the phtc were made many yeais* ago when I was m England the othei directions weie made foin floweis picked ott tlie specimen* prescived with the di a wing It I* on the authority ot the di awing tliat I descnbe the cell* of the tiuit as one-seeded The specimen dæ> not enable me to vci lfy th it point of sti ucturc but I fancy th it in th-> a* in othei species both one and two uc found m different fruit

1907-1 GLOCHIDION ARDORIUM (R W), aibore- ous lamuh pubescent leave* ov Ue, acuminate, unequal sided glabious fbweis iggregated male and female nn\ed male* short pedicclld female ses- sile male penanth deeply six-parted, lobes some- what obovate fem vie connate, 5-6 toothed, much hhoitei thin the long flcslly 5-6-toothed style ovaui 5-6-celh d with 2 o\ules in each fruit capsulai, 2-3- celled ciowncd, until neai nutunty, with the peisi- tent style

Shevagheii y Hills Ncilghernes ?

When iccentl> IC ananging my senes of speci- mens, ot whieli I hi\c a cousidei able numbei, I dis- covered that I had uu\<d *peeimens of two species undci tin* name, and suspect that UIH is not the one ioi which the specihe name was intended Ab, how-

ever, it also is, I believe, still an undc«cnbed specie^ 1 *hall, to pievent fmthei mistakes, intioduce it here uudci the name of

Glochdtnn Nedgheri ense (R W), ai boreous, I amu i glabrous, flexuose leaves oblong, sub-elliptic, obtus oi sometimes shortly acuminate, slightl} ueuequa sided, conaceous, glabious male floweis shoit ped- celled female* sessile style vciy thick, trune itcd, mainmilately toothed scaiccly longci than the per- anth fruit broad oibieulai, o-b celled depies*ed ciowncd in the centre with the shoi tpei sistcnt style

A low-growing umbiageous tiec, common abou* Ootacamund The diied specimens aie \ciy like those of *G Heyneanum*, but aic at once distinguished by the female flower, which I find supplies the be^t specific characters

1907-2 GLOCHIDION VELLTINUM (R W), shrubby young bianche^, leaves, and floweis all clothed with shoit velutmous pubescence leaves shoit petioled, oval, acute at both ends floweis aggregated, male and female mixed all pedicelled perianth six pai ted [)bc* of the male ovato lanceolate, of the female somew hat obov ite lanceol ite, obtuse style fleshy, tiuncated, obsoletcly 5-6 toothed ovary 4-6-celled capsule oibicular, depressed, crowned with the pci sistcnt style

Neilghenies, Northern slopes towards Mysore \ very distinct and easily lccognised species

1908 GTOOON JUSSTEUANDM (R W, *G tintu drum* * W & A), shiubby, glabious leaves ovatt acute, unequal-sided flowei * axillary, fasciated, m tie and female lobes of the penanth lanceolate, m tin female shoi tci than the ovoid ti uncated style

When naming the diawing I did not adveit to tin encumstancce that, supposing tin* to be ically Jii* sieu* plant, which is doubtful, we named it "ti tan dium, undei a nu*appicheusion, and tint the mine is inappiopiiate in a genus all the species of which aie t landious I now thciefoie beg to be pcimittul to change the name, md substitute that of the foun'ei of the genus, ind icque*t the specific name of the plate may be chmgcd to "*Jussieuanum* Though my figuie of the style docs not quite coirespond with that of the author I suspect the difteience depends mainly on the diference of age, mine being inoi e advanced Of five species now in my heb\ba- liura, all fion Ceylon, this is the only one that ip- pioaches his figuie, the style in all the rest being long and attenuated, more resembling **that** repi event- ed in the next plate

The figuie* in the light hand coiner of this pi ite aie taken from oui *G Heyntanum* with i viou to showing that it is a species ot *Glochidion*, as mdic itr d by the nunbei of cells of the ovary

1909 GYT*OON HIRSUTUM (R 'W), sin ubby, *~~shu~~ plant clothed with long soft pubescence leaves ellip- tic, acuminate male, pci lanth si\-pai ted much lon,t i than the stimens, lobes lmceothc female like th male, style about twice the lcn,th of the calyx <hu- dei, 3-toothed at the apex

Adam* Pcik, Ceylon, Gaiduti, communicated In Mi Ihwaites

1910 ACTEPHIIA NEIGHIIRRF\<18 (R \), fli w ers pentandroiib calvx o-parttd i>eulbtive

Iii dense woods on the top of the high hill east of Coonoor, Nilgiri hills, flowering April and May

JJlume, the founder of this genus*, defines it "monocious, calyx deeply six-partite, lobes in 2 series, petals alternate, shorter than the calyx, inserted, in the male, round an emarginate but numerous disk. Male, stamens six, subulate, cells of the anthers roundish, exterior, 3 rudimentary styles in the centre. Female, ovary 3-celled, cells 2-ovuled, stylis thick, short, divaricate. Fruit capsular, 3-coccos, with 1-2 seed in each. A shrub about 15 feet high with alternate, 2-stipulate, elliptic, oblong, entire, coriaceous, glabrous, cinnamomeous, leaved flowers axillary, glomerate, bracteate, malts hub-and-spoke, fern-like longipetioled.

In all these particulars ray plant, with the exception of the number of parts of the flower, accurately agree—5 in mine 6 in his—and as the number may vary, I see no reason, on that account, for forming a separate genus for mine.

There is however one very important point in mine, to which he does not advert and which merits particular notice as, it may yet lead to their separation, I allude to the structure of the seed. In mine they are exalbuminous. If in the Java plant they are albuminous, then that character, added to the difference in the number of the parts of the flower, will claim for the Indian plant a separate generic name. And on the supposition that so accurate an observer as Blume could so easily have overlooked a circumstance, so late, in the matter, I had in the first instance conducted a generic character for this plant, under the name of *Sarcoternum*,—an allusion to the structure of the seed—from which I quote the following sentences, "capsule 3-seeded by abortion, seed large, fleshy, exalbuminous cotyledons unequal, the larger external one loosely inclosing, and in great part concealing, the interior smaller one." The figures 11, 12, 13 and 14 imperfectly represent this formation. With these notes I leave the future disposal of this plant for the decision of observers who may have an opportunity of examining the Java plant.

1911 AMANOIA INDICA* (R. W.), anthers innate. Corolla tallum, in alpine jungle.

Shrubby or sub-arboreal, ramous leaves alternate, oblong elliptic, entire, acuminate, coriaceous, glabrous. Flowers axillary, glomerate, male and female mixed, bracteate bractsciliate. Male calyx 5-parted, lobes ovate with 5-alternate glands adnate to the insertion of a glandular disk. Stamens 5, inserted round the base of a rudimentary 3-lobed pistil, anthers innate, eclosed divaricating at the base. Female calyx, glands, and disk as in the male, no rudimentary stamens. Ovary nearly concealed within the connate disk, hairy, 3-celled, with 2-ovules in each. Styles 3, deeply cleft, lobes stigmatose. Capsule 3-celled, 3-angled, obsolete 3-angled cells 1-needed by abortion, seed—In my specimens none of the seed is sufficiently advanced for dissection.

Of this genus, up to the present time, only one species has been published, viz *A. Gummensis*, but Ad. Jussieu states that he saw 2 others from the same country. The Indian plant differs from his generic character in regard to the stamens, in his the anthers are *allate* to the dilated apex of the filament, and exserted, in mine they are *innate* (attached to the point of the filament). In all other points my plant agrees so well with his character as leaves me no

room for hesitation in placing it in that genus. My herbarium possesses a second species from Ceylon. The two affording new links connecting these distant floras.

1912-13 PIERARDEA MACROSTACHYS (W. and A.), Males, spikes fascicled on the naked branches flowers ternate, short pedicelled, perianth 4-5-parted, lobes linear, pubescent on both sides. Stamens 8-10, inserted round the base of a 2- or 3-lobed rudimentary pistil. Female, racemes fascicled as in the male, much longer flowers solitary in the axil of each minute bract. Perianth 5-parted, pubescent. Ovary hairy, truncate at the apex, 3-celled. Cells 2-ovuled. Fruit pulpy, baccate, inedible when ripe, about the size of a large strawberry, 3-celled, 3-seeded seed compressed, covered with fibrous membrane. No aril. Embryo thin, enclosed in copious albumen. Cotyledons foliaceous, orbicular. Radicle short, subepigeal.

Mountain forests, Malabar, Anamallay forests. Western slopes of the Nilgiri hills below Sissapar.

In the above extended, descriptive character, I have felt myself under the necessity of avoiding reference to the leaves, from finding a marked discrepancy between those given on the two plates which I had not observed when preparing them. The leaves shown in 1912 are unquestionably those of a *Pierardia*, but I now find they appertain to what appears a different species from the flowers while those of 1913, though forming part of the specimen, are yet detached from the flowers. They differ from the other in being opposite, hence a suspicion arises that they do not belong to the tree or indeed to the same genus. It on further investigation it turns out that they really do belong to it, the two species may be defined, as regards each other, in two words, the one, "leaves opposite," the other, "leaves alternate." This difficulty cannot at the present moment be cleared up, but in the mean time it seems to me they are distinguishable by the flowers alone, in the one, *P. macrostachys*, the segments of the calyx are linear lanceolate, in the other sub-orbicular, there are besides points of habit easily appreciable to the eye but not easily defined in words.

At one time I thought I could define them by their relative number of stamens and lobes of the calyx, the numbers being equal in the one, 2 to 1 in the other. This I soon found inapplicable in practice, from finding in both great irregularities. The figures in this species give examples of two flowers showing respectively 4-5 sepals and 8-10 stamens, two of three other variations might have been introduced, such as 6 stamens and 3 equal sepals, 5-6-7, &c. with 4-5, sepals no uniformity of numbers. The other is so daily variable, so that so far as I have been able to advance it would appear that positive characteristic not readily obtainable from the relative numbers of these two parts, though I certainly think that they may be employed if some latitude were allowed.

P. macrostachys, lobes of the perianth linear lanceolate, acute, many stamens usually twice as many as rudimentary pistil 2-3 lobed.

P. Courtaueensis, lobes of the perianth 4-6, sub-orbicular, blunt, covered with very short rigid hairs. Stamens about equal in number when five or six-lobed often double when four-lobed. Rudimentary pistil discoid. Leaves alternate, somewhat obovate, ciliate, ending in a short blunt acuminate, entire, glabrous.

lous— 11M knes lpic&ented in phte 1912 belong to this species

One specie* of Piciaidu (I am uiiceitam which) is wliui m full fljwer, a cuiious looking tiee One that I biw on the Sibpaiah Ghaut had the whole tmnk of the tice covered with hotizontal flower->pikc3 neill) us clo^e-,et as the hans in a bottle biush cutainly to the full as close-bet as those of 1912, but much shoi tcr I was pi evented taking spe-ncneib and nevei, theiefoie, aseeitained the species, though I fancy it mubt liuc been *uuicroUachi/s* The fruit descubed vv UJ sent from the Anamally forests, but still without leaves

* - P b

1914 TIGLIUM KIOTCHE\KUM (R W), shrubby, ^tcllato-pubescent leaves shoitish petioled, ovato-hmeeolate, acuminate, acutely glanduloso-sen ate, coincideous, with 2 depressed peltate glands at the base of the limb

Travancoie, Milabar

This species, though so neaily approaching the *Croton TigUum* oi *Tig afficinale*, in its written character, seeing to the eye veiy distinct The whole appenance of the two plants diffeis, and yet I can find no satiafactoiy chaiacteis by which to distinguish them, hence I fear they will ultimately prove only vaeties, unless the fruit prove such as to keep them distinct I may however leinaik, in passing, that, though I have found the glandular disk very distinct m this species, I have not found it equally bo in what I have always considered the tiae *Croton Tiglmm*, that repiesented m the Hort Mai 2-33, which I now appiehend will be found specifically difluent from Bmm Zeylan, tab 90, which has moie the appenance of this plant and seems to be the one desdibedby Dr Klotch

1015 CROTON LACCIFEBDM (Linn, *Croton aromaticum*, Willd, Spreng, *Aleuntes lac&ferum*, Willd, *RMeta dicocca*, Roxb ? Rheede Hoiit Mai 5 tab 23? Buim Zeyl 91 Rumph 3 127, usually quoted toi this is not, I think, a Croton, and eeitamly does not icpresent this one Rumph 3, 26 is li^ei but still does notrepiesent this plant), "leaves ovate, toinentose, sen ulate, petioled calyx toinentose Lin Fl Zeylan

My pnncipal object in introducing this plant is to aid m clearing up its complex synonyme by making the plant itself better known It seenib rather curious that the Hoiit Mai figure has never befoie been quoted foi this plant, as it conveys abettei idea of its geneial aspect than any of the otheis quoted The objection to quoting it must I imagine have originated in its dioicoua chaiactei, giving it more the appearance of *Rottlera* than *Croton* and, taking that Jiew of it, it might with much probability be quoted for the male of *Rottlera tinetona*, oi at all events of a *Kottlera* though possibly one still unpublished in an> modern system

The plates of Rumphins have evidently nothing to do with this plant, Bui man s, on the other hand, is certainly a form of it Spiengel, I find in his *Ant. P<3>teriores* i reduces Linnaus *C lacexferum* to Wilkknos *C aromaticum* in place of leversing the case and upholding the prior name

Before closing my remarks on these two genera, I may mention that I have adopted Klotch s genus *TV-hum* as dibtmct from *Croton* on the authority of

Endhcher, piesummg that he was satisfied of the propnety of its sepaiaion before adopting it For myself, not having seen Klotch s revised character of *Croton*, I do not, so far as I can judge from the materials before me, feel certain on that point It *Tighum* is really justly separated from *Croton*, then I shall not be surprised to find that neithei of the two species I have referred to *Croton* is now admittid into that genus If they stld retain that name the genus *Tighum*, it appears to me, might have been dispensed with But on that point, with my present defective mfoi mation, I cannot venture to express i decisive opinion

The rudimentaary petals of the female flower ot *C lacciferum* may perhaps have a highet value assigned to them, when viewed in connection with the whole genus, than I should deem neecessary to attaaeh with reference to the small Indian bianch with which only I am acquainted

PODOSTEMAC&E

Of this small but curious order, very little wi< known until within the last few years, and its affinities are still veiy obscure, being one of those families where analogies abound, but direct affinities are scaice In this small group, the thiee leading divisions of the vegetable kingdom seem to meet In habit, place of growth, and cellulai structure of man> of its species, it enters the Acotyledonous class in some of the *Tukuneas* I observed well-marked monocotyledonous structure, while the seed is most distinctly dicotyledonous So far as yet known, no of its species have petals, but thiee of its genera have a sufficiently well developed perianth and fiee, moie or less numerous, stamens All the others, 17 in number, are deficient in that verticel, but, in its place aic furnished at the base of the pedicel with a spathe moie 01 less resembling the spathe so general ill the Aroideouo fannl), so that, but foi the dieotyledonons seed, it would, if not actually entei, at all events rery neaily approach that older

Since, then, the structuie of its seed lendeis its reception into a monocotyledonous alliance inadmissible, ill what dicotyledonous one can it find a suitable location? lo this question, much more accomplished Botanists than I am, have hitherto failed in returning a satisfactory answci, I will not theiefore make the attempt Suffice it, therefore, to say, that Lindky (*Vegetable Kingdom*) places this very imperfectly floweied older in his Rutal alliance, a lughl) developed polypctalous gioup, including the Orangi, Magohany, Meha, Mango, Rue, &c, to my mind, a highly-stained and unnatuai position Gaidnei takes a different view of the affinities Hi conceives *Podo8temons* neaily allied to *Nepenthes*, an order appei taming to the "diclinous class, and which Lindley places in his Lufhorbial alliance Thi* seems to me a more suitable location than the othei nearer affinities may yet be discoveiod, but, with out present scanty stock of infoiinntion only, to guide us to coirrect conclusions, I think the diclinous class is that in which its nearest relationship will be found

Twenty yeais ago only one Indian species of this ordei was known twenty at least aie now known figuies, more 01 less perfect, of 17 of which will bt found in the following plates and thcie are othei three described and published, of which I have not seen specimens In addition to those introduced

here, I now feel nearly certain that I have one or two additional species among my specimens, but which were overlooked when selecting specimens for representation, simply because at that time I had not sufficiently mastered their specific distinctions, and hung then on the point of leaving home for some week—, had not leisure to study the order

In 1844, when Lindley published his "Vegetable kingdom," the numbers described were 9 genera and 23 species. In February 1849 Tulasne published (*Annulet des Stancias Naturelles*, 3d series, vol 11) a monograph of the whole order, in which he has increased the number to 20 genera and 73 species

In the following plates I have adopted the names of that monograph and propose now, in like manner, adopting his specific character

In July 1846, the late Mr Girdner of Ceylon published in the Calcutta Journal of Natural History, character and descriptions of 9 Indian species, and then sent specimens of them to Europe, and also gave me a set. The specimens sent to Europe were placed in the hands of M Tulasne, and he has republished them under Gaidner's names, but with his own specific characters, evidently before he had seen Gaidner's paper in the Indian Journal

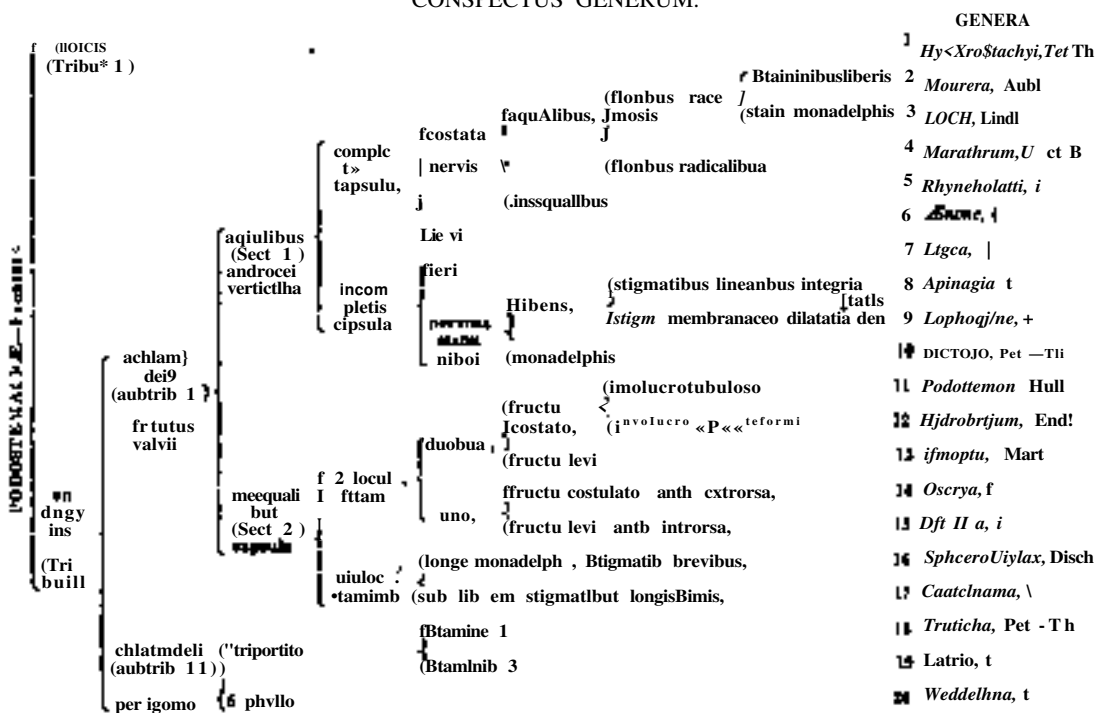
Being thus in possession of authentic materials, I took Gaidner's named specimens as the basis of my figures and for the characters have given both Tulasne's and his. Had time permitted me adequately to study the order, so as to feel certain of not falling into errors, by ignominiously substituting one

species for another, I might have found better specimens for some of the Neilgherry species but preferred accuracy to appearance. And yet, strange as it may appear, even under these circumstances I do not feel sure that at least one error has not been fallen into, that is, I now begin to suspect that the specimens of *D. Wightii* include two species, and that the one selected for representation is not that from which the author's characters and description were taken. Up to the time of writing this note (4th December 1851), I have not been able to satisfy myself on the subject, but I hope, before passing the printed sheet through the press, to have done so, when a note, if required, will give the result. [P.S. Expected specimens have not yet arrived.]

It will perhaps be observed under the genera *Hydrobryum* and *Tulasnea* that the term Rhizoma is used for the part that in previous characters had been called fronds and stems. I cannot myself see the necessity for this change of terms, but feeling certain that confusion and difficulty are apt to be generated when two parties, describing the same thing, use different language, I have, simply to guard against that, adopted Tulasne's term, "even though I do not think it necessary

To render this account of the order more perfect, and under the conviction that many more species will yet be found in India, I subjoin Tulasne's *Conspectus Generum*, exhibiting a beautiful specimen of the dichotomous method of analysis for discovering the genus of any plant of this Order we may have under examination

CONSPECTUS GENERUM.



DICRJSA (Pet. Thuar.).

GEN. CHAB. Stamnodes two, equal, linear, the third usually aboiting. Stamens two, monadelphous: anthers ovate; pollen didymous. Stigmas subulate, short, entire. Capsule several nerved.—Flowers radical, solitary, terminal, or racemose. (Tulasne Aunal. des Science 3d series, vol. ii. 1849.)

1916-1. DICRJEAWALLICBU (Tul., *Podost. Wallickii*, R. Br.), frond greenish, medium-sized (mediocri), lobato-criped on the margin, veined: free and fructiferous on the circumference: capsule obtuse, 8-ribbed; valves somewhat incurved at the apex.

SUhet. The specimens were communicated by the late Mr. Griffith.

1916-2. DICBJEA DICHOTOMA (Tul., *Podostemon dichotomus*, Gard.), stems long, naked, compressed, slender, flexible, sparingly and dichotomously branched: branches simple, long, nearly parallel, somewhat flexuose, sparingly floriferous towards the apex: leaves few, subulate, short, partly cohering: capsule 8-ribbed, ribs somewhat prominent.

Pycarrah river, Neilgherries.

Fronds linear, flattened, dichotomously branched: branches attenuated towards the extremities: flowers marginal: scales few, oblong lanceolate, long acuminate: spathe 2-3-lobed, glabrous: capsule 8-ribbed.

Gardner. Cal. Journal.

In the former of these characters the appendages at the foot of the pedicel are called leaves, in the latter, scales, the former appearing more consonant with analogy, I prefer it to the latter; I will therefore adopt it in my new species and perhaps even when translating Mr. Gardner's characters.

1916-3. DIC&EA WIGHTII (Tul., *Podost. Wightii*, Gardner), stems compressed, 2-edged, flexuose, bud bearing at the angles: leaves narrow linear, simple, sheathing at the base: capsule 8-striated.

Pycarrah river, Neilgherries.

Fronds linear, flattened, flexuose, branched at the base: flowers marginal, leaves (squamae) numerous, setaceous, long [about the length of the spathe]: spathe irregularly lobed, glabrous: capsule 8-ribbed.

Gardner, l. c.

1916-4. DieJLEA iiONoiFouA (R. W.), stems compressed, branched, alternately nodose: lower nodes leafy only, terminal ones floriferous: leaves of the lower nodes long linear, strap-shaped; those of the floriferous ones sheathing at the base, subulate above; two or three times the length of the 3-lobed spathe: capsule 8-ribbed.

Malabar, Rev. E. Johnson.

In the figure the artist has not, owing to having selected a very small plant, shown the lower simply leafy tubercles.

1916-5. DICBJVA BiGisA (Tul., *Podostemon rigidus*, Gardner), branches long, rigid, dichotomous, parallel, leafless; the flowering ones compressed: flowers secured with a double involucre (bis involucre, Tul.).

Pycarrah river, Neilgherries.

Fronds linear, flattened, branchy towards the base: flowers marginal: leaves (scales, G.) few, distichous, imbricating, ovate oblong, obtuse: spathe irregularly lobed, glabrous: capsule 8-ribbed. (Gardner.)

There seems a discrepancy here; the twice involucre flowers of the one, and the distichous scales of

the other. The difference however is in the language, not the thing described. Gardner's scales are sheathing and enclose the proper involucre like a second one, but I view it as introducing a confusion of terms to call them an involucre in one case, and not in all. For myself, had I been writing original descriptions, I would probably have used two terms to designate the two series of parts, calling the exterior series, corresponding with Gardner's squams, either an involucre or bracts, the divisions of which could be described, as leaves or bracts are; and the interior, corresponding with Tulasne's involucre, I would, with Gardner, have called a spathe, and when, as in my *D. longifolia*, I found, in addition, distinct leaves, would have called them by that name. With the aid of three terms, in place of two, the difficulty of distinguishing such species as it, would have been diminished, and we should not, as in the present instance, had confusion of ideas introduced by misapplication of terms.

On re-examination I find the artist has correctly represented the said scales or bracts, which are sheathing at the base, and end in a fleshy pointed cuspis or tooth, and not properly obtuse.

1917-1. DICBJEA ELONQATA (Tul., *P. elongatus*, Gard.), stems sub-ligneous, terete, simple, very long: leafy buds (gemmis foliosis) distichous, alternate; the inferior ones floriferous, the upper ones sterile, with longer, linear, entire, evaginate leaves; those of the fertile ones reduced to a sheath: capsule 8-10, striated with slender nerves.

Rivers in Ceylon. In the Mahawalle Gunga below Peradenia.

Fronds cylindrico-capillary, very long, sparingly branched: leaves fascicled, flattened, setaceous: flowers marginal: spathe irregularly lobed, glabrous: capsule 8-ribbed.

The drawing was taken from very old specimens, the terminal fascicles of leaves of which, seem all to have disappeared. Mr. Gardner describes them as nearly \ of an inch long, fascicled towards the extremities of the fronds.

1917-2. DICBAA SIYLOBA (R. W.), stems very long, ramous, compressed, leafless: flowers distichous on the margin: involucre 4-leaved, imbricating, distichous; the exterior pair smaller, the interior, nearly equaling the spathe obtuse, sheathing at the base subcuspidate at the point: styles pubescent, equaling or exceeding the ovary: capsule six-ribbed.

Mountain streams, Malabar, Rev. E. Johnson.

The styles in this species differ so much from all the others I have seen, that I have thought it well to call attention to this circumstance by naming the species with reference to them.

PODOSTEMON (Mich.).

GEN. CHAB. Involucre (spathe, Gard.) elongated, tubular, lacerated at the apex in opening. Staminodes 3, linear, the middle one attached to the antheriferous filament, sometimes wanting. Stamens two, monadelphous. Pollen didymous. Stigmas linear, acute, short. Capsule 8-ribbed.—Caulescent herbs, leaves distichous, linear, entire: flowers terminal or axillary.

The artist has failed in two points to bring out the generic character—1st, he has overlooked the Stamnodes, which are conspicuous enough when looked for and found, but are BO thin and diaphanous

as to be easily overlooked, unless expressly sought for. In the next place he has not caught the peculiar character of the capsule, which splits into two halves, one of which drops off, leaving the other persistent on the end of the peduncle. The capsule, too, is 2-celled but which, owing to the partition barely separating from the valves, can scarcely be detected in a transverse section. The distinction between this and *Dicraea* is certainly not easily made out in this species, though quite possible under the guidance of a knowledge of the characters, and the points to be looked for, which the draftsman did not possess, and I was not present to direct him.

1918-1 *PODOSTEMON subULATUS* (Gardner, Tul), stem thick, rugous, short, simple or several, dichotomous, branches few, close-packed, spreading, short, densely leafy. Limb of the leaves long, linear, subulate, simple, the dilated sheath stem-clasping. Stamens inserted near the middle of the pedicel. Tul.

Rivers in Ceylon. Mahawalle Gunga near Holnicut. Fronds rigid, erect, terete, dichotomously branched. Branches densely floriferous. Flowers distichous (two-ranked), scales solitary, much elongated, subulate, coriaceous. Spathes 3-4-lobed, rough, capsule 8-nerved. G.

The sheath of the leaves or scales is coriaceous, not the prolongation, at least as seen in dried specimens.

HTDBOBBTUM (Endlicher)

GEN CHAB. Involucre small, ellipsoid, bladder-shaped, splitting along one side only, and then boat-shaped, two-valved. Stamens two, linear, long. Stamens 2, monadelphous. Pollen didymous. Stigmas two, sometimes tooth-like, entire, sometimes dilated, membranous, wedge-shaped, toothed. Capsule with 8-12 slight ribs. — Frondose herbs with scattered floriferous buds (gemma) and few leaves.

1918-2 *HTDBOBBTUM OLIVACEUM* (Tul, *Podostemon olivaceus*, Gard), rhizoma membranaceous, lichen-like, repandly foveolate, olive-green. Buds foveolate, scattered, 1-flowered. Leaves boat-shaped, small. Capsule 8-nerved.

Rivers in Ceylon. Mahawalle near Holnicut. Mahawalle below Peradenia.

Fronds decumbent, sub-orbicular, lobed, olive-colored. Flowers exserted, from the upper part of the frond. Scales 4-distichous, imbricating, obtuse. Spathes dehiscing longitudinally, glabrous, capsule 8-nerved.

1918-3 *HTDBOBBTUM OBISEUM* (Tul, *Pod. Griseus*, Gard), rhizoma unequal, repand, greyish. Foveolate buds numerous. Capsule 8-nerved.

Pycarrah river, Neilgherries.

Fronds decumbent, sub-orbicular, lobes undulated, greyish. Flowers springing from the upper part of the frond, scales six distichous, imbricating, obtuse. Spathes somewhat 2-valved, rough, capsule 8-nerved. — Very near the preceding, but is considered by Mr Gardner sufficiently distinct.

Miaows (Martius)

GBN CHAB. Involucre utriform, obovate, somewhat tubular, mouth several-lobed or toothed. Stamens 2-3, linear, the middle one attached to the antheriferous filament, the wanting. Stamens 3, monadelphous. Pollen didymous. Stigmas sometimes thick, several-lobed, sometimes slightly elongated, entire. Capsule spherical, quite smooth. Small, caulescent or

frondose herbs, flowers terminal, sometimes subracemose.

1918-4 *MNIOPSIS HOOKEIANA* (Tul), rhizoma frond-like, thick, variously repand, gemmiferous on the margin. Buds (gemmae) one-flowered. Leaves few, shoot or scale-like, ovate-oblong, entire, distichously equitant. Stigmas "anguloso-clongatis," entire, distinct. Tul.

In rivers near Bombay, Law. The specimens represented were communicated by Mr Law.

1918-5 *MNIOPSIS JOIENSOMII* (R. W.), rhizoma decumbent, sub-orbicular, variously imbricating on the margin, flower-buds scattered over the surface, 1-flowered. Leaves 4-6, short, ovate, obtuse, imbricating. Stigmas dentiform. Capsule globose, ecostate.

Rivers in Malabar. Rev. F. Johnson.

This seems to me a species fitted to unite *Hydrobryum* and *Mniopsis*, having nearly the spathe of the one, and capsule of the other. I am not quite certain to which of the two organs the higher generic value attaches, but presuming that it is the capsule, I have referred this species to *Mniopsis*, if the higher value belongs to the spathe or involucre, then it must, I presume, be transferred to *Hydrobryum*.

DALZELUA (R. W., Latvia, Tulasne)

GEN CHAB. Pteridium calycine, 3-parted, veinless, lobes equal, imbricated in aestivation. Stamens 3, free, alternate with the lobes of the perianth. Stigmas 3, sessile, linear, short, diverging. Capsule 3-celled, longitudinally 9-nerved. Small thrautiform or frondose plants, broadly expanding on all sides, or linearly-branched. Leaves entire, the interior ones of each one-flowered, bud connate into an open tube. Flowers scattered and terminal.

Feeling myself under the necessity of changing Tulasne's generic name, I have substituted his own very deserving one for that of my respected friend Mr Law, to whom I had the honor of dedicating a genus long ago as 1845, No. 1070 of this work, and republished it in the *Calcutta Journal of Natural History* in July 1846, with the following note:

"A short time before the late Mr Griffith left Calcutta for Malacca, I sent him drawings of two species of *Podostemon* and specimens of several others, as materials towards a monograph of the Indian species of the order, which he then contemplated undertaking. Among those sent was one from Mr Law, which we considered the type of a new genus, and which (at my suggestion) was to have been dedicated to its discoverer. Unfortunately the monograph, so far at least as I have heard, was never written, I therefore took advantage of the opportunity which this plant presented, while naming a figure of it for my *Icones*, of placing Mr Law's name permanently on the records of Botany, by dedicating the genus to him, though, perhaps, less appropriately than if the plant had been found by himself."

This note will, I trust, remove all doubts on the subject of priority, as a manuscript name can never take precedence of one defined and published. This however has been done in the case of *Gtesselia rubella*, a MS. name at the time my *O. monogrammes* was published in the same paper, but which latter, notwithstanding its priority of publication, is now quoted as a synonyme. To prevent a repetition of such supercession I take this opportunity of noticing the circumstance.

P 8 While (his sheet vu passing through the Press I diaerored that the name *Tulium* was preoccupied I have therefore taken the libert) of substituting that of N. A. DaheU, E.M. J. M. \, of the Bombay Medical Establishment, a recent but most prouarting aiMition to the Indun Bouuucac corps whose (taper* in (looker's Botanical Journal tifiw asturance of hia attaining tlio highest excellence in this, the branch of Science to which he is devoting his attention. I hog the faror of the reader changing the name on the plat*.

1919-1. DALZSIXIA ZEYLAMCV (H. W., *TnUxcha Z'yarucn*, (iard., *Lawta Zeulamri*. Tul.) Ihizoma broadly Pip.tmlilig. thick, hardish some of the leaves rosulaU' hiiciJ, short, some scattered, shortly ovate, acute, papilbtsfoim flown & numerous, ^uitPreil, rising from a broad longUh sheath, externally beset on all aides with prominent papilla⁴: pedicel lon; 'b'h. Tul Riven* in t'eylou. On smooth gneiss roots in the Maliawallé Gm.pi, near Peradenia.

Kroud* -iub-ni hicilar, horizontal, irregularly-lobod • leaves fascicled, small, linear, obtuse, flutters springing trum the up>er surface of the frond*: »pathe conical, fleshy, echinate, open aljove: capsule 9-ribbed. Gard.

1919-2 PALZKLUA POLIOS (H. VV), rhizoma ^Heading, lichen-like, lnl**d and fret¹ on the margni. buds for the most part on the free margin*: leave? numerous, fascicled round the base of the pedicel, I >ng iueur, pointed: no sheath: pedicel two or three time* the length of the leaves.

Kiwr*, Salhet near Bombay, Law.

Thw is a very distinct specie* and most easily recognized >j it* tufta of well-formed leaves, and no <*heah* The tea tea under the micro scope exhibit tciy ron*picuou*ly the brxagoual cellular texture so generally observable in moioc<)tyh>dt>noU9 pUnte. VVT tho accuracy of the representation of the section of thr Mtki at hgnre 8 of the plat*¹, I will Dot vent ore t> vouch. If correct, it ut an anomaly in the order.

1919-3 PALZKLUA LAWH (R. W.) . zndaiaprem- ing, inargina free, gemmiferous - leaven, surrounding the sheath, few, short, broader than those within, pnnipwhat lanceolate; thoM of the st'cath very numerous. nhort, needle-Hhaped, recurved: pedicels shonvh - ca^ule ovoid, Hcarcely angUL.

Salset near Bombay, Law.

Thw iifi very di&tinct from the preceding in the <hara<UT of iifH leav&s and cheatha, and b about ennally dintinf from the following in tne linjrth of the p>>ierl. Thi* in a jHMrt not well brought out by thv artist, whoac eye for proportion is not very (in-oc for things in their natural state, and for ob- jHM* i-¹ iieen under the microscope u> utterly wanting. He yenik t> look more to the space available on hw najKT than to the relative sizes of parts of the object u> be > lined. I have now before mi side by side on the field of the microscopexpe specimens of all the rhrf* Hombay Hp*ciJ. ITIH pednnlen of *J and 4 NIT about tiw name length, bat that of 2 u nearly ffitcv &< thick while the length of No. 3 lalesw by two-thirds than that of the other*. I fci it necivwary tii mention this peculiarity of the Artwt's Tiaim to prevent the magnified nVoreri, which should be especially rornft, misleading those who conhult them The lonna of parts are correctly enough nhow, but tho relative sizes are often incorrect.

1919-4. PAI'ZKLLII PSPUNCTIOSA (R. W.). rhi/oma apt cading, margins free, lobed, gemmiferous : leaves, all aggregHted and united to form the nheath, short briffite-hke peduncle 6-8 times the length of the sheath, very slender; capeide ovoid, round, or scarcely angld.

Salset, Bombay, Law.

Though no like in character to the lost, I believe this is & perfectly distinct bpecis.

19*20. DALKBLSIA BAMOOGMA (R. W.), ihizonia very long. Blender, much branched, with numerous lateral flnirifrouf* brauchlet&, with one or several flowers ag^rog\U'd towards the apex • each flower bud uaiially accompanied with two slender, tildbrm, itafy ramuli leaves biibulatc. imbricating, exterior one* short obtuse; middle ones longer, acute; interior 6 or 8 1 mgi^t, lifrulatf, connate at the base, forming the <thori &Wath : nlamenta at first very short, afterwards elongating. Anthers oblong, somewhat nagit- ut* at the bas<j, cda distinct: e>>les filiform, about the length of the ovary, hispid.

River* in MaUbx near Cochin, Rev. £. Johnson.

ThLs is a remarkabK- wpecief on account of the great riizo to which it grow*, some of my specimens being at leant 19 inches long.

Two points noticed above ha\c either been overlooked by the draftsman, or they are not constant, and only met with in older plants than the specimen selected for representation: I allude to the short lateral floriferous brancilets each bearing from 1 or 3 to 6-8 hCAVb flowers, congested on their extremities. The other point overlooked, most probably from the specimens used bring too young, is the rilifurm ramuli springing from hear the base of the peduncles : these, so far as t have yet observed, do not, in wy case, exieed tho length of the peduncle, ar< uot thicker than a thread, and ^iothd their whole length with very aU'nder, longish, imbricating leaves. It is certainly a very dntiuct iTiecies, but whether or not these two p>ints are uirrclv occasionally present, or are constant and h>vo been overlooked by the artist, is more than I can tell

TanmeHA (Pet., Th.).

Gaw. CHAB. Perianth 3-parted, lobes imbricated in RStivationD. StMmcns 1; the rest of the character as in *DidzelLa*.

19-20-2. TEISTH UA BITOIDBS (Gard., *T.hypncitUs** Tul), stem erect, raraoufl; leaves iuibncatiug, elliptic or elliptico-ovate. obtuse -)>cdicels axillary; spath deeply '2-3-lobcd; /\>lm& orbicular: capsnlr 9-ribbed. —Gard.

Tliu being an Ami" ican plant is introduced simply to hhow b> contract tht difference between the two genera. It seems not improbable tliat species of the American genus may y>t b& found in India. These two genera mutually rrepresent each other in their re*poctivi florn*, *DtdzeUia* being to the Indian what *Trutieha* is to the American branch of the order. And, curiously enough, the numbers aro iivly the same in b&ch conutiv, Tulasne has enumerated 5 species of *Trxstxcha*, and 1 have 5 of *DaUellia*, to whirh 2 have to be vldcd, *D. pidcheUa* and *D. Iyn-gtpfs*, whicli I have not aeen, raising the Indian genus to seven specie^

PREFACE.

WHILE the last sheets of this work are passing through the press, I avail myself of the leisure now at my disposal to say a few words regarding it. From its commencement in 1838 to the present time it has had to contend with considerable disadvantages, and been for the most part conducted under circumstances unfavourable to the research necessary towards ensuring correct execution. The press, both Printing and Lithographic, had at the outset to be in a great measure formed for it. The former was conducted by persons very indifferently conversant with their Art, from whom I could derive little or no assistance in the mechanical department, and who were so overloaded with newspaper business that they had little time to devote to work of this kind. Latterly a great change for the better has been effected as shown by the improved style in which it is now turned out. As regards Lithography, it was comparatively untried and much had to be learned, but happily, as the work advanced, it too improved, and has now attained such perfection as leaves little to be desired, and, considering the disadvantages resulting from the unfavourable climate which has to be contended with in India, it is perhaps scarcely susceptible of material improvement. But whether or not I am correct in this conjecture, it is certain that the later volumes are much better executed than the earlier ones. The material, too, and the getting up, owing to the unequal and uncertain supplies of the Madras stationery market, were for some time deficient in uniformity.

As regards my share of the business I have, from the outset, had to work alone and at the same time to conduct the duties of a public office. These were often extremely onerous, and not seldom forced me to pass portions more rapidly through my hands than I considered quite consistent with that accuracy of execution and detail which ought to characterize works of this kind. Add to these, the very heavy drawback of being, for the last 12 years, stationed upwards of 300 miles from the Press, and, I trust, an adequate excuse will be found for some at least of the typographical and other errors with which, I grieve to have to acknowledge, the book abounds.

In regard to errors of nomenclature, which are wholly my own, I can only say that I have been most anxious to guard against them, and have spared no pains that I could bestow, to avoid their occurrence. These, I trust, will therefore be found fewer and for the most part, to the full as venial as the others. To have avoided them altogether was next to impossible in my situation. Such errors appertain to nearly all botanical works of this class, even when conducted under circumstances the most favourable towards insuring accuracy, such as botanical occupations and free intercourse with Botanists, ready access to large herbaria, unrestricted use of well-stocked libraries, &c. None of these has it been my good fortune to possess. If such then are found in works emanating

from the most celebrated Emporia of science in Europe, it would be great presumption in me even to hope that I could avoid them, while working alone with a limited herbarium, and an indifferently stocked library. I have, however, made it my endeavour to compensate for these disadvantages by care, in turning to the best account the sources of information within my reach, and I hope that blemishes of the kind referred to, may not in this work be found greatly to exceed those of other similar publications.

Love of novelty and the ambition of acquiring celebrity by the publication of numerous new genera and species have never influenced me in the selection of my subjects; though doubtless, when such crossed my path, I have gladly given them a place, not so much for the honor they conferred on the discoverer, as for the sake of enriching the flora of which they formed a part. Long before I ever dream't of becoming an author, I often felt the want of the aid towards the determination of an unknown plant which a figure supplies, and for which verbal description, however carefully drawn up, can never altogether compensate. My main object in commencing this work was to supply that desideratum, by the publication of figures of the plants described in my *Prodromus* of the Peninsular Flora. And while acting up to that intention the most common plants were as well, or even better, suited to fulfil my object as the most rare and beautiful, and, perhaps, it would now have been more useful to the Indian Botanist had I throughout adhered more strictly to my original plan.

Be that as it may, as the work advanced, and more especially after my official duties became such as to compel me from want of leisure to discontinue the systematic exposition of the natural orders in my *Illustrations*, it occurred to me that the *Icones* would be improved by imparting to them something more of a systematic character; that is, to the extent of illustrating in a continuous series of plates, whole orders; a feature in which the latter volumes differ from all similar works. By following this course, a series of more or less perfect monographs, at least of the genera, of many large orders have been produced.

Through the adoption of this plan, I have, I think, been enabled to accomplish, more perfectly than I otherwise could have done, my wish to produce a work better adapted to the wants of Indian Botanists, for whom it is principally intended, than had the more usual plan been adopted. And being well acquainted with the disadvantages under which they labour, I have, from time to time, as opportunity offered, endeavoured to lessen these by introducing explanations of elementary principles which would have been unnecessary, or indeed quite out of place, if addressed to highly accomplished European students. Fearing that the latter may sometimes be of opinion that my remarks on these occasions, however incidentally introduced, might as well have been withheld as being unnecessary and common place, I think it desirable to offer this explanation in the belief that most of those for whom the work is more especially intended, will coincide with me as to their propriety, and in the hope that others, who have no ground for complaint on the score of extra cost, will not consider their introduction objectionable.

In the early volumes I looked more to species than genera, which indeed are often the more difficult of the two to determine, but subsequently I thought it advisable to increase the number of genera in proportion to the species, as being better adapted, when grouped in orders, to convey correct and enlarged ideas of the principles of the natural system of arrangement.

This consideration, combined with the interruption of the *Illustrations*, led to this, if I may so call it, monographic plan, to carry out which I generally took up whole orders, and studied them until I had familiarized myself with the distinguishing features and discriminating characters of their genera. Having done so, I then selected for representation those I considered the most interesting or best adapted to convey a knowledge of the peculiarities of the family to which they belonged, as

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well as of the sections, under which they had been grouped by Botanists who had particularly studied and sub-divided the order. Proceeding on this plan I have been led to the construction of more new genera than I might perhaps have deemed prudent, had I not thus in the first instance made myself well acquainted with the labours of my predecessors, and I have certainly been prevented falling into many errors, by being thereby enabled to refer transition forms to already defined genera which I at first thought entitled to form the types of new ones. Having been thus careful, I trust those genera I have ventured to form, will generally be found to rest on a firm basis.

On the subject of nomenclature I have expressed my views so fully under *Gloriosa*, that little now remains for me to add, and even that little, would have been withheld but for a notice I accidentally stumbled upon, while turning over the pages of Dr. Walpers' Annals where, in vol. 2, page 759, I find the following note, "*Mephitidia bracteata*, Wight in McClelland's Calcutta Journal of Natural History, vi. 501 (cum omnibus sequentibus speciebus sub Lasiantho!!)" To this change of name I offer no objection, nor would I have noticed it except for the derisive addition of a double point of admiration. But as it now stands I do most decidedly object, not being informed on what grounds Dr. Walpers assumes the right or deems himself justified, in taking such liberties with my opinions. My reasons for preferring Jack's prior name are fully and fairly stated in the article quoted: they may be right or they may be wrong, but be that as it may, they are the result of careful consideration, and, moreover, further consideration still inclines me to adhere to them. What may be my qualifications for arriving at a correct judgment on any such disputed point I know not, but I hope they will not be found inferior to those of the learned compiler of that very useful, I had almost said indispensable work, for such in truth it is to the Colonial Botanist. Had he merely differed in opinion, simply retaining DeCandolle's *later* for Jack's *earlier* name, I should not have noticed the change. It is not to that I object; he has a right to hold his opinions, as much as I have, but his sneering addition I consider most improper.

Having said so much on the general execution of this work, not attempting to conceal its many defects, I may now be permitted briefly to advert to another subject: the support, namely, it has received, as indicated by the pecuniary returns. This has not on the whole been very encouraging.

On this matter I believe I am correct in stating that, exclusive of the liberal Government subscription for fifty copies, the sales have never, from the outset, quite covered the cost of the paper, on which the work is printed, and that the Government subscription has not quite covered the cost of printing and lithography. Such being the case it must have been, to me, a losing concern from the commencement, and as I have had to bear the whole charge, must, but for the Government subscription, have ceased with the completion of the first volume. Such being the case it is to be hoped the votaries of botanical science who have occasion to consult the work will not fail to acknowledge their obligations to those munificent patrons of Natural Science, the Honorable East India Company, for whatever advantage they may derive from it as without their aid I should never have had occasion to write this preface to the 6th volume. For my own part, the satisfaction enjoyed, while contemplating its progress and witnessing the benefits it was in course of conferring, by at the same time diffusing a taste for Botanical Science and fixing the fluctuating nomenclature of many species of Indian plants, has always been deemed sufficient compensation for both the labour and cost.

The Indian Flora can now, I believe, boast of being more fully illustrated than that of any other country under British sway, Great Britain alone excepted. We have now Roxburgh's Coromandel Plants, Wallich's Plants Asiaticae Rariores, and Tentamen's Flora Nepalensis; Royle's Illustrations, my own Illustrations, and this work, furnishing together representations of upwards of 3000 species, exclusive of those published in detached periodicals and Hooker's Icones, which last

includes many Indian plants. To these may be added Blume's Rumphia (a work I have not been so fortunate as to have seen), and Horsfield's Java Plants. As valuable books of reference, though now rather out of date, we have Rheede's Hortus Malabaricus, Rumphius' Herbar. Amboynense, and the Floras of the two Burmanns. But so far is the field from being exhausted that, I may say for myself, had circumstances permitted, my materials are still so ample, that I could easily have continued this work through 1500 or 2000 additional plates, the subjects for the most part appertaining to the Peninsular flora. It is to be hoped, therefore, that some new aspirant to botanical fame and honors will be induced to resume the work thus prematurely dropped, now that such an efficient press exists for carrying it on.

With these brief prefatory notes I consign these volumes to the indulgent consideration of the public, cherishing the hope that they may not often disappoint the hopes of those who have occasion to consult them, and that they may prove the means of encouraging some of the many admirers of the beauties and perfections of all Nature's works, who had previously been discouraged by the difficulties which beset their path, so long as they had written characters only to guide them to a knowledge of the principles and objects of their study and admiration, to devote a portion of their leisure to the cultivation of Indian Botany.

COIMBATORE, 20M *January*, 1853.

ROBERT WIGHT.

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N. B.—Some of the above dates (viz. vols. n. and III.), I regret to say, can only be considered approximations ; the successive parts, very unfortunately, not having been dated as they appeared.

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EXPLANATION OF PLATES.

VOL. VI.

1776-ftl*. NOTHOSARVA BKACHIATA (R. W. PsEW danthus, R. W. non Lieber.) This plate was accidentally omitted in its proper place. Since the publication of that Part (vol., v. Part 2d), I have learned that the name *Pseudanthus* is preoccupied, I therefore request that the name NOTHOSJSBVA may be substituted (*notkos*, spurious), in allusion to its resemblance to a true jEryva.

PIPERACEiE.

This order in 1830, and for some years subsequent was limited to 2 genera, *Peperomia* and *Piper*. Since then it has been carefully revised by Professor Miquel of Amsterdam, who in 1843, published his elaborate monograph of the order; in which he raised the number of genera to 20, and the species to about 600. Since the publication of that work he has made some further additions to the number of species, which may now be estimated at about 700. Of these 20 genera, illustrations, more or less perfect, of six will be found

in the following 25 plates. The number of species might have been increased had I felt sure that I had so far mastered the specific distinctions as to avoid errors of nomenclature. Of this, however, I did not feel sure and have therefore, with one or two exceptions, limited my illustrations to species named by the accomplished author himself, and shall therefore exceedingly regret, should I afterwards find that in these exceptions I have fallen into errors.

Professor Miquel divides the order into two groups *Peperomia* and *Piperem*. Of 4 genera referred to the first division, *Peperomia* is the only one yet found in India. Of the *Pipereo*, 7 of their 16 genera have Asiatic representatives. Of these 7, five are here illustrated. Of these, *Muldera* has only recently become known as an Indian genus, the original species being from Java. *Rhyncholepis* and *Zippelia* are from the same country, but as they also may yet be found in India, I introduce their character into the following synopsis.

Section I. PEPKRE^E SPDRIA, catkins aggregated on an axillary branch,

Section II. PIPEUE* VERJE, stipules opposite the leaves and petiola, usually deciduous, opposite the leaves, solitary, ...

A Dioicous—

a Berries sessile, ...

1 Bracts pedicelled, peltate, 4-angled, styles none or rarely short,

2 Bracts pedicelled, peltate with a long acumen, style long,

3 Flowers from a fleshy cup opening transversely,

6 Berry contracted at the base into a pedicel,

B Dioicous and hermaphrodite, bracts oblong, sessile, decurrent, ...

iJ^{ermaphrodite} flowers pedicelled, berry hispid, leaves multiple-nerved,

This synopsis is an extract, slightly abridged, from Miquel's table.

POTHOMOBPHK.

CHAVICA.

RHYCHOLEPIS.

MULDERA.

CUBEBA.

PIPKR.

ZIPPSLEA.

1921. PEPEROMIA DINDIGULENSIS (Miquel), erect, branches opposite, succulent, puberulous or rarely glabrous; leaves shortly petioled, opposite (lower ones sometimes alternate and the terminal ones ternate); elliptic, obovate, or the larger ones rhombio-obovate, acute at the base, rounded, obtuse or shortly acuminate at the apex; 5-nerved, sparingly puberulous or ...

In moist soil in woods often found forming dense mats on old mossy branches of trees. In some point

The specimen represented does not quite agree with the character, but as corresponding ones were named

by the author, I have no doubt this is only a more

form than that from which the character

has been derived it on the Pulney Mountain, Auamallay Hills, and Neilgherries.

1922. PEPEROMIA HETNEANA (Miq.), erect, decumbent and rooting below, succulent, stem pilose or glabrous; leaves opposite, the upper ones in whorls of three or four, lanceolate-elliptic, obtuse or emarginate at the apex, acute or cuniate at the base, glabrous, brown spotted, sometimes slightly ciliate at the apex, one-nerved with smaller vein-ribs (venuloso-

costulatis), or somewhat 3-nerved from the 2 costulas rising at the base: catkins (arabants) axillary and terminal, peduncled, filiform, erect: flowers somewhat remote, ovary ovate, bearing the stigma on the apex.

This like the former is a native of woods, growing on branches of trees or moist rocks. Also in open ground on rocks moistened by adjoining springs.

1922. PEPEROMIA PORTULACOLDES (Dietr. Miq.), Succulent, glabrous, sparingly branched, creeping, deeply rooting, leafless below: leaves opposite, upper ones ternate, short petioled, succulent, glanduloso-punctuate, obovate, oblong, or sub-spathulate, absolutely three- rarely 5-nerved: catkins axillary and terminal, solitary, longish peduncled, shorter than the peduncles, cylindrical, obtuse.

Common in alpine stations, growing in thick tufts on moist rocks or branches of trees. This species is described from Mauritius specimens, but mine were named by Professor Miquel, and answer to the character.

1923-1. PEPEROMIA REFLEXA (Dietr. and Miq.), succulent, coriaceous, rooting at the base, ascending, erect, di- or trichotomously branched, slightly puberulous or glabrous: leaves ternate or quaternate, (rare-

ly six at the forks) petioled, succulent, pellucid punctuate, rhombic elliptic obtuse or loundish, rarely letuse, contracting below into a short petiol, minutely pubescent, obsoletely 3-nerved below, speckled with deepened brown points, petiols united into a ring at the base peduncles terminal, nearly as long as the catkins catkins cylindrical, deeply pitted, rough

A very common plant on the Nilghemes on branches of trees and seems pretty generally diffused in alpine ranges

1923-2 PEPEBOMIA COURTALENSIS (Miq), erect, succulent, glabrous, oppositely and alternately branched leaves moderately petioled, opposite, of the upper ones veined, and usually hairy all varying in form and size, elliptic-oblong, of obovate, acute or attenuated at the base, rounded or slightly obtuse and emarginate at the apex, and the lower ones cordate, equal or unequal sided, pellucid punctuate, pale beneath, obsoletely 3-nerved catkins axillary of terminal solitary or aggregated, erect, straightish, longish peduncled, with the densely flowered by 1-3 somewhat imbricated obliquely ovate Miq in Hook Bot Jom, vol 5, p 549

Comtallum, forming patches* on bunches of trees or on moist rocks flowering in August and September I think I have also met with this species on the Nilghemes

1924 PEPEBOMIA WIGHTIANA (Miq), herbaceous, succulent, erect, rooting at the base, pubescent leaves alternate, of the upper ones opposite, petioled, the lower ones small, loundish or obovate, the last elliptic or obovate-elliptic obtuse, acute at the base, glabrous, the younger ones somewhat ciliate at the apex, obsoletely 3-nerved, pellucid pointed, pale beneath catkins longish peduncled, axillary, solitary, of the terminal ones aggregated, filiform, erect, remotely flowered by 1-3 ovate, sub-oblique

Malabai, in woods

1925 POTHOMORPHE SUBPELTATA (Miq), leaves membranaceous, pellucid-punctate, sub glabrous on the nerves and veins, beneath, towards the margin, pubescent between the veins*, loundish leaved, cordate, acute, 11-13-nerved, the middle nerve tufted above the base petiols of 1 or 2 their length winged wing evanescent peduncles panicle, unequal, 2- or several-spined bracts triangular, ciliate seed black, anolate, obovate, 3-sided.

A widely dispersed species inhabiting, in India, dense humid subalpine forests I first found it at Comtallum, but since then have met with it in many other localities It occurs on the eastern slopes of the Nilgherics, in moist ground, at an elevation of about 5000 feet

1926 CHAVICA BETLE (Miq), shrubby, scandent, rooting, branches stunted leaves membranaceous, of the adult ones coriaceous, pellucid-punctate, shining above, glabrous on both sides, the inferior ones ovate, broadly cordate, acutely acuminate, equal-sided the upper ones unequal sided, slightly unequally cordate, of rounded at the base, shortly acuminate or acute, septuple or quinquuple-nerved catkins peduncled male ones long slender, patulous or deflexed, female deflexed, shorter, long peduncled stigmas 5 or 6

A universally cultivated plant and doubtless presenting numerous variations The figure, which is one of Roxburgh's, differs in some points from the above sketch, and seems defective in its representation of the nerves which, however, I did not find myself at liberty to alter, when sending the drawing to the Lithographer, is it bears Roxburgh's name as its authority, and I believe correctly represents the specimen from which it was taken

1927 CHAVICA PEEPULOIDES (Miq), branches petiolate and peduncles, delicately pubescent leaves membranaceous, pellucid-punctate, glabrous inferior ones ovate, equal sided, rounded at the base, acuminate at the apex, septuple or seven-nerved, the upper ones oblong lanceolate or hence elliptic, unequal sided, slightly unequal at the base acute or acuminate at the apex, quinquuple-nerved male catkins short peduncled, slightly or curved, much shorter than the leaves bracts shortly pedicelled, peltate, orbicular diandrous

The character of this species is taken from a male plant, the drawing apparently from a female It is a native of Siam

1928 CHAVICA ROXBURGHII (Miq), stem somewhat shrubby, the sterile ones decumbent, the floriferous ones ascending, dichotomously branched, at first slightly downy, afterwards glabrous, inferior leaves long petioled, ovate, loundish, broadly cordate, acute or obtuse, seven-nerved upper ones short petioled, top ones sessile, embracing the stems, oblong, unequally cordate, 5-nerved, all thick membranaceous, finely pellucid punctate petiols and nerves beneath, especially near the base, finely downy, afterwards glabrous male catkins longish, cylindrical, with the peduncle as long as the leaves, female ones thicker, less than half that length, about the length of the peduncle stigmas 3-4, lanceolate

This plant is extensively cultivated for its fruit, which is the "long pepper" of the shops I have never met with it except in gardens, and then only as single plants It is readily propagated by cuttings The stems are annual, but the roots live several years, and when cultivated, usually yield three or four crops, after which they seem to become exhausted and require to be renewed by fresh planting

1929 CHAVICA SABMENTOSA (Miq), stem somewhat shrubby, sterile ones decumbent, rooting, floriferous ones erect dichotomously branched, below glabrous, laminae finely downy lower leaves long petioled, loundish cordate or broadly ovate cordate, shortly and obtusely acuminate, seven-nerved or decuple-nerved, upper ones short petioled or sub-sessile, ovate oblong, unequal sided, unequally cordate or rounded at the base, acuminate, quinquuple-nerved, all thick membranaceous, thickly pellucid pointed, petiols and nerves beneath downy, glabrous above female catkins short, thick, cylindrical, as long as the peduncle stigmas 4, lanceolate

Native of the Eastern Archipelago whence it was introduced into the Calcutta Bot Garden Miquel seems to think this very nearly allied to the former, notwithstanding the figures of the two plants seem so very distinct The fruit, like that of the preceding, is gathered and sold under the same name

1930 CHAMCA STLVATICA (Miq), stem fruticose, scandent, glabrous leaves all petioled, equally cordate

date, obtuse base of the lobes broad obovate, 5-7-nerved, glabrous male catkins shortly peduncled, blendei, female, shortly peduncled stamens 4

Native of the North Lister Provinces of Bengil This, plate is taken, like the preceding, from Roxburgh's drawing but the name was accidentally omitted when sending it to the Lithographer

1931 CHAVICA SPHIACROSTACHYA (Miq.), glabrous, leaves somewhat coriaceous basally pellucid dotted, elliptic, unequal sided, acute or acuminate at the base, acuminate acumens blunt, sometimes mucronate septuple nerved male catkins filiform, female, globose biacts pedicelled, obovate stigmas thin, shortly, recurved, connate at the base

Easter Islands, Nepal, and common on the Neilgheies, where the specimens presented were obtained It seems to be in flower or fruit at all seasons, is an extensive climber and covers the adjoining trees with a dense mass of vegetation

1932 CUBETU WALLICHII (Miq.), ramuli and the petioles of the young leaves, slightly downy, soon glabrous leaves epunctulate, obovate, slightly unequal-sided, acute, deeply cordate, equal at the base, lobes rounded, nine to 13 nerved, the three middle nerves remote from the base beny-beney catkins spreading, thick the berries globose, a little produced at the apex by the remains of the stigma, shorter than the, somewhat thickened upward*, pedicel

The following description of the specimen figured is from the same pen, and will account for its publication I now regret not having copied Miquel's figures of the fructification into my plate, which would have made it much more complete

"Cubeba, male specimen — Leaves coriaceous ovate or elliptic acute, acuminate 5-7 nerved, the middle ones distinct from the base catkins long filiform, flowers arranged in long* or fascicles biacts coriaceous, obtuse, adnate at the base, concave, glabrous stamens near a fasciculus of short hairs

"Malabai

⁴¹ This specimen probably appertains to *C. Wallichii* of which I have as yet only seen the female, which differs in having the leaves cordate at the base since however in this genus the leaves of both sexes often differ in form and magnitude, I may be deceived in this opinion

It is with a view to making known the aspect of a plant, referable to a genus almost unknown in Continental India, that this imperfect figure has been introduced, in the hope that it may lead to the discovery of the fructiferous plant which should be distinguishable by having the berries not sessile or nerved in the spike, but borne on a distinct pedicel

1933 PIPER ATTENUATUM (Hamilt), scandent, rooting and giving off suckers, young shoots glabrous leaves membranaceous obsoletely pellucidopunctate, glabrous above, the petioles veins and nerves beneath roughish, the lower ones long petioled, cordate, ovate acuminate, 9-nerved, upper ones broadly ovate, truncated at the base, 7- or septuple-nerved, female catkins slender filiform, shortly peduncled peduncle much shorter than the leaves, biacts adnate oblong ovate elliptic, stigmas 4, roundish, deflexed

Neilgheies, Eastern slopes There is a discrepancy in the specimen presented and Miquel's de-

scription and figure of this species* The female catkin in his specimen, which is younger than mine, is about the length of the male one of my plant, or less than half the length of that of my specimen As, however, my plant corresponds in other respects, I believe it is the same species He had not seen male catkins and only very young female ones, and I know that in my plant they lengthen as the seed advances towards maturity

1934 PIPER NIGRUM (Linn), stem shrubby, climbing, rooting, leaves coriaceous glabrous, pale glaucous beneath, adult ones revolute on the margins, the lower ones, lousish ovate, about equal sided, slightly cordate or truncated at the base, septuple or noveno nerved, namely the three middle ones each separating above the base and extending to the point, upper ones ovate-elliptic, or elliptic, usually unequal sided, acutely acuminate, 7-5-nerved catkins hermaphrodite or female, filiform, pendulous, shortly peduncled, shorter than the leaves biacts linear oblong yellow on the margin lachis between the biacts long stamens two, thick, stigmas 3-4, rarely 5, thick, lanceolate berries globose, red when ripe, flonaceous calycul in the hemaphrodite 4 lobed

Malabar The figures are taken from specimens named by Dr Miquel, but little dependence can be placed on the forms presented by specimens taken from cultivated plants of species that have been long in cultivation as this one is My impression, and I think it is also becoming Miquel's, is that *Piper trinacrum* is the original type of *P. nigrum* and that the latter should merge in the former

1935-6 PIPER TRINACRUM (Roxb), stem shrubby, sarmentose (throwing out runners) and creeping leaves coriaceous, dark green above, light glaucous below, somewhat obliquely elliptic (the lower ones subcordate) acuminate, rounded or subacute at the base, the upper ones 1-mucronate oblong, 5-7 nerved catkins twoicous, males filiform, females more rigid and shorter biacts 3 series of the hermaphrodites 4 series, the younger ones delicately ciliate, some glabrous, flonaceous pit long ovate sub-globose, 3-4 stigmas filiform calycul of the hermaphrodite catkins 2 lobed

Cucai

The accompanying plates are taken from Roxburgh's drawings and must therefore represent the true plant Subsequent to Miquel's writing the above characters he had an opportunity of examining specimens from the South of India, and seems now to think that this species is scarcely distinct from *P. nigrum*, but consigns their examination and final determination to the careful consideration of Indian Botanists My own impression is that the species are too much well drawn, but of course in this I am likely enough to be in error, as I have, as yet, had neither leisure nor materials necessary to admit of my undertaking its minute examination, without which it would be premature to express a decided opinion

1937 PIPER STYLIACROSTACHYA (Lamarck), stem shrubby, scandent, rooting leaves membranaceous pellucidopunctate, glabrous, green above, glaucous beneath, ovate, acuminate, oblique at the base, or in the lower ones somewhat cordate and equal, 7-nerved, the three middle ones extending to the apex male catkins

peduncled, filiform, pendulous; bracts linear oblong; female about the length of the leaves; bracts oblong roughish beneath: stigmas 4, reflexed, deciduous.

Courtallum. In dense woods climbing on trunks of trees like Ivy.

1938. PIPER NBPALENSE (Miq.)_r younger leaves membranaceous, the adult ones membranaceous-coriaceous, glabrous on both sides, pellucidopunctate; the lower ones obliquely ovate, or elliptico-ovate, nearly equal and rounded at the base, acuminate, and like those of the branches 7-tuple-nerved; those of the male plant narrower; female catkins erect, afterwards spreading (patulous) about the length of the leaves: bracts oblong, beneath and the rachis roughish: ovary acuminate: stigmas 3-4, lanceolate, deflexed, pubescent: berries ovate acute.

Courtallum, in dense forests climbing on trees. There are some discrepancies here between the character and figure, but not of essential importance.

1939. PIPEE WIOHTII (Miq., erroneously *Wightiana* on the plate), leaves coriaceous, membranaceous, finely pellucidopunctate, glabrous, smooth above beneath, on the younger ones, sparingly hairy, ovate or elliptico-ovate, shortly acuminate, slightly unequal, rounded at the base, 7-nerved, (or the 3 middle ones united at the base) somewhat septuple-nerved, female catkins afterwards elongating equaling or exceeding the leaves, spreading; peduncles longer than the petiols: bracts oblong, linear, somewhat membranaceous: stigmas 3 or 4.

Pulney Mountains above Cunawaddy, Courtallum, Bababuden hills, Mysore? I am not quite certain in regard to the last station, the specimens being male only. My others are female, but they seem the same species. I am indebted to the kindness of Dr. H. Cleghorn for them. Dr. Miquel compares this with *P. attenuatum*, *Nepaleiue*, and *sylvestre*, with all of which it more or less corresponds, but he thinks readily distinguished by its rigid coriaceous leaves, a mark which the figure cannot show.

1940. PTPEB ARBORESCENS? (Miq.), stem shrubby, pendent, the younger leaves membranaceous, the adult ones thick, coriaceous, shining above, glaucescent beneath, puberulous on the nerves, elliptic or ovate elliptic, obliquely shortly acuminate, unequal at the base 5- or somewhat 7-tuple nerved: peduncles about the length of the petiols: male catkins short, somewhat curved, bracts orbicular, diandrous: females filiform, pendulous, at length very long, bracts linear oblong, sessile; stigmas 3-4, berries oblong.

Neilgherries. Fruit yellowish, passing into red when ripe.

Much as the specimens selected for representation differ in some points from the character, especially in regard to the length of the male catkins, I can hardly hesitate in considering this the species I have named, for many of my specimens, taken from the same plant, perfectly correspond with that part of the character. The point on which my doubts rest, and an account of which I have added a mark of doubt to the specific name, is the discrepancy in the form of the female bracts. This is a fine species, climbing on trees and forming large masses of pendulous herbage round their trunks and lower branches. I got it in a fine state of fructification in the months of April and May.

1941. PIPER ARGYROPHYLLUM (Miq.), glabrous! the upper leaves membranaceous, thickly white spotted beneath, light opaque green above, obliquely elliptico-lanceolate, taperingly acuminate, nearly equal-sided, acute or cuneately tapering at the base, the lower septuple- the upper ones quintuple-nerved, the lateral nerves not extending to the apex: female catkins peduncled: peduncles about the length or sometimes exceeding the petiols: bracts oblong, glabrous above, subciliate: ovary elliptic, glabrous: stigmas 3-4, broadly lanceolate from the base, revolvately recurved, pubescent: berries ovate, shortly beaked, black when dry: testa of the seed dark brown, shining, wrinkled.

My only specimen of this plant is a male one, the counterpart of which it would appear Dr. Miquel had not seen as his description altogether refers to the female plant. So far as the habit and foliage is concerned it seems to agree with the character of the species, but it looks so like the following, that I almost suspect they are the male and female of the same species.

1942. PIPER HYMBNOPHTILLUM (Miq.), younger branches petiols and nerves on the under surface of the leaves, crisply roughish (crispatulo-hirtillis): leaves thinly membranaceous, transparent, elliptic, attenuately acuminate; acumen pointed or slightly blunt; base acute, equal-sided, quintuple-nerved; the lower nerve 3 very slender, the upper ones, by interlacing, stronger, scarcely extending to the point: peduncles twice as long as the petiols: female catkins about the length of the leaves: bracts linear oblong, adnate, undulated, stigmas 3-4.

Courtallum.

As already remarked, this seems to me the female of the preceding, and, so far as description goes, it does not appear to differ from the plant defined. I fear too much stress has been laid on characters taken from the relative lengths of the inflorescence and leaves, and on the forms of the bracts, in the discrimination of the species of this genus. I make the remark mainly for the purpose of directing attention to the subject.

1943. MULDERA WIGHTIANA (Miq.), leaves ovate or ovato-elliptic, obliquely and acutely acuminate; equal and roundish at the base, septuple-nerved, the three middle nerves continued to the apex, (reddish beneath) membranaceous-coriaceous, pellucidopunctate: male catkins long peduncled, filiform, longer than the leaves, many-flowered: cups reflexed, clavate; opening transversely near the apex; hairy within.

Courtallum, in dense forests, flowering during July and August.

The above character applies to the male plant—that on the righthand side of the plate. The other, the female, seems to differ a little, but is I think the same species, though, I strongly suspect it is the *M. galeata* of Miquel. I have specimens of the female form from both the Neilgherries and Courtallum. On the supposition that it is indeed that species, I subjoin Miquel's character of it.

MULDERA GALEATA (Miq.), leaves broad or lanceolato-elliptic, somewhat acute and acuminate, slightly unequal-sided, obtuse or acutish at the base; septuple- or quintuple-nerved, the middle nerves free from a little above the base extending to the apex, some-

what stiffly coriaceous, pellucido-punctate: female catkins long peduncled, shorter than the leaves, glabrous: flowers rather remote: cups obliquely clavate, the exterior lip galiate, the interior smaller: ovary depressed, globose: stigmas 3-4, small.

The female figure of the plate seems upon the whole to correspond pretty well with this character, though there are undoubted discrepancies; these however will, I suspect, on comparing a number of specimens, be found referable rather to individual peculiarities of specimens than to specific differences.

1944. MULDERA TRICHOSTACHYA (Miq.), upper leaves lanceolate or oblong lanceolate, equal-sided, moderately acutely acuminate, base equal, obtuse or acute, quintuple-nerved, coriaceous, pellucido-punctate; peduncles glabrous, about the length of the petioles: male catkins elongated: cups obliquely sub-globose, constricted at the base, puberulous or hairy within.

Malabar, in forests climbing on trees. This species seems very distinct from *M. Wightiana*, as shown by the shape of the flower cups.

1945. CHLORANTKUS INDICUS (R. W.), shrubby, rare: leaves short petioled, broadly oval, obtuse at both ends, crenately serrated, glabrous; peduncles terminal, spicately paniced: flowers numerous, ~~scapula~~.

The order *CMorantkacea* is a small one, consisting of 4 or 5 genera, and distinguished like most of the peppers by having neither calyx nor corolla.

Chloranthus is distinguished from the following by having a broadly dilated 3-lobed filament which seems to perform the functions of a perianth. The middle lobe bears a perfect 2-celled anther, and each of the lateral ones a one-celled one, or half anther, so that in place of the genus being triandrous, as usually described, it seems more properly diandrous with the posterior anther split into two halves. This is shown in figures 5 and 6 of the plate. The species here represented may perhaps prove *Bluræ's C. officinalis* which I have not seen, neither have I access to his character.

SARCANDRA (Gardner, Cal. Jour. vol. 6, p. 348.)

GEN. CHAR. Flowers hermaphrodite, sessile in a boat-shaped bract. Perianth none, stamen one, inserted on the ovary; filament thick and fleshy; anther introrse, 2-celled, opening longitudinally. Ovary 1-celled, with a single pendulous ovule; stigma sessile, depressed. Drupe 1-seeded, putamen thin, fragile, seed pendulous, testa membranaceous, embryo antitropous, enclosed in a fleshy albumen, radicle inferior.—A shrub, branches nodosely articulated: leaves opposite, petioled, penninerved, coarsely glanduloso-serrated; petioles uniting at the base into a short stem-clasping sheath: inflorescence terminal, paniculately spiked.

1946. SARCANDRA CHLORANTHOEDES (Gardner).

Ceylon, Pulney Mountains, Conrtallum, &c.

This is a rather common shrub in the sub-alpine jungles of the places indicated. In the figure—which was not prepared under my superintendence and, as regards the fruit, from imperfect specimens—the artist has not understood the sections of the fruit,

which I find he took from specimens in a state too young for satisfactory dissection. The figures 5, 6, and 8 are all wrong and ought not to have been introduced into the plate.

1947. CALLITEICHE WIGHTIANA (Wall.), stems depressed, creeping: leaves all obovate, tapering at the base, obtuse, 3-nerved: flowers nearly sessile; the pedicels without bracteoles: fruit of 4 equal lobes, each with a winged keel at the back; pericarp membranous and cellular.

Frequent on the Neilghemes, in swampy ground and streams.

1948. I. II. CERATOPHYLLUM MURICATUM (Cham.), fruit elliptical, slightly compressed, furnished with 3 (or occasionally 4) spines, winged, not gibbous; spines slender, weak; wing narrow, regularly many-toothed; sides of the fruit convex, more or less muricated, particularly towards the apex.

Tanjore and Coimbatore in wells. Figure I., in the accompanying plate, was taken from recent specimens gathered in Coimbatore. Figure II., from the specimen from which the above character was taken. There are some differences in the aspect which however do not appear of specific value.

1948. III. CBRATOPHYLLUM TUEHCULATUM (Cham.), fruit ellipsoidal, slightly compressed, not gibbous, furnished with 3 spines, wingless; spines at first slender and weak, afterwards strong; sides of the fruit convex, finely tubercled.

Tanjore in Wells.

U948. IV. CBEATOPHYXMJM MISSIONIS (Wall.), fruit ellipsoidal, slightly compressed, not gibbous, furnished with 3 spines, winged; spines elongated, lateral ones flattened; the wing broader downwards and decurrent along the base of the spines, with a few irregular teeth: sides of the fruit convex, finely tubercled.

This and the last do not appear to have been distinguished by the Missionaries: at least the specimen sent by Klein to Willdenow belongs to the one, while those from his (or the Madras) herbarium before us have the fruit of the present species: except in the presence or absence of the wing there is, however, no difference, and we have merely separated them in deference to Chamisso's observations on the genus. Perhaps the whole three species ought to be combined as varieties under Roxburgh's name of *C. verticillatum*, characterized as a species by the ellipsoidal, tubercled or muricated, 3-spined, not gibbous, fruit. W. & A. Prod. 310.

1949. MACABAKGA. For explanations of this plate see vol. 5, Part 2d, page 23, under No. 1883, where specific characters of each of the subjects here represented are given.

1950. SAPIUM INDICUM (Willd.), leaves, ovate, oblong, acuminate, acutely serrated, biglandulose at the base: spikes solitary, male flowers fascicled, triandrous: bracts supported by two fleshy glandular bodies: calyx 3-parted, lobes cordato-ovate, fringed: styles subulate, stigma simple, pointed.

Mergui, Griffith. According to Roxburgh the juice of this tree is reckoned very poisonous. It is a native of the Delta of the Ganges, and, if Rheede's figure (Hort. mal. 4 tab. 51) be really this tree, also of Malabar.

The dissections of the male flowers are taken from unexpanded buds: the filaments therefore are shorter than the perianth, in full grown ones they are longer.

1950-2. *SAPIUM BACCATUM* (Roxb., *S. populifolium*, K. V. in Icon.), arboreous, dioicous, ramous: leaves long petioled ovate oblong, acuminate, entire, glabrous, pale beneath: panicles axillary and terminal, spicate; flowers fascicled, very minute, pedicelled, diandrous: female racemes terminal and axillary, shorter than the males: ovary 2-celled with a single ovule in each, berries globular, seed solitary.

Mergui, Griffith. I am indebted to the late Mr. Griffith for the specimen represented, from which the character of the male plant is taken, that of the female is taken from Roxburgh.

When naming the drawing I thought my plant different from Roxburgh's and named it accordingly, a second and more careful comparison with his excellent description satisfies me that it is the same as his. I therefore request the name on the plate may be altered as above.

1951. *SAUROPUS RETROVRSRA* (R. W.), shrubby: leaves distichous, short petioled, ovato-lanceolate rounded at the base, acute or somewhat acuminate, glabrous on both sides: peduncles axillary, short, many-flowered: flowers somewhat fascicled, opening in succession, longish pedicelled, drooping, calyx tubular, inverted, or turned back on the pedicel so as to place the stamens on the apex: stamens 3, filaments united at the base into a column, female flowers——?

I only know this plant from specimens gathered many years ago in Ceylon; they are without female flowers, hence it may be difecious, though I think that scarcely probable. The curious feature in its structure is the calyx which is tubular, but becomes turned inside out and turned back, thus bringing the stamens to the surface.

1951-2. *SAUROPUS GARDNBRIANA* (R. W.), shrubby: leaves broadly ovate or nearly oval, sub-cuspidate, glabrous on both sides; peduncles axillary, short, many-flowered flowers, fascicled or opening in succession, pedicelled: calyx spreading, obsoletely six-lobed: female flower six-cleft: fruit about the size of a black currant.

Ceylon, Gardner. The specimens from which my rather imperfect figure was taken, were communicated by the late Mr. Gardner, labeled, "742. *Sauropus*, Lautan.".

They are rather imperfect, especially as regards female flowers, and having only a solitary fruit.

1952. *SAUROPUS ZEYLANICA* (R. W.), shrubby: leaves ovato-lanceolate, acute, rounded at the base: peduncles axillary, short, several-flowered, calyx six-lobed, lobes obtuse or sometimes acutish, spreading: female——?

This I also gathered in Ceylon many years ago, the specimens seem to be without female flowers. The lobes of the calyx are represented too acute and prolonged in the plate, or if correct in that particular instance the form is not constant as I find them in other flowers much more obtuse: this however seems quite distinct from both the preceding species, but most nearly approaches, *S. Gardniana*.

1952-2. *SAUROPUS INDICA* (R. W.), shrubby: leaves varying from ovate acuminate to ovate lanceolate, acute at both ends: peduncles axillary, short, few-flowered: calyx sinuately 6-lobed; lobes obtuse: ovary 3-celled; styles 3, distinct, stigmas dilated: fruit about the size of a gooseberry.

Cour tallum and Shevagherry Hills, flowering August and September, but not apparently in its most perfect state as the specimens are not very good as regards either flowers or fruit. It is somewhat variable in the form of the leaves. It approaches the *S. Zeylanica* in appearance, but is certainly, I think, distinct. The genus however is as yet comparatively unknown, so that we have still to learn the true specific characters. I have looked principally to the calyx for them.

1953. *SALIX ICHNOSTACHTA* (Lindley in Wall. L. without a character), arboreous, leaves ovato-lanceolate, acute or acuminate, crenately serrated; shining above glaucous beneath: bracts short, obtuse, hairy: male flowers pentandrous; female sub-sessile: capsule 4-seeded.

Mysore, Shevaroy Hills, near Salem. The principal distinguishing features between this and the following are found in the form of the bracts, the fewer stamens, the sub-sessile female flowers, and more coriaceous leaves.

1954. *SALIX TETRASPERMA* (Roxb.), leaves lanceolate acuminate, finely serrulate: bracts 2-lobed, upper one much larger, boat-shaped, slightly dentate on the margin: stamens about 8, much longer than the bracts: ovary pedicelled: stigmas 2, spreading, apparently 4-lobed: capsule pedicelled, 2-lobed, cells 2-seeded.

Ootacamund, Coimbatore, and elsewhere. To what extent the above characters would seem to distinguish this from the numerous species of the genus, I am unable to say, but they are quite sufficient to distinguish it from the preceding.

1955. *GNBTUM FUNICULARIS* (Buch. Smith, *O. scandens* 9 Roxb.), arboreous, scandent or climbing: leaves opposite, oval, or somewhat obovate, abruptly cuspidate-acuminate, glabrous: catkins axillary, cylindrical, longish peduncled, solitary or several aggregated in the same axil: fruit obovate oblong, somewhat larger than a large olive.

Malabar, in alpine jungles, also sparingly on the eastern slopes of the Neilgherries where I have seen a tree of it climbing to the top of a very large banyan (*Ficus**, species not ascertained), where the extreme branches hang down to the extent of, I suppose, some 20 or 30 feet.

The above description of the fruit is principally taken from Rhede's plate, the fruit on my specimens not being sufficiently advanced. Smith's character of the species I do not understand: "lateral veins of the leaves separate to the margin," and again, "the leaves are 4-5 inches long, various in breadth, pointed, firm, shining, distinguished by their veins continuing distinct to the edge of the leaf." As in a matter so simple it is scarcely possible he could have been mistaken, and as, in the specimens now before me, which quite correspond with Rhede's figure, I find no such peculiarity, the veins being distinctly reticulated on the margin, I fear we have got dif-

frequent species before us, a point which can scarcely be determined until our respective specimens are compared

In its woody structure this plant presents a close affinity with *Peppers*, the sections of the two being almost indistinguishable

1056 TETRAMFLES GRIHAMIANA (R. W. Amott) *Grihamiana* Nimmo in Graham's Catal., leaves long petioled, coidate, shortly acuminate, serrated (mildly) panicle peduncles terminal, cymose & c, females racemose & c, racemes long pendulous

Couittallum, Malabai, Ghauts, kc

I have followed Mr. Nimmo in the specific name, though I suspect this is not distinct from *T. nudiflora*, Blown. The specimens from which the drawing was made were gathered at Couittallum, but I received others from Mr. Graham of Bombay, but all without leaves

1957 ABTOCARPUS (Jaca) HIRSUTA (Lam., Roxb), leaves elliptic, obtuse, often rounded at both ends, glabrous above, hairy, especially on the nerves, beneath male catkins long cylindrical, about the thickness of a quill, at first ascending then erect, afterwards becoming pendulous females oval, about the size of an egg fruit globose echinate

Malabai, on red soils, also in forests where it attains a great size, the trunk being large enough for canoes, for the formation of which the larger ones are principally used. The drawings embodied in the plate were made at different times: the figure of the tree and full grown fruit were taken from a tree growing near the van drum in May, that of the flowering branch was executed at Tellicherry by the same artist (Ruugia), but not under my inspection. I, however, believe them correct, though at variance with Roxburgh's description and Rheede's figure, as regards the direction of the male catkin: the difference being referable to the difference of age. The figure is not a very good specimen, and I now suspect the likeness is not very good, but being the first I had seen I thought it well to have a sketch *

1958 ANTIARIS SACCIDORA (Dalzell, *Lepurandra sacadora*, Nimmo in Graham's Catal.), arboreal leaves ovate, oblong, acuminate, entire, glabrous above, slightly villous beneath capitula axillary, aggregated, peduncles about the length of the pedicels

Malabai, Ceylon, flowering during October. The specimens from which the drawings were made were obtained from Coorg

The above specific characters will require to be modified when we become better acquainted with the whole genus

1959 CONOCEPHILUS NIVEUS (R. W.), arboreal, erect, laraceous leaves ovate lanceolate, acute or acuminate, quintuple nerved, acutely serrated, somewhat bullate above, prominently reticulate and white beneath, strongly hispid on both sides, inflorescence axillary, cymose fruit capitate, diupaceous, drupes small, yellow, globose

Eastern slopes of the Neilgherries, frequent, common also in many sub-alpine jungles. It extends as far south nearly as Cape Comorin in the jungles along the lower slopes of the hills. On the Neilgherries it is met with at an elevation of about 5000

feet. This small tree seems so much to resemble Roxburgh's *Urhea pulckenma* that, for a long time, I thought it that plant. It does not, however, seem to have been known to Roxburgh, as it does not correspond with any of his descriptions

Flint capitate, made up of an aggregation of small globose drupes. Saicocarp fibrous, pulpy, studded over with minute resinous translucent tubercles, testa ovate, hard albumen copious, embryo straight, as long as the albumen, radicle pointing towards the apex of the seed. Albumen oily filaments straight in action

1960 CUDRANIA JAVANENSIS (Tencul, Annal des Sciences), leaves oblong lanceolate, entire, rounded at the base, acute, acuminate at the apex, mucronate, glabrous on both sides

The specimen from which the drawing was made I received from the Calcutta Botanic Garden, labeled *Morus scandens*, a Chinese plant and may not, though it agrees pretty well with the character, be the true *C. javanensis*

1961 EPICARPURUS ORIENTALS (Blume, *Tiophis aspera*, Willd., Roxb), arboreal, leaves alternate, shortly petioled, obovate, cuspidate-acuminate, serrated towards the apex, very rough above male flowers capitate, heads axillary, aggregated, shortly peduncled females axillary, 1 or 2 together, long pedicelled fruit diupaceous, 1-seeded testa crustaceous cotyledons very unequal-sized, exalbuminous, radicle pointing towards the apex of the seed

A common small rigid stunted looking tree, common all over India. Blume has mistaken the structure of the seed, which he describes as albuminous with a curved inverted embryo and cochleate cotyledons, in place of which it is composed of one very large cotyledon split half through and a very small one completely inclosed in the slit and concealed by the larger one. To bring it into use*, it is necessary to tear off half the larger one as shown at figure 12, when the true structure at once becomes obvious. Figure 10 shows the seed as described by Blume, where the smaller cotyledon assumes the appearance of a small embryo with cochleate cotyledons

1962 EPICARPURUS SPINOSA (R. W., *Trophia spuwsa*, Roxb not Willdenow), arboreal*, thorny leaves oblong lanceolate, coarsely serrated towards the apex, glabrous male flowers aggregated in the axils of the leaves and thorns female flowers 1 or 2 together, axillary, calyx deeply 5-paired, lobes lanceolate, acute, much longer than the fruit

Couittallum, Ceylon. This seems a very rare plant in the Peninsula, as I do not recollect having seen it in any other station, and there it was a low thorny shrub

The plant figured in the left hand corner of the plate is a new species of *Epicarpurus* from Ceylon, communicated by Mr. Thwaites with the following character, since published in Hooker's Kew Garden Miscellany, vol. 4, page 1

EPICARPURUS ZEFLANICCS (Thwaites, Amott) A ramous shrub, sparingly armed leaves rhombic lanceolate acuminate, glabrous remotely spinuloso-serate male flowers densely capitate, heads oblong females lacinate fructiferous pedicels thickened at the apex and elongated

1963. *PLECOSPERMUM SPINOSUM* (Tricul, *Satis spinosa*, Roxb., *Trophis spinosa*, Willd.), sub-arboreous, diffuse, branches armed with long, sharp, somewhat reflexed spines: leaves obovate, oblong, glabrous, shining: male flowers capitate, distinct; female ones aggregated, immersed in a fleshy head: styles long filiform: cotyledons unequal, folded, the larger one enclosing the smaller.

A rather common plant in thick jungles near the coast, it also occurs in the interior, but less frequently.

1964. *DORSTENIA INDICA* (R. W.), herbaceous at first, procumbent and rooting, afterwards ascending, erect: stem and petioles pilose: leaves penninerved, elliptic or elliptico-lanceolate, unequally serrated towards the apex, sparingly hairy above, more thickly on the veins beneath: peduncles axillary, solitary, cernuous or drooping: receptacle peltate, variously lobed on the margin.

In moist shady woods on the Fulney Mountains, Courtallum, Nilgherries.

The plant found in these various localities seems to be quite the same species, though it varies a little in its habit and aspect; in some specimens the fruit is more erect than those shown in the figure, which seem to me rather too decidedly drooping as if the drawing was made from plants beginning to soften and wither; but with that exception, the figure correctly represents a rather luxuriant form of the species.

1965. *POGONOTROPHE MitrOCARFA* (Miquel), arboreous, climbing: ramuli, petioles and under surface of the young leaves pubescent: leaves long petioled, ovate-equal, or somewhat unequal-sided, abruptly narrow acuminate, rounded at the base, 3-5-nerved, 2-3, costulate, fugaciously puberulous above: receptacles glomerate, globose, pubescent, spotted. Fruit green, white spotted, size of an orange.

Pulney Mountains, in woods climbing on other trees, in fruit during October.

Miquel, when he referred this plant to his genus *Pogonotrophe*, had not seen the drawing of the fruit, nor had he dissected it, whence I infer his reference of this plant to that genus is a mere guess. The drawing from which my plate is taken was made on the spot, but most unfortunately without an analysis of the contained flowers, whence I am unable to determine with certainty its genus, but infer from its habit and general aspect that it is more properly referable to *CoveUea* than *Pogonotrophe* and, as such, seems very nearly allied to the following.

1966. *COVEJLLIA GUTTATA* (R. W.), arboreous, scandent, the branches afterwards ascending: branches glabrous and smooth, young ramuli pubescent: leaves ovate cordate, acuminate, 3-nerved, entire, smooth and glabrous above, villous beneath: receptacles glomerate on the older branches, pubescent: perianth six-lobed, lobes lanceolate, equaling or exceeding the length of the ovary: stigma dilated, ciliate, umbilicate.

Orange Valley near Kottergherry, Nilgherries, on the banks of the stream, flowering August and September. In the receptacles, cut for examination, no male flowers were found, hence this appears a dioicous species. It seems very distinct from all those defined by Miquel.

1967. *UROSTIGMA RELIGIOSUM* (Gasparrini, Miq.), leaves long petioled, ovate cordate, narrow acuminate

(acumen $\frac{1}{2}$ the length of the leaf) entire, or repandly undulate towards the apex: sinus at the base broad or truncated.

A common tree all over India, and so much respected by the natives that they will not willingly injure or cut it down, even to clear a line for a road, and I have known them rather work round one than cut it down. There are two nearly allied species with which it is liable to be confounded, but I believe the one represented is the genuine form.

1968. *HOLOPTELEA INTEGRIFOLIA* (Planch. Annal. des Sciences, Nat. Ser. 3. v. 10, *Ulmus integrifolia*, Roxb.).

A considerable tree not uncommon along the foot of the Hills and pretty generally, though sparingly, distributed over the Coimbatore district. Leaves distichous, entire, alternate, ovate, or cordato-ovate, obtuse, shining: flowers fascicled, appearing during the spring months when the tree is nearly destitute of leaves, male, female and hermaphrodite flowers, mixed in the same fascicles. Calyx 4-8-parted, hairy: stamens 7-9, scarcely longer than the calyx: ovary pedicelled, oval, compressed; styles two, nearly as long as the ovary, fruit compressed, winged all round, seed——?

The specimens represented are too young to show the mature fruit, to do justice to which would require a separate plate, neither were the available fruit sufficiently mature to admit of the seed being properly analysed.

This tree has been removed from the old genus *Ulmus*, by M. Planchon, principally on account of its polygamous flowers and deeply parted calyx, added to some differences in the structure of the seed. As yet it stands alone in the genus. The analyses of the ovary and fruit are less perfect than I could have wished, but in other respects the figures are good.

1969. *CELTIS WIGHTII* (Planchon, l. c. p. 307), leaves oblong, abruptly acuminate, somewhat acute at the base, quite entire, 3-nerved; lateral pair of nerves extending from the base to the apex: stipules produced below their point of insertion (that is, somewhat peltate): cymes polygamous (male and hermaphrodite), about the length of the petioles or sometimes twice as long: berry ovate; shortly rostrate, smooth.

An extensively distributed small tree or large shrub; frequent in the sub-alpine jungles covering the slopes of the hills, and on the Nilgherries ascending to an elevation of from 4000 to 6000 feet. Flowers pale bluish, flowering September and October, or probably nearly throughout the year.

1970. *CELTIS SEBOTINA* (Planch. l. c. p. 301), leaves obliquely ovate, acuminate, acute at the base, serrated from the apex to below the middle, glabrous; inflorescence axillary or from the axils of fallen leaves: fructiferous pedicels usually 3 together, one free the other two united at the base: berry nearly oval, glabrous.

A considerable, and when in full leaf, a handsome tree, flowering during the spring months while the young leaves are developing. It is extensively distributed over the plateau of the Hills, but some of the finest specimens I have seen of it are growing on the bank in front of Stonehouse. The specific

name, which is in allusion to its not flowering until the leaves have attained their full growth, is not correct as it flowers simultaneously with their development, and sometimes in anticipation of them.

The difference of the leaves on flowering, as compared with the fruit branch, will show that such is the case.

1971. SPONIA WIGHTII (Planchon, l. c. p. 322), arboreous, young branches petiols and nerves on the under surface of the leaves strigosely hairy: leaves ovate obloug, cuspidate, somewhat unequal-sided, acute or occasionally cordate and about equal-sided at the base; the younger ones silvery-silky white beneath, the adult ones adpressed, puberulous: cymes short peduncled, about as long as the petiols, the male ones compact, females looser, stigmas about as long as the immature fruit, clothed with long hair-like thread* (longe filamentosis), the lower threads often resting on the apex of the berry. *Planch.*

A small tree, not unfrequent throughout the southern provinces. I have long confounded this tree with *CeUis orientalis* Linn., Koxb., and others, from which, however, M. Planchon has separated it, limiting the Linntcan plant to Ceylon. Comparing, however, the character of the style and stigma of this with his character, there seems reason to believe, either that it is variable in that particular, or that there are still two species confused, or, what seems not improbable, that this is but a variety of the Ceylon plant, the two generally agreeing so well with the other. I make the remark in the hope of directing attention to the subject, as I can now scarcely hope to profit by it myself. The figure, so far as it goes, is good.

URTICACEIE.

AT the present time this is a most difficult family to deal with, not that the species and genera are less distinguishable than those of other families, or because the distinguishing marks are less obvious, but because the old and very complex genus, *Urtica*, has been split into many genera, but as yet without any comprehensive revision and readjustment of the species. What is wanted is a monograph of the order by a competent Botanist, having free access to the rich collections of Europe, so that each, already, named species might be correctly referred to its new genus and defined with reference to its fellows. At present this can scarcely be done even with old and well known species, and much less so in the case of imperfectly known ones. Under these circumstances the following characters can, at best, be viewed as only provisional short descriptions of the plants, rather than specific characters, for, not having other defined species, appertaining to the same genera, with which to compare mine and thereby indicate their distinguishing marks, I can only note their prominent features, leaving the monographer to select from my descriptions those points necessary to distinguish them from others agreeing with them in their generic relations. My series of Indian species of the genus *Pouzohia* being more complete than those appertaining to the other genera, and having access to an imperfect monograph of the genus, I have ventured on the attempt of preparing a more perfect one. It must obviously be still very imperfect and may possibly be found to contain many errors, but as such contingencies are common to all first attempts of the kind, I am en-

couraged to make the attempt in the hope that whatever its imperfections, it may still prove useful to at least Indian Botanists until they are furnished with a more correct one. And I am not without the expectation that it may lighten the labours of any European Botanist who may be induced to take in hand the elaboration of the whole order.

1972. LAPOHTEA TERMINALIS (R. W.), herbaceous, dioicous, or rarely monoicous, erect, every where beset with long sharp stinging bristles: leaves alternate, long petioled, ovate acuminate, acutely mucronate, serrated, very rough above, smoother and glabrous except the bristles beneath: inflorescence panicled, male panicles in the lower axils, compact, about the length of the petiols; flowers sub-sessile: calyx 5-parted: stamens 5, with a globose rudimentary ovary in the centre: female panicles two or three from the axils of the upper leaves, long peduncled, loose: flowers pedicelled, pedicels at length winged: calyx 4-sepaled, the two lateral ones much larger, ovate obtuse: style longish; stigma acute: achenium pedicelled, drooping, ventrrose below, straight above, compressed, somewhat tuberculate: seed compressed, exalbuminous: cotyledons foliaceous, radicle next the apex of the seed.

Neilgherries, in thick woods, flowering October and November. Abundant on Elk Hill. I took advantage of an unusual specimen to show the relative positions and forms of the male and female panicles. It stings severely, and the tingling continues for a long time, but possesses very little of the intense **virulence of *L. cretadata***.

1073. PILBA TBINEHVIA (R. W.), herbaceous, erect, every where glabrous, stems very succulent and juicy: leaves opposite, longish petioled, ovato-elliptic, 3-nerved, acuminate, deeply and acutely mucronato-serrated; smooth, shining, deep green above, paler and dull below; nerves prominent: panicles axillary, loose, shorter than the leaves, monoicous: male flowers, calyx 4-parted; stamens 4: female, calyx 3-lobed: 3 foliaceous abortive stamens: achenium ovate, erect, obtuse, compressed, smooth. Seed exalbuminous; radicle pointing to the apex of the seed.

Neilgherries» very abundant in damp woods. A very juicy, soft, tender plant, growing most luxuriantly in every wood about Ootacamund and in full flower during the rains. It is destitute of both pubescence and bristles. This is not the *Urtica trinenia* of Roxburgh, which is, I believe, a *Boehmeria*, neither is it confined to these hills, for I have specimens from other alpine stations.

1974. PILEA BADICANS (R. W.), herbaceous, procumbent and rooting at the base, afterwards ascending: leaves opposite, short petioled, cordato-ovate acute, deeply serrated, 3-nerved, glabrous and smooth on both sides, deep green, membranous: panicles from the axils of the upper leaves, dichotomous, long peduncled: male flowers 4-androus: female 3-lobed with three abortive membranous stamens exceeding the lobes of the calyx: style none, achenium ovate, compressed, smooth.

Neilgherries, in dark moist woods and with the preceding to be met with in almost every wood on the higher ranges of the Hills. I have specimens, however, from other quarters.

1975. FLEUBTA INTERRUPTA A (R. W., *Urtica interrupta*, var. *laxiflora*, Lin., scarcely of Roxburgh). Herbaceous, erect, bristly all over, the young branches and under surface of the leaves, especially on the nerves, pubescent: leaves long petioled, cordato-ovate, acute or acuminate, coarsely serrate, somewhat triple-nerved: peduncles axillary, solitary, about as long, or sometimes longer than the leaves, bearing at unequal distances small lateral panicles: panicles either contracted and sub-capitate, or more fully developed and loose: male calyx 4-parted: stamens 4: female 4-cleft embracing the base of the ovary, afterwards open: style filiform; stigma acute: acheniura ovate compressed, winged round the margin, tuberculate on the disks, which in the dried seed are depressed.

Paulghaut, &c. This plant is of frequent occurrence all over the Peninsula and, if Roxburgh's plant, figured No. 692, be the same, which I now begin to doubt, it extends far into Bengal. The form represented, assuming it to be the same species as 692, is so very distinct in the character of its inflorescence as to entitle it to a place here, were it merely to show how much the development of organs may be modified by circumstances. I consider the plant here represented as undoubtedly Linnaeus', differing in the development of the small lateral panicles, a point in which it also differs from the figures of both Ilheede and Burmann.

1976 & 9' GIRARDINIA LESCHENAULTIACA (Decaisne), leaves broad cordate, 7-lobed, lobes oblong, acute, coarsely serrated, serratures entire or dentate upwards, clothed on both sides with fine whitish down: above armed with thinly scattered prickles, beneath thickly beset with them: Btipules lanceolate acute, scariosc, brown.

Frequent in the woods all over the higher range of the Hills. This is, I believe, the *Urtica acenfolia* of Zenker.

The bark yields a fine and strong flax, which the indigenous inhabitants obtain by first boiling the whole plant, to deprive it of its virulently stinging properties, and then peeling the stalks. I am not acquainted with the after processes, but the textile material so obtained, when nicely prepared, is of great delicacy and strength. Until of late all the species of this genus, which certainly greatly resemble each other, were confounded under the name of *Urtica heterophylla*. I suspect it is now split into too many species.

1977. SPLITGERBERA MACROSTACHTA (R. W.), suffrutescent, erect, pilose all over: leaves long petioled, opposite, cordato-ovate, acute, 3-nerved, serrated: spikes axillary, filiform, interrupted, three or four times the length of the leaves: male fascicles 6-8-flowered; female 10-12 or more, male calyx 4-parted, lobes 2-toothed; stamens 4, with a rudimentary ovary: female calyx tubular, ventricose, contracted, 4-toothed at the apex, enclosing the ovary; style long filiform; stigma simple, acute, villous: seed oval, erect, enclosed within the calyx, exalbuminous, radicle superior.

Coimbatore district, Neilgherries, Courtallum, &c., usually in moist soil seeking the shade and protection of bushes and trees. Of this genus I have several undescribed species from different parts of the Peninsula and Ceylon. Roxburgh's *Urtica scabrilla*, No. 691 of this work, belongs to this genus.

1978. POUZOLZIA BENNETTIANA (R. W.), fruticose, erect, sparingly branched; stem and upper surface of the leaves somewhat rough: leaves usually ternate, uniform, short petioled, 3-nerved, ovato-lanceolate, slightly unequal-sided, rounded or subcordate at the base, tapering to acuminate, softly pubescent or sub-tomentose beneath, pilose above: flowers axillary, aggregated, male and female mixed: male pentandrous, fruit ovate and ribbed in the lower axils, winged towards the extremities of the older branches.

Neilgherries, frequent among bushes in moist soil. When supported, 4 to 6 feet high. See monograph at the end of the volume.

1979-1. POUZOLZIA INTEGRIFOLIA (Dalzel), leaves opposite, sessile, sub-cordate, broadest at the base, thence tapering to the point, sub-acuminate, united at the base by a broad stipule; sparingly pilose on both sides, roughish above: flowers axillary, sub-sessile; males tetrandrous or rarely triandrous: fruit 2-3, winged: wings ciliate.

Mountains of Malabar, flowering September. I am indebted to Mr. Dalzel for my specimens of this plant.

1979-2. POUZOLZIA CTMOSA (R. W.), shrubby, ramous, erect or seeking the support of bushes: leaves sub-sessile, opposite, many-nerved, pubescent on both sides: male inflorescence cymose; cymes axillary, paired: flowers pentandrous: fruit axillary, sessile, one or two between the male peduncles, ovate, ribbed, wingless.

Eastern slopes of the Neilgherries, flowering during the autumnal months; usually among bushes whose support it seeks, and then attains to the height of 3 or 4 feet.

1980-1. POUZOLZIA INDICA (R. W., *Parietaria indica* ? Lin.), ascending, lax; leaves triple-nerved, alternate, short petioled, uniform, but reduced in size towards the ends of the branches, ovato-lanceolate sub-acuminate, pilose: flowers few, axillary, glomerate, tetrandrous; fruit ovate, 8-ribbed, apiculate.

The figure and character of this plant is taken from an indifferent specimen gathered in China by Mr. Dorward of the Madras Medical Establishment. As it agrees pretty well with Rumphius' figure, vol. 6, tab. 12, f. 2, 1 have been induced to consider it identical with the Linnaean species.

1980-2. POUZOLZIA AURICULATA (R. W.), erect, ramous, branches terete, hoary towards the extremities: leaves triple-nerved, alternate, longish petioled, lanceolate, acute at both ends; roughish above, pubescent beneath: flowers sessile, glomerate, pentandrous: fruit 4-winged; wings enlarging from the base upwards, sub-orbicular, auricle-like.

Neilgherries, Iyainallay Hills, near Coimbatore, flowering August and September.

1980-3. POUZOLZIA ROSTRATA (R. W.), erect, ramous; stems glabrous: leaves longish petioled, triple-nerved, alternate, membranous, glabrous on both sides; flowers glomerate, sessile, pentandrous: fruit 4-winged, ending in a prominent hairy beak. Wings rather small and coriaceous.

Malabar, a very distinct species.

CIAMABAIHIA (R W)

GFV CHAR Monaeious Male calyx 4 cleft, lobes all equal Stamens 4, inflexed in activation, rudimentary ovary clavate Female two or three sessile flowers aggregated on the axil or within a bract Sepals two, minute Style very short, stigma somewhat capitate, perulate Achenium ovate A low, herbaceous, lacinous, diffuse, creeping plant, rooting at the joints, branches ascending stipules 4 large saccate at each joint leaves opposite, petioled, ovate, acute, serrated, 3-nerved, pilose on both sides towards the base, fascicled, males and female mixed males pedicelled, calyx deeply 4-cleft, lobes thin and at the apex with a bristly tooth-like appendage stamens nearly twice the length of the calyx rudimentary pistil ch\ite female flowers in the same axils numerous, senile, very minute, compactly aggregated in fascicles of two or more flowers embraced by a broad ovate, delicately membranous bract

This part of the structure is not shown in the accompanying analyses which at fig 5, a single flower is shown in place of several to the bract In other respects the analyses are generally correct, with the exception of the short style and stigma, which is imperfectly represented The genus is named with reference to its procumbent rooting habit—earthloving

1981 CUAMABANIA CUSPIDATA (R W), Neilgherries, in moist woods and in low wet ground near streams, &c

1982 FORSKOLIA URTICOIDES (R W), procumbent, ramous, rooting below, branches ascending, slender, diffuse leaves opposite petioled, ovate or subcordate, serrated, pilose on both sides, but especially on the nerves beneath involucres axillary, campanulate, 5-toothed, 4 flowered, 3 pedicelled male, and 1 sessile female male calyx 2-lobed with 1 stamen, female tubular, enclosing the ovary, 5-toothed style long, stigma villous, pointed achenium ovate, glabrous

Neilgherries, in damp shady woods about Ootacamund

This, I believe, is the only Indian species yet discovered of this genus *F. tenacem* is found in Sindh, for specimens of which I am indebted to the kindness of Dr Stocks

1983 ELATOSTEMA CUSPIDATA (R W), dioecious, herbaceous, erect, sparingly branched leaves subsessile, alternate, very unequal-sided, cuspidately acuminate, coarsely serrated, sprinkled with a few bristly hairs and closely lineolate above, pubescent on the nerves beneath receptacles axillary, sessile, oval, peltate, furnished on the margin with some tooth-like appendages some males, mixed with the female flowers, long pedicelled, ovate, base embraced by the 3-lobed calyx style none stigma pericarpate seed ovate pericarp papery, splitting into two halves when pressed embryo exalbuminous, radicle superior (In figs 5 and 7, of the plate, the embryo has accidentally moved the seed, representing the embryo pointing to the base)

Neilgherries, in thick woods on the banks of streams and other moist ground

In this plate the female plant only is represented, the male flowers shown, being imperfect ones, found mixed in the female receptacles In the male plant the leaves are somewhat narrower, and not so deeply serrated

1984 ELATOSTEMA UNEOLATA (R W), dioecious, herbaceous or suffrutescent, erect, ramous, glabrous leaves sessile, alternate, unequal sided, abruptly acuminate, with a few serrations on the convex edge, coriaceous, glabrous on both sides naked above with numerous thick white lineols pellucid dotted male receptacles deeply 2-lobed, membranous flowers numerous, each at first embraced by a membranous involucre, afterwards by the elongation of the pedicel, exerted, calyx 4-paired stamens 4, involute in aestivation

Neilgherries, Malabar, Canara, Ceylon, &c

Though I have specimens from all the above stations, they are all males The drawing was made nearly 10 years ago at Ootacamund and had I then, had leisure to study the order, would doubtless have, before this time, found the female plant, but not having had that leisure, I all along supposed the drawing complete and did not discover its imperfection until the impression had been struck off I hope to be able to remedy the imperfections of this and its two fellows in a subsequent plate The three drawings were all made about the same time, and all similarly imperfect as Lepicentrogyn only one Bex

1985 EUTOSTEMA OVATA (R W), herbaceous, dioecious or polygamous, erect, sparingly branched leaves opposite, unequal-sized, ovate, acute, serrated, short petioled, pubescent, and sprinkled with stinging bristles above, glabrous, except on the veins, beneath, 3-nerved, the lateral pair very slender receptacles axillary, pedicelled, fleshy fructiferous flowers short pedicelled (mixed with numerous long pedicelled imperfect ones), calyx 4-cleft, imperfect ones, calyx 4-paired, lobes cuspidate male plant like the female, but larger, receptacles like those of the female except the total absence of female flowers

Neilgherries, in wet soil, frequent in the woods about Ootacamund Plant from 6 to 8 inches high leaves from 1 to 1½ inch long, the larger ones about an inch broad, peduncles from ½ to 1 inch long, slender

Ilms and *Elatostema oppositifolia*, Dalzell (Hooker's Journ 3, p 179), are referable to the same section of the genus, but seem very distinct plants They differ so much in habit from the preceding species that I almost doubt whether, on a complete revision of the order, they will be permitted to remain in the same genus The male flowers of *E. hneolata*, with then conspicuous involucre and membranous involucre seem very distinct I, however, with my present imperfect information cannot venture on any alterations

1986 ASPIDOPTERIS GLOMERATA (R W), shrubby, climbing, glabrous leaves coriaceous, short petioled, broad elliptic, sub-acute at both ends, slightly unequal-sided, faintly pinnately-nerved, quite entire flowers glomerate, axillary or on the ends of rudimentary branches, glomerules short, clothed with tawny pubescence pedicels slender, about the length of the petioles calyx lobes oval, obtuse, sparingly ciliate, about the length of the linear sub-obovate obtuse, petals slightly pubescent within, about the length of the stamens

Conrtallum, Malabar, Mysore

This species seems nearly allied to *M. Dalzielii* *A. canarensis* if indeed it be not a form of that very plant, but as it is said to have the flowers in simple racemes, and as I have specimens of this plant from

so many localities all agreeing, I cannot vent me, until better informed, or until I have compared specimens, to unite them. I have not seen fruit of this species.

1987-88 *ANCISTROCHDUS HEYNEANUS* (Wall), shrubby, climbing leaves sessile, oblong, obovate-lanceolate, cuneate towards the base, coriaceous, quite glabrous when dry delicately reticulate above panicles towards the ends of the hook-bearing branches, dichotomous calyx and corolla about equal stamens 10, alternately long and short, filaments of all dilated at the base style thick, conical, stigmas five fruit 5-winged, two smaller, one-seeded and constricted, globose, somewhat depressed above.

Comtallum, and Malabar. I am indebted to the kindness of the Rev Mr Johnson of Cottayam for the specimens from which the drawing was made. This, I suppose, is Wallich 8-4 *Heyneanus*, a still undescribed plant which I have never seen, if this be not it. This seems nearly allied to *A. Vahlu*, but which is said to be pentandrous. In other respects the characters are very much alike.

1989 *UBOSTIGMA BLNGILENSE* (Gaspai Miquel, *Ficus Bengalensis*, Linn.), "leaves ovate, quite entire, obtuse/ Lin, "stem lentic below, Lin, *Ficus Indica*, Roxb. "Branches dioppyg toots, which become as long as the original trunk leaves ovate, cordate fruit sessile axillary pans Roxb.

Common all over India, often used as a load-side tree, generally to be met with about every town and hamlet.

Of this very celebrated tree no good modern figure exists, a hiatus I was anxious to fill, but having intrusted the artist in the matter of room, the result has been less satisfactory than I could have wished, the plate being much too crowded. Except, however, in respect to appearance, the representation is correct and had it been coloured or the fruit shaded, even that defect would have been, to some extent, obviated. The mature fruit and the leaves are dark green. To see it properly, the plate requires to be viewed from the side, and ought to have had the name so written.

The specific name of this tree has long been subject of discussion, the question on the primacy of priority is now set at rest. The above brief character taken from Linnaeus, Sp. Plant, added to the quotation from the Hortus Malabaricus, leaves no doubt of this being his *Ficus Bengdensis*, though I believe not the plant he intended.

It is certainly much to be regretted that he fell into the mistake, but such cannot now be easily got over, and therefore, must be submitted to with what grace >e may. I certainly wish that Miquel, now the highest authority on this genus, had taken upon himself to add the weight of his authority to the wishes of Indian Botanists to connect the name which they all feel to have been made. But since he, in justice to the illustrious founder of the name, has deemed it light to let the original provincial one, to the exclusion of the more appropriate country one, others I fear must do the same. Under this view I have felt it incumbent on me, much against my inclination, to follow his example.

1990 *SPONIA VELUTINA* (Planch.), branchlets and leaves softly velvety, the clothing on the very young pair is shilling leaves ovate oblong, cuspidately acuminate,

slightly unequal at the base, cordate or rounded, serrated on the margin, above beset with rough points cymes (male, female and polygamous), short peduncled or sub sessile, equaling or twice as long as the petiols, many-flowered male flowers extensively hairy berries ovate, glabrous or sometimes sprinkled with a few hairs.

Counbatore, Nilghees, &c. This is a widely distributed tree India generally, Madagascar, Burma, China, &c.

1991 *ANTIDESMA ACUMINATA* (Wall ? H B Cal), shrubby or aiboeons leaves ovate oblong, acuminate, glabrous, stipules linear acute, sometimes sub-falcate, unequal bided racemes axillary or terminal, sometimes branched bracts ovate acute flowers short pedicelled, crowded, male and hermaphrodite males 3-4-anded with a free capitate rudimentary style calyx 3 parted setaceous-dentate on the margin, stamens longer than the calyx hermaphrodite, calyx 3 or 4 parted stamens 3-4, about the length of the calyx, anthers 2-celled with a broad connective, ovary exceeding the calyx, 1-celled, ovules 2, collateral, pendulous from the apex, stigma 3-4 lobed.

Calcutta Botanic Garden, Malabar.

The figure is taken from a specimen, named as above, received from the Calcutta Botanic Garden, and I have since received others from Malabar. But for the latter I should scarcely have thought of introducing this plant. And had I, before naming the drawing, seen M. Tulasne's monograph of the order, I should perhaps have deemed myself justified in assigning a new generic appellation, on the ground of the fertile flowers being furnished with what appears perfect stamens. As, however, I have not seen the fruit, I refrain from now doing so, as the character must to that extent be imperfect, and I hope yet to have the deficiency supplied. In the mean time, as it certainly belongs to the order, it may be permitted to remain as a doubtful number of the genus.

ASTTLIS (R W)

GEN CHAR. Dioecious Male, calyx 4-parted, imbricated in aestivation, lobes all equal. Stamens 5 to 8 inserted round a flat disk, lining the bottom of the calyx, anthers oblong, 2-celled, all collateral rudimentary ovary various, sometimes altogether wanting, sometimes very minute, and, in one flower I examined, fertile, that flower being perfectly hermaphrodite. Female, calyx 4-parted, lined with a disk, no rudimentary stamens ovary free, one celled, ovules two, pendulous from the apex of the cell style none stigma large, spreading, covering the whole of the apex of the ovary. Fertilization—A small very ramous tree, the extreme branches slender, gracefully drooping on all sides. Leaves alternate, oblong, elliptic-lanceolate, acuminate, wavy on the margin, entire, glabrous. Flowers axillary, males fascicled, short pedicelled, fascicles 4-8 flowered, the two external lobes of the calyx broad ovate somewhat boat shaped, at first quite concealing the interior pair, all densely pubescent externally, slightly downy within stamens very variable in number, 5, 6, 7, 8 in different flowers picked from the same branch. Female flowers usually in pans, pedicels about the length of the petiols like the males except in difference of sex, of those examined none furnished rudimentary stamens.

This genus is, it appears to me justly referable to *Antidesioneae*, though, so long as the mutual fruit remains unknown, a doubt must exist on that point. The difference of the anthers tends to strengthen that doubt, but those of the hemaphrodite flowers of the receding plate help to reconcile us to the difference.

In the analysis the draftsman has been careless and has failed to show the disk of the male flower. It is similar to that shown in the female one.

1992 *ASTYLIS VENUSTA* (R. W.)

Nelghemes, western slopes, growing near the banks of streams, flowering May and June. On the banks of the stream at M. Ochterlony's coffee plantation.

1993 *Euphorbia CATTIMAHDOO* (W. Elliot), shrubby or aibaceous, erect, 5-sided with prominent lepidangies, stipulately thorned, short subulate leaves sessile, succulent, deciduous, obovate subulate, cuspidate, glabrous. Peduncles crowded, 3-flowered, the middle one usually sterile and the lateral ones fertile. Sometimes the leaves, flowering after the fall of the leaf.

Vizagapatam district, in great abundance, flowering from March to May, or even the beginning of June.

This plant is so much like *Euphorbia tngona* No 1863, above, that I should scarcely have thought of introducing it here, but for the valuable product which it yields to the arts, and which, when better known, may be found but little inferior, for many purposes, to Gutta Percha. The drawing represents the plant in 3 states: 1st, quite naked as it appears before flowering; 2nd, covered with flowers, and lastly as it appears in July and August covered with young leaves. In size it varies from 8 to 12 or 14 feet, rarely higher. The stem is 3-4 feet high surmounted by a round branchy head. The milk of this plant yields the product above referred to. It is obtained by cutting off the branches, when it flows freely. It is collected and boiled on the spot, at which time it is very elastic, but after being formed into cakes or cylinders it becomes resinous and brittle, in which state it is sold in the bazaars and employed as a cement for fixing knives into handles and other similar purposes, which is effected by heating it. It is also employed medicinally, as an outward application in cases of Rheumatism. The piece I sent you was prepared by Mr. Healy, and was, I think, boiled in water. It is much superior to what is sold in the bazaars, but it has not the valuable property, like Gutta Percha, of being ductile at all times. It can be made to take any shape when first boiled, but as far as we know, not afterwards, though some plan may be found for making it more pliant afterwards."

The above notes were communicated by Mr. Walter Elliot. Judging from the above mentioned sample of the Cattimahdoo, now before me, I should suppose that, were it in the hands of men accustomed to work in such material, it would soon be turned to valuable account. I find, when exposed to the heat of a fire or lamp it rapidly softens and becomes as adhesive to the hands as shoemakers' wax, but when soaked for some time in warm water (150° to 180°) then it slowly softens, becomes pliable and plastic and in that state takes any required form. But my experiments with it have been too few and cursory to admit of my drawing any conclusions from them, and

I only mention them because they seem to encourage the hope that the concluding remarks of Mr. Elliot still want confirmation.

CHORISANDRA (R. W.)

GEN. CHAR. Dioecious (always P). Male calyx six parted with slightly depressed flattened glands. Stamens six, equal, free to near the base, alternate with the glands, filaments filiform subulate, anthers short, 2-celled, cells parallel opening longitudinally. Female calyx 5-parted (always), lobes somewhat unequal glands 5, alternate with the lobes of the calyx. Ovary 3-celled with 2 ovules suspended from about the middle of the axis in each. Style short, 3-cleft, stigmas 3-lobed. Capsule 3-celled, usually, by abortion, 3-seeded, splitting into six valves. Seed globose. — A low ramous shrub, 3-5 feet high. Leaves alternate, pinnate, leaflets alternate, oval, obtuse at both ends, glabrous. Male flowers axillary, aggregated in dense fascicles. Calyx lobes imbricating in aestivation, reflexed when full blown. Glands depressed, covering the bottom of the calyx and concealing the insertion of the stamens, flower buds globose. Male flowers few, one or two from the base of the petioles, long pedicelled. Capsule globose crowned with the persistent style, glabrous. The distinguishing feature of this genus is the number and freedom of the stamens, and the inflorescence it peculiar when viewed in connection with that of the sub division of the tube (*Phyllanthus*), to which it belongs. In truth it seems almost a *Phyllanthus* in habit.

1994 *CHORISANDRA EZMINATA* (R. W.)

Abundant in and late soils along the western shores of the Puhcat lake, where it forms extensive low jungles (within about 20 or 25 miles in a north-west direction from Madras). It is also found in the Northern Circars whence I received specimens from Mr. Walter Elliot. Being thus extensively distributed I wonder that it still remains an undescribed plant, but yet I do not recognise it under any of either Willdenow's or Roxburgh's species, of either *Phyllanthus* to which genus I think they would most probably have referred it, or in any other allied genus. As a genus, I feel certain it is not taken up.

WAGATEA (Dalzell, Hookers K. G. Miscel. vol 3, p. 90)

GEN. CHAR. Calyx 6-cleft, tube cup-shaped, limb deciduous, lobes imbricated in aestivation, the inferior one somewhat larger, concave. Corolla, petals 5, equal, filiform, unguiculate, inserted on the top of the tube of the calyx. Stamens 10, inserted with the petals, all fertile, alternately shorter. Ovary stipitate, 4-6-ovuled, style filiform, stigma hollow, 2-lipped, funge, upper lip half-obicular, lower one large, cucullate. Legume linear acute, coriaceous, transversely constructed between the seed, thickened on the margin, seed 3-4, obovate oblong, testa thick, hard and bony. — A scandent shrub evergreen, except the spikes, armed with leucurved prickles. Leaves bipinnate, pinnae 5-6 pairs, leaflets 5-6 pairs, subcordate-ovate obtuse or subemarginate, shining above, a little downy. Spikes terminal, long (1-2 feet), flowers numerous, close set, calyx bright red, petals orange yellow, and, being confined by the calyx lobes, never expand. Stamens length of the petals, filaments many at the base, anthers roundish, ovary pilose, legume glabrous, thick and some whit spongy.

This genus, of which Roxburgh's *Casalpa oleosperma* seems a second species, is nearly allied to my ^cnus *Acrocarpus* (Icon 204), and by its affinity confirms the view taken of the relationships of that genus

1995 WAG ATE \ BPICATA (Dalzell, Caisalpima dipina⁹ Lawm Giamscatal, C spicata, Dal 1 c paulghaut jungles, Belgaum, Malabai mountains

Many yeau» ago I recend specimens, but without fruit, of this plant from Mr Law, foiwaided from Belgaum Last ycai I leceivcd one from some lull jungles near Paul,h xut, but still without fruit Subsequently I recognised, in Mi Dalzell s gi aphic chai-actei,myold fiend, and on application to him was immediately furnished with a legume to enable me to complete my diawing, which I have now had by me foi at least 12 oi 14 yeais

MACCLELLANDIA (R W)

GE\ CHAR Calyx campanulate, 6 cleft Coiolla 6 petals, pet Us inseitcd on the maigin of the calyx between the lobes, unguiculate Stamens 12, inseitcd on the bottom of the tube of the calyx, alternately shoitei, the longci ones alternate with the petals Ovaïy tiec, stipitate, concealed within the tube of the calyx, one celled, ovules numcious attached to a ficcccntnl placenta style filiform, at fiist incluse, aftci n aids, though the enlargement of the ovaïy, ex-seited, stigma umbihcate Pms globose, scaicely exseited Seed vcïy numciou*, megulailly angled, Climate testa thick, boft and spongy embiyo evalbummons, radicle pointing to the hilum—A nther laige, veïy lamous sluub, growing on the sea shoie almost within high watei maik Leaves shoit petiolcd opposite, oval oi somewhat obovate obtiisc, softly pubescent on both sides, very succulent (sometimes fully quaitci of an inch thick) Floweis pedicclcd, axilla)y, solitaiy, model ate sized, varying from nearly white to deep pink calyx conical, tube externally hau}, lobes tuangular acute petals ovate oi sub-oi bicular, conugately plaited on the maigin, deciduous

I have dedicated this genus to Mi Tohn McClelland of the Bengal Medical Set vice, Lditor of the Posthumous woiks of that tianscendent Botanist, Willnm Gnffith Though not himself a Botanist, I think the Science owes him a large debt of giati tude, foi his disintciested labouis, which I hcie cndeavoui, in pait, to pay, by dedicating a genus to him and associating with his name that of his justly l unented fiend

MACCLELLANDIA GRIFFITHIANA (R W)

Islands off Tuticoieen, close on the sea beach flooding and aUo bciiiig ripe fruit in Fcbiuaïy—and judging from the appealance of the trees appai cntlj in flow ci at all reasons In this, in many l expects unique plant, I have availed myself of the oppoitunity of uniting the names of two, so long as both lived, ins paiaible fnends and tiust they may cvci lemain so associated, by its pioving a leally lutheito unknown plant and, up to the publication of this sheet, an undefined genus and species

1997 HOETONTA FLORIDUDA (R W), arboi eous, leaves opi>obitc, exttiptil ite, petiolcd, oblong lanceolate acuminate, cntue, peumnerved cymes peduncled, a\ilhiy, lon^ei than the petiols extenoi leaves

of the involuciim (appaicnt sepals), pedicels, and youn^ shoots minutely stellato pnbcï uloub

Ceylon m woods, m the vicinity oi Pousloway and Ronibady, flowering Much and April

1998 IIORTONUOVAJIFOIIA (R W), leaves pctiolcd oval, obtuse at both ci ds comccous, (JJOÏOUN when di y sightly i e\olute on the mai gin peduncles axillaïy, 1- oi few flowci cd, exceeding the petiols fruit pedicclcd, ovate, sightly compiused, glabion*

Adam s Peak, flowei ny in Maich Gaidnei, communicated by Mi Thwaites This diffcis from the pieceding in the infloiscncce and foi m of theclea\es

1998-2 HORTONIA ACUMIMATI (R W), aiboicous leaves pctiolcd, ovato-lanceolate, acuminate, cntne, plabious peduncles a\illaiy, exceeding the petiols, few flowered

Ceylon, Colonel Walkei This, as regaids foln₀e, gicaty lesembjles *H flonhumla*, but the mfoie^ccncce and floweis, so fai as my solitaiy specimen enables me to judge, is veïy diffeient

1999 CALTSACCION LONGIFOLIUM (R W, III Ind Bot I 130), aiboicous, monoicoub oi dioicous young shoots obsoletcly 4 bided leaves opi o&itc, shoit petiolcd, Imcai lanceolate, obtuse, coïiacuous, co&tatc, but without latcial païallel veins flowis numerous, fascicled on axilluy tubicles fascide*? dense, many floweicd, flowci s short pedicclcd

Malabar, indigenous Bui^aloie mtioduced Noithein Circaïs, pos&ibly aUo mtiodneed—and m that climate monoicous oi becoming hcimaphiodite

The plants I saw at Bangaloie wcïe all coveiccl with fruit, hence I piesume, like those from the Circaïs, and otheis I heaid of introduced, I thmk, in Combaoimm, becoming, undci the modifying cumstancce of ch in^e of climate, bisexual Tho^e from which the oiiginal chaiactci was taken and those now figuicd weic from the Malabai Coast, ami in both instances dioicous

"A laige tree, leaves opposite, oblong, floweis in March and April in clusteis on the thick blanches below the leaves, small, white, sticaked with icd, dneicous The male tiec is called *Woondy*, the female *Poonay*, both arc also known by the name of *Sunngel* oi *Gardeoondy* Ilab "Païell and Wooïlee Hills, Bombay, Kennery jungles in consideïable abundance On the Ghauts and thioughout the Concans

The flowei s are collected and expoi ted to Bengal foi dying silk Giam s catal Bombay Plants, p 73

2000 CENTUNCULLS TENELLUS (Dnby in J) C Piod v 8, p 72), "mallerect, branched from thabfl&e oi simple, branches icct leaves broad ovate, acutnh, cntne, subsessile, or uailowing into a petiol floweis axillaï), peduncles <hoitei than the leaves segments of the cal>xlineai lanceolate, subulately acuminate, as long as the coi olla coi olla deciduous, pitchei shaped at the base capsule as long as the calyx

Neilgheïucs Rev Di Schmid

I am indebted to the Rev Dr Schmid for the specimens of this very laïe plant from which the drawings were made He found them, I think, on the gi assy steep slopes behind Dawson s Hotel, along v> ith some most minute foims (piobably a new species) of Hedjotis I am also indebted to the same acute obsevei foi specimens of an Ei odium, appai tly new, but on that point the specimens are scaicely

*ufficientl) peicket to enable me to decide This *pcio of *Cenluncuhis* was oi Jginaly found in Nepiul, ita icdi&coveiy on the Nulghemcs adds anothu to the m my ill cady existing links which connect these distant tioias

2000 PRIMLLA DENTICILITI * (Smith, Y Bot), lea^s uyonb, thin, glabroub, ovato lanceolate, unequilly duiticuhtc acutish smooth above, beneath moie 01 less dieted with white fanin, sometimes u ithout fai in i, n uiou ed into a v* mged pctiol, sheathing \nd membi inoui it the base mvolucmm many-fi*M tied, leaflet* acuminate, the extci 101 ones bioadu huceolate longet than the pdiccN, the intci 101 ones lineai lanceolate, shoitei calyx ui&eo^ite, 5 cltft, diu&ions lmeai hnceolate acute, longoi than the tube coiulla salve i shaped, lobes obcoubte, obtuse DubvinD C Piod

Xhc specimens, fi)m which the di iwmg was made veie kindly coinmuuicUcd by Captain JMumo who gatheied them at Hunpuung on the Himalayas in August I am doubtful whethei I have concctly named the plmt as the specimens differ in some minute paiticulais fion the chaiactei, but as they agicc m then moie piomieuut featuies, I could not \enteuie on constituting this anew specie*, the moie so as I have not an opportunity of consulting Smith s figiuc Should it piove new, I would suggest its being dedicated to the discovcici It is nitioduced hcie mainly to fill the plate, but also m the hope that, since *Centuncylus* has been foud on our southern mountains, a *Primula* may be found to bcai it company

SCITAMINEJE

This is the Linnean name of a curious, beautiful and useful group of plants, including the Plantain, Cardamom, Gingei, Tui mei ic, Ztdoaiy, Ai iowroot, Indian shot (canna), and many otheis The original group, which now includes about 300 known species, is diided into three oideis—*Musacea*, *Zingiberacece*, and *Marantacea* The fiist is distinguished by havm, seveal stamens—the second by having one etamen with a peifect 2 celled anthei, and the 3d by hiMiig 1 stamen with a 1-celled or half afithe, and that placed at one sidi of the flower, usually on a petaloid hlament

Illustrations of each of these orders will be found among the following scnes of plates The group, \icwed as a whole, is readily distinguished by its foliage and habit Eiect heibaceous stalks with sheathing more or less lanceolate leaves, having a distinct mid rib with the lateial veins diveigm thence at moie oi less acute angles towards the margin In most other monocotyledonous plants (some exceptions will be mentioned by and by) they run in parallel lines from the base to the apex

At fust sight the flowers of *Zingiberacea* seem, as in oichids, to consist of asix-lobed peiianth, Sex-tenor and 3 interioi, one of the lattei moie or less diffiting fion the otheis, foiming, as in oichids, a lip opposite the stamen This is not, however, their true stiucture, for they have in addition to this coioid pemnth, a di&tmct calyx, (usually much shorter and embiacing its tubulai base) which is wanting m oichids The diffieence is explained by assuming that in this group there are six stamens, 5 of which aie modified, and only three in orchids, two of which aie modified oi wanting That such is leally the ca*e is shown by the Plantain which has a six-paited

pemnth <uid six stamens one only of the latter Inpt i feet In it, the 3 laiger exterior lobes of the puianth concspond to the cal>x of the Gingeis, the 3 smaller intciioi to the extenoi lobes of the peilanth, while the 3 outer stamens lepicscent the innci peiiftiith and the 3 innei the stannol scnes of Gmgu J According to this vuro, the flower of *Zingiberacea* consists, 1st of the calyx, 2d of the extenoi oi calcine lobes of the penanth, 3d of the interior, oi pctiloid lobes, *modified stamens*, and 4th, of the pio- per stunens, two of which aie abortive, and the thud, oi odd one, placed opposite the lip, pcifect *Marantacea* diffu fion this aiiangcment in perfecting one of the lateial stamens in place of the odd oi pos-tenor one

In the discilmination of the geneia of *Zntgiheracea* the anther is usually looked to as furnishing the essential chaiacteis, but of com be the othei puts of the flowei aie not ovcllooked The fust point to be noticed in examiung one of these plants is to ascertain whether oi not the filament extends beyond the anthei If it has not a ciest or piolongation it is refeiable to *Hedyckmm*, *Alpima*, *Globba*, *Roscoea* oi *Gastrochzlus* all of which have ciehtless* antheis, but aie easily distinguished by othei maiks The lateial appendages of the antheis of some of the Globbas do not come undei that denommuon

Of those that have it piolonged, *Zmgiber* ha* au awl shaped point *JJlattena*, a shoit moie or less fleshy thickening of the point *Costus*, a short membranous piolongation *Curcuma*, a dilated point and two spurs at the base *hcempfena*, a long membranous foiked point *Monolophus*, a short broad reflexed point *Rvscoea* has the base of the anther piolonged

These brief indications of the essential chaiacteis of the genera, so fai as they aie denved fion the anthei, will suffice to show that it is not generally difficult to distinguish the geneia of this Older with fiesh plants in hand a>id that, even with dried spe*cimeia if the flowcis aie not much inuijed in the diymg, but a modeiate degicc of skill is lequed to open, foi examination, flowcis pieviously softened by immeision foi a few minutes in hot watci

The geneia of *Marantacea* aie easily known by their habit

As it is piobable my figures will generally be examined in comparison with fiesh plants with which in minute part iculais they may not at all times be found to coi respond, it is propei to mention that seveal of them are taken horn dned specimen*, and that in such cases* minute accuiacyot outline i& not always attainable, even while the likeness is so well piesei vcdas to leave no doubt as to the identity of the object iepresented This lemaik is moie especially applicable to the magnified dissected flowcis which, it must be allowed, it is often difficult so fai to restore as to admit of the lcpresentation conveying a coirect idea of the aspect of the paitis, as seen in the giowing plant, but I tiust that are gencially so well done as to leave no doubt of the species to which they lefer and which they are intended to make known

2001 GLODBA MARINTINOIDES (R W, *G marantkna*, R W Icon, nou Willd), leaves petioled, lanceolate spike terminal, distichous, lowci bi acts bulbiferous, upper flonfeious flowei s 2-4 m each biact lip entiie, truncated at the apex, reflexed

Anaualay, in dense alpine forest, very abundant, flowering in August and September.

When naming this plant, rather hurriedly, I fear, I at once referred it to *Marantiw*, not duly bearing in mind its petioled leaves, its several- not one-flowered bracts, and its undivided lip—to which I might have added geographical position, the true *O. Marantina* being an Eastern species, from the Moluccas, while this is from the interior of Continental India. It is certainly, judging from description only, very like the other, and may possibly be the *G. bulbifera*, Roxb., but of it, the description is so imperfect that I am unable to identify the two plants, and therefore think it better to keep them distinct.

Considering the importance attached to modifications of the anther in this family, this seems, with its congeners, well entitled to form the type of a genus. As compared with the following, a true *Globba*, these differences are most conspicuous; and, added to the habit observed in all three, of forming tubers in place of flowers in the lower bracts of the spike afford strong grounds for separation. At a very early stage of Roxburgh's career he seems to have been of this opinion and apparently sent Home specimens of his *G. bidbiera* under the name of *Colebrookia*, an undefined name long ago published by Mr. James Donn in his Cambridge Catalogue, but never taken up and since superseded by Roxb. and Smith's *Colebrookia*, a genus of Labiates.

2002. *GLOBBA OPHIOLOSSA* (R. W.), leaves short petioled, acuminate, glabrous; panicles terminal: lip linear pointed, deeply cleft; interior lobes (petals) linear lanceolate: capsule globose, smooth.

Malabar, Anamallay Hills, &c.

This though, in appearance, like *G. orixemii* and *Careyana* is, I believe, quite distinct from both. I have named it with reference to its long deeply two-deft; lip, a character of some value when added to the naked anther. The leaves are perfectly glabrous on both sides. The perianth in both this and the preceding is thickly dotted with red, resinous, shining translucent points. It has no trace of exterior bracts and tubers, similar to the preceding, and as regards inflorescence, so different that it may well be placed in different genera.

2003. *ZIKGIBER ZERINNET* (J. E. Smith), stems decimate, leaves sessile lanceolar: spike long peduncled, oval, compact, obtuse: bracts broad obovate obtuse, margins coloured: lip 3-lobed. Roxb. Fl. Ind. 1. 47.

Anamallay Hills, in dense forests, frequent, flowering during the rainy season, August and September.

This is an extensively diffused species. Roxburgh assigns the woods about Calcutta as its Bengal station; in the Southern forests, I fancy it extends nearly as far south as Cape Comorin. The head of flowers is supported on a stalk springing direct from the root, from 2 to 3 feet long, sheathed, its whole length, in ecariose rudimentary leaves, and along side of it grows the proper leaf-bearing stalk. This, therefore, is as much a root flowering species as the next, the length of the peduncle being the only difference.

2004. *ZIWOIDEB squarrosus* (Roxb.), leaves lanceolar: spikes squarrose, half immersed in the earth: bracts linear, with a long waved tapering point: lip 3-lobed, apex bifid.

Abundant in the Anamallay forests, also on Bolamuttu Hills near Coimbatore, flowering from July to November.

This is a large species forming by its underground progression large patches. In favourable spots the stems attain a height of from 4 to 6 or even 8 feet. The spikes seem to continue enlarging indefinitely all the growing season as I have seen many that measured at least a foot in diameter. They ripen their seed abundantly and when mature, and the capsules burst, showing the numerous seed, each clothed with a large pure white saccate arillus, and the deep crimson of the inner surface of the capsule, they form a beautiful object. When the drawing was made they were not so far advanced, and when sent to the lithographer the deficiency could not be supplied.

2005. *CURCUMA AROMATICA* (Salisb. C. Zedoaria, Roxb.), bulbs small and, with the long palmate tubers, inwardly yellow: leaves broad lanceolar, sessile on their sheaths, sericeous underneath: except the spike, the whole plant of a uniform green. Roxb.

Malabar, frequent, flowering from April or May until August or September.

This plant very generally agrees with Roxburgh's description, even down to minute particulars, still I do not feel certain that it actually is his species. If, however, it is not, it is so near that actual comparison of specimens must determine the differences. The bracts of the spike are pale green below, gradually passing into deeper pink until the last are almost crimson. The outer perianth is pink, and inner and lip yellow.

The genus *Curcuma*, so far as regards the determination of species, is rather difficult, but to distinguish a *Curcuma* from any other genus of the order is easy after any one of its species is known. The peculiar formation of the spike, and very characteristic bracteal sacks which are common to all, proclaim at a glance the genus. I make this remark under this species, because it is better shown here than in the other, but the difference is in the drawing not in nature, for with the plant in hand there is no mistaking the genus though, as respects the species, it may still be a question whether I have judged rightly, in making it a new species. One very objectionable set of specific characters has been had recourse to for distinguishing the species, those, namely, taken from the roots. To my mind, such characters are objectionable as being parts beyond the reach of observation in the growing plant, and as not being preservable in the dried one. The habit and foliage is certainly much alike in all the species, but doubtless, if carefully studied, the bracts and flowers would be found to furnish better ones, and not liable to the above objections. Neither having roots nor growing plants before me, I find it most difficult to indicate characters by which the following species can be distinguished from the 20 others of the genus, though, so far as I can detect, it does not accord with any of them.

2006. *CURCUMA NEILGHEBBENSIS* (R. W.), bulbs? leaves scarcely petioled, lanceolate, somewhat cuspidate, glabrous: spikes scarcely rising above the ground, compact: limb of the bracts prolonged, sublanceolate, obtuse, longer than the flowers, reflexed: outer lobes of the perianth linear cuspidate, inner

ones obovato-lanceolate, obtuse lip broad, subobicular, bidentate at the apex, anther spurs short capsular globose, glabrous, crowded with the withered remains of the flower

Neilgherries, very abundant on the S Western slopes about Neddawuttim, flowering during the spring months, before the leaves appear, but continuing in flower long after they are full grown

This is a small species, the largest leaves scarcely exceeding a span or 12 inches long. The terminal tuft of the spike is very full, of a deep pink, while the lower bracts are at first pale yellowish, changing to greenish. Flowers, especially the lip, deep yellow, the lateral lobes more reddish and pale

2007 ELKTAEIA. CANNICARFA (R. W.), *armen-tose, underground shoots bearing the spikes. Leaves lanceolate, acutely acuminate, glabrous. Inflorescences stems clothed with sheathing sterile leaves, at length ascending, spikes short ovate bracts lanceolate, red perianth hairy on the tinnet and lip outer lobes obovate, lanceolate, sub cuspidate, inner reduced to 2 subulate teeth on spurs, lip oval, bispidate filament produced beyond the anther capsule globose, echinate all over

Hutchinsroog, Neilgherria, in dense forest, flowering May

Stems 4-6 feet high, procumbent and rooting at the base, afterwards ascending, the procumbent portion giving off the spikes which scarcely rise above ground, spikes oblong oval, bracts deep pink at the apex, paler below, perianth yellow, fruit dark brownish purple, beset all over with soft prickles resembling those of a canna. This species seems very distinct from the others—when recent it exhales an aromatic odour

2008-9 HEDTCHUM FLAVESCENS (Roseoe), leaves lanceolate acuminate, villous beneath, the acumen withering spike capitate, imbricate exterior bracts broad, obtuse, ciliate at the apex, the interior ones cylindrical, 2-3 flowered lip broad, 2-lobed, as long as the filament

Neilgherries, frequent, in low swampy ground. In sheltered situations when the fine foliage and handsome heads of flowers are not injured by high winds, this is a very handsome plant, and, owing to the flower opening in succession, continues long in flower. It seems very rare to produce seed. I do not recollect ever having seen its fruit. The flowers are pale yellow, afterwards deepening a little, but seldom deeper than straw colour

2010 HEDTCHUM COBONABUM (Willd.), leaves lanceolate, pubescent beneath spike capitate, imbricate bracts broad ovate, acute lip orbicular, bifid at the apex, longer than the filament

Neilgherries, Kotergherry Ghauts, at an elevation of about 4000 feet, very abundant, forming large patches in moist almost marshy soil. Very like the preceding from which it is most readily distinguished by the form of the bracts and the interior of petaloid lobes of the perianth which are very different. Flowers pure white, fragrant

2011 HEDTCHUM CBBNUM (R. W.), leaves short petioled, long lanceolate, acutely acuminate spike cernuous, loose bracts narrow, obtuse, lobes of the

perianth narrow linear, longer than the stamen lip lanceolate, bifid at the apex capsule globose, hairy seed involute in a large loose membranous anther

Neilgherries, Burlear, on the Eastern slopes on the banks of a stream, rare. The fruit when mature are of a dark reddish or deep orange colour. This seems to be a rare plant, but the locality mentioned is not the only one where I have found it, but the others are not noted

2012 HEDTCHUM VBNUSTOM (R. W.), leaves long petioled, lanceolate, acute spike drooping, lax bracts imbricate, obtuse, margined lobes of the perianth narrow, exterior somewhat lanceolate, interior linear all longer than the stamen, lip deeply cleft, lobes lanceolate

This figure is taken from a dried specimen, the station of which is not recorded, but I think Cooig

It is evidently nearly allied to the preceding, but is obviously quite distinct as shown by the long petioled leaves and deeply cleft lip

2013 ROSCOBA ALPINA (Royle), flowers few, pendulous, infolded in the sheaths of the leaves calyx obliquely truncated bidentate at the apex the upper exterior segment of the corolla broad, somewhat vaulted capsule linear R

Simla Masoon. I am indebted to Mr. Edgeworth for the drawing from which the figure was taken, and to the late Countess Dalhousie for specimens of the plant, from which the dissections were partly prepared and all verified. The character is copied from Dr. Royle's Illustrations

2013-2 ROSCOBA LUTEA (Royle), raceme spike-like, straight, exserted flowers few calyx obliquely truncate, obtuse 3-toothed capsule berry-like, lousish R

I am indebted for the specimens from which the drawing was made, to the late Countess Dalhousie, aided by a drawing from the pencil of Mr. Edgeworth, but which did not seem to me to give a good idea of the plant in my possession which is more in accordance with that of Dr. Royle. These two species are introduced simply as illustrations of the genus which, though not hitherto found so far South, may yet be so. When the drawings were made I had overlooked the circumstance of both plants being already figured by Dr. Royle, otherwise I think I should not have introduced them here, even with original drawings

2014 COSTUS SPECIOSUS (Smith), leaves subsessile, oval, short acuminate, villous beneath sheaths fringed spike oval lip undulated, entire filament, pubescent on the back

Anamally, Bolampatty Hills also in the forests about Palghat, &c. In a word it is a rather common and certainly a very conspicuous plant, long retaining its beauty, being as attractive by its deep red heads of fruit, as by its handsome flowers, rarely more than two or three of which are open at the same time

Costus NipavunM so much resembles this species that it seems to me they might easily be mistaken for each other, even when placed side by side

2015 MABAMTA VIBGATA (Wall, ~~Phagnalon~~ *gahm*, Roxb), stems simple, jointed, and knotted at

2029 *KJEMPFERIA ROTUNDA* (Willd.), leaves oblong, coloured spike radical, appearing before the leaves, lateral lobes of the corolla obovate lanceolate, acute lip deeply 2 cleft, lobes obovate, very obtuse, cleft of the anther linear, forked, with a small tooth between

Malabar

The two figures in the accompanying plate may be distinct species, a point I cannot determine with my present materials, but I think it more probable they are but variations of the same. The lip in the nameless one, of which I have a coloured drawing, is a beautiful lilac, tending to plum colour

2030 *MONOLOPHUS SCAPOSUS* (Dabell, *Redychium scaponim*, Nimmo in Grahams Catalogue), stemless, root fibrous with small oblong tubers leaves lanceolate, glabrous, long acuminate > petiole and limb of equal length, scape erect, round, about 2 feet long, sparingly leafy spike terminal, compact, imbricated, many-flowered flowers 2-3 to each common bract, each furnished with a smaller partial bract, opening in succession common bracts lanceolate, shorter than the flowers, flowers long tubular posterior lobe of the entire perianth larger than the lateral ones lip broad ovate-cordate, 2-cleft anther terminating in a short obtuse cleft ovary 3-celled, placenta axile, capsule 3 celled, seed obovate embraced by a loose lobed aril, embryo axile, 6 mm long

Malabar Coast, Karlee, Nimmo, Malwan, Dalzell

I am indebted to Dr Stocks, for my specimen of this plant accompanied by flowers and fruit preserved in spirits for the analysis. It differs in some particulars from Walpurgis *Monolophus*, but not sufficiently, it appeals to me, to justify its forming the type of a genus. I extract the following very accurate description of the flower, by Mr Dalzell, from Hooke's Kew Garden Miscellany, vol 2, page 143

Calyx tubular, 3 toothed, cleft, teeth obtuse, about equal Corolla tube cylindrical, 6-7 times longer than the limb two anterior exterior petals linear oblong, 5-7 nerved, flat the posterior one sub-cucullate, mucronate, all reflexed during expansion middle petals much higher, lip, the largest, broad obtuse, bifid at the apex Filament very short, about a line long and broad, extended beyond the anther into a short rounded textured stipe Stigma funnel shaped, tubercled on the back

2031-32 *LILIUM NEILGHERRENSE* (R. & W.), erect, leaves sessile, scattered, broad ovate lanceolate, abruptly acuminate, sub cuspidate, glabrous flower hypocrateriform, ascending, tube long, throat campanulate, naked limb spreading capsule obtusely 3 angled, 3-sided —In this species the leaves are about 3 inches long by 1/2 broad sub cordate at the base

Neilgherries, flowering July and August

2033-34 *LILIUM TUBIFLOBUM* (R. & W.), leaves scattered, short petioled, narrow lanceolate, tapering to a point, glabrous flowers ascending, hypocrateriform, tube long, prominently ribbed along the sutures throat campanulate limb spreading, lobes somewhat involute at the apex —Leaves 4-6 inches long, 6-8 lines broad

Neilgherries

2035 *LILIUM WALLICHIANUM* (R. & Schult), stem slender, leafy, few- or one-flowered at the apex

leaves scattered, numerous, approximated, linear, acuminate, sessile flowers hypocrateriform, drooping, tube long throat campanulate, naked, limb spreading —Leaves 2-3 inches long, (scarcely 1/2 inch broad, lanceolate acute

Neilgherries All these species show a predilection for rocky ground especially if kept humid by neighbouring springs They are very handsome plants and seem to merit more attention, as ornamental objects, than they receive

Distinct as these three forms appear, I can scarcely expect they will prove, under cultivation, distinct species, but at the same time, with my present information, I do not feel justified in uniting them In this state of uncertainty, I beg leave to solicit the attention of Mr Melvill, and any Botanists who may visit the Hills, to the subject Mr Melvill may perhaps be able to set the question at rest in a single, or at most two seasons, by raising plants from seed and ascertaining whether those taken from any of the forms run indiscriminately into all, or are constant to their parental form The same experiments ought to be tried on plants obtained by dividing the roots, and grown under different circumstances

ANTHERICUM BULBINE PHAIANGIUM

In determining the genus to which I should refer the following plants, which, I presume, all belong to one genus I felt much at a loss how to decide Authorities are conflicting and on endeavouring to trace the names back to their origin, I found the obscurity increase in place of diminish Linnaeus, in the first edition of his *Genera Plantarum*, had two genera—*Bulbine* and *Anthericum*, the former having bearded, the other beardless filaments These he afterwards united, retaining *Anthericum* as the name of the enlarged genus Jussieu in his *Genera* divided the genus into two, retaining *Anthericum* for the species with bearded filaments (the original Linnean *Bulbine*), and restoring Tournefort's *Phaiangium* for the exception of those with beardless filaments Since that time, these three genera have been taken up and laid down, apparently at the will of each successive writer, and now there is no end of confusion in the synonymy The characters, with the exception of the filaments, are so nearly the same in all, that the only question for determination seems to be whether the filaments being beardless or bearded affords a sufficient generic distinction, for if so, then by going back to originals we get at a definite nomenclature It is now to be regretted that Jussieu, in restoring the original Linnean genera, did not adopt his original names, which would have saved much trouble to his followers, and made the more desirable as at the time he introduced the generic name *Phaiangium* to Botany, it was already established as a generic name in Zoology, and since I over looked when, following Kunth, I adopted the Jussieuan name in preference to the complex Linnean one But for this oversight I should undoubtedly have fallen back on the nomenclature of the 1st edition of Linnaeus' *Genera Plantarum*, adopting *Bulbine* for those species with bearded filaments, and *Anthericum* for the following ones which have them beardless, for I consider these characters which are very constant, as of sufficient value to divide the group of species, associated under the latest Linnean *Anthemum*, into two good genera Linnaeus' generic character of *Anthemum*, in the later editions of his *Genera* and *Species Plan-*

taium, was, "Gal 0, coil 6 petals, spieadwg, oblong, obtuse Stamens six, ~~fil~~ intents subulate, eieet antheis small, incumbent, 4 funowed Pistil, geiineu ob3ol tely 3 cornered st)le simple btigua obtuse, 3 coi nei td /1 uit an ovate, glabi ous, 3 tut rowed, 3-celled, 3-valved, capsule Seed numei ous, angular " Undei this diai ictei he and otheis have placed aevel species which have since been lemoved to othei gcuei a, In lvunth_a Lnumci atio Plantai uru, the name *Ardhencum* appeals as a bynoujm undu some 5 oi 6 distinct guicia But the genuine species HI C unged undei two, *Bulbine* & *ud Pkalangium*, those with beaided antheis being refened to the foim[^]i, those with beaidless ones (of which all the following aic exam-pits) to the lattei The following is Kunth's cliai-actu of Phalangium, somewhat abndged, " Calyx, 6 sepaU coiollaceous, pcisistent, the 3 extenoi ones spieadin[^], the inteioi ones sometimes bioadei Stamens 6 filaments hlitonn, beaidless autheis 2-celled, intioise, attached about the middle of the back Ovai) sessile, 3-celled ovules in a double seues hoi i-zontdl, anatiopous sttle filifoim stigma thickish Capsule 3 celltd, 3-corneied, 3 valved, valves septi-teious Seeds few m each cell, angled, black, hlun-mg, subsciobiculate, testa ciustaceous, ft agile em-biyo axile, caived, neaily as long as the albumen, ladicke next the hilum — Heibs, with fascicled loots, scapifoim, simple oi some* hat branched stems le i'ves membi an iceous, sheathiug flowei s pcdicclled, pedicels bracteate, jointed above the base

Fiom a comparison of these caracteis with the eubjectd figmed in the 4 following plates it will be seen that, howevei diffeientm general aspect, they all agiee in the particulars noted in the wntten cha-acter, even the last, though so unlike the others, agrees in these particulars I could have given figui es of several othei species but thought these enough to illustiate the genus

2036 PHALANGIUM TUDBEOSUM (Kunth, *Anther-t-c*im tuberosum*, Roxb), loots numei ous, fleshy, each tei inmatuv m an oblong tubci leaves ladicke, sword-^haped, undulated ou the maigin scape round, naked, flowers panic led ovaia oblong, ovules_# numcious, btyle asanding Floweis white

A common plant in mfy soil, flowering during lauiy weathei m both spimg and autumnu

2037 PHALANGIUM ATTENUATUM (R W), roots fleshy, not (oi rarely) tubeious leaves all radical, bwoid-shaped, scaicely waved on the margin, long attenuated towards the point, membranous scape round, naked, racemose, longei than the leaves fiow-eis numei ous, 3-4 aggiegattd in the axils of the bcauose biacts ovary somewhat ovate, ovules numei ous, st) le sti aight Flo wei s white

Coimbatoie, in cultivated and waste grounds and by hedge iows, &c, flowcung during rainy weathei This is neaily allied to the piecediu[^] but quite distinct

2038 PHALANGIUM ? OLIGOSPEBMM (R W), loots fleshy, tubeious leaves ladicke, oblong lanceo-late, waved on the maigin, acute scape teiete, eieet, blanched blanches lacemoBe ovaia subglobose 3-celled, with 2 supci posed ovules m each cell style declining capsule 3-celled, 3-sceded seed globose, lough

Coimbatoie, flowerug July and August, floweis white

I ha>e added a maik of doubt to the geuenc name on account of the few-ovuled ovaries and the posi-tion of the ovules, supei posed, not collatei al I doubt whethei the diffeienceis sufficient to justify its le-moval from the genus

2039 PHALANGIUM? PARVIFLOHUM (R W), loots numei ous, fleshy, not tuberous leaves lineai lanceo-late, tapeiing towards the point scipses seveal, axillai), slendci, ascending, loobely flexuose floweis small, 3-4 aggiegated m the axils of the somewhat remote biacts, shoit pedicelled ovaia 3-celled, with 2 supei posed ovules, m each style simple capsne 3 celled, cells 1-seeded seed somewhat globose, con-cavely umbilicate below, I ough embi yo cm ^ ed

This is a common plant which I have gathciied in Coimbatoie and many other localities As in the pieceding I have attached a maik of doubt to the genei IC name, and pei haps with better reason, leav-ing the question to be solved at some future time

2040 LEDEDOUBIA HYACINTHINA (Roth)

Common on the sea coast and also often met with f u inland I have specimens collected in Coimbatore

This is a small heibaceous bulbous looted plant with lineai lathei obtuse spreading leaves, the tips when they touch the ground readily rooting, usually mottled with bi own spots Scares one oi two, ei ect, I acemobe-ly many-floweied towai ds the apex flowers greenish with a tinge of puiple, six-pai ted, lobes persistent, withering Stamens 6 as long as the lobes of the pei lantb Ovai y 3-celled, 2 collatei al ovules in each, pendulous fiom the middle of the cell capsule 3-celled, 3-valved, 3 seeded Seed globose embryo lathei large, enclosed in a copious albumen, ladicke infeior—Phe drawing was made from a dried spec-imen and does not show the leaves as seen in the growing plant, that is spreading all lound with the tips cuived towaidb the ground

2041 BABNABDIA INDICA (R W), leaves lanceo-late, channeled towards the base, sub-acuminate at the point, stiongly neived scape teiete, lacemose, longei thau the leaves flowers ceinuuous, aftciwai ds diooping stamens as long as the pcnanth, filaments dilated and shoitly mouodelphous at the base

Neilgheui es, Western slopes neai Nedawuttim, also bagpoie, Jeidon

This plant I have not seen gi owing The dt aw-ing was taken fiom living specimens communicated by Mi Jeidon, flo wei ing in May He has since then sent me otheis fiom Nagpore

HYPOXIDLS.

Of two geneia lefened to this Older, *Curcuho* and *Hypoxis*, one is said to have the fi uit .baccate, the other capsular as their es&ential distinguishing nnikb These chaiacteis, as regards the Indian species, I have not found sufficient to distinguish them, the fi nit, at leist in the dned plants, being the same in both, namely, an indehescent raembianous capsule I have theretoie adopted anothei of moie easy and ceitani application in practice In *Hypoxis* the limb of the calyx lests immediately ou the ovary without any mtei vening tube, in *Cnrcultgo* a long slender tnbe inteivenes between them In *Hypoxis* the stigma is

entire, more or less capitate, in *Curculigo* it is conspicuously three-lobed. Making use of these characters I have found no difficulty, with one exception, in referring the following plants to their respective genera. The exception alluded to is *Curculigo Sumatrana*. In it the tube of the perianth is shorter than in the others, and the stigma is somewhat capitate, not lobed, as in the genuine species of the genus. Adding the dense capitate inflorescence to these, I am led to anticipate that this species will ultimately be removed, to form the type or an intermediate genus having the perianth of *Curculigo* but much abbreviated, and the stigma of *Jfypoxis*. The fruit and seed of all are so much alike that I do not think distinctive characters can be obtained from these organs.

A glance at the analysis of the following plates will explain my meaning by showing that the ovary of *Curculigo* is sessile in the axil of the bract, surmounted by a tube and flower, while in *Hypoxis* it is pedicelled with the flower on its apex. The seed in both is oval, round at both ends, furrowed longitudinally, with a lateral very conspicuous attachment. The testa is bright, shining black, and fragile under the knife.

2042. CUECDLIGO SDMATBANA (Roxb., Loddiges), leaves long petioled, broad lanceolate narrowed at both ends, glabrous, plicately nerved: scape short, compact, cone-like: bracts ovato-lanceolate, about the length, or somewhat longer than the flowers, perianth wheel-shaped.

Malacca, Griffith.

Roxburgh is the original authority for the specific name and it was, I believe, from him that Loddiges obtained it, and it would appear, was the first, owing to the delay in the publication of the Roxburghian manuscripts, to publish it, whence, in Raemer and Schultes' *Systema Vegetabilium*, he is quoted as the authority for the name.

Roxburgh quotes Rump. 6 tab. 53 for this plant, a very good figure of it.

2043. CURCULIGO MALABARICA (R. W.), leaves long petioled, linear lanceolate tapering at both ends, glabrous: scape, racemose, the lower flowers only hermaphrodite: all clothed with long soft pubescence: bracts ovate, tapering from the base, subulate, pointed: anthers deeply sagittate, stigma large, 3-lobed.

Quilon, Malabar.

Roxburgh quotes Rheede Hort. Mai. 12-59, as "good" for hid *C. orchiioides*. I was in hopes that it might turn out this species, but on referring to it, I found it represented a different plant and not in flower.

2043. CUBCULIGO BEEVIFOLIA ? (Alton, Hort. Kew), leaves sessile or short petioled, narrow linear lanceolate, sprinkled with long soft hairs: scape short; lower flowers only hermaphrodite; tube long slender, pubescent: bracts ovate, lanceolate and with the perianth clothed with long lax hairs: lobes of the limb of the perianth, lanceolate: stigma deeply three-lobed.

Neilgherries, Anamally Hills, &c.

A small low growing plant, the bright yellow flowers scarcely rising above the surface of the ground. Root perennial, somewhat fusiform. The drawing of this species was taken from the fresh plant, hence

perhaps the flowers may appear large in proportion to the size of the plant as compared with those of the others, which, being taken from dried ones, probably smaller than they should be.

2044. HYPOXIS LATIFOLIA (R. W., *Curculigo latifolia* Moon), leaves long petioled, lanceolate, acute at both ends, glabrous, or sparingly sprinkled with hairs; scapes axillary, short peduncled, racemose; lower flowers longer pedicelled, hermaphrodite; upper ones male: bracts about the length of the pedicels, somewhat stem-clasping at the base, subulate pointed: sepals lanceolate acute, sparingly hairy on the back: style about the length of the stamens; stigma slightly 3-winged: capsule oblong, clavifonn.

Ceylon, flowering in March. Mr. Moon quotes for his *Curculigo latifolia*, Rump. 6 tab. 53, a plant very like this, but which is a true *Curculigo*, I therefore infer this to be the plant he meant, but referred it to a wrong genus. On this supposition I quote his name as a synonym to mine. He gives Colombo as the station. I do not know where I picked up my specimens.

2045. HTOXIS LBPTOSTACHTA (R. W.), leaves long petioled, lanceolate, acute at both ends, glabrous above, sprinkled with longish lax hairs beneath: scapes short, slender, corymbose, lower flowers hermaphrodite, pedicels filiform, and, with the ovary and exterior sepals, hairy: sepals sub-obovate obtuse: capsules few-seeded.

Malabar, flowering in June.

The inflorescence in this species forms a perfect corymb, the pedicels which are very slender progressively lengthening as they descend on the scape.

2045. HTOXIS TEICHOCAEPA (R. W.), leaves long petioled, lanceolate, acute at both ends, glabrous above, laxly pilose beneath: scapes racemose and with the pedicels and ovary densely covered with long coarse brownish hairs: sepals ovate lanceolate, hairy on the back.

Malabar? The station is not stated, but I believe it is Malabar. This, though like the preceding, is easily distinguished by the inflorescence which is more compact, stouter in all its parts, and thickly covered with long coarse shaggy hair.

2046. HTOXIS PACCIYLOH A (R. W., *Curculigo paniciflora* f Moon), leaves longish petioled, narrow lanceolate, acute at both ends, glabrous, or sparingly sprinkled with short hairs: scape sparingly hairy, few-flowered: hermaphrodite flowers long pedicelled; male ones shorter, slender, stipules narrow subulate: sepals ovate lanceolate acute, scarcely exceeding the stamens, glabrous, or very sparingly hairy on the back.

Ceylon. There is no character to Moon's plant, hence I merely conjecture that this may be his from the paucity of flowers.

2046. HTOXIS BBACHTSTACHTA (R. W.), leaves (comparatively) short petioled, ovato-lanceolate, acuminate, sprinkled along the sides of the nerves with small tufts of short bristly hairs: scapes short and with the pedicels and ovary, coarsely hairy: bracts, minute, subulate: calyx lobes ovato-lanceolate acute exceeding the stamens, coarsely hairy on the back.

Ceylon This is at once distinguished from all the others by its shorter petals, thicker more couaceous laves, and the very distinct character of the hairs (The) are certainly all nearly allied species

There are still two Peninsular species in my collection, one from Mysore, apparently *H minor*, but the specimen is too imperfect for discrimination, the other nearly allied to *H tuchostachya*, but differs in having longer lacemes and nearly glabrous ovaries

GLOBIOSA (Lin) METHONICA (JUSS)

The respective claims of these two names to be united to designate this "veic glouosus flos" has been a subject of controversy among Botanists since the publication of Jussieu's *Genera Flutarum* in 1791. In 1737 Linnaeus published the first, in 1792 Jussieu the second of these names, assigning, so far as shown by his book, no reason for the change. He simply wrote the word "Methonica, *Glonosa*, Lin," as if he had the light to set up and pull down according to his own will. Others, however, inform us that he objected to the prior name because it is an adjective.

When about to name this plate, I determined to satisfy myself, at least, and I hope others as to the true merits of the case, and at the same time contribute my mite towards elucidating the principle of priority in naming objects of natural history and establishing it on a proper basis.

The doctrine of priority has most properly been insisted on as the only rule by which the rights of discovery could be preserved, ever since the publication of the *Philosophia Botanica* of Linnaeus. Taking this then as the point on which the whole argument must turn, it becomes necessary at the outset of the discussion to determine in what priority consists.

Owing to numerous departures from it and the manifest inconvenience resulting, the British Association of Science was induced to take the subject into its serious consideration, and in 1840-41 appointed in the Zoological section a committee to examine and report on the subject. The report was presented and approved of in 1842.

As the following paragraph of that report cannot be too extensively known, as being equally applicable to all branches of Natural History, I shall introduce it here, merely substituting the word "natural-historical" for Zoological, and then proceed to apply the principle it so clearly elucidates to the present controversy.

LAW FOR REGULATING PRIORITY OF NAMES IN NATURAL HISTORY

"Names not clearly defined may be changed Unless a species or group is intelligibly defined when the name is given, it cannot be recognized by others and the signification of the name is consequently lost. Two things are necessary before a natural historical name can acquire any authority, viz. definition and publication. Definition properly implies a distinct exposition of essential character, and in all cases we conceive this to be indispensable, though some maintain that a mere enumeration of the component species or even of a single type, is sufficient to authenticate a genus. To constitute publication, nothing short of the insertion of the above particulars in a printed book can be held sufficient." And with regard to MSS it is added, "they are in all cases liable to create confusion, and it is therefore much

to be desired that the practice of using them should be avoided in future." *Extract from Report 1842 on Zoological Nomenclature of the Zoological Committee of the British Association for the Advancement of Science*

Keeping this rule, viz. the absolute necessity of both "definition and publication," to constitute priority in naming objects of Natural History steadily in view, I now turn to Knuth's Enumeration Planetary, vol. 4, published 1843, the latest general work on Botany, and at page 275 I find

METHONICA, Heilmann, Juss., Endlicher, [Meisner] *Glonosa*, Lin, Gait

Turning now to Herman for his definition of the genus, on which only he is entitled to claim the paternity of the name, all we find is "Methonica Malabarorum," Methonica of the Malabars. There is no definition, the citation, therefore, in a controversial discussion is, to say the least, inappropiate, being without weight in the argument. In like manner both Endlicher and Meisner quote Herman as the authority for the genus Jussieu, the real authority for the genus, the name of which only he borrowed from Heilmann, gave it simply as his own and it is his, as much as if he had invented the name for the occasion. To quote Heilmann, therefore, as the authority for the genus, he having contributed a name only, is mere special pleading, unworthy of those who have recourse to it, as the matter in dispute is between Jussieu and Linnaeus, not between Linnaeus and Herman. On turning next to Linnaeus' *Genera Plantarum* and Hort. Cliffortianus, we find a new competitor brought into the field, viz. Tournefort, a name as celebrated and an authority as high as his own. He there gives his own name, "GLOBIOSA," with *Methonica*, Lournet, A. G. 1706, "quoted as a synonym, clearly showing that the name occurs in Tournefort's works, but not in his *Inst. Utroque*, and, therefore, the genus not taken up and defined, which last would have constituted him (Tournefort) the authority for the genus and, in that case, Herman would probably never have been heard of, nor would Linnaeus have attempted to supersede him in the name. Of course, had Linnaeus so willed, he might have adopted Heilmann's Malabar name and there would have been an end of the matter, but being so vastly delighted with this truly glorious flower, he did not think an unintelligible barbarous name nearly good enough, and, therefore, for once departing from his own excellent rules, gave an adjective designation to the genus. And why not? and having carefully defined and published his name, I ask, who has a right to change it? And I further ask, who ought to give Jussieu the light to constitute himself his preceptor's teacher in the matter of forming his generic names? For myself, I reply, I am unable to answer either question, but hope that Meisner, most unhappily the only survivor of the illustrious Linnaeus, because it is an adjective, called this genus *Methonica*, in which he has been followed by Jussieu, and indeed by all French Botanists," &c

When investigating this question I stumbled on a curious blunder on the part of the writer of the article, *Glonosa*, in Bees' Cyclopaedia. He says, "Lournet, objecting to the name given by Linnaeus, because it is an adjective, called this genus *Methonica*, in which he has been followed by Jussieu, and indeed by all French Botanists," &c

The error to which I allude is, that of making Tournefort object to the name. He died in 1708 and Linnaeus was born 1707, at which late the latter must have given the name before he was one year old.

The principle of the rule of priority in fixing the names of objects of natural history seems until of late to have been either much misunderstood or else very capriciously used, as we occasionally find, even among high authorities given departures from it. The late Mr. Don, when writing his *Flora Xepalensis* seems to have so utterly misunderstood it that we find him in many instances setting aside defined and published names in favour of manuscript ones of presumed older date, and in several instances apparently acting on the *sic nolo sic jubeo* principle. Betting aside those of DeCandolle merely because he thought he could give better ones. On the occasion of substituting *Hamiltoma* for Mr. Brown's *Spermadictyon*, he even goes so far as to say, "nomen Spermadictyonis nimis amis tunc erubile est servandum," thus constituting himself the censor of what is of course not sufficiently euphonious to be borne by the ears of future Botanists. A most startling presumption.

It must, however, be observed, in justice to Mr. Don, that that was not the primary reason for the name of *Hamiltoma* superseding *Spermadictyon* in his book, which seems to have originated in the circumstance of Dr. Wallich having overlooked the fact that pre-occupation only can be permitted to set aside a defined and published name, and as the case affords an excellent illustration of the mischief resulting from departure from the law of priority as established by definition and publication, I shall, so far as my information enables me, endeavour to give a history of it and trace it to its consequences.

Roxburgh, in his *Manuscript Flora Indica*, had given the name *Hamiltoma* to a genus of plants, and sent drawings and descriptions of two species so named to the India House.

One of these was selected by Mr. Brown as Editor, for publication in the *Coromandel Plants*, but in the meantime, Willdenow (*Sp. Plantarum* 4, 1114), had pre-occupied the name, he (Brown) therefore changed Roxburgh's MS name and substituted in Roxburgh's name the very appropriate and classically constructed name of *Spermadictyon*, which was accordingly published, giving Roxburgh's definition and description of the plant, with the plate. The name so published ought never afterwards to have been disturbed, not indeed the existence of *Hamiltoma*, as a Roxburghian name, made known.

Dr. Wallich, however, when editing Dr. Roxburgh's *Posthumous Flora*, apparently, thinking he was not at liberty to alter the MS retained the supposed name, adding a note, stating that "that was the genus called *Spermadictyon* in the *Coromandel Plants*, in consequence of the name *Hamiltoma* having been given by Willdenow (without any good reason in his opinion) to Michaux's *Pyndana*." In so acting he, for the time, lost sight of the principle of definition and publication, so thoroughly fixing a name that nothing short of pre-occupation could authorize its being afterwards set aside or changed. But he has since collected his error by introducing *Spermadictyon* in his list of Indian plants as has Steudel in his *Nomenclator Botanicus*.

But the mischief has not stopped there, for Steudel, while doing justice to *Spermadictyon* has, as shall be

immediately shown, done an equal injustice to *Pyrolana* in superseding it by Willdenow's *Hamiltoma*. Schultes, Endlicher, and Meisner, on the contrary, concur in sacrificing Willdenow's *Hamiltoma* at the shrine of Michaux's *Pyrolana*, and *Spermadictyon* at that of Roxburgh's *Hamiltoma*.

DeCandolle, apparently endeavouring to escape the difficulty by steering a middle course, only made matters worse. He wishing to preserve Roxburgh's name, chooses to follow Willdenow's *Hamiltoma*, and then set about settling the difference between *Hamiltoma*, Roxb., and *Spermadictyon* Roxb., which he did by quoting as authority for the former, the undefined name of Roxburgh's *Catalogue of the Calcutta Botanical Garden*, published in 1814 against the defined one of the *Coromandel Plants* published in 1819. This, as already said, only makes the matter worse, for while the law declares that an undefined catalogue name can never be allowed to take precedence of a fully defined and published one, he practically declares the reverse to be the correct rule, that is, that defined and published names ought to be set aside in favour of undefined catalogue ones of earlier date. In this proceeding he has, either through ignorance or carelessness, been most impudently followed by all subsequent writers on the genus, myself included. Steudel and Wallich being the only ones who have taken a correct view of the case.

Let us now turn to Willdenow's *Hamiltoma* and try it by the common standard. Wallich's note having informed me that, in his opinion, the name was given without any good reason, I was induced to follow up the inquiry to ascertain how far his opinion was well founded. The case stands thus.

Michaux published in 1803, in his *North American Flora*, his genus *Pyndana*, duly defined, that is, so that it could be recognized by others. Willdenow, it would appear, had received specimens of the same plant named in a letter (I suppose of a prior date), *Hamiltoma oleifera*, and on the strength of this MS priority adopted that name, giving Michaux's *Pyrolana pybera* as a synonym. Well might Dr. Wallich in such a case say, "for no good reason, but still, bad as the case is, it did not, as Wallich now admits, authorize the substitution of Roxburgh's name. The consequence of this blunder of Willdenow is, that both the *Hamiltomas* must be, indeed are, set aside and the name of that highly respected person does not now occupy a niche in the Botanical temple, though both an Indian and American Botanist has respectively essayed to place it there, for, curiously enough, both, in giving the name, had the same person in view, Mr. William Hamilton of Philadelphia.

The coalitions from all this are sufficiently self-evident—first, Jussieu—I write the word with reluctance, but truth compels me to say that the great and excellent Jussieu erred in so dogmatically overruling the law of priority, thereby establishing a dangerous precedent. Secondly, he erred still more inexcusably in assuming the privilege of constituting himself the collector of Linnaeus in the matter of the formation of his generic names. Thirdly, Salisbury, Lamarck, Redouté, Endlicher, Meisner, and Kunth, have all erred to an equal or even greater extent in supporting him in this innovation, the consequences of which, as we have seen in the case of Willdenow's *Hamiltoma*, and Don's *Fl. Xepalensis*, have been most mischievous.

Having thus after a pi ot i acted and patient examination amvedat what I considei the lights of the 25 nTM ^{Call} n^o Ion^{ti} hesitate In adopting the Linncan nime of his "oere glonom s flos" as the only one adjective though it be having the slightest claim to be retained on the lecodis of Botany

10 } havmg the subject of names and naming of plants
adv[^] Vth U^{lk} } m7 ** Wdl 6 o a ste P f5rtK?SI
In Zn P. ^ ^ K^{biicfly} to the Unha^{PPy} State of the
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endeavoured in the couisc of this wo:k to lessen by nevei in a single instance, knowingly, superseding an undefined name so long as I had the means of ascertaining correctly the phut to which it belonged ~~no all~~ such cases I hue felt anxious to fix by definition these floating names, foi until defined they aie Having been thus caieful to avoid any departure from the courtesies of the science, I tiust that those who use this book may always beai in mmd that two things are nece^osary befoie a Botanical name can acqmie authonty, viz, definition and publication and not incautiously add to the existing almost insurmountable difficulties of u n w elhng oui exceedingly perplexed synonyme by substituting, on the ground of pnouty, undefined names foi defined ones in * I ask not foi my own sake, but for that of my successors who become the suffeiers

*his request applies alike to all undefined names Jf^{ci} ev < they occur, whether in Wallichs list or Wight s Catalogue in Royle s or Wight s Illustrations, and Spicilegmm, books which unavoidably abound m names, many of them undefined Also to the h&s^{no} w Publishing in Gei many, edited by Hohenacker wnicn, I have reason to think, give new names to aevenal plants, previously published in this woik, and doubtless to many of those published in this and the pieceding volume in a woid to all undefined names

In a woik of this magnitude, and produced undeic circumstances so unfavourable to accuiacy, by my ~~h&s~~ i^{no} Cut off from all ">tei course with Botanists or Dooks and named plants beyond what my own ratner limited libi ary and herbai mm pi ovided many enois must unavoidably have ciept in for such I ASK no meicy, but I do, and ever shall, protest against my definitions being transfeired to the undefined names of others because their names happened to exist in a catalogue or punted book befoie my defined ones were published

The naturalist prizes the honor of naming the subjects he has studied and is about to add to the Catalogues of Natmal History—it is usu^{ally} his only reward for his pains taking labour—and, as the laborer is woithy of his hire, that credit ought not on any account, to be wrested flora him, and still less when to oe confened, peihaps, on a person utteily incompetent either to examine or define, or what is about as Dad, on one too idle or indifferent to do so for himself

One other subject remains to be veiy briefly adverted to Univei^{al} piactice, among the British residents of India, has fixed the oithography of the name of the neighbouring lange of mountains which k now always written Neilgherry In conformity with this spelling I, m latinizing the word for the loimation of specific names of plants, have merely altered the termination, writing it Neilgherrensis The writers, howevei, of the Gei man catalogues,

above alluded to, apparently thinking themselves better acquainted than we aie, with the pronunciation and orthogiaphy of English woids, take UDon thenralts to co.lect us and therefore wnte ?te woid Ailaguy and NUiguicnt, and have even/m at least one instance, ilteied oui oithogiaphy to make IUuit then conception- of > hat is light Against this presumptuous libeity, I heie enter my most unqualified protest We make no attempts to soften 01 amend the o.thography of their, to us haish and often almost unpi onounceable language, and neither ought they to venture on the task of attempting to adapt oui softei and moie flexible tongue to their pronunciation Noi ought we to toleiate such interference

2047 GLOBIOSA SUPEHBA (Linn, *Methonica*, Jus-sieu, Endhcher, Meisuei, Kunth) leaves cemferous, the mfeuoi ones oblong, the upper ones ovate lanceolate sepals lanceolate, waved their * hole length

Coimbatoie, Eastern slopes Neilgheines, Courtal-lum, &c, &c Flowering during the autumnal months.

I have taken the liberty of removing this eenus from Liliacea, in which it is usually placed, to *Uvula-neat* and *Melanthacea*, should these oidcrs be again united My attention was first called to the subject by Dr Stocks of Bombay who had previously amvedat the same conchision Aftei looking into the mattei, companng living specimens with the characters of the orders, I felt, and still feel, at a loss, how to account for this genus having been so long peimittedto retain its place among the Lilies, especiallj after the lemoval of *Uvulaia*, a genus so closely allied that nearly the same woids chaiactenze both, with the exception of the revolute peti&nth

2048 DIPOBUM LESCHKAULTIANUM (Donn), umbels sessile, 3-5-flowered sepals ovato-lanceolate acute, gibbous at the base, filaments about twice the* length of the anthers, dilated at the base style £-4 times the length of the stigmas leaves ovate, short petioled, acuminate

Neilghcrnes, fieqnet, especially about the outskirts of woods, flowering during the rainy season, July and August

In the accompanying plate I hare represented two forms, one with drooping the other with erect flowers It did not occur to me, when the drawings were made, to study carefully these forms with the growing plants before me, and now I am unable with certainty to say whether I have combined 2 species or 2 vaiieties Judging from dried specimens, they are varieties only, but possibly in that I may be mistaken Howevei, here are both forms, and will I hope induce future explorers to undertake the solution of the question

2049 DIPOBUM MYSOBEVM (R W), umbels 3-4-flowered, tei minal sepals ovate, cuspidate-acuminate, not gibbous at the base filaments curved, not dilated at the base, shorter than the sagittate incurved cuspidate anthers style filiform, much longer than the short, almost inconspicuous, stigmas leaves sub sessile, broad, ovate, acuminate

Babenbodm Hills, Mysore, Cleghorn I only know this plant from dned specimens, for which I am indebted to the kindness of Di Cleghorn

2049. *DISPOBUM CETLANICUM* (R. W.)₁ umbels 3-5-flowered, terminal: sepals lanceolate acute or sub-acuminate, not gibbous at the base: filaments filiform, about twice the length of the oblong obtuse incumbent anthers: style filiform 3-4 times the length of the revolute stigmas: leaves sessile, ovate, lanceolate, attenuate at the apex, acute.

Ceylon. I am indebted to the late Colonel Walker for my specimens of this very distinct species.

2050. *OPHIOPOGON INDICUS* (R. W., Rottler?), leaves narrow linear, acute, somewhat coriaceous, sheathing at the base: scape naked, about half the length of the leaves, racemose, secund: bracts subulate, shorter than the pedicels: flowers bell-shaped, sepals ovate, obtuse, longer than the filiform, acute, style: filaments short, cohering at the base, and with the sepals persistent: berries oval, pale blue when mature.

Neilgherries, Courtallum, Mysore, &c.

A widely diffused plant. I have taken the specific name from Royle's Illustrations, where he mentions an "O. Indicus, Rottler," but without a reference to a character to enable me to ascertain whether this be his plant, hence the query.

This genus and the following (*Peliosanthes*) are remarkable for bearing naked seed, that is the cells of the ovary do not enlarge with the growth of the ovules, which in course of time burst the walls of the cells and are then matured not in a seed vessel but exposed to the direct action of air and light. The testa becomes progressively succulent, finally giving these naked seed, a berry-like look. Sometimes the whole six ovules are matured, producing clusters of bright blue berries as shown at fig. 7. Sometime several of them abort as I have endeavoured to show at fig. 6, when 2 of the ovules are represented much larger than the adjoining aborted ones. When the whole attain maturity, as shown in figures 7 and 8, the clusters of bright blue berries then form a very pretty object. Mr. Brown was, I believe, the first who understood and explained this curious economy of these plants.

2051. *PEUOSANTHES COURTALLENSIS* (R. W.), leaves very long petioled, lanceolate, acuminate, glabrous; petiols rather shorter than the limb, triangular: scape about the length of the petiols, subspicately: bracts subulate, as long as the flowers: perianth campanulate, 6-cleft, throat contracted by the antheriferous crown (dilated monodelphous filaments): anthers sessile, inserted within the margin of the crown: ovary 3-celled, with 3 erect ovules in each, 1 or 2 of each usually abort.

Courtallum, in dense woods, flowering February and March.

Figures 5 and 6 show the ovary in an advanced stage, but before the cells have given way; figure 7 after they have burst, and figure 8 in a somewhat more advanced stage of development.

2052. *PELTOSINTHES NEILGHERRENSIS* (R. W.), leaves lanceolate, tapering at both ends, acuminate; limb about the length of the petiol: scape erect, racemose, shorter than the leaves: flowers drooping, campanulate, 6-cleft: antheriferous crown (dilated filaments) 6-parted (that is filaments six), short, dilated, inserted on the sepals: ovary 3-celled, ovules, usually, 4 in each cell; soon rupturing the walls: style

3 angular, short; stigmas 3, spreading: seed naked, testa fleshy blue: embryo cylindrical at the base of copious albumen.

Sispara, on the Western slopes of the Neilgherries, abundant by the road side and among the adjoining bushes, flowering January and February.

2053. *DIANELLA imsiroLiA* (Aiton), leaves numerous, long ensiform; margin prickly serrulate; keel rough at the base and apex: branches and branchlets of the panicle spreading: pedicels crowded, drooping, nearly as long as the flower.

Courtallum, Malabar Mountains.

The figure which was taken from an indifferent specimen of a growing plant, does not give a very good idea of the species, but the analyses are more perfect than any I have seen of this genus.

2054. *DBACENA TERMINALIS* (Willd.), stem fruticose, erect: leaves petioled, lanceolate, attenuated at both ends, stem-clasping at the base, glabrous: branches of the panicle divaricated, simple: flowers sessile, fascicled, 3-5 together, tubular, 6-cleft: filaments subulate; anthers incumbent: seed globose: albumen large: embryo small, lateral.

Courtallum, Quilon, perhaps in both instances the outcast of a garden. I do not recollect having met with it in situations that left no doubt of its being indigenous.

2055. *ASPARAGUS ASIATICUS* (Linn.), thorns solitary, recurved: stem erect, woody; branches filiform: leaves fascicled, subulate (setaceous), peduncles solitary.

Ootacamund, Neilgherries, frequent, growing in open ground: smaller specimens are quite erect, the more luxuriant ones, such as that selected for representation, drooping towards the extremity. The above is the only station I recollect having met with this plant, but it must also inhabit the lower heights on the Malabar Coast whence I presume Linnaeus obtained his specimens. Lamarck describes it, from plants growing in the "Jardin du Roi." Lamarck quotes Pluk. tab. 15, f. 4, for this plant, but as it is without flowers it may serve as well or better for the next. All indeed that can be said for it that it is an Asparagus.

2056. *ASPARAGUS RACEMOSUS* (Willd.), thorns solitary, reflexed; branches striated: leaves fascicled, linear, subulate, falcate, racemes many-flowered, axillary.

Coimbatore district, frequent, climbing extensively among hedges, and bushes. When in full flower, which it is during the autumnal rains, it is a charming plant, scenting the air for a considerable distance round with its delightful fragrance.

The genus Asparagus is referred by most Botanists to Liliaceae. I am unable to understand on what grounds, as it associates so well with Smilax. Lindley excludes it from his class of Dictyogens, but, as it appears to me, on insufficient grounds, as the leaves of those species in which they are more developed show the reticulated tendency, and the woody structure of the stems of both is so perfectly alike that sections are scarcely distinguishable when lying side by side on the field of the microscope. For these reasons I have ventured to remove it from Liliaceae and place it beside Smilax which I have no doubt is its proper place in the natural series.

1037-58. *SMILAX ZEYLANICA* (Linn.), stem scandent, obscurely 4-angled, beset, especially the male, with numerous small recurved prickles: leaves from cordato-ovate acuminate to sub-orbicular, abruptly retusely acuminate, 5-nerved; the outer pair slender: peduncles axillary, usually two, sometimes 3-umbellid: flowers longish pedicelled, male 6-androus, without rudimentary pistil: female with 3 rudimentary stamens opposite the outer sepals: berry globose, 3-seeded.

Neilgherries, Eastern slopes, frequent at an elevation of from 4 to 6 thousand feet, climbing to a great extent over trees. In flower and fruit from September until November or December.

20J9. *SMILAX MACULATA* (Royle), shrubby, scandent, angular, armed with numerous small prickles: leaves broad sub-reniform-cordate at the base, tapering to a blunt point, 7-nerved, racemes, male and female, axillary, flexuose, with the flowers fascicled on the flexures, short pedicelled: female with six rudimentary stamens.

Eastern slopes of the Neilgherries, climbing extensively on trees. Berries red when ripe.

2060. *DIOSCOBEA ACUMATA* (Linn.), herbaceous, twining, glabrous, branches piped, 4-winged: wings narrow membranous: leaves opposite, deeply cordate, 7-nerved, acuminate: male panicles axillary, branches fascicled, spiked, 4 to each pair of bracts, flexuose, with a single sessile flower on each flexure: interior sepals smaller, all obovate: ovary 3-celled with 2 superposed ovules in each, capsule 3-winged, seed winged.

Malabar. My specimens are from Malabar where I gathered it in flower and young fruit in June.

The representations of the mature capsule and seed in the plate are those of *Bropposittfolia*^ those of *D. aculiata* not being sufficiently ripe.

ROXBUBGHIA. (Driander.)

GEN. CHAB. Perianth: sepals 4, linear lanceolate, acute. Stamens 4, opposite the sepals* filaments short, dilated; connective produced far beyond the anthers, anther 2-celled, introrse; cells large, dehiscing their whole length, each enclosing a pollen bag (endothecium), nearly as long as the cell: pollen bags furrowed along the suture; persistent after dehiscence, the apex of each produced into a long flattened thread, which, converging and cohering with its fellow, forms a thin membranous lanceolate point (the nectary of Roxburgh), pollen farinaceous or, more correctly, something between waxy and farinaceous. " Germe (ovary) superior, cordate, compressed, 1-celled: ovules numerous, attached to the bottom of the cell, cordate. Style none, stigma pointed, capsule ovate, compressed, one-celled, 2-valved, opening from the apex. Seed 5-8, pedicelled, inserted on the bottom of the capsule, cylindrical striated: pedicels surrounded with numerous small pellucid vesicles." Roxb.

The description here given of the male organization of this genus is somewhat different from any hitherto proposed if I rightly understand them. According to this description, the stamens of *Roxburghia* represent, among monocotyledons, the Asclepiadæal structure. There the anther is two-celled with the pollen enclosed in a bag, the endothecium or lining of the anther cell. There, as here, the endothecium is prolonged: forming in them the connection between

the corpuscle and pollen mass. So far the analogy in the male structure of the two families is clear, but here they diverge, the endothecium of *Asclepiadæa* separating entirely from the cell, and being removable with the pollen, while here it continues attached to the bottom of the cell. In *Asclepiadæa* the pollen of two anthers converge to form the geminate pollen masses, here those of the two cells of the same anther are united. The remainder of the character I have taken from Roxburgh who examined and described the flower with most elaborate care, but evidently misunderstood its structure, a circumstance not much to be wondered at, considering the then imperfect knowledge of structural botany. Sir J. E. Smith gives the best description of the anthers I have seen: " Stamens, filaments 4, opposite the petals and nearly as long, awl-shaped, fleshy, with a double cell at their inner side near the base; anthers 2-lobed, oblong, lodged in the cells of the filaments, each crowned with a simple lanceolate appendage.¹" This description differs from mine in his viewing the connective as a 2-celled filament and the pollen as the anther.

This view of the structure of the stamen of this genus may perhaps lead to the determination of its affinities, a point as yet very imperfectly understood.

When I wrote the above I had overlooked Griffith's paper in the *Calcutta Journal*, whose views nearly, I think, coincide with mine, a point I cannot now ascertain the volume being packed up and out of reach.

2061. *ROXBUBGHIA GLORIOSA* (Driander). Pulicat Hills at an elevation of about 2000 feet, flowering in August and September. The season at which I visited the station was a little too early, so that only a few flowers had opened and no fruit.

2062. *ASPHODELUS FAUCIFLOBA* (R. W.), leaves fistulous, long tapering, subulate-pointed: stems naked, racemes terminal: flowers small, short pedicelled: filaments filiform, glabrous, scarcely dilated at the base: stigma subcapitate, undivided: seed somewhat triangular, ovate, blunt pointed.

The station of this plant, the only Indian representative of the genus I have at hand, is not marked, but most probably was obtained from the light sandy soils of the sea coast.

2063. *UEGENIA INDICA* (Kunth, *Scilla Indica*^ Roxb.), bulb truncated: leaves narrow, and taper from the base: racemes simple, longer than the leaves: flowers remote, solitary, long pedicelled, drooping. Roxb.

Sea coast, Tuticorin, March and April.

Bulb white, about the size of an apple: leaves radical, ensiform, flat, glabrous, from 6 to 18 inches long. When in bloom the plant, is perfectly destitute of leaves. Scape erect, round, naked: raceme long, erect, flowers remote, long pedicelled, drooping, pedicels filiform, bract most minute, caducous: sepals linear, equal, filaments filiform. Capsules, elliptic, many-seeded; seed compressed, orbicular, broadly winged, bright shining black: embryo length of the seed, axile.

The above description of the plant is taken from Roxburgh, that of the capsule and seed from specimens now before me.

2064. *UEGENIA COBOMAKDHIAVA* (R. W., *Scilla Coromandeliana* ? Roxb. ?), leaves linear, tapering to

the point, shorter than the scape: racemes erect, flowers short pedicelled, supported by a rather large scarious bract as long as the pedicel: sepals ovato-lanceolate, all equal, and beardless: style about the length of the stamens, capitate: capsule large, obsoletely 3-angled, 3-sided, seed obovate, orbicular, compressed, winged, shining black. Embryo about the length of the albumen.

Sea Coast, station not stated.

This differs in some respects from Roxburgh's description, which unfortunately does not include any account of the capsule and seed; I however, believe it is his plant

2064. *URGENIA COHGESTA* (R. W.), leaves linear subulate, about the length of the scape: scape erect, naked, raceme short, compact: flowers short pedicelled, supported at the base by a short broadish obtuse scarious bract: sepals lanceolate, the inner slightly smaller: ovary conical: capsule sub-obovate or globose, 3-celled: cells few- (3-4) seeded: seeds orbicular, bound all round by a broad wing, shining black.

Sea Coast, Malabar? station not mentioned.

The specimens from which these drawings are taken were not collected by me, hence the want of stations. They are all referable to the very modern genus *Urgenia* which was separated from *Scilla* on account of its numerous much compressed, not few globose, seeds, which is its distinguishing characteristic.

COMMMLTKACE^.

This, in the most favourable circumstances, is a difficult order to deal with as regards the discrimination of species, and in giving representations of the flower can only be done justice to from growing plants, hence I infer our comparatively imperfect acquaintance with its species. Having myself often experienced this difficulty, I think it will be doing a service, if I can, by giving representations of a considerable number, lighten the labours of others, who may wish to undertake their investigation. It is rather unfortunate that I delayed entering on their examination until this late date, as I have left myself neither the time nor room required to do them full justice, and what is worse, I have been constrained to take many of my drawings from dried plants in place of fresh ones. This I regret, but such is now my position that it is unavoidable, unless I leave them undone. I have, however, endeavoured to compensate for this defect, by greater care, especially as regards the analysis. In spite, however, of all my care, the relative sizes of parts, as shown in the magnified flowers, will sometimes be found defective as in several instances they were necessarily taken from young flowers artificially opened, and before the petaloid series had attained their full development, but the forms in these cases were as accurately preserved as it was possible, so that I trust no very striking discrepancy between the drawing and fresh flower will in any case be found, and as regards the outline of the plant I believe it is generally unexceptionable. My materials for illustrating the order are so considerable that I could easily have nearly doubled the number of subjects represented. I may here mention, for the encouragement of parties who may have an opportunity of collecting specimens, that I have learned in the course of their investigation, that much more can be done with dried specimens

than I previously supposed possible, and would therefore urge their collection, as I feel quite convinced that the order is much richer in species than the latest publications would lead one to suppose. Roxburgh in his *Flora Indica* only describes 13, a very small number, and only to be accounted for by the insufficiency of the characters, as known at the time he wrote, for their discrimination.

At that time all the Indian species, indeed nearly the whole order, were grouped under two genera; one, *Commelyna*, having half the stamens sterile, the other, *Tradescantia*, having them all fertile and the filaments bearded. Brown struck off from the former, his genus *Aneilema*, and subsequently Don his *Cyanotis* from the latter. These separations, especially the first, gave greater precision to the generic characters, and have been followed since then by the addition of several well-defined genera.

Aneilema has already become so over-grown (Renth enumerates 60 species) that it now requires subdivision. This I have attempted in my genus *Dictyospermum*, on the principle that, as in the true *Aneilemas*, the calycine series of stamens are fertile and the petaline sterile, so a departure from that arrangement, indicates such a change of structure as to justify generic separation where it occurs. In *Dictyospermum* the anterior petaline stamen is polleniferous and fertile, and the other two usually suppressed along with the posterior calycine one. This is the arrangement observed in *Commelyna*, which has 6 stamens divided into 2 sets, 3 anterior fertile, 3 posterior sterile, not, as in *Aneilema*, alternately fertile and sterile.

This arrangement of the stamens enables us to divide the genera struck off from the old genus *Commelyna* into two well defined groups, viz., anterior or petaline stamen, fertile, *Commelyna**, all the petaline stamens sterile, *Aneilema*, Stamens all fertile and anthers conformable, *Tradescantia*.

Following out that grouping, we have for the first, *Commelyna*, *Heterocarpus*, *Aclesia*, *T. inantia*, *Dictyospermum* and *Dichorandraf*; for the second *Aneilema*, and *Dichospermum*, and for the third, *Callesia*, *PoUia*, *Lamprocarpus*, *Dithyrocarpus*, *Tradescantia*, *Spironema*, *Cyanotis*, and *Cartonema*. I have separated *Dichospermum* from *Aneilema*, on the ground of its having two rows of seed in each cell, all the other species having one only. This I believe forms a good generic distinction. *Heterocarpus* is in like manner separated from *Commelyna* on account of difference of its fruit. In *Commelyna* the capsule is 3-celled, in *Heterocarpus* it is reduced to one, the other two aborting and shrivelling into a podocarp, to which the fertile indehiscent cell adheres. Of the propriety of constructing a genus on such grounds I feel less confident than on either of the preceding instances, but still I think it a good genus, the more so, as it does not rest on a solitary species, and is moreover strengthened by the circumstance of the two anterior sepals being connate.

I may here remark that Kunth in his *Enumeratio*, describes the fertile stamens of *Commelyna* and others of that group as posterior, while I describe them as anterior. I do not know how he views the flower, but I look at it from behind, and finding the odd sepal next the axis call it posterior and as a matter of course, the odd petal, being on the opposite side of the flower, must be anterior. In regard to the lobes of the perianth, I may remark that, theoretically,

both rows are sepals, the exterior calycine, the interior petaloid. I do not object to the theory, but its practical application is sometimes rather inconvenient. In such cases I have adopted the old nomenclature, calling the outer series calyx or sepal and the inner petals. This departure from strictly philosophical language can lead to no inconvenience as the aspect of the parts fully justify the proceeding.

2065. *COMMELTNA BENGALENSIS* (Linn.), stem rain is, creeping, pilose: leaves petioled, ovate, elliptic, subcordate at the base, acatish, puberulous on both sides, the hairs scattered and longer above; sheaths pilose, ciliate at the throat; cilia: long, brownish; spathes short peduncled, cucullate (top-shaped), acute, pubescent and pilose: peduncles paired, one incluse, 2-flowered, flowers hermaphrodite; the other exerted, roughish, one-flowered; flower male: sepals glanduloso-lincolate: the odd interior one (anterior petal) sessile, lanceolate

Common all over India—frequent about Coimbatore. The plant selected for representation is an unusual form, the roots being apparently tuber-bearing. This, however, is in appearance only, the apparent tubers being in truth under ground flowers.

The plants grew in a light soil and had been several times disturbed by the plough. On pulling up one, finding the roots covered with these tubers I examined one and in place of a solid tuber found, on opening the enclosing spathe, that it contained a flower. This induced me to make the accompanying drawing, viewing the circumstance as a curious and unusual provision of nature to preserve a species which under its circumstances was in a fair way of being destroyed. The figures in the accompanying analysis marked with a cross (+) appertain to the root flowers.

2066. *COMMELTNA POLTSPATHA* (R. W.), herbaceous, erect, leaves long lanceolate acuminate, glabrous on both sides, paler beneath, sheaths with a line of hairs on one side, setosely hairy on the margin and throat: spathes terminal, 4-8 together, collateral, turbinate, glabrous: pedicel solitary, enclosed, 4-5-flowered: capsule glabrous, 3-celled; cells 1-seeded; seed oval, obtuse at both ends; hilum linear: embryo lateral.

Bolamputti Mountains near Coimbatore, at an elevation of about 3000 feet, frequent, flowering in November.

The flower of this species seems so exactly the same as that of *C. Bengalensis*, with the exception of a slight difference in size, that the one might almost be substituted for the other. The peduncle in this does not divide within the spathe, hence all the flowers seem to be hermaphrodite.

HSTEOCABPUS. (R. W.)

GBH. CHAE. Flowers irregular: Perianth six-parted: 3 exterior lobes calycine, 3 interior petaloid: anterior calycine lobes obovate, obtuse, connate to near the apex, much larger than the posterior: anterior petaloid lobes subsessile, obovate, spathulate, lateral ones unguiculate. Stamens 6, filaments glabrous: 3 anterior anthers polleniferous, the middle one somewhat deformed—3 posterior sterile. Ovary 3-celled; 2 posterior cells minute, empty, afterwards changing into a rigid curved podocarp, anterior larger one

ovuled, capsule 1-celled, attached by a groove on the back to the podocarp, indehiscent. Seed one, oval, embryo lateral.

Diffuse, herbaceous, ramous plants. Leaves sheathing, entire: peduncles springing from the sheaths, filiform, forked at the apex within the spathe: posterior branch much longer, exerted, bearing on the point a single male flower; anterior incluse, recurved, 4-5-flowered. Spathes cordate, acuminate, folded, sub-coriaceous, ciliate. Flowers yellow.

2067. *HETEOCABPUS HIBSUTUS* (R. W.), diffuse, everywhere pilose especially on the sheaths and under surfaces of the leaves: sheaths long: leaves linear lanceolate acute: spathe long acuminate, ciliate at the base.—The aspect of the plant apart from the inflorescence is much that of a hairy grass.

Neilgherries, among bushes, flowering August and September.

2067. *HETEOCABPUS GLABER* (R. W.), procumbent, diffuse, rooting at the joints, glabrous, except decurrent lines of short hairs from the insertions of the leaves and slightly pilose sheaths, leaves lanceolate obtuse, glabrous, sheaths short, pubescent: peduncles about the length or a little longer than the leaves, filiform, involucre cordate, acuminate, ciliate at the base.—Flowers deep orange yellow.

Paulghaut jungles and Bolamputti Hills, in moist soil, flowering October and November.

I have endeavoured in vain to refer either of these plants to any described species of *Commelyna*, the only genus to which I think they could have been referred.

2068. *ACLISIA IRDICA* (R. W.), stem erect, simple, and with the panicle pubescent: leaves sheathing at the base, petioled, ovato-lanceolate, tapering acuminate, acute, glabrous, except the petiol and sheath (10-12 inches long by two or 3 broad): panicle long peduncled, loose; branches racemose, spreading or slightly reflexed: petals obovato-orbicular, larger than the sepals: fruit globose, indehiscent, fragile, smooth, shining, pale blue, cells 8-seeded in two rows: seed flattened, depressed over the embryo, quadrangular.

Malabar, Ceylon, Western slopes of the Neilgherries, flowering during the rainy season.

This species seems very different from the only other known species of the genus, *A. scorzonetui**, from Lugon Island, and so far as I can judge from specimens in fruit only, is a very handsome plant. The flowering specimen is imperfect, most of the flowers having fallen off in drying. The little flowering branch is to some extent fictitious, a flower being supplied to each empty bract to show what it is when in full flower.

DICTIOSPERMUM. (R. W.)

GEK. CHAB. Perianth six-parted, 3 exterior lobes calycine, the interior petaloid, all marcescent. Stamens 3 (rarely 5) all fertile, the middle one opposite the odd petal, slightly dissimilar: when 5, two sterile opposite the lateral petals, ovary 3-celled, with 1 ovule in each: ovule attached to the middle of the axis, horizontal; style filiform, stigma capitate. Capsule 3-celled, 3-valved; valves septiferous. Seed solitary, oblong, somewhat convex, reticulate on the back. Embryo lateral (not opposite the hilum).

Albumen homy white—Herbaceous erect plants
Stems simple, leaves sheathing at the base, entire
Inflorescence paniced, terminal flowers solitary, 01
two or three aggregated in a short sheathing bract,
pedicelled, filaments beardless

This genus approaches *Actisia* and *Commelyna* in
the position of its stamens, the middle fertile one
being opposite the odd petal, and differs from *Anex-
lema* in which all the fertile stamens are opposite the
calycine lobes of the perianth

2069 DICTYOSPERMUM MONTANUM (R W, *Anex-
lema montana*, R W, in Wall List), erect leaves
longish petioled, lanceolate, acuminate, round, glabrous
except on the margins, sheaths pubescent, truncated
panicle lax, terminal, branches slender, bearing a
few flowers on the extremities petals somewhat
larger than the sepals petaline stamen modified,
filament longer and cells of the anther somewhat di-
varicated styles simple, stigma capitate, capsule glo-
bose, smooth, shining, papery, fragile seed conu-
gately reticulate on the back

Common tall urn, Neilghen les, Eastern slopes, in damp
shady woods and on the banks of streams

The Neilghen plant differs slightly, the leaves
are less waved, broader in the middle in proportion
to their length, and shorter petioled, but in other re-
spects both correspond

2070 DICTYOSPERMUM OVALIFOLIUM (R W),
erect leaves sheathing, short petioled, oval, acumi-
nate, acute, nervel, shortly pubescent on both sides
panicles terminal, sessile, compact, many-flowered
flowers short pedicelled, at length drooping sepals
and petals about equal, orbicular filament of the
petal has no stamen longer than the others, at length
spiral convolute anthers similar style short,
stigma simple capsule obsoletely 3 angled, smooth,
shining, brittle seed oblong, reticulate on the back

Neilghen, Western slopes This species turns
black in drying

2071 DICTYOSPERMUM PROTENSUM (R W *Attil-
lema protensa*, Wall List, 5218), erect, pubescent
leaves vaginately, sessile, lanceolate, acuminate, sheaths
loose, subtruncated, ciliate and like the upper surface of
the leaves sprinkled with white hairs panicles axil-
lary and terminal, long peduncled, branches sub-um-
bellately racemose flowers pedicelled, 2 or 3 aggregat-
ed in the axils of cucullate bracts sepals and petals
about equal, shorter than the stamens, filaments slen-
der filiform anthers of the petaline stamen larger
than the stamens style filiform, stigma capitate
capsule pedicelled, hispid, unequal-sided

Courtallum, Ceylon, Nepal

This is a widely distributed species I have now
specimens from Nepal, Courtallum, and Ceylon, and
I think I once met with it on the Neilghen, but
very sparingly and scarcely in flower

In naming the drawing, I had an opportunity of
comparing my own with Nepal specimens received
from Dr Wallich, which perfectly correspond with
the Peninsular ones

2072 ANBITHMA UTTIFOLIUM (R W), erect, glab-
rous leaves sessile, broad ovate, cordate, stem clasp-
ing, acute, netted beneath, when dry, with brown
veins, sheaths short, glabrous panicles terminal, I a-

thers diffuse bracts minute, exterior perianth (sepals)
lanceolate acute, interior (petals), obovate or subor-
bicular filaments all bearded capsule 3-celled with
several, 3-4, seed in each seed angular, smooth, de-
pressed above

Western slopes, Neilghen les

A very distinct and handsome species, which does
not seem liable to be confounded with any of the
others Leaves about 6 inches long, by 2 broad,
capsule coriaceous, glistening, whitish, scarcely ex-
ceeding the persistent sepal

2073 ANEILEMA SCAPIFLORA (R W, *Commelyna
scapiflora* Roxb, *An tuberosa* Ham, Wall List,
Murdania scapiflora * Royle), perennial, glabrous
leaves all radical, sheathing at the base, ensiform,
somewhat waved on the margin scapes paniced, re-
motely jointed, furnished at the joints with a some-
what scarious sheath, branchlets of the panicle spring-
ing from the axil of a short pointed sheath, 6-10-flow-
ered flowers pedicelled, bracteate sepals lanceolate
acute, petioles broad obovate or sub-orbicular stamens
6, three fertile, lobes of the sterile anthers globose,
divaricating, all the filaments bearded capsule ob-
long, 3-celled, cells 4-seeded seed angular, smooth

Courtallum, flower in September.

My drawing is taken from a dried specimen with
fruit, generally, nearly mature and does not therefore
give a good idea of the flowering plant Neither
Roxburgh nor Royle mentions the fruit, though the
latter constitutes this a new genus Royle's figure
does not much resemble mine, but the difference seems
to depend on his being younger and a less luxuriant
form The open flower of my drawing is taken from
an unopened one, and may not represent the correct
proportions of the parts as seen in naturally opened
ones, but if they do represent the correct proportions,
it seems to me this can scarcely be Roxburgh's plant,
as he distinctly mentions the petals being longer than
the calyx The inflorescence too seems different, that
of mine being properly a panicle, while he calls his a
raceme, but describes it as having 'branchlets,' thus
showing that it has the elements of a panicle, only
wanting luxuriance to develop it, as shown in my
plant

2074 ANEILEMA ENSITOLIA (R W), perennial
erect, ramous, glabrous, jointed leaves very long,
narrow, sword-shaped, slightly sheathing and stem-
clasping at the base (12-19 inches long, J to J broad)
primary branches of the panicle (3-4) umbellate,
branched branches secundarily racemose towards the ex-
tremities flowers fascicled, 3-4 together in the axil
of a large obovate caducous bract, opening in suc-
cession sepals ovate somewhat boat shaped petals
broad obovate or sub-orbicular, filaments all bearded
anthers annelated, capsule ovoid, 3-celled, with
3 rough angular seeds in each

Courtallum, Ceylon

The roots, judging from one of my specimens, are
thick and succulent, apparently perennial The
stems seem to rise to the height of 4 or 5 feet, the
whole plant glabrous The umbellate inflorescence
added to the caducous tendency of the flowers, leav-
ing a long line of prominent scars along one side of
the flonfeious branches, forming a peculiar and striking
feature which I have only met with in one other spe-
cies See next page

2075 ANEILEMA SECUNDA (R W), stems procumbent at the base, ascending, glabrous, leaves distant, glabrous, sheathing, tessile, linear lanceolate, tapering to a slender point, sheaths slightly pubescent, panicles terminal and axillary, long peduncled branches racemose, slender, cuneate flower numerous towards the apex, secund, furnished with a large boat shaped membranous caducous bract sepals 3, ovate-lanceolate petals large, sub-orbicular (blue) stamens 6, two sterile, 3 with effete anthers, and the posterior one rudimentary, but with the filament beaded filaments of the 2 fertile stamens beaded Ovary 3-celled, 2 ovules in each style and stigma simple capsule 3-celled with 1 or 2 seed in each

Anamallay forests, Belgaum, flowering August and September

2075 ANEILEMA PANICULATA (R W, an Herb Wight in Wall List, 5216 ?), erect, ramous, glabrous, except the ciliate margin of the sheath leaves succulent, sheathing, sessile, ovate lanceolate, blunt pointed, margined with a narrow diaphanous peripheral edging panicles axillary and terminal, peduncles slender, somewhat dichotomously branched flowers pedicelled, at first aggregated on the points of the branches, but opening in succession, sepals lanceolate about half the size of the ovate obtuse petals fertile filaments bearded about twice the length of the nearly beardless sterile ones, capsule 3 celled with 3-5 superposed angular seed in each

Courtallum, Bolampatty, Neilghemes, flowering during the rainy season, very like in habit and appearance *Dichospermum lanceolatum*, but at once distinguished by the capsule

2076 ANEILEMA VAQUINATA (R B, Wall List 5212 B'), procumbent, diffuse, rooting at the joints, glabrous leaves sheathing at the base, narrow peduncles lateral and terminal, enclosed in a sheath, 1-flowered, but sometimes 3 flowered from one common sheath sepals lanceolate petals orbicular, 2 stamens fertile, 4 sterile antherless, all the filaments glabrous capsule orbicular, 3 celled, cells one-beaded oval compressed, somewhat indurated on the margin, depressed on the back

The drawing is taken from a specimen named as above, received from Dr Wallich, hence is certainly his plant Kunth quotes it with a doubt as to its being Brown's species which is said to have bearded filaments, in this specimen they are beardless

2076 ANEILEMA TERMINALIS (R W), procumbent at the base, afterwards ascending leaves sword-shaped, glabrous sheath short, loose, ciliate on the margin filaments bearded few from the upper axils, bearing on the apex a fascicle of close-set short peduncled flowers sepals ovate obtuse, petals orbicular stamens 2 fertile, 4 sterile filaments of the perfect stamens beaded capsule 3-celled with 2 seed in each attached to the middle of the axis (ascending and descending) seed roughish, embryo lateral

Neilghemes This seems very distinct from all the described species, but accords both in habit and structure of the flowers with the preceding, from which, however, it is a widely distinct species The relative size of the sepals and petals cannot be relied on in these figures, the drawing of the open flower being in both taken from unopened buds

2077 ANEILEMA NANA (Kunth, *Commeffruz nana*, KOXD), creeping leaves cordato-lanceolate, stem-clasping flowers terminal, somewhat panicled, petals equal capsule 3-celled, many-seeded Roxb Cells inflexed, seed angular or somewhat cylindrical,

Courtallum, Malabar, Coimbatore, moist wet soil

This species, like all common and widely distributed plants, presents considerable variations, in form but they generally correspond in the outline, however much they may vary in size It neatly resembles, except in habit, *A. paniculate*, but differs in the sterile stamens being beardless, while they are bearded in the other The capsule in both is much alike the cells containing from 3 to 5 seed

2077 ANEILEMA PAUCIFLORA (R W), creeping, glabrous, except a line of bands decurrent from the sheaths leaves sheathing, cordato-ovate, obtuse, slightly waved on the margin, stem-clasping flowers axillary, solitary or paired, opening in succession, longish peduncled, sepals linear obtuse, petals obovate exceeding the sepals, filaments all glabrous, fertile stamens about twice the length of the sterile ones capsule oblong pointed, cells about 5-seeded in a single row

Quilon, Paulghat, &c, in moist soil, flowering in October This is a very distinct species, not likely to be mistaken for any other

DICHOSPERMUM (R W)

GEW CHAB Perianth 6-paired, 3 extend lobes calycine, 3 interior petaloid Stamens 6 (filaments bearded or glabrous), 3 calycine fertile, 3 petaloid sterile Ovary 3-celled, style simple, stigma capitate Capsule 3-valved, 3-celled, valves septifolious 2 rows of superposed seed in each cell Seed angular, smooth Embryo depressed in the middle of the back — Small herbaceous erect or procumbent ramous plants Leaves scarcely sheathing Inflorescence panicled, terminal, or axillary and lateral Flowers blue, seed when dry brownish

In addition to the three species represented in the accompanying plate, I have what seems to be 4 others, two referable to the *lanceolatum* form, and two the *juncoides* It is possible these may be varieties only, but if so, they are very distinct ones

2078 DICHOSPERMUM LANCEOLATUM (R W), procumbent at the base, rooting, afterwards erect glabrous leaves linear lanceolate bluntish panicles terminal, racemose, branches flexuose pedicels from the axils of loose cucullate bracts all the filaments hairy near the base capsule oblong, three-celled, each cell containing about 20 seed in two rows

Malabar, about Quilon, in marshy soil

2078 DICHOSPERMUM JUNCOIDES (R W), erect, ramous, leaves linear subulate, glabrous, panicles few-flowered, axillary and terminal filaments all glabrous, capsule oval obtuse, 3-celled cells 6-8 seeded in 2 rows

Courtallum, Quilon

This species reminds one of some of the more diminutive forms of *Juncus lampocarpus* or *ultravivus*, hence the name

2078 DICHOSPERMUM BEPENS (R W), procumbent, rooting at the joints, glabrous except a decur-

rent Hue of hairs from the insertions of the leaves, leaves scarcely sheathing, sessile, ovato-lanceolate, sub-acute : flowers axillary, two or three from each axile, filaments glabrous, capsule ovate, cells about 8-sceded, in 2 rows.

Quilon, October to December, in low wet ground.

2079. *DITHYROCARPUS PETIOLATUS* (R. W.), ascending, sparingly ramous : leaves sheathing, elliptico-lanceolate acute, tapering at the base into a longish petiol; sheath inflated, ciliato on the margin: panicle terminal; branches racemose, flowers secund and, with the rachis, villous.

Neilgherries. I am still uncertain whether I ought to consider this a distinct species or a mere form of *D. Rothii*. All the three species here represented are very like, and if really species prove this to be a very natural genus, but still the differences seem such as to preclude their being united, certainly not until we have had opportunities of studying them better than I have had it in my power to do. The *Aneilema hispida* of Wallich's list certainly belongs to this genus.

2080. *DITHYROCARPUS ROTHII* (R. W., *Tradescantia paniculate*, Roth, not Roxb.), Btem creeping at the base, erect at the apex: leaves sheathing, lanceolate, acuminate; sheaths ciliate woolly: panicle terminal, somewhat globose, compact; branches racemose, many-flowered, densely villous, viscid, anterior petal much narrower, sub-spathulate: filaments glabrous : stigma obtuse: capsule 2-celled, with a single sub-lenticular seed in each.

Neilgherries, Ceylon ? Roth remarks that his plant does not correspond with Roxburgh's figure, but I think his description corresponds with mine; which is certainly not Roxburgh's plant, so far at least as can be made out from his figure and description. The figure differs in the form of the leaves and sheath (which is woolly on the margin), in the composition of the panicle, which as shown by him is distinctly compound, each branch paniced, while in mine they are racemose. In his the calyx is said to be simply hairy while here it is shaggy and viscid. I cannot so well compare the flowers as my drawing is made from a dried plant, and may not be so correctly represented as in his. Roth describes the capsule as 3-celled, perhaps a typographical error.

2080. *DITHYROCARPUS UNDULATUS* (R. W.), ascending: leaves ovato-lanceolate, acuminate, waved on the margin, sheathing: sheaths large inflated, the throat thickly beset with coarse bristly hairs: panicles terminal, branches racemose : calyx shaggy, viscid, lobes obovate obtuse: odd petal narrow obtuse sub-cuneate : style filiform, curved: stigma simple : capsule 2-celled, 2-seeded.

Station. I am uncertain whence T obtained this plant. It is nearly allied to the preceding, but I think certainly distinct, its whole aspect being so different. The leaves and sheaths externally are glabrous, but a line of hairs extends down the stem from the woolly margins of the sheaths.

2081. *STREPTOLIRION VOLBUILE* (Edgeworth, Linnæan Trans.)

I am uncertain now whence I obtained the plant from which the drawing was taken, but I think from Assam, about 15 years ago, at which time the draw-

ing was made. I shall somewhat abridge Mr. Edge* worth's description of the plant which is very full. Glabrous, twining; stems rooting at the base: leaves cordate acuminate, long petioled; petiols sheathing at the base; sheaths truncated, ciliate: racemes axillary and terminal, 2-6-flowered: floral leaves becoming modified, losing their sheaths, the petiols shortening or disappearing and the limb changing to cordato-ovate, acute or folded: upper flower of the raceme often sterile: bracts lanceolate, delicately membranous: three exterior lobes of the perianth elliptic acutish ; interior ones linear, a little dilated at the apex: stamens six, filaments bearded, with yellow hairs above the middle; anthers versatile, cells horizontally divaricated: ovary tapering into the style; Btigma capitate, puberulous: capsule ovate, 3-celled, 3-valved; cells 2-seeded: seed slightly angular, rugosely furrowed.

This genus differs but little except in habit from *Tradescantia*. The perianth is the same with the exception of the petals being smaller than the sepals and the filaments in both are bearded and all the anthers polleniferous. The form of the anthers however is peculiar in so far as they resemble in form the sterile anthers of *Aneilemas*. The habit is very distinct, and, added to the above differences, well entitles this plant to form the type of a distinct genus. It ranks between *Aneilema* and *Tradescantia* rather than between *Tradescantia* and *Cyanotis* on account of the anthers forming an easy transition from the one to the other.

2082. *CTAWOTIS CBISTATA* (Rffim. and Sch., *Comelyna cristate*, Lin., not Burm. Fl. Ind. tab. 7. f. 4. *Tradescantia imbricate*? Roxb.), lower part of the stem diffuse, creeping; floriferous extremities ascending or erect, marked with attenuate pubescent lines decurrent from the sheaths of the leaves and sprinkled with long hairs: leaves sessile, succulent, ovato-lanceolate, glabrous, slightly ciliate: spikes terminal, secund, progressively lengthening from 2 to 12-15 pairs of bracts : bracts lanceolato-falcate, imbricate, each supporting a flower: flowers small, scarcely exerted, sepals lanceolate acute, pubescent, petals connate to near the apex, limb obtuse: stamens scarcely exerted, filaments simple, bearded: style glabrous: Btigma capitate: capsule ovate, cells 2-seeded.

Bolamputty Hills, frequent in woods, flowering November and December. I have extended the character of this plant under the impression that more than one species is confused under this name. My plant seems to correspond sufficiently well with Linnaeus' figure in the Flora Zeylanica, but not with Burmann's, in the Flora Indica, of which also, I think, I have specimens, a figure of which is given in plate No. 2088.

2083. *CYANOTIS PILOBA* (Raem. and Sch., *Tradescantia pilosa*, Willd. Herb.), stems scapose, procumbent, spreading, somewhat branched and, with sheaths and under surface of the leaves, more or less floccose: radical leaves long linear, obtuse, villosa-ciliate: stem leaves like the radical ones, but smaller: spikes terminal, secund, aggregated, few-flowered: bracts falcate, calyx woolly, lobes lanceolate acute, filaments densely bearded, not tumid at the apex: ovary pilose; style bearded: stigma clavate: capsule small, cells 2-seeded.

Neilgherries, flowering at all seasons. Leaves frequently from an elevation of about 6000 feet and upwards. This species principally differs from *C. tuberosa* (which in habit it greatly resembles), in the filaments not being tumid at the apex, and the style being as densely bearded as the filaments while it is glabrous in *tuberosa*, and in the aggregated few-flowered spikes.

2084 *CYANOTIS LONGIFOLIA* (R. W.), leaves radical, ensiform, pubescently ciliate on the margins. Stems scapose, blanchet with a villous line decurrent from the sheaths. Inflorescences branches axillary, solitary or aggregated, from the loose sheathing axils of large common bracts. Spikes lateral and terminal, imbricated, when lateral furnished with a common bract, partial bracts falcate, villosely ciliate. Calyx lobes of the perianth lanceolate acute, pubescent, limb of the petaloid ones broad obovate, glabrous. Filaments long slender, flexuose, densely bearded near the apex. Style length of the stamens, glabrous. Stigma clavate. Capsule small (not half the length of the calyx), subglobose, pilose on the apex, 3-celled. Cells 2-seeded, seed angular, depressed-punctate.

Bolaraputty Hills, near Coimbatore, flowering November and December.

I was only fortunate enough to obtain one or two plants of this noble species and not so perfect in regard to the radical leaves as I could have wished.

2085 *CYANOTIS LANCEOLATA* (R. W.), stems at first procumbent, afterwards ascending or erect, round, succulent. Leaves shortly sheathing, succulent, ovate-lanceolate, acute, slightly villous beneath, ciliate. A line of hairs decurrent from the sheaths. Spikes axillary within the sheaths, few-flowered. Bracts lanceolate acute. Calyx lobes lanceolate, acute. Petals scarcely connate, obovate obtuse, scarcely exceeding the calyx. Filaments filiform, bearded above the middle. Style filiform. Stigma simple. Capsule obovate, pubescent on the apex, much shorter than the sepals, 3-celled. Cells 2-seeded. Seed somewhat conugate.

Eastern slopes of the Neilgherries, abundant in rich vegetable soil under the shade of trees flowering October and November. In favourable situations it forms large patches attaining the height of from 3 to 4 feet. The plant is handsome, the foliage bright deep shining green, edged with delicate white ciliae, but the flowers are inconspicuous.

2086 *CYANOTIS BOSBA* (R. W.), stems procumbent, rooting at the lower joints, afterwards ascending, succulent, floccosely woolly. Leaves sessile on short loose sheaths, cordato-ovate, obtuse, succulent, floccose. Peduncles axillary, solitary or two or three from the same axile, longer than the leaves. Spike short, imbricated, bracts falcate, woolly. Calyx diaphanous, thickly clothed with long woolly hairs. Corolla longer than the calyx, deep rose colour. Stamens exceeding the corolla, sparingly bearded towards the apex, stigma inflated, clavate. Capsule 3-celled with 2 oblong deeply corrugated seeds in each cell.

Bolaraputty Hills near Coimbatore, flowering and fruit November and December.

The succulent habit, floccose pubescence, very woolly calyx, and rose-coloured flowers mark this as a very distinct species.

2086 *CYANOTIS LIWIANA* (R. W.), procumbent, diffuse, succulent, villous. Leaves sheathing, linear lanceolate, obtuse, succulent, villous. Peduncles axillary, solitary or paired, slender, longer than the leaves. Spikes short, few-flowered, woolly, involucrial leaf folded, lanceolate-acuminate, bracts falcate, 2-4 pairs. Sepals free to the base, lanceolate. Filaments simple, bearded near the apex, style and stigma simple. Capsule ovate obtuse, hairy on the apex. Cells 2-seeded. — The flowers appear to be led.

Dharwar, on rocks, Law.

I am indebted to Mr. Law for the specimen presented.

2086 *CYANOTIS FASCICULATA*? (Ram and Sch., *Tradescantia fasciculata* * Roth), woolly, diffuse, ascending, leafy and branching from the base. Leaves sheathing, linear lanceolate, acute. Sheaths loose. Peduncles terminal, short. Spike secund, few-flowered. Involucral leaf ovate, bracts 3-4 pairs, falcate, imbricate, woolly. Calyx lobes lanceolate, ciliate, filaments bearded, not tumid, style glabrous, tumid at the apex. Capsule 3-celled, 2 seed in each.

Malabar. I have added a mark of doubt to the specific name, though I almost think unnecessarily, the plant agrees so well with the description, because Roth describes the stamens of his plant as glabrous while in mine they are bearded. The habit, which is well perceived in the drawing, quite agrees with the description. "Stem from a finger to a span, obliquely ascending, weak, diffuse, filiform, leafy and blanchet from the base. The rest of the description with the single exception of the filaments corresponds equally well. Roth compares his plant with *Trad. cristata*, Linn., deriving his knowledge of its aspect, I presume, from Buimann's figure, which is very unlike Linnaeus, in the *Floia Zeylanica*, and proves that the two plants, though of the same genus, are very different species. It is I think much more nearly related to Buimann's *Cumme papilionacea*, *T. papilionacea*, Lin., if indeed it be not that plant. It is evidently nearly allied to my *C. Lawtana*, but differs in having the stigma tumid, and very short peduncles, also in the lax habit.

2087 *CYANOTIS DICHOTOMICA* (Stock's MS.), stem erect, simple, sparingly villous. Leaves sheathing, sessile, succulent, linear lanceolate, villous. Peduncles axillary, solitary, longer than the leaves. Spikes few-flowered, woolly. Calyx 3-parted to the base, lobes lanceolate, very woolly. Filaments tumid and bearded near the apex. Stigma clavate. Capsule? — Flowers red.

Heura, Stocks. In the dried plant I have not succeeded in making out the character suggested by the name, two-coloured hairs, which I imagine applies to those of the filaments.

2087 *CYANOTIS SABMENTOSA* (R. W.), root tuberous, stems long, succulent, pubescent, sarmentose. Leaves radical, distichous, linear, blunt, villous. Spikes secund, short peduncled, scapose, many-flowered. Spathes short, ovate acute. Bracts numerous (5-10 pairs), falcate, acute, somewhat woolly. Petals connate to near the apex, limb roundish cuspidate. Filaments much longer than the perianth, bearded and tumid near the apex. Style glabrous, tumid. Stigma sub-capitate. Capsule 3-celled, seed 2 superposed. — Flowers and stamens pale rose colour.

Bolamputti, December—but very sparingly in flower I have not myself seen this plant growing, the specimens were brought by my collector. I have described the leaves as all radical and the flowers scapose, because they spring from the joints of runners, the plant being without stems. The leaves from the central tuberous root are larger than those on the runners, but otherwise quite the same and the peduncle springs as a shoot from the joint.

2088 *CTANOTIS DECUMBENS* (R. W.), decumbent, very bianchy, woolly all over, especially the sheaths of the leaves. Leaves linear lanceolate, bluntish, above sparingly, beneath densely woolly, sheaths short, loose peduncles axillary and terminal, solitary. One or two or three aggregated, longer than the leaves. Spike short, 4-6 pairs of imbricating falcate bracts. Calyx 3-parted, woolly, as long as the capsule filaments beaded, simple style glabrous, tumid at the apex, capsule furnished on the apex with a tuft of rigid hairs.

Quilon, Malabar.—I begin now to entertain doubts whether I ought not rather to view this as a very luxuriant form of the preceding than as a distinct species.

These six species all coincide in the peculiarity of having pink-coloured flowers. They are all very nearly allied, so nearly indeed that it seems not improbable some of them will yet be reduced, but so far as my present materials enable me to judge, they seem all distinct and readily distinguishable.

2088 *CTANOTIS VAGINATA* (R. W.), erect or ascending, very ramous lower part of the stem clothed with the persistent sheaths of aborted or fallen leaves. Leaves sessile, somewhat stem-clasping, ovato-lanceolate, acute, clothed on both sides with long slender hairs. Peduncles axillary and terminal, solitary or aggregated spikes 10-14-flowered. Calyx lobes lanceolate acute, filaments simple, bearded. Stigma subcapitate. Capsule 3-celled, 3-valved, valves deciduous, separating from the persistent 3-lobed placenta, seed two meach cell, supracarpous.

Malabai

This and the two following species present the unusual petuliant, met with in some Euphorbiaceae, of throwing off the valves of the capsule, leaving the placental axis in its place. The upper half of the placenta, that above the insertion of the seed, is 3-lobed and has a loose cellular texture, the lower half is firm. This feature marks these as constituting a distinct and peculiar group.

2089 *CTANOTH PAPILIONACEA* (R. W. and Sch.), stem creeping, leaves linear lanceolate, pilose beneath, ciliate near the base. Sheaths short, loose peduncles axillary, terminal, pilose on one side, solitary or two or three aggregated, about the length of the leaves. Spike 4-12-flowered. Bracts 2-6 pairs, ciliate, falcate filaments beaded, simple stigma clavate. Valves of the capsule separating from the persistent axile placenta.

Malabai. The *Commelyna papilionacea* of Burmann, the type of this species, is a very obscure plant, recorded still more so by the figure he has given to illustrate it, which seems more calculated to mislead than aid in recognizing his plant. In naming this species I have been guided rather by Kunth's de-

scription than the figure, and as they seem to correspond, so far as the description goes, I trust I have given the name to the right object.

2089 *CYANOTIS BURMANNIANA* (R. W., *Commelyna* » Burm. not Linn.), creeping, diffuse, blanch branches herbaceous, pilose leaves sheathing, sessile, ovato-lanceolate, obtuse, villous peduncles axillary and terminal, solitary or aggregated, longer than the leaves. Spikes secund, 8-12 or more flowered bracts 4-6 pairs, falcate, ciliate lobes of the calyx lanceolate acute filaments beaded style simple, not tumid at the apex. Stigma subcapitate, placenta separating from the valves of the capsule, persistent, lobes subulate.

Quilon, Malabai

I quote with doubt, Burmann's figure, though, I think, I may almost do so with confidence, at least with as much confidence as it would be safe to quote any of his figures of *Commelyna*, which seem all miserably bad. But bad as it is, I cannot reconcile myself to receive it as a figure of the plant, represented in plate 1, *Floia Zeylanica*, and given as the true *crinitata* by Linnaeus himself.

GOVINDOOLIA (R. W.)

GEN. CHAB. Lateral sepals connate to near the apex, dilated-sack-like at the base posterior one like the petals and free to the base. Lip posticous ovato-obtuse, quite entire, embayed and concealed by the larger connate sepals, calcarate spur enclosed within the sack of the sepals. Column elongated, stigma beaked, two-cleft. Anther double-celled. Pollen two-beaked ending in a long slender caudiculus and oblong stigmatic gland.—A terrestrial, erect, somewhat branched plant. Leaves sheathing at the base, sessile, broad ovate acute, coarsely pinnately-nerved, glabrous. Spikes terminal, compactly many-flowered, each flower supported by a longish subulate bract.

This plant seems evidently to belong to Lindley's division *Cranichidaceae* though differing in its prolonged rostrate filament, not truncated, rostellum, but so far as I can discover, does not enter into any of the genera of that tribe on which account I have made it the type of a new genus, the essential distinguishing feature of which is the remarkable conformation of the lateral sepals. These are respectively so much produced that by their union they are enabled to form a sack, at first sight resembling the spur, so common in the order, but which, when opened, is found to contain the proper spur. This of itself, seems to me, to constitute a very sufficient generic distinction and, when added to the very long column and tapering rostellum, so different from the truncated forms common to this division of the tube, the tapeum filiform caudiculus, and the oblong stigmatic gland of the pollinia, leaves no doubt of this being a very distinct genus.

I have dedicated it to the artist whose facile pencil produced the drawings for the greater part of the plates of the last three volumes of this work, and whose skill in analytical delineation is, I believe, as yet quite unrivalled among his countrymen, and, but for his imperfect knowledge of perspective, largely excelled by European artists.

Three Indian Botanists have now essayed to commemorate in this way the botanical merits of deserv-

Indigenous of India, but as yet all unsatisfactorily. The first of these, Wullich's *Kuiremia*, seems to have been introduced into India from *Bhesa*, or if not directly known by name to science, no doubt the definition of the genus has as yet been established. *Rojla* & *Mardama* is a species of *Aneduna*, and *Mitliwates* supposed new genus *Mas*, formerly itchy, oar-shaped, when passing through the water to exist under another name. Whether *Kurram* is a new ultimate itchy or a good genus is a question - till *stydudice*. These hypotheses fail us as to the diatom aging to form the attempts, but notwithstanding I am encouraged to make it, on account of the character of the man, and in the conviction that it is not be mistaken in considering a genus, so singular in its character, quite new to science, so far it is at least a leucoid has yet reached me. The genus, too, fortunately, even to West Indian cars, is not eucuphorbiaceous.

2090 GOVINDOOLA NEBOSA (R. W.)

Courtyard, in forests, flowering August and September. A low herbaceous plant from 8 to 12 inches high, sparingly branched, each branch ending in a whitish spike, leaves from 3 to 5 inches long and from 2 to 3 broad at the broadest point.

ELATOSTOMA

Under No. 1984 I expressed a hope that in a subsequent paper I should be able to supply the deficiencies of that and the two other plates illustrative of

this genus. In the accompanying plate, I give figures of the male forms of *E. cutpidata*, and *ovata*, but I have not yet obtained female ones of *E. hneolata*. In these I have added figures of the two small species, to fill the plate.

2091 *ErvosTOMA* (R. W.), erect, simple, leaves obovate cuneate, unequal sided, crenately serrated towards the apex, pilose on both sides, above mixed with scabrous beneath hairs. Inflorescences sessile, unisexual female, fertile flowers few, senile, mixed with numerous pedicelled 3-4 lobed sterile ones. Nuts oval, ribbed.

Belgaum, Law and Dalzell.

Both these gentlemen favoured me with specimens of this plant. It seems a very distinct species and a true congenue of the alternate leaved division of this genus.

2091 *ELATOSTOMA* *SURCULOSA* (R. W.), erect, ascending on all sides by means of suckers. Leaves subsessile, ovate acuminate, unequal sided, coarsely serrated except near the base, glaucous, glabrous. Male receptacle peduncled, involucre, male flowers pedicelled, 4-lobed. Female receptacle and flowers sessile, flowers mixed with numerous pedicelled sterile ones, sterile ones simply capitate, or 3-4-lobed. Nut oval, ribbed.

Neilgherry, in loose moist vegetable soil, near the banks of streams. 01 miles.

POUZOLZIA.

THE genus *Pouzolzia* was established by Gaudichaud for the reception of some plants previously referred by Linnæus and others to *Parietaria*, and by Roxburgh and other Indian Botanists to *Urtica*. He separated it from the former of these genera, on account of the species he knew having a linear not capitate-villous stigma and winged, not simply ovate, ribbed fruit. I here use the term fruit to designate the nut with its enclosing persistent calyx or perianth. His words are, "*Fem. calyx fructifer profunde sulcato-angulatus vel complanato-bialatus, inferne ad utrumque latus cristatus, gibbus vel nudus, limbo parvo bilobo (lobis 2 alternis abortientibusP). Stigma sessile, elongatum, ad unum latus villosum.*" His character of *Parietaria* being, "*Fem. calyx tubulosus 4-lobus. Stylus filiformis. Stigma capitato-villosum.*"

These distinctions have not been deemed of sufficient weight by either Endlicher or Meisner to keep the two genera distinct, the former having altogether rejected the new genus, while the latter has merely given its essential character, retaining it as a sub-genus of *Parietaria*. Mr. Bennett (Pl. Javan. rar.), however, takes a different view and adopts the genus. After stating that Gaudichaud had sub-divided the Linnean genus *Parietaria* into seven distinct groups, founded chiefly on modifications of the fructiferous calyx, he continues, "among these groups, that to which he has applied the name *Pouzolzia* is particularly well marked by the distinct habit of most of the species composing it, and by the geographical distribution, as well as by the peculiar characters of their fructification. These characters consist in the female perianth enlarging in size and changing in form as the fruit advances to maturity, and finally constituting, at the completion of that period, an undivided envelope, closely applied to the surface of the seed, and furnished with a series of projecting ribs (most

commonly double in number to that of the parts forming the male perianth), with the frequent development (sometimes additional, sometimes at the expense of the ribs) of two broad wing-like expansions, bearing a strong external resemblance to the wings of the seed-vessel of *Oxyria*. The presence or absence of these wings in the different species appears to afford so obvious a character in the ripe state of the fruit, that I should have been tempted to carry still further the sub-division of the Linnean group and to regard the *Pouzolzia* of M. Gaudichaud as resolvable into two genera, were it not that in the earlier stage, there exist no sufficient means of distinction, and that even in the ripe state and in those species which are most obviously furnished with wings, those organs appear occasionally to remain undeveloped in some few of the flowers, although the great majority continue to produce them. It will therefore, perhaps, be more advisable to regard the distinction as only of sectional importance.*

From this extract we learn that the stability of the genus rests even more on the well marked habit of most of the species and their geographical distribution than on the peculiar characters of their fructification which is so inconstant as not to admit of the winged division being separated from the wingless; or in other words that *Pouzolzias* are tropical *Parietaria** with filiform stigmas, thereby confirming the views of Endlicher and Meisner. That such is really the case will, I think, be amply proved in the course of this monograph by the occurrence of species, the fruit of which is scarcely ribbed, others in which it is traversed with prominent ridges and deep furrows; many in which both ribbed and winged seed occur in the same fascicles, some with three wings and several with four amply developed, and lastly we have one with cymose male inflorescence, and wingless seed, nearly as in *Parietaria officinalis**.

Rut notwithstanding these variations, showing the only clai ictu by which the two gencia u< k 11 apait it the linen stigma, I have finilly d tu-niunul to uopt the genus mainly on the n i > m 1 is signed by Mi Bennett ' wellmaiked [c<uliuitt) (f habit wd n(0'1 apluc il di&tnbutiun, a» l>ys> ilm^ I will b< (ii il>l d to piesent a comparative lv (omph U eiiumciation ot its sjecies which I could not do in the case of the undivided genus Pun Una ind should otlici H>tuusts feel disposed to tik a dit-feient view ind look upon Pouzolzia as isub ^cius, the following species can, as such, be eisily mcoi-porated with the lugei group

The habit, though so well maiked that when once a few species aie known, the others aie fl1 the most part easily recognized, piesents, when do&dy ixa-mined, several vei) distinctive featuies applicabile to the division of the species into groups, well fitted to facilitate then discimnation But for these, in a ge-nusso extensive and upon the whole so natuial, their detei nuation must, in many cases, be very difficult

Mi Bennett, in his account of the genus, divides them into two gioups, hi bt "11 uctus bialatus *Iolia* (saltern mfei 101 a) oppo*ita and second, * *Fructus sulcatus* nee *alatus iolia*) k runiqae omnia altei na, and even seems to think that they may form the elements of two distinct gencia A more extended acquaintance with the genus, shows that they are scarce'y sufficient for the lattci pui pose, both being liable to exceptions as shown in plates 1979 and 80 I have therefoie depaited from that distribution and had recourse to the venation of the leaves, as the basis of my anangement which, howevei, to this extent only, Hook upon as natuial

My first group embraces all those having simply three-neived or slightly tuple-nerved leaves, that is, each neive I uns its whole course without conspicuous branches the second, those with quintuple-neived leaves, that is, those in which the middle nerve oi piopci costa gives off, geneially near its middle, two conspicuous lateral branches and the lateral ones seveial otheis, but all on the outer side To the first of these nearly all those with opposite and verticelled leaves appertain, to the second, all the alter-nate leaved ones and a few with opposite leaves, are refeiable There is a thud form found in *P cymosu* but which I consider teferable to the second group m which all the thiee pnmai nerves divide neai the base, piouducinga many-neived leaf, though not in the pioper sense of that term lne&o two groups are respectively distinguished by other featuies, which show that they aie truly natural, and might, pei haps with justice, be sepaiated as distinct genera, but not certainly because the fruit of the latter are "sulcatus nee alatus for, with the excep-tion of *P cymosa*, (piobably a tiue Fautana), they nearly all either produce 4 wings or show a ten-dency in that du ction, by being 4 angled th ough the thickening of foui of the veins which may be assumed either to be the costso of 4 colieung sepals oi ilc lateral neives of two, the last supposition seems the moie piobable as each extends considerabley beyond the wings forming a kind of two cleft beak, which is altogethei wanting m the other group Apait, therefore, from the 5 cleftmvolucie, they aie moie justly refeiable to Gaudichaud s genus *Thoumu-rtia* than to *Pouzolzia* My own impiessioii is that the two groups aie not true congenes, and might with piopuety be lespectively iau>cd to the lank of genera

I am, howevci adverse to this proceeding, because I think the already t \istm_n h'cnen < f this older are, if not too numn u , it ill i vents t >o loosely defined to be maintained H tiny w w stan I, and that, theiefoic, were I to add ai oth I t niifjit niciely be adding to the alieady cxi f nr (fusion, owmg to ray imper-*U a* acquaintaiu « ilti ilc icst of the order, and in the miantime all tin J i l i m ptcics can be easily enough i an^cd undci Mi HPIIIM tt s rhai actcr Of the numer-ous leal or suppis d ircics defined m the following pages, I alieady begin to entertain donbts of their all pioving permanent, md suspect that if leisuie pcimitted me to go ovci the n iound again with the same attention that I bestowed six months ago, I should probably find occasion to I educe some of them, having in the interval obtained additional specimens of some which may piobably, by thiowing further light on such as were then ob&cure, show that my fiist detoi initiation was prmataui e This, however, is now quite imj>ossible, I can, thicicfoie, only express a hope that my fears on this account may prove giound- less> They principally appertain to those having wingless fruit and verticelled 'eaves, my more extend-ed acquaintance wkh plants of this genus having bhown me that some, indeed many of those having winged fruit, when full grown, have wingless ones in the lowei fascicles, hence the piobabihty that some of those descubed as having wingless fruit, may be merely junioi specimens in which peifectly developed ones may not yet have been produced, and in igard to the leaves, I have repeatedly, since this paper was written, found opposite and verti elled leaves on the same plant, lowering by so mucn the value of that character when not well supported by otheis moie constant These facts I think it necessary to mention, to put others on then guard against placing too much leliance on those marks of distinction, as well as to warn collectois to be always caiefnl in selecting their specimens ioi exhibiting the fructification the most fully developed branches either in whole oi in part should be taken, that is, in case, as often happens, the flonferous poition has grown to so gieat a length as to make a specimen, having both leaves and fi uit inconveniently large, to be suie always to add to a smallei and younger branch a part of one fully deve-loped, for in full-giown specimens it is occasionally found that male floweis have, at the exti emities, al-most entirely given place to female ones, all of which aie winged while on younger branches of the same plant they aie ncaily as univeisally males, or if fruit are found they are wingless and concealed among the males A knowledge of this fact may occasionally save trouble, and remove uncertainty in the determin-ation of a species

The number of stamens is also sometimes variable, but less so than the foliage and forms of the fruit

In regard to the accompanying figures I fear some of them will not be found so useful as I at first anti-cipated, foi owing to want of loom they often fail in conveying a toneet idea of the habit, a point on which native artists aie apt to fail, their diawings being usually deficient in ease, but so far as correct outline can compensate for deficiency of grace, I be-lieve the accompanying ma> generally be depended on The analj ses aie tiue to the specimens from which the subjects weie taken, but as these aie so much alike throughout they may not prove so useful as might, a priori, have been expected This, how-ever, is a point which lemainis to be asceitained

With these butf Incmoinni, expmtoiy of the pimuples which guided me in the conduction of the following Claws and claiactcia of thit species I bnuy this huncid and inu>effect mono, iaph to a close, togethei with the woik of which it foims a pait, not howevei without expi casing the hope that the Iattci may piove tho means of inducing new inquicisto enter this extensive held of lescaich, by lightening the labom of gdttheing and stuim, the nch haivest that still icinauib to be leaped So nth indeed i* the Indiau Floia that, did ciicumstances pcimit, I could here, in Coiinbatoic, with the matcnals icadily within my leach, commence a new scucs, and without lepioducmg a single species ahcidy intioduced, carry on the work, I believe, through othei 2000 plates

FOUZOLZIA. (Gaud. Bennett)

GEN CUVR Flowers monoicous, laiely diolcous Male Pciianth 4-5-1 aiely 3-pai ted, stamens 4-5, laiely 3 ludimentary pistil minute oi wanting Female Perianth tnbulai, conti acted at the apex, persistent, enclosing the seed oi nut at matunty suicately nbbed oi 2-3-4-winged, bidentate at the apex Style short oi none stigma prolonged, filiform, glandulose on one side Nut ovate, ciustaceous, fragile Seed erect, lather spaungly albuminous Embiyo axile, inverse, ladicle cjludiical, Iemote noni the luluin

Heibaceous, suffuticose or shiubby plants creep- ing, piocumbent, ascending oi erect. Leaves ternat-

ly vciticelled, opposite oi alternate, entire or rarely seuated, 3-nncd, oi tuple oi quintuple-ncived variously pilose, vciy i aiely glabrous Flowcis axillary, glomci ate, shoit pcdicclled Clusters at first ncaily all males mixed with a few sessile, ovate, rib- bed, wingless fi uit, aftci waiids, towards the ends of the flonfeious bunches, the male flowers diminish in numbei and aie lclplaccd by female ones producing winged fruit

ODS The term *Fruit*, as here applied, is meant to include the nut or achxnum together with its enclosing penanth, as seen when it separates at matunty fioin the paicnt plant

ODS I have said above that the lower glomemles aie made up of male flowcis mixed with "wingless fruit" *not female* flowers This is strictly correct, the female floucis piccedc the males and aie besides so small that they aie ncaily invisible until they have attained an advanced state of maturity, while a succession of male flowers continue opening foi a length of time and bctoi they have all passed away the first seed aio matuie and (hopping off

This fact, which I have often observed, leads me to suspect that most, if not all Mr Bennett's supposed dioicous species, aie monoicous, but the specimens young and the sessile fruit concealed among the pedi- celled male flow ei s It is not until long after, that the winged fruit, which aie mainly confined to the extre- mities of the floiifuous blanches, are fully developed.

Clavxs of the Species.

1	C Leaves 3-5-nerved,	2
	I ——— quintuple- or tnphci-nerved,	32
2	C Leaves all similar, upper ones sub-equal or somewhat reduced in size,	3
	(——— upper ones much reduced, often bract-like,	18
3	\$ Leaves, at least the lower ones, opposite,	4
	(——— Whorled in threes,	11
4	C Stems erect or ascending,	5
	1 ——— procumbent, diffuse, 3-4-androus,	6
5	C Flowers 4-androus,	9
	I ——— 5-androus,	7
	b Fruit ovate ribbed, wingless,	8
	in the upper axils winged,	8
7	Leaves sessile broad sub-cordate at the base, tapering to a point, smooth,	..
	Leaves short petioled, cordato-lanceolate acute, slightly scabrous above,	INTEGRIFOLIA, Icon. 1979
	Leaves sub-sessile, cordate, linear lanceolate acute, glabrous above, pube- scent beneath,	ACUTA, 2
8	Fruit winged leaves nearly oval, shortly, and somewhat abruptly, acuminate,	AMBIQUA, 19
	not winged,	OVALIFOLIA, 3
9	(Leaves broadly o^al, obtuse at the base, acuminate, pilose on both sides,	MYSORENSIS, 4
	short petioled, oblong lanceolate, with a longish slender acumen,	GABDMEHI, 5
10	(Flowers pentandrous,	12
	tetrandrous,	15
	Fruit winged and nbbed in the same glomerules,	13
12	not winged, stem and under surface of the leaves tomentose leaves linear lanceolate,	TOMSENTOSA, 11
13	Fruit 4-winged, leaves sessile, lanceolate, villous beneath, sometimes opposite,	QUADUALATA, 12
	two winged,	14
14	Leaves sub-pubescent or glabrous, smooth above, narrow lanceolate, acute at both ends, fruit ovate and broadly 2-winged,	HETEOCABPA, 13-14
	scabrous above, villous beneath, ovate lanceolate sub-cordate, fruit 2-winged,	BETOETTIAXA, Icon 1978
15	Leaves all similar, upper ones only slightly reduced in size,	16
	upper ones conspicuously reduced in size, and more or less altered in form,	17
16	(Leaves lanceolate acuminate, pilose above, villous beneath,	TERVATA, 7
	sub-cordate, long linear lanceolate, slightly downy on both sides,	LONOIFOUA, 4
	Leaves narrow linear lanceolate, velvety beneath, upper ones much re- duced in size,	WIQHTII, 8
17	eliiptico-lanceolate acute, pubescent beneath, rough above, upper ones cordate,	CONCDWA, 9

1A C	Leaves opposite,	19		
I	ternate, sessile, very rough, flowers 4-androus,		ASPEBA,	18
jo	{ Flowers pentandrous,	20		
I	tetrandrous,	25		
oo \$	Upper ^{1, leaves} reduced in size, scarcely altered in form,	21		
ly	reduced in size and conspicuously altered in form,	22		
	(Stem very ramous, 4-angled, leaves sub sessile, narrow lanceolate cordate, pubescent beneath,)		FFKTAFDDBA,	20
2 J	Sparingly branched leaves ovato-lanceolate acute, pilose on both sides, coriaceous, scabrous,		WAT, n: Eio, AHA,	16
	(Fruit often 3-winged, leaves short oval or cordate, ovate, prickly hispid on the margin,)	23		
20 J	2-winged leaves long linear lanceolate, glabrous, except a line of hairs on the margin,		GLABBA,	15
28 J	Stems very ramous, straggling or climbing among bushes,	24		
I	procumbent middle wing of the fruit often thickened or spongy, (Stem very ramous leaves hispid on the margin, sessile, cordate middle wing of the fruit sometimes thicker than the others,)		DALZELLU,	21
04 J	ramous, leaves oval short-petioled, glabrous except the margin, floral ones linear acute,		BAVO81881MA,	17-28
9	Upper leaves much reduced in size, cordate,	26	STOCKSII,	
25 J	ovate or sub-cordate lanceolate,	28		
26 i	Leaves sparingly pilose, roughish above,	27		
I	tomentose beneath, hispid above,		BCABBA,	29
37 {	Leaves sessile, sub-cordato-truncate, oblong lanceolate, acute, glabrous; floral ones very small,		CAUDATA,	27
	ovate lanceolate, acuminate, slightly hispid fruit orbicular, deeply cordate,		CnTTBTALrKmpff,	10
38 {	Leaves scabrous above, villous beneath,	29		
	hispid towards the margin, smoother on the disk,	31		
3	Fruit wingless,	30		
29 J	nnbed and winged, leaves ovate lanceolate sub-falcate, item terete, pubescent,		NEILGHEBBEVSIB,	26
	(Leaves short, broad ovate, rounded at the base acute, stem roughly tomentose floral leaves lanceolate,)		OVATA,	24
30 J	ovate oblong lanceolate, roundish or sub-cordate at the base floral leaves narrow lanceolate,		OBL02TGIFOLIA,	25
f	Leaves lanceolate acuminate, tapenng at both ends, upper ones narrow lanceolate, fruit wingless,		WALLICHIAHA,	23
31	ovate lanceolate acuminate, fruit 3-winged or simply nnbed, (Leaves opposite tnpchi-nerved, i e, all the three primary nerves branched (some of them are somewhat 5-nerved at the base),)	33	TBIALATA,	22
32 J	usually alternate quintuple-nerved, L e., the middle primary nerve twice branched (the lateral ones are secundly branched),	34		
f	Inflorescence cymose fruit sessile, wingless,		CTMOSA, Icon. 1979	
33	glomerulate, sessile fruit imperfectly winged,		HICBOPHTLLA,	30
34 {	Male flowers pentandrous,	35		
	tetrandrous,	43		
35 f	Fruit wingless, leaves alternate,	36		
I	4 angled more or less perfectly, 4-winged; leaves sometimes opposite,	38		
35 {	Leaves lanceolate acute at both ends,	37		
	broadly ovate at the base or sub-orbicular,		BOTUNDIFOLIA.	ai
	(Leaves elliptic, hispid above, pubescent beneath, fruit ovate slightly ribbed,)		ELLIPTIC*,	32
37 {	broad ovato- lanceolate, smooth above, downy beneath, fruit somewhat compressed with a thickened margin,		BICUBPIDATA.	33
I	Fruit imperfectly 4-winged, calyx prolonged into a short beak or apiculus,	39		
38 j	distinctly 4 winged, beaked , leaves longish pctioled, broad ovate, membranous,		BOSTBATA	41
39 I	Procumbent, diffuse leaves opposite or sub alternate, subsessile,	40		
I	Erect or ascending leaves alternate, petioled, elliptico-lanceolate or ovate,	41		
f	Leaves crowded, alternate, ovate, bluntish, pilose, small fruit deeply furrowed,		PBOCUMBEITL.	a*
40 <	opposite broadly ovate sub acute, pilose, fruit prominently nnbed and imperfectly winged,		DIFFUBA	44
41	(Fruit imperfectly 4-winged, wings truncated,)	42		
	winged, wings sub-orbicular, enlarging above, auricle-like,		AUHentATA,	46
f	Leaves ovate or ovato-lanceolate obtuse, rounded at the base, ramous,		BHEKDTI	44
42 <	subtnpchi-nerved, lanceolate, acute at both ends, at first nearly smooth, becoming scabrous, Millous beneath,			
43	Leaves entire on the margin,	44	CAJUUDA	41
	... ..		BOBBOBICA.	AA
44 {	Leaves alternate,	45	*WHIB0 << !A _t	44
	opposite, at least the lower ones,			
45 {	Fruit nnbed or deeply furrowed, not winged,			
	four-winged procumbent, diiTuse, leaves sub-iesite, ovate, pUose'sinaJl, MWOB,	43		

46	(Fruit prominently ribbed,	47	
	{——— even or only slightly ribbed,	49	
	(Lateral ridges thicker (perhaps sometimes enlarging into wings,	48	
47	{ridges nearly all equal (10) leaves narrow linear somewhat strap shaped,	AVGUSTIFOLIA,	39
	(Leaves all similar ovate lanceolate, pilose on both sides very branchy	IKDICA?	40
48	/ Lower leaves ovate lanceolate, upper ones narrow linear lanceolate sub		
	cordate,	SUFFRUTICOSA,	
	(Leaves ovate acute hairy, much broader at the base, root tuberous,	TUBEROSA,	
49	3 ——— 5-ribbed lanceolate acute at both ends, petioled, several inflated vesicles	VESICARIA,	
	? ——— at the base of the fruit,		
	(Fruit ovate, ribbed or broadly 4 winged,	51	
50	{——— ovate compressed, ribbed or moderately winged leaves all opposite,		
	long petioled,	ZETLAOTCA,	45
	Stems decumbent, leaves nearly all opposite, ovate, obtuse, moderately		
51	{——— petioled	52	
	Erect or ascending leaves mostly alternate, much reduced in size		
	towards the apex,	53	
	Stems stoutish leaves short petioled, fruit largely apiculate,	FILOSA,	46
52	{——— slender filiform, petioles longish very slender, upper leaves scarcely		
	reduced,	JOHNSONIANA,	47
	Stems erect or ascending, ramous, leaves longish petioled, membranous, —	TETRASTEMA,	42
53	{——— long straight lower branches opposite leaves alternate, short petioled		
	upper ones sessile small,	PTERAXIDATA,	48

N B —The outer row of figures refer to the number of the species in the accompanying plates

I - I *aves amply three nerved nerves undivided

§ 1 f Male flowers 3 androus, fruit not winged

1 *P. parvifolia* (R W, fig 1) procumbent, diffuse, pubescent leaves opposite, ovate, or suborbicular. Howels few, axillary, short petioled, males tetrandrous female ovate slightly ribbed

Ceylon, Thwaites This species is easily distinguished by being 3-androus, which I have found constant in five or six flowers examined, it agrees however in all other respects with the character of the genus, and need not on that account be removed from it. Leaves 4-6 lines long and nearly the same breadth

§ 2 Male flowers 4 androus

2 *P. taffetii* (ZuzCDalzell, Hooker, Kew Gard Miscellany, 1c 1979), leaves opposite, sessile, subcordate, broadest at the base, thence tapering uniformly to the point, sub-acuminate, united by a broad stipule, sparingly pilose on both sides, roughish above flowers axillary, subsessile males tetrandrous or sometimes 3-androus fruit 2-3-winged wings abate

Mountains, Malabar, flowering September The stipules in this species are more distinct than usual, completely connecting the opposite leaves

I am indebted to Mr Dalzell for the specimen represented, and from which this character is taken

3 *P. acuta* (R W 2), erect, sparingly ramous, leaves sessile, subcordate, lanceolate, acuminate, sub-scabrous above, slightly hoary on the nerves beneath stipules deciduous flowers axillary, subsessile, 4-androus fruit both winged and ribbed winged ones broad cordate at the base, bicuspidate at the apex, ribbed ones simply ovate

Courtallum, flowering July and August

§ 3 Flowers pentandrous

4 *P. ovoidifolia* (R W 3), somewhat diffuse, ascending, or seeking support leaves subsessile or very shortly petioled, oval, acutish at the base, sharply acuminate, pilose on both sides, scabrous above stipules ovate, deciduous flowers 5-androus, fruit ovate or slightly cordate at the base, ciliate at the apex —The leaves in the figure are rather more ovate than on the specimen

Alpine jungles So far as my specimens show, all the leaves of this species are opposite, and nearly oval except the short acuminate

5 *P. Myrtorena* (R W 4), erect, glabrous leaves short petioled, oblong lanceolate, obtuse or subcordate at the base, acuminate at the apex, smooth above, glabrous or slightly pilose on both sides, ciliate on the margin flowers pentandrous, fruit ribbed, not winged

Narn Bolu, of the Mysoreans

Bababooden Hills, Mysore, Bertie, flowering December I am uncertain in regard to the fruit, as it is probable that the absence of winged ones may be owing to want of maturity of the specimens, but as this rests on conjecture only, I am constrained to notice that character, which may in truth be a valuable one

6 *P. ambigua* (R W 19), stems erect, round, smooth, sparingly branched, pubescent towards the extremities leaves sessile, subcordate, linear lanceolate acute, often slightly falcate, glabrous, rough above, somewhat velvety beneath, hispid on the margins, faintly 5-nerved, the outer pair almost inconspicuous, floral ones much reduced in size but similar flowers axillary, glomerules compact, fruit ovate, ribbed, in the lower glomerules, above broadly winged, deeply cordate at the base

Courtallum, Malabar, flowering during the rains This species so far resembles the figures of *P. pentandra*, that previous to examination I considered it that species, and even now feel almost disposed to look on it as a 4-androus variety of that species, hence the specific name, which I have given, refers not to any ambiguity of the genus to which the plant belongs but the species, that is, I am uncertain whether it is a species or variety

7 *P. Oardnerxana* (R W 5), erect, somewhat ramous, stem and branches terete, sub-glabrous leaves short petioled or subsessile, broadly oval, obtuse at the base, acuminate, acute at the apex, pilose on both sides flowers few, sessile, pentandrous, fruit wingless

Ceylon Gardner, Thwaites Though in character very similar to the preceding, this is a very distinct

species It is not improbable that in old specimens winged fruit may be found

§ 4 Leaves ternately verticelled flowers pentandrous,—upper leaves conformable or simply reduced in size

8 *P. tomentosa* (R W 11), stem and under surface of the leaves tomentose leaves sessile, ternately verticelled, oblong ovate-lanceolate, rounded or subcordate at the base, acute or subacuminate, scabrous above stipules reflexed flowers numerous, pentandrous, subsericeous fruit wingless, lobed

Xcilinghes, flowering August and September I find no trace of wings in this species, though the specimens seem to have attained an advanced state of maturity, but still I cannot feel certain on this point is male flowers so greatly pedicellate, which seems to indicate that they are still fairly young

9 *P. heterocarpa* (R W 13, 14), erect, spaningly branched, stems etc., glabrous leaves ternately verticelled, tripinnate, short petioled, narrow lanceolate, acuminate at both ends, smooth, downy above, hairy beneath flowers numerous, sessile, pentandrous fruit very young from slightly lobed to broadly winged, the winged ones deeply cordate at the base

Western slopes, Neilgherries, flowering December I have two forms of this plant the one here described clothed with short pubescence, the other glabrous, but both free from roughness on the surface the leaves are from 3 to 5 inches long and about 1/2 of an inch broad, ending in a long tapering acumen

This, being among the first examined in which I found two forms of seed, I named it accordingly, the discovery of so many others similarly circumstanced has rendered it less appropriate

10 *P. Bennettiana* (R W. I c 1978), erect, sparingly branched stem and upper surface of the leaves aciculous leaves very short petioled, ovate lanceolate, slightly unequal sided, obtuse or subcordate at the base, ending in a long tapering acumen, pilose above, densely pubescent or sub-tomentose, especially on the nerves, beneath flowers numerous subsessile, 5 androic fruit in the same fascicles ovate, simply ribbed, or broadly two or three winged, the two winged ones lateral deeply cordate at the base

Neilgheri ICS, Ceylon? Com tallum⁹

I feel still uncertain whether to view this simply as a variable plant or to suppose that I have combined into one species The form represented in the plate is that which I consider the true one, all except the winged fruit which was taken from too young a specimen and had not attained its perfect form Among the forms I have referred here, are some with much narrower and more tomentose leaves, but all agreeing in their scabrous upper surface The Ceylon and Com tallum petioled in the above respects from the Neilgheri ones The slight inequality of their sides, gives the leaves a somewhat falcate appearance which is readily observable in the specimen, though scarcely shown in the figure

§ 5 Leaves ternately verticelled flower § 4 androic

* Upper leaves reduced, not bract like

11 *P. ternata* (Bennett, 7), erect, sparingly branched, stem and under surface of the leaves hairy leaves all alike, but smaller towards the extremity, subsericeous, oldest and slightly cordate at the base,

lanceolate acute pilose above, somewhat tomentose beneath flowers 4-merous, fruit winged or simply ovate, lobed

Com tallum This principally differs from the two preceding species in being tetrandrous*, a distinction which I think it probable more extended acquaintance with these species will show to be of scarcely specific value Among the specimens I have referred to *Bennettiana*, perhaps erroneously, I find some with tetrandrous flowers, but I have not met with pentandrous ones on this

12 *P. bngifolia* (R W, 6), erect, stem 4 angled, scarcely blanchet clothed with long hairs leaves ternate, subsessile, narrow lanceolate, broadest, and subcordate at the base, tapering acuminate at the apex, pilose on both sides, scabrous above, the under surface netted with dark coloured somewhat prominent veins fascicles few-flowered, flowers tetrandrous, fruit broadly winged and deeply cordate

Com tallum, September Leaves about 6 or 7 inches long and scarcely 1 broad, membranous, the surface with which then surface is thickly clothed so fine that until closely examined they look as if glabrous

13 *P. Wightii* (Bennett, 8), erect, scarcely branched, terete leaves sessile, opposite or ternate, narrow linear lanceolate, tomentose beneath, downy and slightly rough above, the extreme ones considerably smaller flowers 4-merous fruit broadly winged, ciliate, cordate at the base, somewhat forked at the apex

Pulney Mountains, September

This is a very distinct species from the preceding, but very nearly approaches *ternata*, in every thing except the great diminution in size of the floral leaves which, however, I esteem a good character

14 *P. conctnna* (R W, 9), erect, terete, glabrous, leaves opposite and ternate, sessile, lanceolate, spreading, acuminate, the extreme ones much smaller and cordate, acute, all downy on the nerves beneath and scabrous above, flowers tetrandrous, axillary, sessile, few calyx lobes lanceolate acute fruit both ovate and winged

Com tallum The leaves in this species are spreading, rather rigid, below exactly lanceolate, but somewhat prolonged at the point into a long acumen, towards the extremities of the older branches, short, broad ovate cordate It is a neat pretty looking plant in the herbaceous, whence the specific name

• • Upper leaves bract like

15 *P. aspera* (R W, 18), erect, very ramous, the terminal shoot long and slender, stem and branches terete, very long leaves ternate rarely opposite, sessile, broad ovate-cordate, acute, 5 nerved at the base, rough on both sides but especially above, those on the lower branches laminae much reduced, often almost to mere scales, cordate acute flowers 4-merous, fruit all ovate, lobed, not winged

Anamallay Hills, flowering in July One of the most named species of the genus, distinguished by its rigid numerous harsh broadly ovate cordate leaves its slender flowers axillary laminae, the terminal one sometimes from 12 to 18 inches long fruit very small, numerous, ovate, and lobed throughout

§ 6 Leaves opposite, upper ones much reduced in size or bract like

f Flowers pentandrous

16 *P pentawha* (Bennett, Ico 696, *Urtica pentandra*, Roxb.), stem ramous, 4-sided towards the apex leaves sessile, narrow lanceolate, cordate, pilose on both sides, scabrous above, upper ones reduced in size but similar in form flowers pentandrous fruit winged, cordate

Calcutta, Roxburgh Java, Bennett

17 *P Walkenana* (R W, 16), erect, sparingly lamous leaves short petioled, lanceolate, narrow or acute at the base, pilose on both sides scarcely scabrous, ciliate on the margin, upper flowers narrow lanceolate, sessile, sub-cordate flowers pentandrous fruit winged, without intermediate ribs

Ceylon, Col Walkei This species is very near *pentarula*, which indeed I at first considered IC, until microscopic examination enabled me to detect my error

18 *P Stockm.* (R W, 28-20P) straggling ramous, seeking support and then ascending, stem and bunches four angled, furrowed between, glabrous beneath, smooth, connected by broad scanous stipule leaves glabrous except the hispid margin, from oval obtuse at both ends to cordate ovate obtuse floral ones sessile, narrow ovate lanceolate obtuse, flowcis few, axillary, pentandrous, fruit ovate, ribbed or broadly two or sometimes three-winged

Coimbatore, Anamally forests, Belgium? Dalzell, Deccan, Stocks

The thick specimens, thus associated, all differ but yet possess so much in common that I see no other alternative for the present than that of uniting them until more perfect ones of the two last are obtained

Mr Dalzell's specimen is a branch of a young plant not yet properly in fruit. Dr Stocks' of a loose straggling one which he found growing in the bed of a river and probably much modified in its mode of growth by the locality, as its leaves are alternate! though so distinctly approximating to the opposite leaved group. If other specimens of this lost are found constant in regard to the alternate leaves it will form a very distinct species. Until that is ascertained it seems more closely to resemble my plant than any other I have seen. Mr Dalzell describes his as being quite erect, but then it is only half grown and may, when further advanced, show the straggling habit of mine with which in other respects it seems to associate

19 *P ramosissima* (R W 17), erect, very ramous branches ascending, hispid leaves subsessile, ovate cordate obtuse, sparingly pubescent above glabrous beneath except the margin which is hispid, upper ones much reduced, sessile, varying from broad deeply cordate to ovate-lanceolate flowers pentandrous, fruit 2-3-winged, prominently ribbed between the wings

Neilgheries My specimens of this plant are not very satisfactory as they seem to have been injured or grown under unfavourable circumstances as, in one, the stems are erect and the branches all flexed and drooping, while in another they are cernuous the latter had been mimed in its primary shoot and thence gave off numerous lateral ones. The form however of the leaves, their small size, about an inch long, then glabrous surfaces and hispid margins, leaves no doubt of this being a very distinct species

20 *P glabra* (R W 15), stems erect, sparingly blanch, glabrous beneath leaves long lanceolate,

acute at both ends, triplunerved, glabrous on the disk, hispid on the margin upper ones much reduced in size, ovate cordate, acute flowers pentandrous, sessile fruit broadly winged with intermediate prominent ridges

21 *P DalzeUn* (R W 21), procumbent, glabrous leaves subsessile, from ovate to sub cordate-ovate, acute, glabrous except a line of prickly hairs on the margin, floral leaves small, sessile, broadly cordate at the base, acute flowers axillary, few, pentandrous fruit ovate, broadly ribbed or winged, furnished between with a thick spongy protuberance

Canaia, Dalzell

These three species are all very like each other. The two first, *ramosissima* and *Stocks*, may even require to be united, the last is I think quite distinct. The spongy protuberance on the back of the fruit between the wings, a sort of thick vein, is quite peculiar. I have attempted, though not very successfully, to show it in the transverse section

Ceylon, Thwaites This seems, so far as can be made out from a single specimen and that somewhat injured by insects, a very distinct species, resembling, however to some extent, both in habit and outline of the foliage, *P Walken*, though otherwise very different

* * Flowers tetrandrous

22 *P scabra* (R W 29), erect, scarcely blanch, stems terete, glabrous lower leaves short petioled, ovate obtuse at the base, pointed, scabrous above, roughly pilose beneath, floriferous portion long and slender with minute bract-like sessile cordate leaves fascicles few-flowered flowers tetrandrous, fruit winged, inconspicuously ribbed between

Anamally Mountains, July and August A very marked species, approaching *P aspera* in some of its features

23 *P caudata* (Bennett, 27), erect, ramous, stems terete, glabrous leaves sessile, sub-cordate-truncate at the base, lanceolate acute or acuminate, membranous, smooth and glabrous on both sides. Floriferous shoots slender with minute bract-like, cordate, acute, leaves flowers tetrandrous fruit simply ovate, ribbed and winged in the same fascicles

Couitallum and Anamally Mountains, flowering September

24 *P WaUichiana* (R W 23), fruticose, erect, branches terete, pubescent leaves short petioled, lanceolate, obtuse at the base, tapering above to a slender point, hispid on the margin, otherwise usually glabrous above, velvety beneath, floriferous ones narrow lanceolate, much reduced in size flowers tetrandrous, fruit ovate, ribbed, wingless

Neilgheries and Iyamally Hills, near Coimbatore

This is one of the largest species I have seen, among plants I met with on the Neilgheries having attained a height of 10 or 12 feet, quite shubby, but seeking the support of the surrounding denseaborous jungle

25 *P ovaia* (R W 24), erect, sparingly branched, stems pubescent or somewhat hoary leaves short petioled, broad ovate, acute, rigid, very scabrous above somewhat hoary beneath, hispid on the margin floral leaves much smaller but scarcely changed in form in flower sessile fruit ovate, wingless

Iyamally Hills This is nearly allied to the preceding, but is certainly distinct. In this the largest

leaves are from 1½ to 2 inches long by from 1 to 1½ broad, in that they are from 4 to 6 inches long, by about 1 to 1½ broad, in that they are very scabious in that nearly smooth. In both, so far as the specimens show the fruit are wingless.

26 *P. Neilgherrensis* (R. W. 26), erect, sparingly ramous, stems terete, scabious leaves petioled, lanceolate, obtuse at the base, tapering to a point, acute, lower ones slightly falcate, softly pubescent beneath, harshly scabious above, foliiferous ones alternate, much reduced in size and becoming broadly ovate cordate towards the ends of the spikes flowers tetrandious, fruit on the lower portions of the spikes not ovate, ribbed, towards the apex, winged and ovate, mixed.

Neilgherries, Koterghen pass, abundant.

My specimens of this plant show well the necessity of selecting them well advanced, as otherwise they are apt to mislead, some of them presenting none but ovate ribbed fruit, while others, somewhat older, have abundance of winged ones.

27 *P. oblongifolia* (R. W. 25), erect, sparingly ramous, scabious leaves oblong lanceolate, rounded at the base, sub-sessile, scabrous above, villous beneath, foliiferous ones much reduced in size, sessile, narrow lanceolate, acute tetrandious, fruit ovate, rigid, wingless.

I amally Hill. I for some time hesitated whether I ought not rather to view this as a long leaved variety of *ovata* than a species, they, however, seem distinct. Leaves 4 to 4½ inches long by about 1½ broad.

28 *P. tinalata* (R. W. 22), erect, scarcely branched, stem terete, hispidly pubescent leaves ovate lanceolate, sub-acuminate, slightly unequal sided, hispid towards the margin, smooth on the disk, pubescent or slightly hoary beneath, foliiferous ones smaller, but scarcely altered in form flowers tetrandious fruit simply ovate and winged in the same fascicles, the latter 3-winged.

I amally, August, nearly allied to *P. Wallichiana*, but distinguished by its 3-winged fruit as well as by habit.

II. LCUVPB. numtulo or rarely multiple nerved, the lateral branches secundly branched.

§ 1. Leaves opposite, multiple nerved, shrubby, erect, ramous.

29 *P. cymosa* (R. W. Ico 1979), leaves sub-sessile, opposite, many-nerved, pubescent on both sides, male inflorescence cymose cymes axillary, paned flowers pentandious, fruit sessile, one or two at the base of each peduncle, ribbed, not winged.

Neilgherries, Eastern slopes, flowering August and September.

This species is so unlike the rest of the group that I at one time thought of separating it as a distinct genus, a proceeding which may be deemed advisable when the whole order is fully revised in the event of its not finding a more suitable place in some of the already existing genera.

30 *P. microphylla* (R. W. 30), procumbent, diffuse, ramous leaves sessile, broadly ovate cordate, obtuse, pubescent on both sides flowers axillary, fascicled, sessile, tetrandious fruit 4-angled, or imperfectly 4-winged, with prominent intermediate ridges, sepals produced at the apex, forming a beak.

Habit. — P. The station is not recorded. It is only artificially related to the preceding by its opposite many-nerved leaves. In all other respects it associates better with some of the plants of the following section. Leaves 6-8 lines long 3-5 broad.

§ 2. Leaves alternate or rarely opposite, quintuple-nerved fruit ovate, simply ribbed, 4 angled, or more or less perfectly 4 winged.

* Flowers pentandrous.

31 *P. rotundifolia* (R. W. 31), erect, sparingly branched, stems pubescent, obscurely 4 sided, sides furrowed leaves alternate, long petioled, broadly ovate or sub-orbicular, pointed flowers sessile, axillary, pentandious fruit few-ribbed.

Couitallum, flowering August and September.

My specimens seem to be males as there are very few fruit, perhaps in the female or on older branches, the fruit will be found to coincide with the more usual form in this group, that is, somewhat flattened with the angles prominent or even expanded into wings.

32 *P. elaphica* (R. W. 32), erect, ramous, pubescent, stems terete leaves alternate, elliptic, acute at both ends hoary beneath, roughish above flowers axillary, sessile, pentandrous, females in the same fascicles fruit ovate, even, or scarcely ribbed.

Malabar.

33 *P. bicuspidata* (R. W. 33), erect, sparingly ramous, stems terete, succulent leaves alternate, long petioled, ovate lanceolate, acuminate smooth above, pubescent beneath especially on the nerves flowers glomerate, axillary, sessile, pentandrous fruit ovate, sub-compressed, sometimes margined, bicuspidate at the apex, not ribbed.

Couitallum, Ceylon, flowering August and September.

The lanceolate long acuminate leaves of this species, with its small glomerules of flowers, bring it near to *Pantana Indica*, Lin, but its pentandrous flowers, and even, not sulcated, fruit sufficiently distinguish it, it also resembles the figure of Roxburgh's *U. visicana*, from which its pentandious flowers equally distinguish it.

34 *P. rostrata* (R. W. 34), erect, ramous, stems terete, glabrous leaves long petioled, alternate, membranous, broad ovate, acuminate, glabrous on both sides flowers glomerate, sessile, pentandrous fruit broadly 4-winged, beaked.

Malabar. This is a peculiar and well marked species not liable to be confounded with any other. Since the above was written I have received specimens from Canara, from Mr Dalzell.

35 *P. procumbens* (R. W. 35), procumbent, rooting at the lower joints, ramous, branches ascending leaves opposite, short petioled, oval, obtuse at both ends, pubescent beneath flowers glomerate, axillary, pentandious fruit somewhat compressed, 4-angled, angles often thickened or produced into imbricate wings, apiculate or sub-rostrate.

Ceylon, Thwaites. My specimen of this plant is rather imperfect.

36 *P. aunculata* (R. W. 37), erect, ramous, branches terete, hoary towards the extremities leaves alternate, longish petioled, lanceolate, acute at both ends, roughish above, pubescent beneath, flowers sessile, glomerate, pentandious fruit 4-winged wings enlarging upwards, sub-orbicular above, auncle-like.

Neilghernes, Iyamallay Hills, August and September

The form of the wings is peculiar in this species and supplies an excellent specific mark

37 *P. Rheedii* (B. W. 38), erect, lamious, branches terete, glabrous leaves alternate, petioled, broadly-ovate or sub-cordate at the base, acuminate, or simply acute slightly pilose on both sides flowers glomerate, pentandrous fruit flattened, imperfectly 4-winged, beaked wings abruptly truncated (Hort. Mal. 11, 30)

Malabar, Neilghernes This plant, with the exception of having the leaves longer petioled, agrees so well with Rheed's figure that I feel no hesitation in quoting it for this plant, and dedicating the species to the on which I discovered it. And as regards the length of the petioles I find they greatly vary, in some being less than half an inch and in others fully an inch and a half long

38 *P. scabunda* (R. W. 41), erect, lamious, branches terete somewhat stngose leaves alternate, much reduced in size towards the extremities, lanceolate, acute at both ends, at first nearly smooth, afterwards scabrous above, pubescent beneath flowers pentandrous fruit 4-angled or imperfectly winged, prominently ribbed between the wings

Neilgheri, flowering August and September My specimens gathered in August are still rather too young, the female inflorescence being imperfectly developed It, however, appears a very distinct species

* * Flowers tetrandrous, leaves alternate

39 *P. Borbomca* (R. W. 44, *Urtica Borbomca*, H. B. C.), shrubby, very ramous, upper portions of the stem compressed leaves short petioled, ovate-lanceolate, coarsely serrated, acute, concolorous flowers glomerate, sessile, tetrandrous, fruit oblong oval, ribbed, not winged

I only know this plant through a specimen received from the Calcutta Botanical Garden under the name quoted above

40 *P. minor* (R. W. 43), decumbent, diffuse, branches slender, filiform leaves small, lower ones broadly ovate obtuse, pilose upper ones reduced in size, ovate obtuse, all sub-sessile flowers few, axillary, opposite, tetrandrous fruit both simply ovate—Somewhat 4 angled, and four winged, apiculate

Malabar, near Alleppi, Johnson I only know this plant from a specimen communicated by the Rev Mr Johnson of Cottayam

41 *P. angustifolia* (R. W. 39), loose, straggling, ascending, branched leaves sub-sessile, obtuse or sub-cordate at the base, narrow linear acute, somewhat stipitate, slightly lough above, sparingly stngose on the nerves beneath flowers glomerate, sessile, tetrandrous fruit deeply 8-10-furrowed, apiculate

Malacca, Griffith My specimens of this plant are not very good, but it seems to be a very distinct species I infer from then lax slender form, that it is a plant which seeks support from adjoining plants

42 *P. Indica* (R. W. 40, *Panetana Indica* f. Lin.), ascending, slender, lax leaves alternate, short petioled, uniform, reduced in size towards the ends of the branches, ovate lanceolate, sub-acuminate, pilose flowers few, axillary, glomerate, tetrandrous fruit ovate, 8-ribbed, apiculate

China, Doi ward My figure and description of this plant are taken from a very indistinct specimen communicated by Dr Doi ward, Madras Medical Service

It seems to accord pretty well with the character, and is well represented in Rumphius' figure, Heib. Amb. 6 tab. 12 f. 2 My figure does not, for want of space, give so good an idea of its lax straggling habit In my specimen there springs from the axil of each of the lower leaves a short floriferous branch, towards the extremity, the flowers are borne on the primary shoot as shown in the figure I am induced to consider this as the true *P. Indica*, Lin., partly on account of its correspondence with his character, but principally on account of its agreement with Rumphius' figure, which Mr Bennett states bears an obvious resemblance to the Linnean specimen

43 *P. tuffiucosa* (R. W., *Urtica sufruticosa*, Roxb.), suffrutescent, lower leaves ovate lanceolate, upper ones narrow linear lanceolate, sessile, broadish sub-cordate at the base, tapering thence to the point, flowers axillary, glomerate, tetrandrous, fruit ovate, deeply furrowed, hairy Roxb. Fl. Ind. 3, 584, R. W. Icon, No. 694

Sumatra This character is taken partly from Roxburgh's description, partly from his figure, R. W. Icones, No. 694 The plant I have not seen

44 *P. tuberosa* (R. W., *Urtica tuberosa*, Roxb.), leaves alternate, ovate, acute, hairy flowers axillary, glomerate, tetrandrous fruit ovate, not ribbed

Circars, in moist soil Roots tuberous stems annual, flaccid, from 1 to 6 feet long, seeking the support of bushes, or if deprived of support, resting on the ground Roxb. Fl. Ind. 3, 583, R. W., Icones, No. 697

45 *P. vesicaria* (R. W., *Urtica venticana*, Roxb.), shrubby, erect, leaves broadish lanceolate, acute at both ends, petioled, downy on both sides flowers axillary, sessile, glomerate, tetrandrous fruit ovate, surrounded at the base by several inflated permanent vesicles

Cincar Mountains, Roxb. Fl. Ind. 3, 587, R. W., Icon. 695

46 *P. Zeylanica* (Bennett, 45, *Panet Zeylan*, Lin., *Urtica alienata*, Lin., Roxb.), erect, lamious, brachiate, branches cernuous or, if supported, slender, flaccid leaves opposite, long petioled, ovate, acute, pilose on both sides flowers axillary, sessile, few, tetrandrous fruit ovate, somewhat 4-angled, deeply 8-furrowed or distinctly 4-winged

Ceylon, Thwaites This seems to be but a luxuriant climbing variety of the plant described and figured by Roxb. (see R. W., Icon. 693), it seems also, so far as can be judged from description, both the *Urtica alienata*, and *Panetana Zeylanica* of Lin.

Mr Bennett, however, keeps them distinct, referring the *Panetana* of the Fl. Zeylan and 1-2 Editions of the Sp. Plantarum to his first or opposite-leaved section, and the *Urtica alienata* of Par. Zeylanica of the 12th and 13th Editions to his second or alternate-leaved section, though said to be opposite-leaved because it is described as having, "*fructus obovatus tomentulosus 8 longitudo inibus*" As however torulose and winged seed occur in the same axils, I do not hold that to be a sufficient distinction, and therefore, guided by a comparison of the descriptions of the Fl. Zeylan and Mantissa, quote both names as being synonyms of each other, adopting the older one

47 *P. pilota* (R. W. 36), diffuse, ramous, climbing or spreading on the ground leaves ovate, sessile, acute, pilose, those of the extremities alternate

nate, near the base opposite flowers glomerate, tetrandrous fruit deeply furrowed or four-winged, with a large 2 cleft apiculus

Malabai? The exact station is not given, but I think it is from Malabai. This species* is readily distinguished by the fruit from all except the following, which it greatly resembles in that and some other respects, but is distinguished by the procumbent habit and more ovate leaves, the other being erect, with lanceolate ones

48 *P. tetraptera* (R W 42), erect, or ascending, ramous leaves membranous, pilose, nearly all alternate (< a few of the lower pairs only opposite), longish petioled, elliptico-lanceolate, acute at both ends, or sometimes ovato lanceolate, upper ones much smaller and narrower than the lower flowers few, glomerate, axillary, sessile, tetrandrous fruit in the lower axils prominently tubed, in the upper ones usually broadly 4-winged

Iyamallay and Bolamputti Hills, Coimbatore, flowering August and September

Both these species are rather variable, but they seem to retain their respective habits and are no doubt quite distinct though the fruit, which is peculiar, be the same in both

49 *P. Johnsonana* (R W 47), decumbent, stems slender filiform, somewhat stinging leaves longish petioled, pilose, alternate, from oval obtuse at both ends to ovato-lanceolate, sub-acute, floral ones reduced, petioles slender herbiform flowers few, axillary, sessile males tetrandrous with a conspicuous rudimentary pistil, woolly at the base fruit ovate, compressed, furrowed or broadly 4 winged and beaked

Cochin, Malabai, Rev & Johnson This seems a very distinct species, spreading flat on the ground, looking for some distance round the root with floriferous extremities slightly ascending The larger leaves scarcely exceed an inch in length and are about half as broad

50 *P. pyramidata* (R W 48), straggling, ascending or erect, branches slender, 4-angled, rather deeply furrowed between, lower pairs opposite leaves alternate or the first few pairs opposite, progressively diminishing in size from the base to the apex, where they almost disappear, lower ones short petioled, ovate lanceolate, upper ones sessile, linear acute, all rough and sprinkled with a few longish adpressed

hairs above and strongly pilose beneath stipules bioid cordate, cuspidate flowers & few, axillary, sessile, tetrandrous calyx fringed with long bristly hairs, rudimentary pistil woolly at the base fruit ovate, furrowed or broadly 4-winged

Quilon, Malabai These two species are very unlike in appearance, though so nearly agreeing in the characters of the flowers and fruit

SPECIES UNKNOWN TO ME

51 *P. hispida* (Bennett), dioicous, pentamerous stem angled, pubescent leaves subsessile, lanceolate cordate, rough above, glabrous beneath, glomerule densely flowered

Nepaul, Wallich, Hamilton

52 *P. quinquenervis* (Bennett), dioicous, pentandrous stem scarcely branched, angled, smooth leaves all similar, short petioled, ovate lanceolate sub-acuminate, 5-nerved at the base, glabrous on both sides, male glomerules compact

Nepaul, Hamilton

53 *P. cordata* (Bennett), dioicous, pentandrous stem scarcely branched, angled, smooth leaves all similar, subsessile, cordate acuminate, 5-nerved at the base, rough above, somewhat pilose on the veins beneath male glomerules compact

Java, Hoisfield

54 *P. prostrata* (Bennett), dioicous, tetrandrous diffuse, stem-angled, somewhat hairy leaves all nearly similar petioled, broad ovate obtusish, pilose above, pubescent on the veins beneath, male glomerules few-flowered

Java, Hoisfield

55 *P. pauciflora* (Bennett), monoicous, tetrandrous, stem scarcely branched, angled, smoothish leaves all similar, longish petioled, ovato-lanceolate, acute at the base, glabrous, glomerules few flowered

Panetana bracteata, Wight, in Wall list 4600, referred here by Bennett

Pouzolzia parxetanoides, Decaisne

Panetana sonneratii, Poir, seems, from the description, to be a species of *Elatostema*

Panetana Judda, according to Pour's description, is a species of *Forskalia*

FINIS



Guattera S
Asog H.

Guattera longifolia Wall.
Uvaria longifolia Roxb.

Asokium
Neltingum

Guattera



Surgeia del
no. 111. P. 1. 1877.
Aschmannella. Linn.
Boerhaavia. Linn.

Blarusia rosandra (V. & A.)
Cleome viscosa R. H. B. K. Mat. Med.

R. H. B. K.
Kulaba. Ceyl.
ma. mala. M.
Leke. v. v. v. L.



Stem of

Mollugo disticha (Ser.)

S. P. 1876



Range del
Fl. & Gaz.
Little North

Lebronia procumbens (Wight)

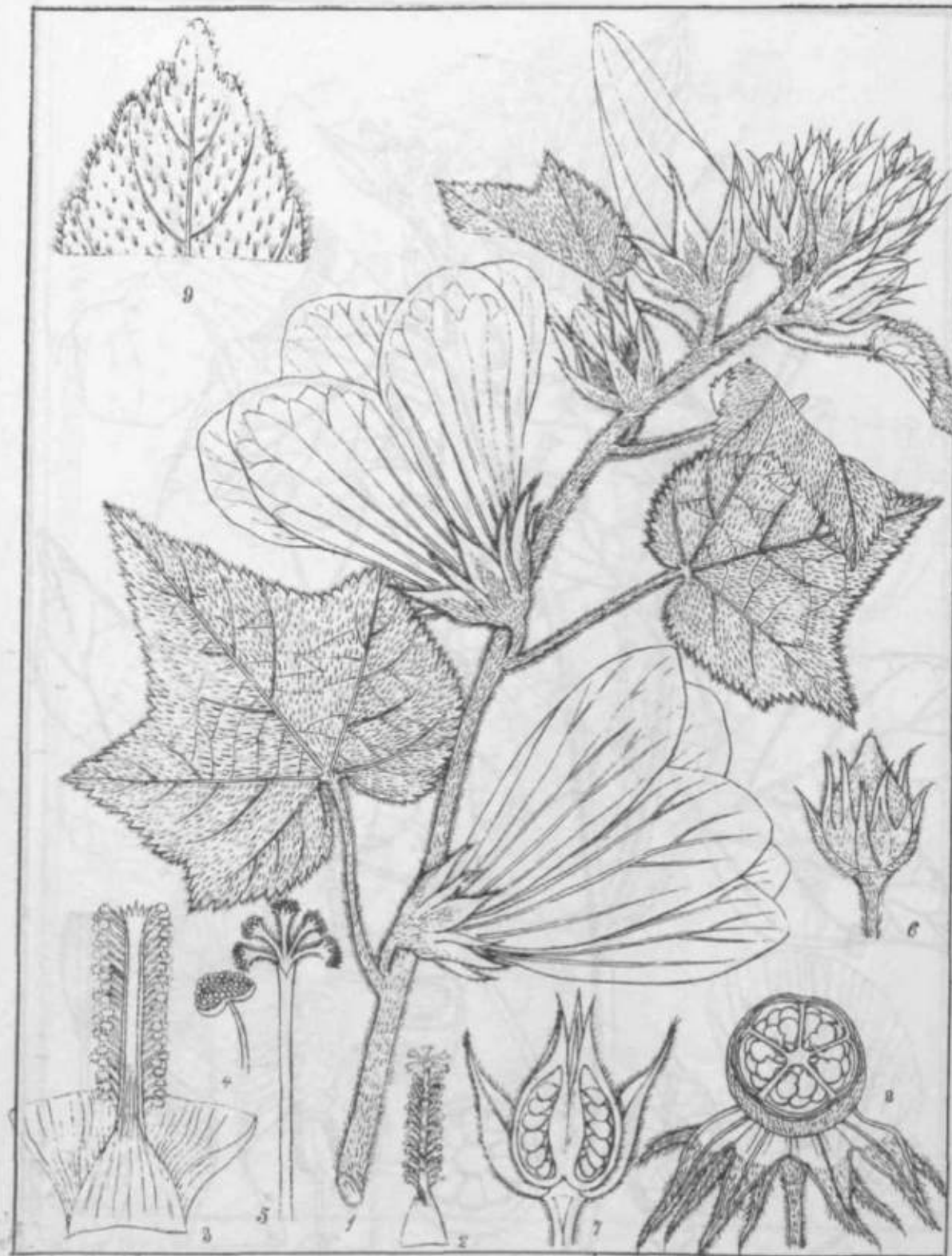
A. H. B.



Rangia del

Hibiscus Lamprocarpa (Cav.)

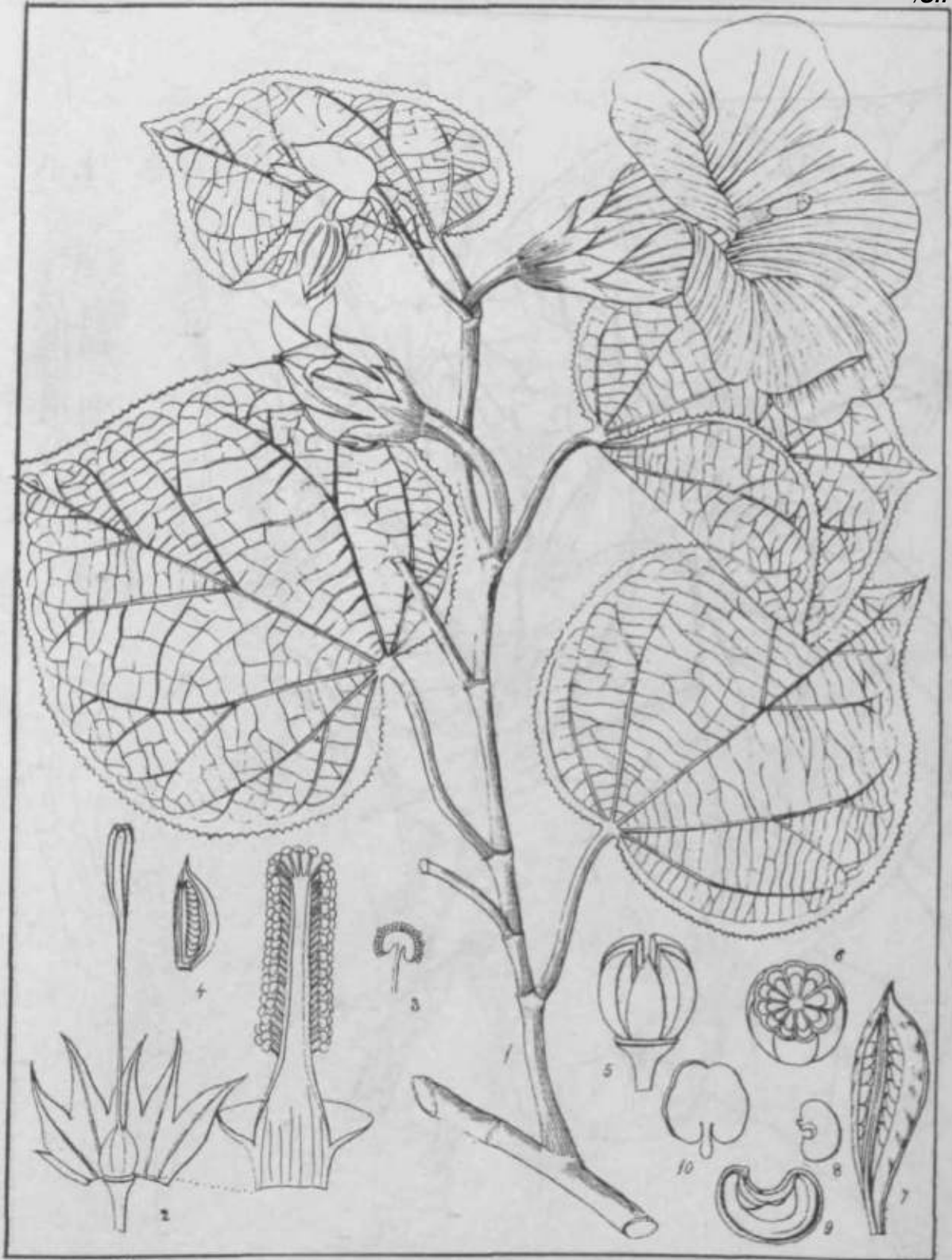
A. W. - L. H.



Longa del

Hibiscus senaripolus Willd.:
H. pruriens Roxb Fl. Ind. 3 pl 196

S. H. 11th.



Rangia del

Paritium tiliaceum (St. Hil.)

R. H. B. H.

Malvaceae



J Eurtff! * U£

*J 12. 11. 18. 18. 18. 18.
Malvastrum L.
Chenopodium L.

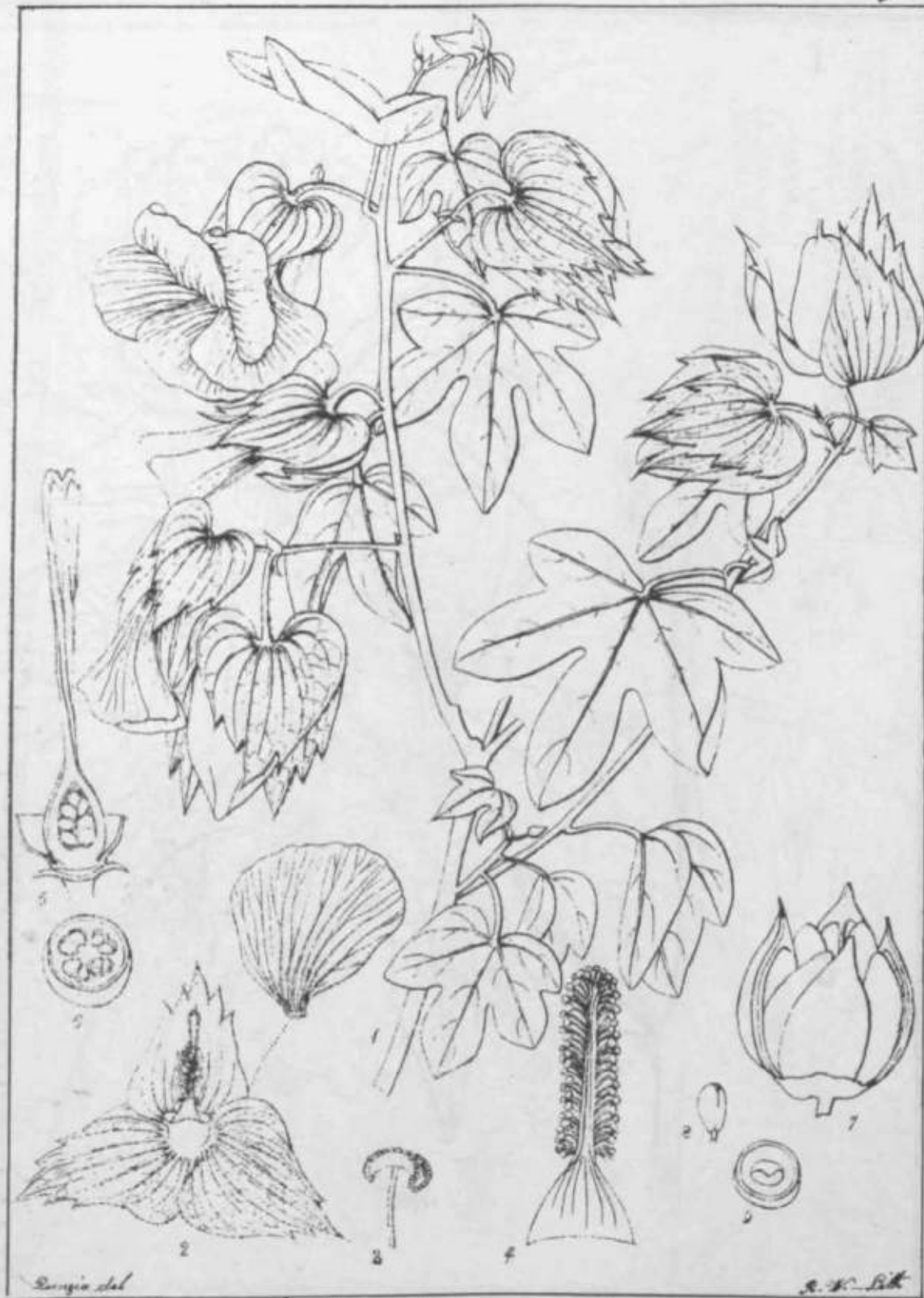
Malva
Malva

"f* J / • /9-

Malvastrum L.
Malvastrum L.
 •wu*..><..



Gopryium habacum



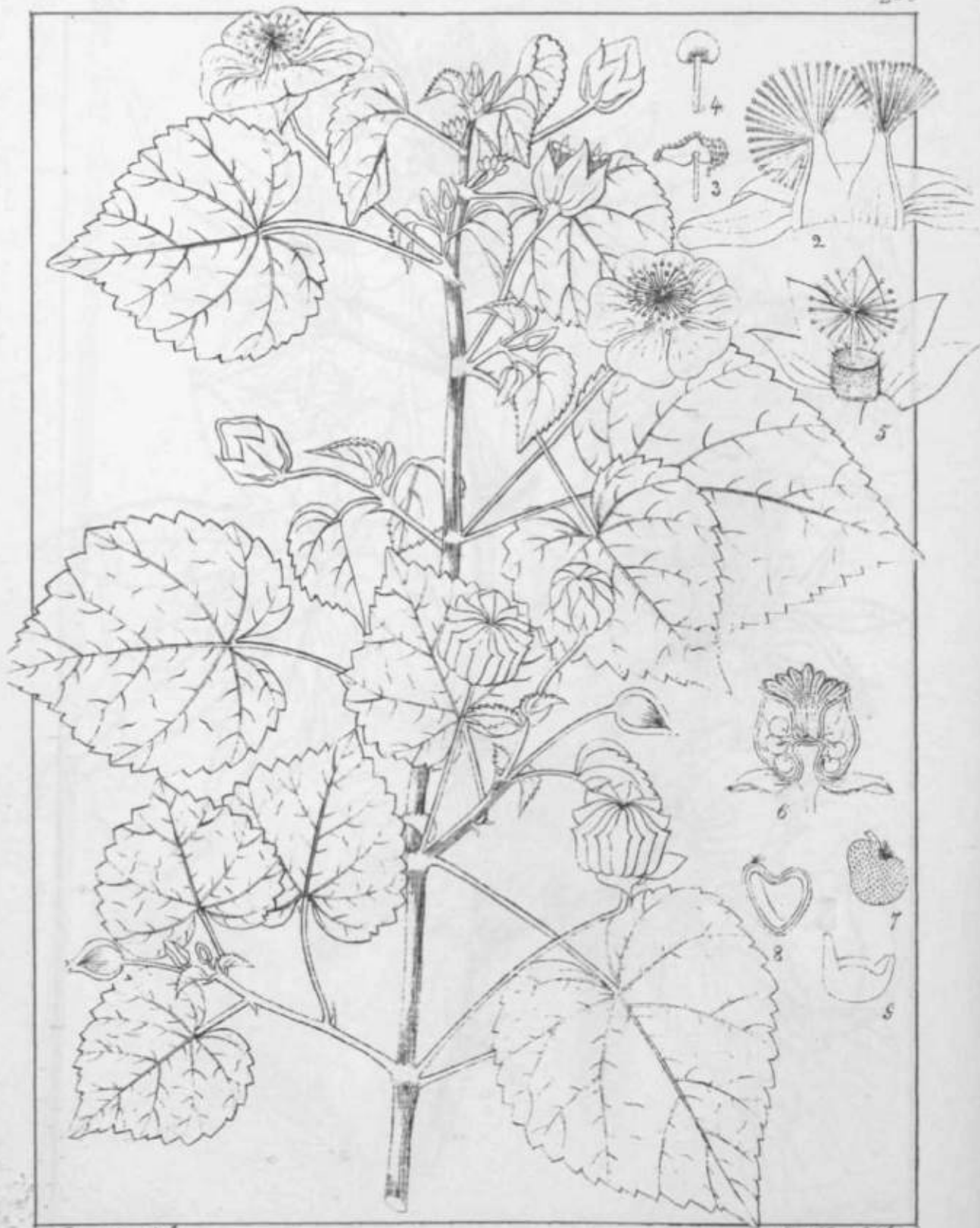
Gossypium del
 C. D. D.
 Tupper. L.
 R. L.

Gossypium herbaceum Linn:
G. album Lam; W & A.

G. herb.
 R. L.
 R. L.



Gossypium arboreum
From Rogers Illustrations of ex.



Rangia del.
S. B. D. 1870
Trotter & Co., San

Abutilon indicum (L. Don.)
Sida indica. *S. populifolia* Lam.;
 Country Mallow leaf.

R. H. Little
S. B. D. 1870.
Trotter & Co., San.



Kistla-nuon. 1

g. g. 11. 11. 11. 11. 11. 11.

Koroway-filay. Tem.

Bagera Hainigü (Linn.)

Bursunga. M.

11. 11. 11. 11. 11. 11.

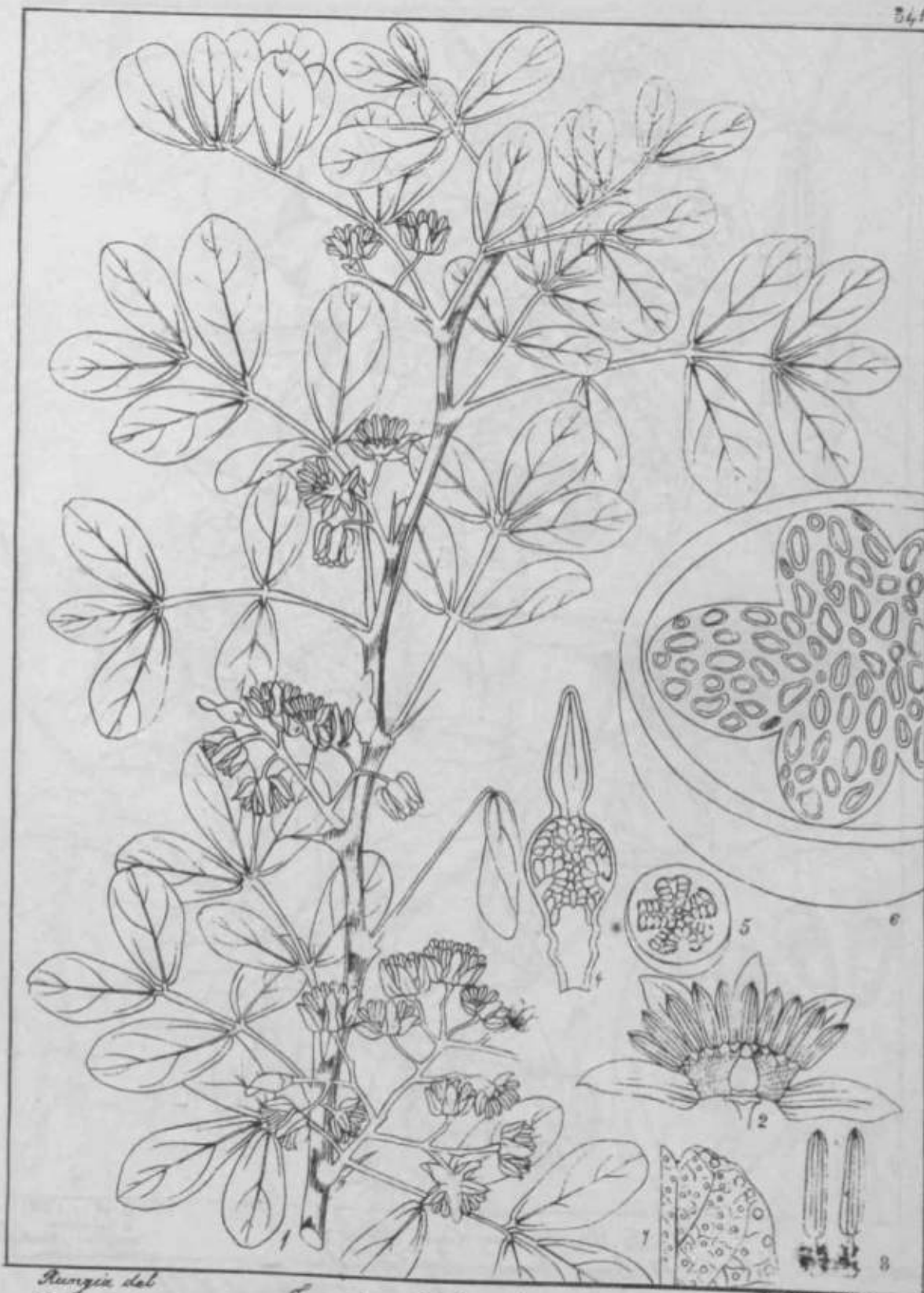
Koroway-filay. Tem.

R. H. Pitt



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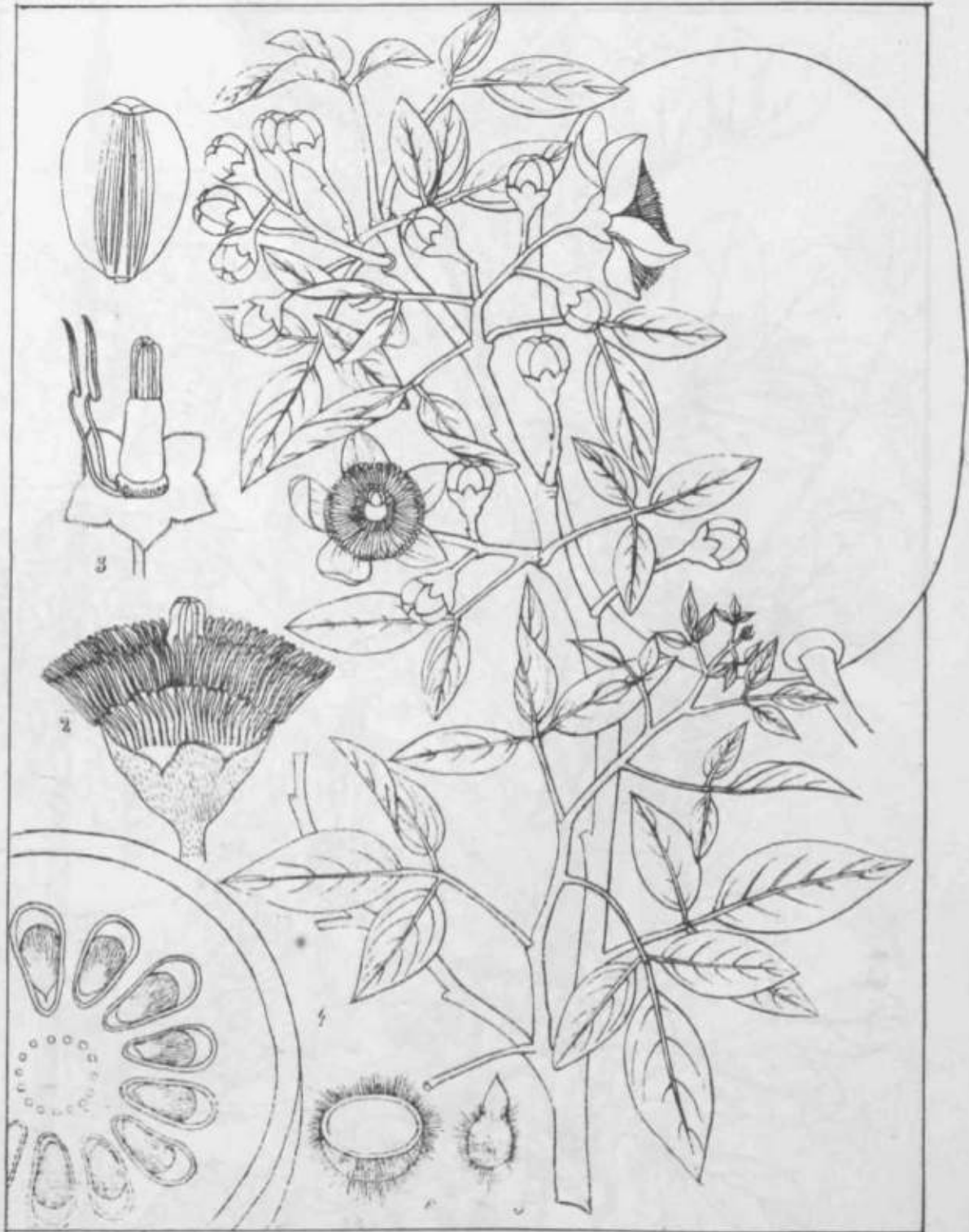
Clausena Willdenowii B(H. & A.)



Rungia del
Pas 00 17 10 20 10
Vallam. marum. S
Cattivella. Tam.

Ironia elephantum Corr.:
Wood apple tree

S. H. - Bk
20 X 50
Telaga cheltes Lal.
Kotien Kavita. H.



Aglo Marmelos Corr. Roeb.
Cratogeomys Marmelos Willd.
C. religiosa Ainslie. %*sfku*u%Zt.

C. religiosa Ainslie.
C. religiosa Ainslie.
C. religiosa Ainslie.
C. religiosa Ainslie.



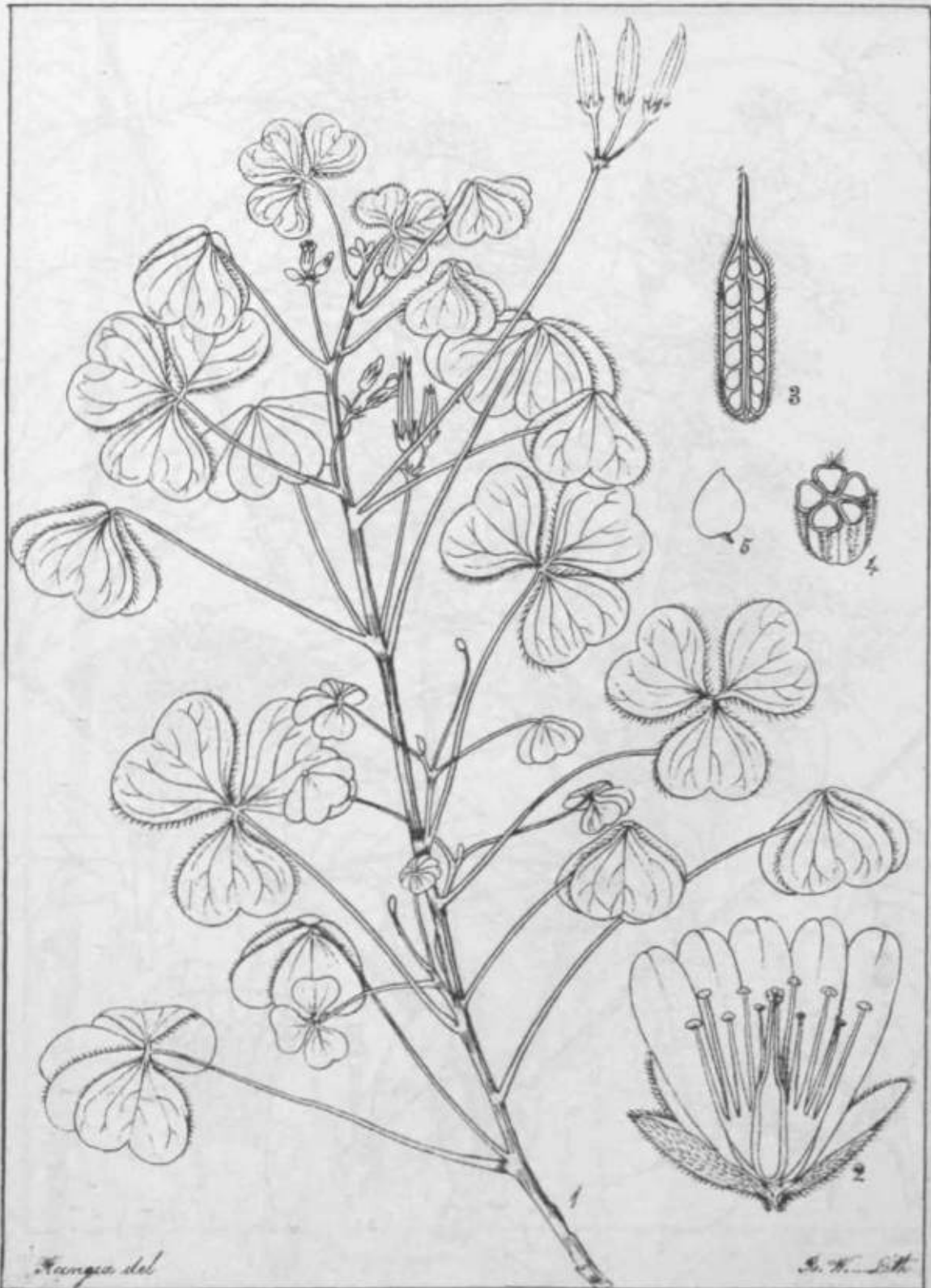
Planta del
Siam
Siamensis

Azadirachta indica (Adr de Juss)
Melia Azadirachta Linn.

4 1> ... ST

del ...
Siamensis

Oxalidea



Francia del

G. H. Pitt

Boissieray. Sav.

Oxalis corniculata (Linn.)

Proles chin. 1. 1/4

1789. 2. 11. 11. 11.

Hood's Sorrel

2. 1. 1.

Chenopodiaceae.

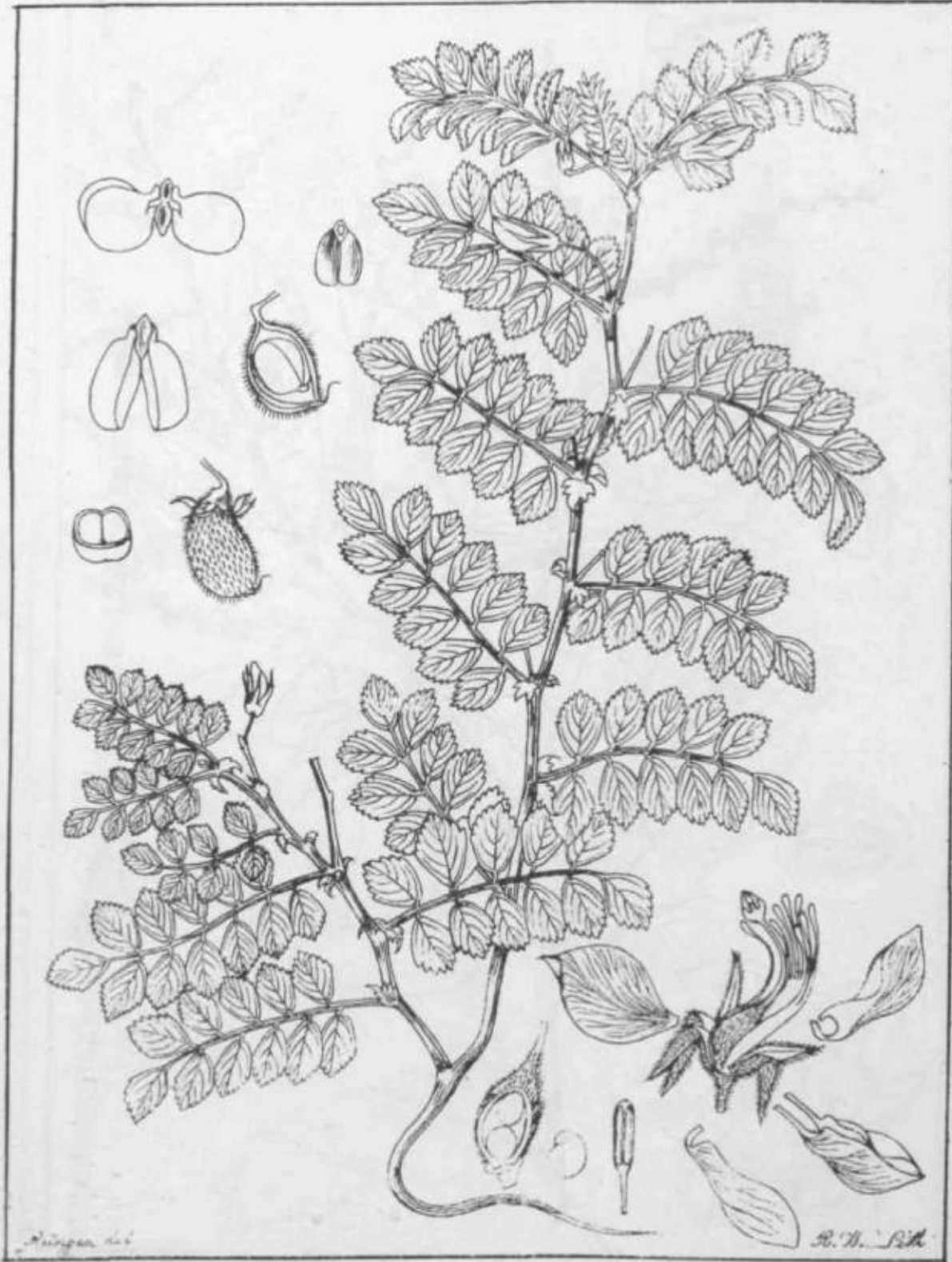
Proles chin.



Acrogin del.

Berchemia parviflora (Halt.)

S. W. - R. H.



Mimosa

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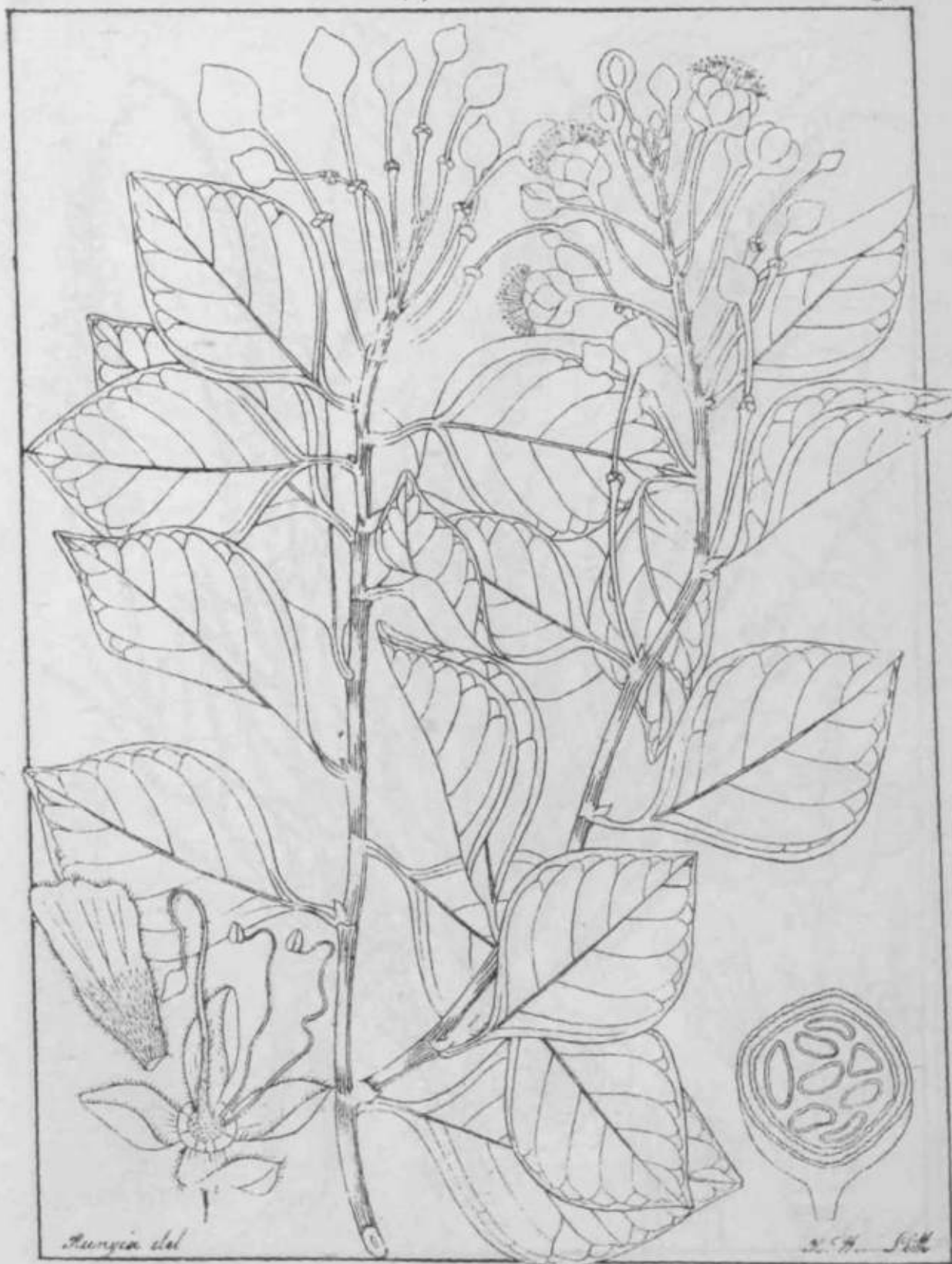
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"/tin/at &/ /singal prum

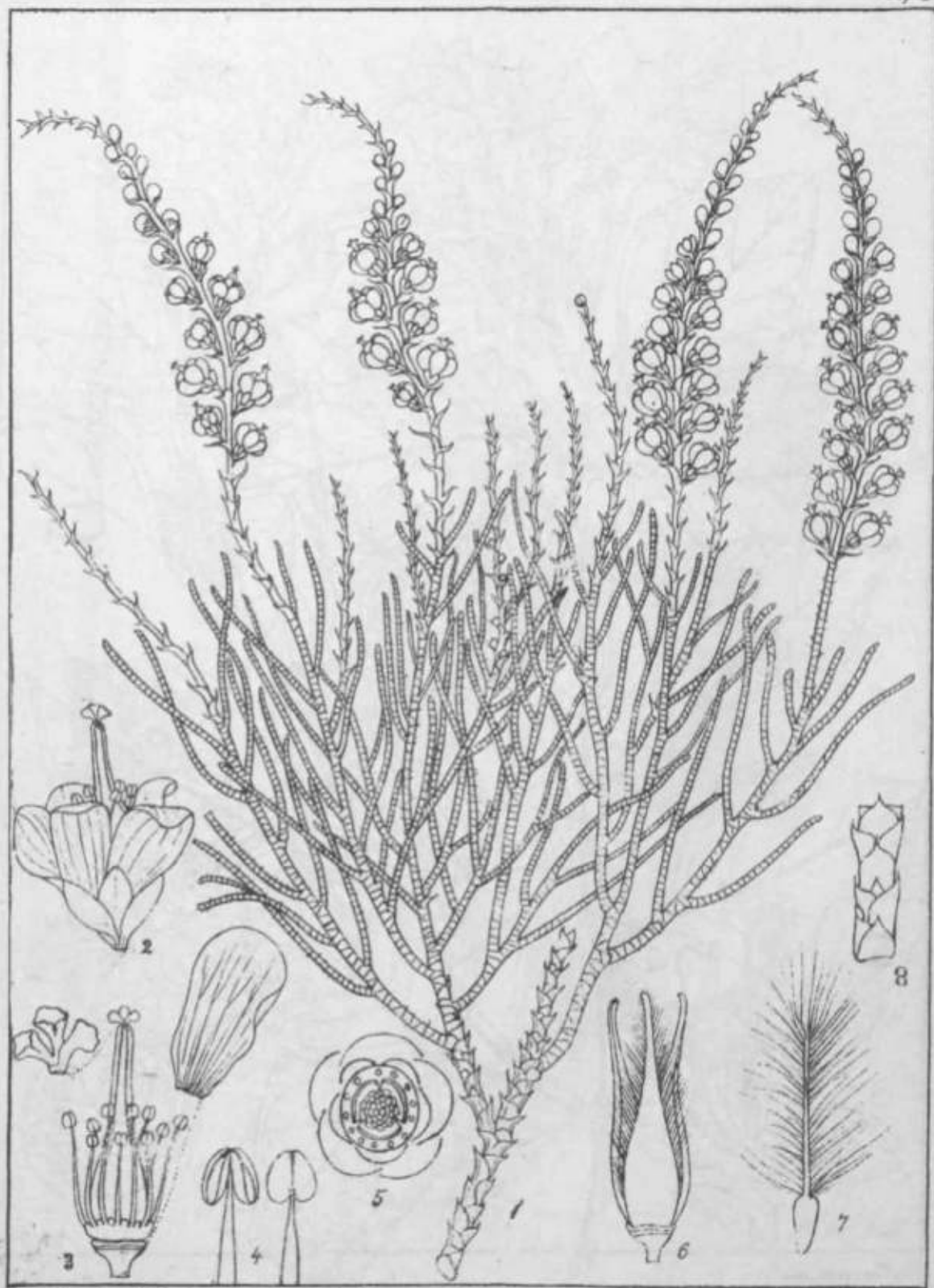
... ..

... ..

sanigheles. Tel



Capparis grandis Pinn.:



frutro del

Tamarix arbuscula Arn.

Dr. H. — Lth.



Melhania abutiloides Arn.



Nel-foora H.

Nephelium rubrum
Soyatia rubra Roxb.

Lupinaceae

Coronopodium



Abutilon rubrum
Scytalis rubra Desb.

Scytalis

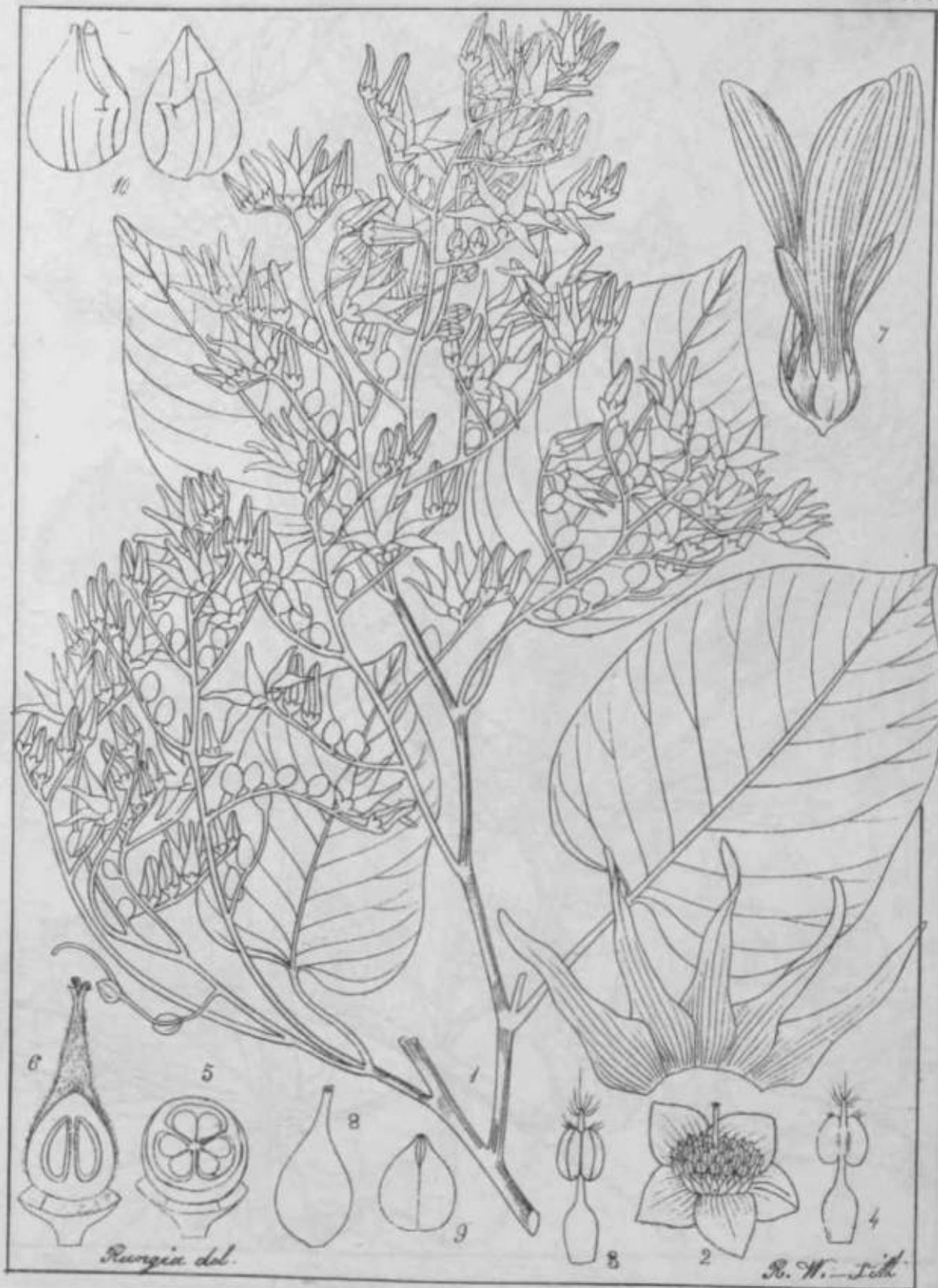
X



Rungia del
s

Vateria Roxburghiana R. W.

R. W. Pitt.



Vatica Lumbugana (W. & A.)



Rungia del.

C. & W. tam^twucü {"\$&\$.;)

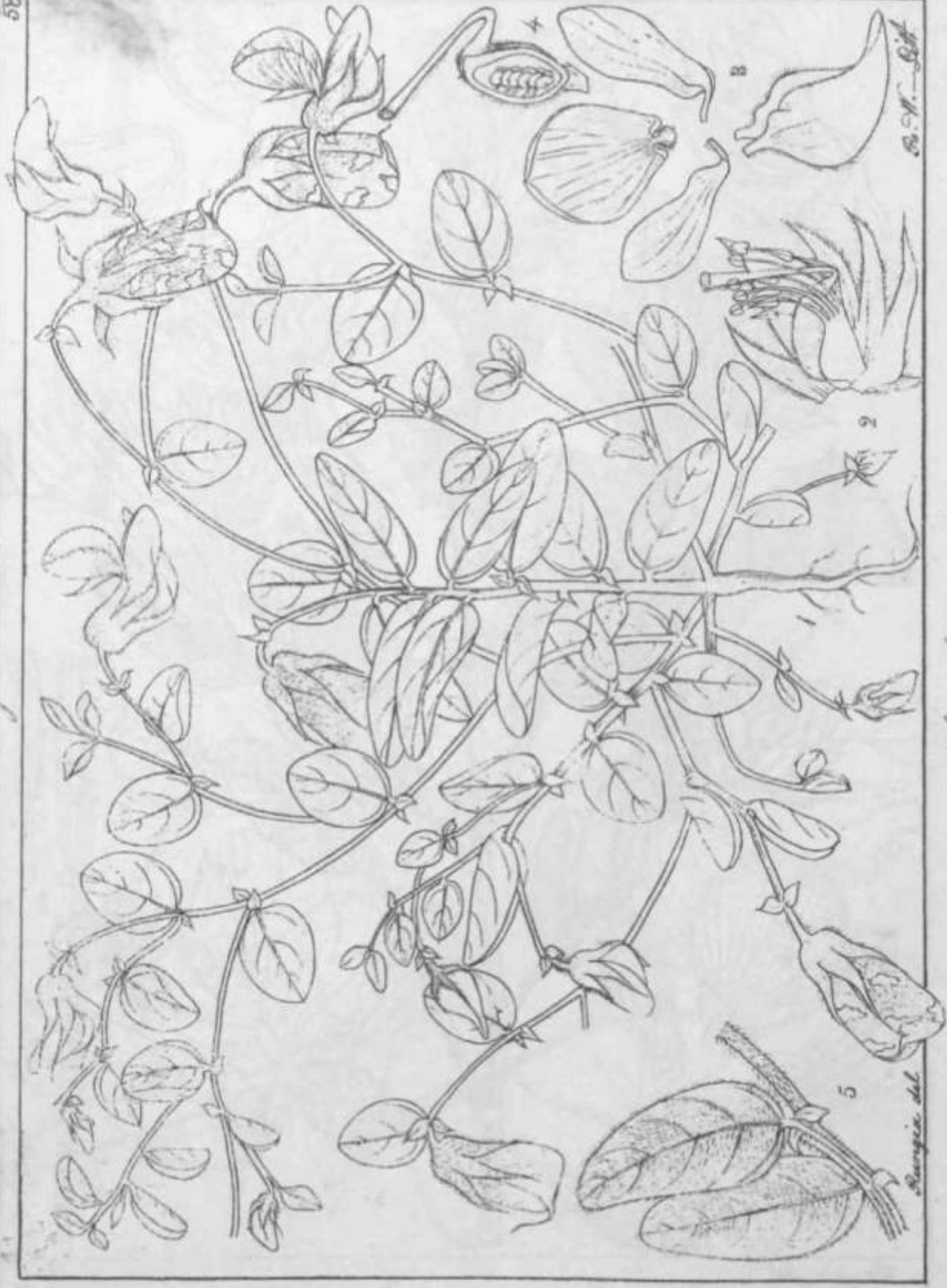
H. H. — Del.



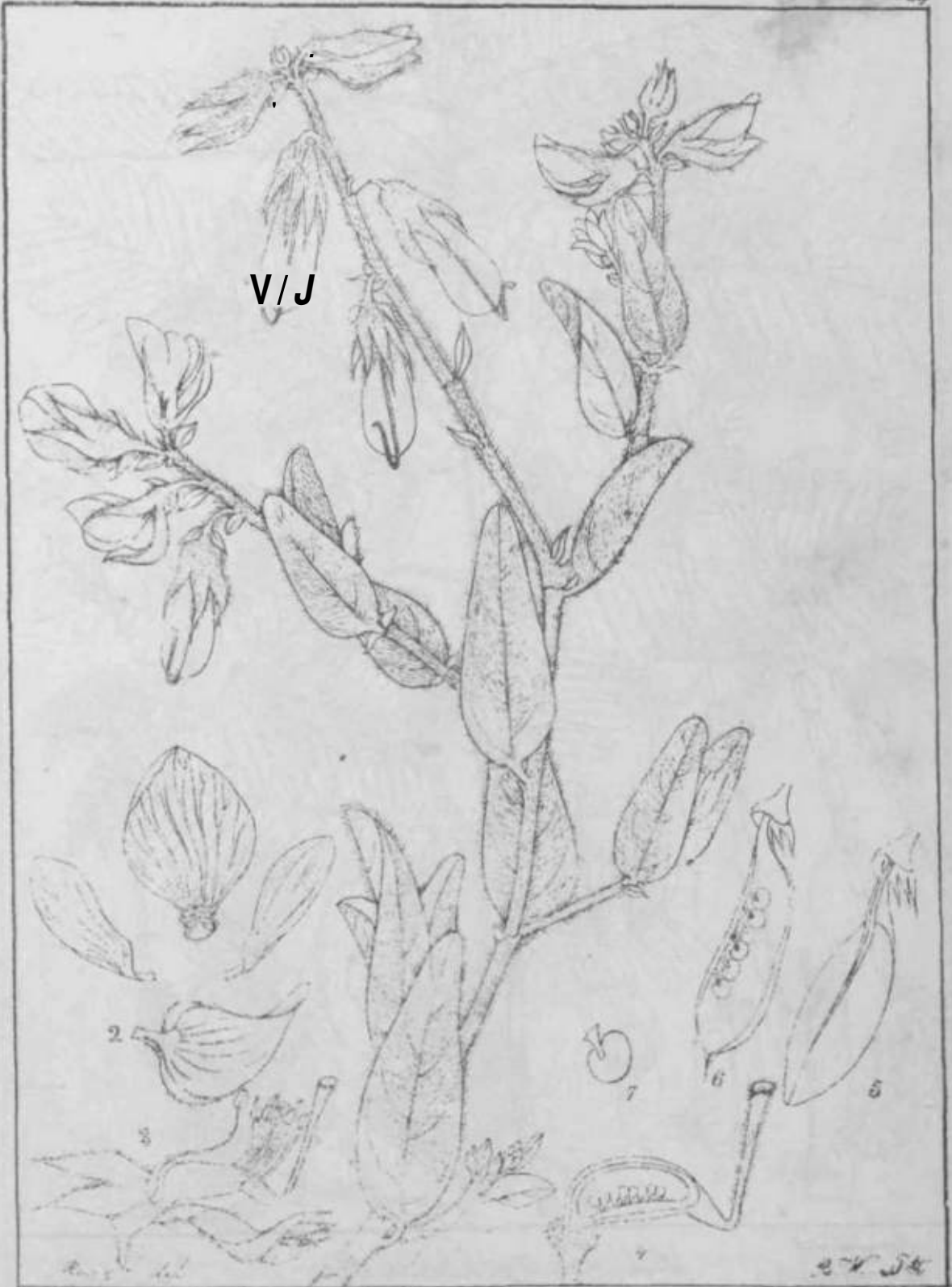
Rotalaria speciosa (Hezpe:)

leguminosa.

30
588



Crotalaria biflora (Pinn.)



Rotalaria evolvuloides (Vight)



Sesbania del
Eg. de la Des

Carin. Arabici Linn.

Sesbania aegyptiaca Pers.
Aschyromene Sesban Linn.
Chromola Sesban Willd.

R. W. Pitt

1844 17. 5. 1844

1844 17. 5. 1844



Rongia dal

Dumphy. Lith.

G. my (L. my).

Abrus precatorius (Herb. Madr.)

செங்கோது

Oxalis mucronata Lam.

Chinna goerie - ghorya. J.

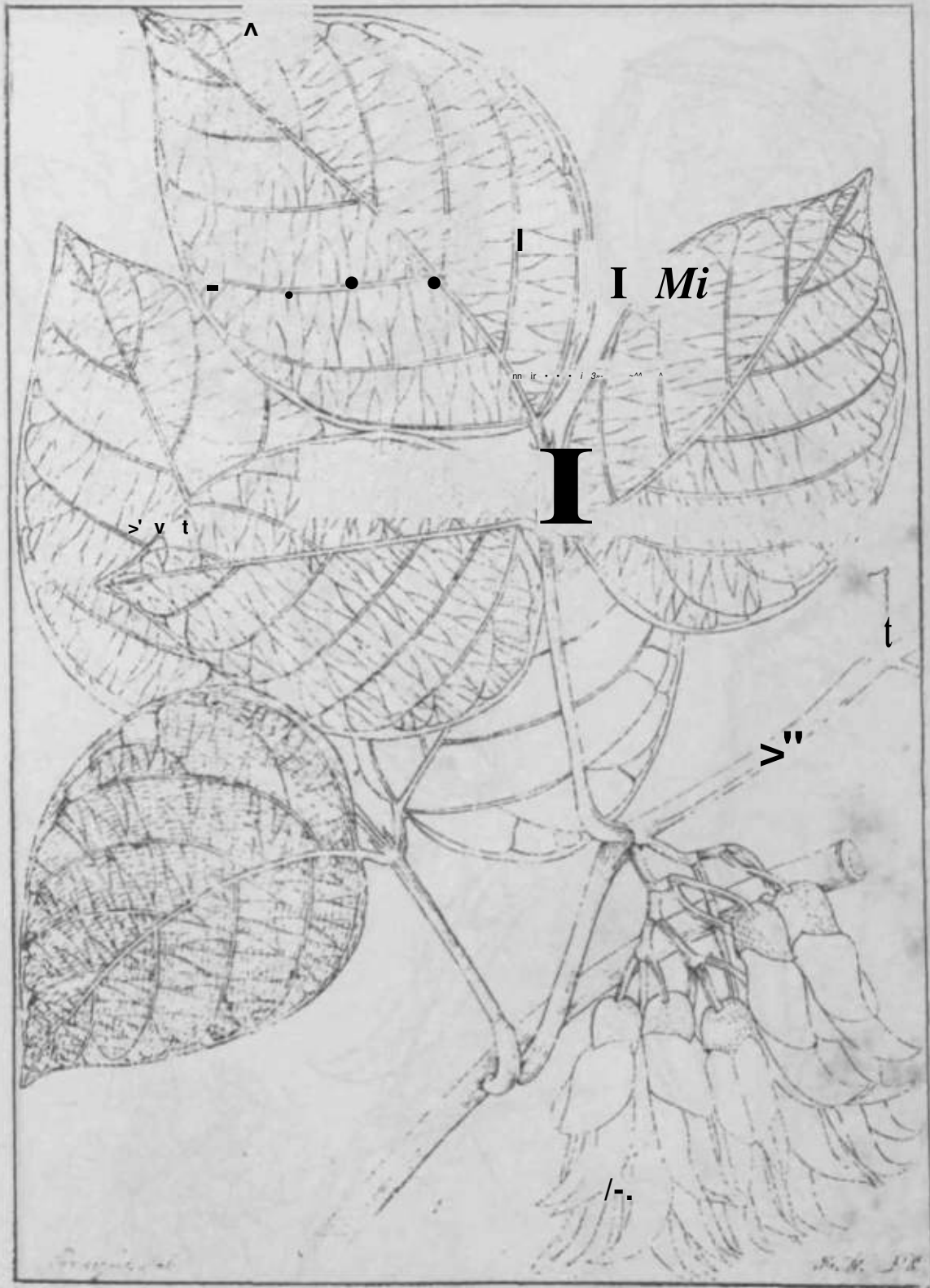


*Mania del
Bun-ambur. 15.*

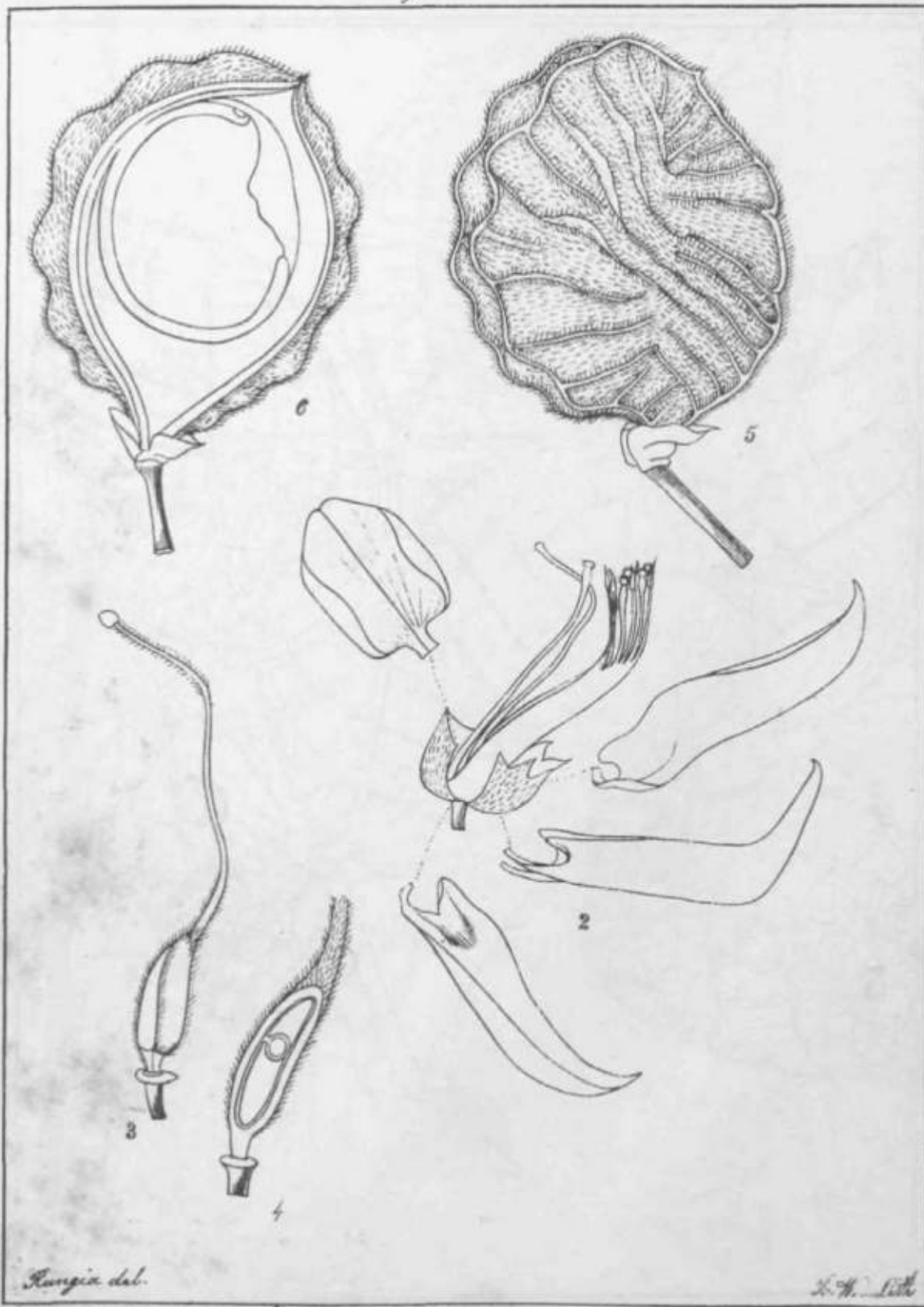
1, f. - section of the root of the plant

1, f. - section of the root of the plant

Leguminosae



Geopogon ...
Flora ...
Geopogon ...
Microspermum ...



Kangia del.

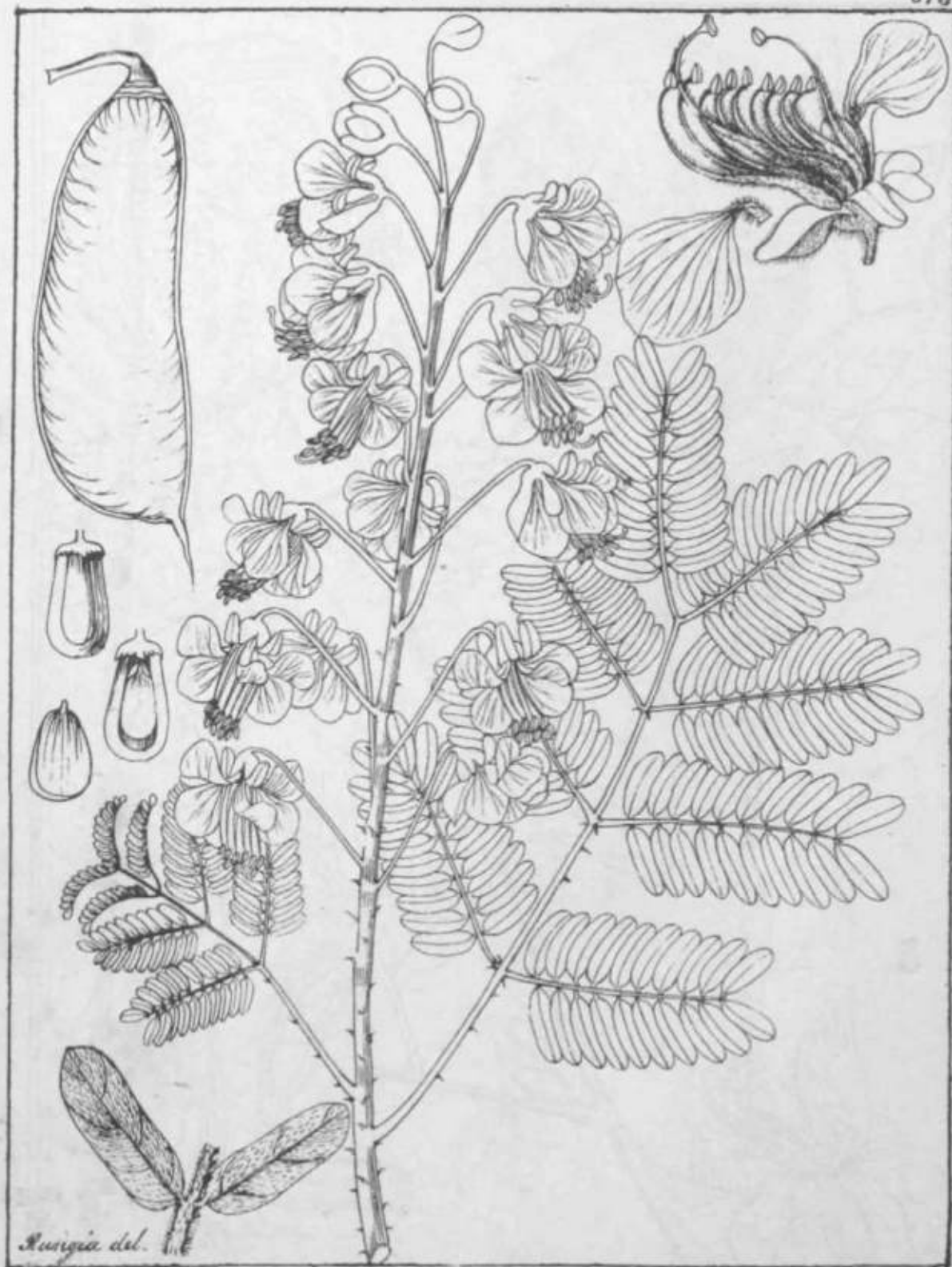
L. H. Pitt

செய்யுள்கொள்.
Shelloo - Cedro Sam.

Mucuna monosperma (L.) C. S.
Carpodogon monospermum Roxb.



Cessalpinia paniculata (Roxb.)



Casahuate (*Casalpinia sepiaria* (Roxb.))



R. W. - Lith.

Rosa Lischenautiliana (Red. & Thor.)

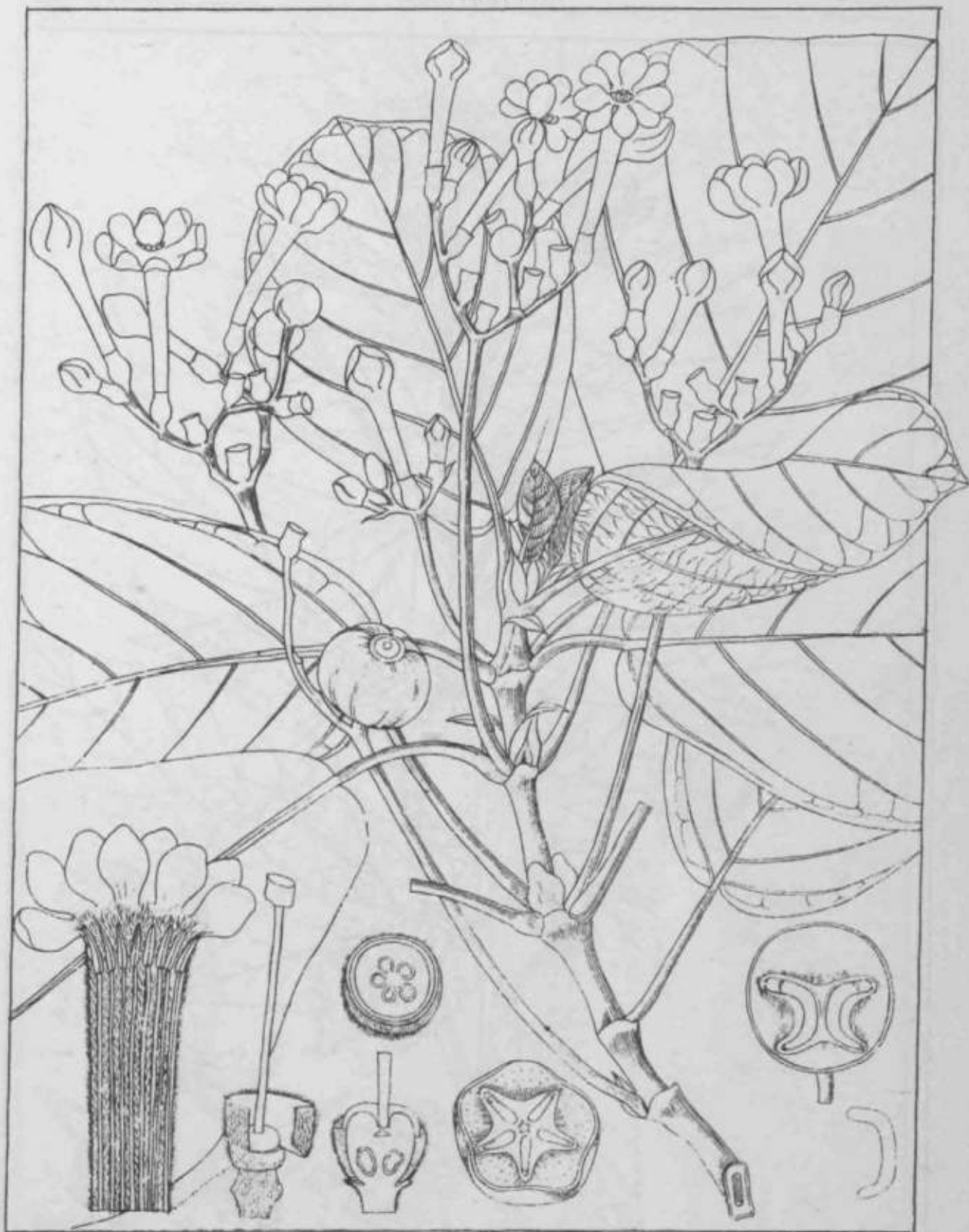
R. W. - Lith.



Rangio del
F. W. B. 1111/04

Paspiflora pisonauctii (D.C.)

R. H. Bth.
Malay-jamesky.



Rungia del
2107 07 17 La B. L.
Rubiaceae Martiana. Lam.

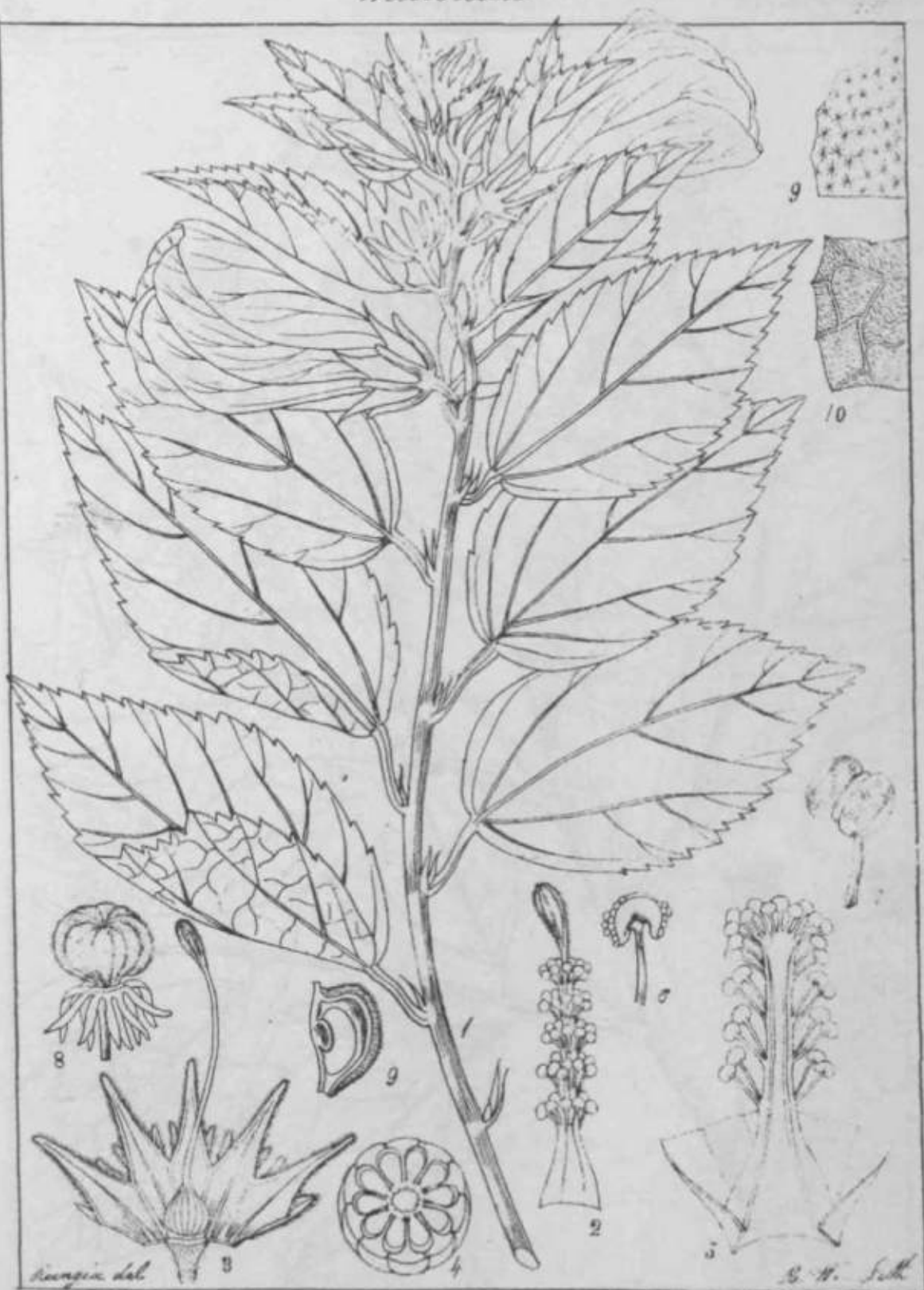
Guettarda speciosa (Linn.)

Dumf. & G. Lith.
Cavendishia speciosa. Lam.
Cavendishia Martiana. J.



Rungia del

Hibiscus hirtus (Linn.)



Decaschistia crotonifolia (W. & A.)

twm



Roxburghiana
Litchi L.

Nephelium litchi
Soytalia litchi Roxb

R. A. Pitt
Litchi. R. H.



Boyle-ana.
Theutla - Tonn

Grewia columnaris (Sm.)



Grewia rotundifolia (Poeb.)
S. in. Kelly. Sum

Grewia rotundifolia (Poeb.)



Juncea del

Elaeagnus oblongus Forst.

R. H. Sch.

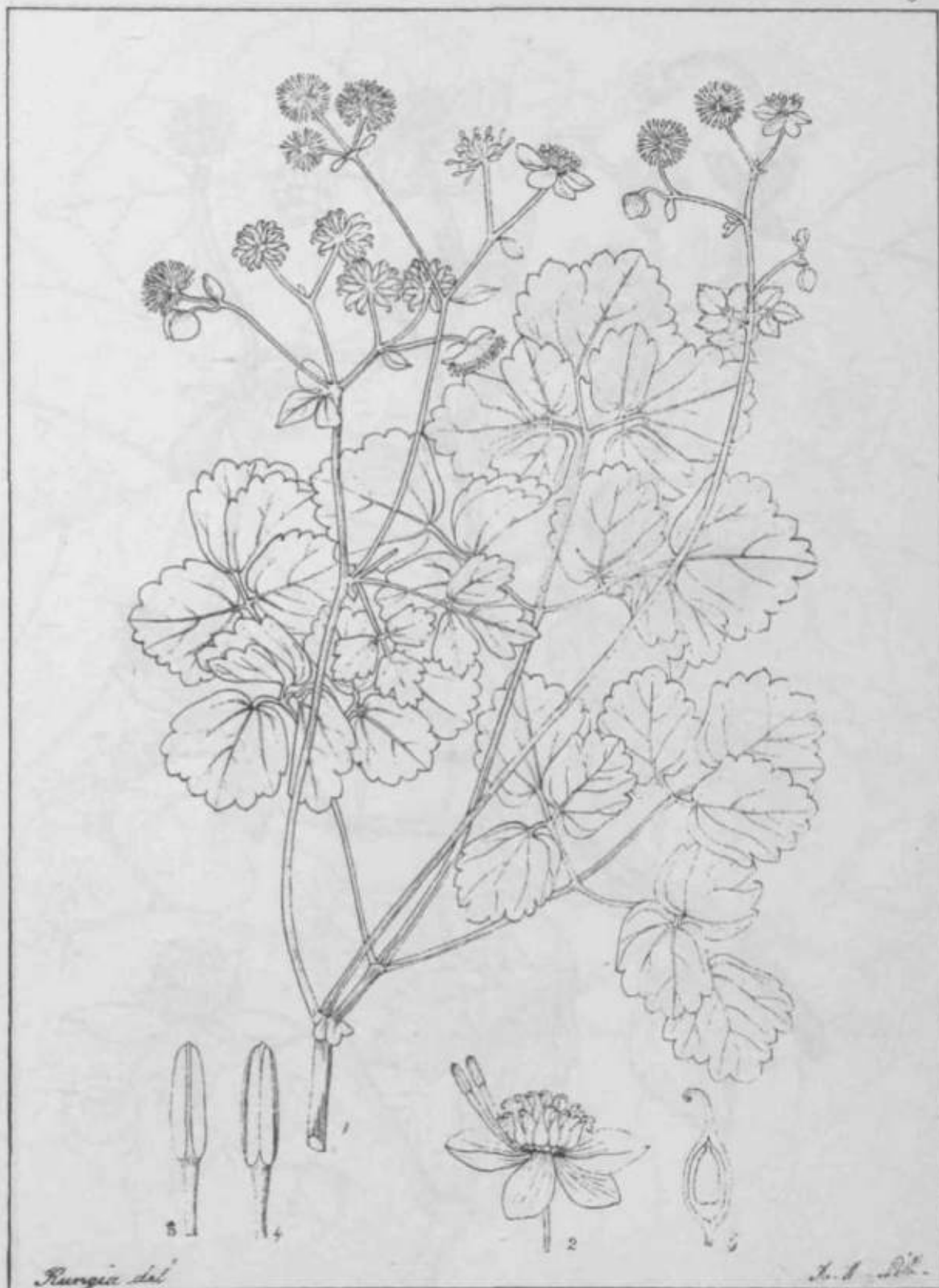
For H/Mf matr/?

47
5/6



H. U. A. f. iii. E&I

Cleyera yunnanensis (H. G. A.)
p



Rungia del.

L. L. B. B.

Thalictrum glycyrrhizum L. f. a



Pearcyia del.

L. H. Pitt.

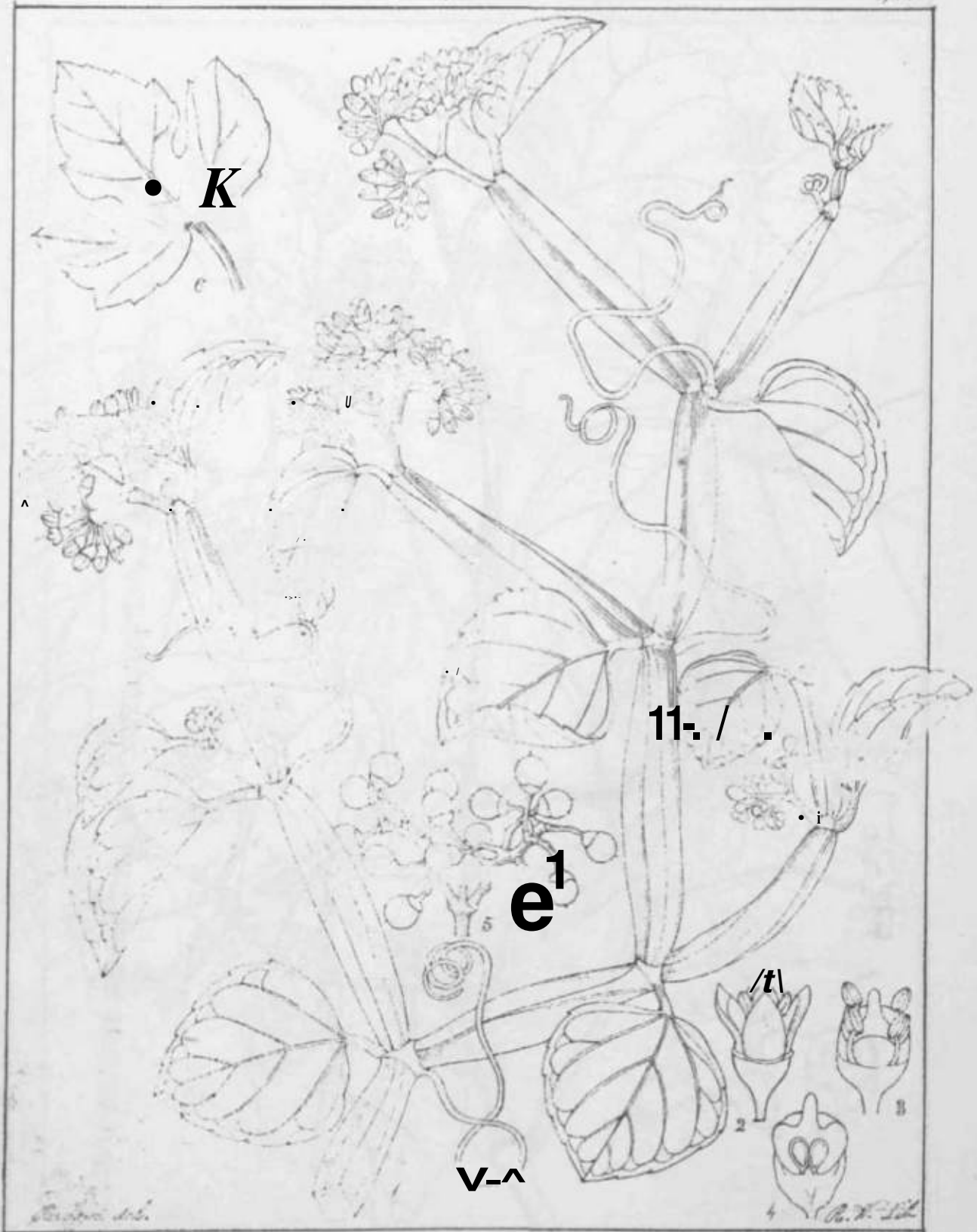
Ranunculus subpinnatus (W. & A.)



Gyralis. laka. B.

Vitis pallida (W & A)

Morales. figs. Carr.



Amphelidea V. ...

Vitis quadrangula (Willd.)

Malvaceae Sch.
Thalictrum Guss.



Neurocalyx hookeriana R.W.



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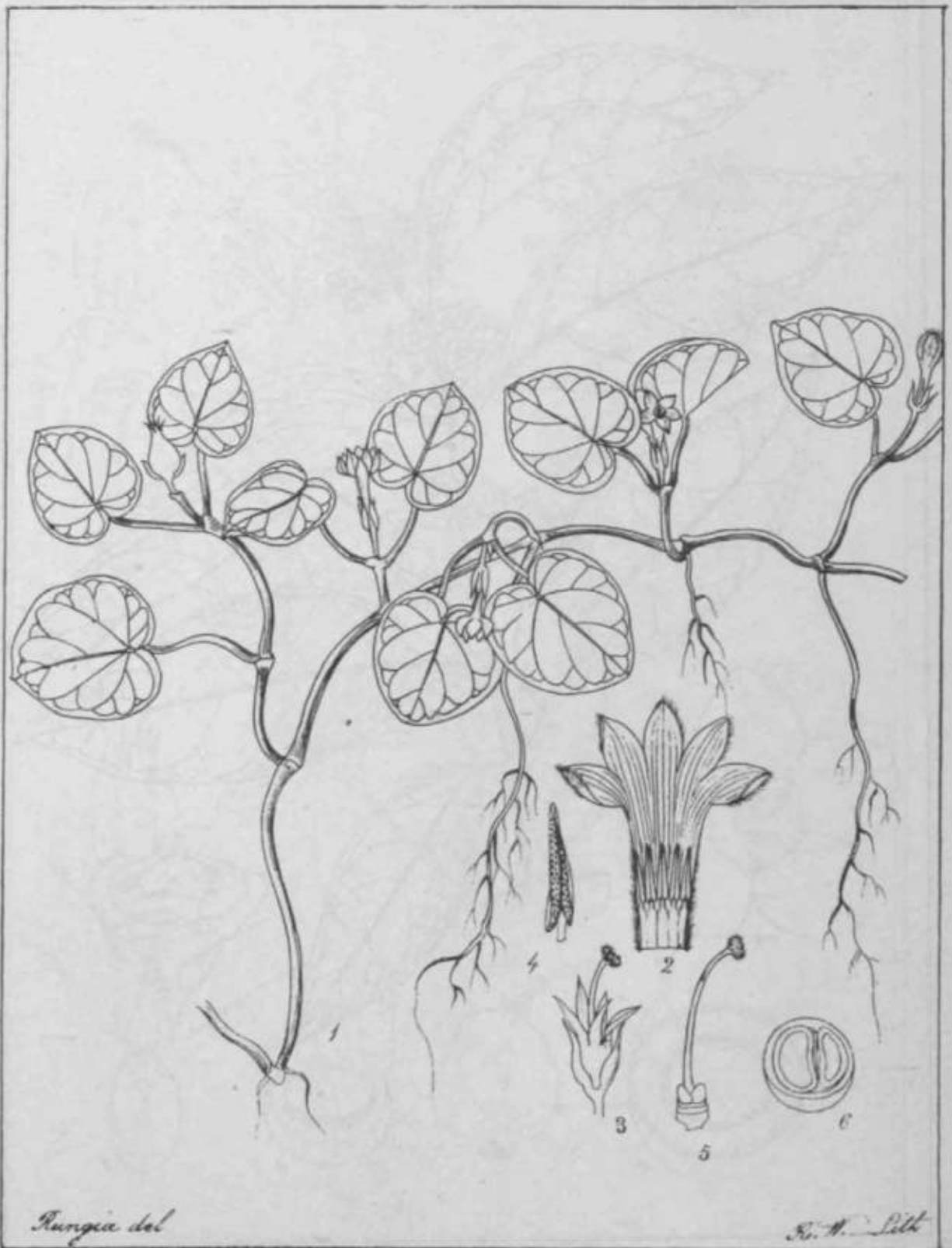
Coffea sativa Lam.

Coffea Arabica (Sinns.)

Kaw & H.
Johnson Kewah, Bos.

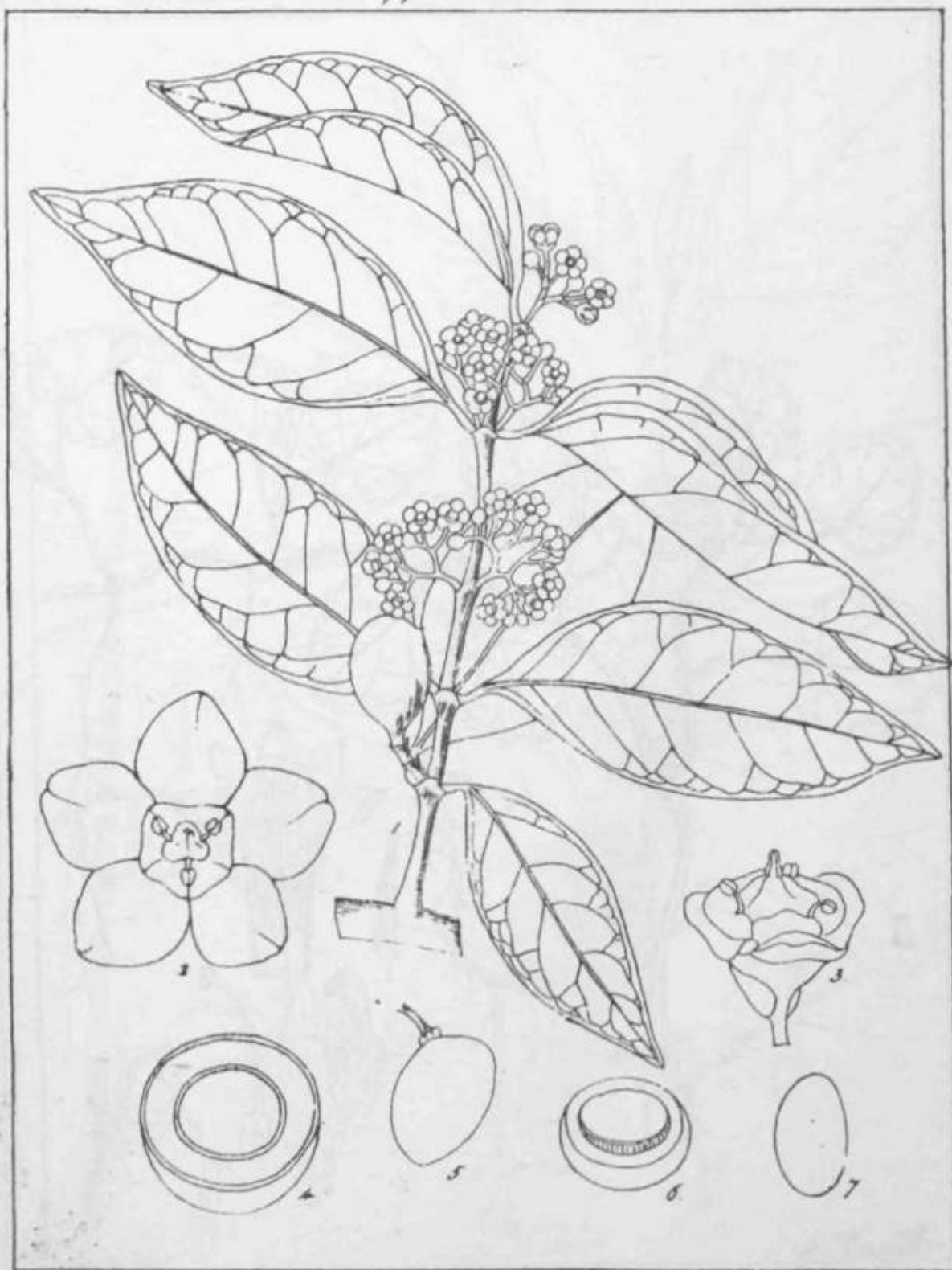
Rubiac w&

if



Rungia del

Geophila reniformis (Don.)



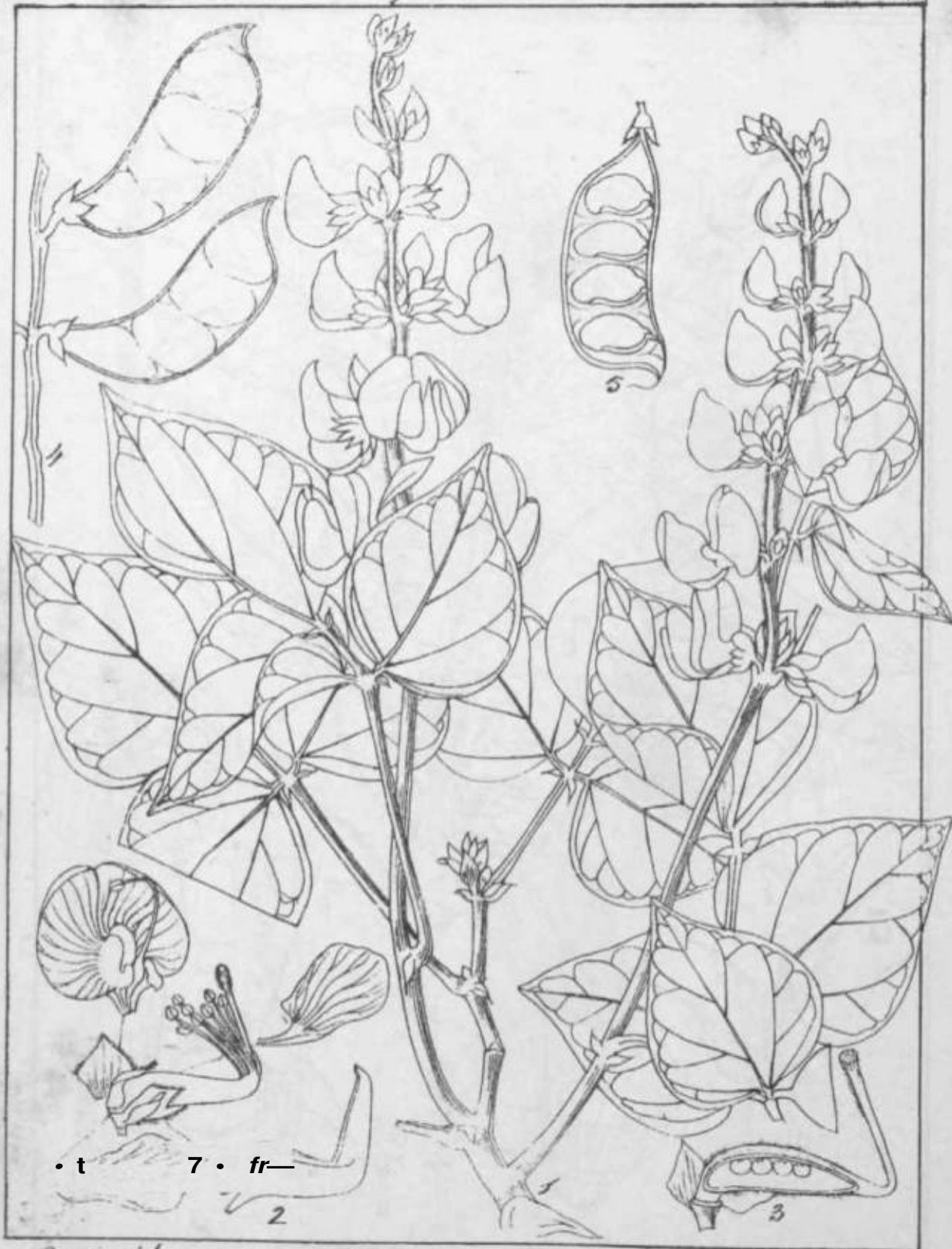
Salacia pomifera (Wall.)

Hypericinea

25
J. 5



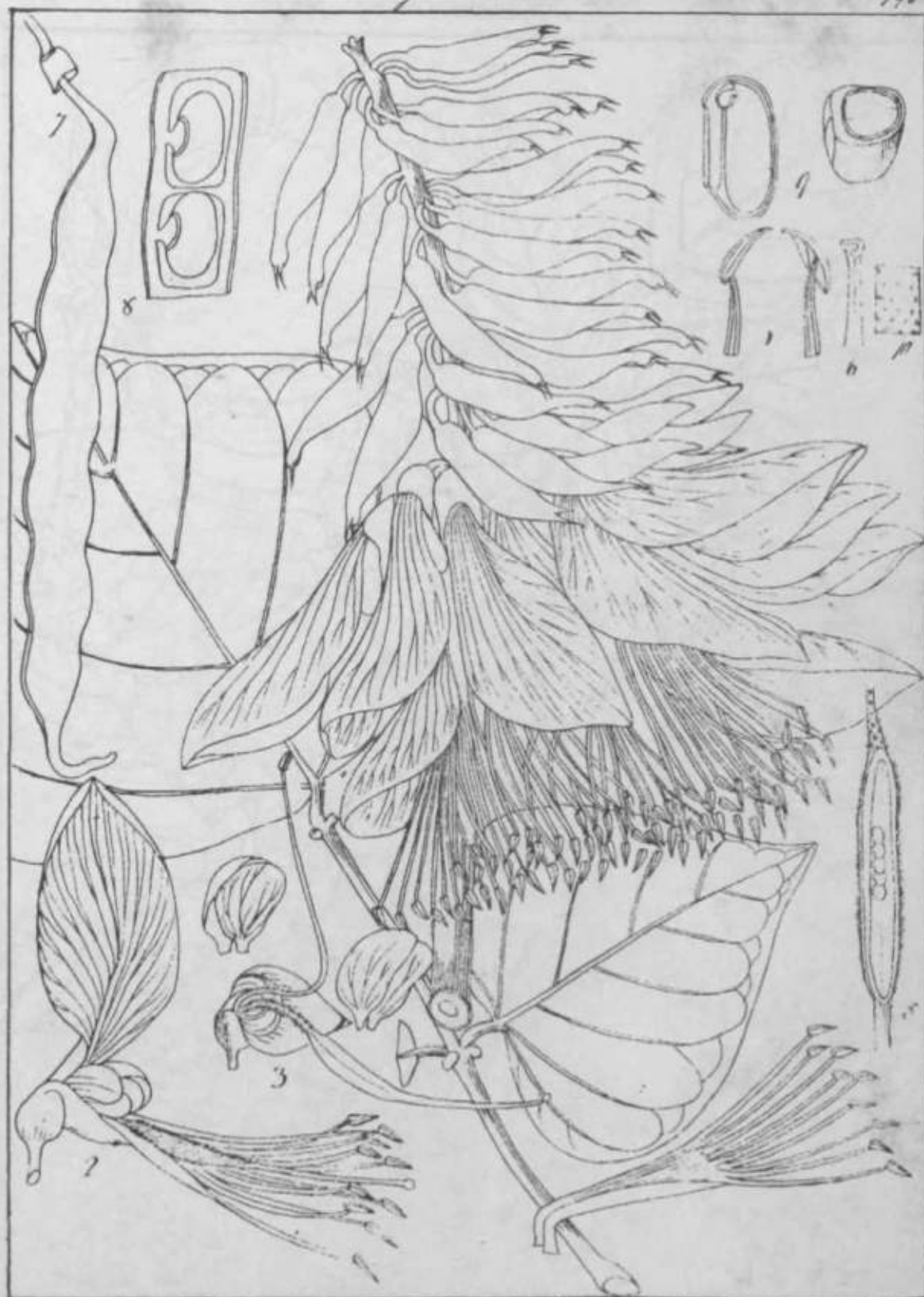
Hypericinea
Hypericinea
 s #



Rungia del
D. 1854-55
Mudchay cottay. Jam
Nishavai. Jam.

Lathyrus vulgaris (Savi.)

Dumphy. Pitt
D. 1854-55
Anomoeus lu. Sal



ငှက်ရိုးသစ်.
Moorha. marum Jau
Mundara... J

Erythrina Indica Lam.
Moorha Jau, or Mookchie woods.

ဝဲဒဲဒဲဒဲဒဲ
Gracilipes Choisy



Misoria del
1818, 1819.
Thunberg, Naturae. 1800

Pongamia glabra (Vent.)

Quonhy. Litt.
805850
Kanaga. Naturae. 1818.



Rungia del
67111184.
Anth-yiv marum. Jan

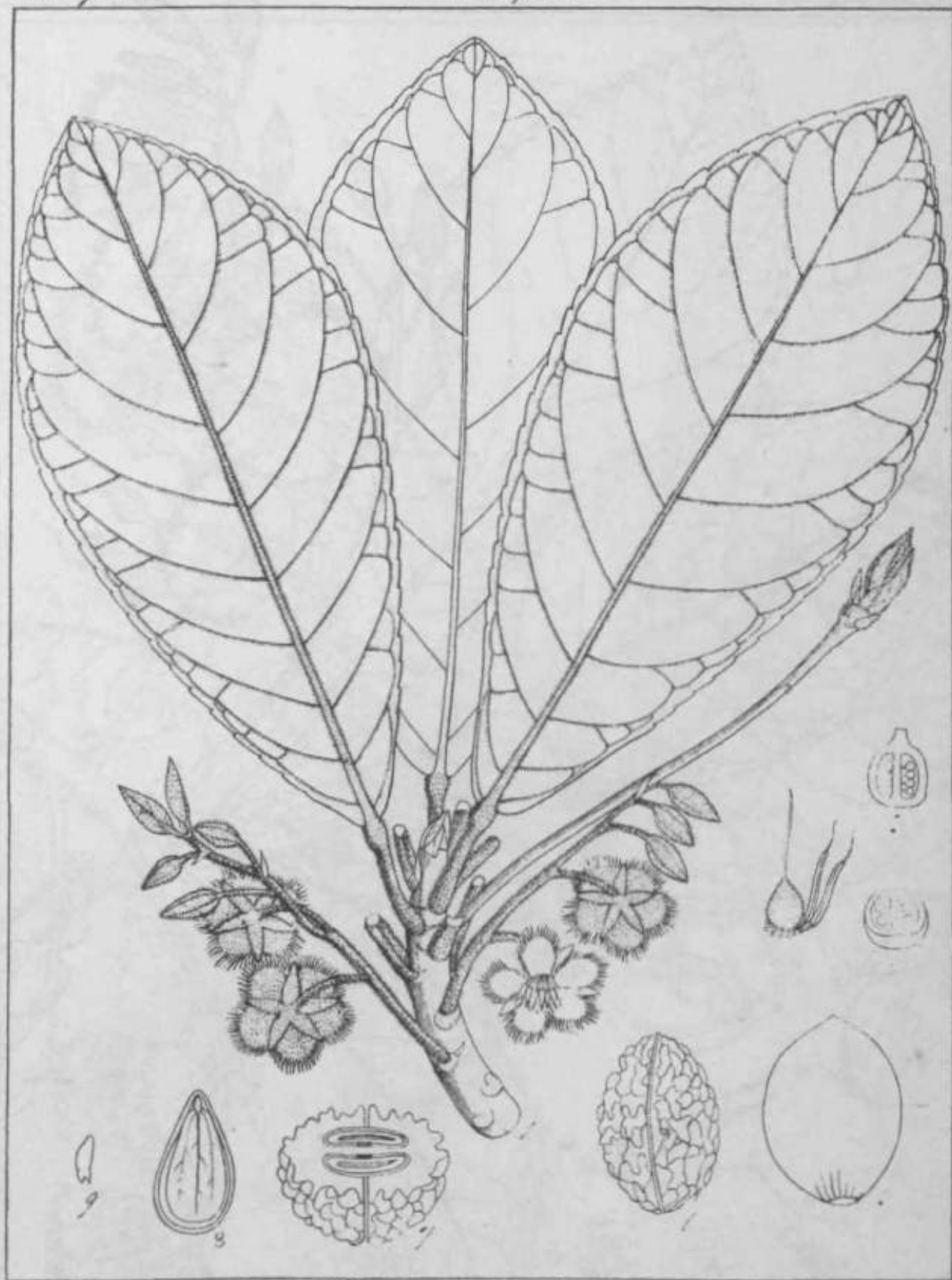
Cordia woderi (Roxb.)

3136-3138.
Anth-yiv marum. Jan



Elaeocarpus B.

Menocera rugosa R. W.
Elaeocarpus rugosus Retz



Monocera tuberculata W & A.
Elaocarpus bilocularis
slightly reduced

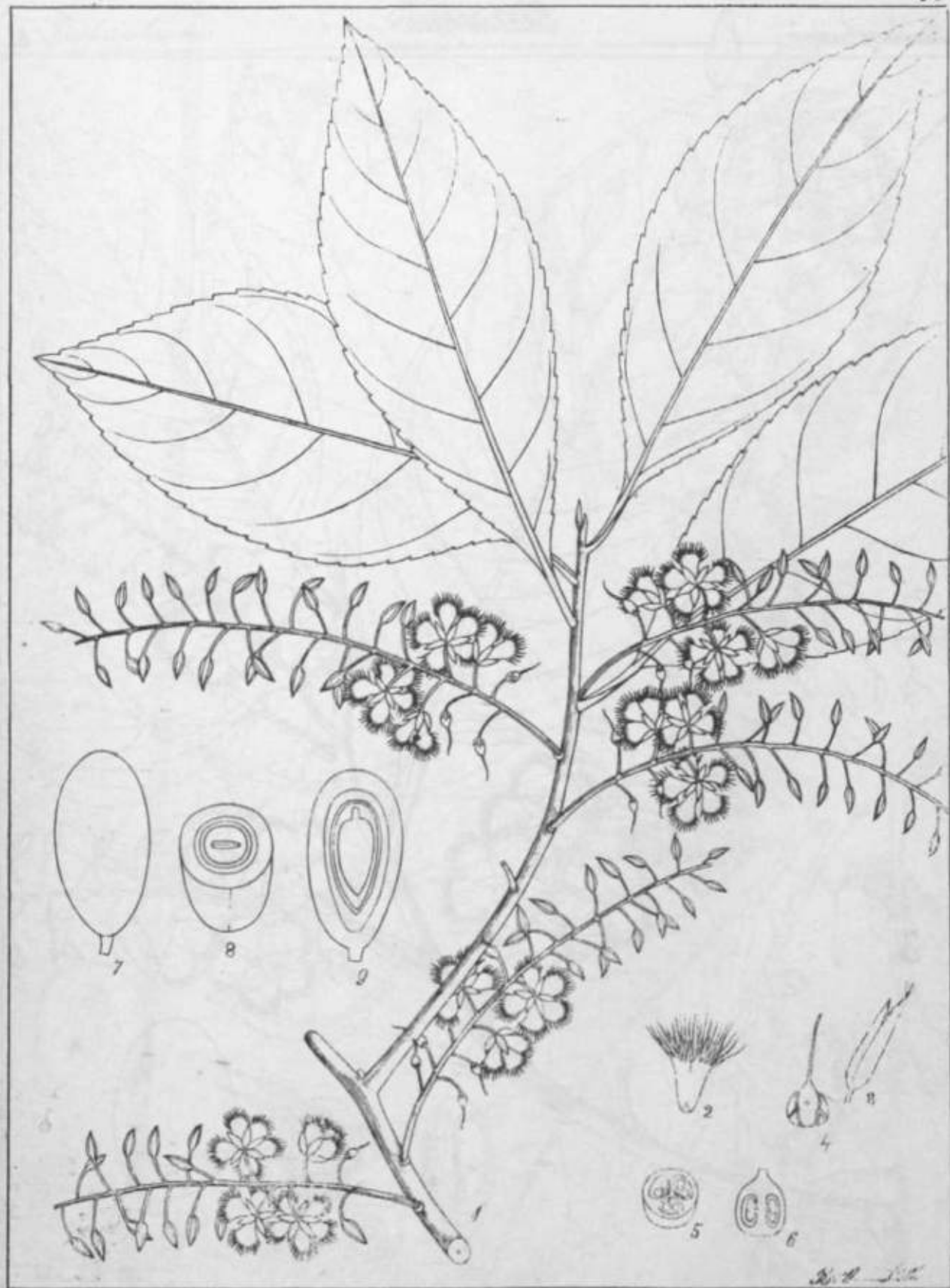




Dalziel. 3

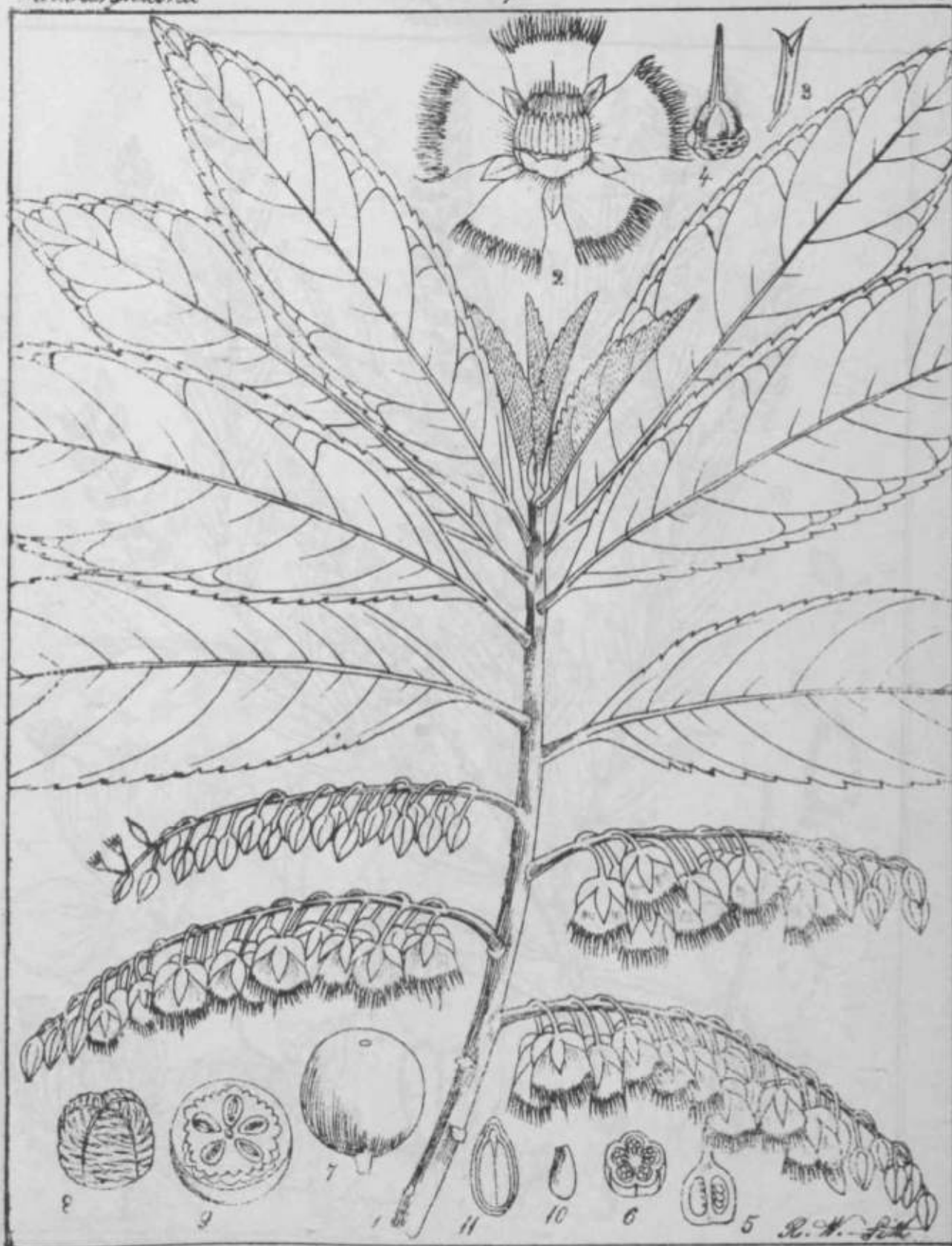
Elaeagnus robustus Roxb

R. H. S. L.



Shiota-pai. B.

Elaeagnus lamprophylla Karst



Rondeletia L.

Gonolobus sphaerica Gaert.
Elaeocarpus lanceolatus Presl

Rondeletia H.

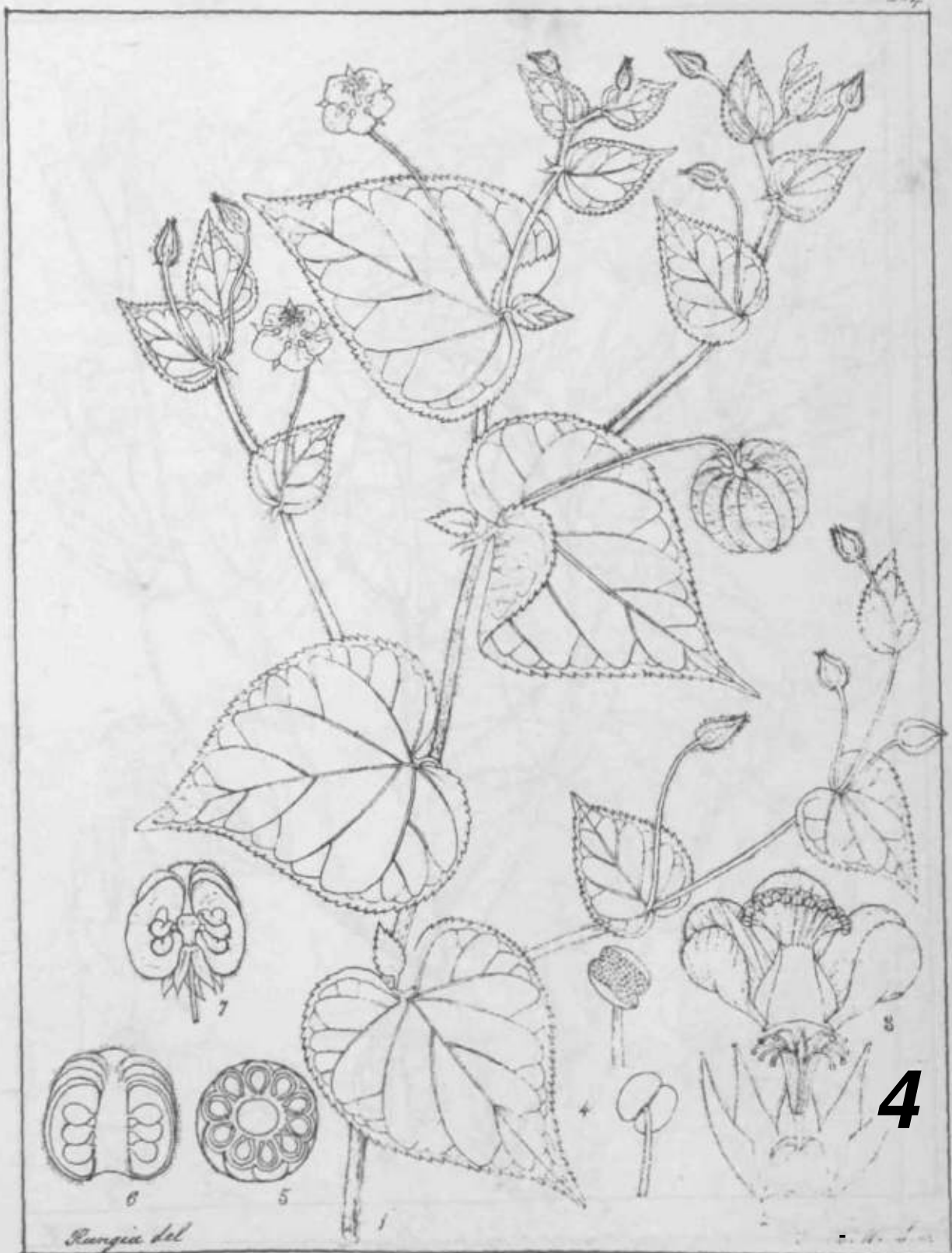


பெரியநல்லகை *Polygala wightiana* Wall.
Pariyanungga. Tam.

Malvacea

fii

234



Rangia del

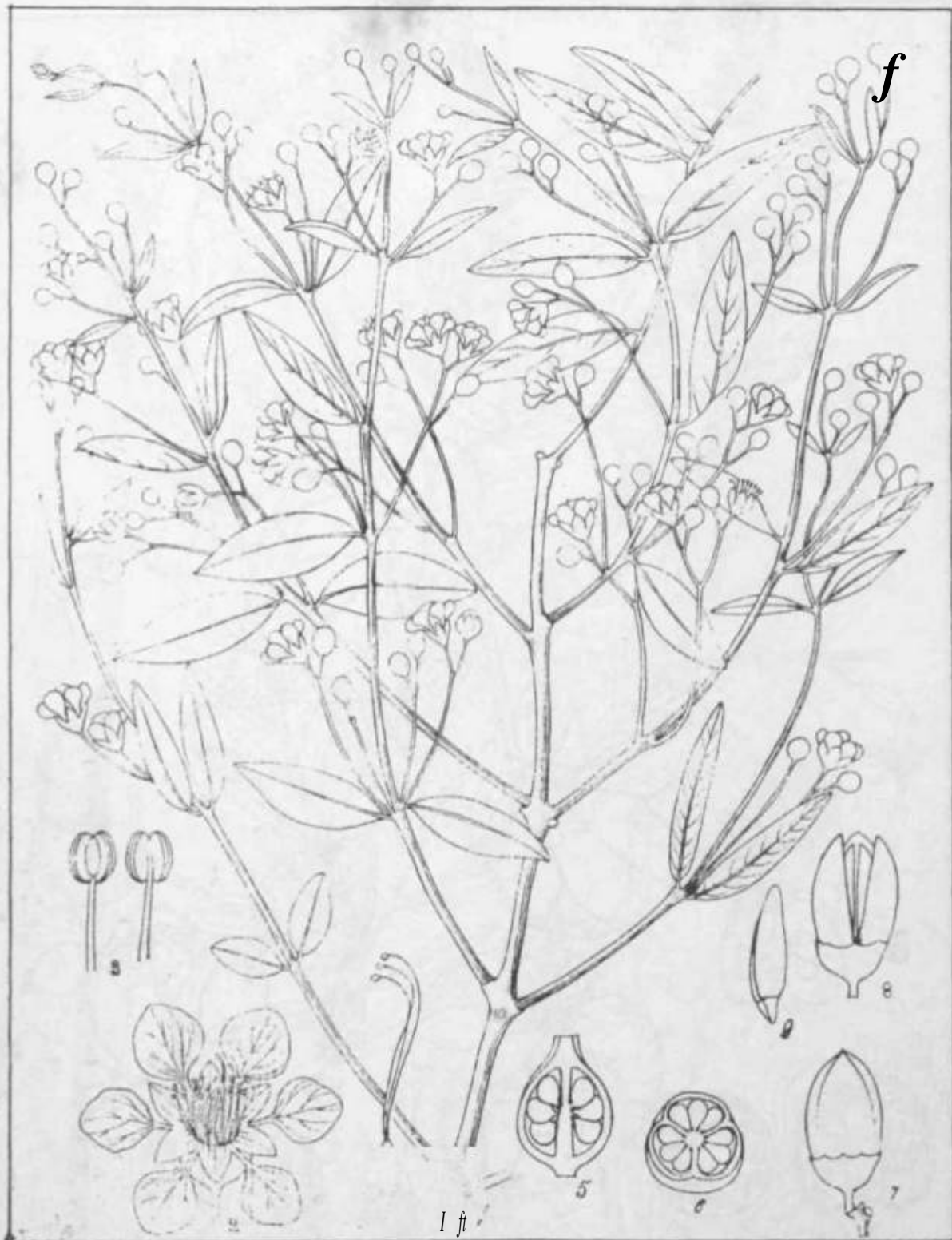
Abutilon crispum (L. DC.)

4

Silicaria

⁶³
tr'i

f

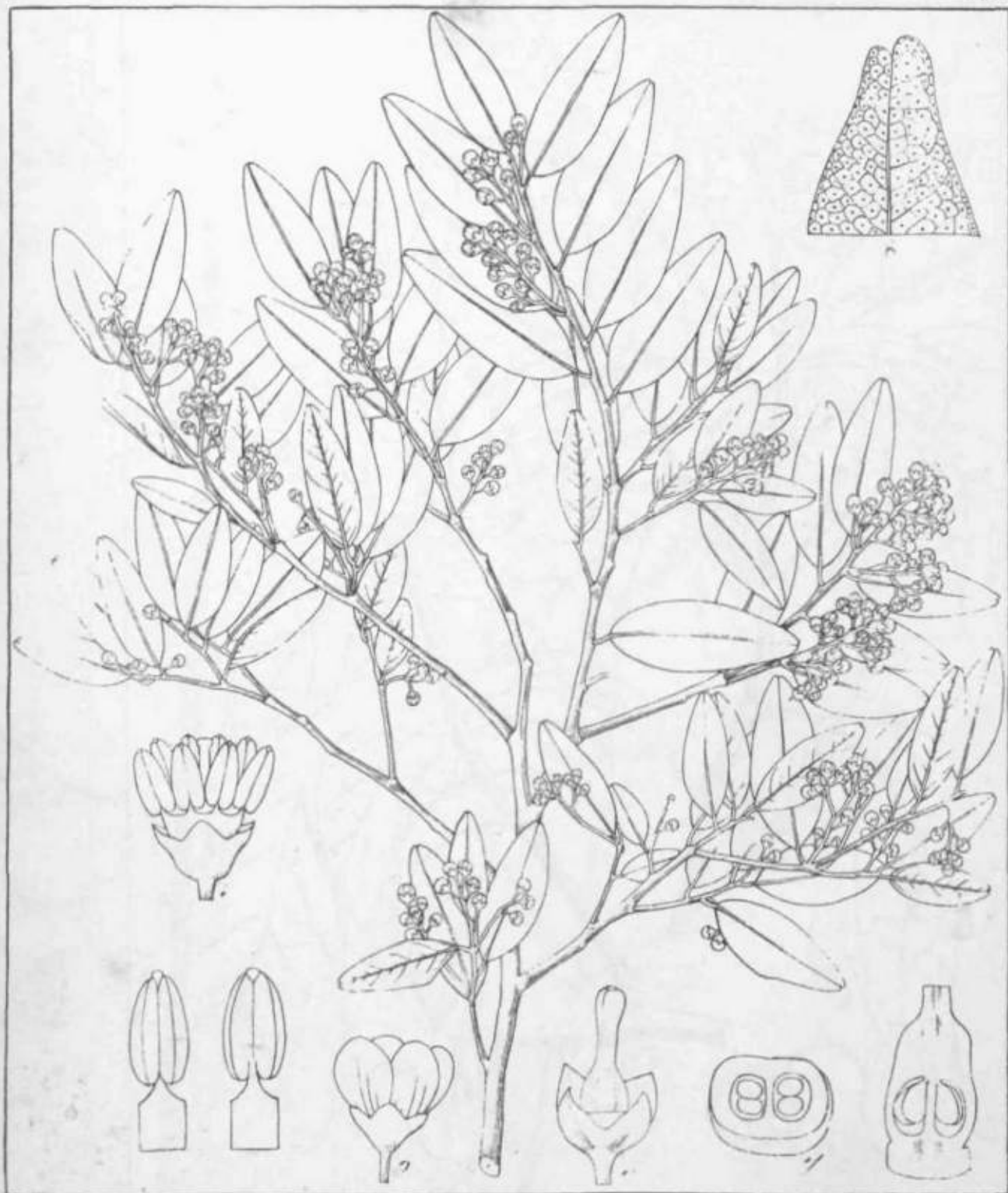


Lagerstrœmia parviflora (Kardl.)
Chenarionyx ^S *Silicaria* <<|

R. H. Pitt.



Telinocera Rhedii (D.C.)



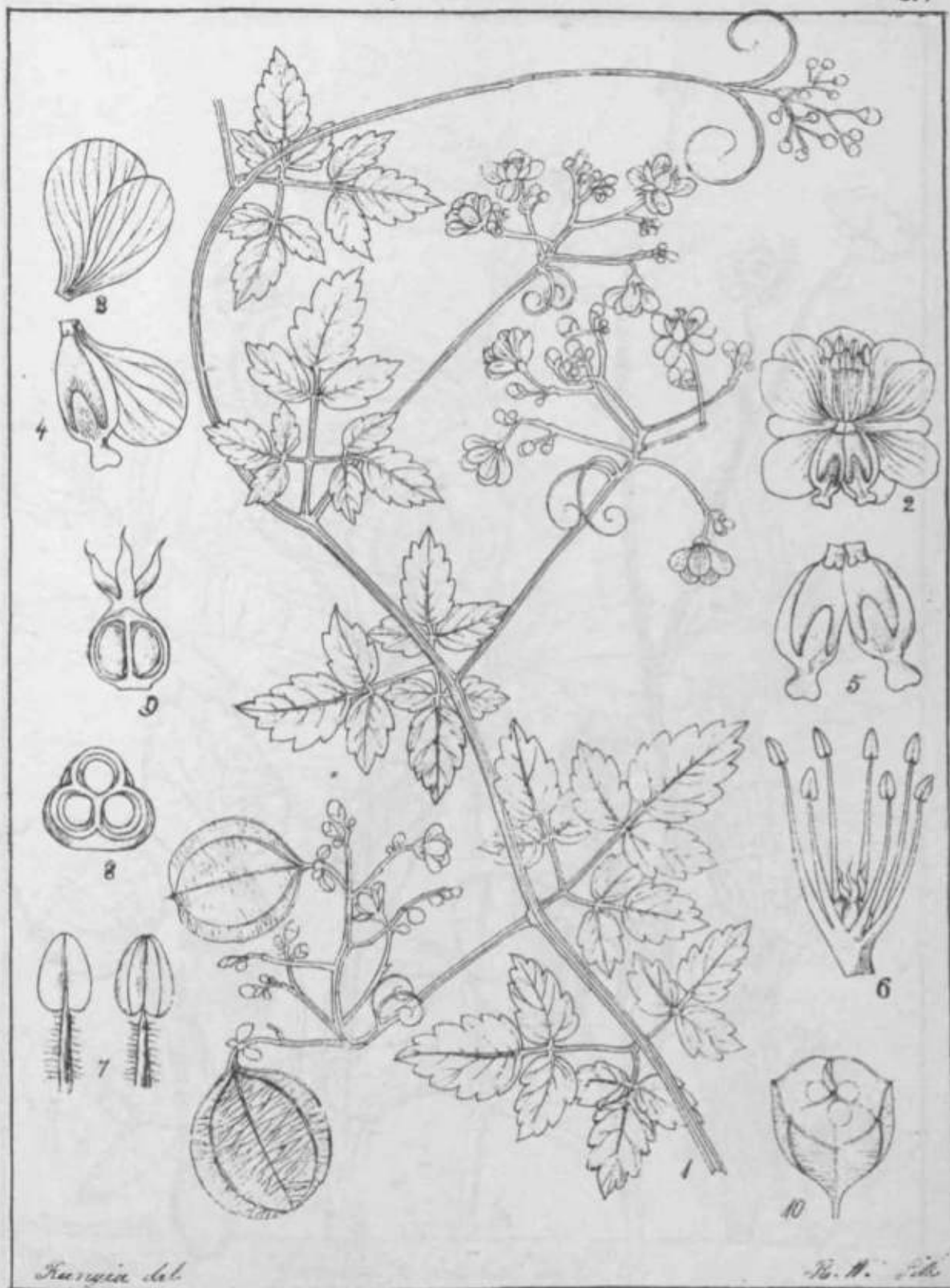
Sclerostylus atalantoides (H. & A.)



Siderostylis Rostkii A. W.
Amyris simplicifolia Rostk.



Syzygium zeylanicum (D.C.)



Kunzia del.

H. N. P.

Cardiophorum canescens (Hult.) *Cardiophorum canescens* (Hult.)
W. G. 30. 30. 30.

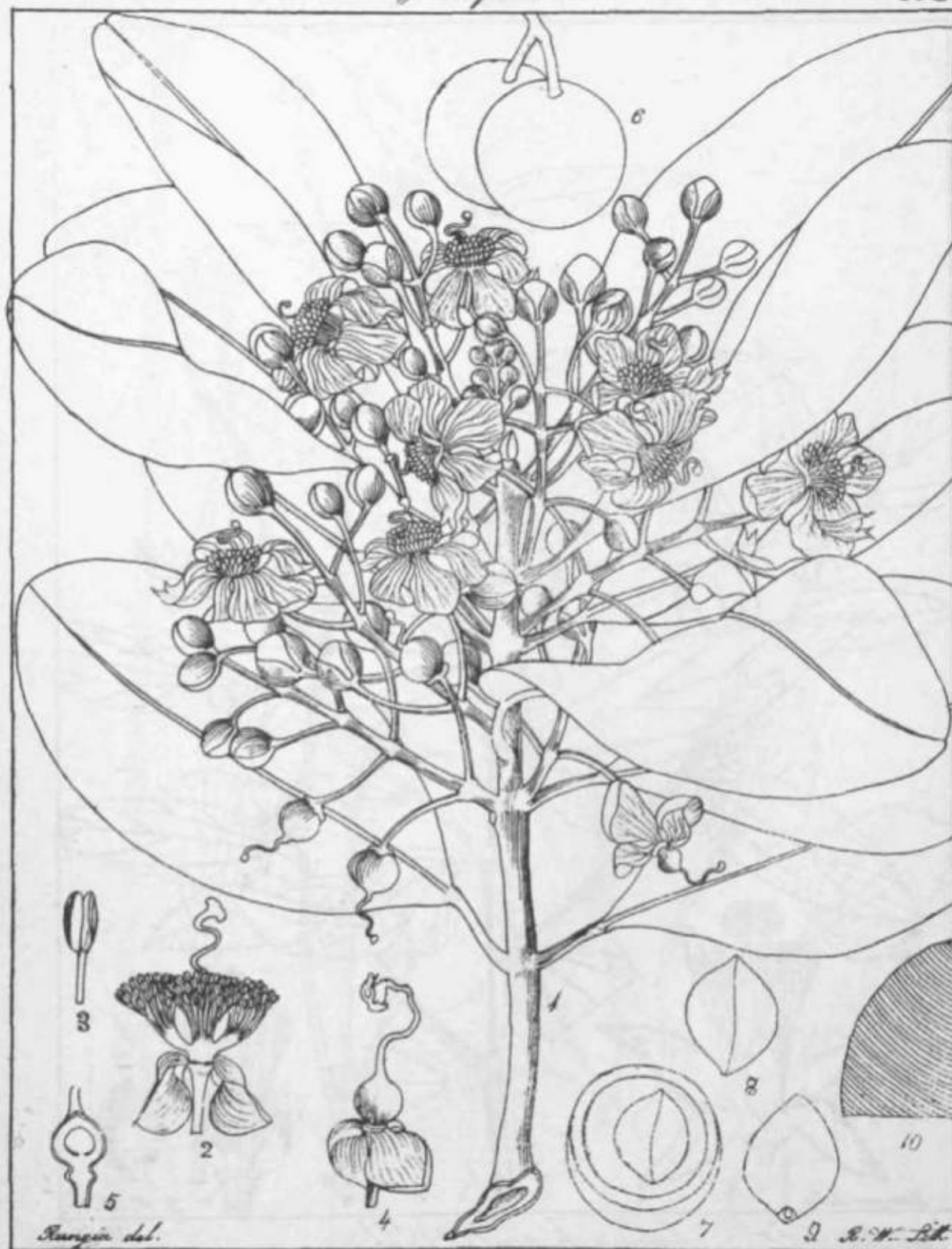


Ranunculus repens L.



Ranunc. del.
juvellicki. Seb.

*£\$&#&£ / & * & £
ita (Vahl.)



Ravaria del.

Long 1000 to 1500
Pinnay-maron. Sum.
Sultan-champa. H.
Sal-domba. Cons.

Calophyllum inophyllum (Linn.:)
Pinnay Acc.

W. & A. 5508
Pinnay-maron. S.
Pinnay-maron. H.
Pinnay. Sans.



Rungia del
Rungia del

Lica Staphylea a (Koch.)

Ancaster. Feb.

*Hymenodictyon excelsum* Hall



Hymenodictyon obovatum (Wall.)

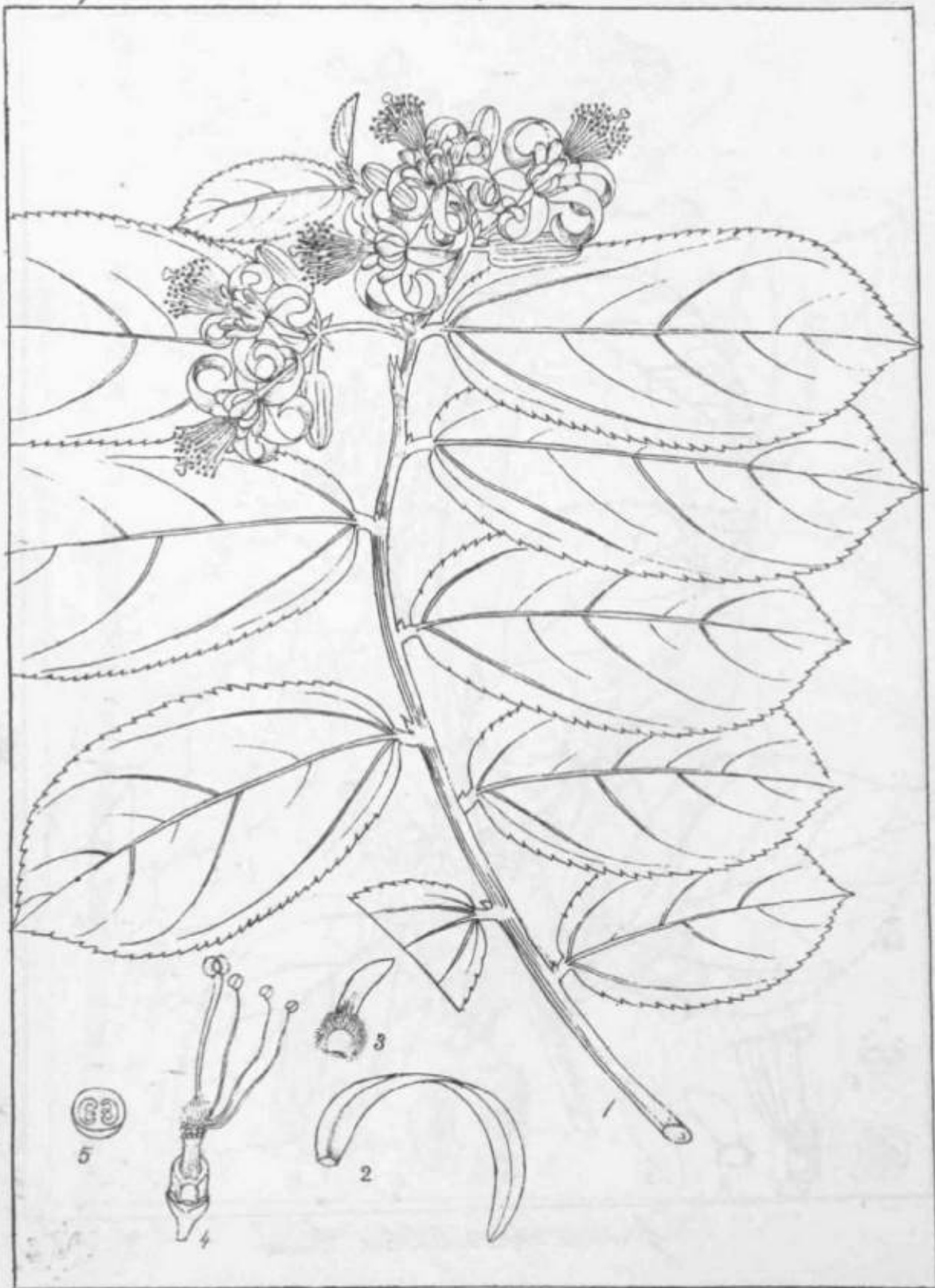


Buchanania intermedia R. H.



Grewia oppositifolia Buch

H. B. S. & C.



Grewia umbellata Roxb.



Grewia ulmifolia Roxb.
G. Microcos W & A. prostr.



Reuzia del.

R. H. F. L.

Flacourtia Ramontchii (L'Her.)



Millettia ? piscidia (H. B. K.)
Lathyrus piscidia Roeb.



\$u<-7&

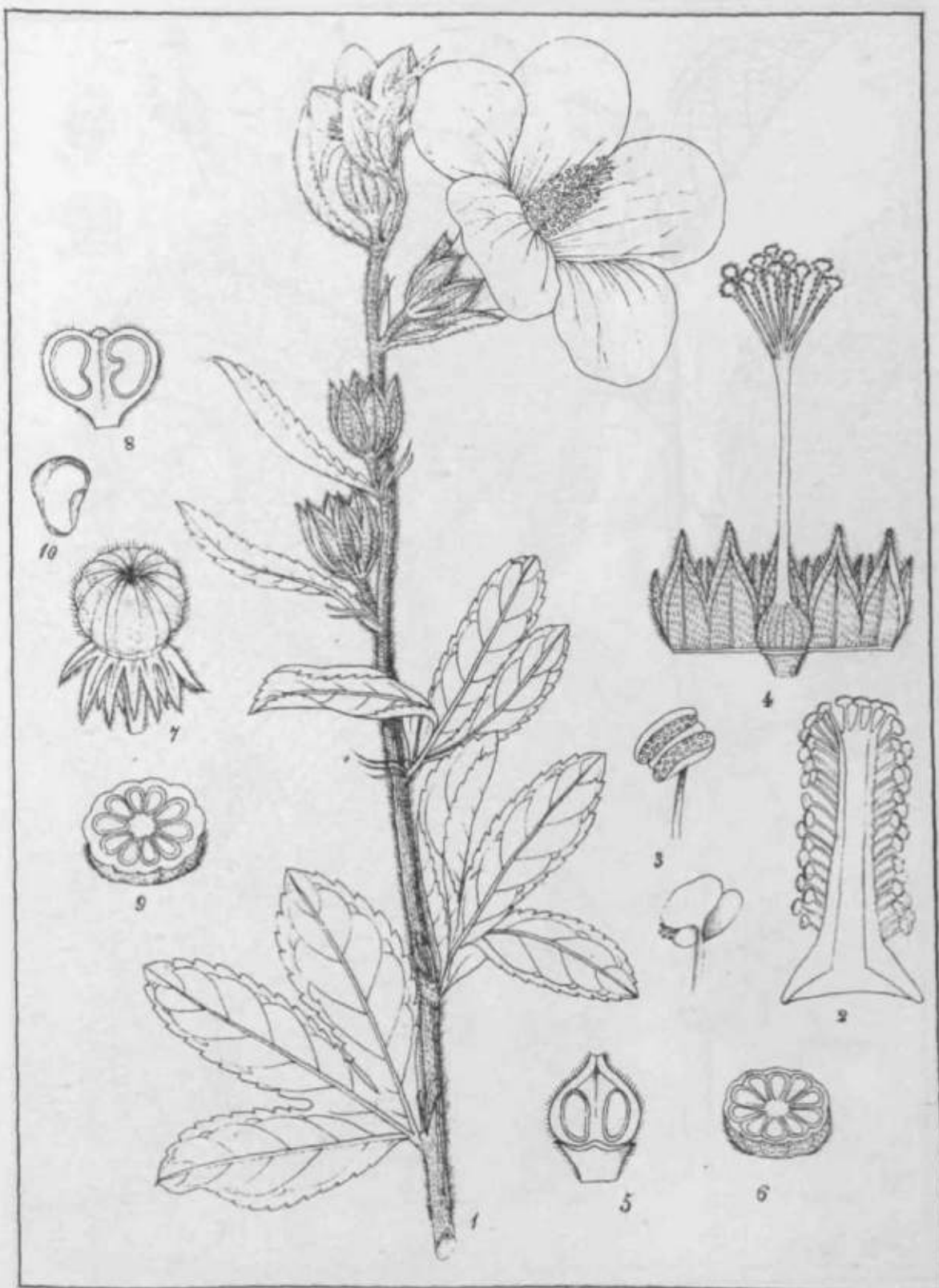
•*:

^ ^
tort

ia marginata (Roxb.)

Malacca!

84
1917/92.

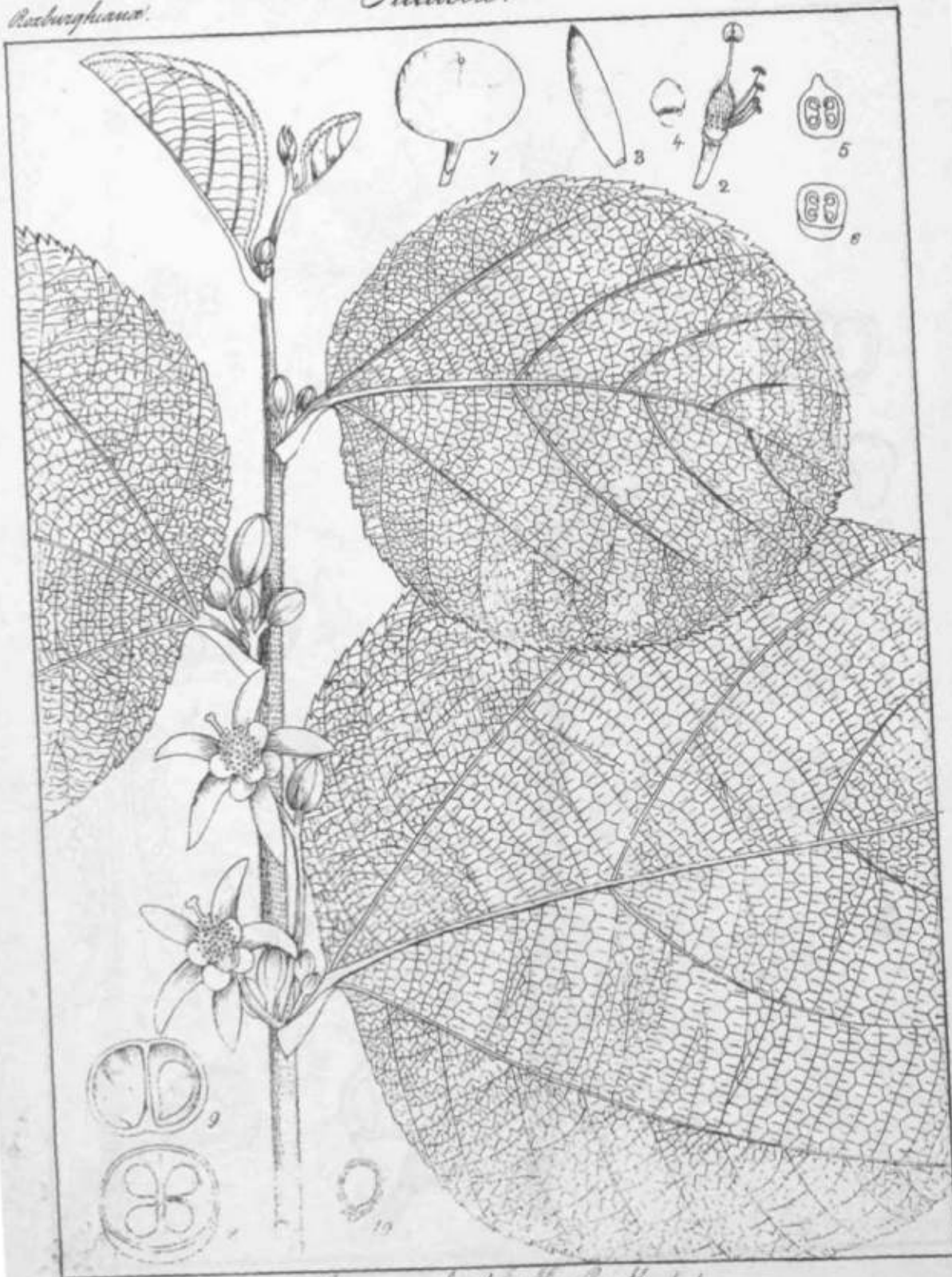


•t, A >/•///, l//// M/(VttJtf.

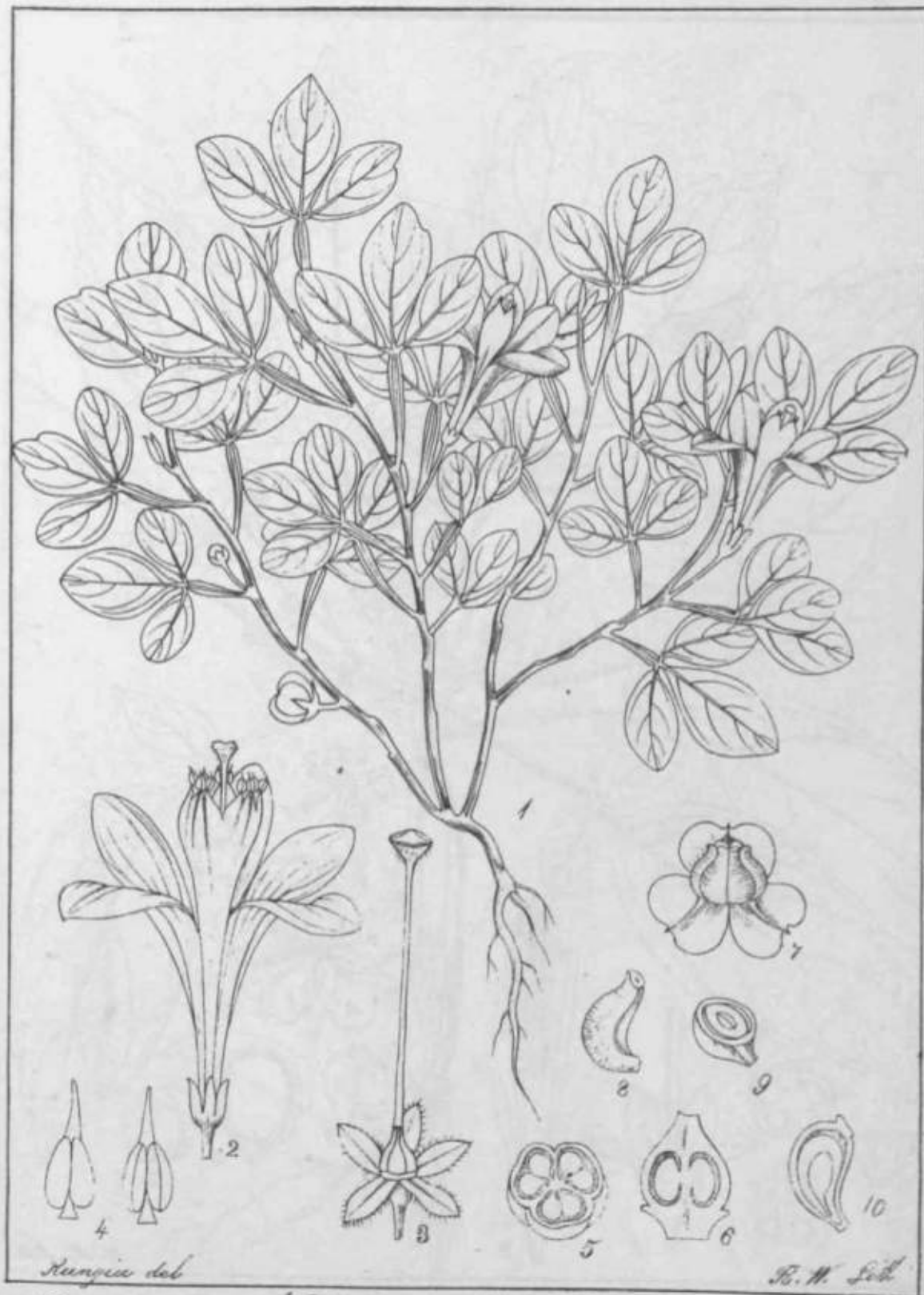
Roxburghiana.

Tiliacea.

87



Tilia sclerophylla R. & H. S. S.
T. scutellaria R. & H. S. S.



Xingamix alata (W.B.A.)



R. W. L. L.

Longia del

Munronia
Melia

/ £

R. W. L.

செட்டை
பெருந்தோல்



R. & C. Moiss. det. Myricarpus Belgaumensis

Leuminoxa

£\$

790x91

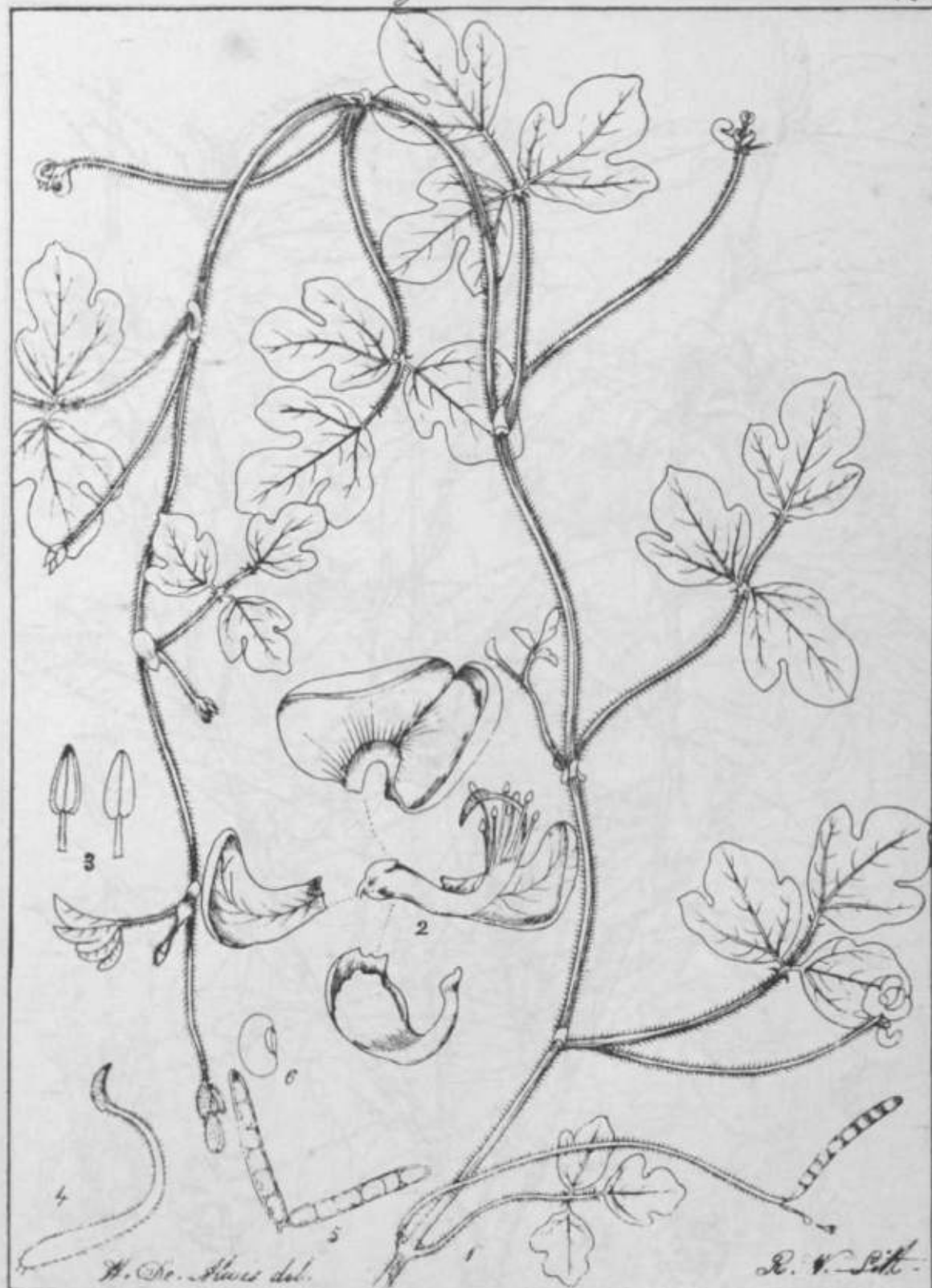


L. W. Davis del.

Alysicarpus L. & VU Mr. # ')

H. W. Pitt.

S



H. De. Haas del.

E. V. Pitt.

Phacelia trilobus (Ait.)
 Greene-fertilis (Greene)



சிடா அகூட்டா
சிடா அகூட்டா

Sida acuta (Burn.)



Murraya eximia (Sims)
A. N. S. P.

Murraya eximia (Sims)

A. N. S. P.



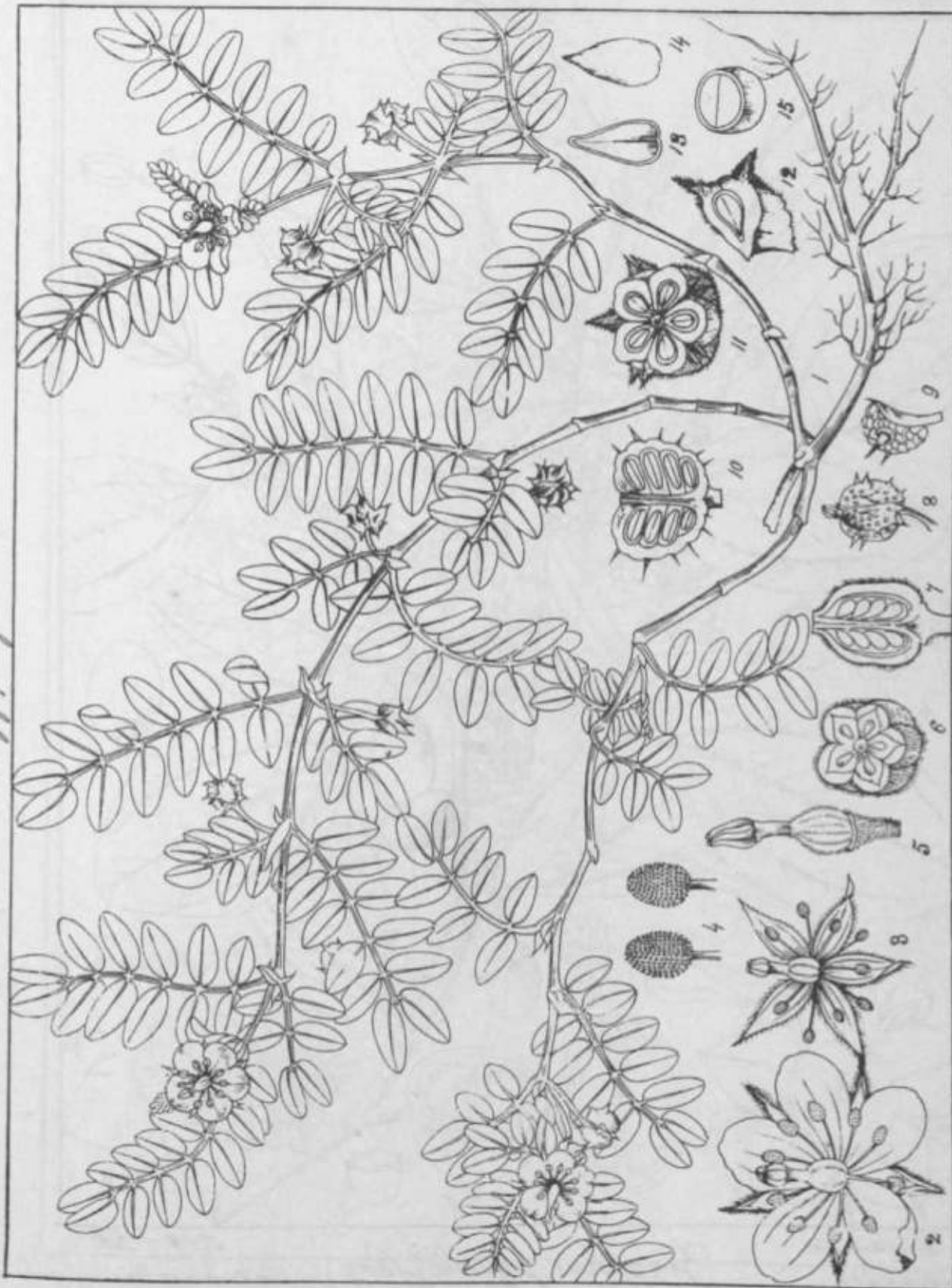
Rungia del.

Scleria oblonga (Wall.)

B. H. Pitt.

Zygophyllum.

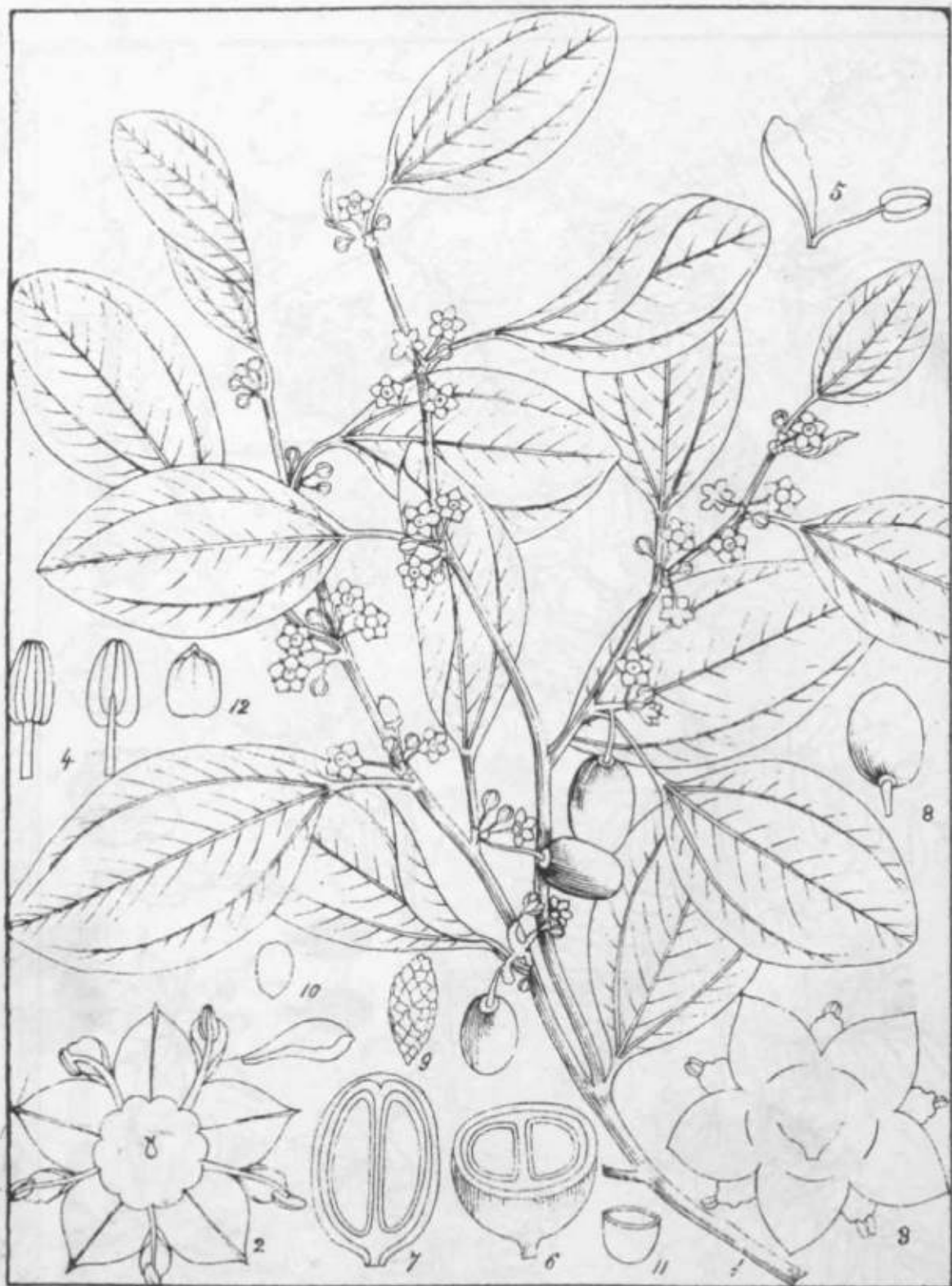
98
L. 11



Tribulus terrestris (Linn.)

Tribulus terrestris L.
Tribulus terrestris L.
Tribulus terrestris L.
Tribulus terrestris L.

Tribulus terrestris L.
Tribulus terrestris L.
Tribulus terrestris L.
Tribulus terrestris L.



H. D. Steud. del.
Quadr. 4. 6. 6. 6.
Gleditsiac. - Mamm. - Lam.

Zizyphus jujuba (Lam.)

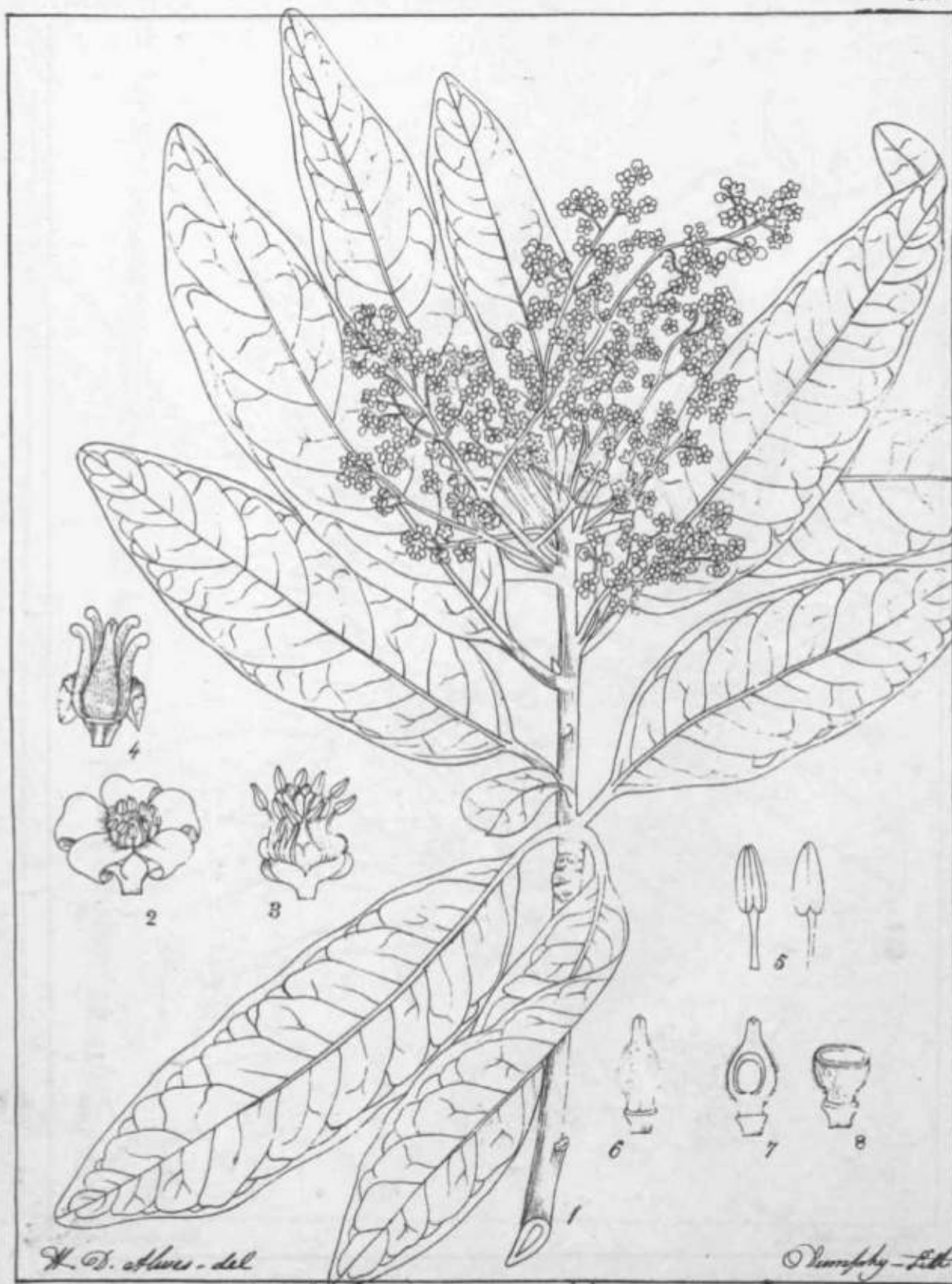
R. H. Zitt.
des. et sculp. Nassau-galm. Gg.
Kuchkunda; Koli; s.
Kachela-hol. B.



Eugenia del

H. & A. - Lill

Eugenia rotleriana (H. & A.)

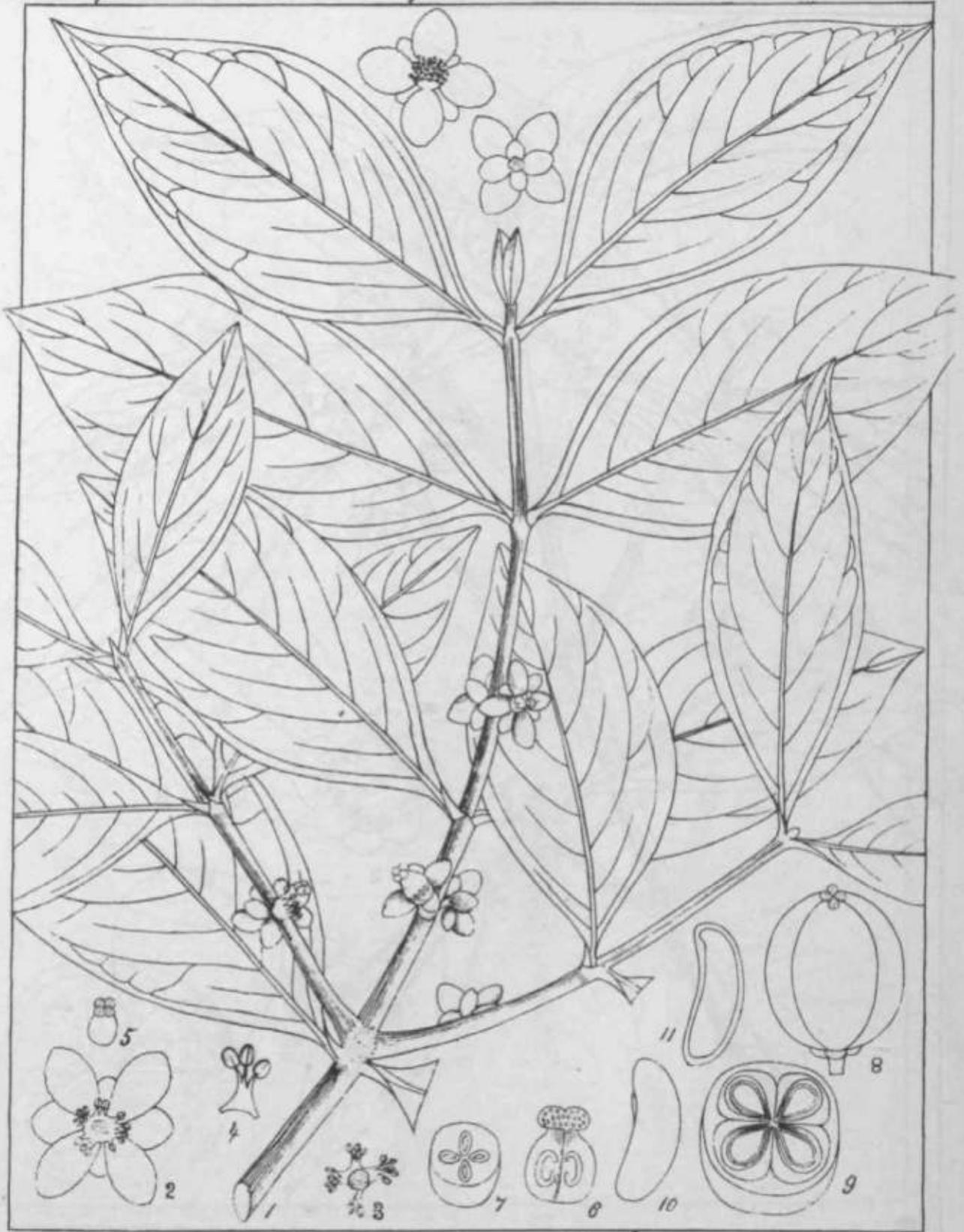


H. D. Flores - del

Thompson - Lith

Buchanania anaustifolia (Roxb.)

/ (y



Garcinia pictoria Roxb.



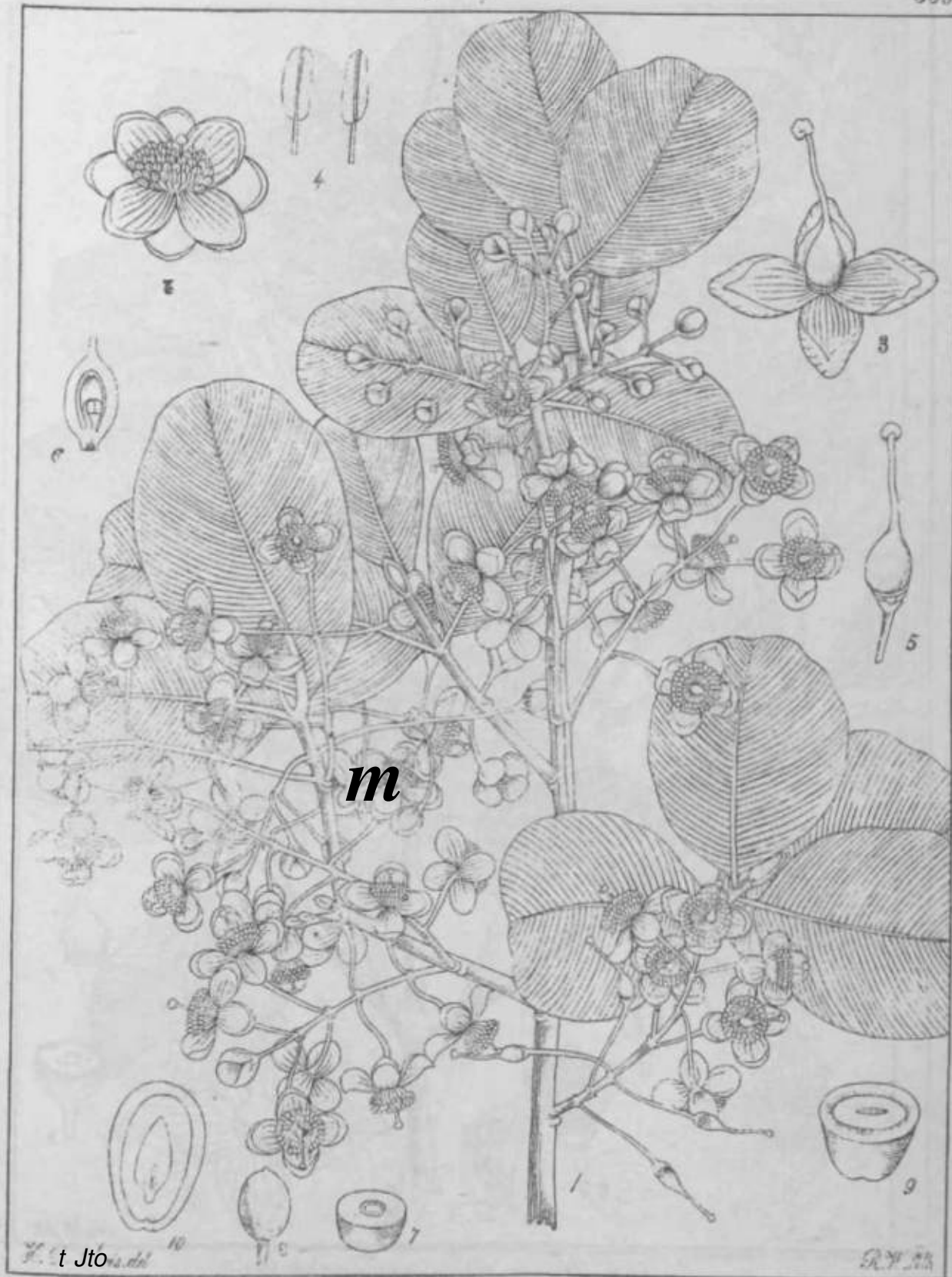
Garcinia lanceaefolia Roxb.



Garcinia celebica
G. celebica Boiss. & H. B. K.

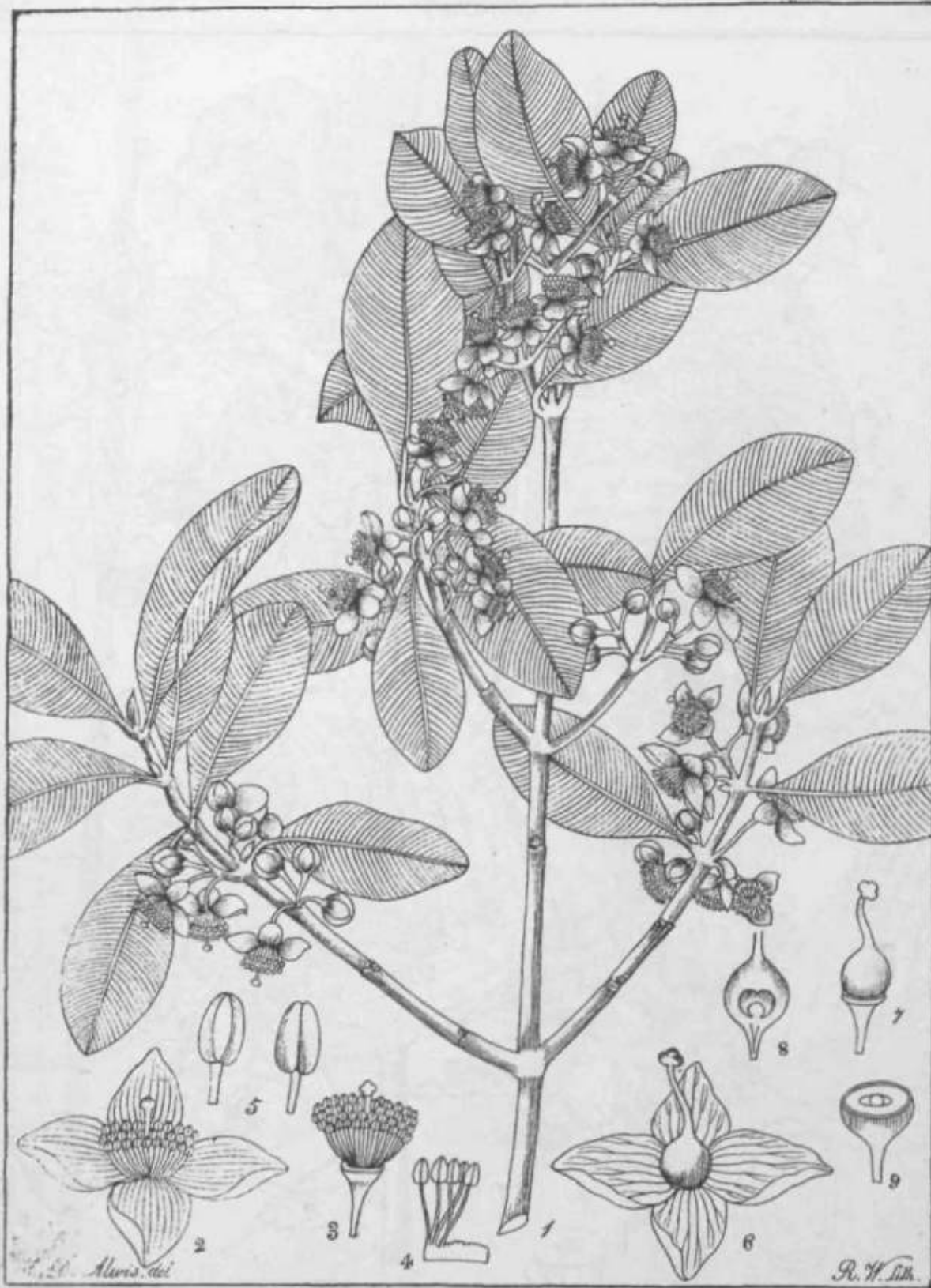


Garcinia cornea Lin.

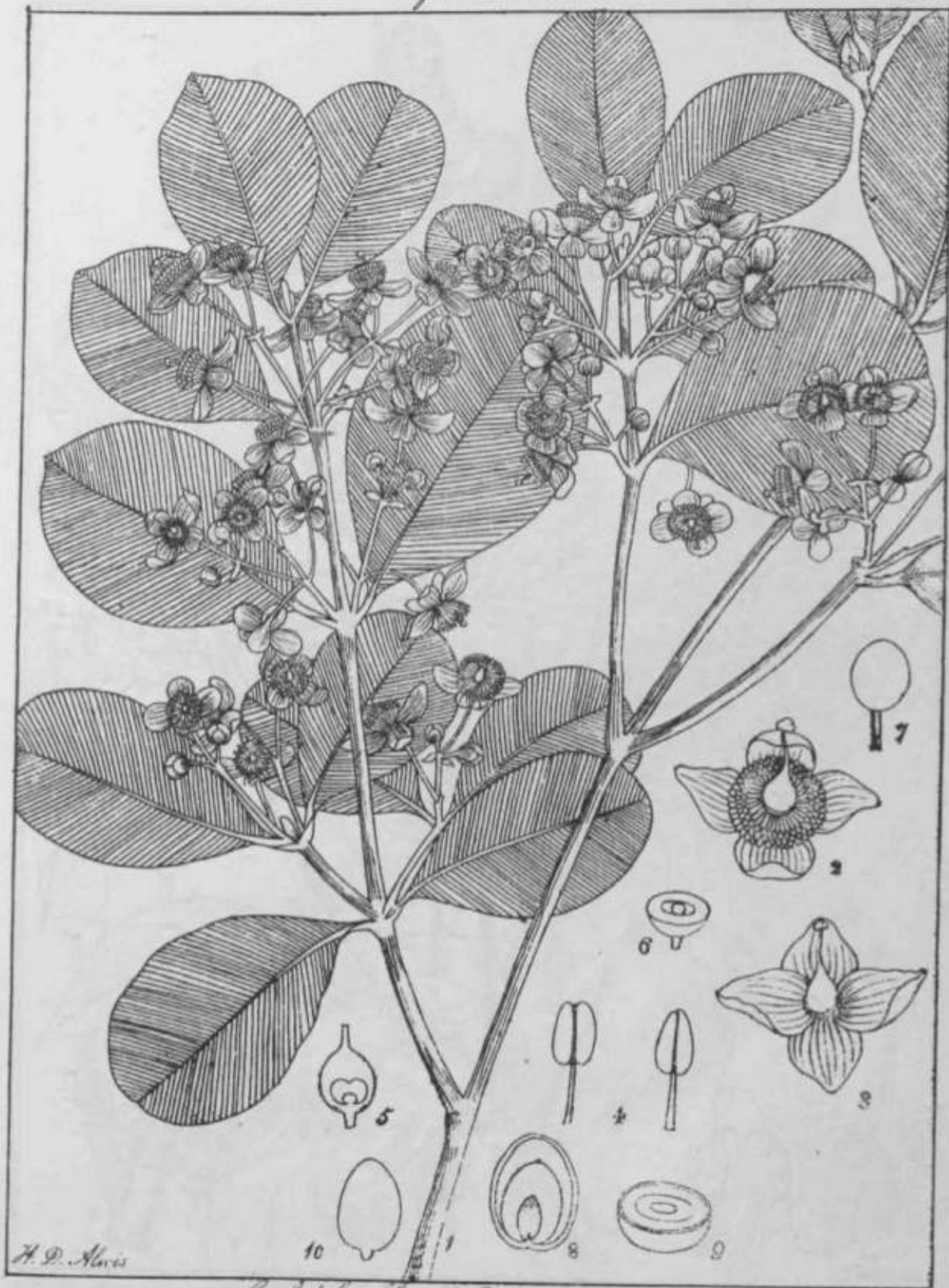


m

Calophyllum decipiens (R. W.)



Calophyllum Burmanni. (R.W.)
B. parvifolium.



H. D. Davis

Calophyllum Burmanni A.

Salicaria!

100
937 x 52



Lagerstræmia Microcarpa (R. W.)

Guttiferae.

no



Calophyllum lementosum.

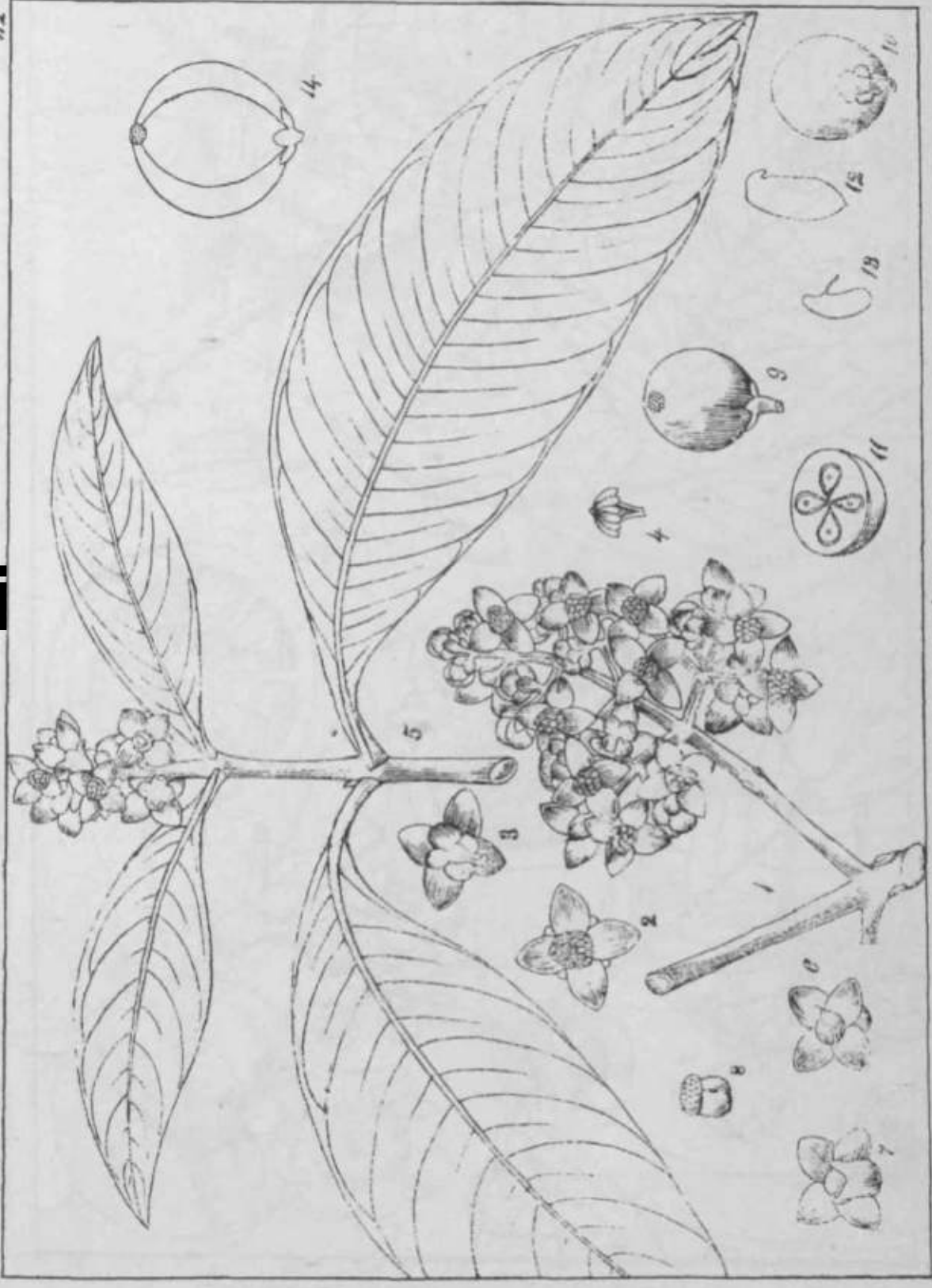


Calophyllum //mnü.(M.t)

Gul.

Andropogone

112



Garcinia paniculata, (Roxb.)

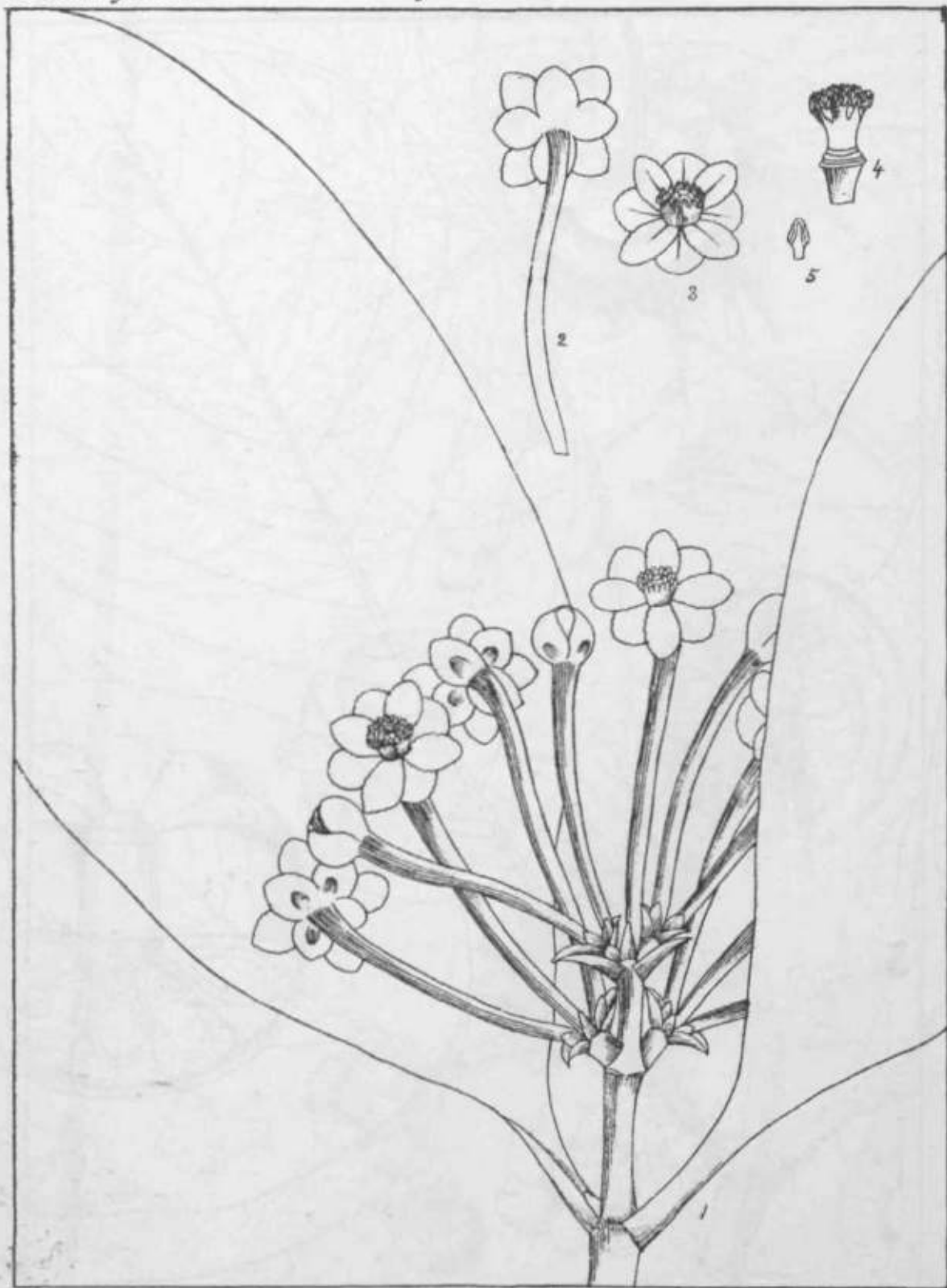


Garcinia hydiana. (Roxb. Mass.)

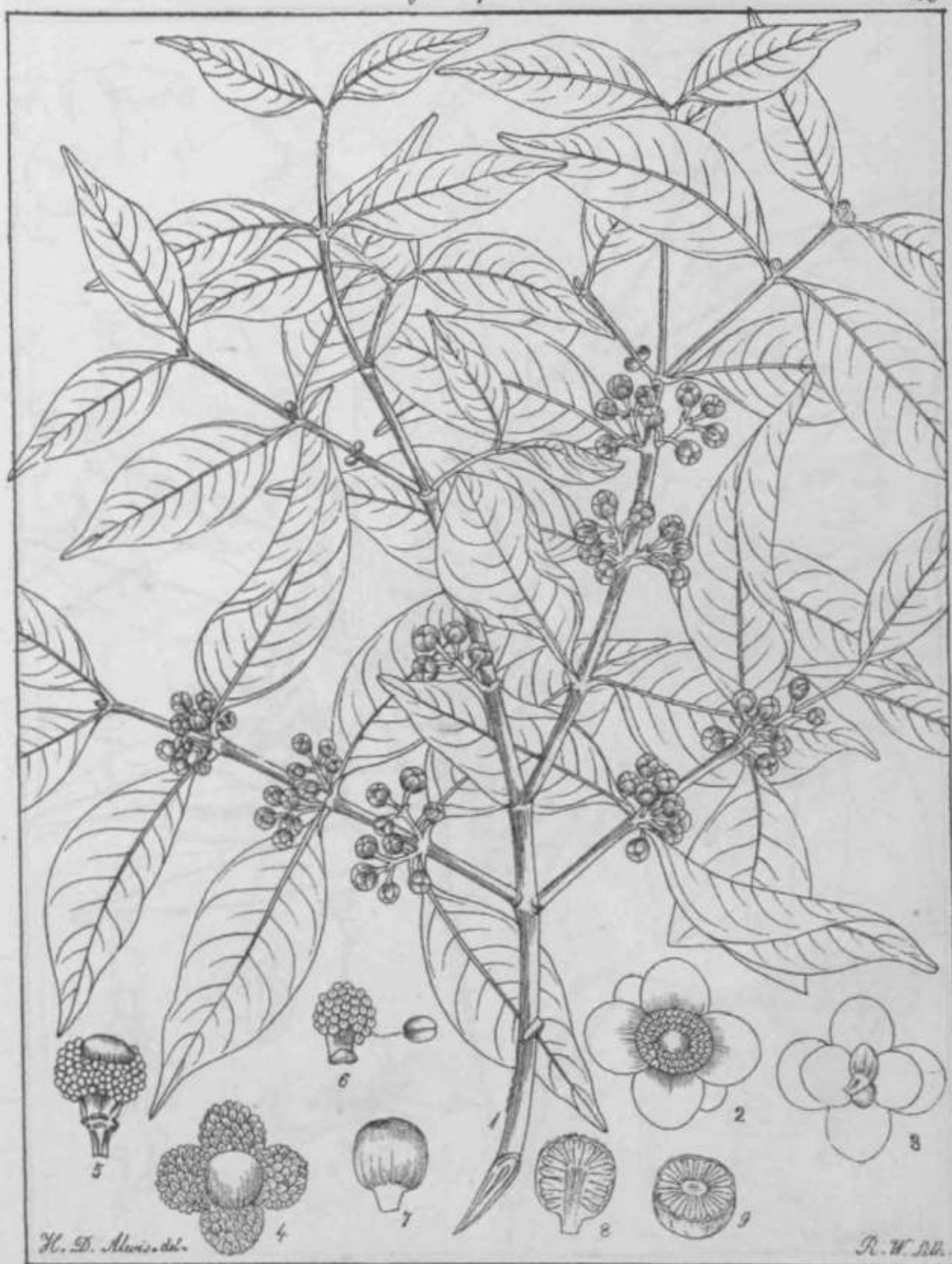
G. Hydia. Roxb. Flora. Indica.



Garcinia Acdwriacua. (Roxb.)



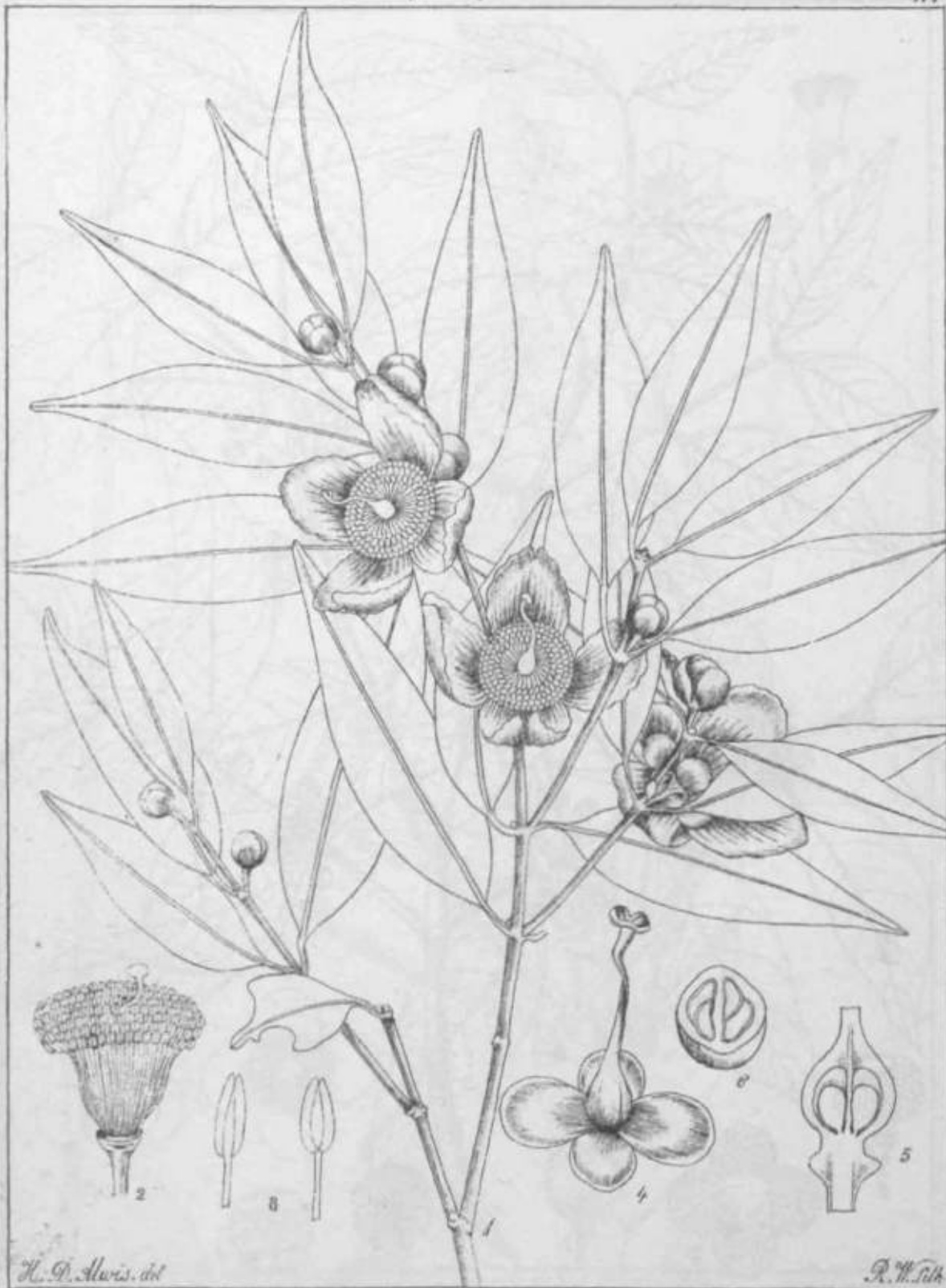
Garcinia pedunculata. (Roxb.)



H. D. Morris. del.

R. W. B. H.

Garcinia Merquensis (R.W.)



H. G. A. de

R. W. G.

Mesua coimbatorensis (L.) W.

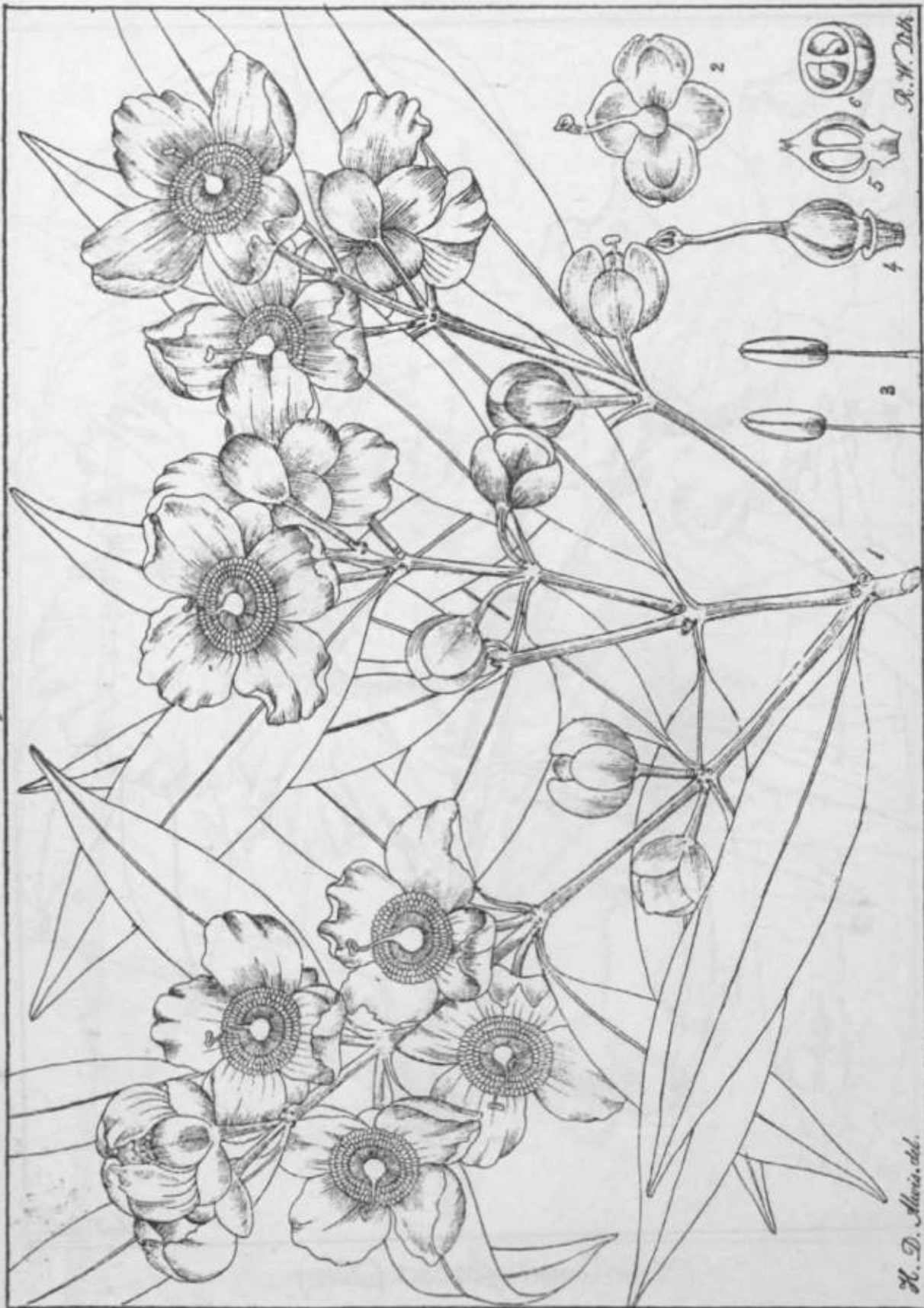


P. W. Leth

Mimosa ferruginea. (Lam.)

guttifera.

419

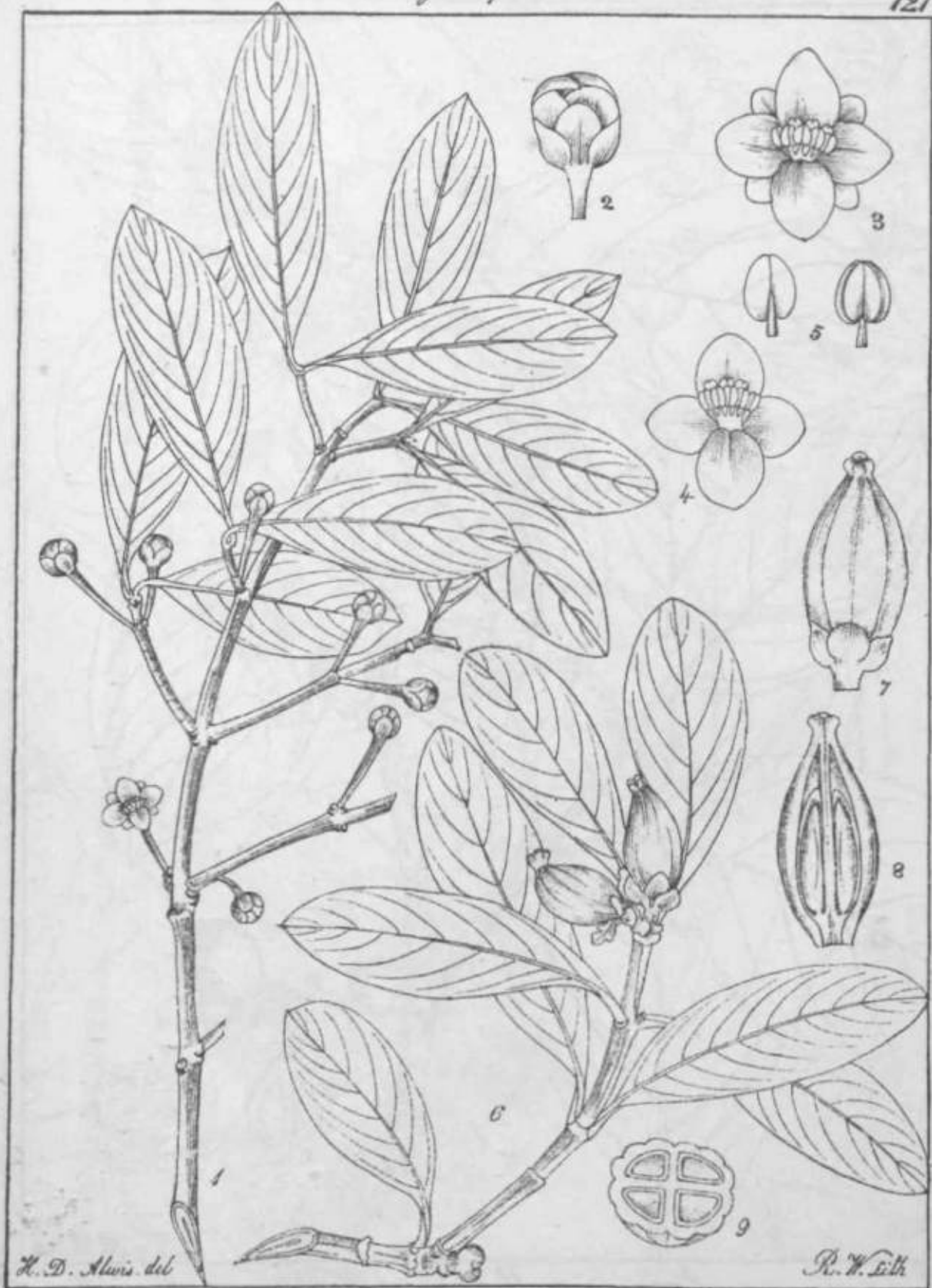


Lyallifera.

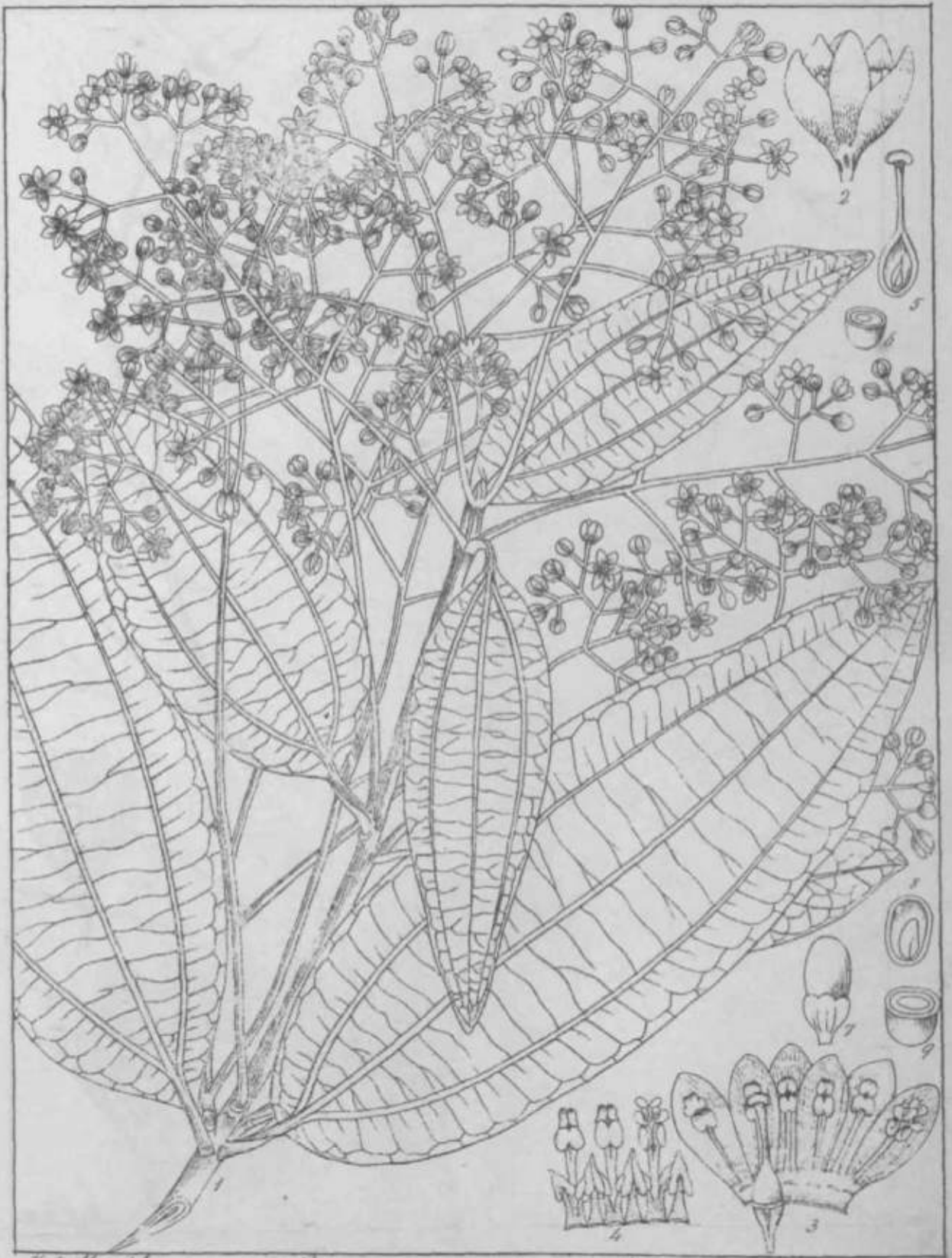
120



Garcinia elliptica? (Wall.)



a&iets/icas <c&7Uc&#A/. (R. W.)



H. B. Moench del.

Cinnamomum iete {*-f'c&J

Jaaww.

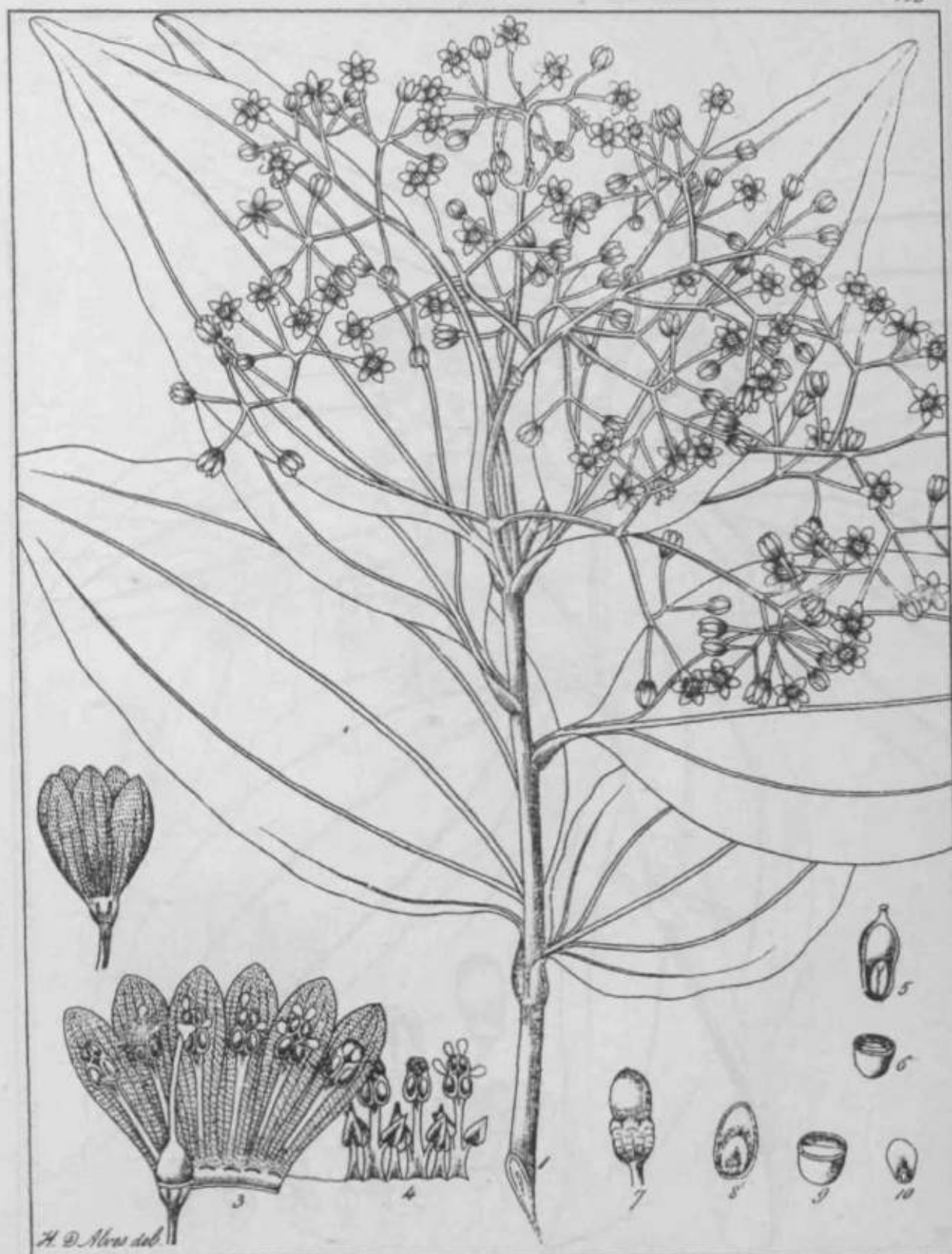
122 bis
2.



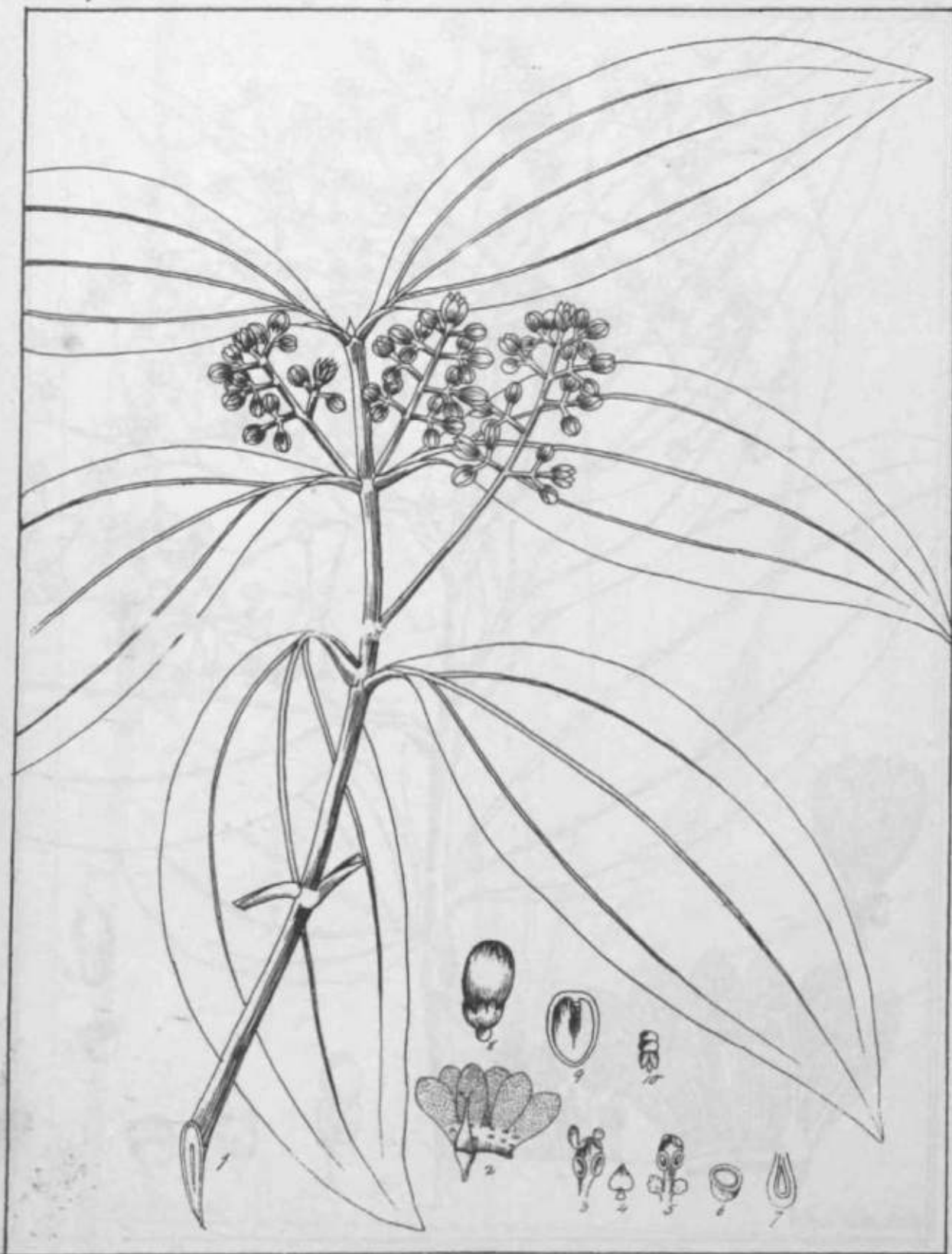
H. B. Davis. del.

R. W. Gith

Cinnamomum (inc) Jii fiej)



Cinnamomum zeylanicum.



Cinnamomum nitidum (Nees)
Laurus nitida (Reichb.)

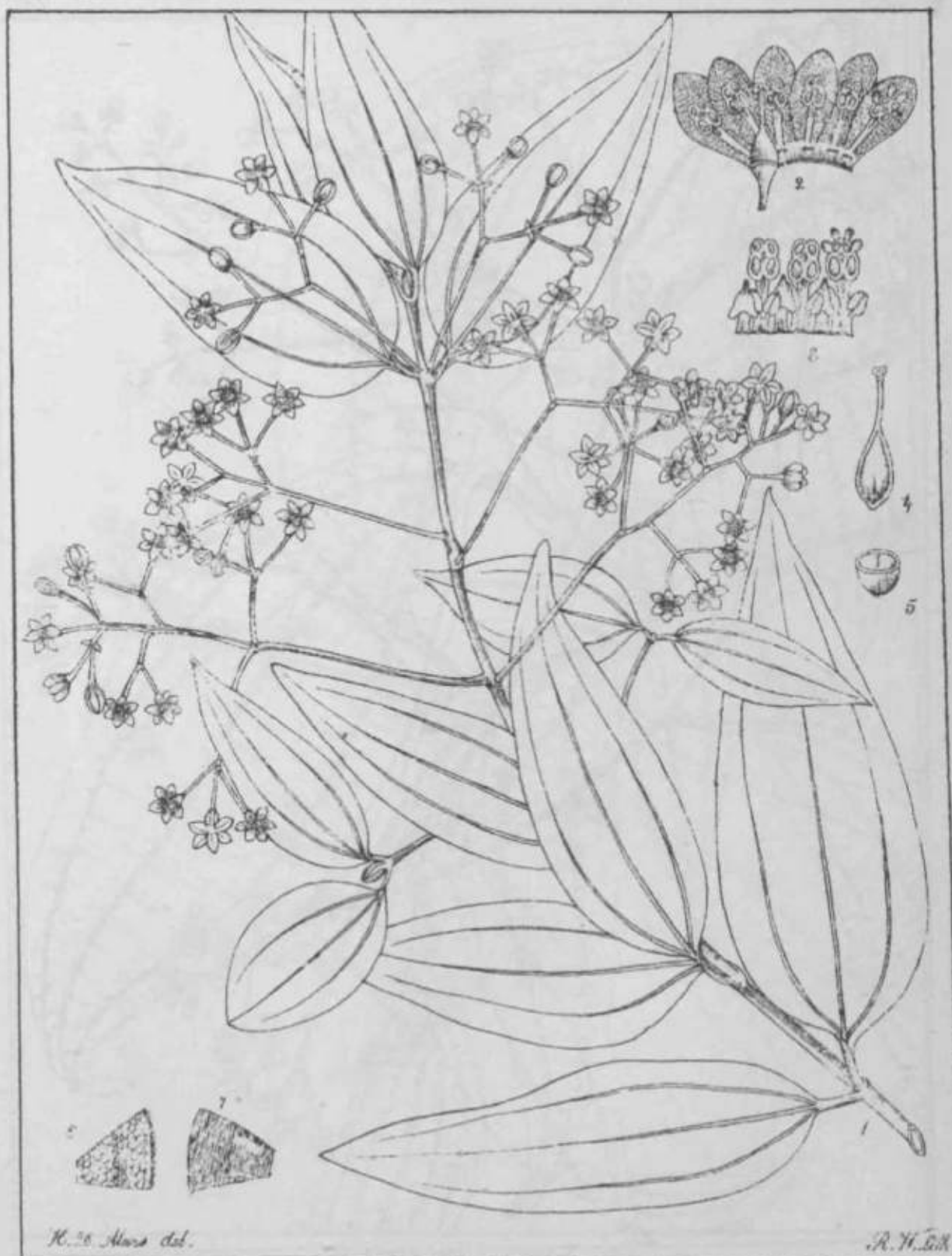


H. B. K. del.

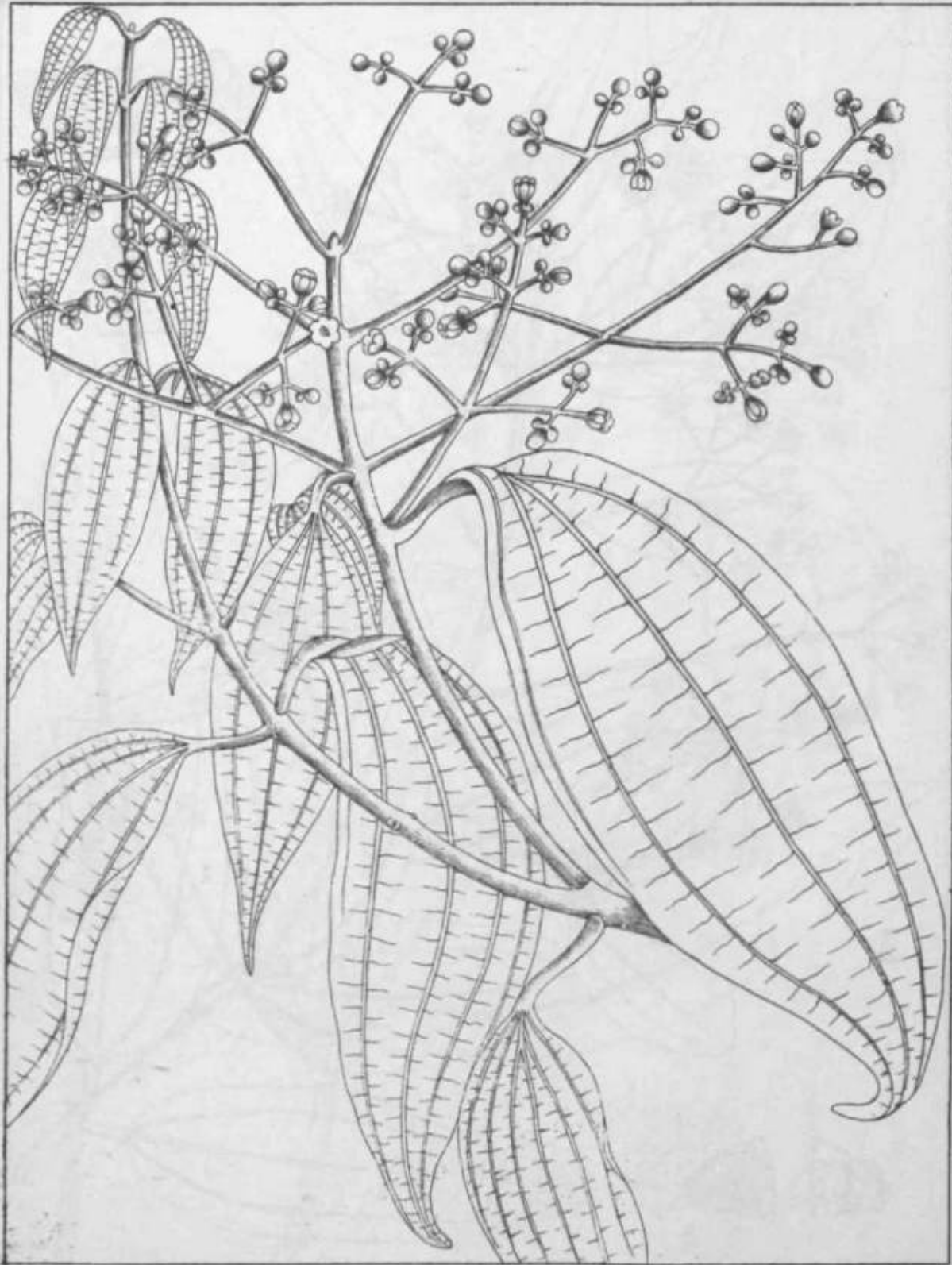
Cinnamomum ovalifolium (R.W.)



Cinnamomum multiflorum B. R. W.



Cinnamomum villosum. (R. H.)

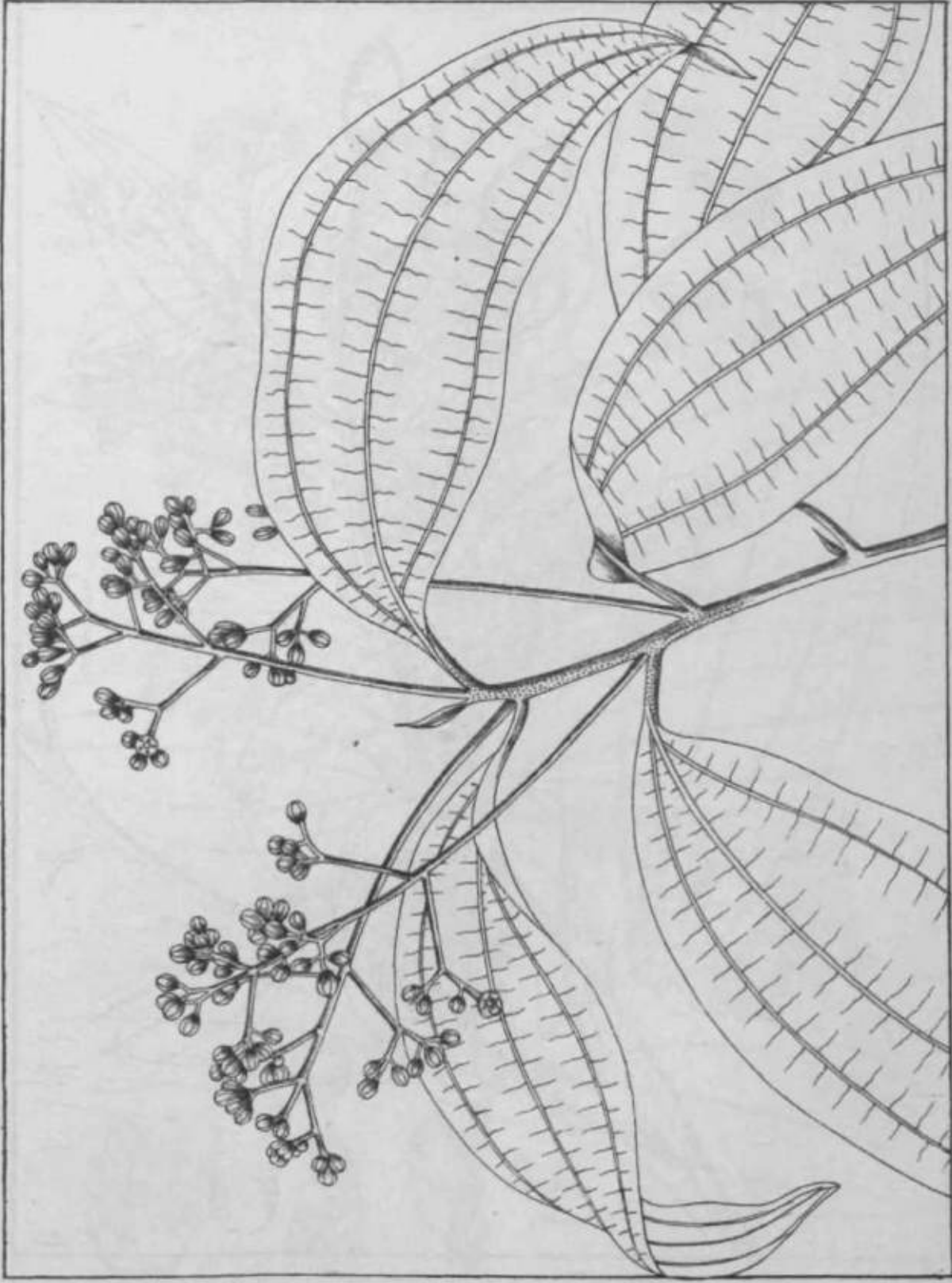


Saururus OzJaa. Mot. fiuty. /6-se.

Cinnamomum Sp. *anicum*. 7 (Aas)

Saurina.

129



Saurus Cinnamomum, Bot. mag. 2028.
? Cinnamomum Uplandicum. (Nes.)



Cinnamomum iners
Carua. Hort. mab. / tab 54



Laurus multiflora Roxb.
Cinnamomum multiflorum



Laurina nica. Nées
Laurina nica. Nées



A. W. Hill

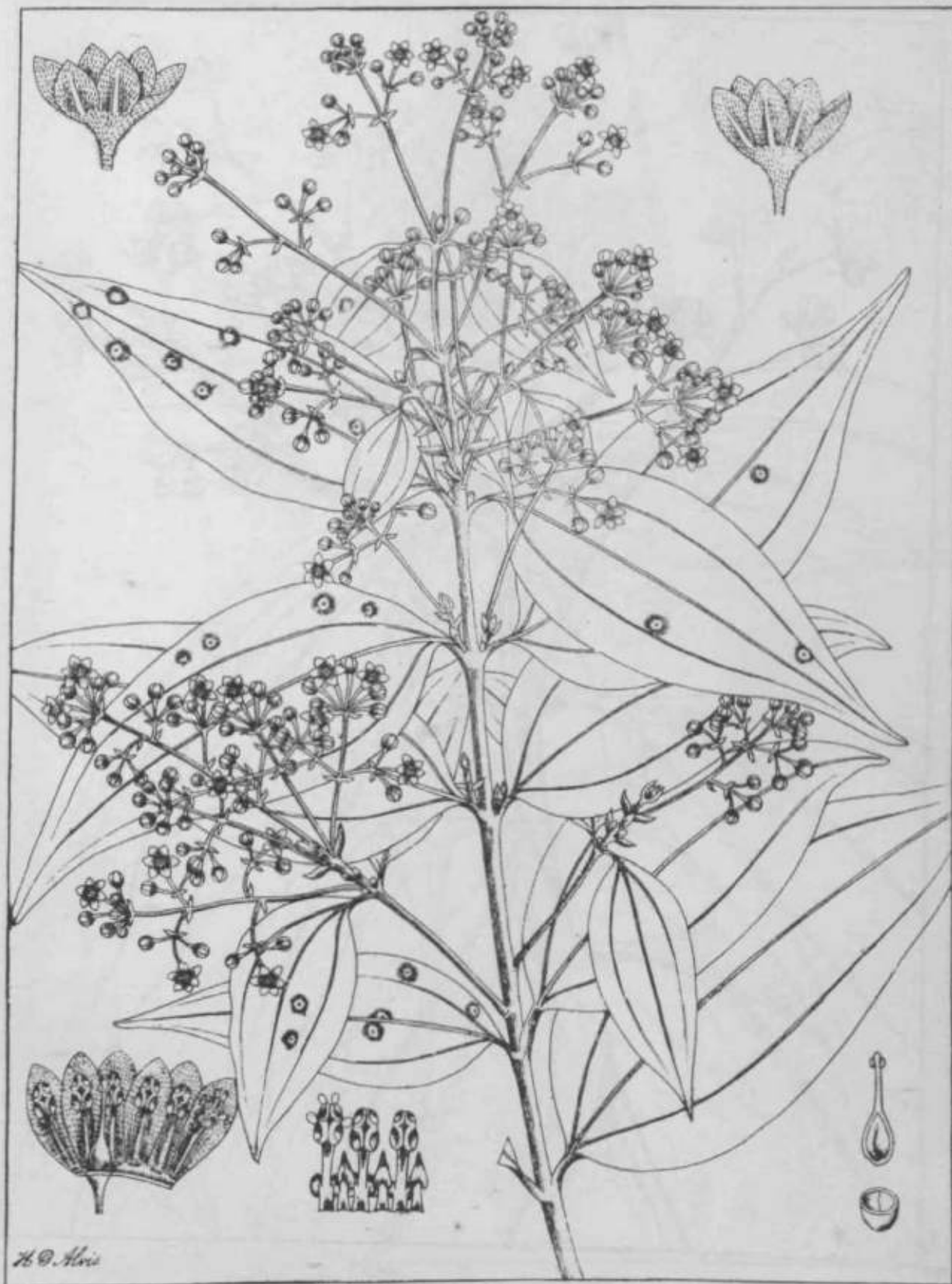
Saururus cuneata. (Roxb.)

Triumfetta cuneata & *Roxburghiana*.



H. B. K.

Cinnamomum zeylanicum Nees
Cinnamomum perpetuo florens ? Burm.



H. B. Nees

Cinnamomum dubium Nees



Cinnamomum aromaticum. Nees.

Cinnamomum. Bot. Rev. N. 526

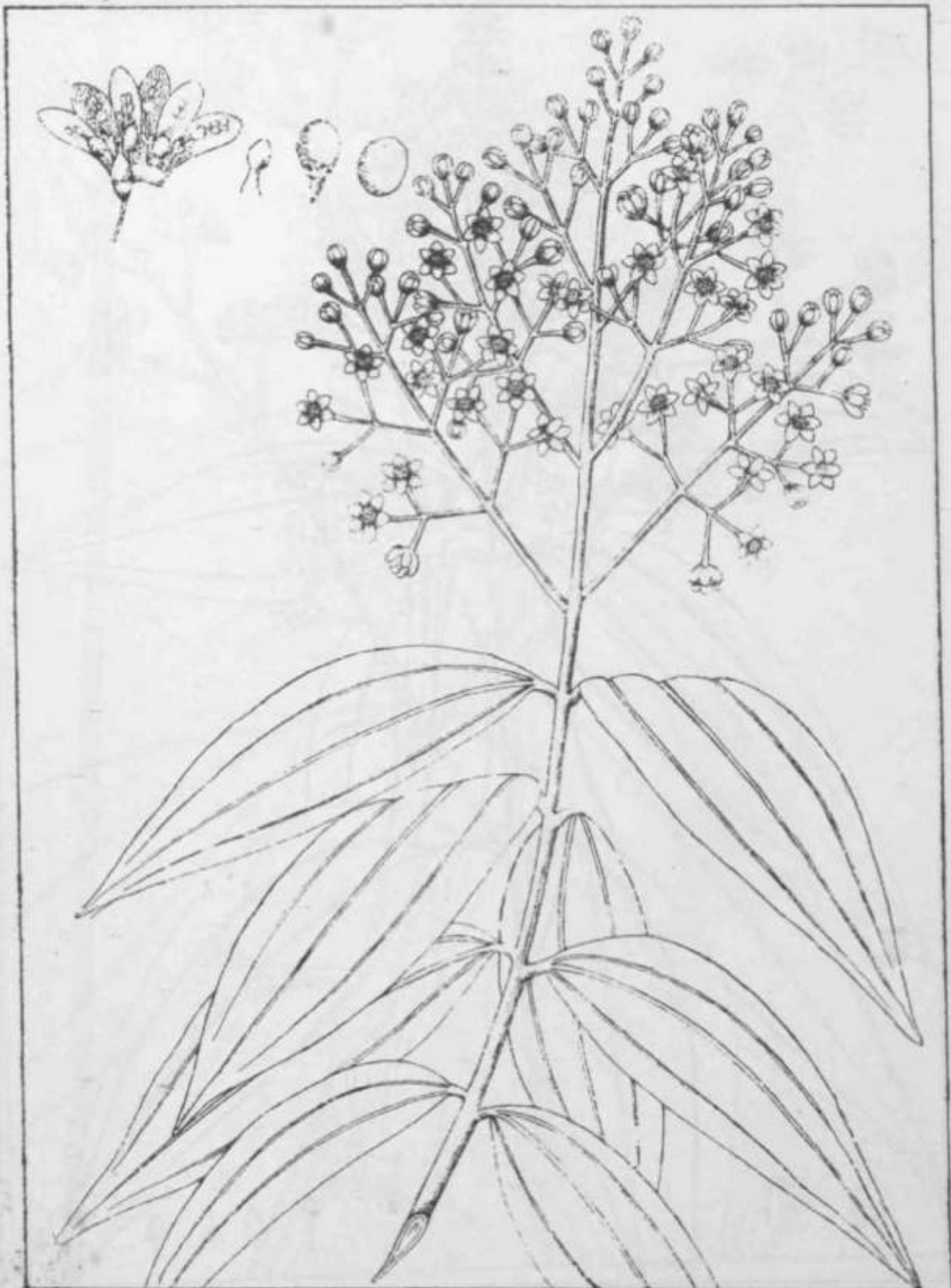


Cinnamomum Culittawon.
Sauras culittabon. (Roxb.)

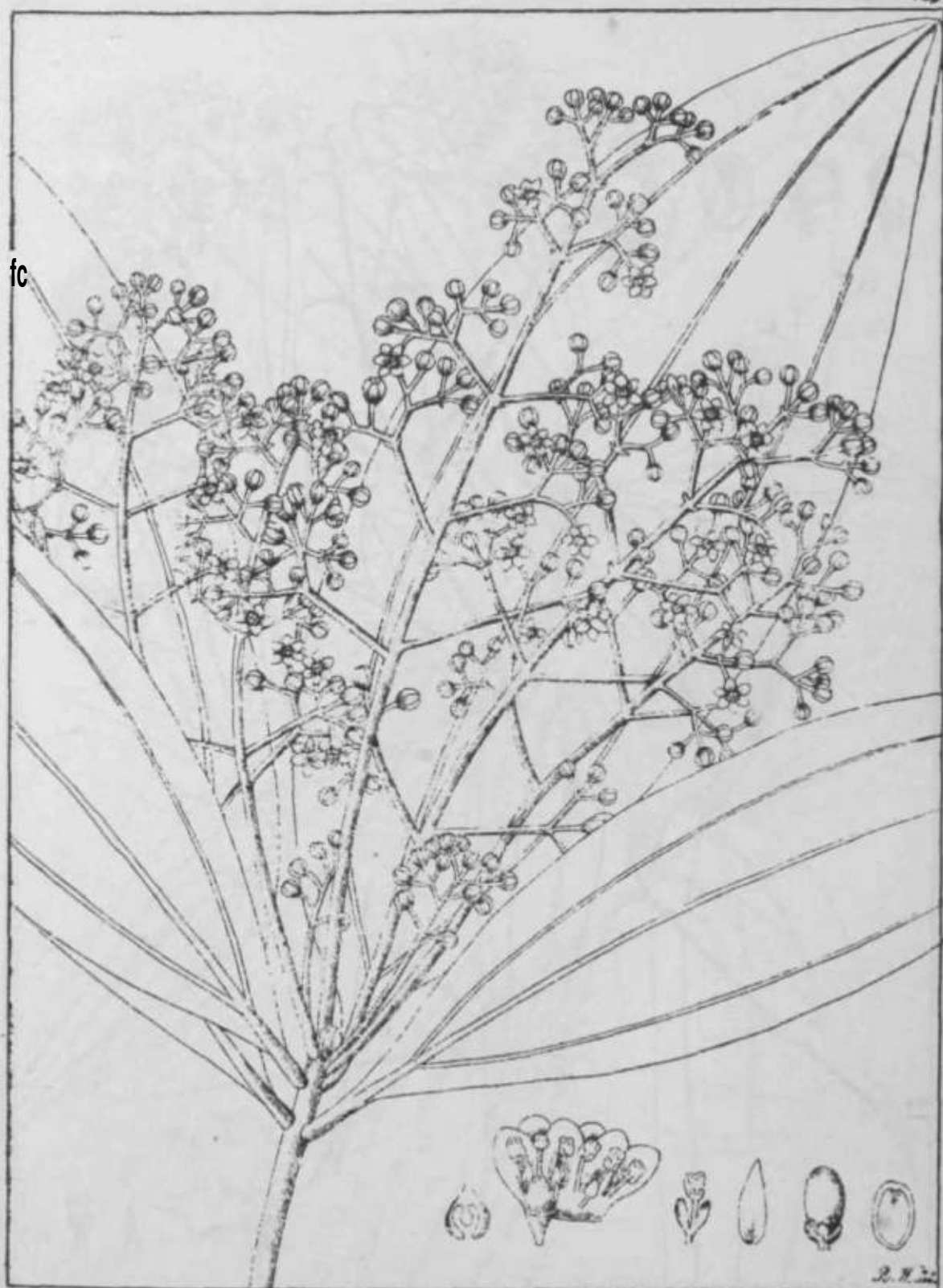
Rooburghiana

Laurina.

/SB



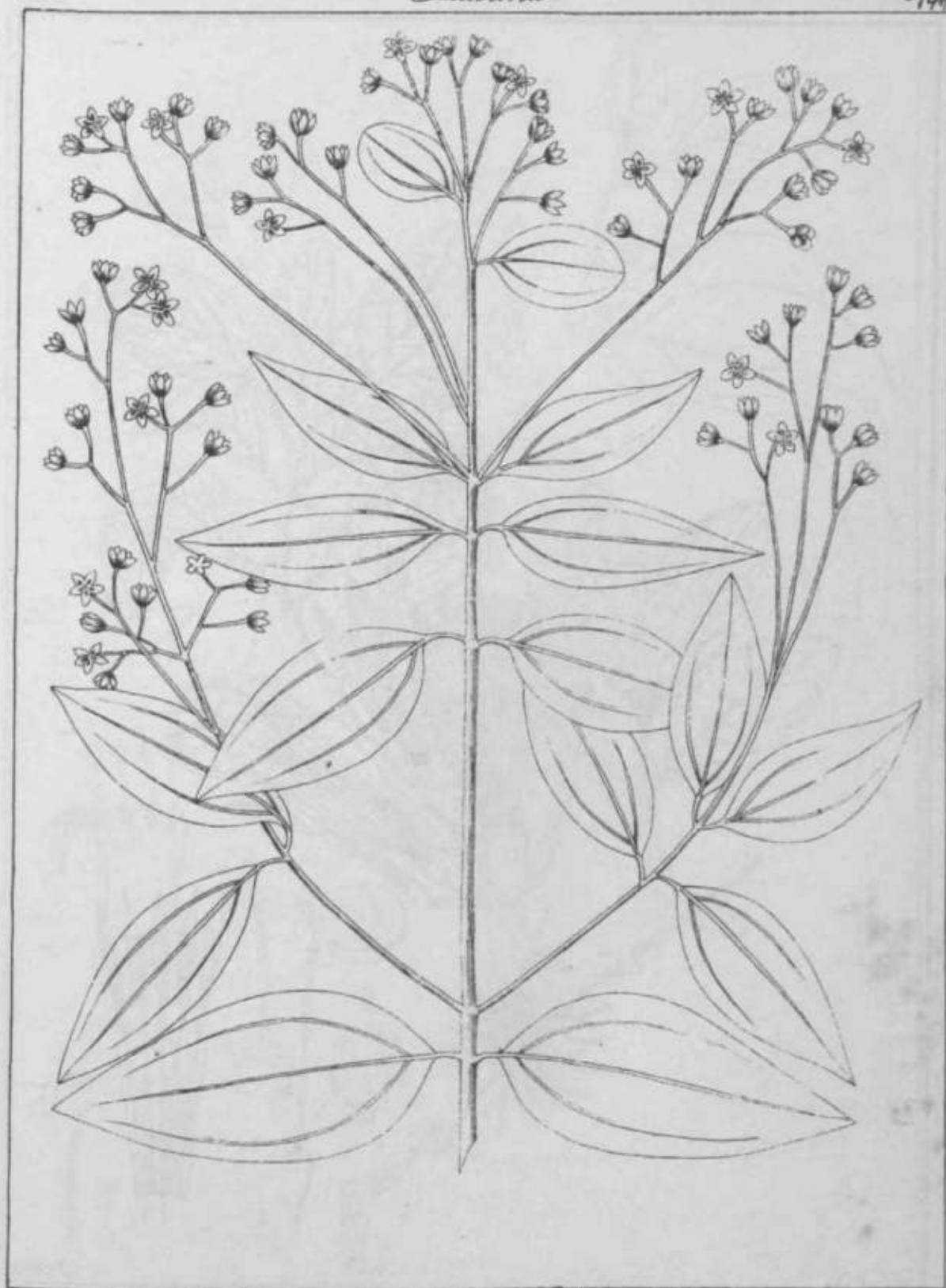
Cinnamomum dulce
Laurus dulcis. (Roob)



Cinnamomum obtusifolium (Nes)
Saururus obtusifolius (Rox)



Cinnamomum albiglorum (Nees)
Laurus Cassia (Recht)



Cinnamomum perpetuo florens (Burm.)



Augier del.

J. H. B.

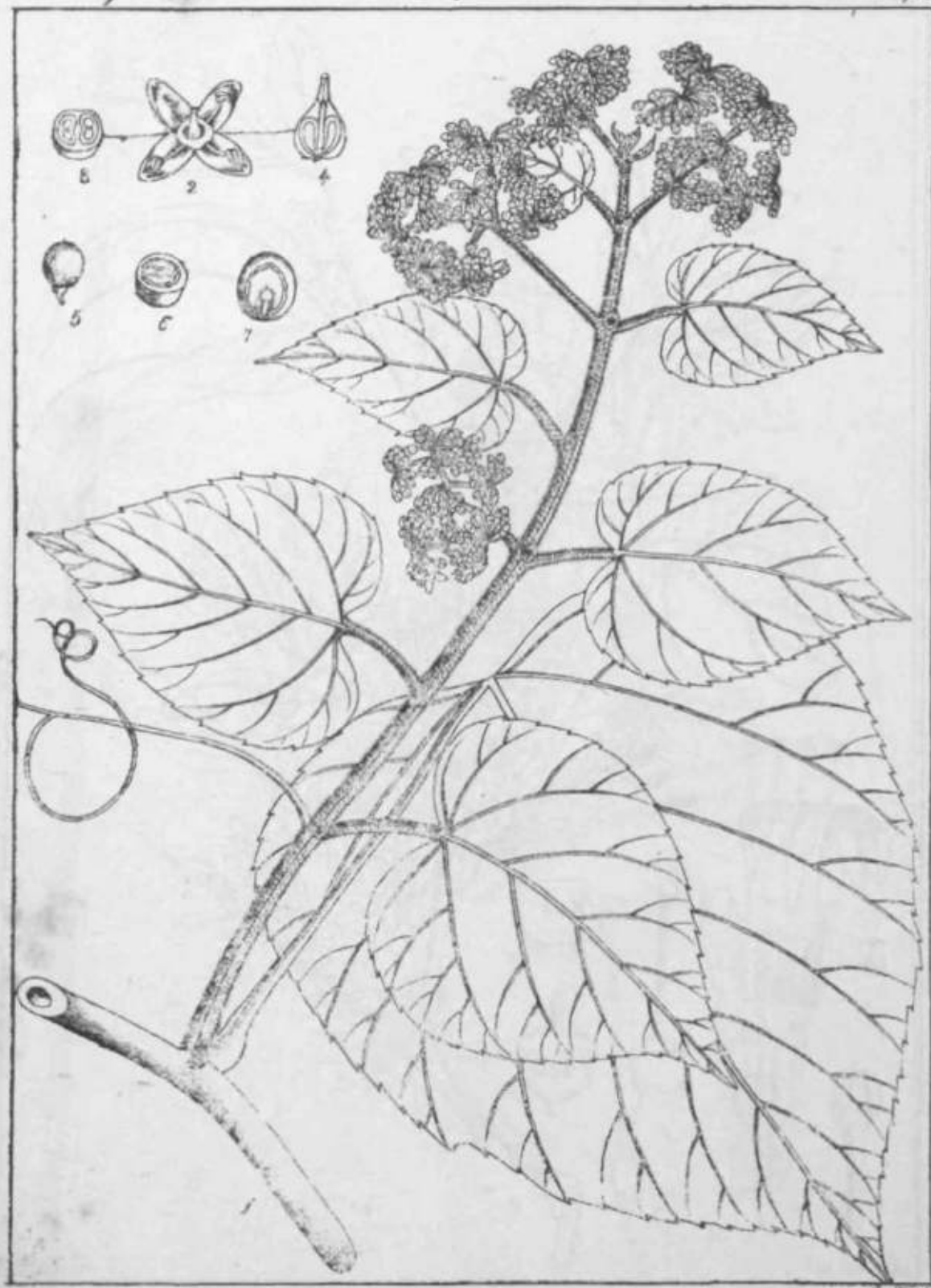
Soranthus mimicyllofolius. (W. & A.)



Rangia Wal.

A. N. S.

Soranthus Wallichianus. (Schult.)



Cissus adnata. (Roxb.)
Vitis adnata. (Wall.)



Cissus auriculata (Roxb.)
Vitis auriculata (Wall.)

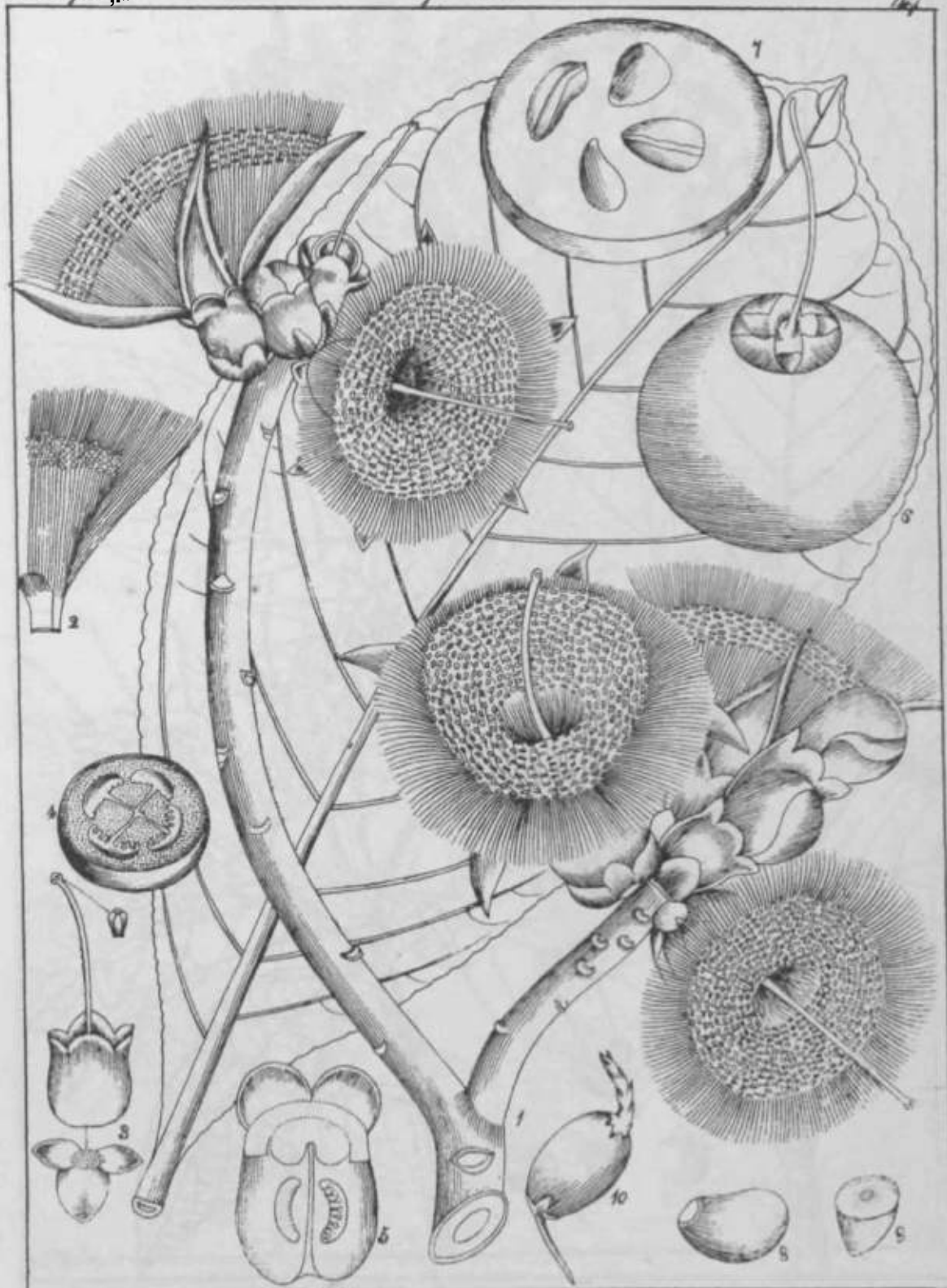


Guarea paniculata (Roxb.)

Acuburghia „»

*yn?wyfa.

167



Careya sphaerica.

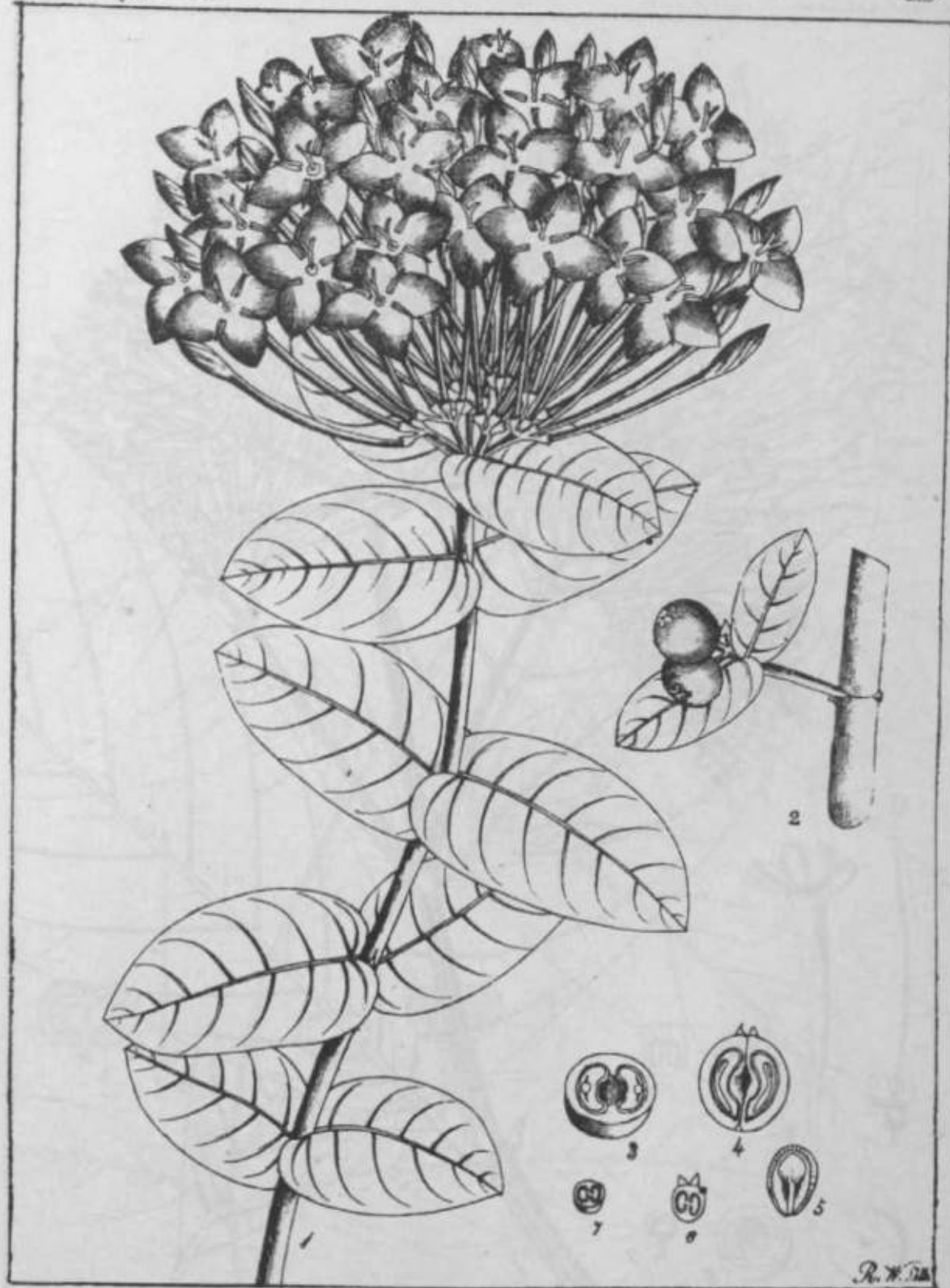
Roxburghiana

Kubiacca.

148
1823



Pavetta indica (Sinn.)
Isma. pavetta (Roxb.)

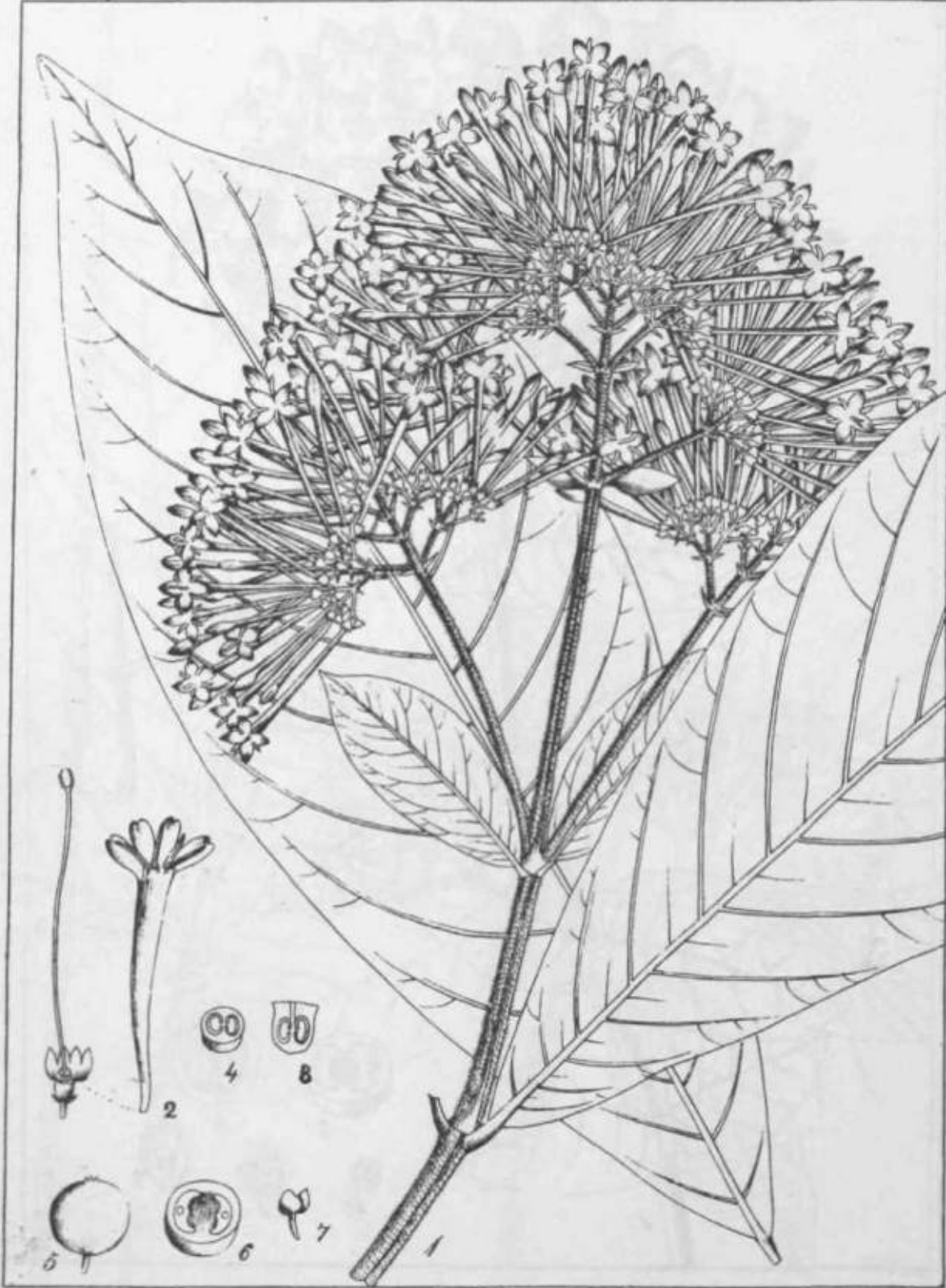


Ixora Bandhuca (Roxb.)

Roxburghiana

Oatifeatete/.

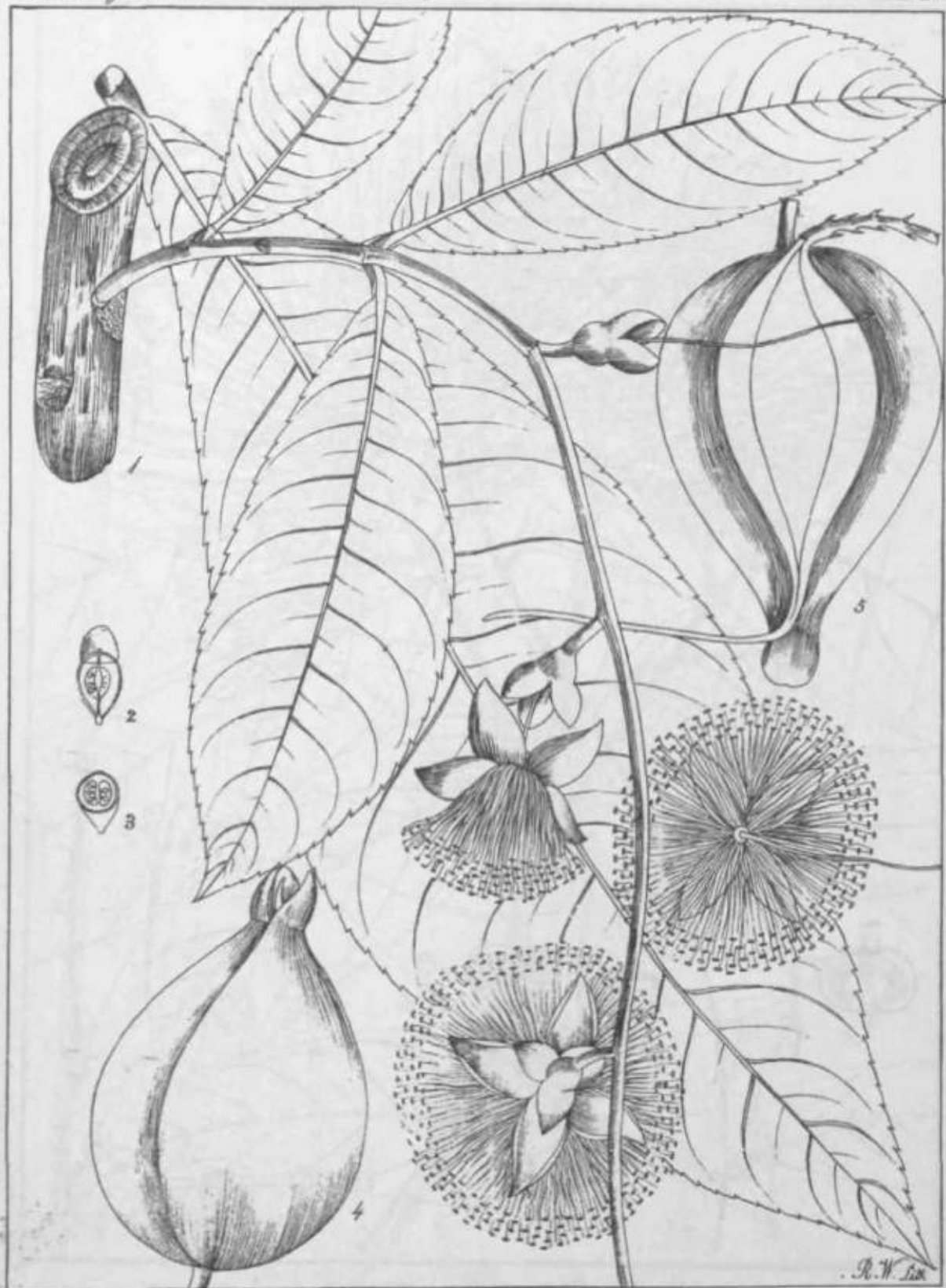
/So



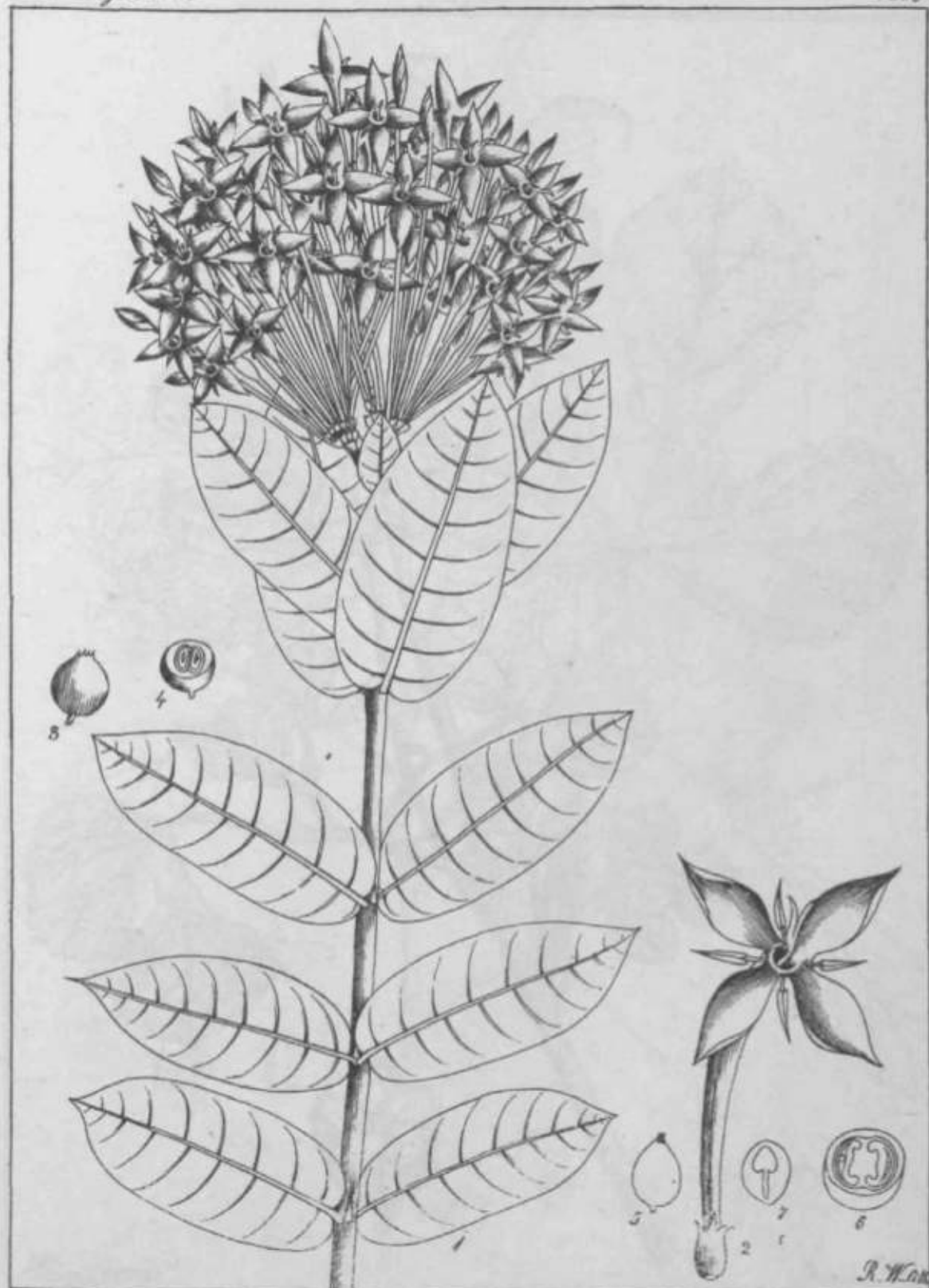
Isora villosa (Roxb.)



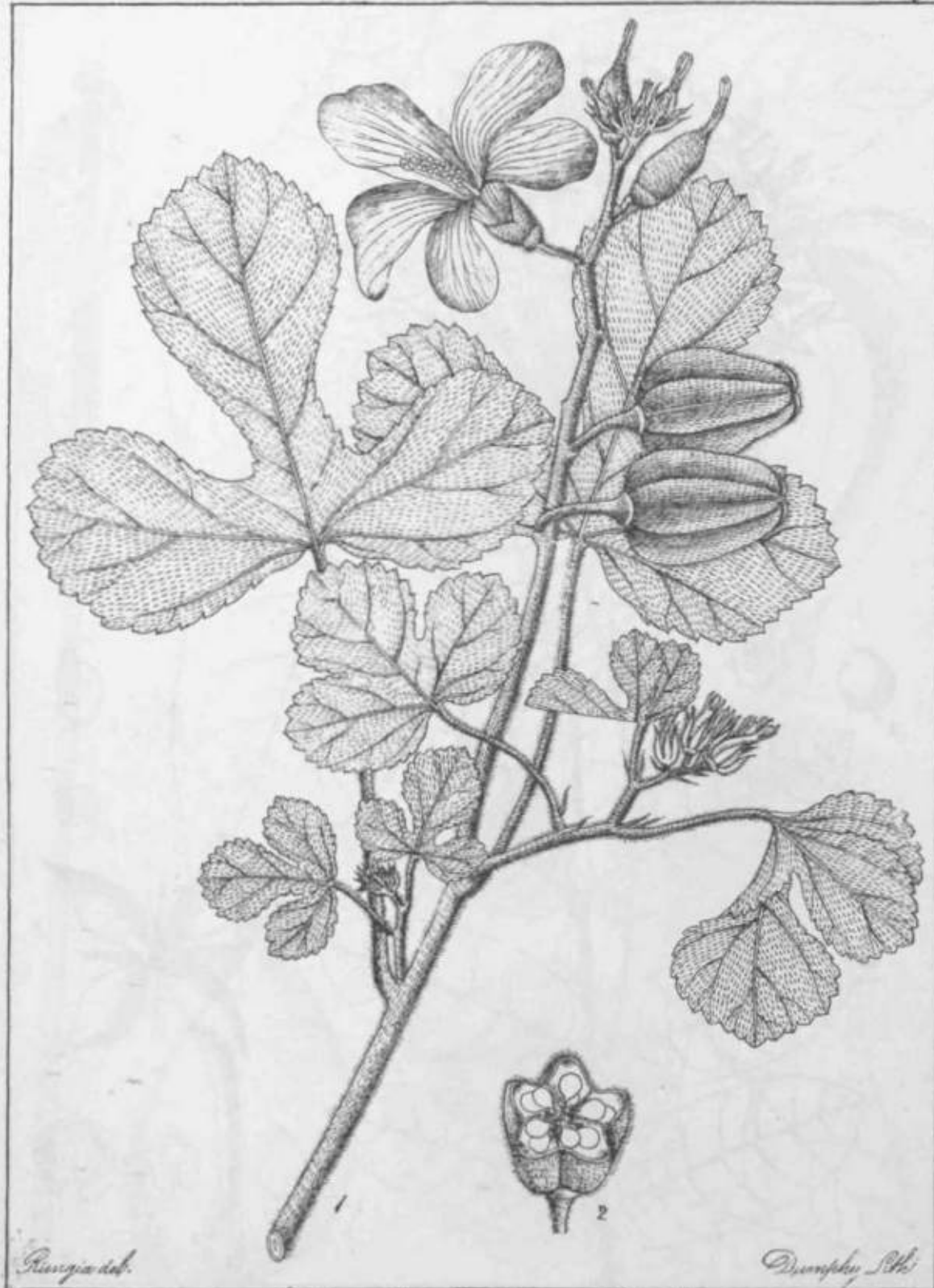
Ixora fulgens (Hort.)



Barringtonia racemosa. (Roxb.)



Ixora coccinea (Linn.)



Rungia del.

Dumphy del.

Abolmoschus ficulneus (W & A.)

Calastinea.

155
494



Rungtsh, dep.

Bankhy, lith.

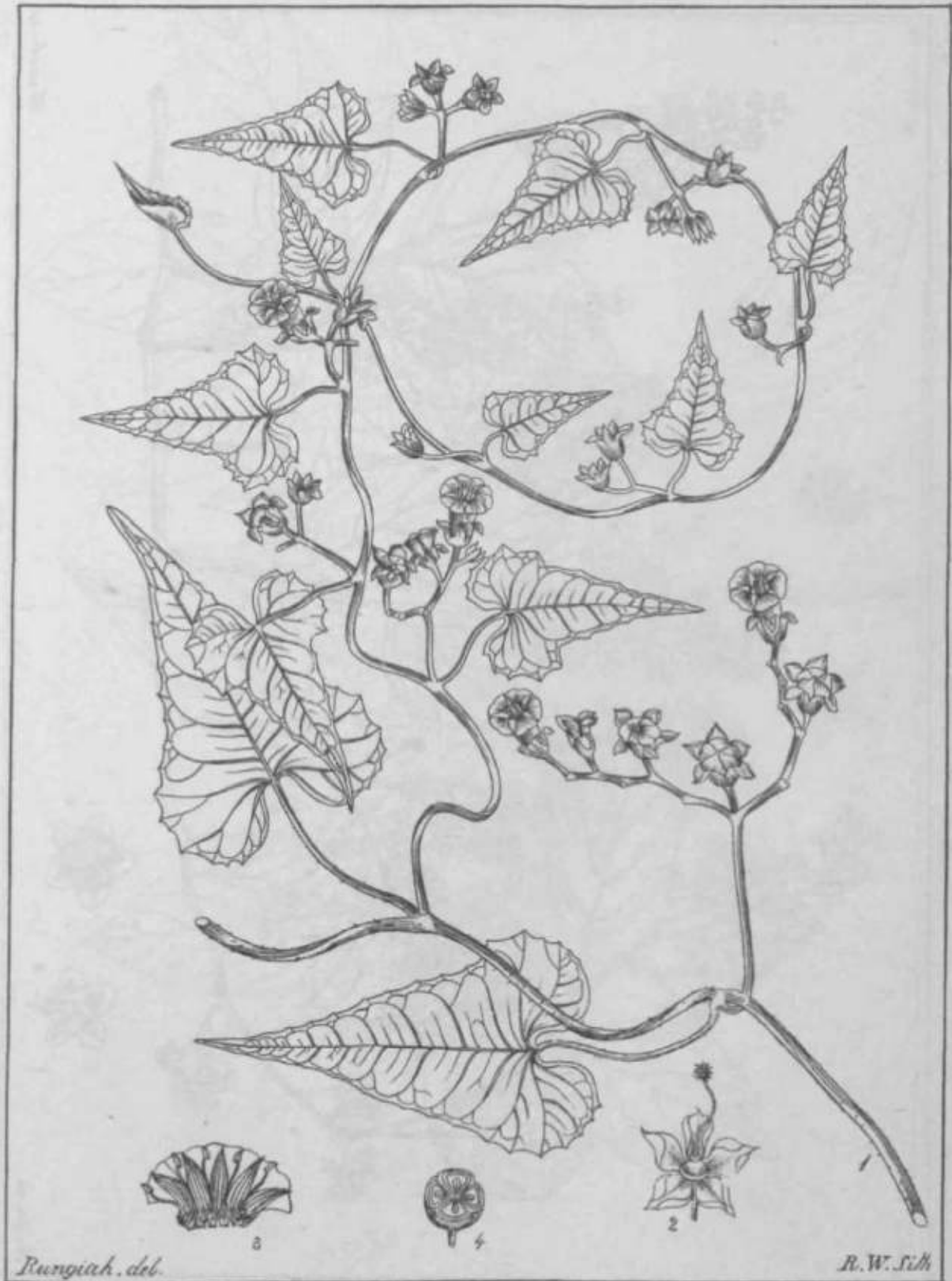
Pleurostylia Wightii (W & A.)



Ipomoea pulchella.

Convolvula 'aa.

JSy



Ipomaea chrysoides.

Calastrea.

158
490



Augia. del.

Wichster. 228

Calastrea paniculata. (Willd.)

Rhamnea.

159
515



Rhamnus Wrightii.

Rhamnus Wrightii. (W. & A.)



အိန္ဒိယသို့
လက်ကောက်ချက်
Halia Vahamam

Hf/iti.stfzedctMwfJi-n'n

အိန္ဒိယသို့
လက်ကောက်ချက်
Halia Vahamam



Rungtakh, dep.
St. 1000 1000.
Thonnoomason

Cedrela Toona (Roxb.)

Drumphy, Lith.



Lophopetalum Wightianum. (Arn.:)



Ventilago maderaspatana. (Gartn.:)



Vatica laccifera (W & A.)

Thompson, Lith.



Kunze, del.

Shuteria vestita (W & A)

Dunphy, Lith.



Milnea Roxburghiana.

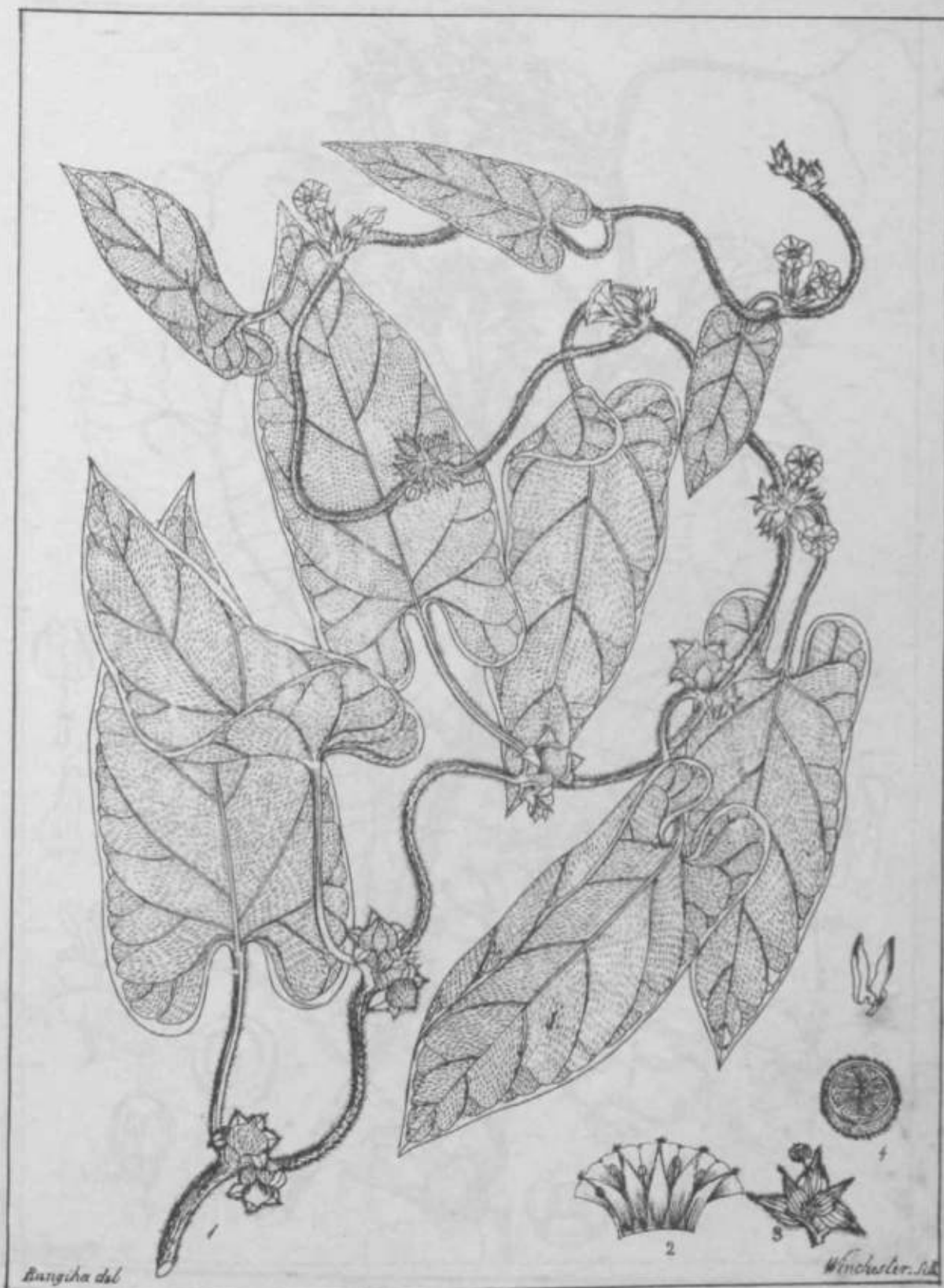


Glycosmos huphrylla (Wight)

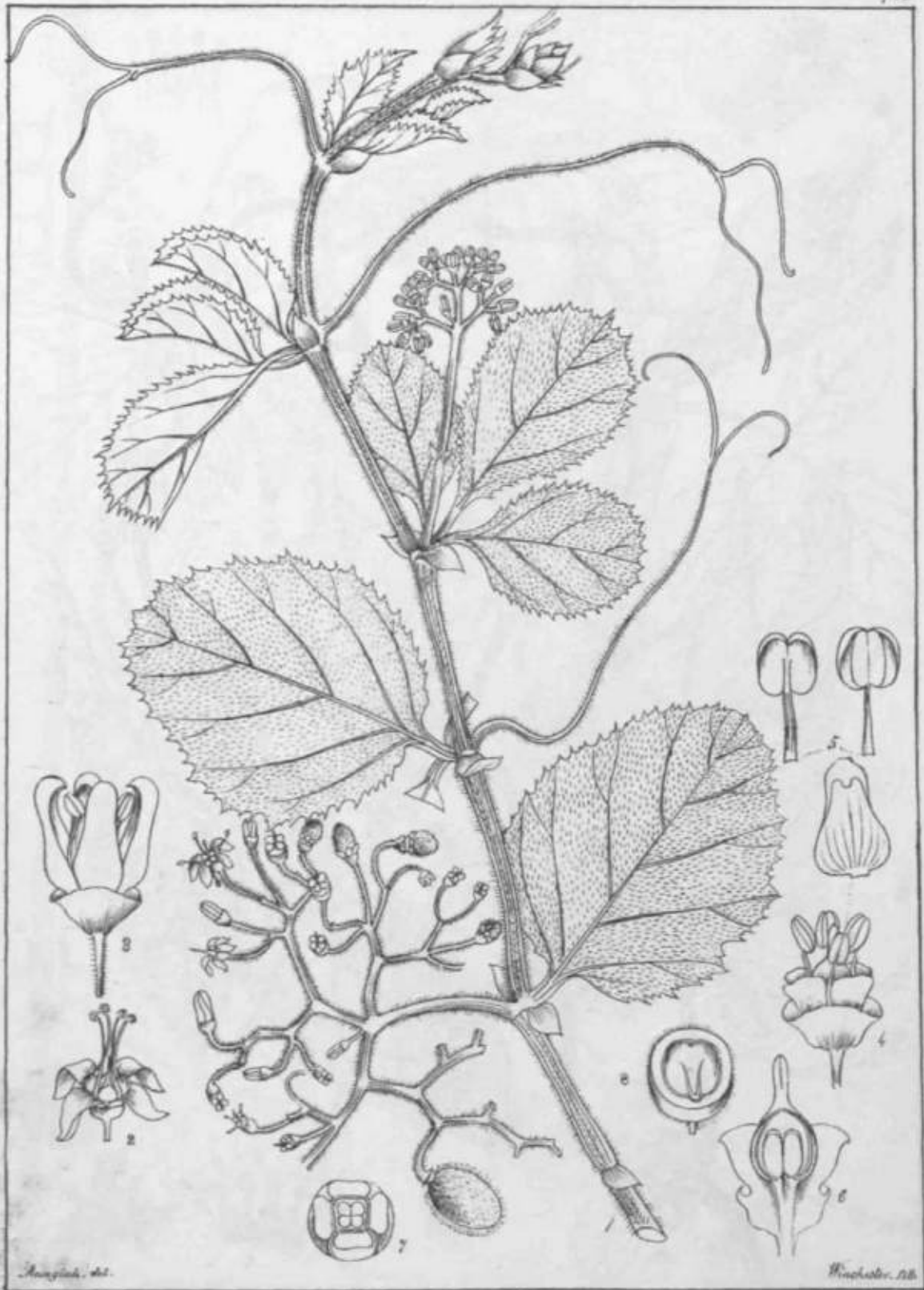


Glycine labialis (Sinn.)
(*)wx>/iA
candoo. J.

Glycine labialis (Sinn.)



Ipomoea sepsiliflora (Chois.)



170 157 158

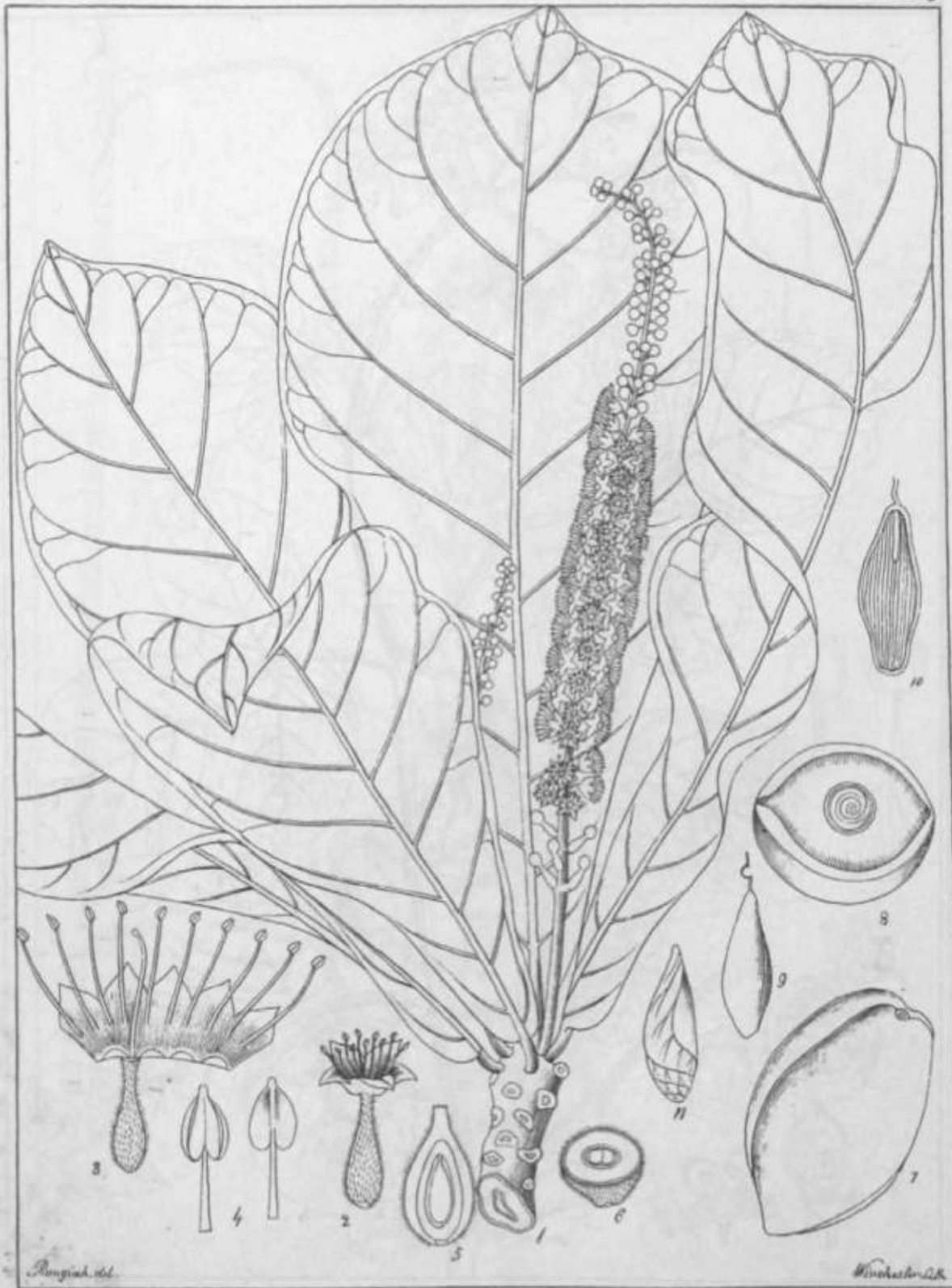
Shut. naranis. } *Tenu*

Vitis setosa. (Wall.)

ویند *uiaay bulshili* ?



Vitis carnososa. (Hill.)



பாத்திரம்

Bathmarum

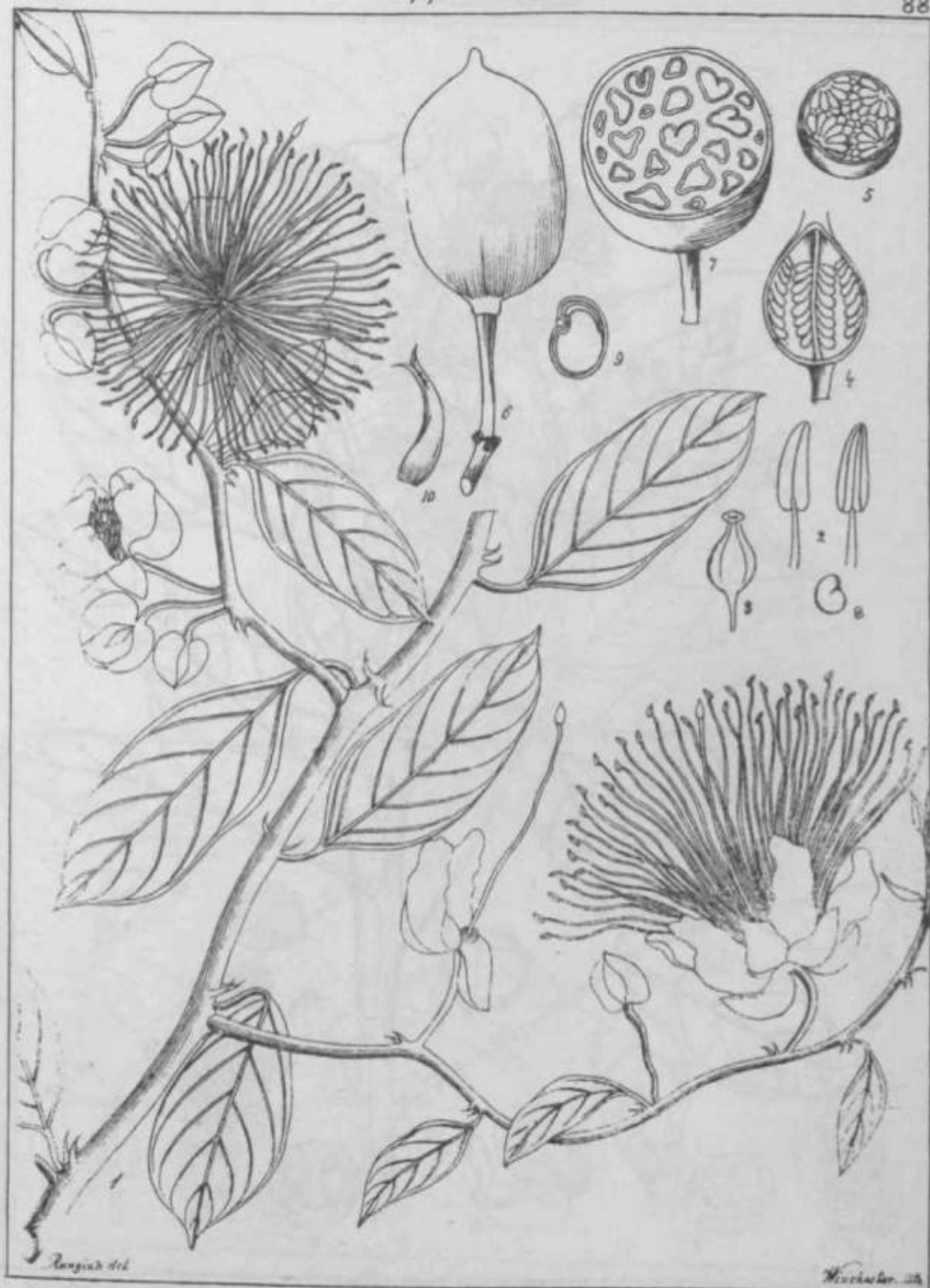
} Fam

Terminalia Catappa (Sinn.)

பாத்திரம்

Bathmarum

} Fam



Arthrodia Lam

Capparis horrida (Sinn.)

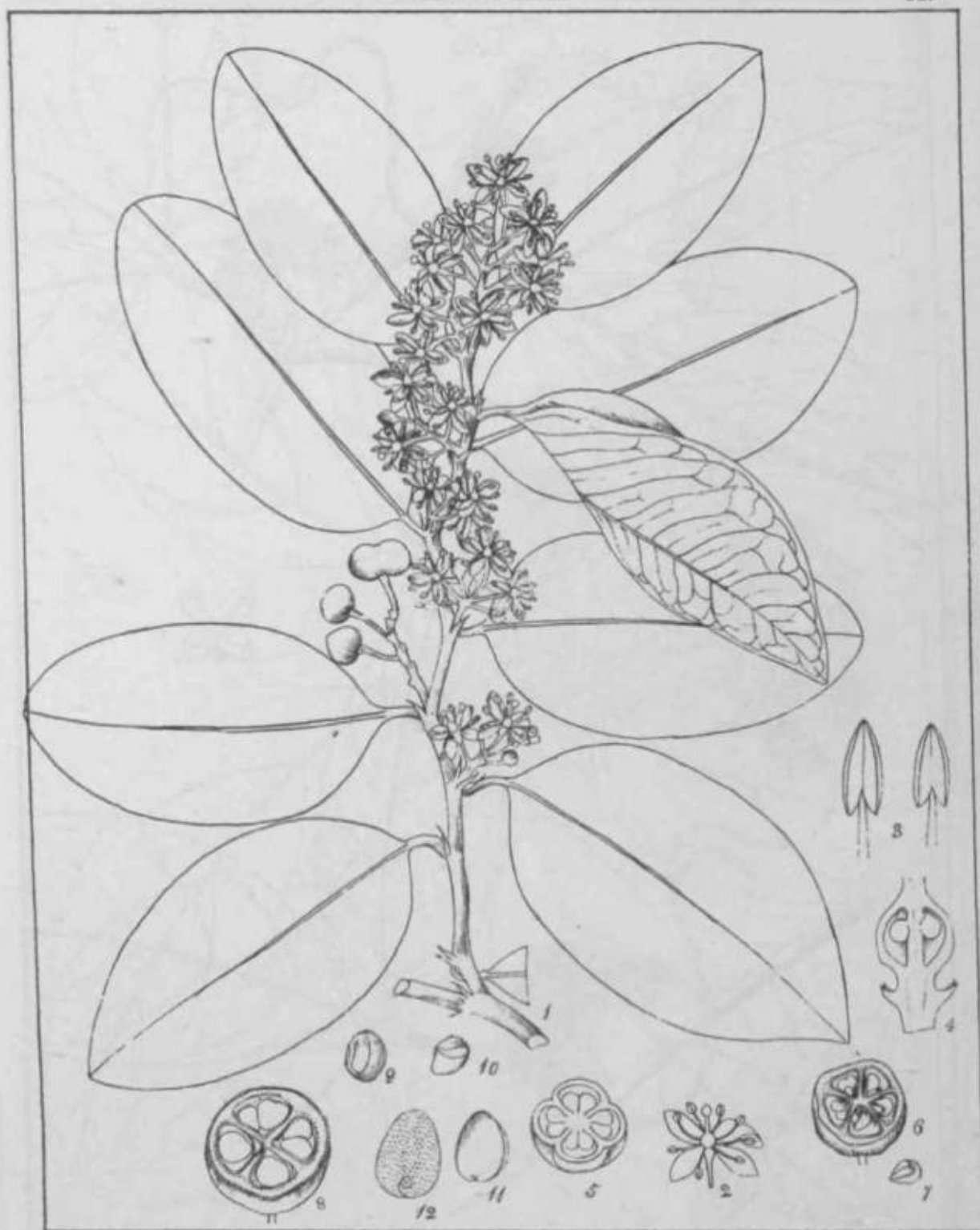
Arthrodia Lam



Wiegmann del.

Nibukhia linearis (D.C.)

Dumphy, Zich



Rangia, det.

Limonia missionis.

Dumort., Lith.

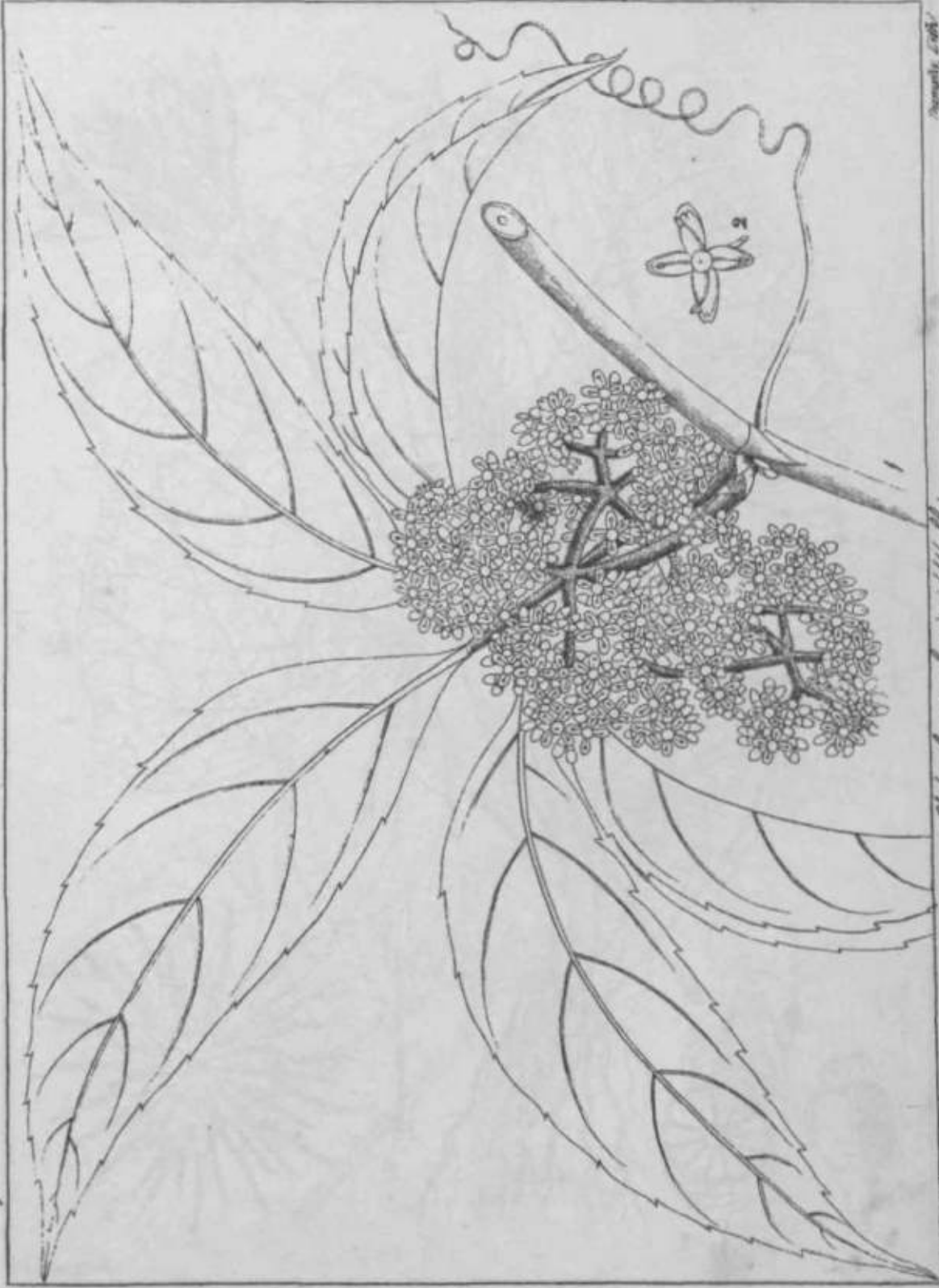


Vitis angustifolia / Willd.
Cissus angustifolia / Roxb.

Boissieriana

Ampelidea

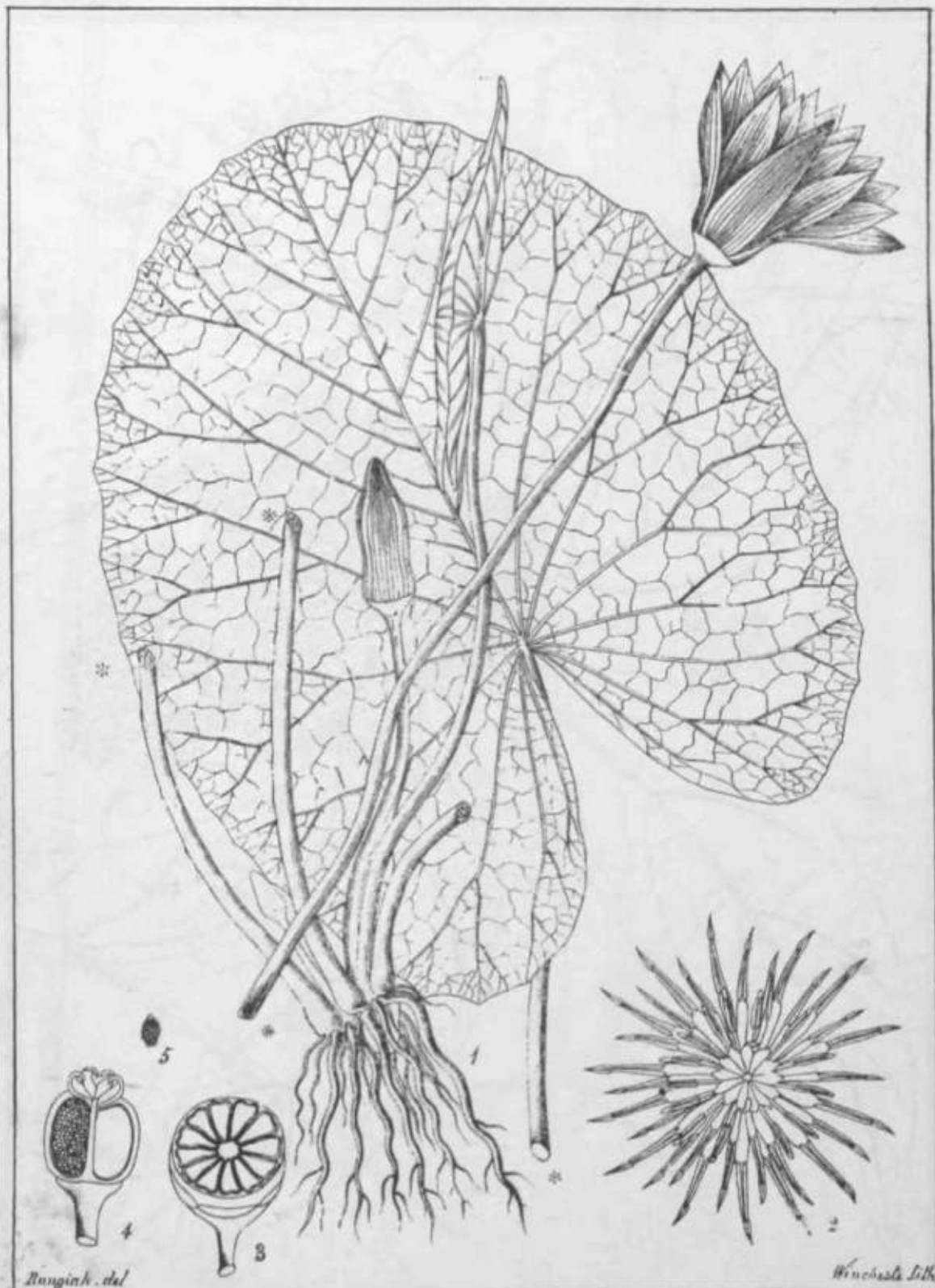
77
1894



Longwood, Ill.

Vitis lanceolaria (Walt.)
Cissus lanceolaria (Rost.)

Longwood, Ill.



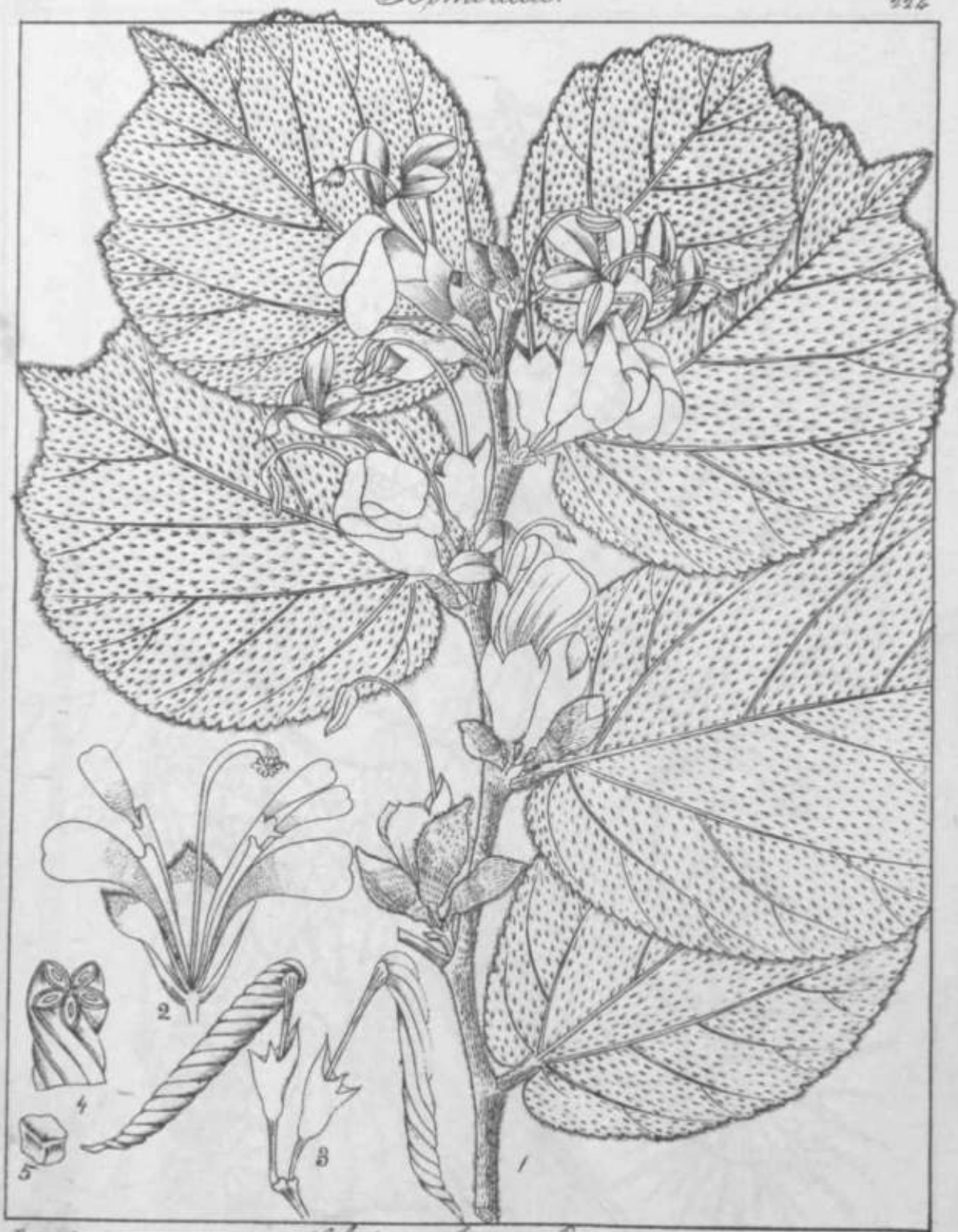
Nymphaea stellata (Willd.)



Rangiah. del.

Hinchman. lith.

Modecca Wightiana (Wall.)



Rangach, del.

Helicteres Isora (Linn.)
Isora corylifolia (Endlicher)

Dumphy, lith.

yft & £ / /. d.

181
230



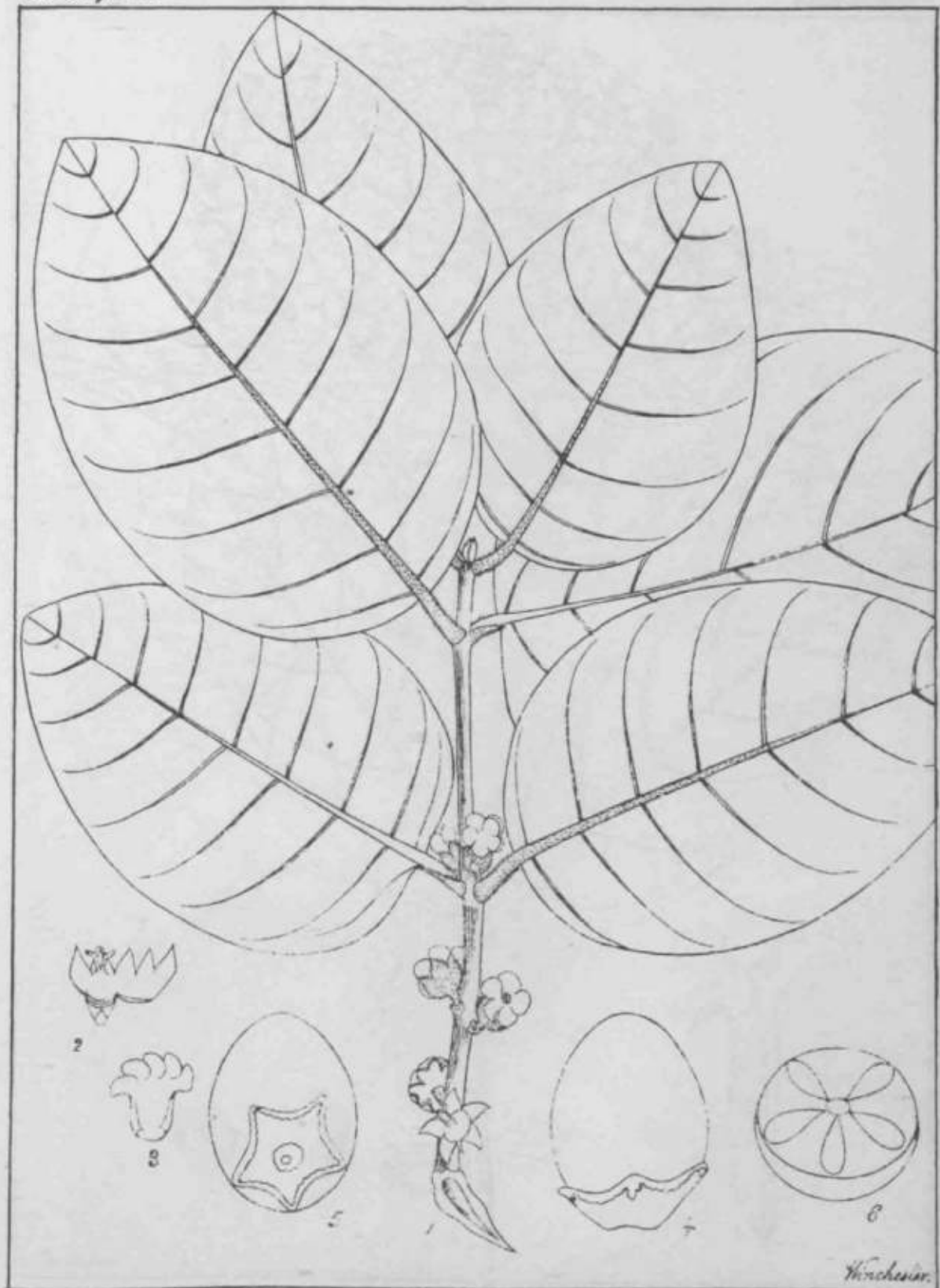
Rungiah, doi.

Sterculia fatida (Linn.)

Dumphy, Lith.



Diospyros dmtcfUej®. ma.. (Roxb.)*



Wincheslar.

Ebenacea timentosa (Roxb.)



Ixora stricta (Roxb.)

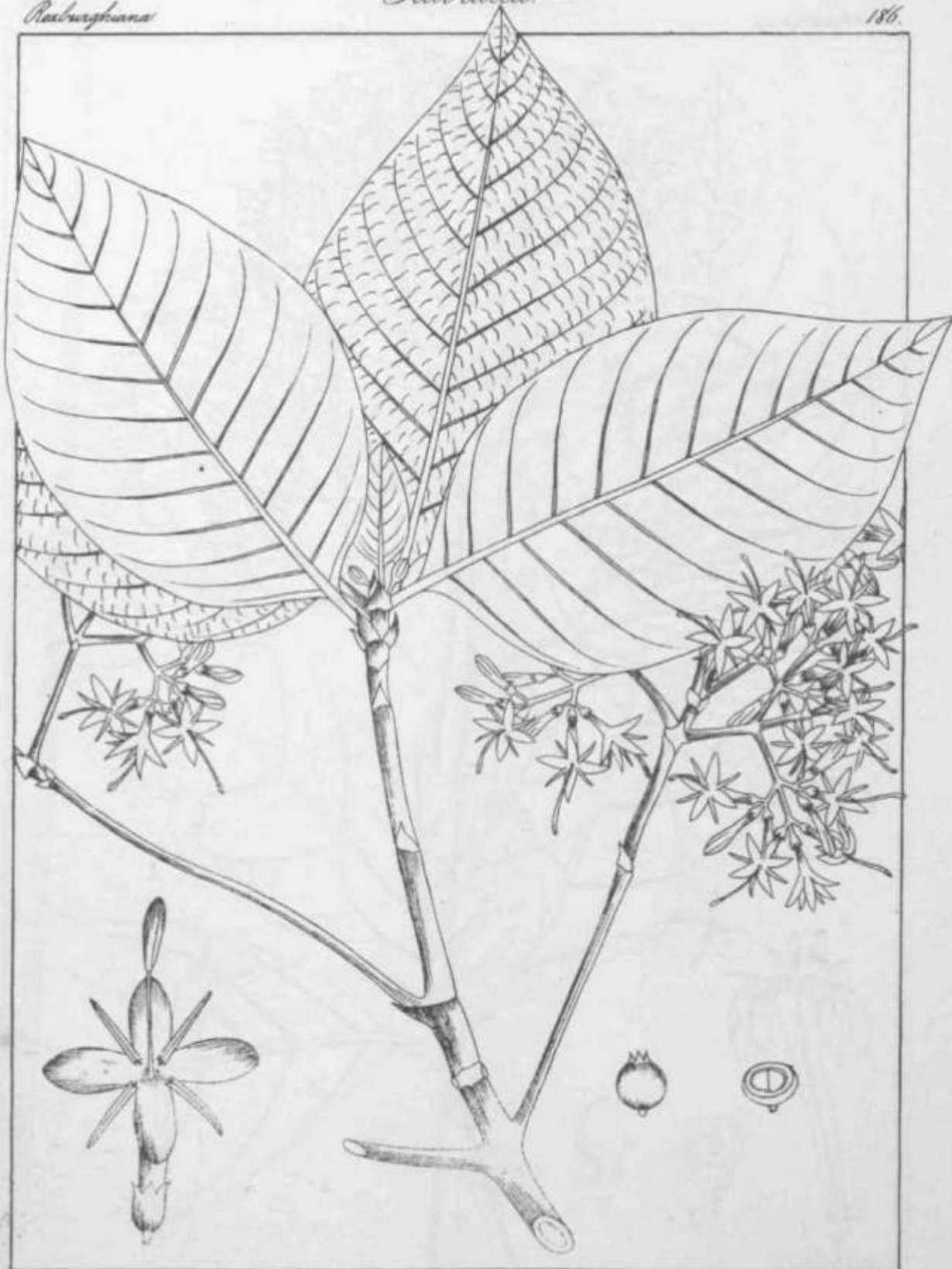


Leuca buntata. (M.)

Reaburghiana

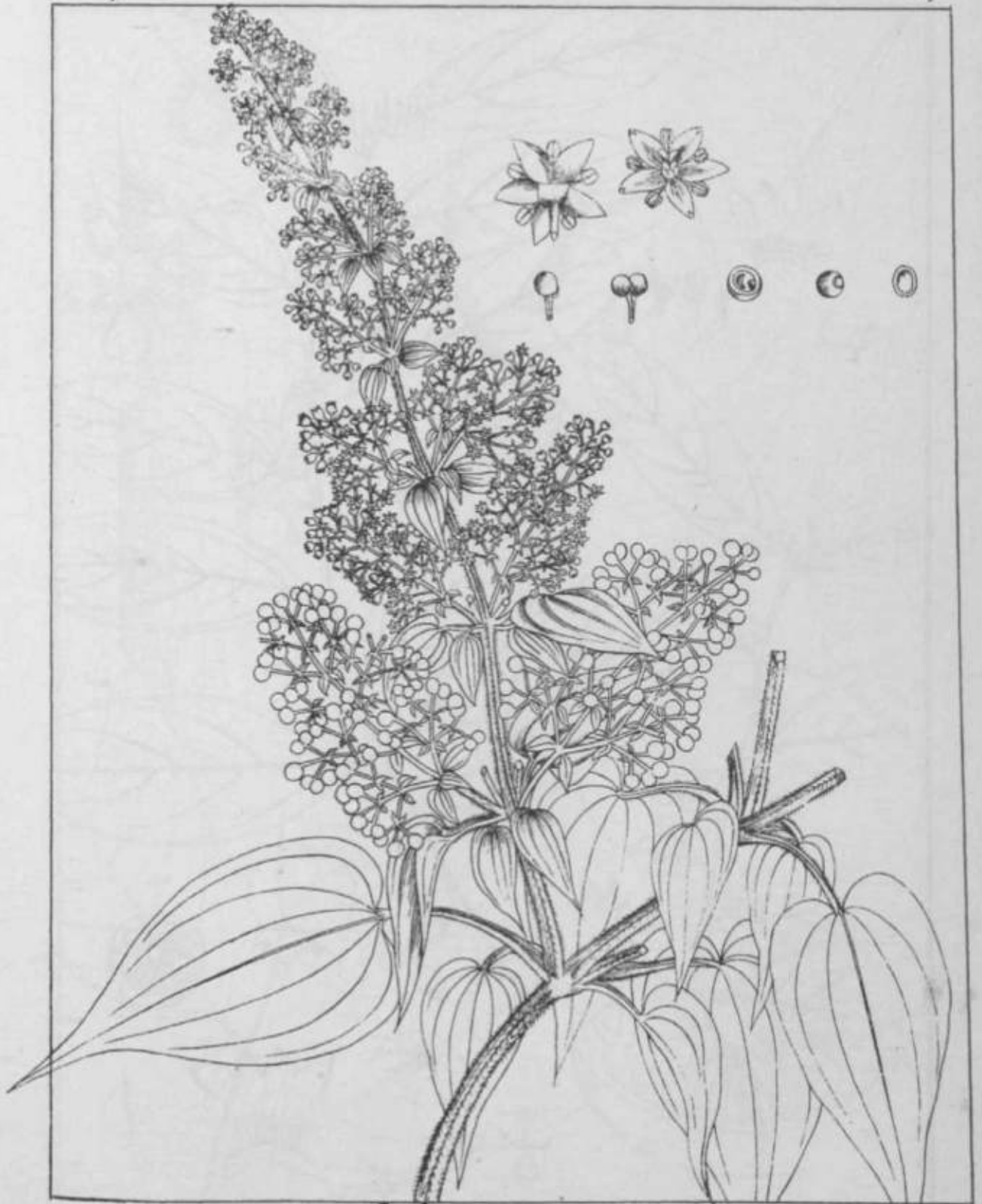
Rubiacea.

186.



Sacra tem< ///> Jrff Roxb)

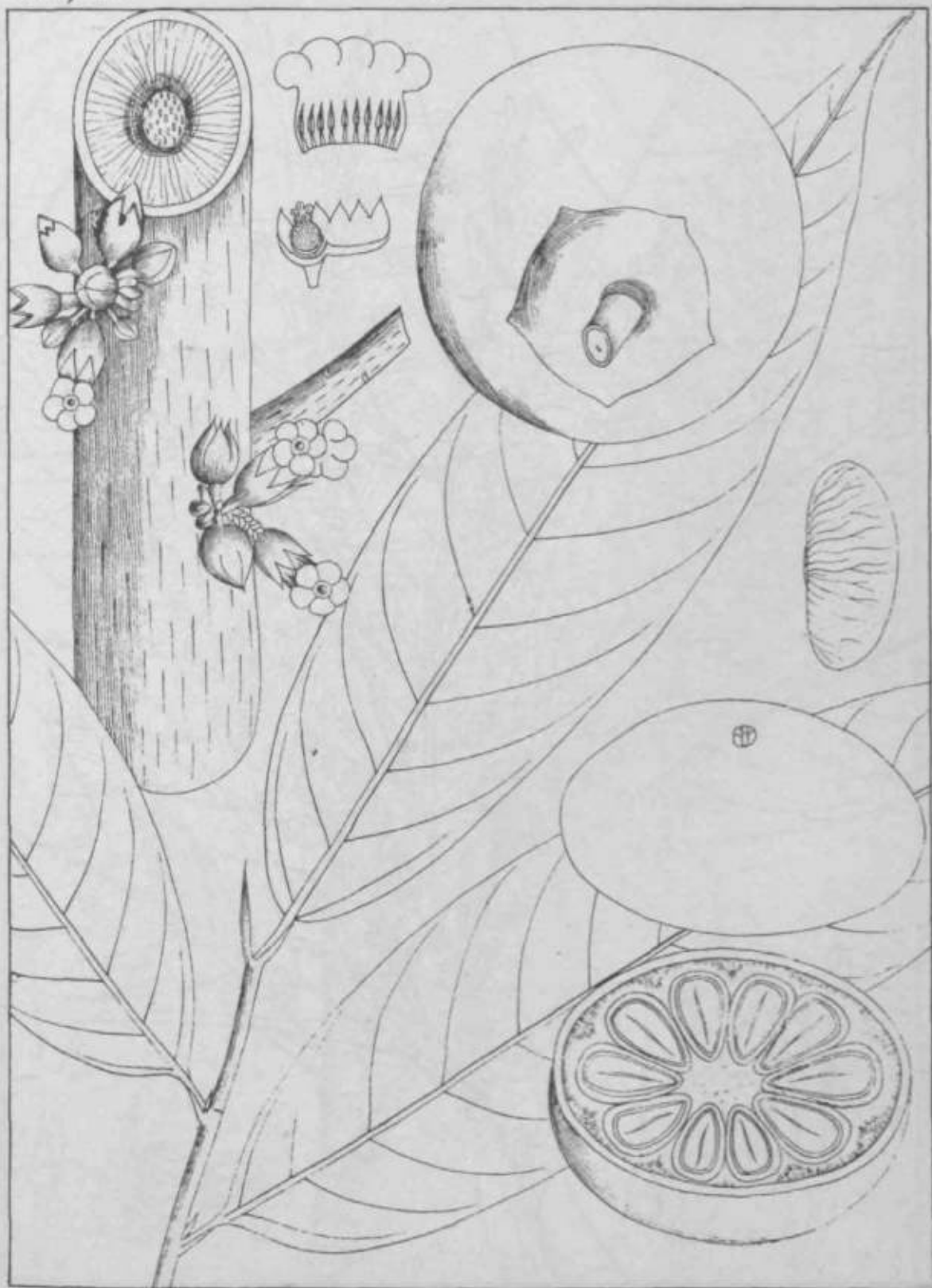
Dumort. r.tti.



Rubia munjistia (Roxb.)

Dumphy, Lich.





Pteris ramiflora (Roxb.)



Rhopala excelsa (Roxb.)

Donny, L. L.



Rhopala robusta (Roxb.)



Spermacoce lavis (Roxb.)

Diarmid, 1868

Alangia.

194
1005



Alangia. del.

Hutchins. Gk.

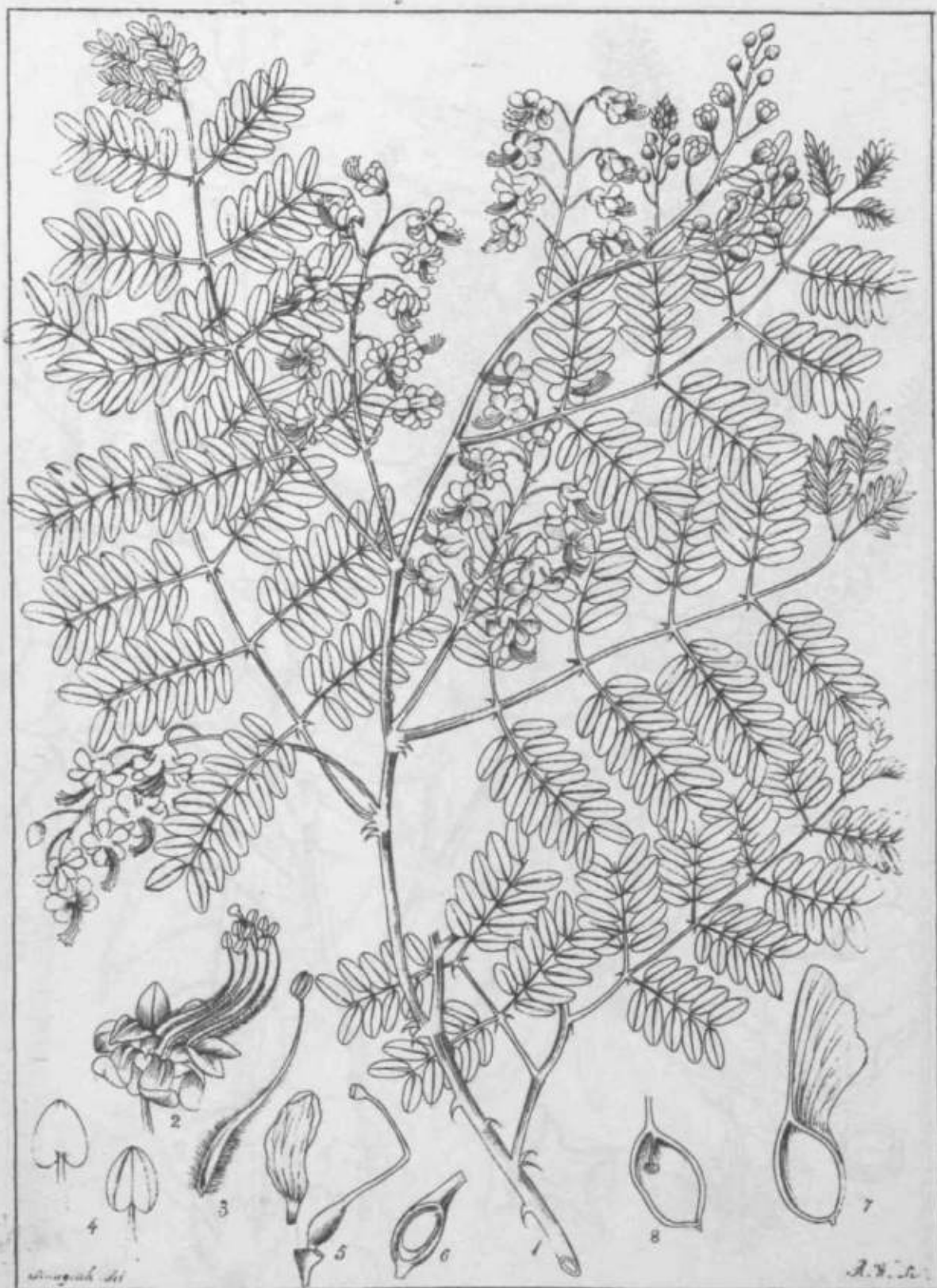
Alangia. del. t t iuiTMam %, & yu/irfa/ti. Clam. •)



புதுச்சேரி

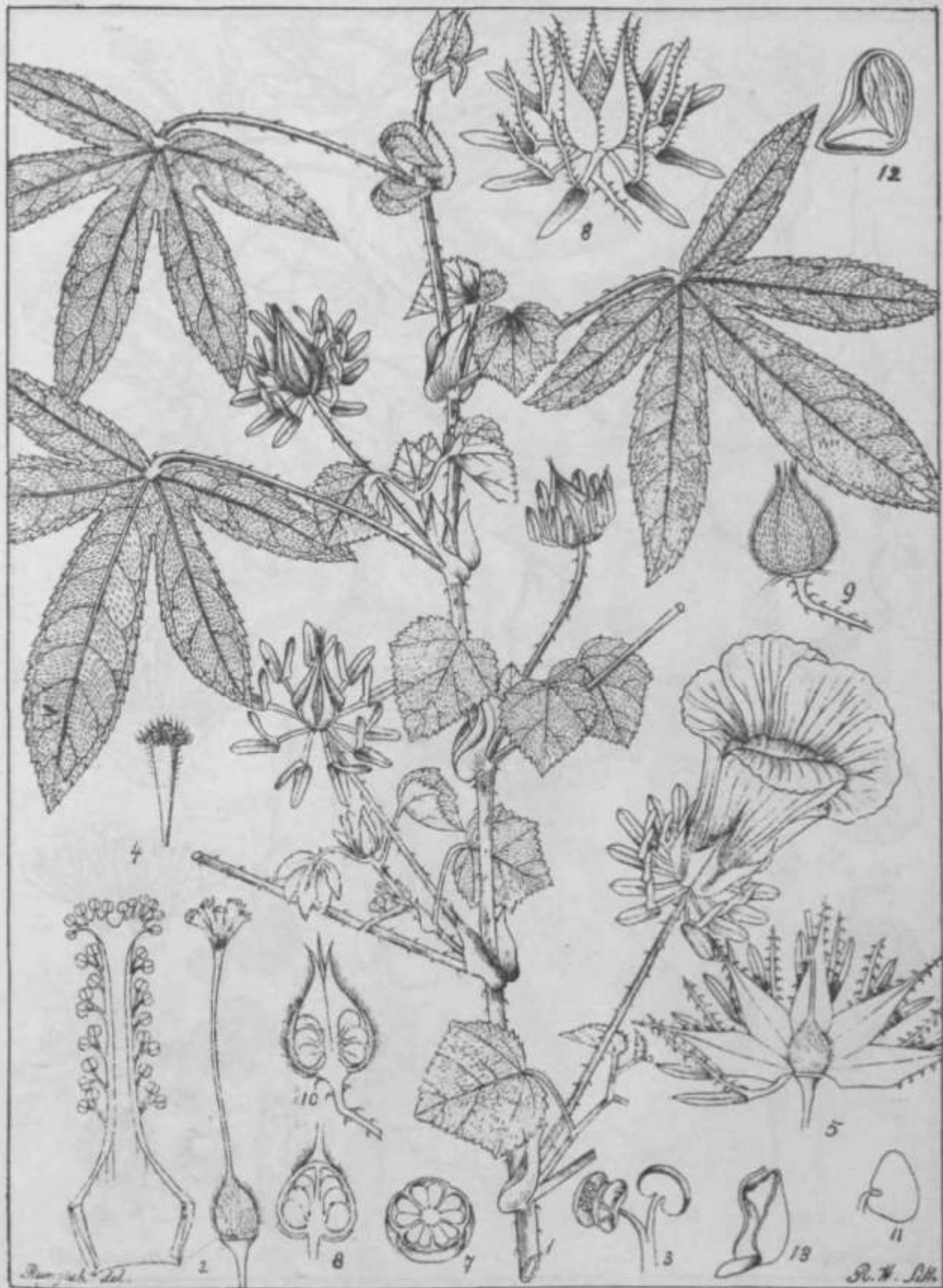
• Hara l&u.H<f><t " }

Terminalia tomentosa (W. & A.)



Pterolobium lacerans. (Brown.)

ಪುಷ್ಪಕೂಟ
ಅನ್ನಾ ಕಾಂತಿ



Dr. G. W. L. H. }
Gaultheria

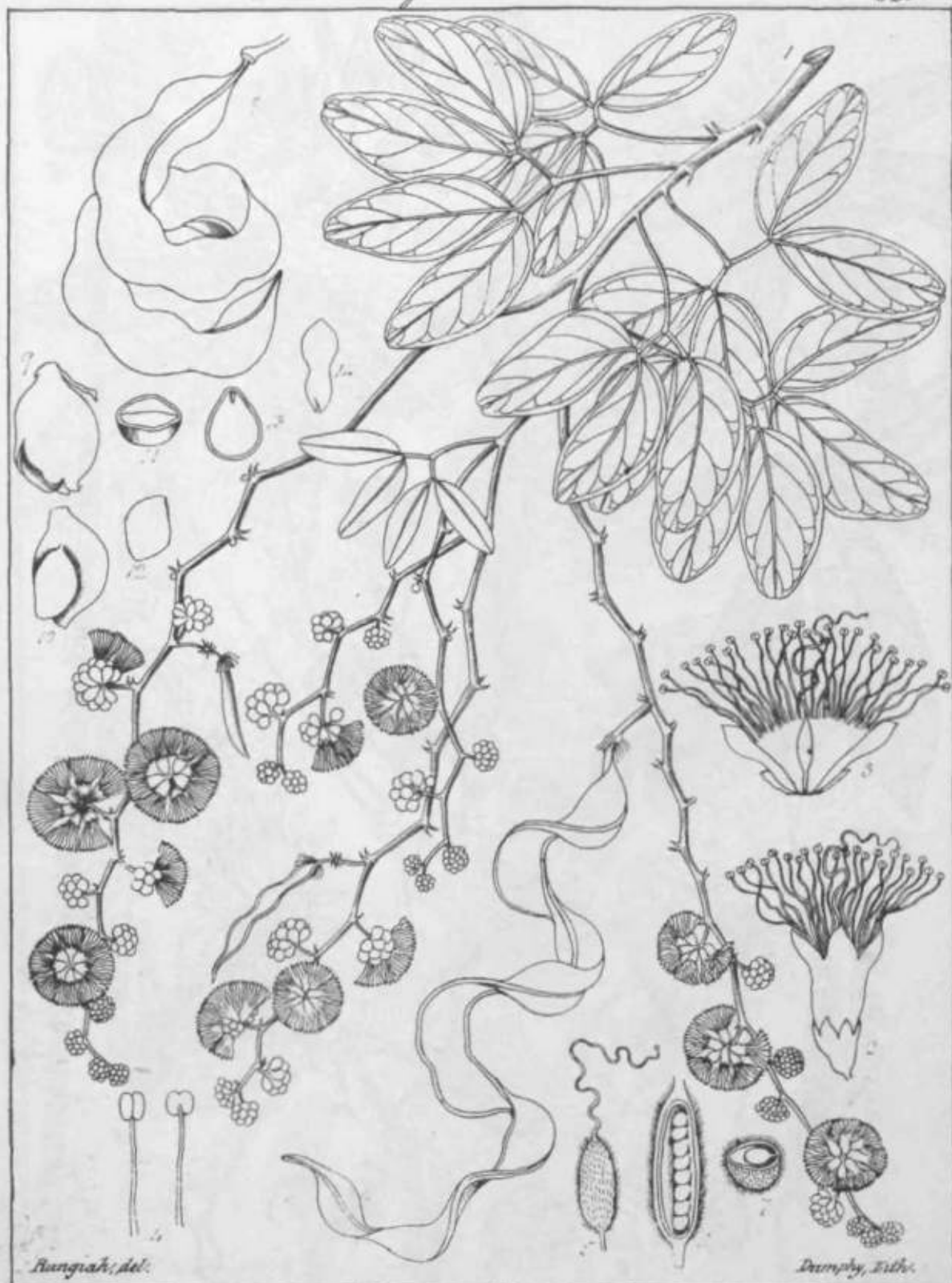
Hibiscus surattensis. (Linn.)

R. W. L. H. }
Gaultheria

Mimosae

Leguminosae

Acacia $\frac{198}{820}$



Rungiah, del.

Dumphy, lith.

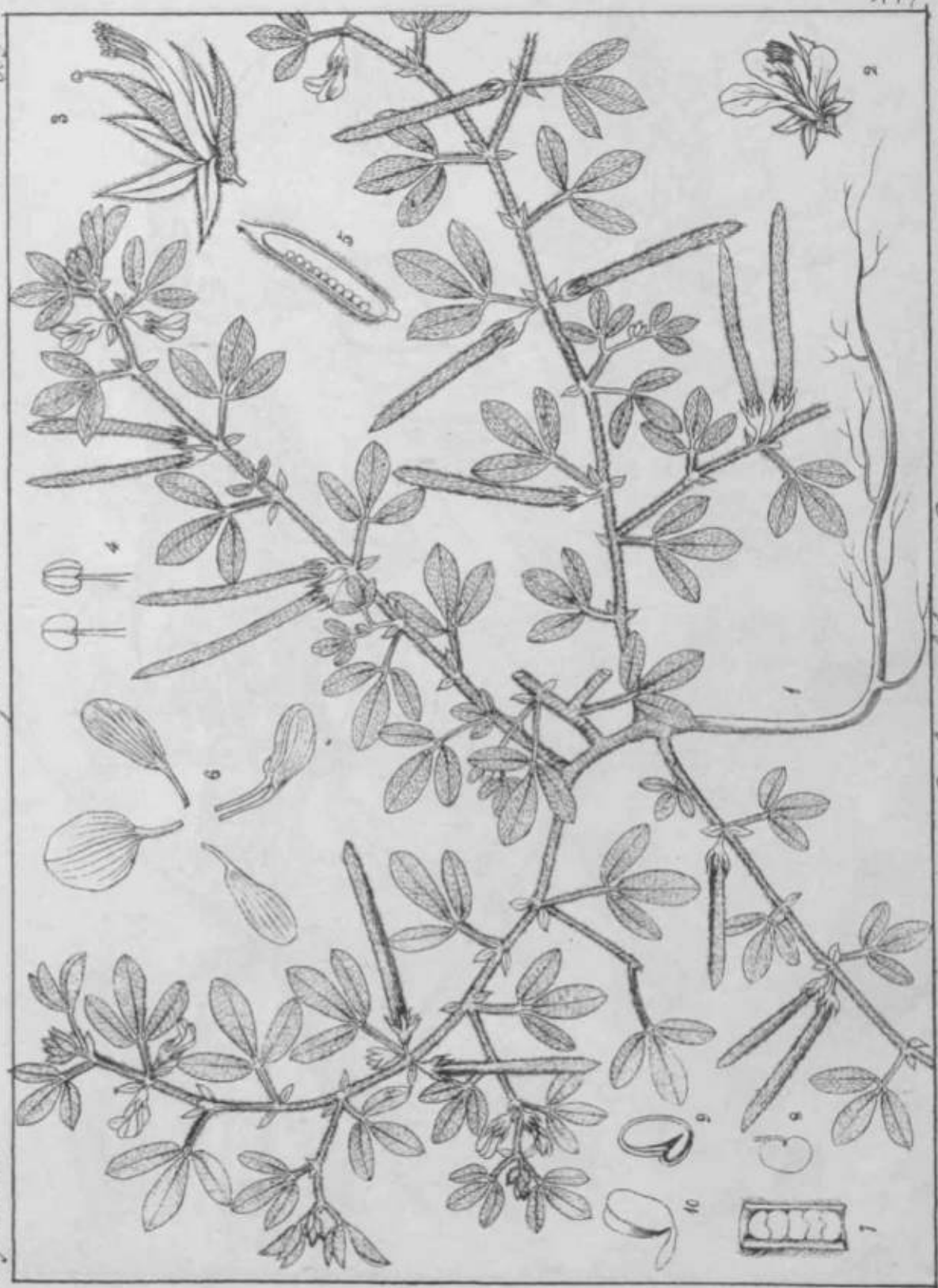
ငါးပင်အမွေ့စွယ်
Kochapodumatum

Inga dulcis (Willd.)

Leguminosae

Leguminosae

199
199



Pearson, det.

Rothia bifoliolata (Pers.)

Burroughs, Lindl.



(?e/h/atta wruccosa (Sinn.!).)



• /for/tcca Aa/wuzfa fJkm.)



Phaseolus pulniensis (R.W.)



Lablab vulgaris

Lablab vulgaris

Lablab vulgaris

Lablab vulgaris (Savi.)

Lablab vulgaris

Lablab vulgaris

*****a&7/r<i> f<^



Bungiah, det.

Zanthoxylum bispinatum (Spuss)

Dunlop, det.



Rangian ex.

Monocera ferruginea (R. W.)

Dampier, Lich.

Leguminosa.

206
881



Sonchus . ***koca*** (Roxb.)

Leguminosa.

207
810



Skillettia rubiginosa. (W & A.)



Eurotia alata (L. aham)

*Desmodium congestum* (Wall.)

Dunphy, Lich.

Papilionacea.

Leguminosae.

Dalbergia.

210
804



Butea parviflora. (Poa b.)



Quercus semiserrata (R.)

(MftUMfel&.

ii?.

Aschurgiana

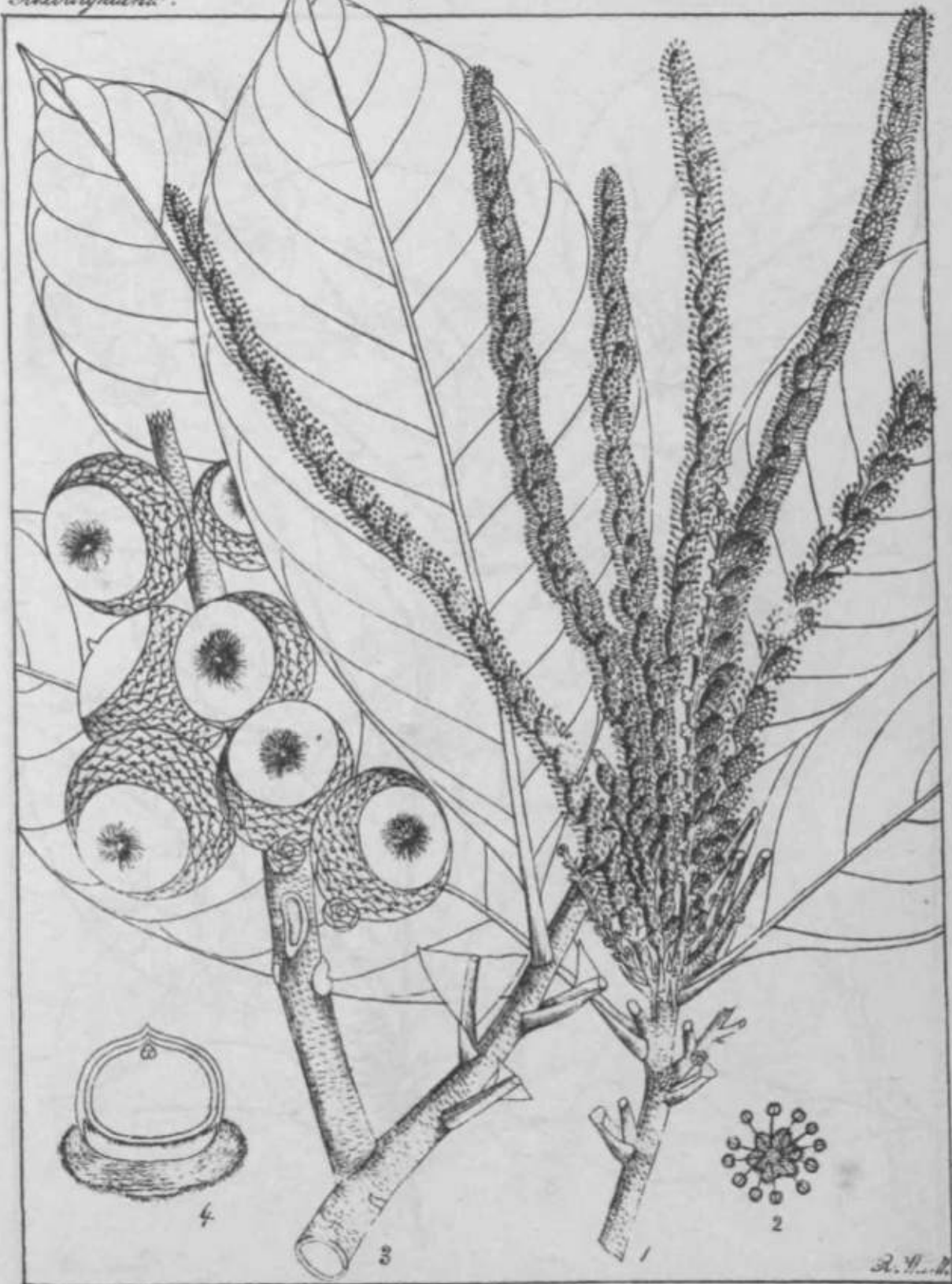


Quercus lanceifolia (Roxb.)

Amburghiana.

Cupulifera.

2/3



Quercus squamata (Roxb.)



R. W. det.

Romeo Lith.

Euonymus crenulatus (Walb.)

Elaeagnaceae.

215.



Eucorystis Goughii

Myrtacea.

216
1034



Lomandra aquatica (0a.)

Lythra. *Salicaria.*

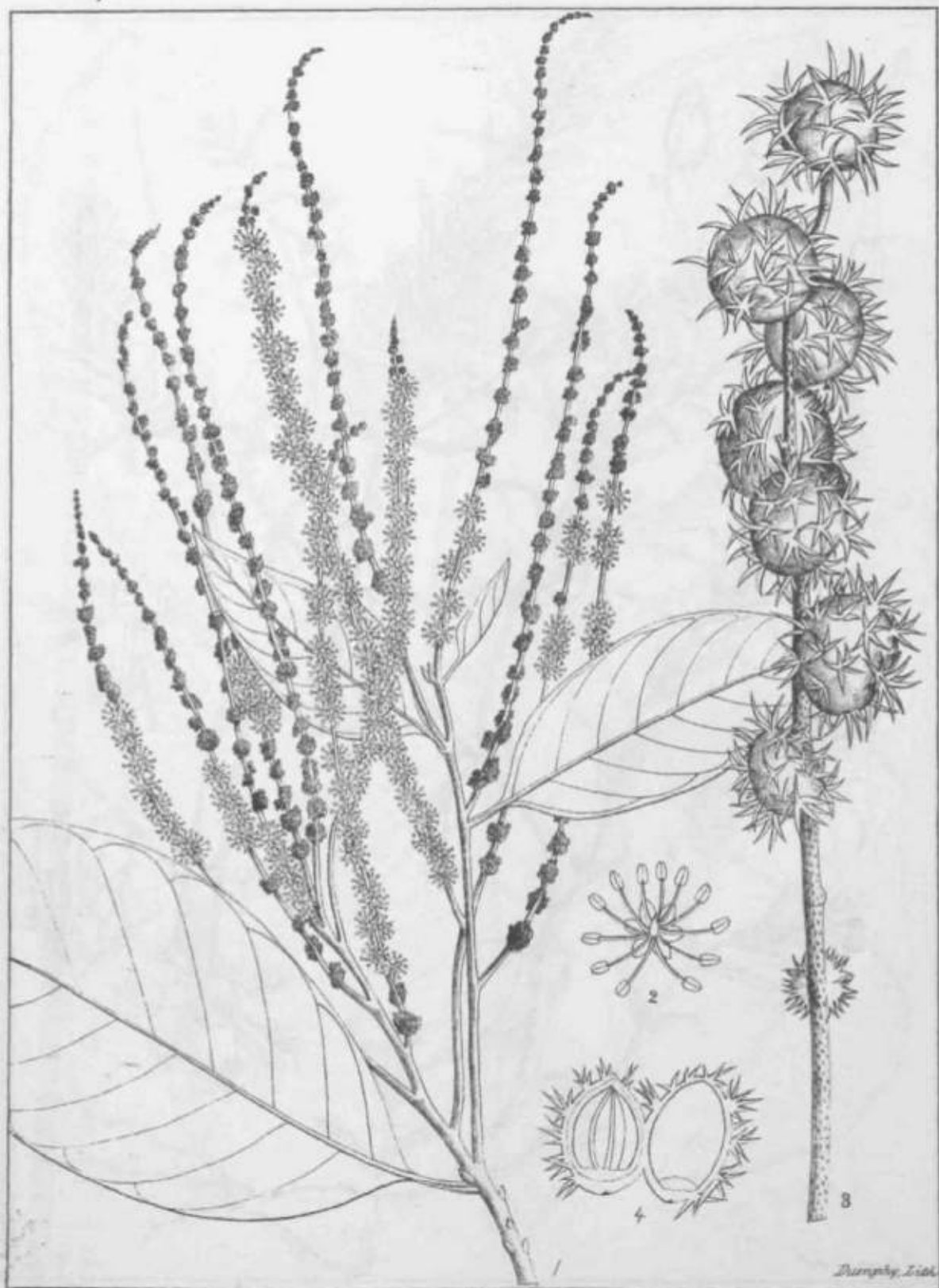
217
982x23



Bungia del.

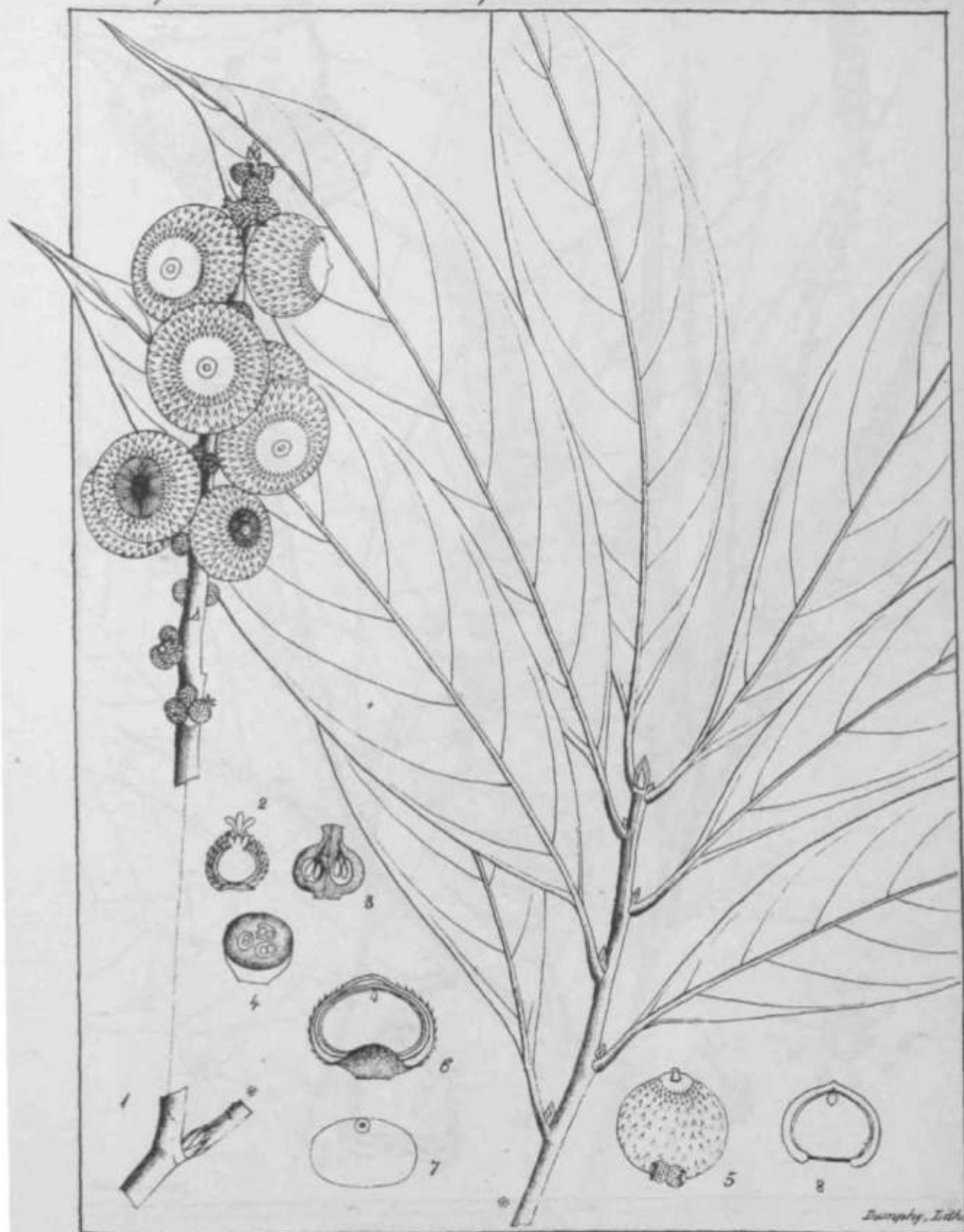
R. W. 217

Rotala fimbriata (R. W.)



Dumphy, Lith.

Quercus ferox (Roxb.)



Quercus fenestrata (Roxb.)



Dumphy, Lith.

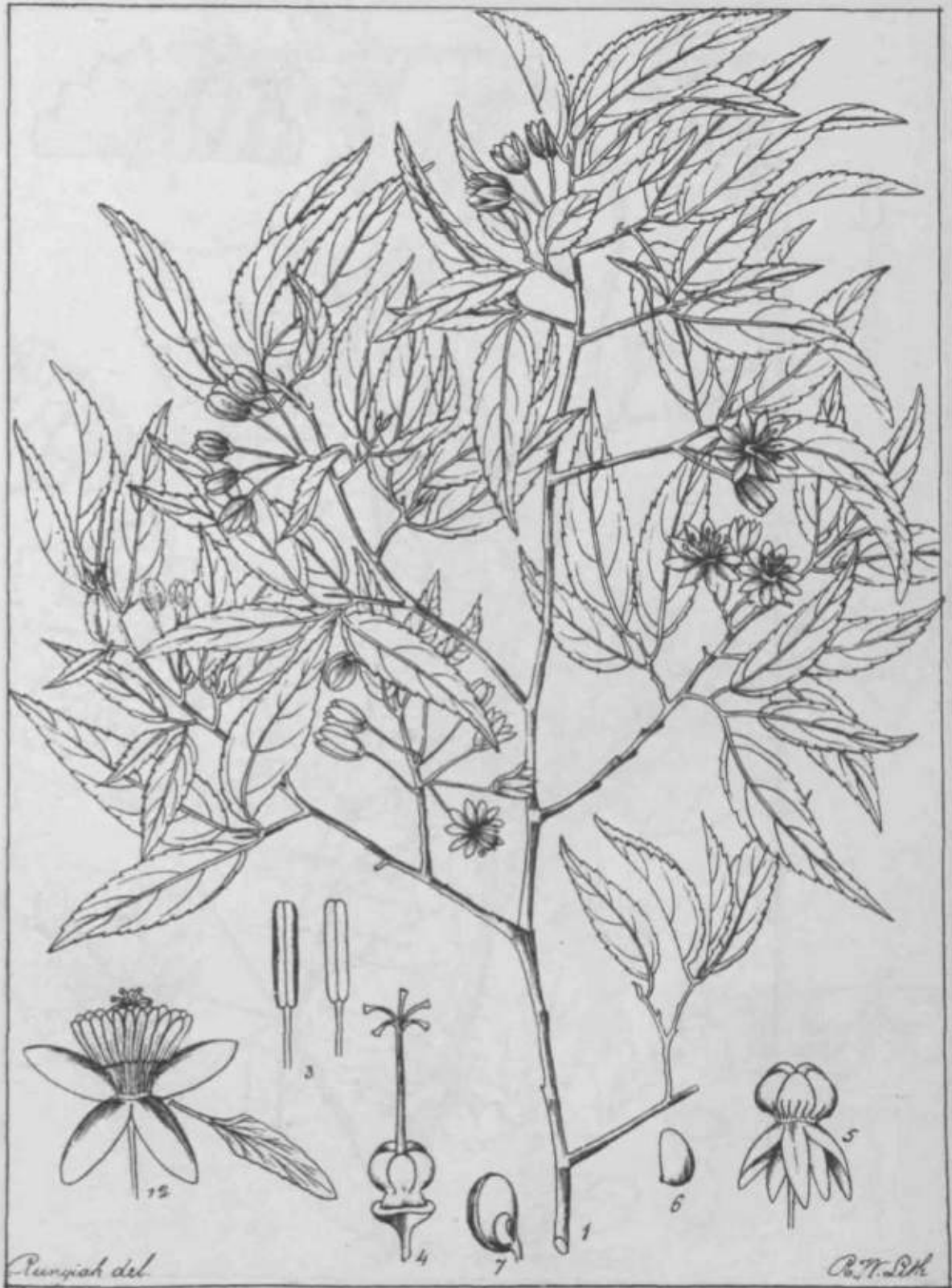
Quercus lappacea (Roxb.)



Quercus turbinata (Ac)
2 *Quercus acuminata* (Pursh)



Elatine (Bergia) astirrosa (W & A.)



Punjab del.

C. N. S. H.

Ochna Mehtiana (Walt.)

<f

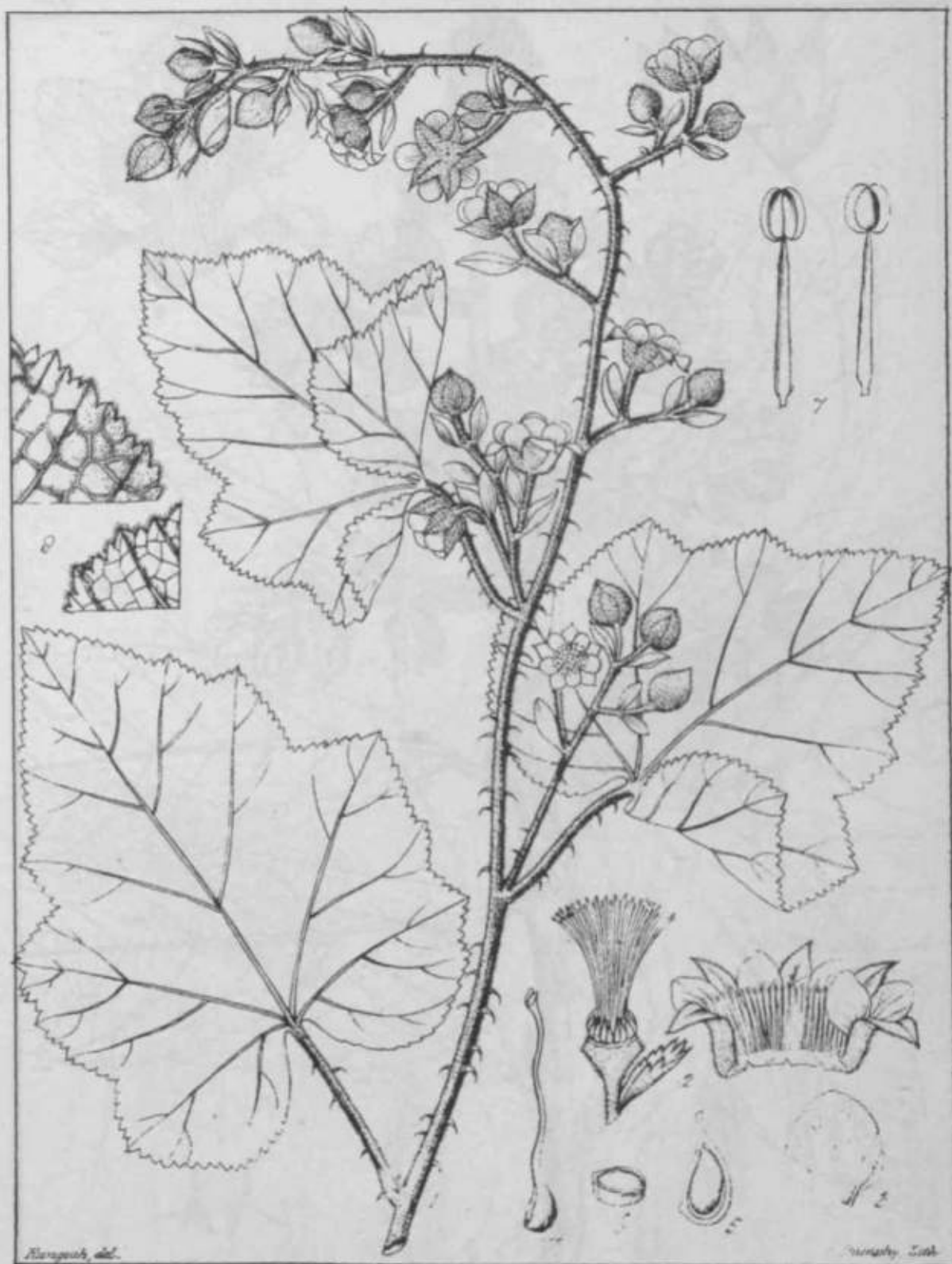


Mimonia Eupatorium (Linn.)
A. Ceylanica Nees

Rubus

Rosa

1855



Rubus rugosus (Sm.)



செஞ்செடியம்
Eriobotrya

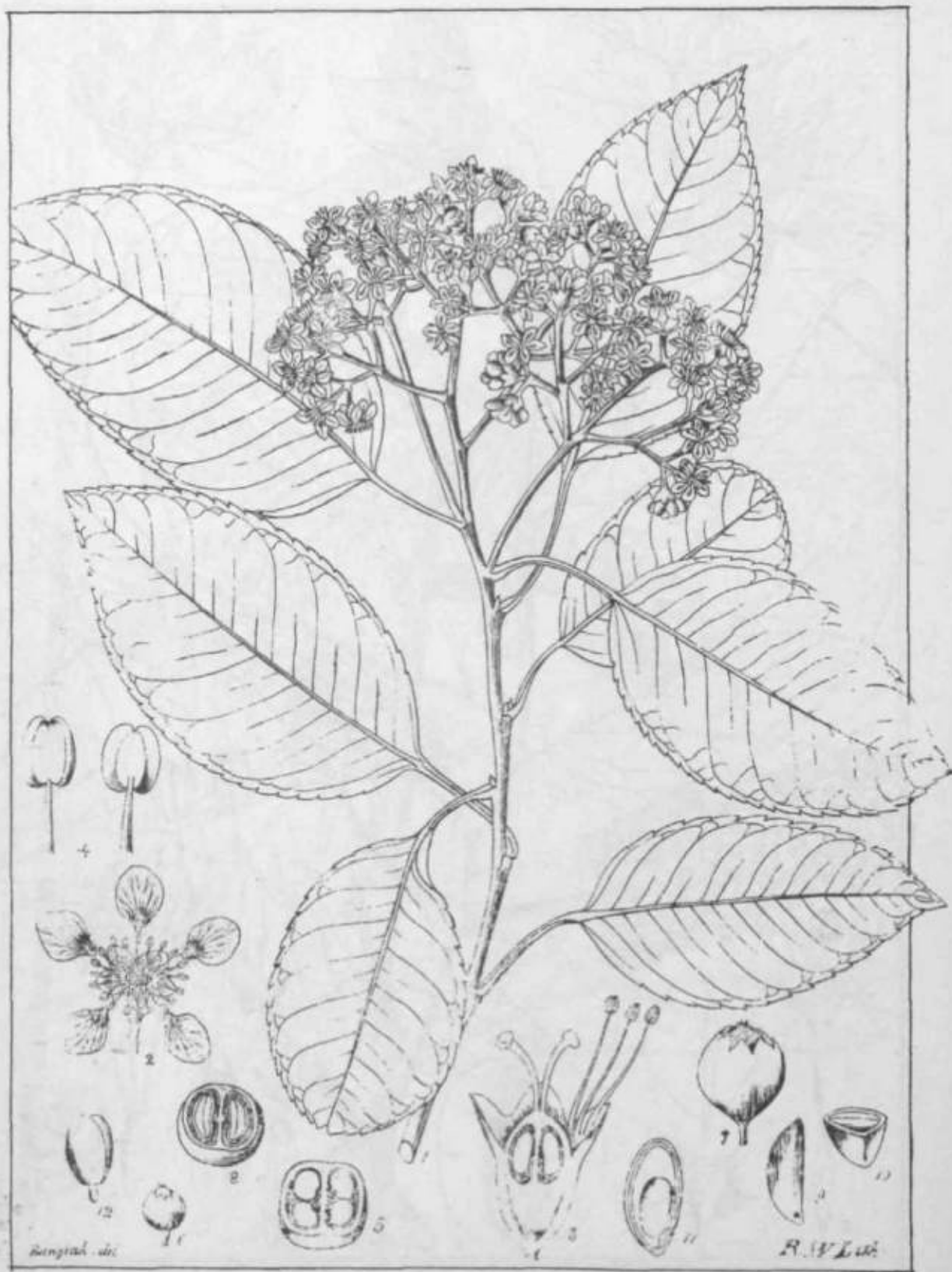
Japonica (Lindl.)



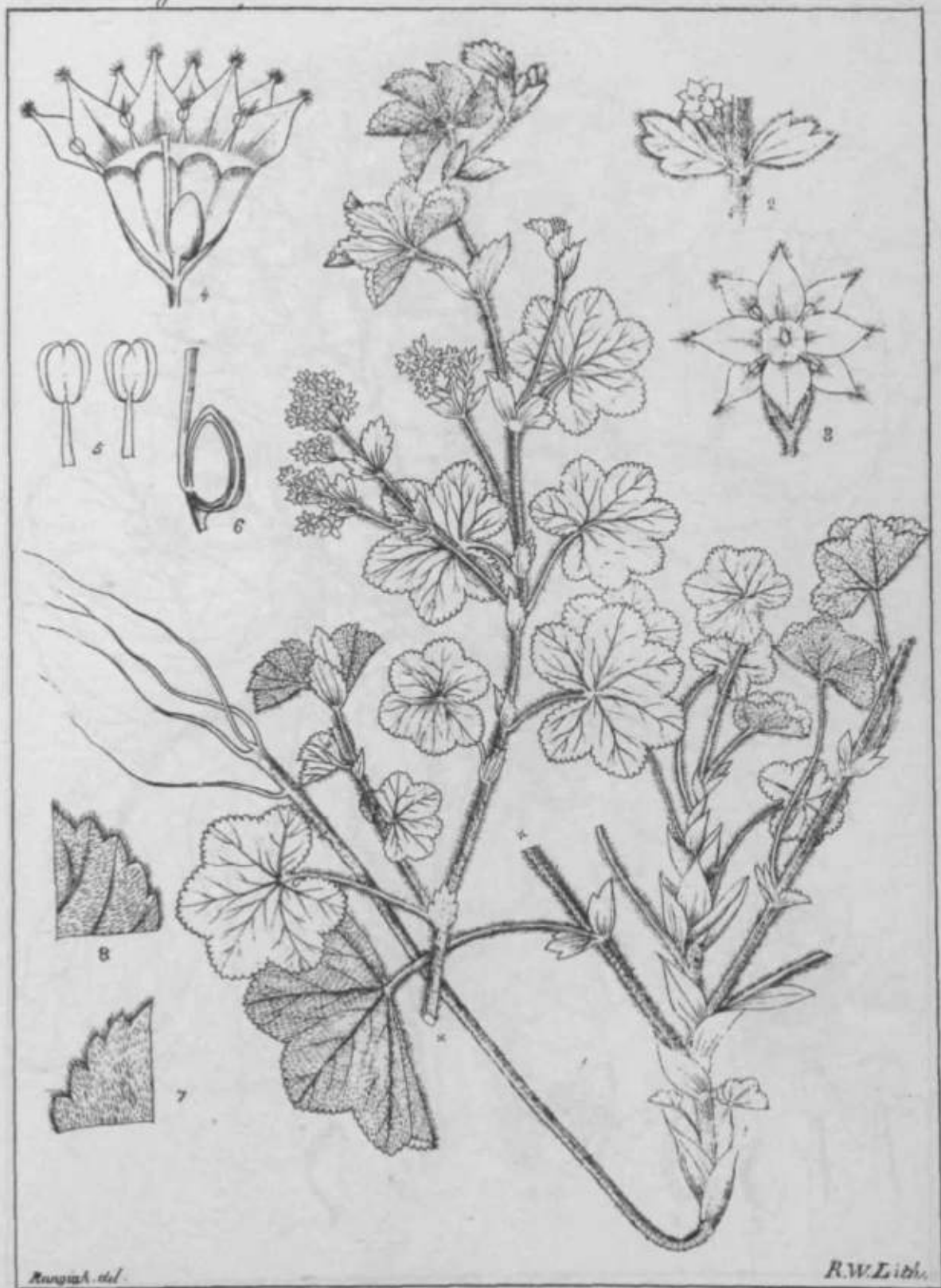
Bengal: det.

Combretum Wightianum (Wall.)

Barrois: det.



Rosa Indlayana (H. B. K.)



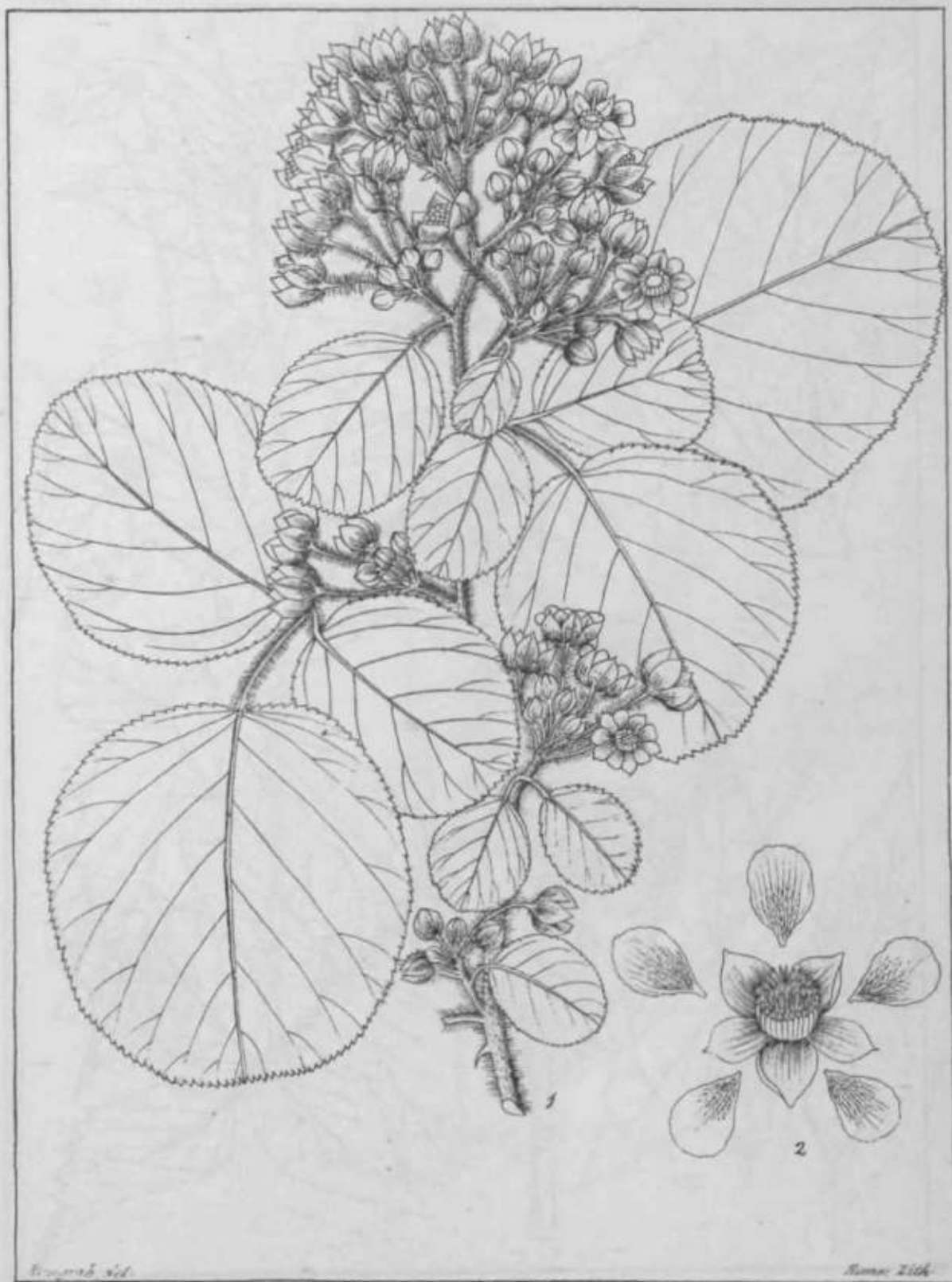
Blechnella vulgaris Ann
Al. berytanica Moen.



Karigian, del.

Rubus gowwcephul, Roxb.

Herbar. Zool.



W & A

W & A

Rubus Wallichianus (W & A)





Potentilla fruticosa (L.) W.

Rosea

Rosaceae

234
928X29



Bungiah del

Rosa involucrata (Roxb.)

C. A. B. K.

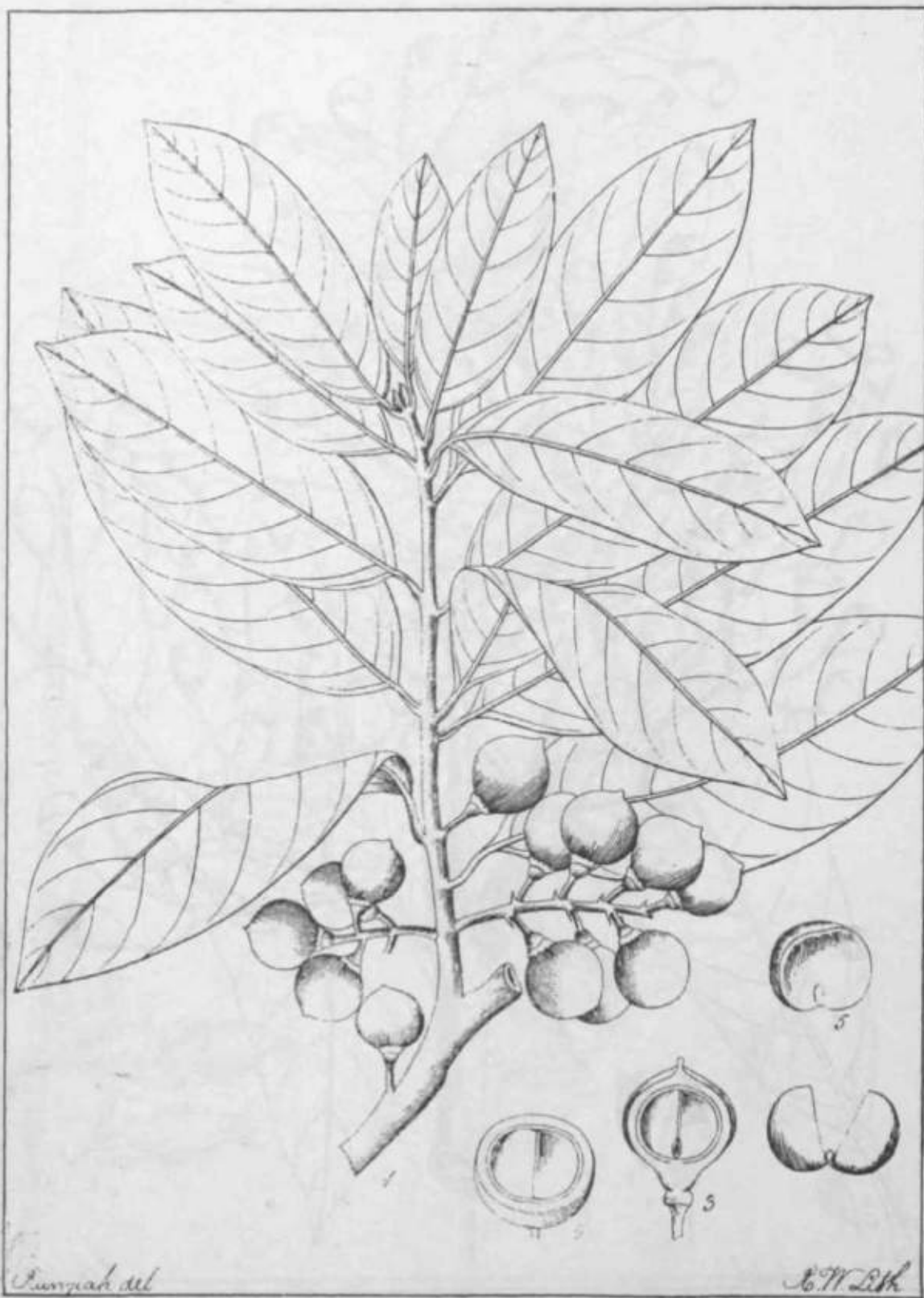


Turcoiah del

Semecarpus

J

R. H.



Euphorbia del

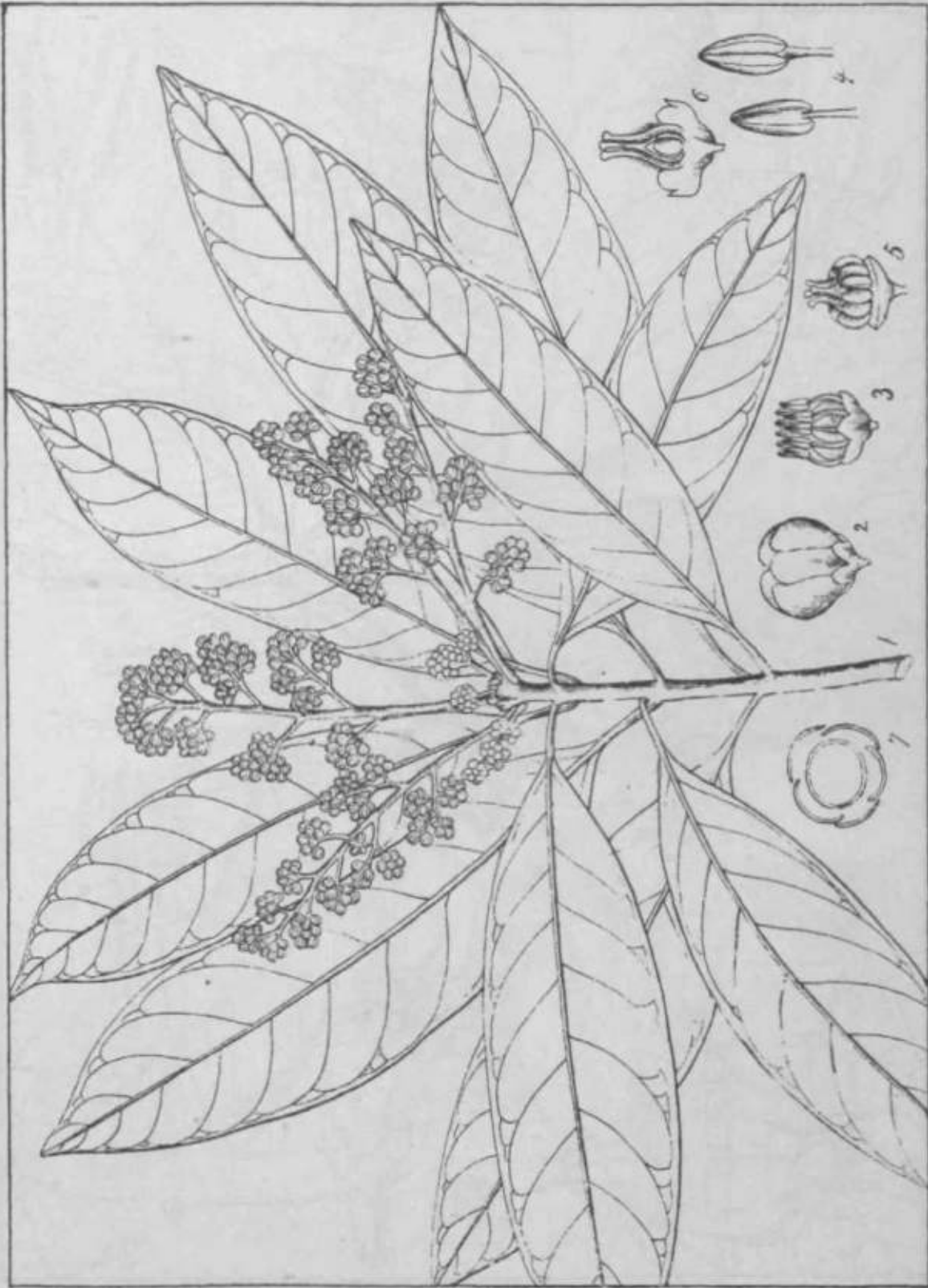
Egia celebriana (R.H.)

REFERENCE2

237

Trochilanthaceae

Sub-mis. Amacardine



R. W. D. C.

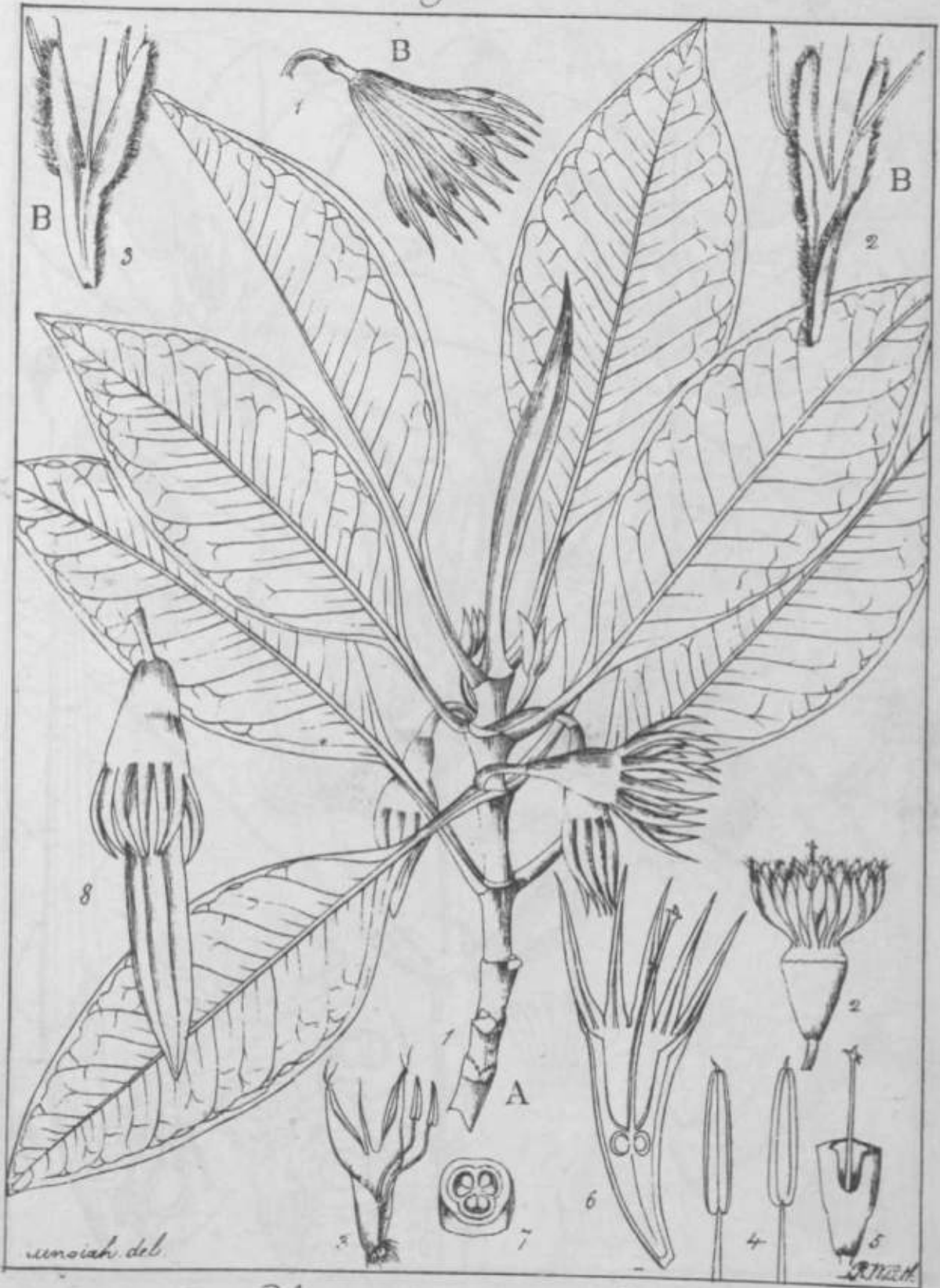
Buchanania lanceolata (R. W.)

Rungtshul

Rhizophora*Rhizophora mucronata* (Sam.)

Ravensh. del

A. W. 228



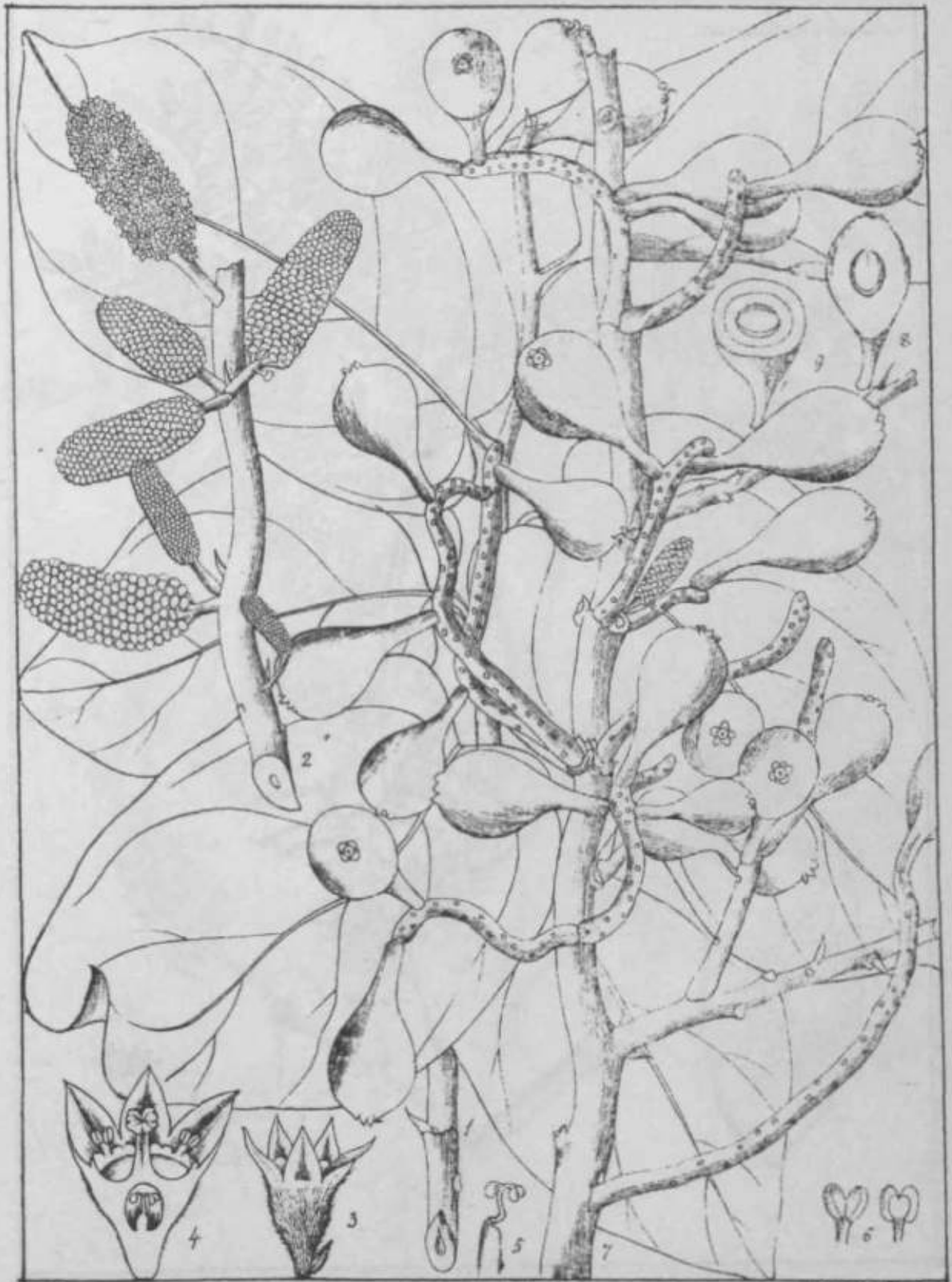
AI (Ly?uqiue, ia. Cnne/da fCbtfu) B: *B. vuopetala* W. A.
B. aumnorhiza W. A. men Sam
 4>



Pungah del.

Ceriops Candolliana (Avic.)

Det. L.H.



Boiss. del.

Scleropyrum Wallichiana (Arn.)
Spharocarya Wallichiana (W & A)

Boiss. del.
Boiss. del. *Cu>i*

Sub. Fr. Dalbergia.

Leguminosa

242

Roxburghiana.



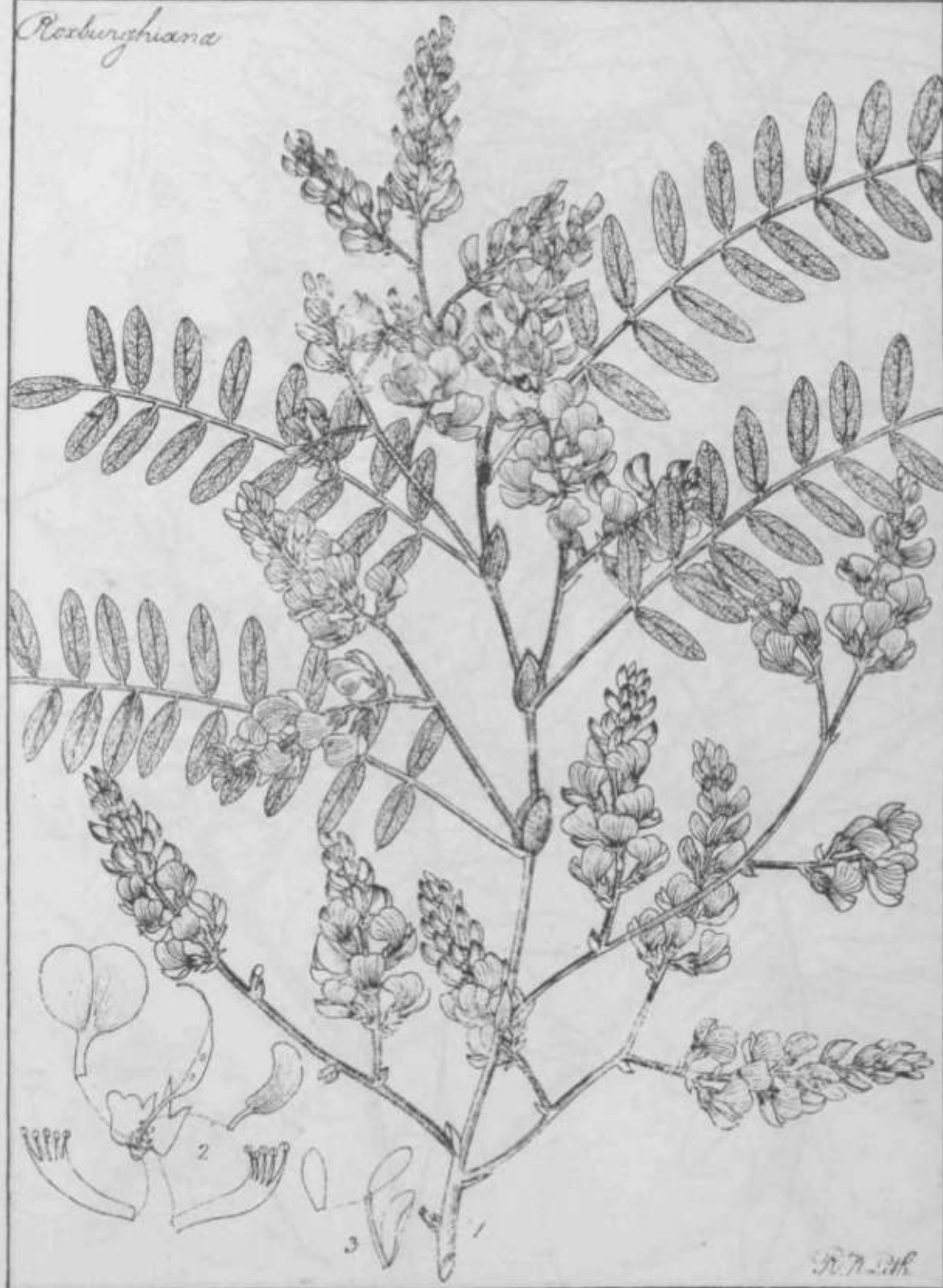
Dalbergia tamarindifolia Roxb.

Sub. Tr. *Dalbergia*

Pegumimosa

243

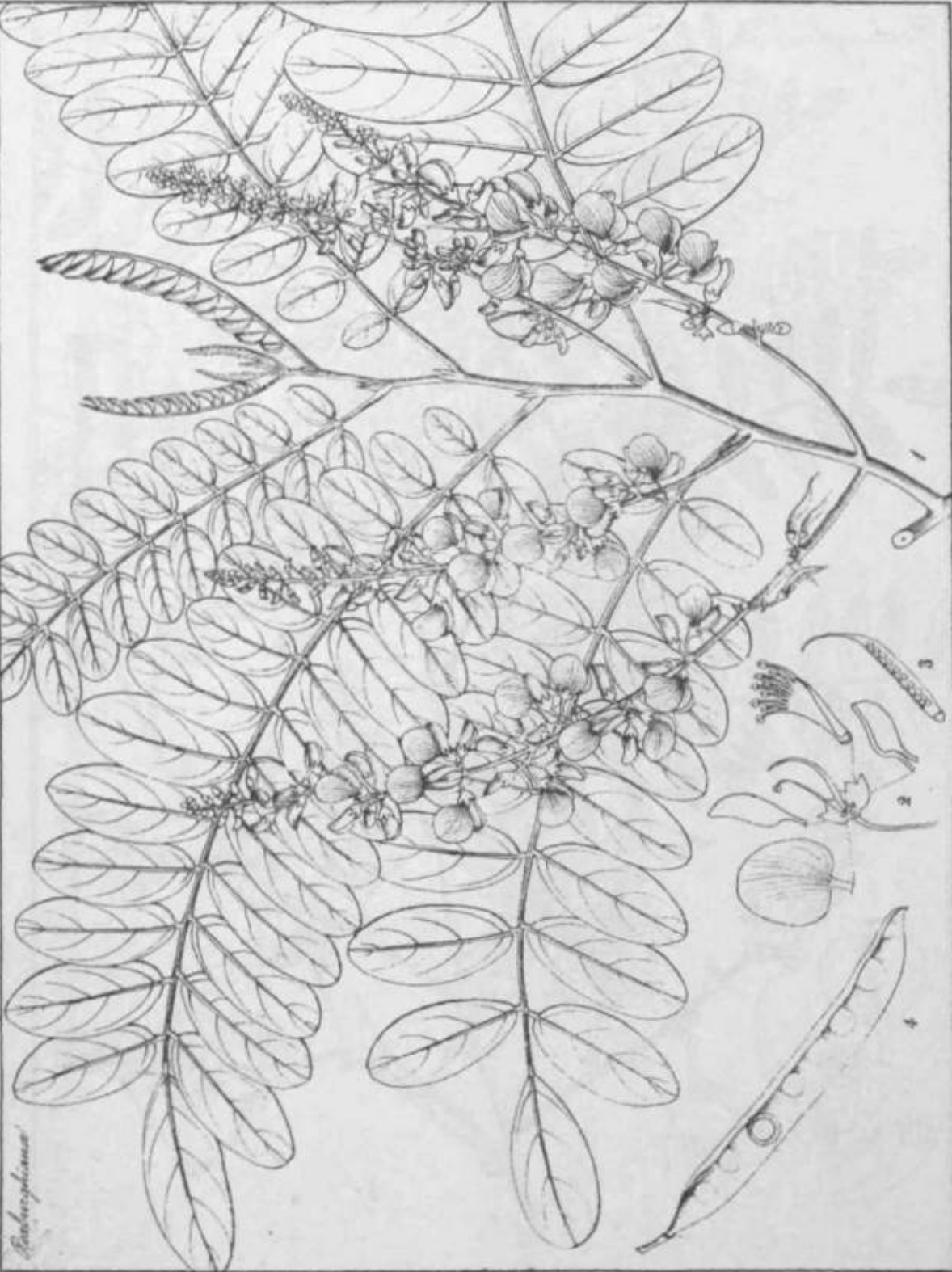
Roxburghiana



Dalbergia Apulata. -ipi^b)

Leguminosae

Sub Gen: Dallergeria

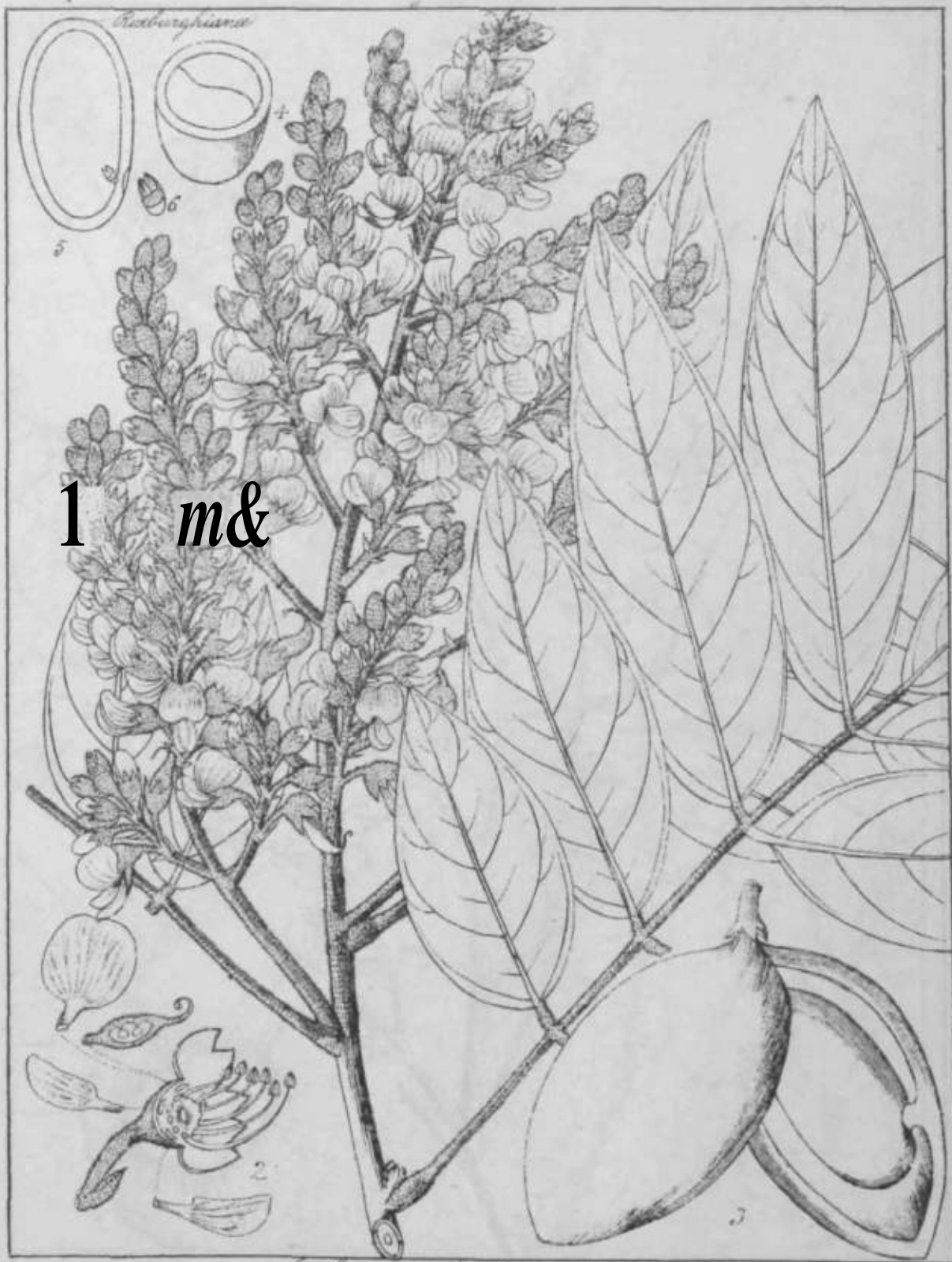


Dallergeria robusta (Roxb.)

Sophorea

Liguminosa!

245



Sophora rabiourghiana



Pitocarpus dalbergioides (Roxb.)

Apilionacea

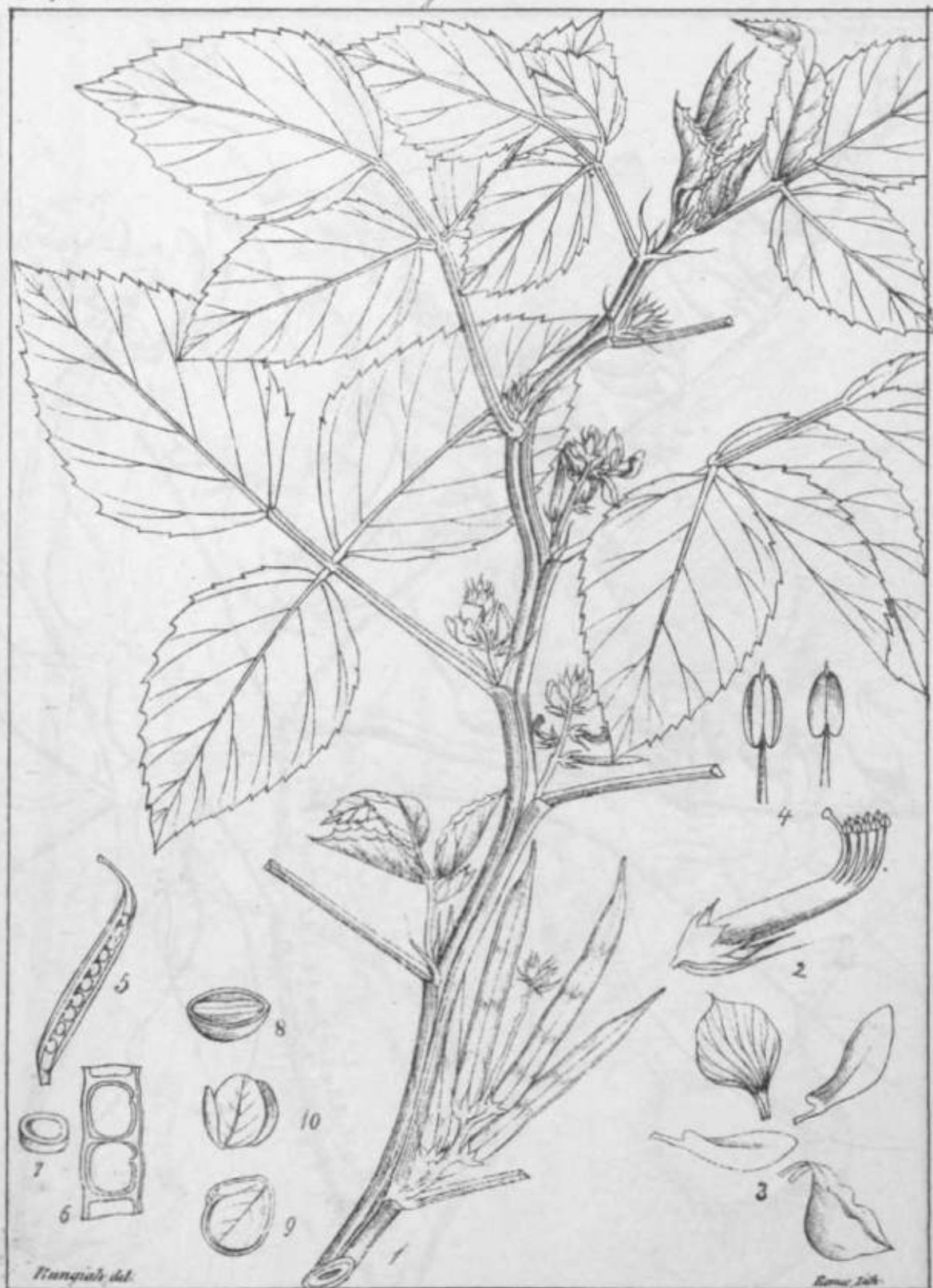
*L. dt&m&rli *'*

Pharodea

247



Erythrina ovalifolia Reel.



Frangula del.

Rome del.

Cytamopsis psoraloides (DC.)

Papilionacea

Leguminosa

Phaseola

$\frac{749}{752}$



Pungiah det.

Phaseolus psoraleoides (W & A.)



Hedysarum pubescens (Laurin, 1855)



Alysicarpus longifolius (H. & B.)

Leguminosae

Fulcrum Caspinae

Leguminosae



Cracca bacillus / Bostry

AM'

Sukoma. Casalpinea

Leguminosa

253
890



Sukoma. 1842

Cassia alata (Linn.)

Casalpinia

Leguminosa

Cassia

254

2



Acrocarpus fraxinifolius Arn

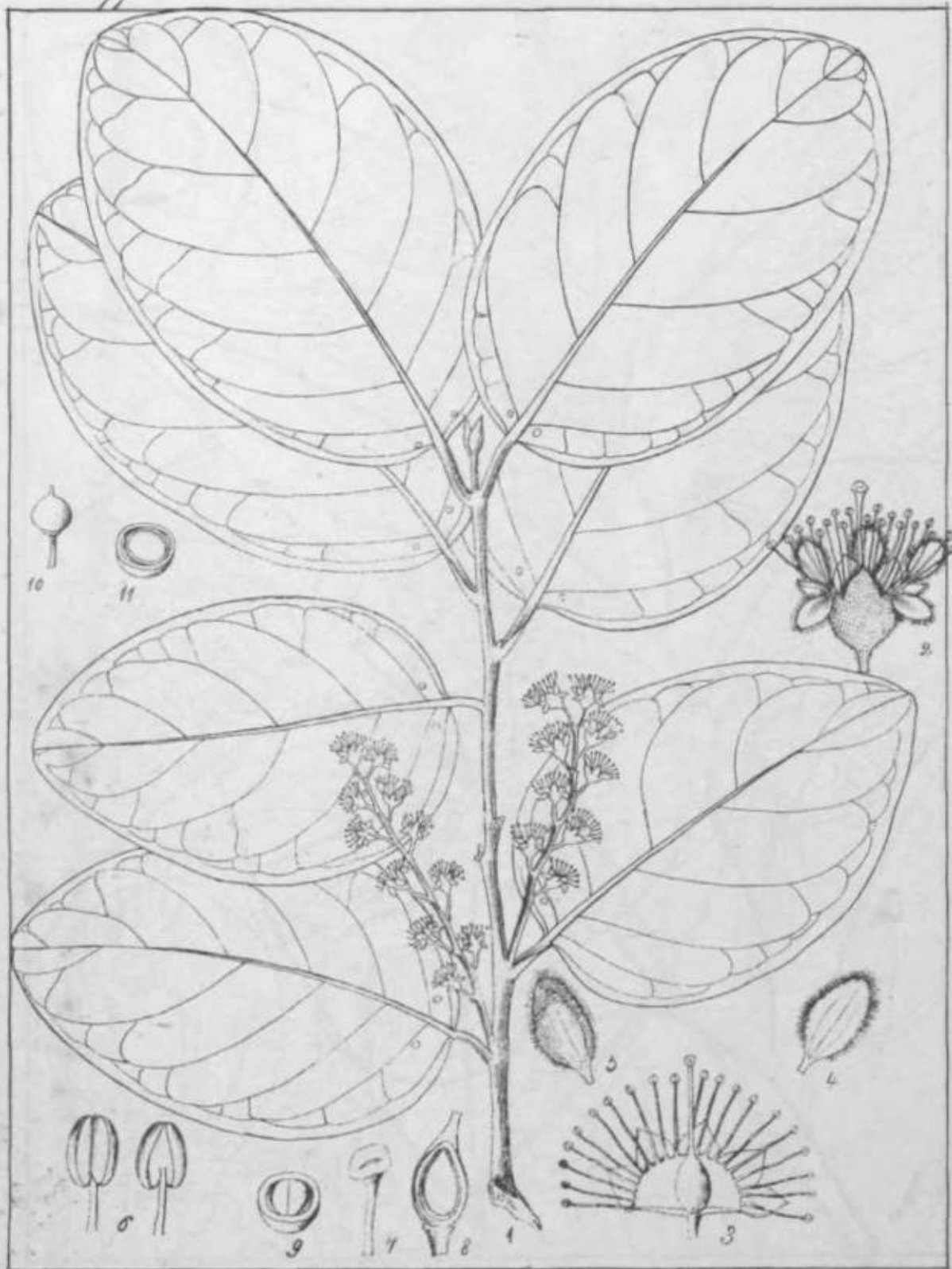


Spharocarya edulis (Wall.)

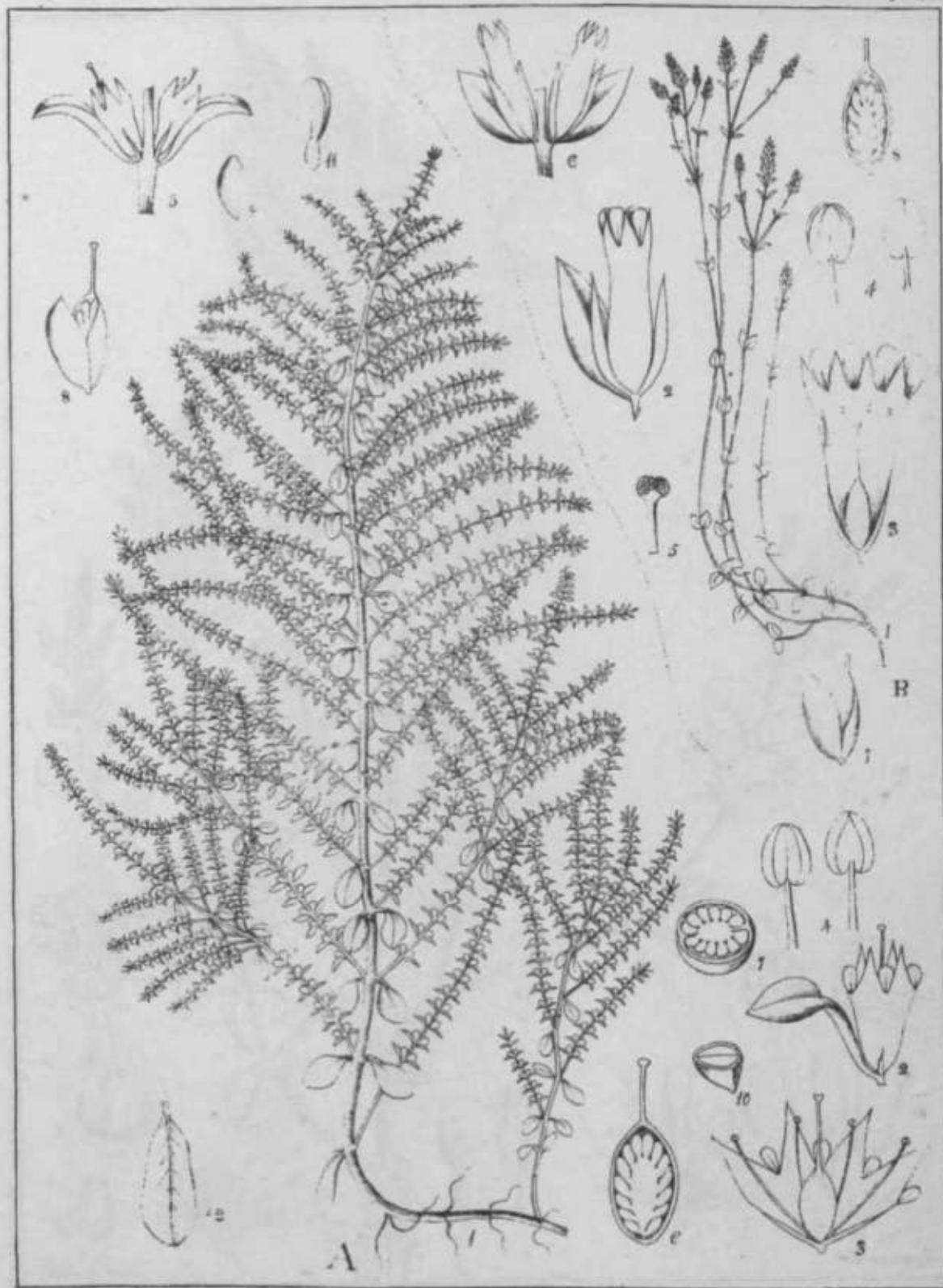
Amygdalea

*CMekMat**

236

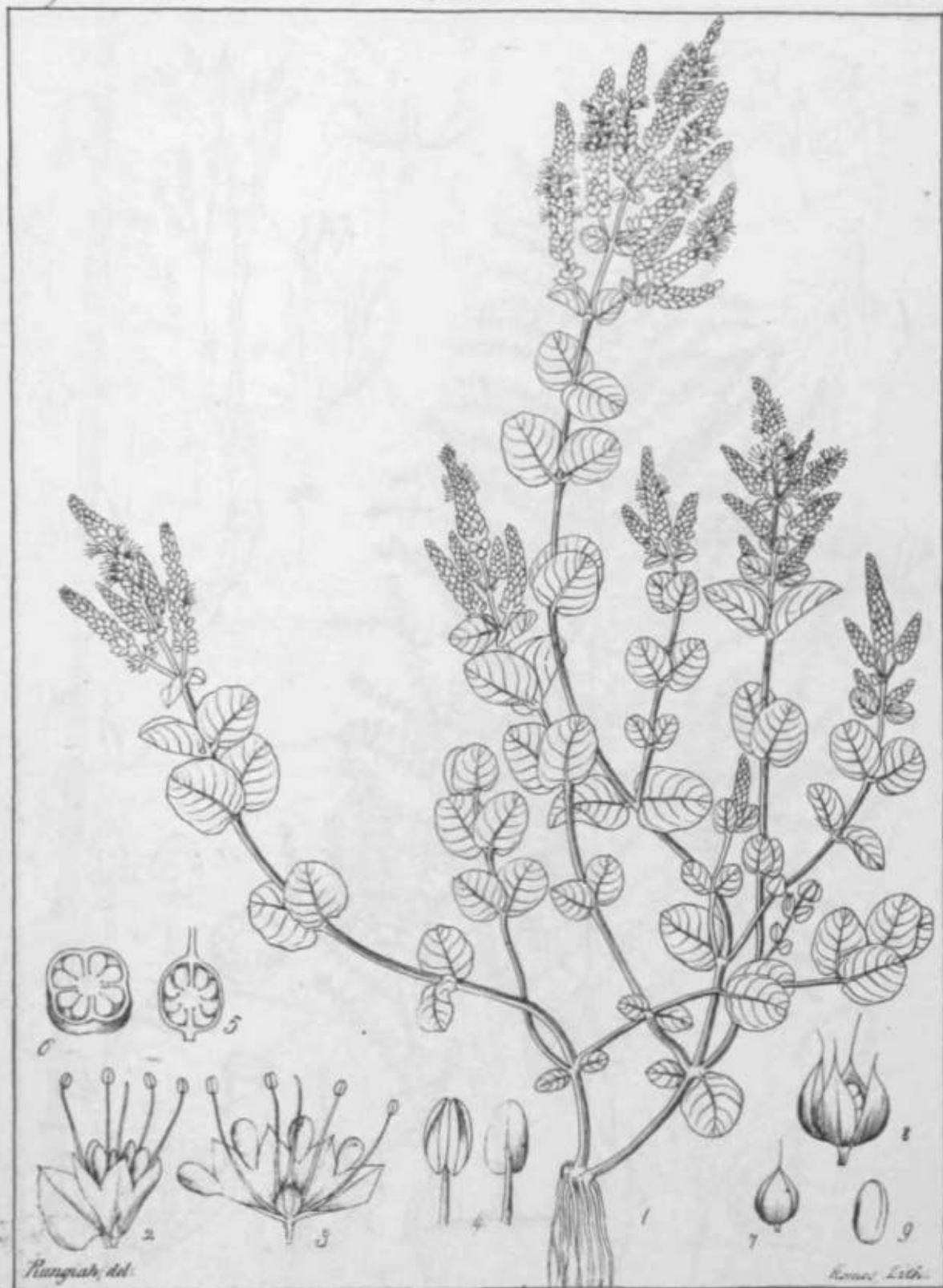


Polyodontia? Ceylanica (R. W.)



A. *Indica* (L.C.)

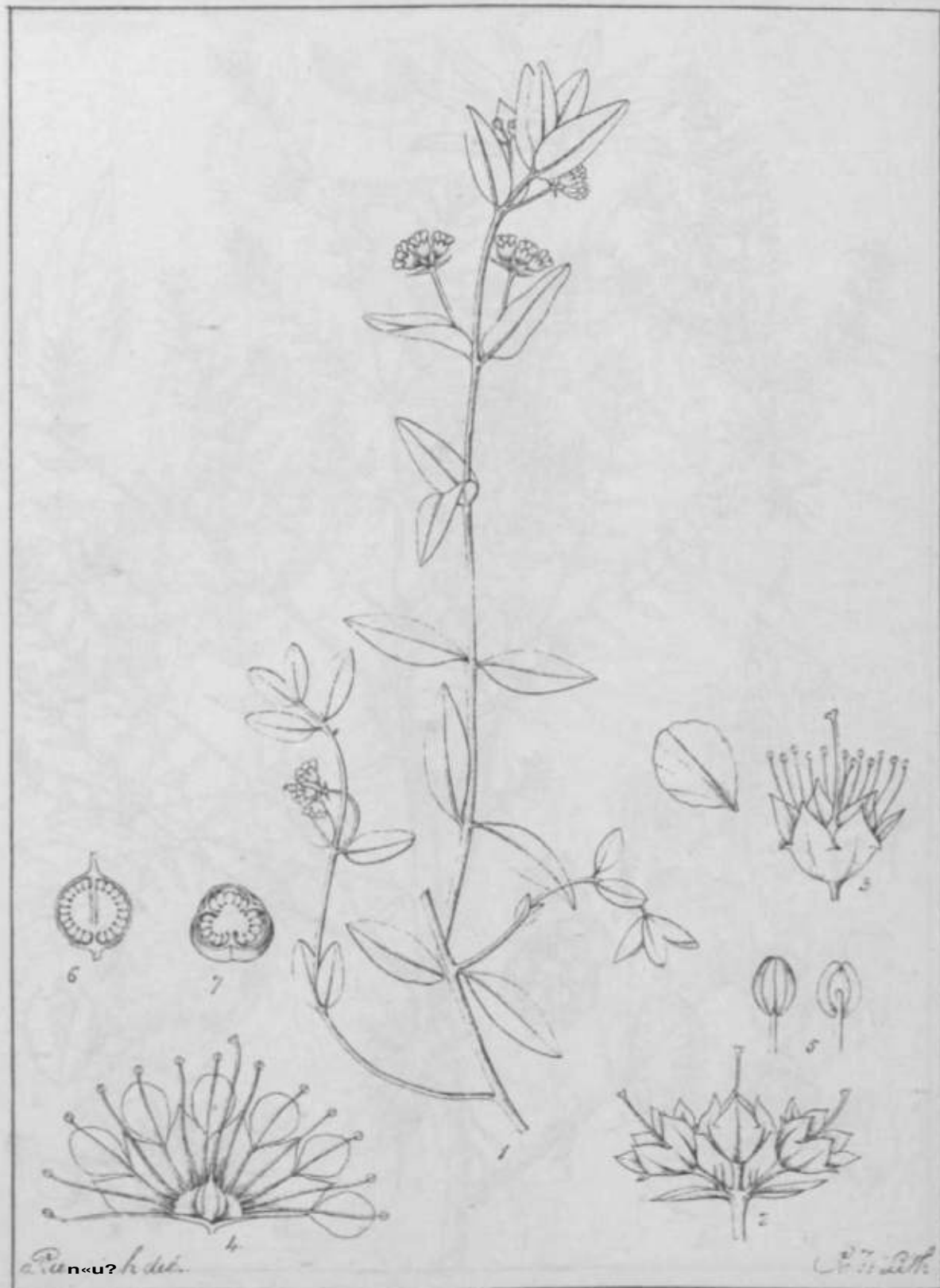
B. *tenuis* (R.W.)



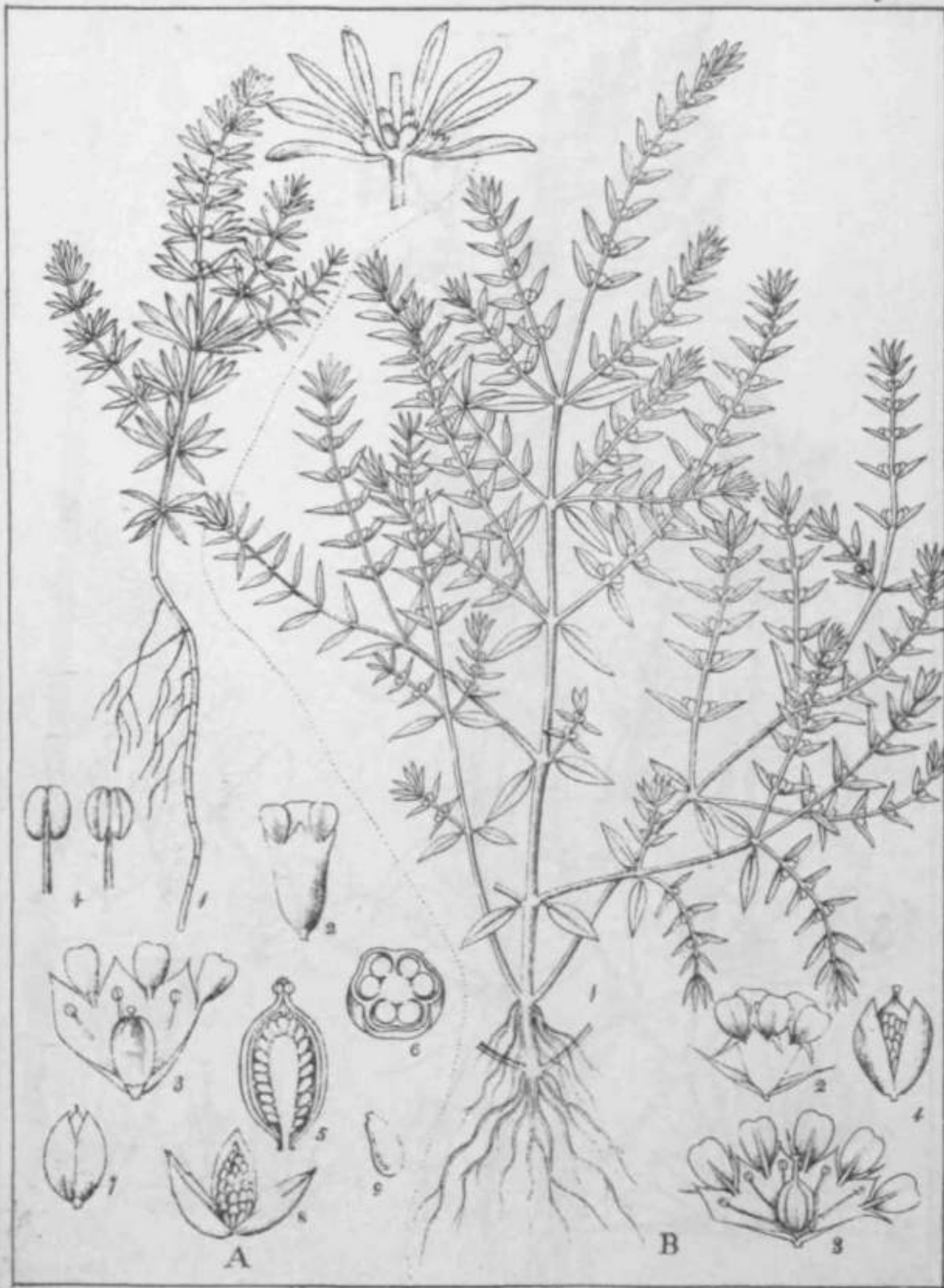
Amelanchier alnifolia (R. W.)
Ammann.

J. picarica

Ug.



hjazi: triflora (o)C(Criffi



A *Salicornia verticillaris*, Linn. f. *Salicornia* *Halimifolia* (L.) W. & A. / if

• //H MUM ma /umda/rtdia (Reel)

Papilionacea!

Leguminosa!

Dalbergia 261

Rodrigueziana



Dalbergia reniformis (Roxb.)



Haegroom seltu *D. ^{fw}naia rimosa (Ret.)*

Casalpinea

Leguminosae

Cafra

263

Roxburghiana



Bauhinia jWibbiana (Roxb.)

Casalpinia

Leguminosa

Capsica

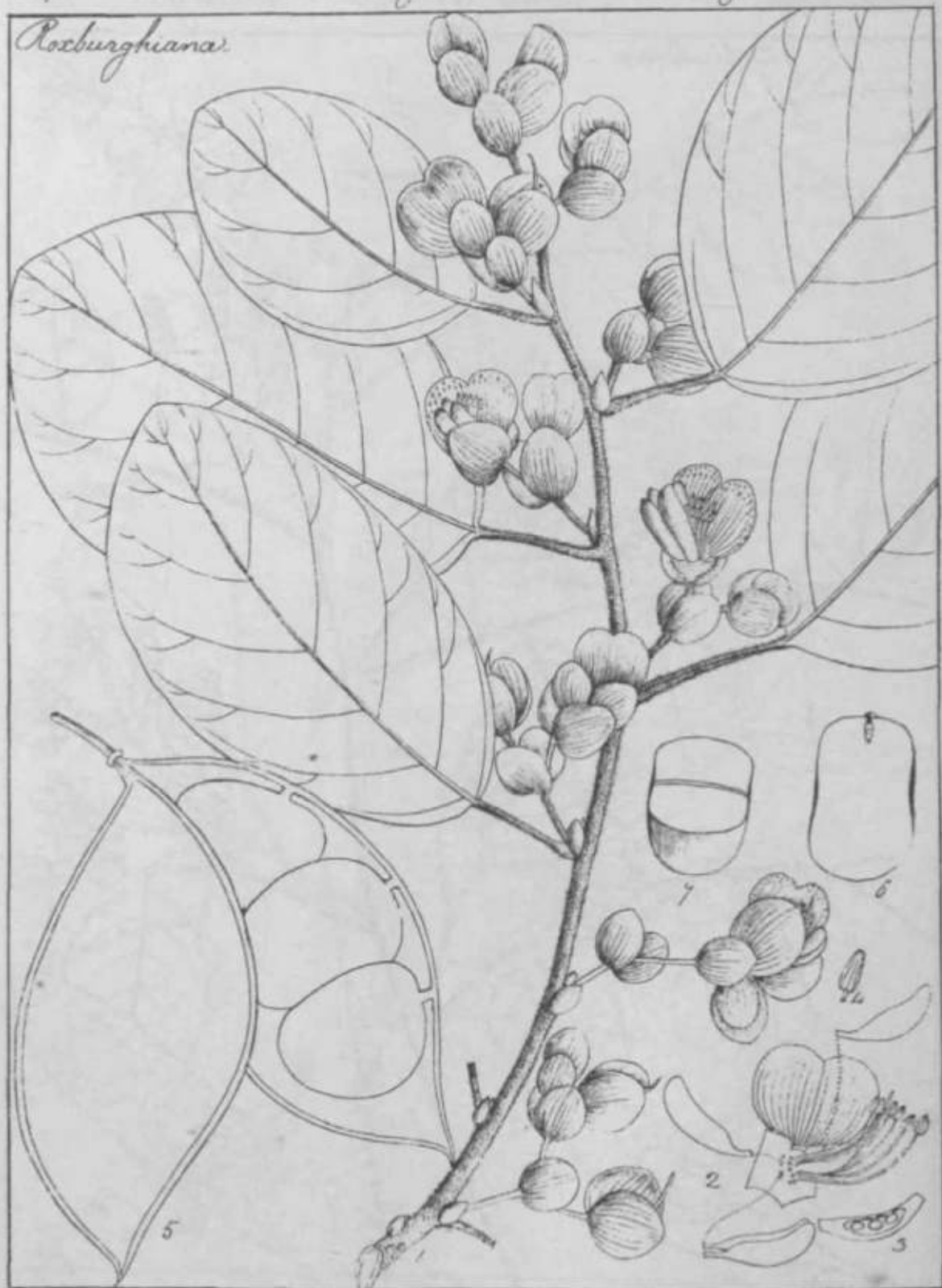
264

Roxburghiana



Bauhinia *thunbergii* *Roxb.*

Roxburghiana



Dalhousiea bractiata (Wall.)
Podalyria bractata (Roxb.)

Papilionacea

Leguminosa *Dalbergia*

266
520



Dalbergia frondosa (Roxb.)

Papilionaceae

Leguminosae Phaseolea

267
745

Roxburghiana



Strobilifera

Strobilifera Brown

in *Strobilifera* (Miffaw)

Fraxinifolia

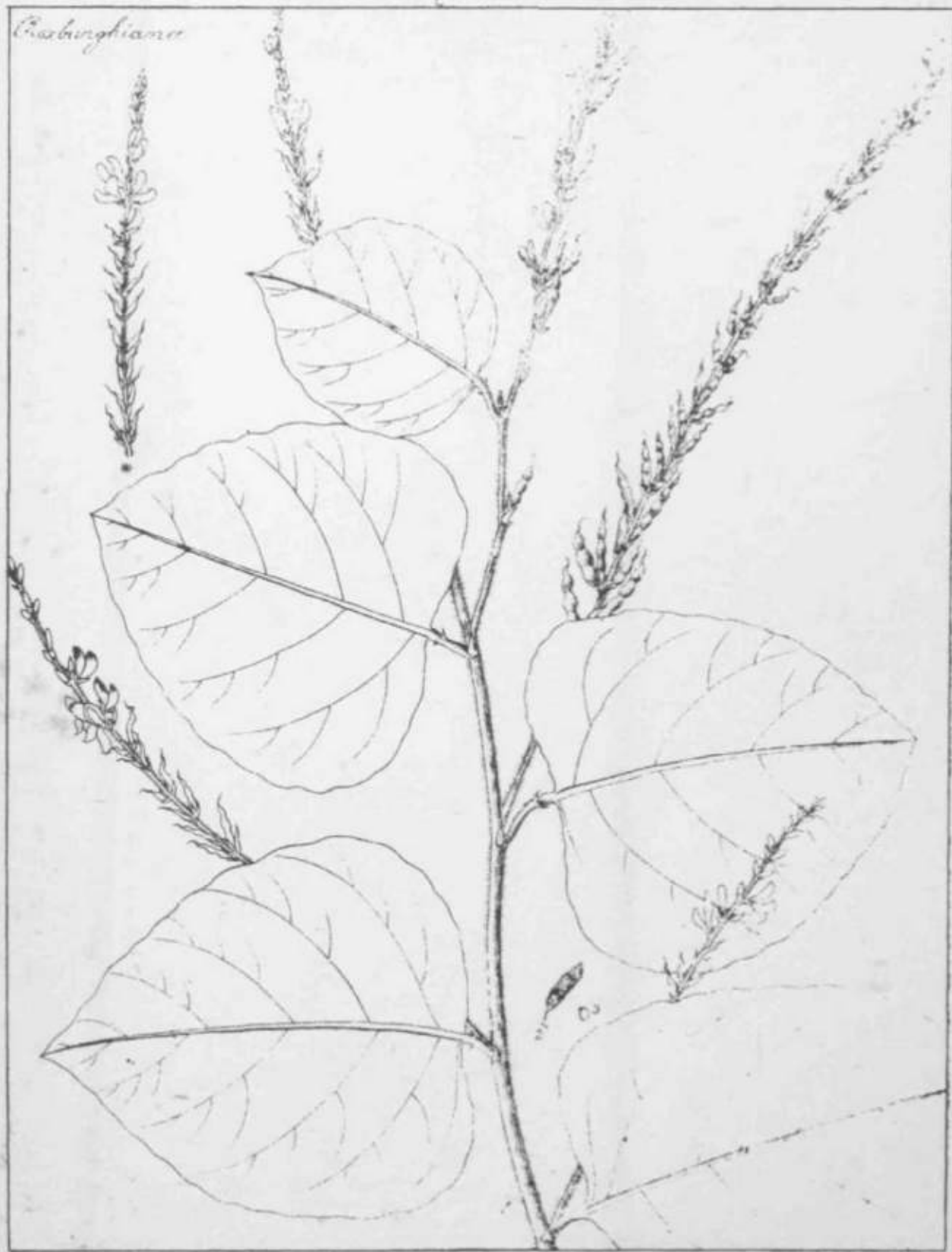


Flemingia bracteata
Hedysarum bracteatum (Roxb.)



Cassia rhombifolia (Roxb.)

Carabigianae



Desmodium latifolium (D. lat.)
L. f. latifolium (D. lat.)

Papilionacea

Leguminosa

Hedysarea

277



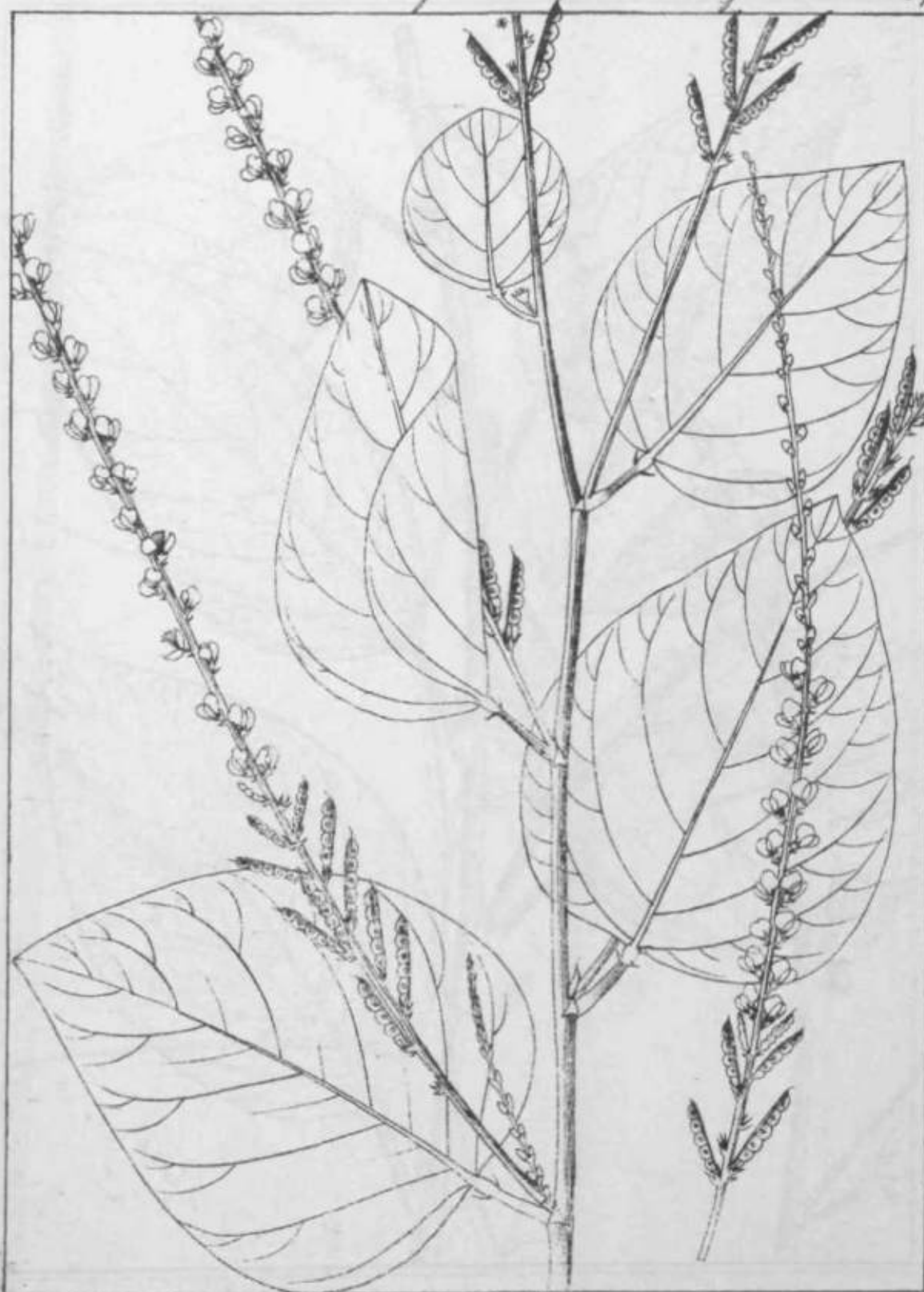
Dermatium O&ny'um (b)
Hedysarum ^, {, i, v feVfcO* : j <V (b)

Phaseoleae.

Leguminosae.

Hedysareae.

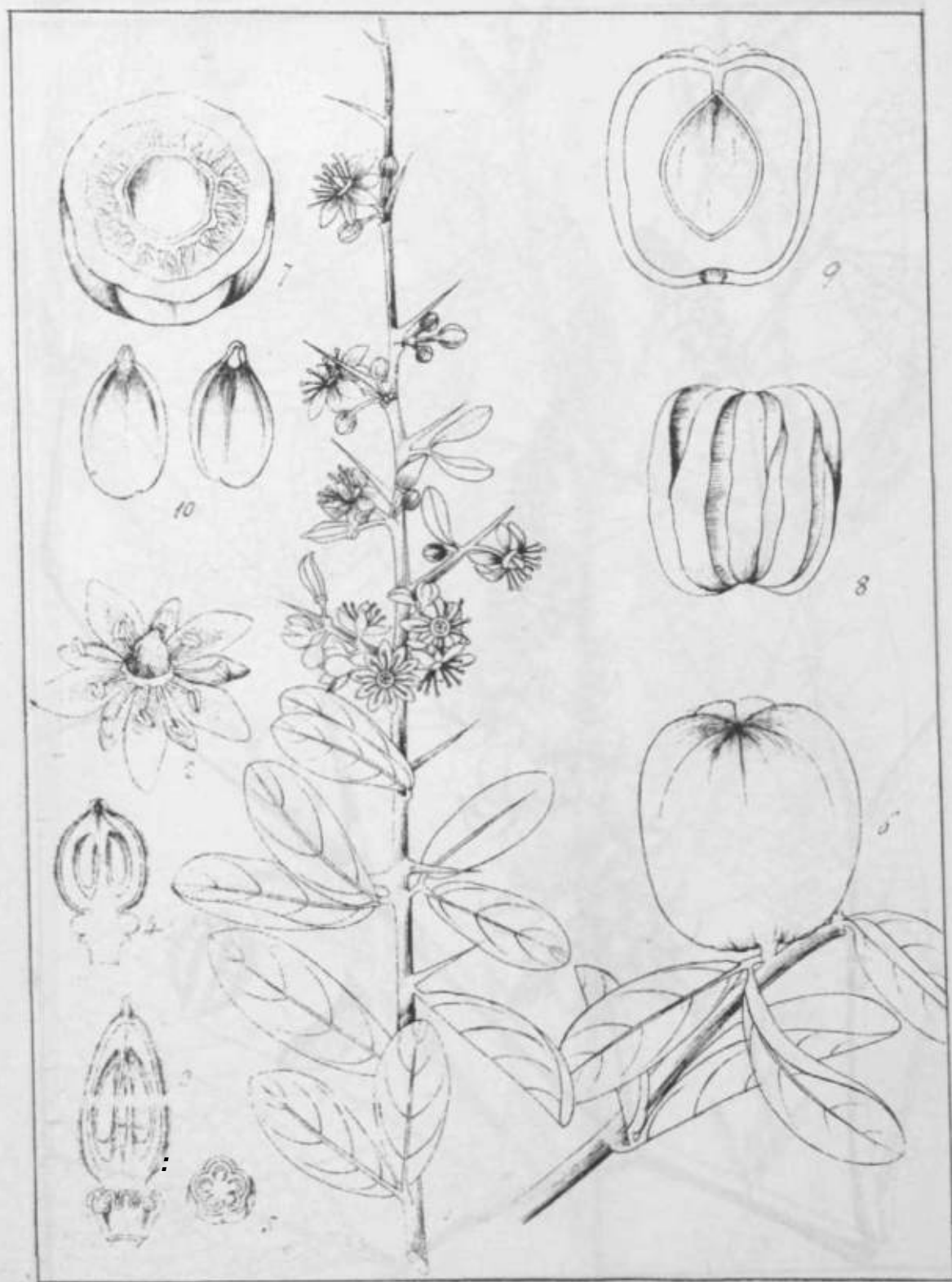
$\frac{272}{596}$



Desmodium latifolium
Hedysarum collinum (Roxb.)



Erotalaria bracteata (Roxb.)

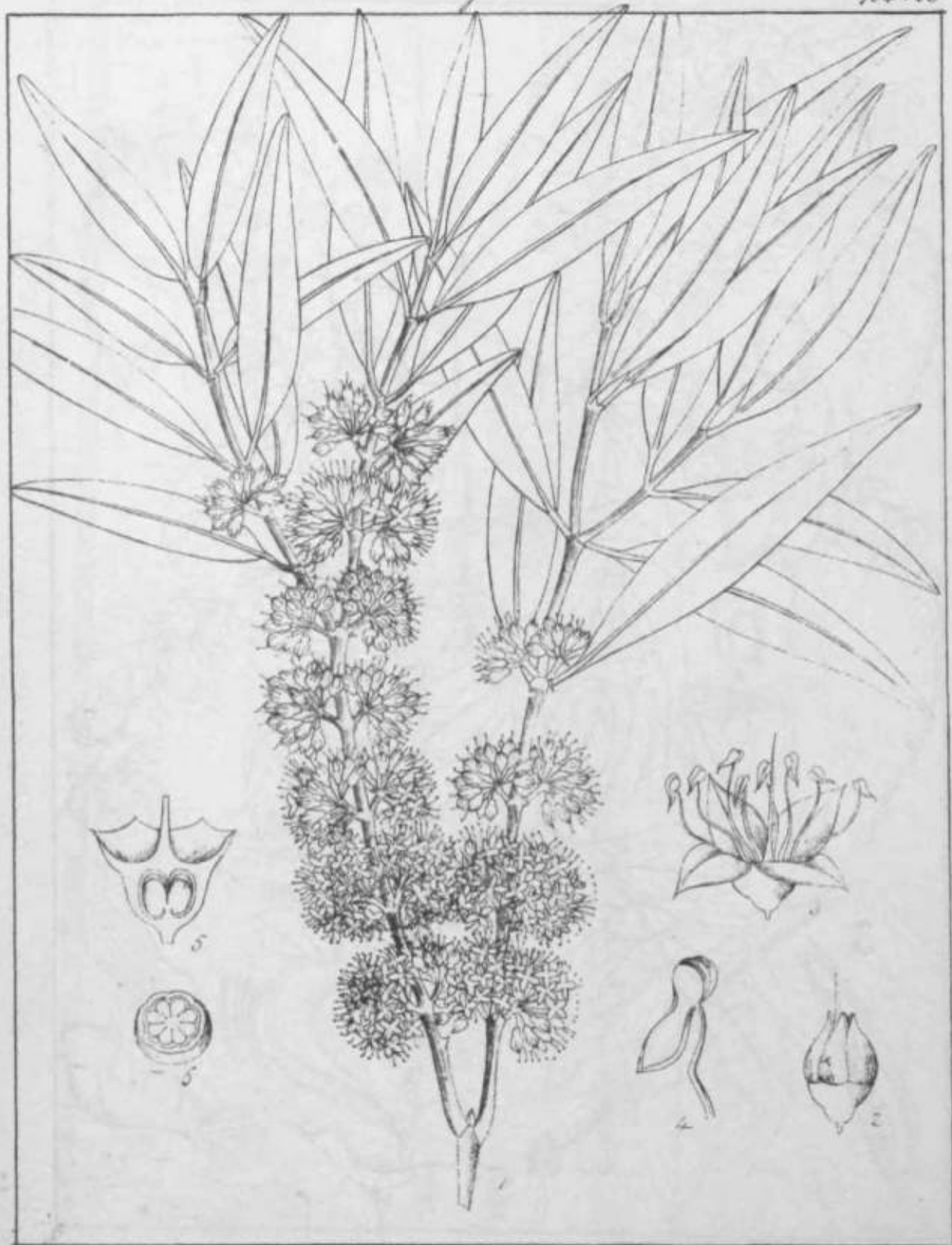


Pithecellobium egypciaca (L.f.)



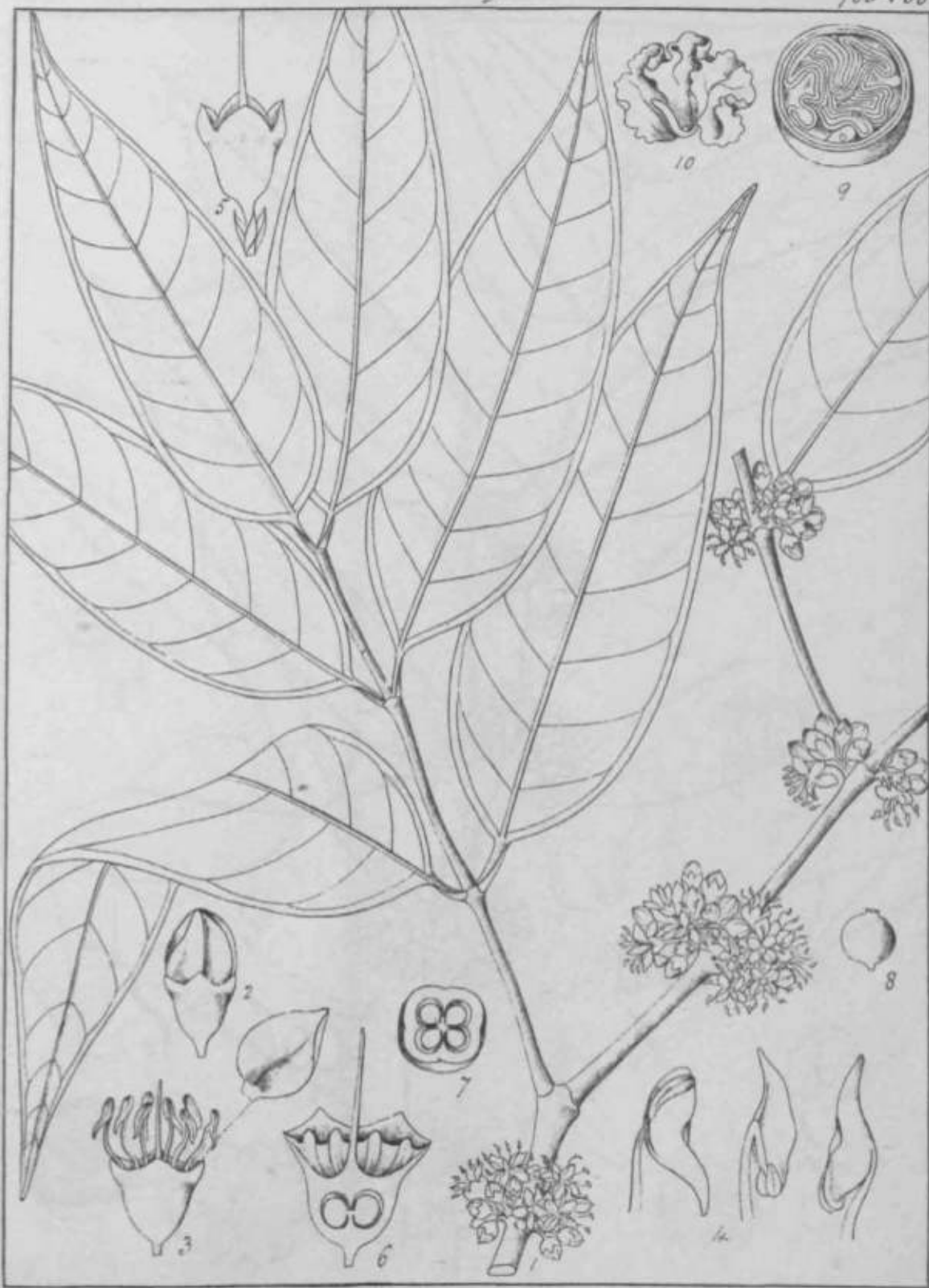
Brachypterum Lam.
Dalbergia Roxb.

Brachypterum scandens (Benth.)
Dalbergia scandens (Roxb.)



Bungiah del.

Mimicylon angustifolium. (R. W.)

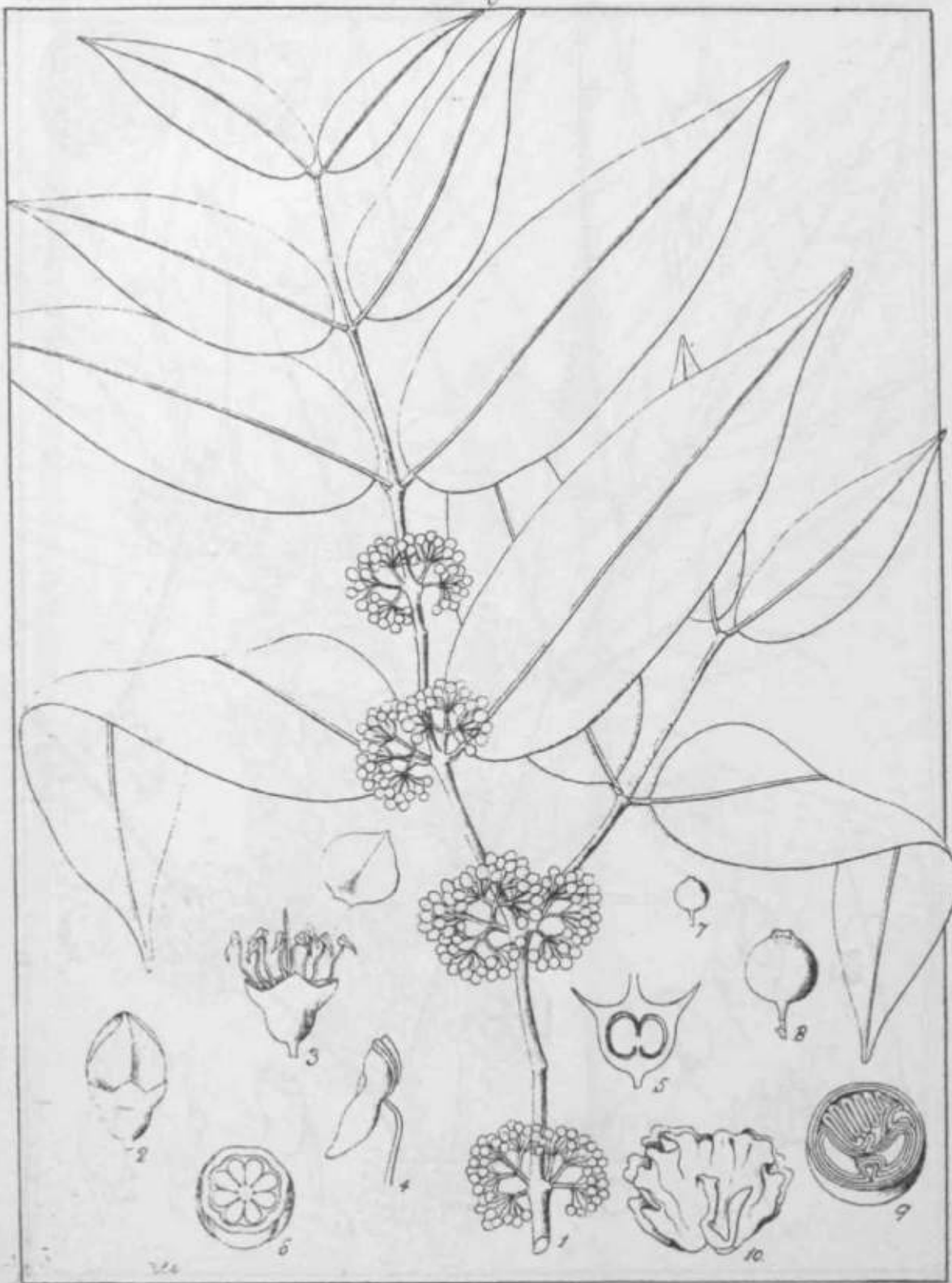


Rungiah del.

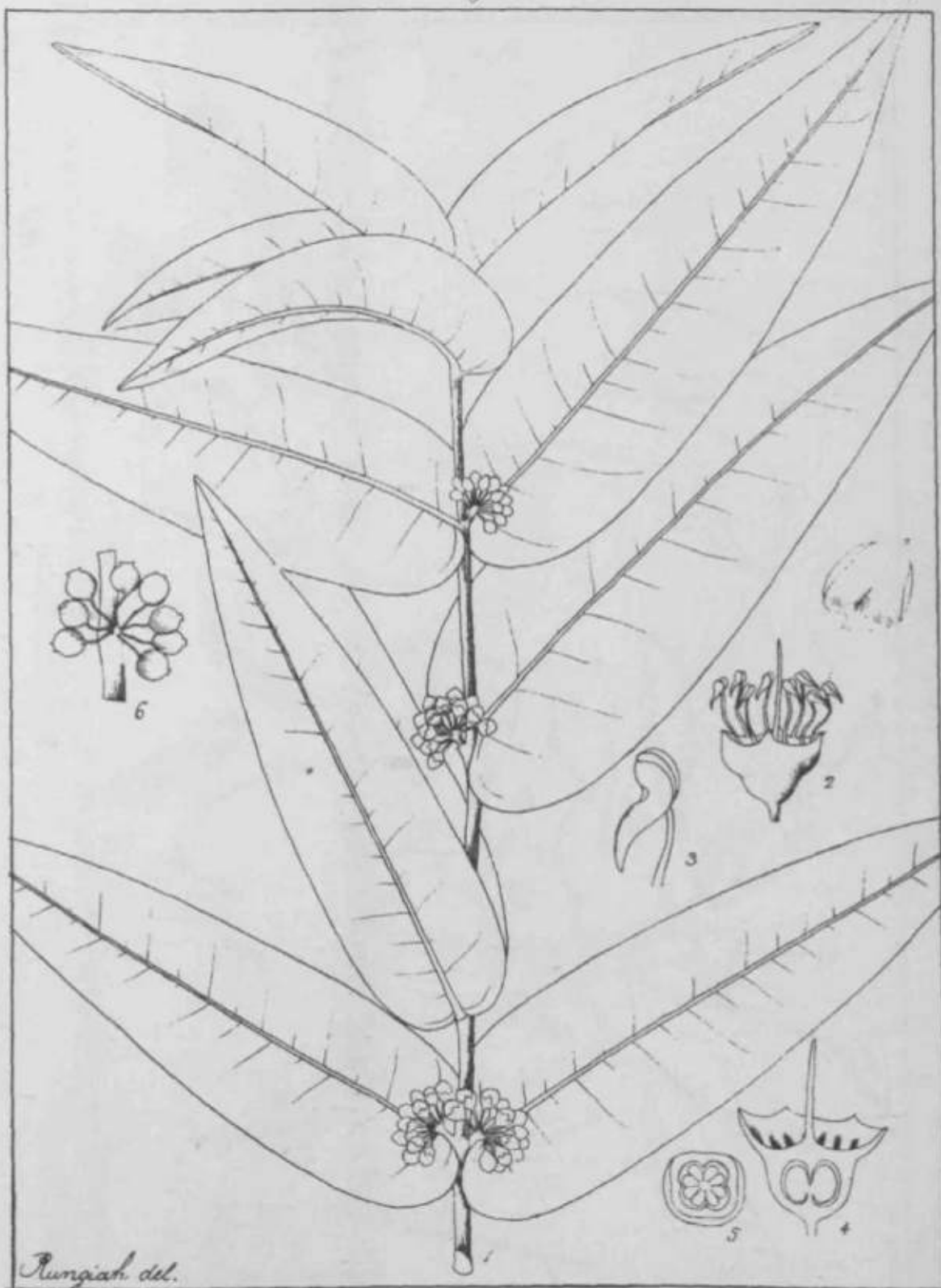
Mimicylon sambosoides (R. W.)

Hemecylea

278
983

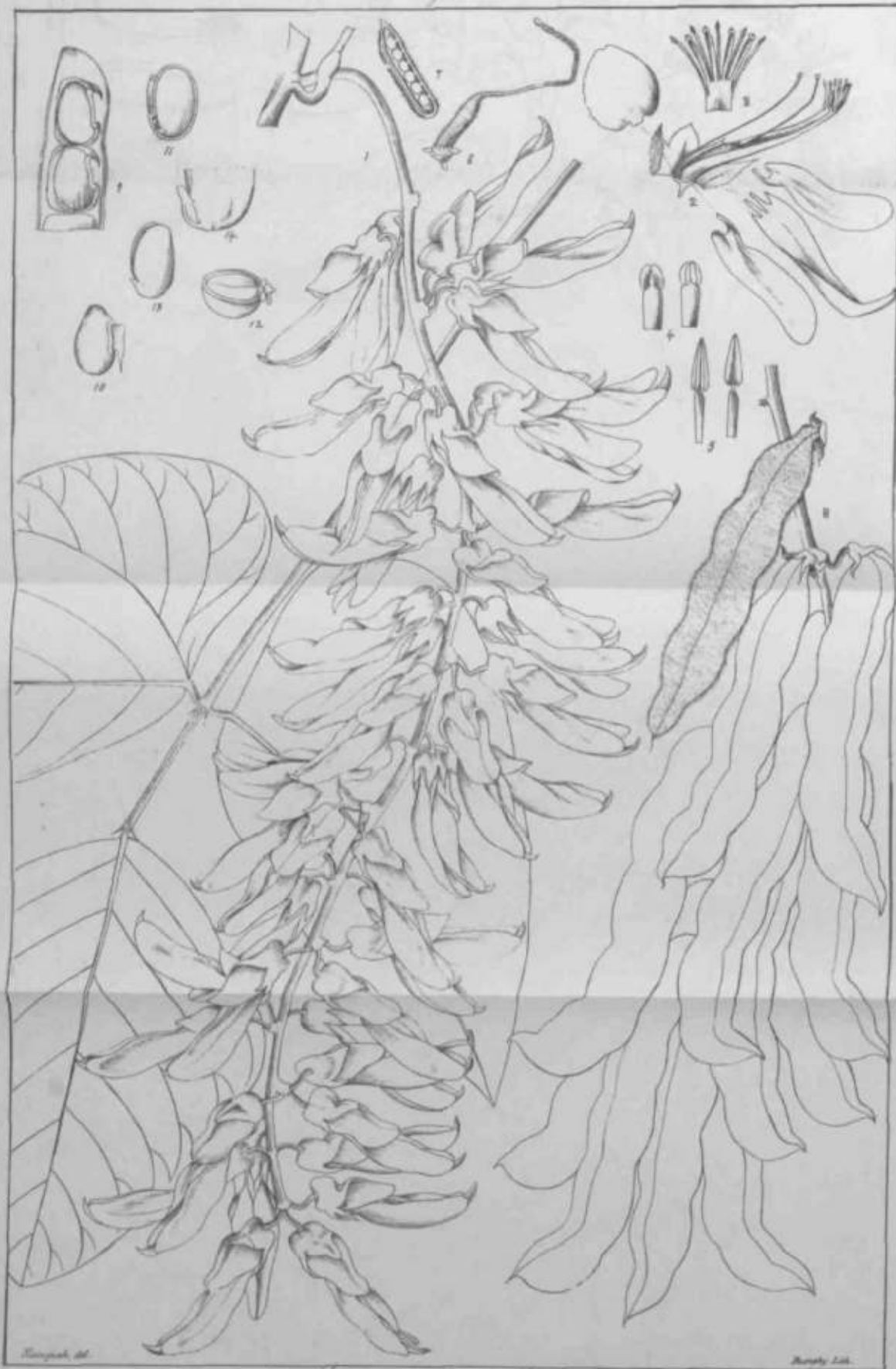


Hemecylon Hornuanum, oJ%nJw;
a



Rungtiah del.

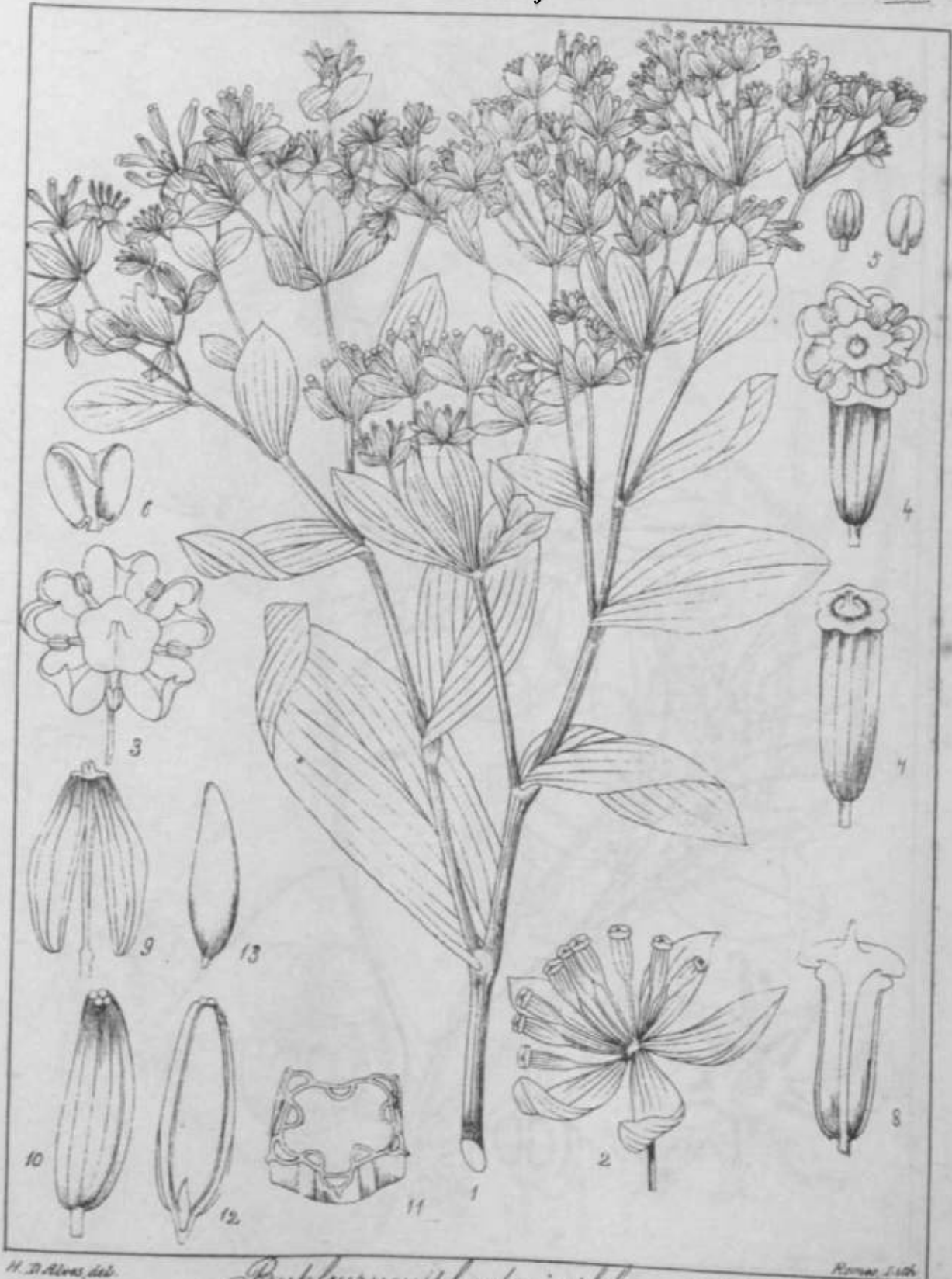
Memecylon amplexicaule (Roxb.)

*Kingfisher, del*

Murphy, Lark

1. *comp. sp. 1*
 2. *comp. sp. 2* } *comp. sp. 3*

Mucuna utilis (Wall.)



H. D. Adams, del.

Eupatorium plantaginifolium (R. W.)

R. W. 1. 1876

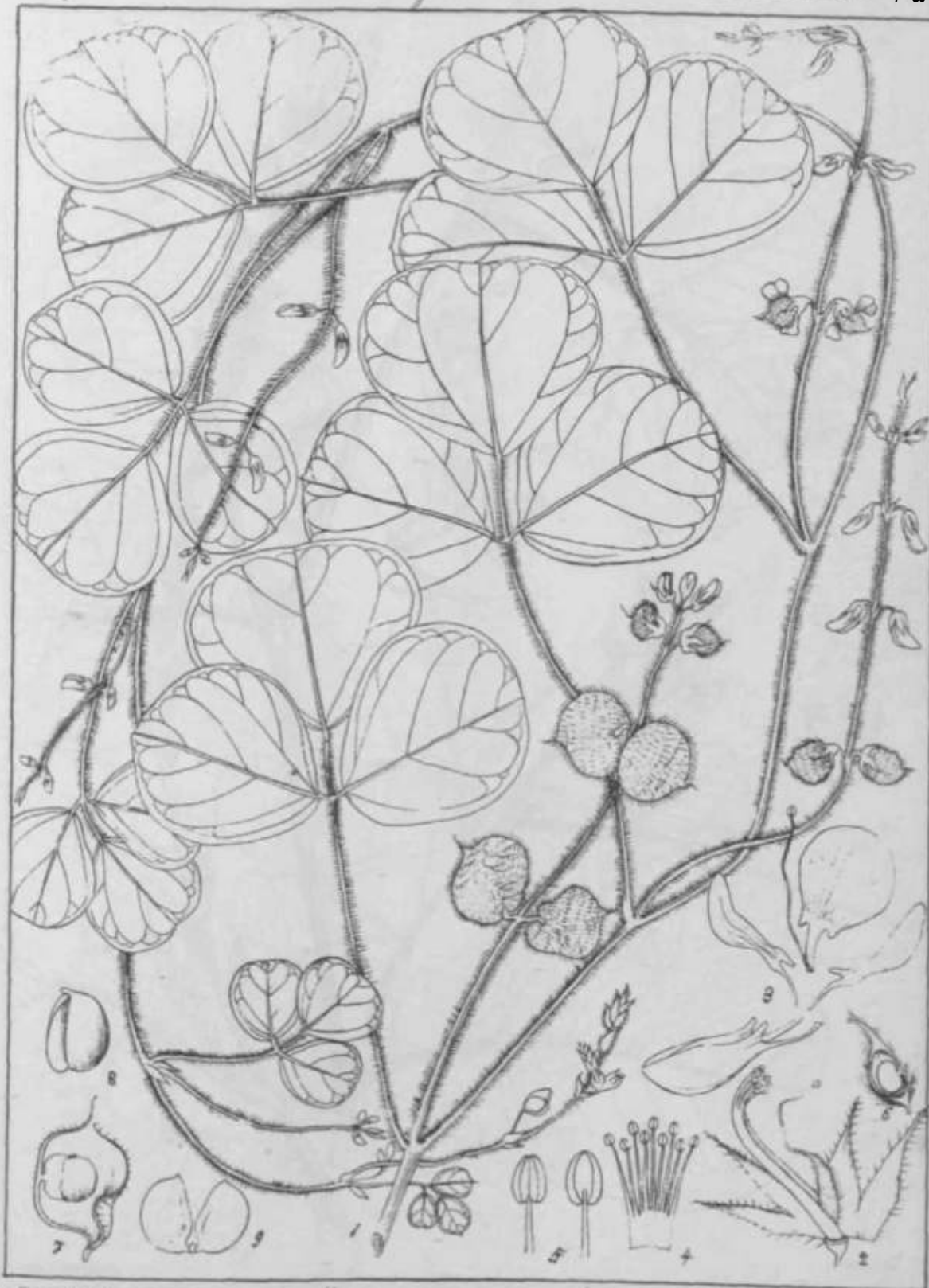


Zizyphus glabrata (TtTt)

Papilionacea

—*xm* *minosa.*

Phaseolae. 283
/*&



Nunwtufoua, del.

Nemismia *nunwtufoua* W&A

Nunwtufoua, del.

Papilionacea

Leguminosa

Hedysarca

$\frac{284}{690}$

Reichenbachiana



Dumphy, Lith.

Uraria hamosa (Wall.)
Hedysarum hamosum (Reich.)

Papilionacea!

Leguminosa!

Hedysarum! $\frac{285}{635}$



Rumby, Lili

Scilla vespertilionis (Desf.)
Hedysarum vespertilionis (Roel.)

Papilionacea.
Reaburghiana.

Leguminosae.

Lotus.

\$\$\$

651



Dissect: Rungiah/del.

Pseudarthria viscida (W & A)
Hedysarum viscidum (Roxb.)

Dampier, Lith.

Clamida.

Capparidac.

287
70.

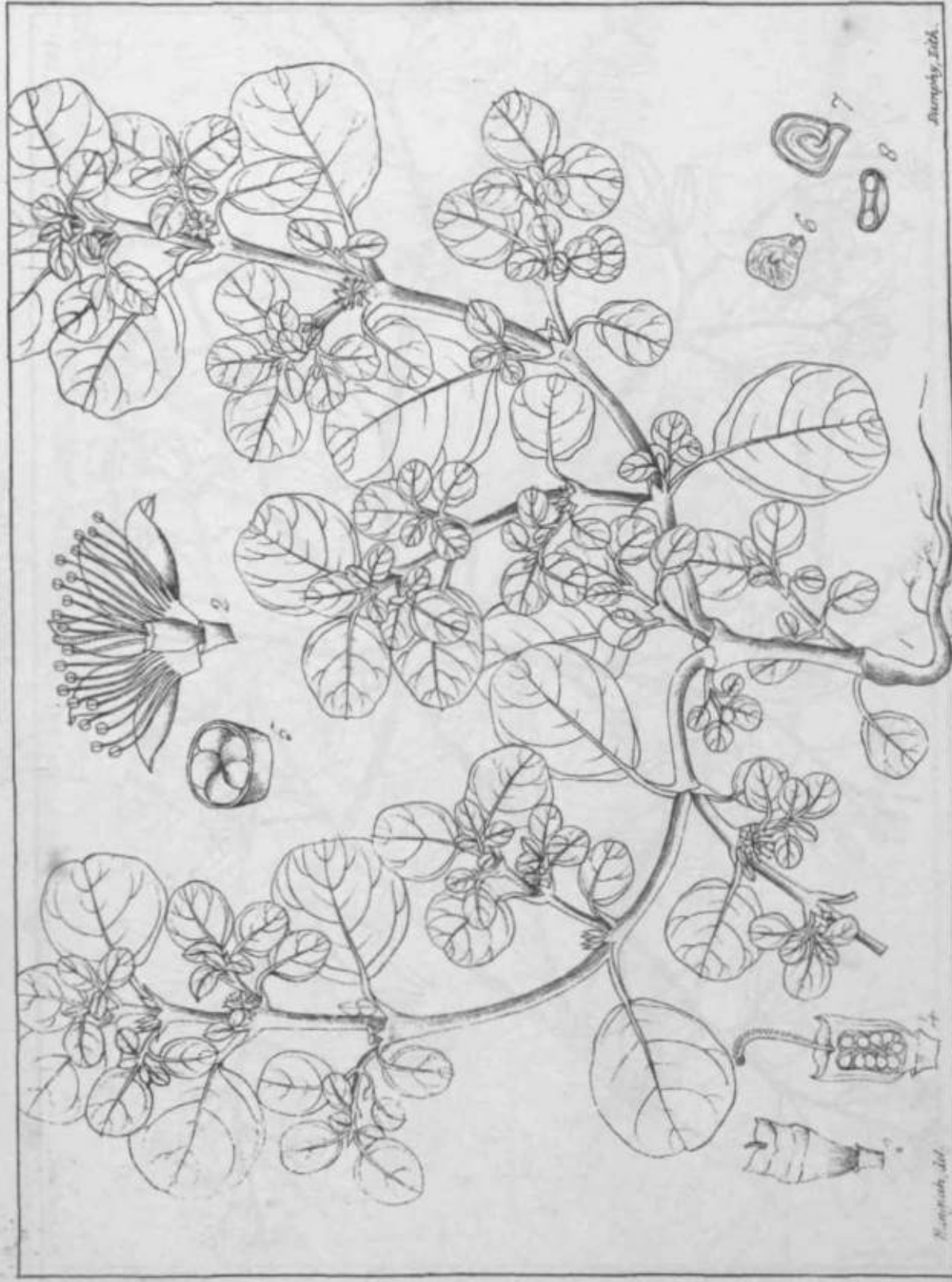


Rosendo, del.

Dunphy, Lith.

Melastomaceae } *Sam.*

Clamida aspera (Horn)



Murphy, Del.

Trianthema elcordata (Poeb.)

Neochrysothrix } *var.*
Neochrysothrix } *var.*

Neochrysothrix } *var.*
Neochrysothrix } *var.*

Papilionacea.

Leguminosa.

Hedysarum $\frac{289}{689}$.

Roxburghiana.



Uraria lagopoides (D.C.)
Hedysarum lagopoides (Roxb.)

Papilionacea.

Leguminosa.

Hedysarea 290



Uraria alopecuroides
Hedysarum alopecuroides (Roxb.)

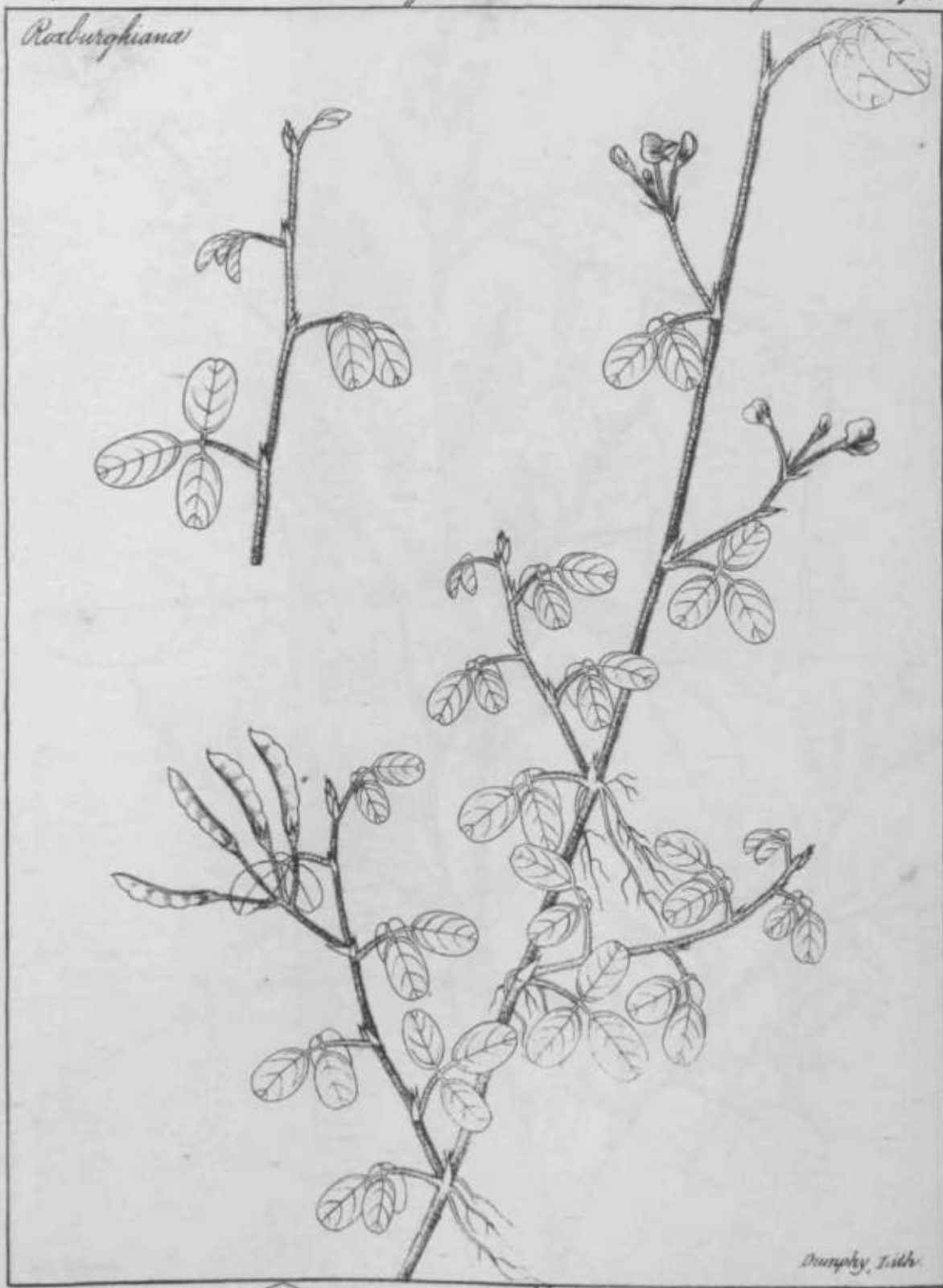
Dumort., Lich.

Papilionaceae

Leguminosae

Hedysarum $\frac{291}{706}$

Roxburghiana



Drumphy, Tith.

Desmodium hisloerum &
Hedysarum reptans (Roxb.)

Papilionaceae

Liguminales

Hedysaraceae

$\frac{292}{705}$

Reichenbachiana



Ramph. Linn.

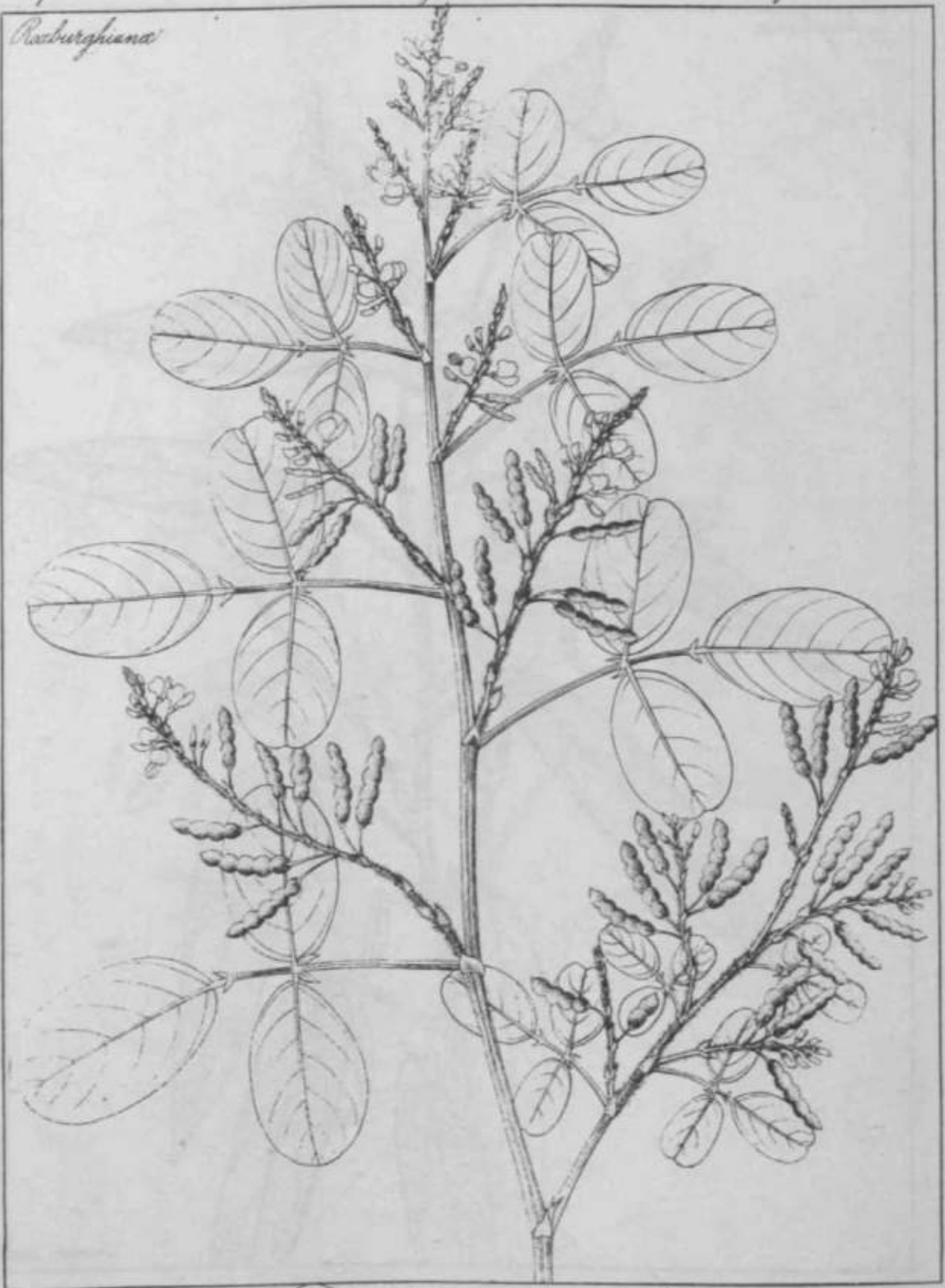
Desmodium hislorum D.C.B.
Hedysarum hislorum (Roeb.)

Papilionacea

Leguminosa

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rj7&/444<1W£t/ 793

Rasburghiana



Desmodium quinqueangulare
Hedysarum quinqueangulatum (Reich.)

Samph. Luth.

Papilionacea.

Leguminosa.

1911
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701

Roxburghiana.



Dumphy Lith.

Desmodium gyrans (D.C.)
Hedysarum gyrans (Roxl.)



Phaseolus trilobus (L.) Desf. *



Trianthema decandra (Linn.)

Papilionacea.
Laburnum

Leguminosa.

Hedysarum. $\frac{297}{872}$



Crimocarpus v. senecioides (D. G.)
Hedysarum v. senecioides (Rostk.)

Papilionaceae.

Leguminosae.

Hedysarea.

$\frac{298}{699}$

Raburghiana



Desmodium diffusum.
Hedysarum au Ucuwkmwfl&mrJ

Dumphy, Lith.

Papilionaceae

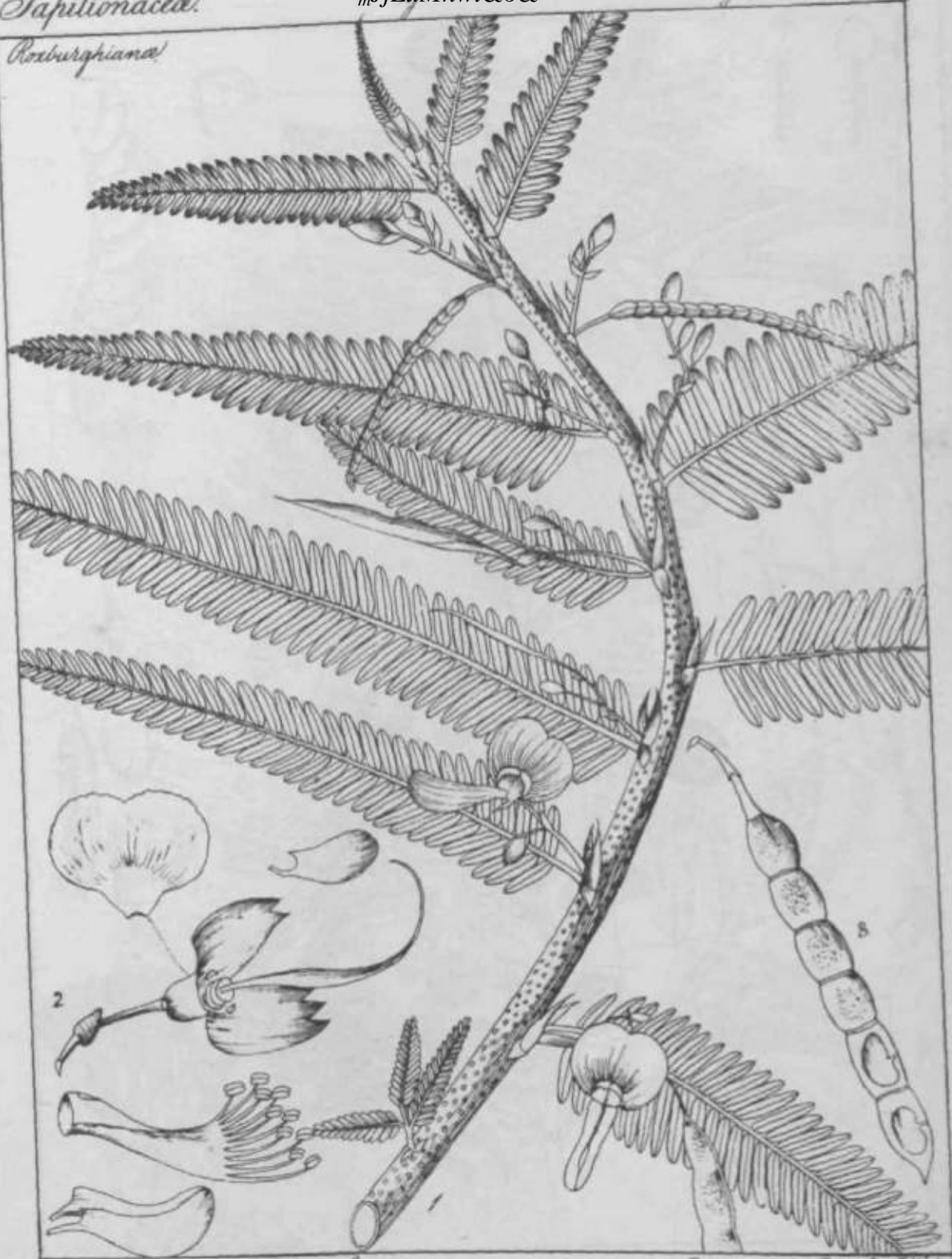
mJjLuMnwt&6&'-

17/1/1900

29?

878

Roxburghiana



Aschynomene aspera (Linn.)
Hedysarum lagenarium (Roxb.)



Paranthus amphicephus (D.L.)

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Desr. t. ft. t.

Champ. & Ldk

Licanthus longiflorus (Desr.)



Kunzi del.

Loranthus loniceroides (Linn.)

Dumort. del.



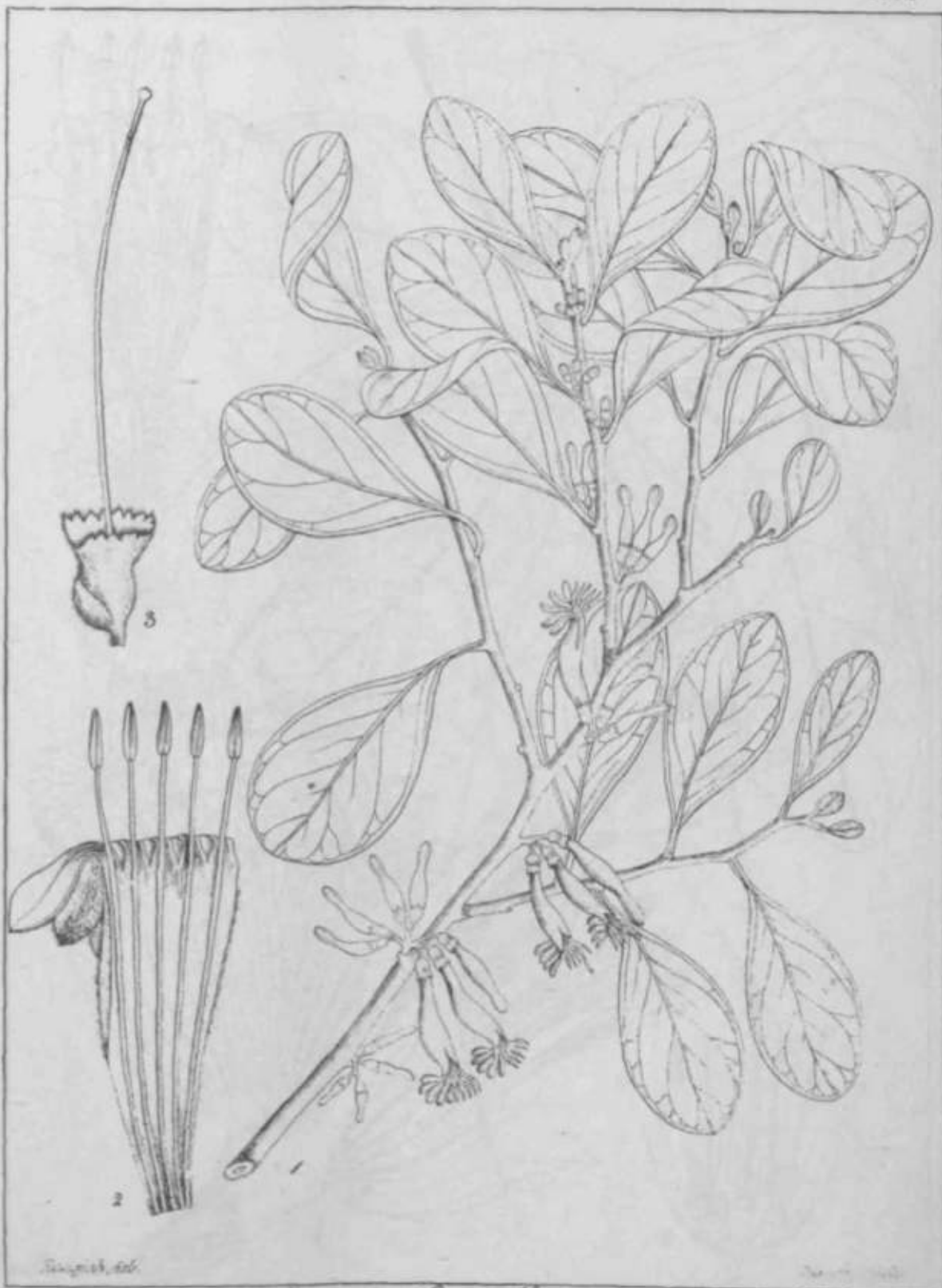
Reichenow del.

Coranthus capitatus (L.) A.

Reichenow Lith.

Loran/Zatea

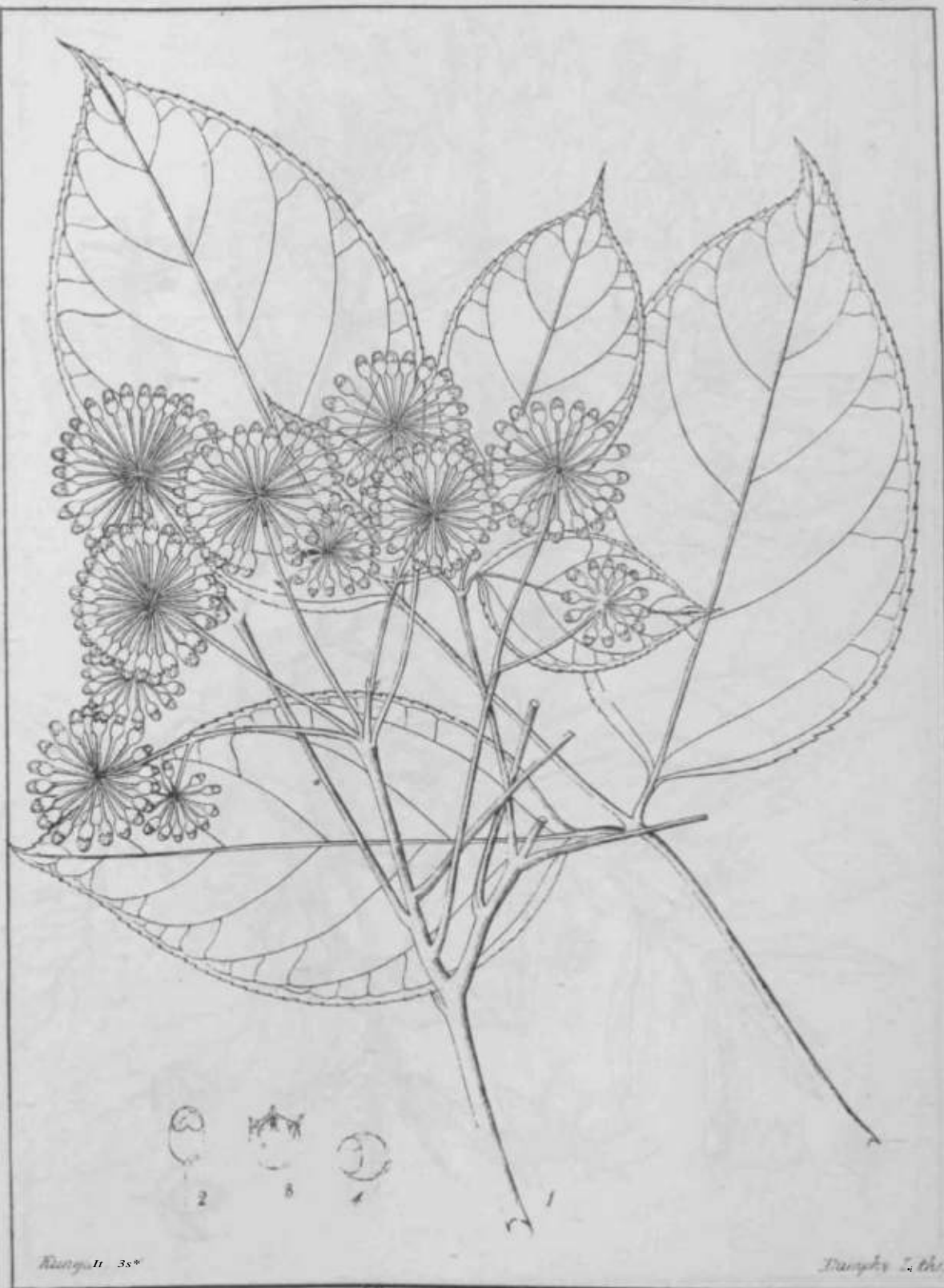
305
1188



Loran/Zatea Candolleanus (W & A.)



Loranthus lageniferus (Wight)



Hedera trifoliata (W & A)



Rungtshu, det.

Dumphy, Lich.

Tonidium suffruticosum (Ging)

Gardenia

Rubiacea

309
1236



Kunze del.

Dunphy Lith.

Stylocoryne Webera (A. Rich.)

Gardenia

Rubiacea

3/0
7Q3S



Dumphy, Lith.

Griffithia fragrans (W.K.A.)



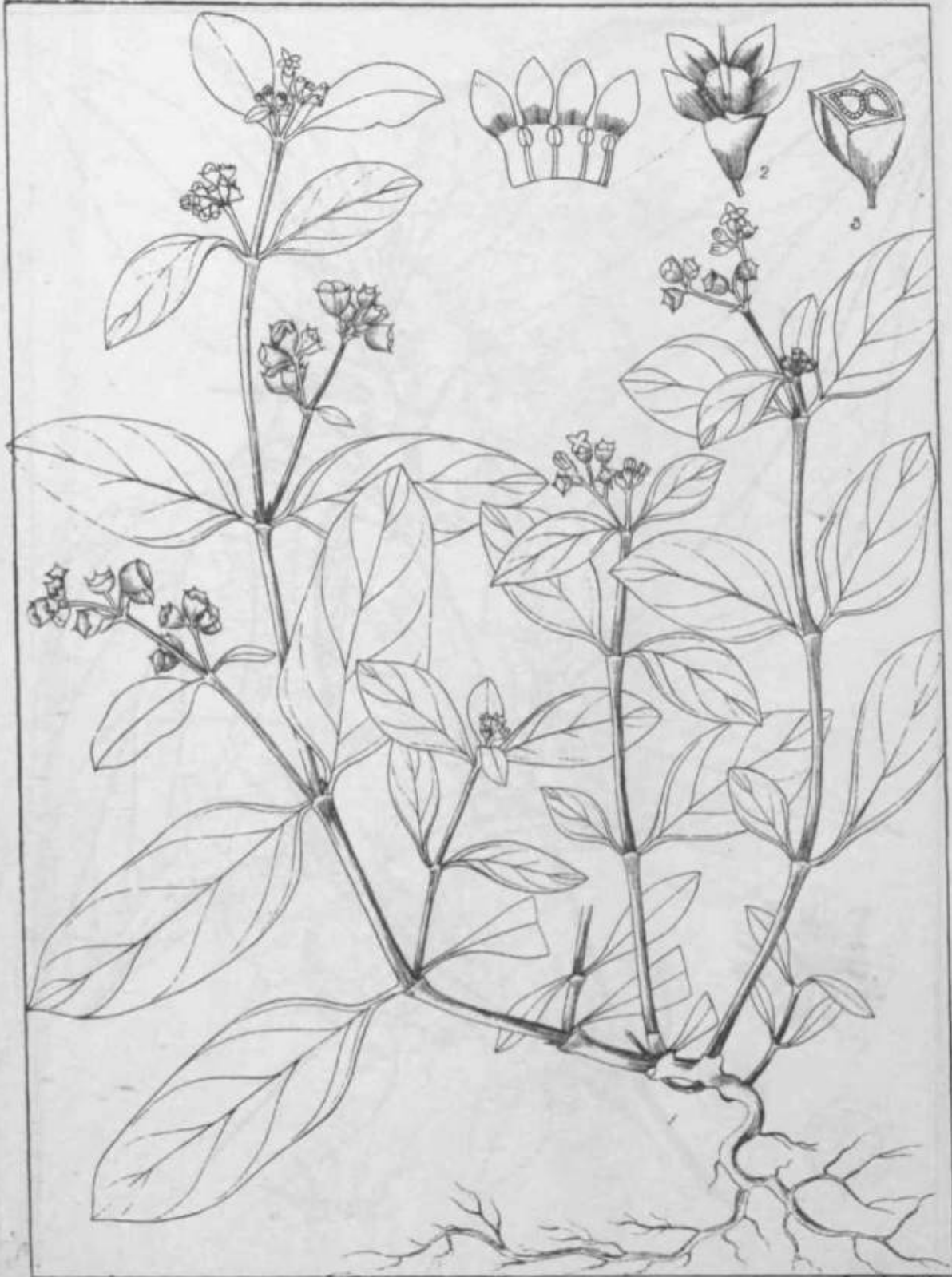
Adiantum

Adiantum apiculatum

Hedyotea

Rubiacea

312
1266.



Rungtahi, nov.

Dumphy, Sachs.

.;fid unfa iactmt&cL' Lam.)

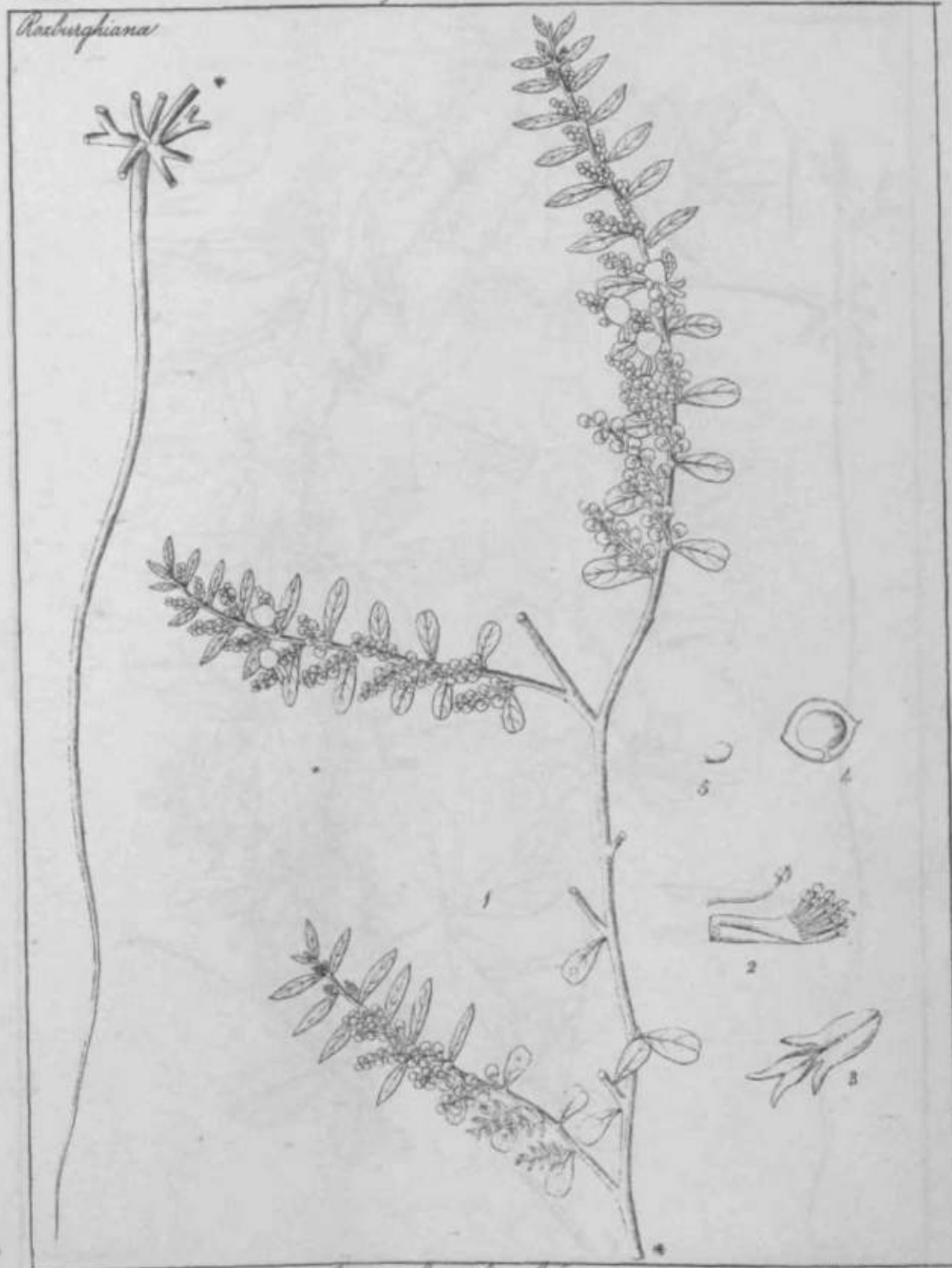
>

Lotea

Leguminosa!

$\frac{313}{618}$

Rosburghiana



Indigofera tinifolia (Retz.)

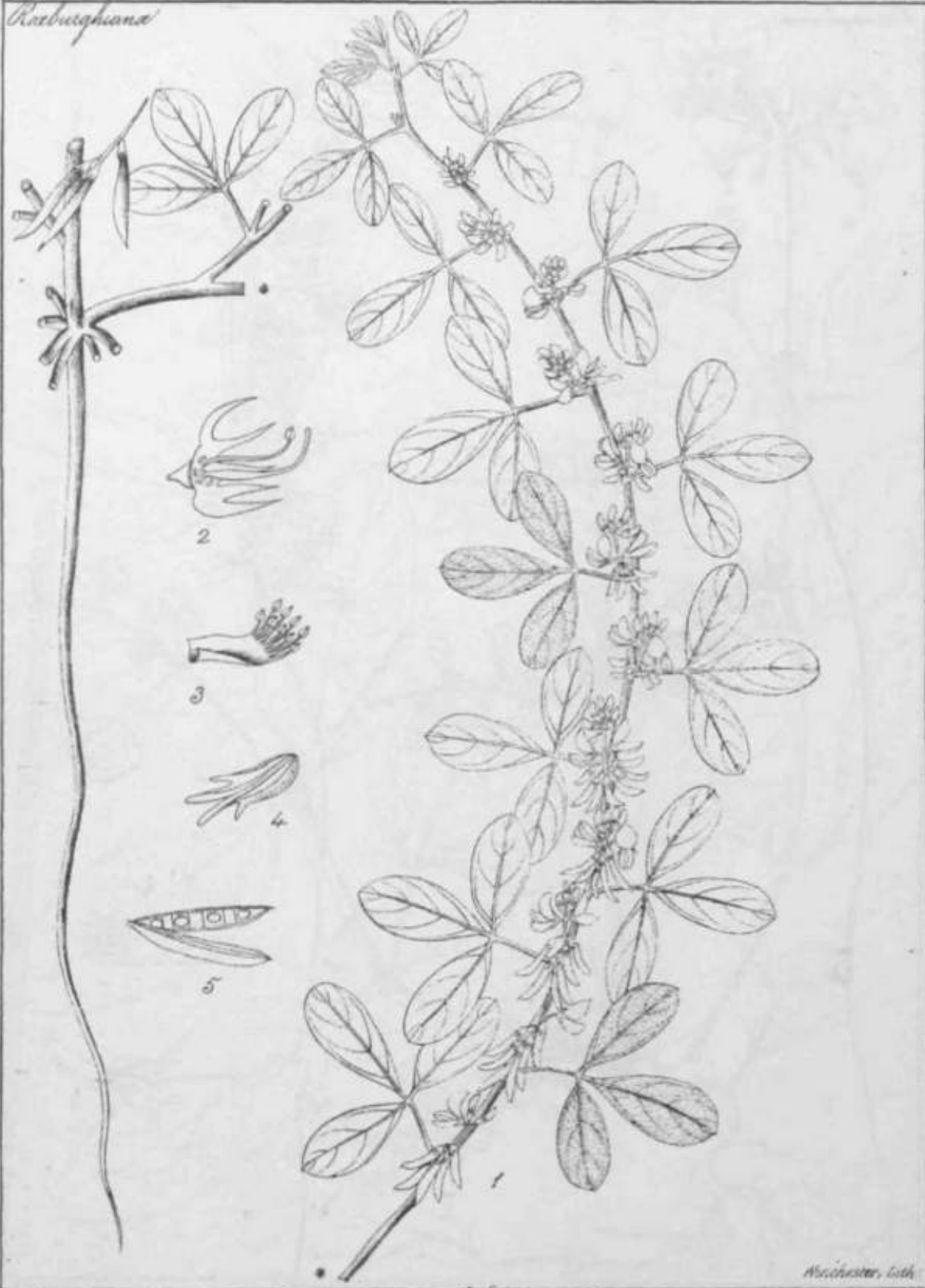
Winchester. Lith.

Lotea

Leguminosa

314-
628

Roxburghiana



Indigofera hispidata (Linn.)
Indigofera prostrata (Roxb.)

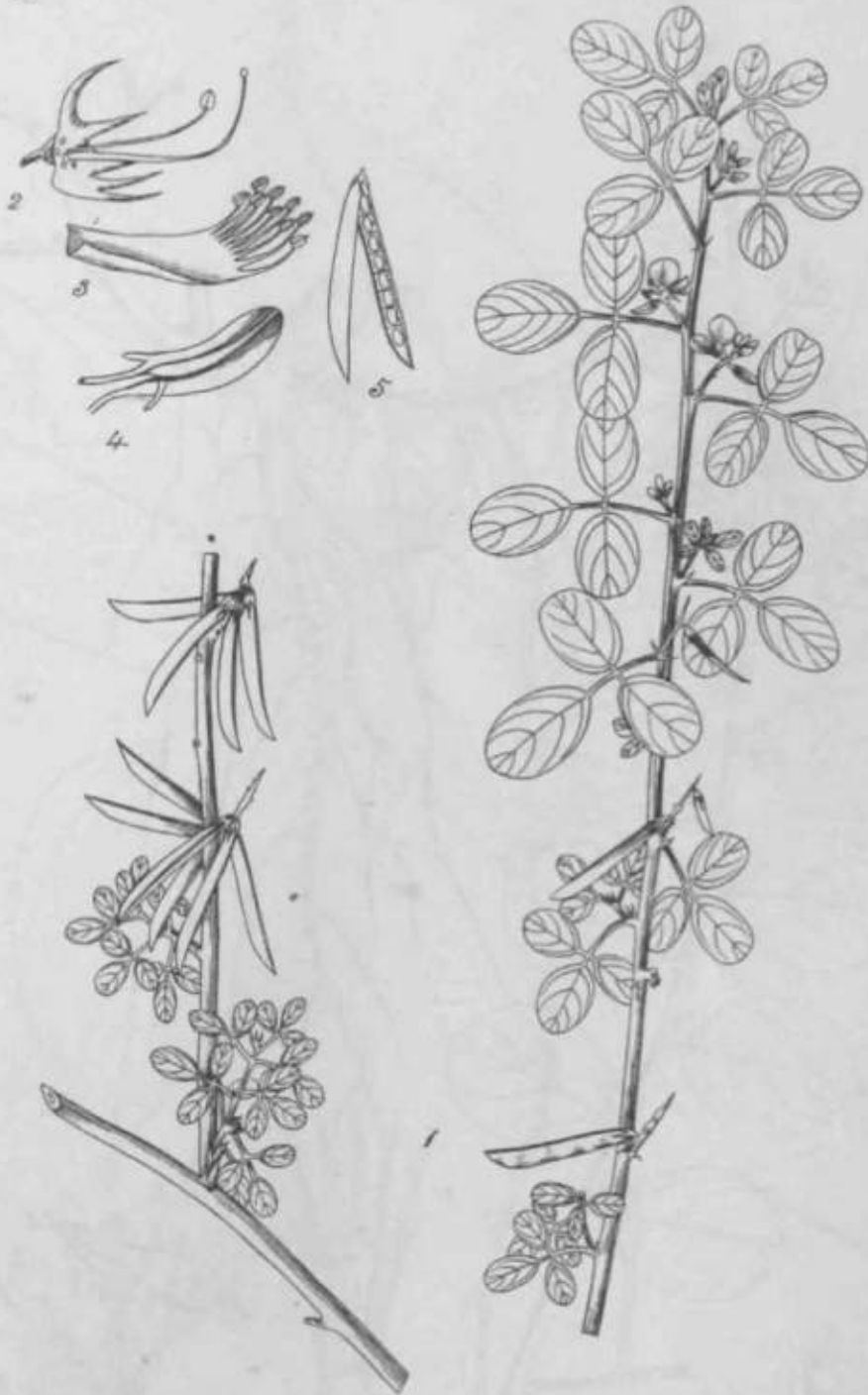
Alcock, 1864

Lotea

Leguminosa

34\$
636

Roxburghiana



Dumphy, J. C.

Indigofera hirta (Linn.)

Lotia

Leguminosa

310

Roxburghiana



Indigofera echinata (Willd.)

Gardeniacea

Ma, *jacea*

317
1237



Rungtshel del.

Dumphy, Lith.

Stylocoryne monosperma (W & A)

Coffeacea.

Rubiacea.

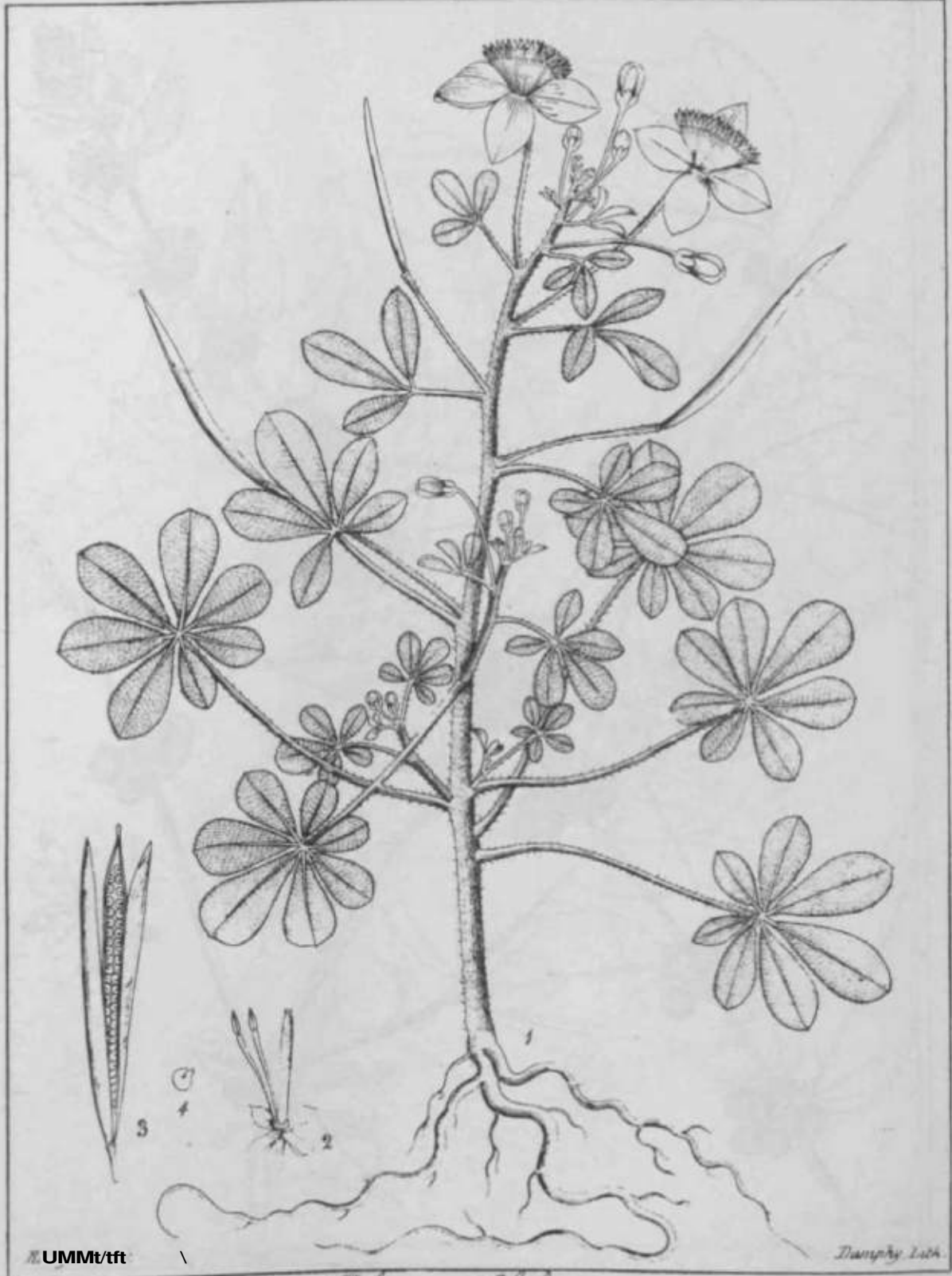
318
1309



Dumphy, Lith.

5744 } Jan.
Oothapoo }

Ixora nigricans (Br.)



R. UMMt/tft

Danphy Lith.

இலநாயக்கடுகு } Jam.
Melastomaceae

Planisia Chelidoni (D.C.)

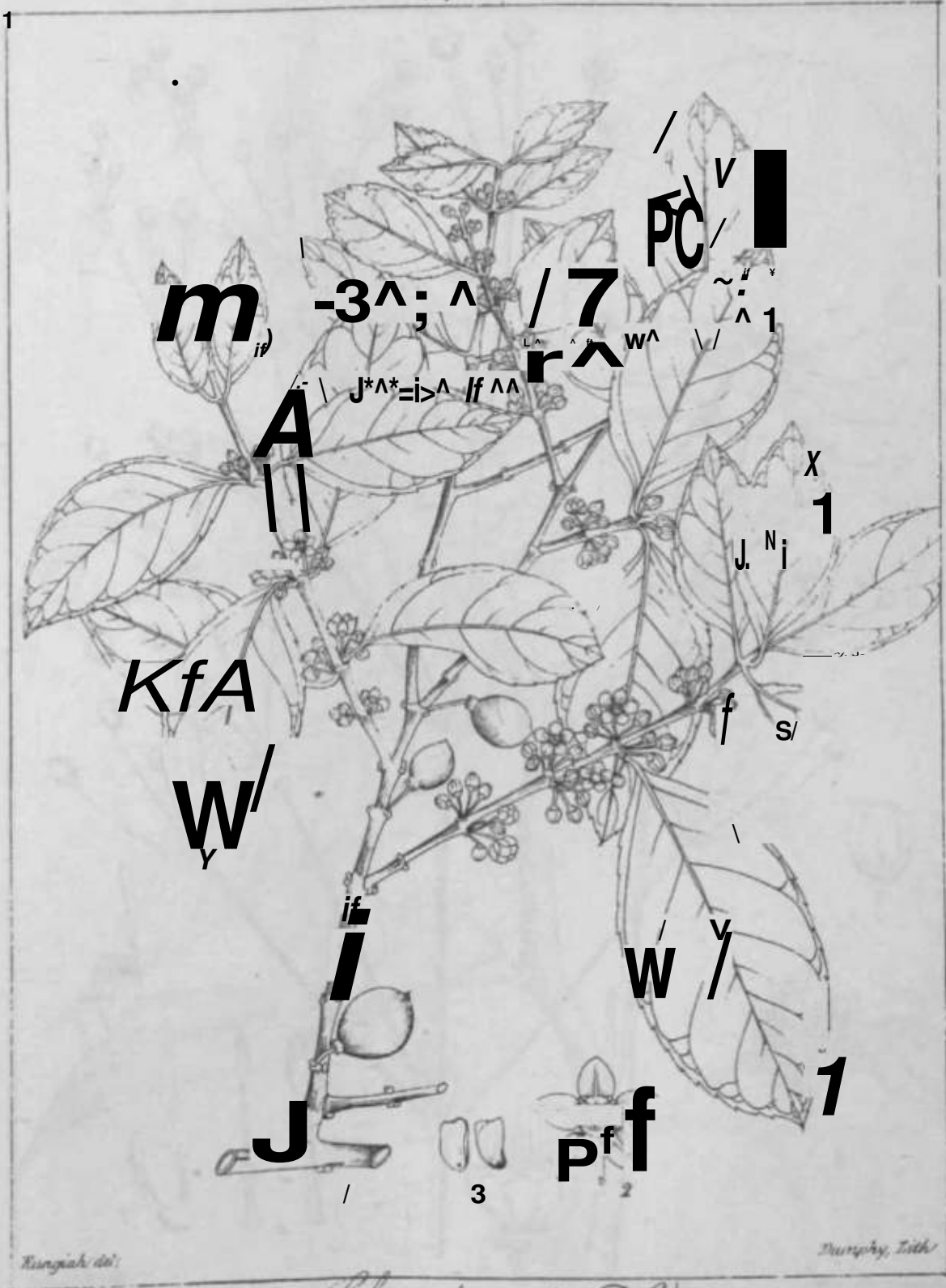


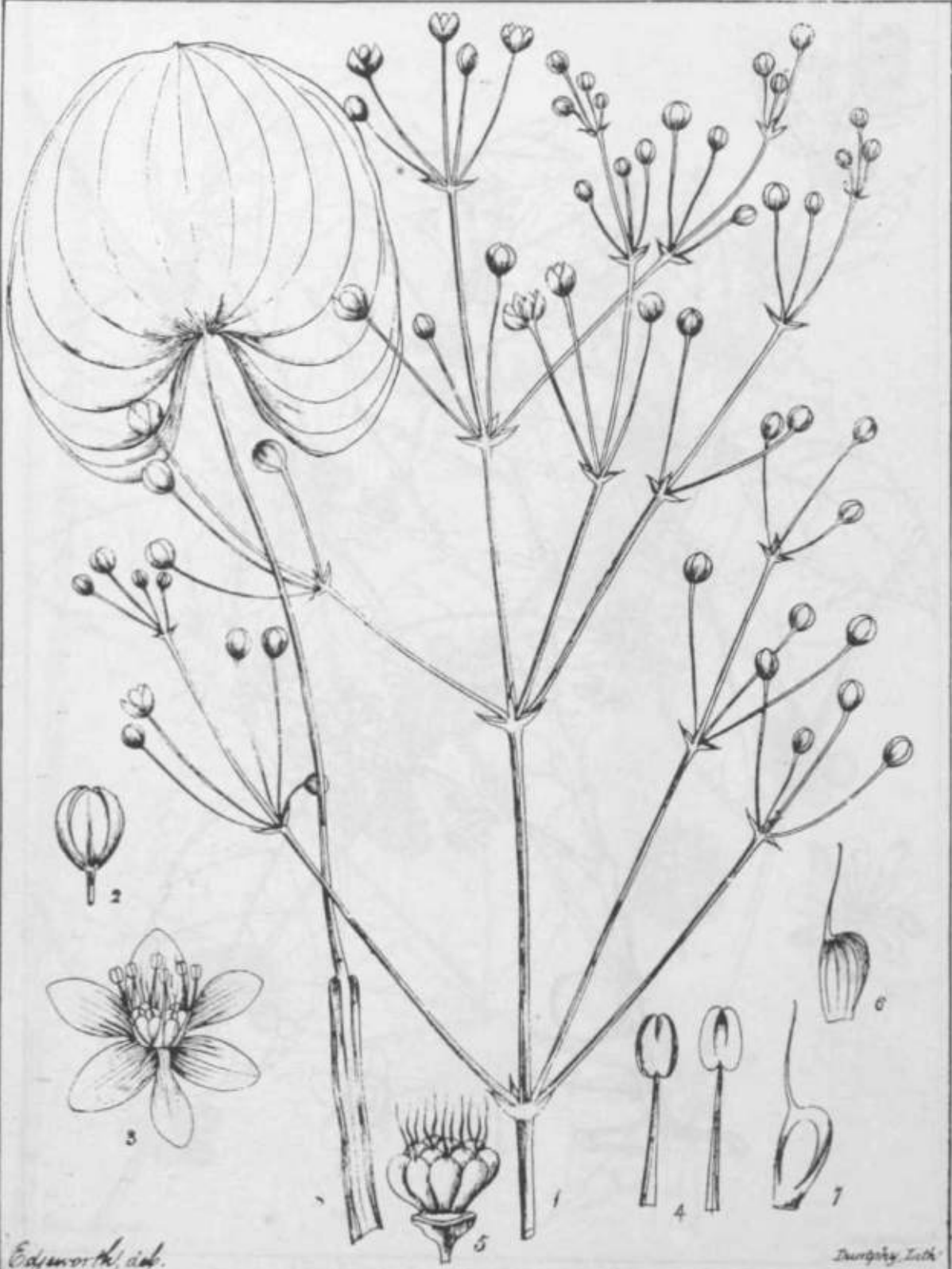
Rungtsh, del.

Dumphy, Lith.

தேட்டுப்பிச்சு
Choripilus

Triumfetta angulata (Lam.)





Alisma reniformis (Don)



Impatiens scabrifolia? (D.C.)



Geranium Wallichianum Sweet.



Oenothera fruticulosa (Roxb.)

Reichb. f.



Dumort. Lith.

Flemingia semialata (Reichb.)

Papilionaceae.

Leguminosae

Phaseolae. $\frac{327}{744}$



Dumphy, Lith.

Flemingia lineata (Roxb.)



Kunze, del.

Dumort., lith.

Pongamia ovalifolia (W & A)



Flemingia sticta (Roxb.)



Indigofera glandulosa (Roxb.)

Lotia.

Leguminosae.

331
630.

Roxburghiana



Dumort. Lith.

Indigofera paucifolia (Delile)
Ind. argentea (Roxb.)



Indigofera aspalathoides (Vahl.)

Loka!

Leguminosa.

333
623

Roxburghiana!



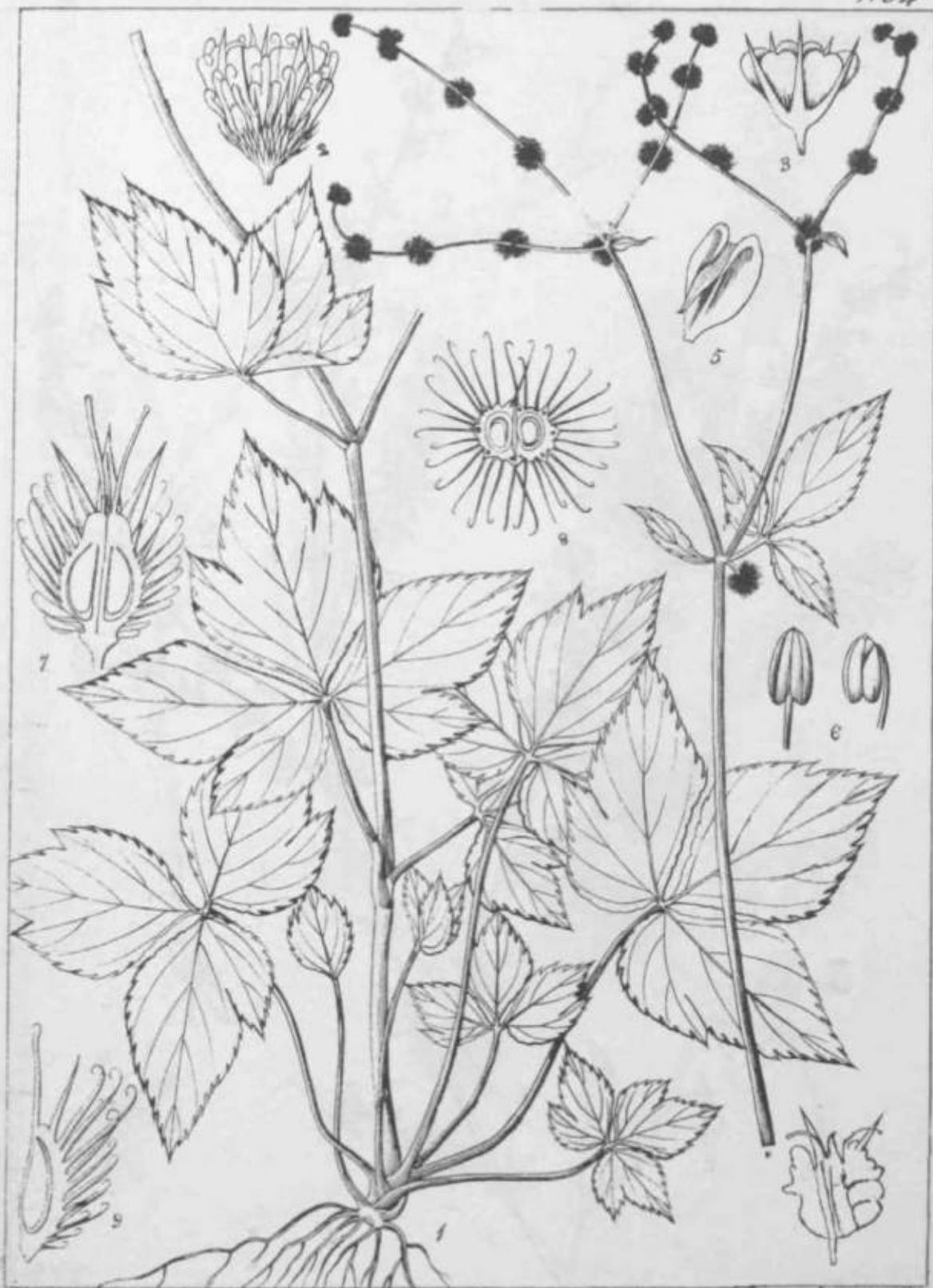
Dumphy, Lith.

Indigofera uniflora (Ham.)

Sanicula

Umbelliferae.

334
1134



Kunze del.

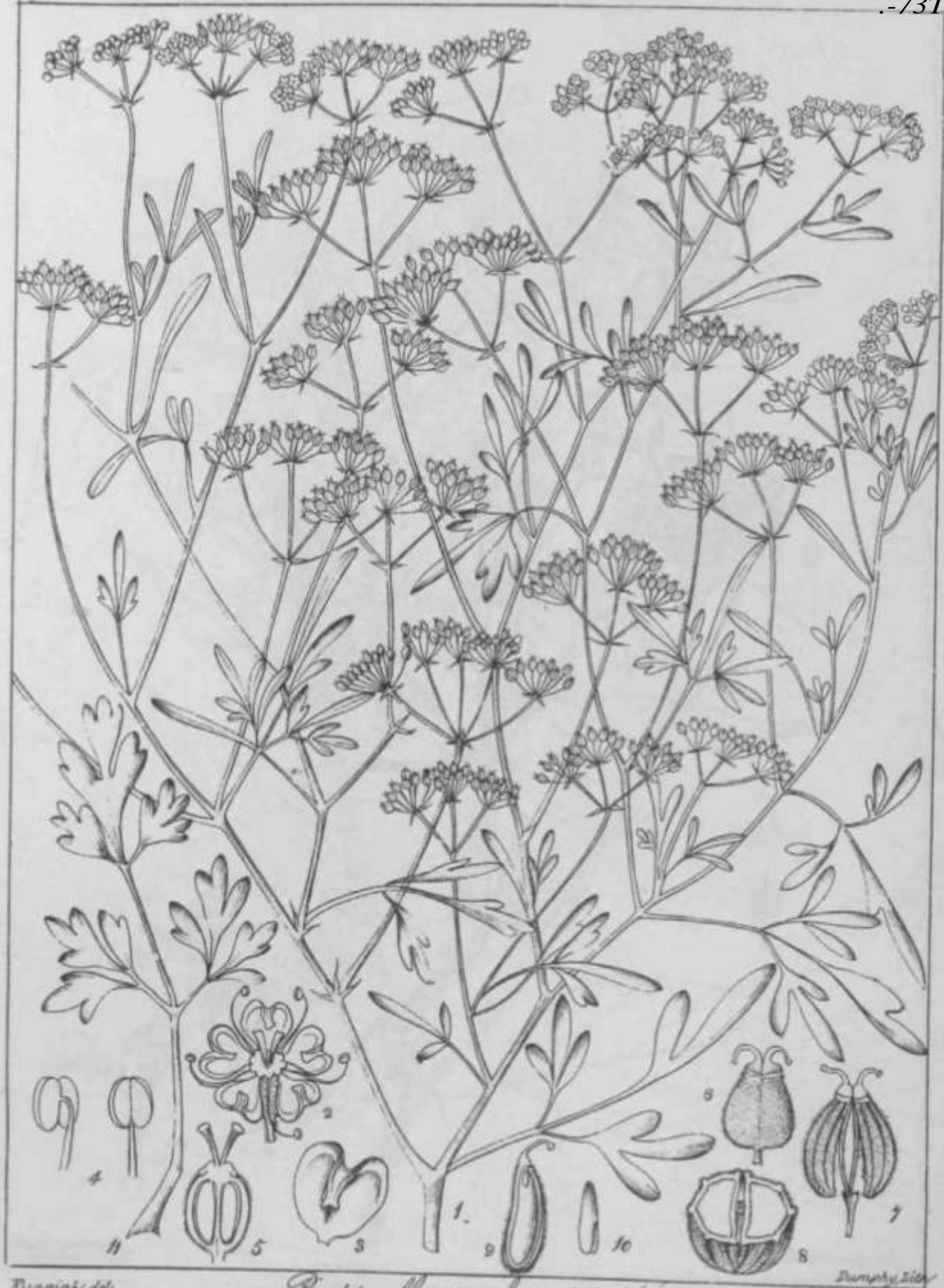
Sanicula elata (Ham.)

Schimper sculp.

Ammineae.

/VW, ^^{na}na.

3S6
-73T



Kingian, del.

Pinpinella involucreta (W & A)

Dumortier, del.



Reingraber, del.

Dunphy, Lith.

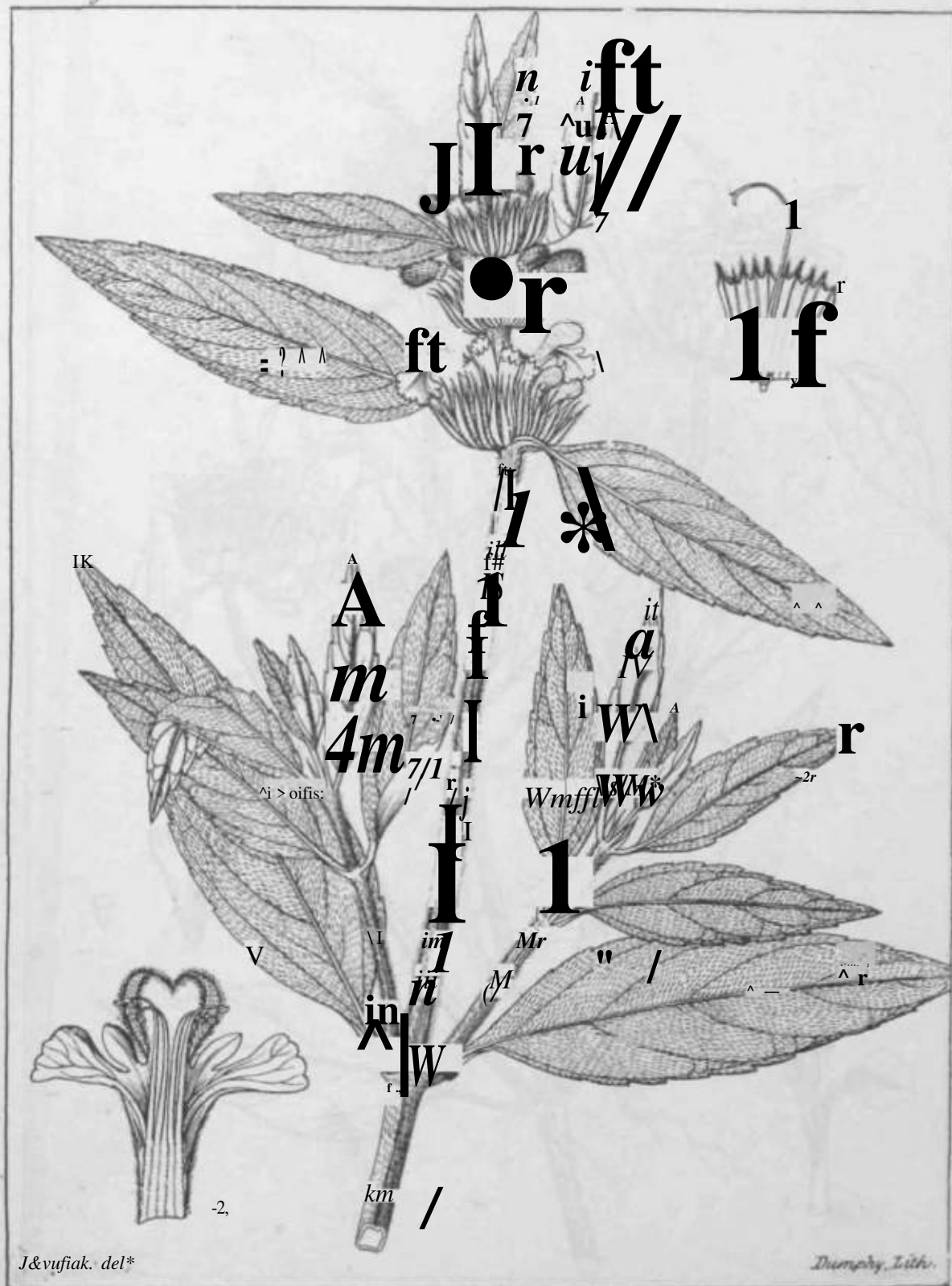
Exacum pedunculare.



Kunziak, del.

Dumphy, Lith.

Leucas Cephalotes (Spreng)



Dumphy, Luth.

Lucas vestita (Benth.)



H. D. Alvis, del.

Dumphy, Lith.

Zizyphus rugosa (Lam.)
Elaeagnus *Uva-ursi* *maritima* *am*

Myrteae.

Myrtaceae.

340
1008



Rungiah, del.

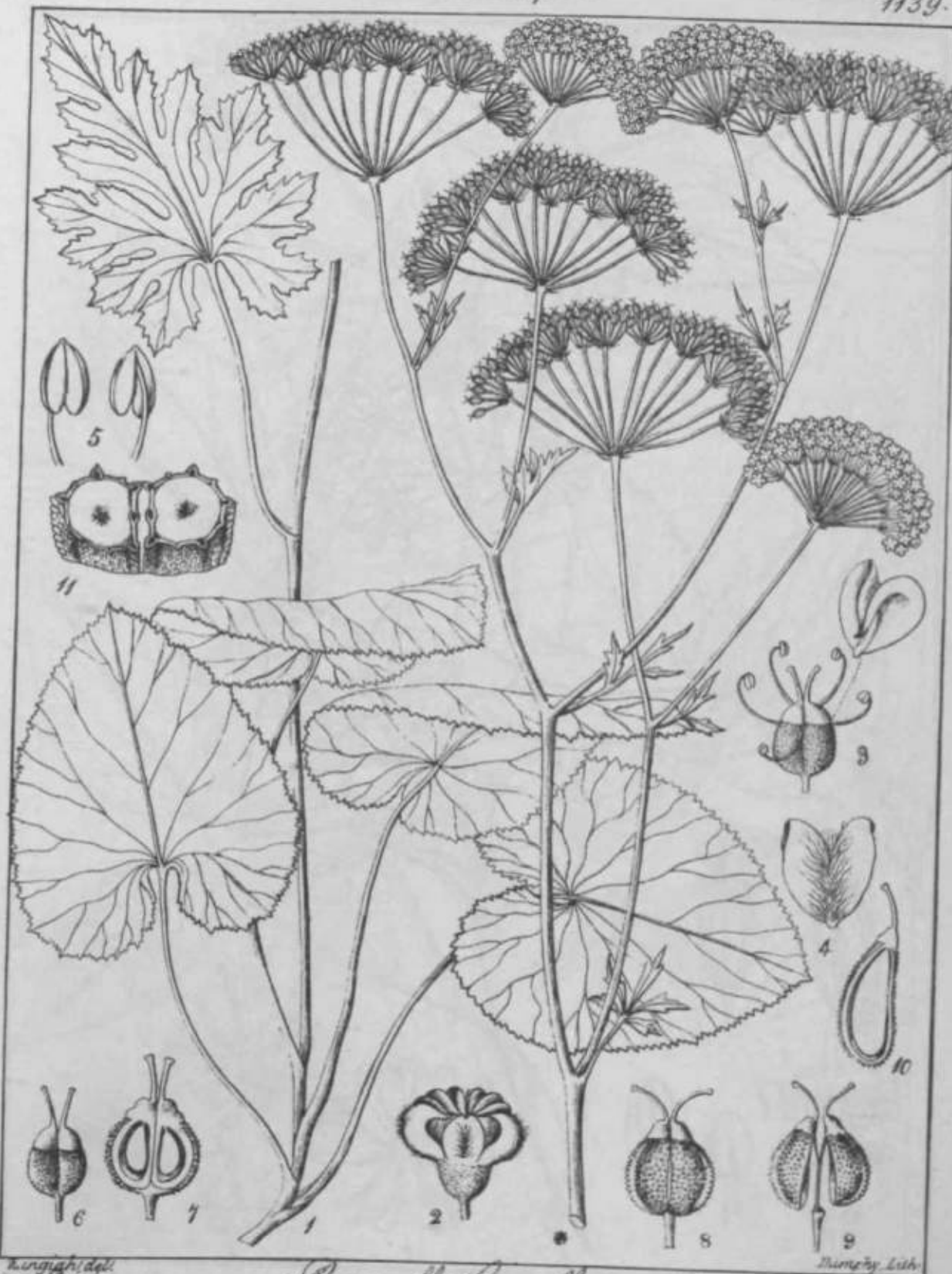
Dunphy, lith.

(2^n^te^id^l/zdc^f,Mnm/J

Ammineae!

Umbelliferae!

341
1139.



Pinpinella del.
Lam. & A. 10.
Calasirakum Lam.

Pinpinella Candolleana (W & A)

Pinpinella del.



Kunze del.

Heracleum pedatum (R. W.)

Dumphy Lith.

^Uyktmmaceat

343
1192



1192 343
Maroilles volterro

Loranthus elasticus (Desr.)

Dumphy, Lith.



Rungiah, del.

Манатракале } Там

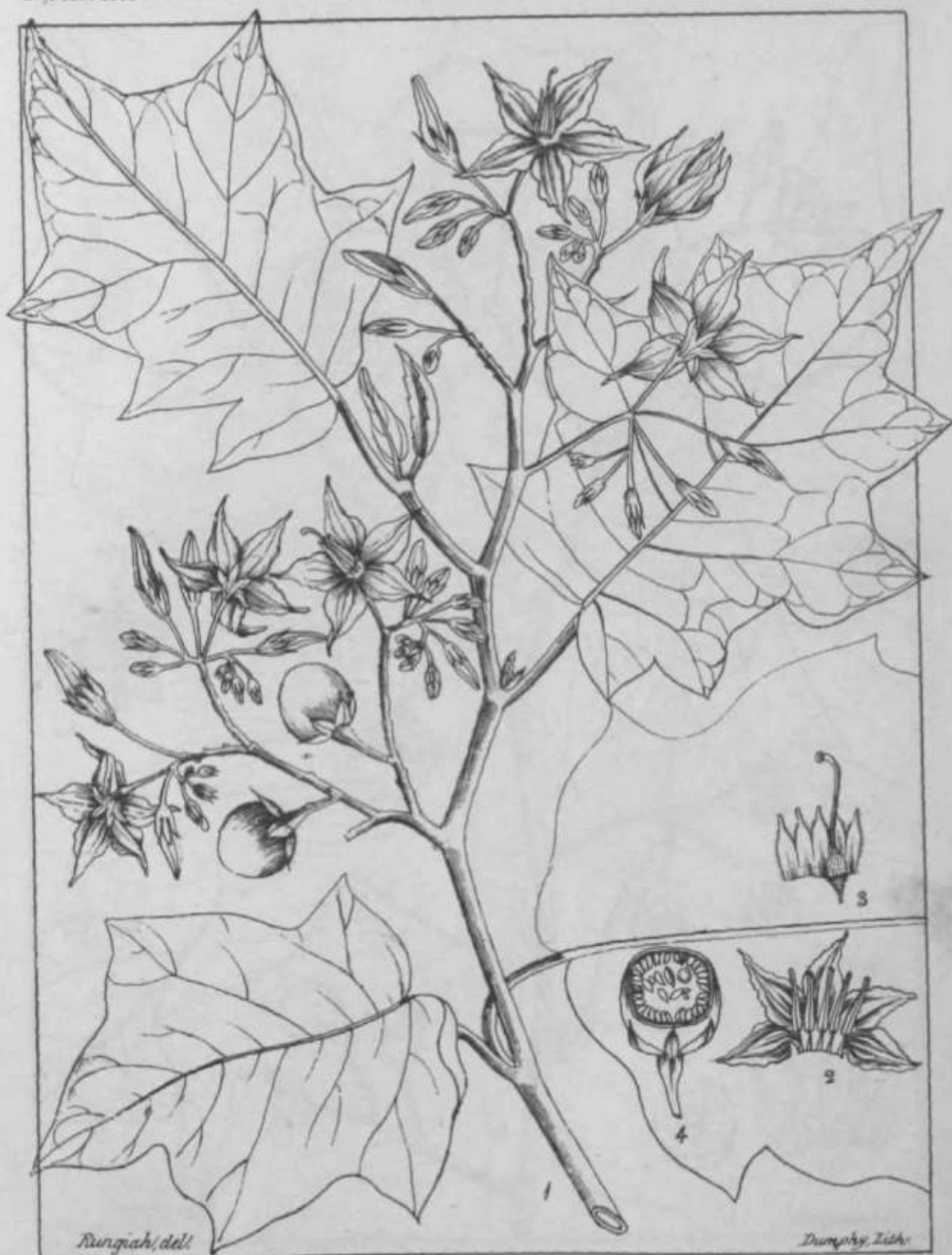
Solanum rubrum

Dumphy, lith.

Solanec.

Solanaceae.

345



Rungiah/dell

Dumortier, Lich.

LOKON & SONNEN-STRICH
e. Kolasondacie } Tam

Solanum torvum



செடி, கெண்டி, கெண்டி, கெண்டி
Cochlospermum frutescens Lam

Solanum Indicum

Convolvulaceae
(flmwwui)

0 Jf
Convolvulaceae

347



H. D. Alves, del.

Porana volubiles (Linn.)



செவ்வாய்க்காய் }
Kunjurapondoo } Jam

Heterostemma tanjorensis (W. & A.)

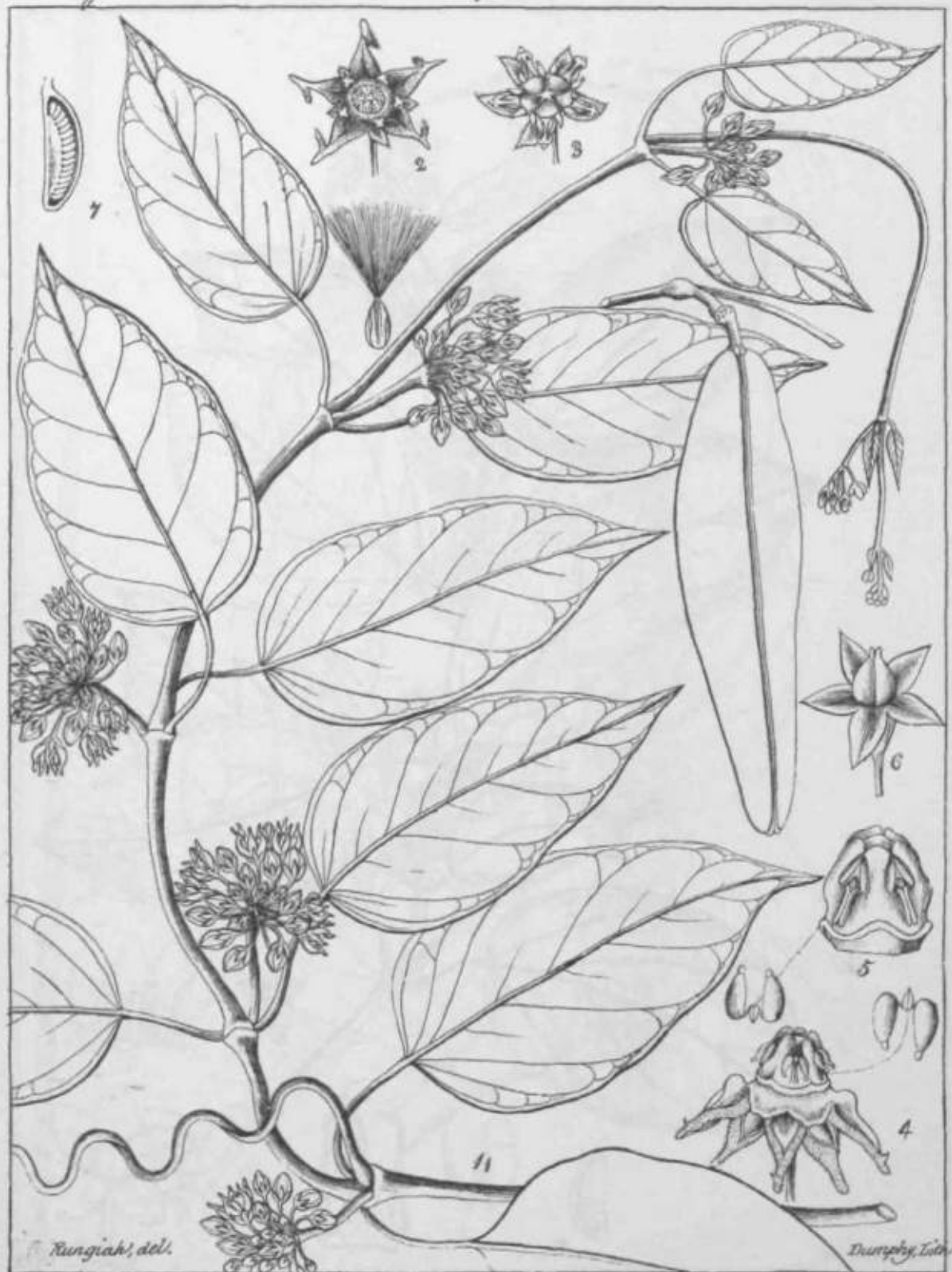


Rungiah, del.

Dumphy, Lith.

செந்திரஞ்சை
Troocoringa } Jam

Gymnema sylvestre (R. Brown.)



Rungiah, del.

Dumphy, lith.

LITTON & Co. 1714
Palacodry } Jam

Leptadonia reticulata (W & A.)



Rungtshel del.

Dumort. Lith.

செவ்வயிலம்பாண்டு }
Sakapoo-wossepala } Tam

Tylophora carnososa (Wall.)

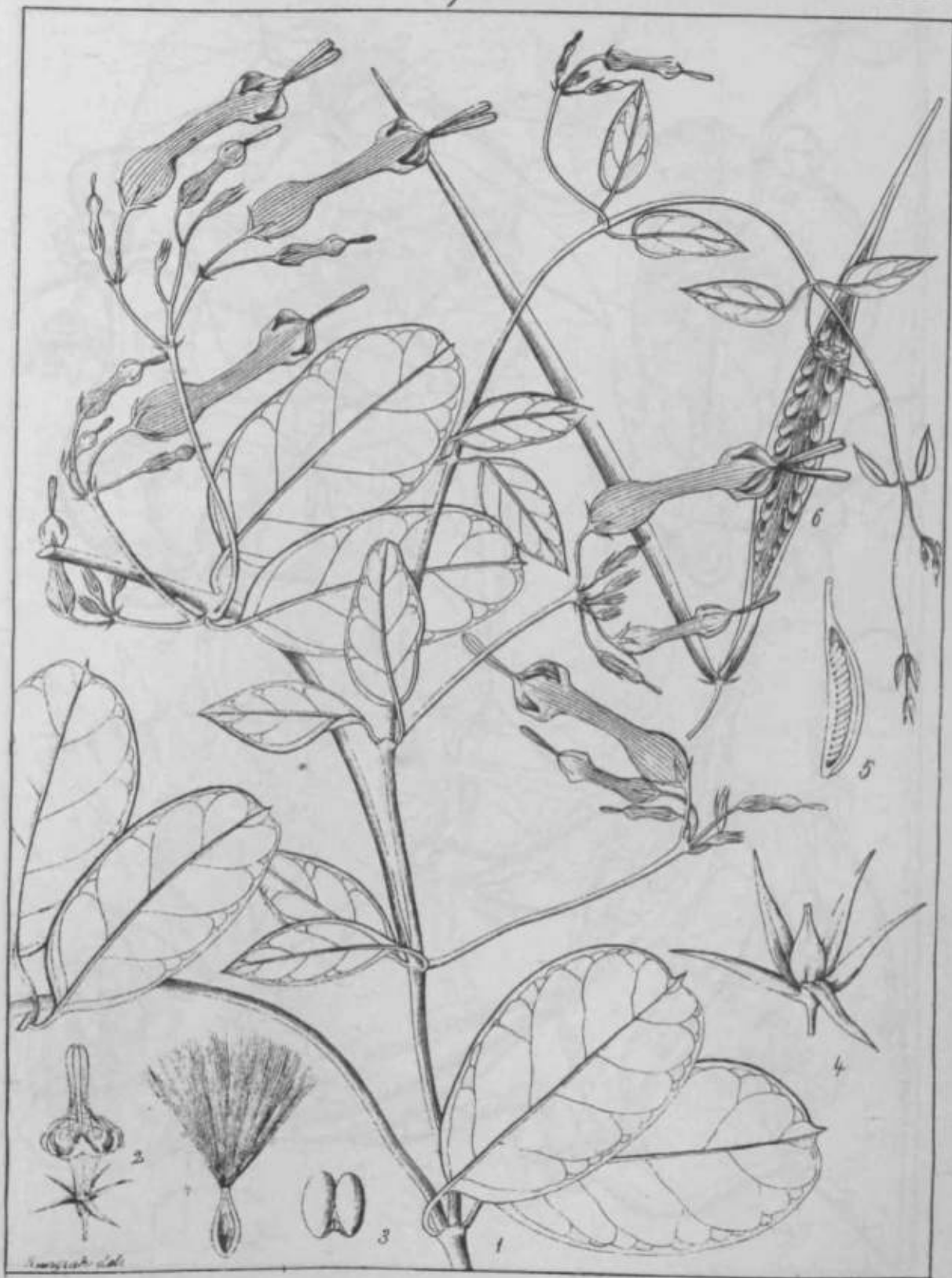


Kungah, del.

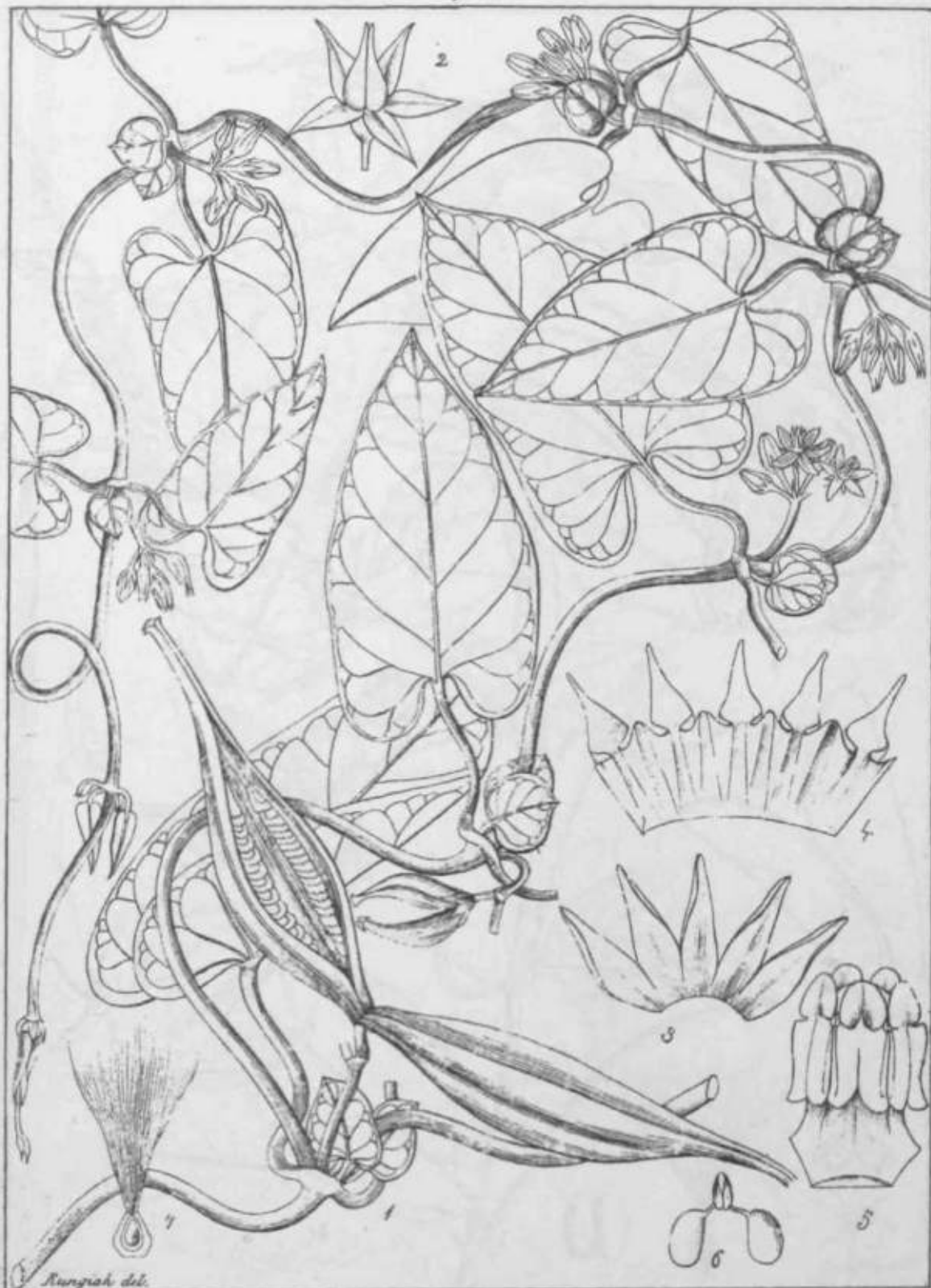
Dumphy, Lith.

ചുവപ്പുനിറം കറുത്തുനിറം } *Tam*
Opelecody

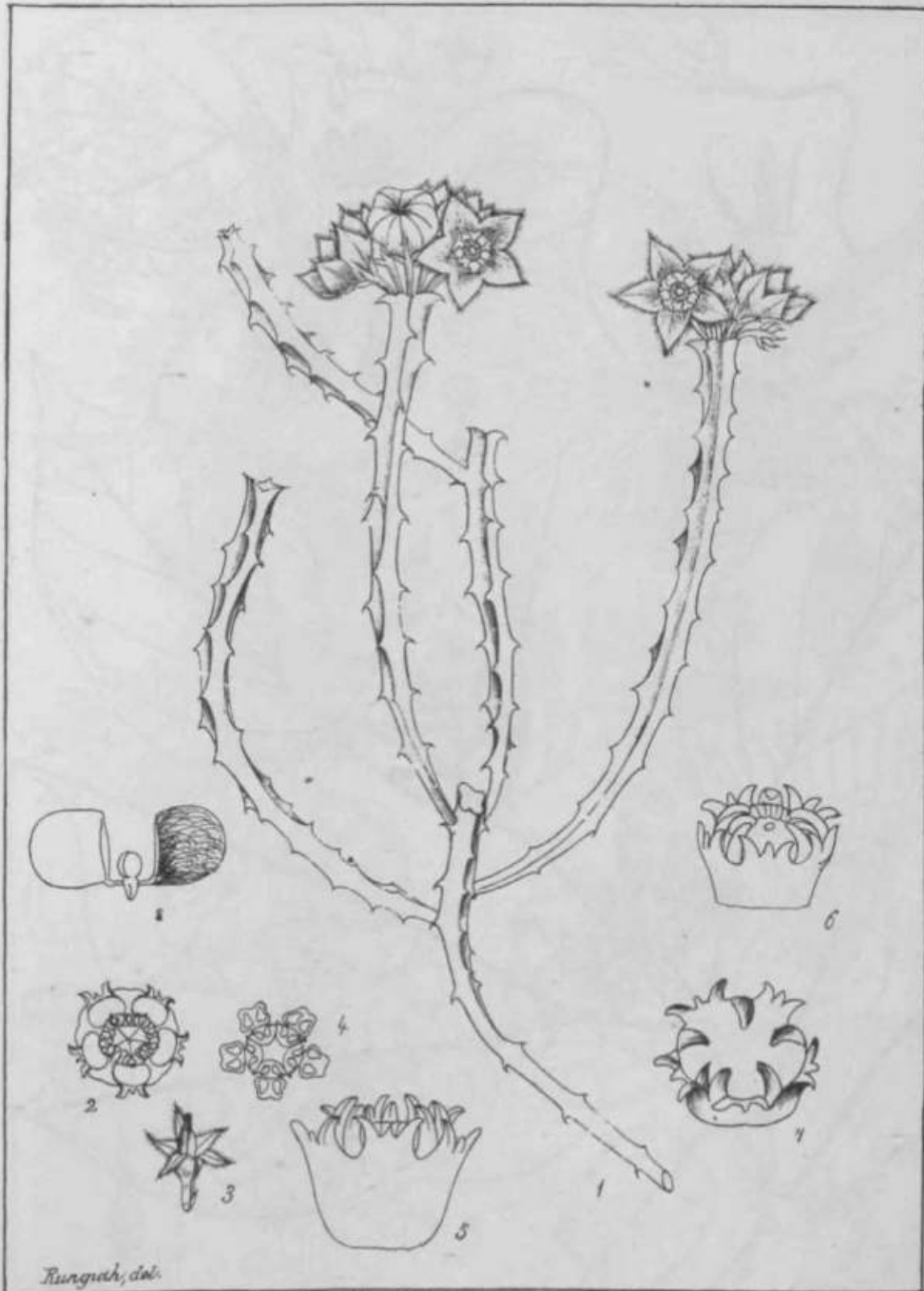
Pentstemon microphylla (W & A.)



Ceropogia tuberosa (Poxb.)



Cynanchum pauciflorum (R. Brown.)



Rungiah, dat.

Culleemolayan } Tam.

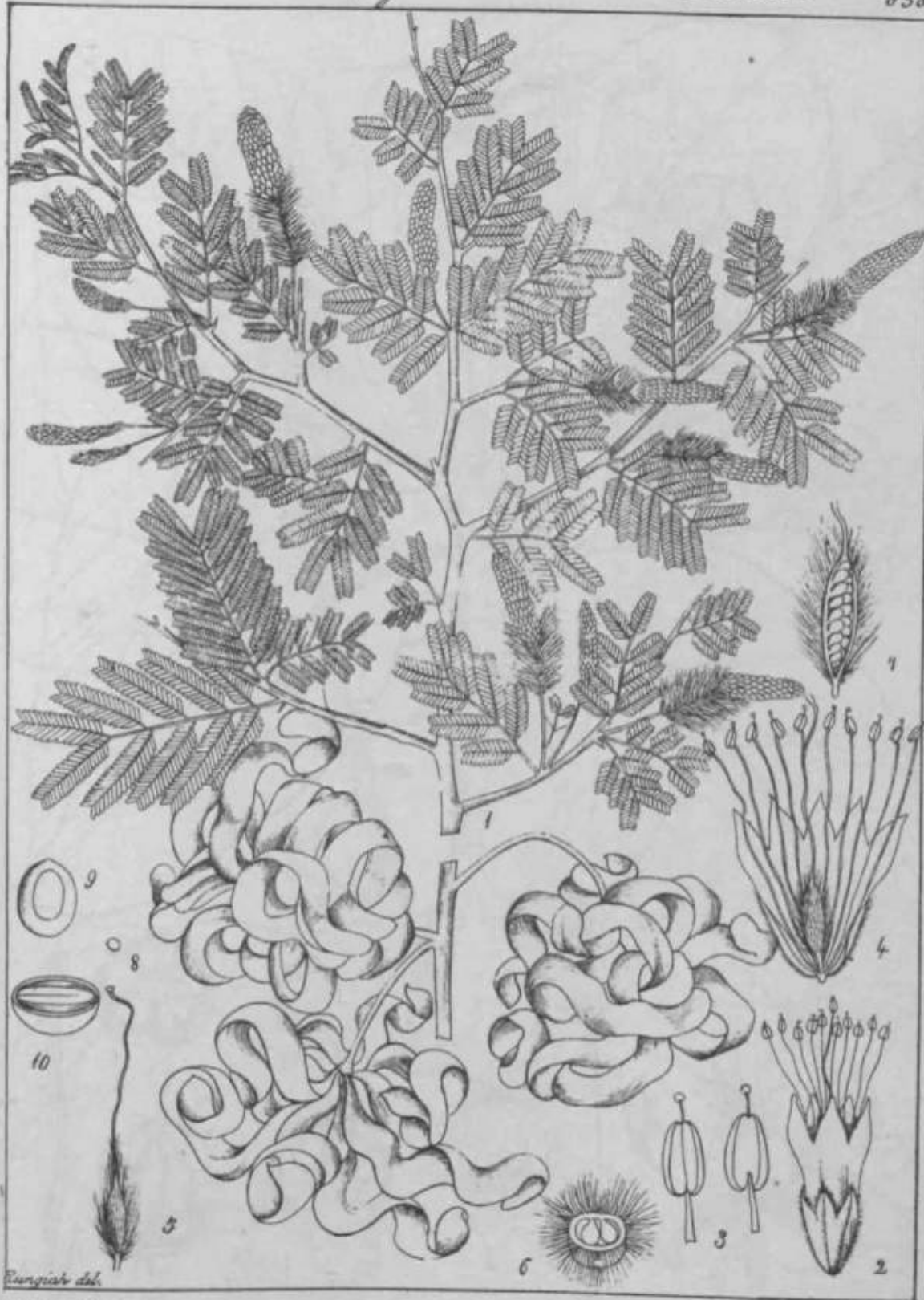
jfu/JiinMi' Q&utica, (W&A)



Kunze del.
Linn. & Berol. 5721

Marsdenia Brunoniana (H. & A.)

F*I*cad.,



Rauv. del.

Dichrostachys cinerea Lam.

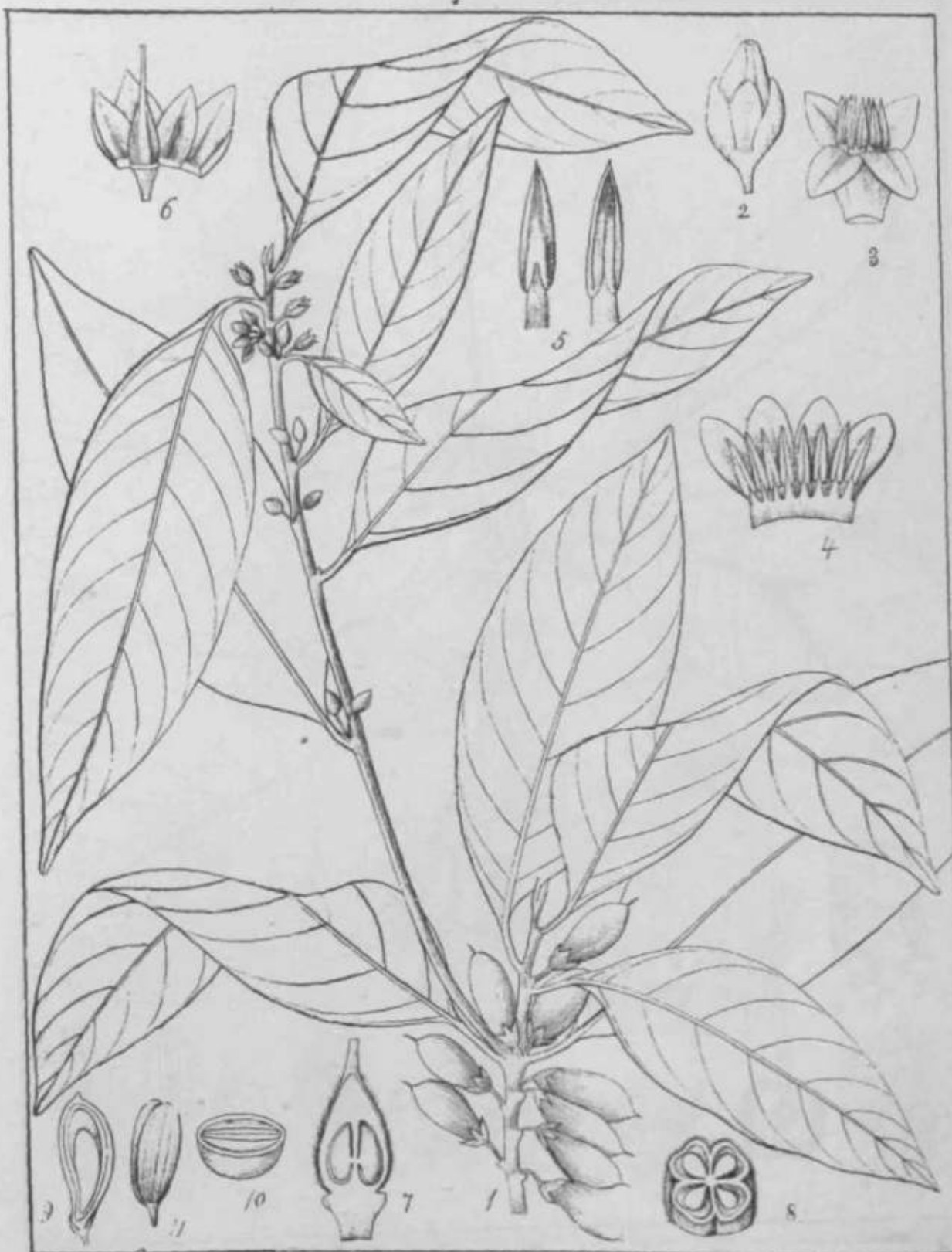
Dichrostachys cinerea (W. & A.)



Rangiah del.

G. R. & B. R. Rangiah
Johore Bahru } Tam

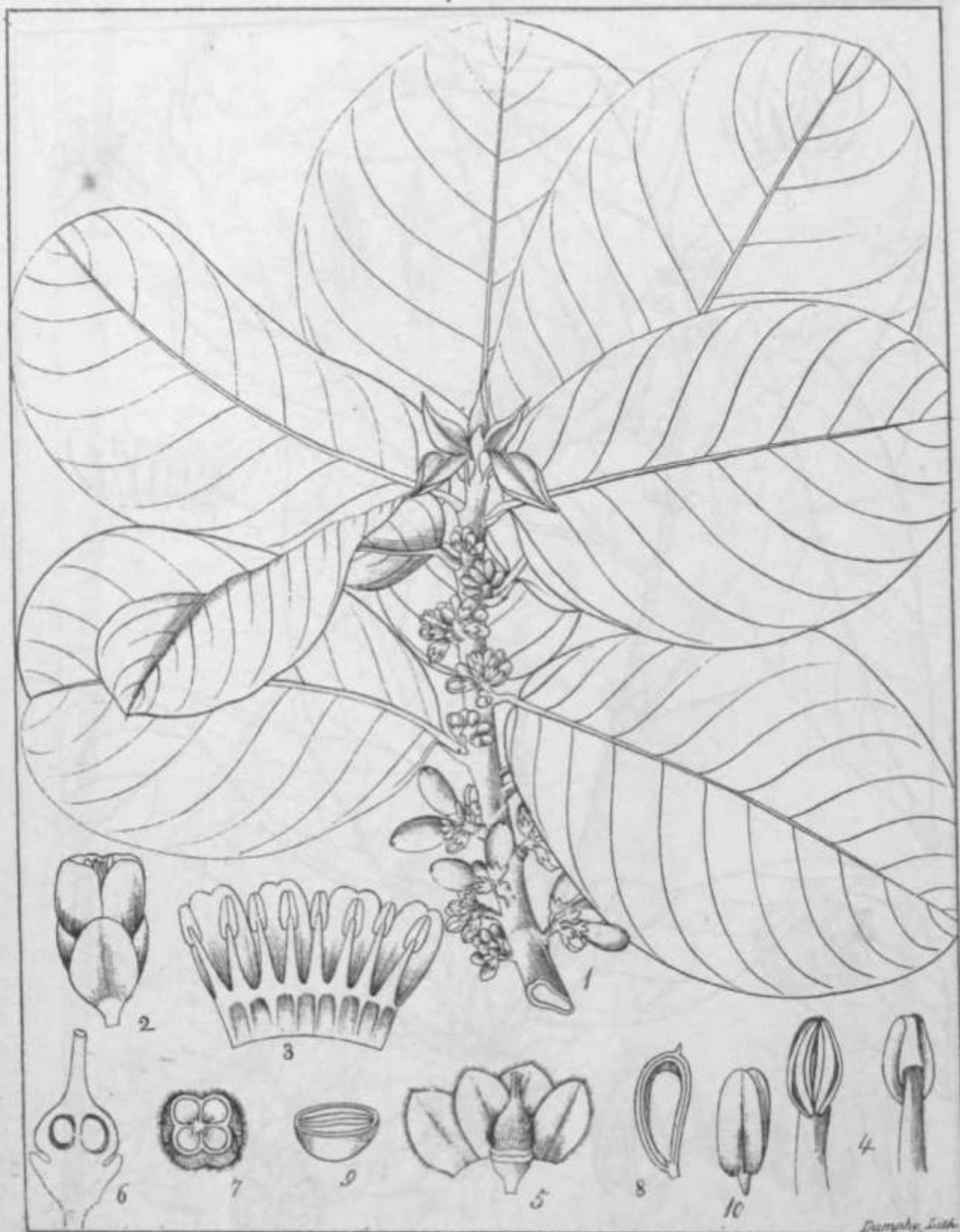
Dillenia brachiata (R. W.)



Kunze, del.

Isonandra lanciolata (R.W.)

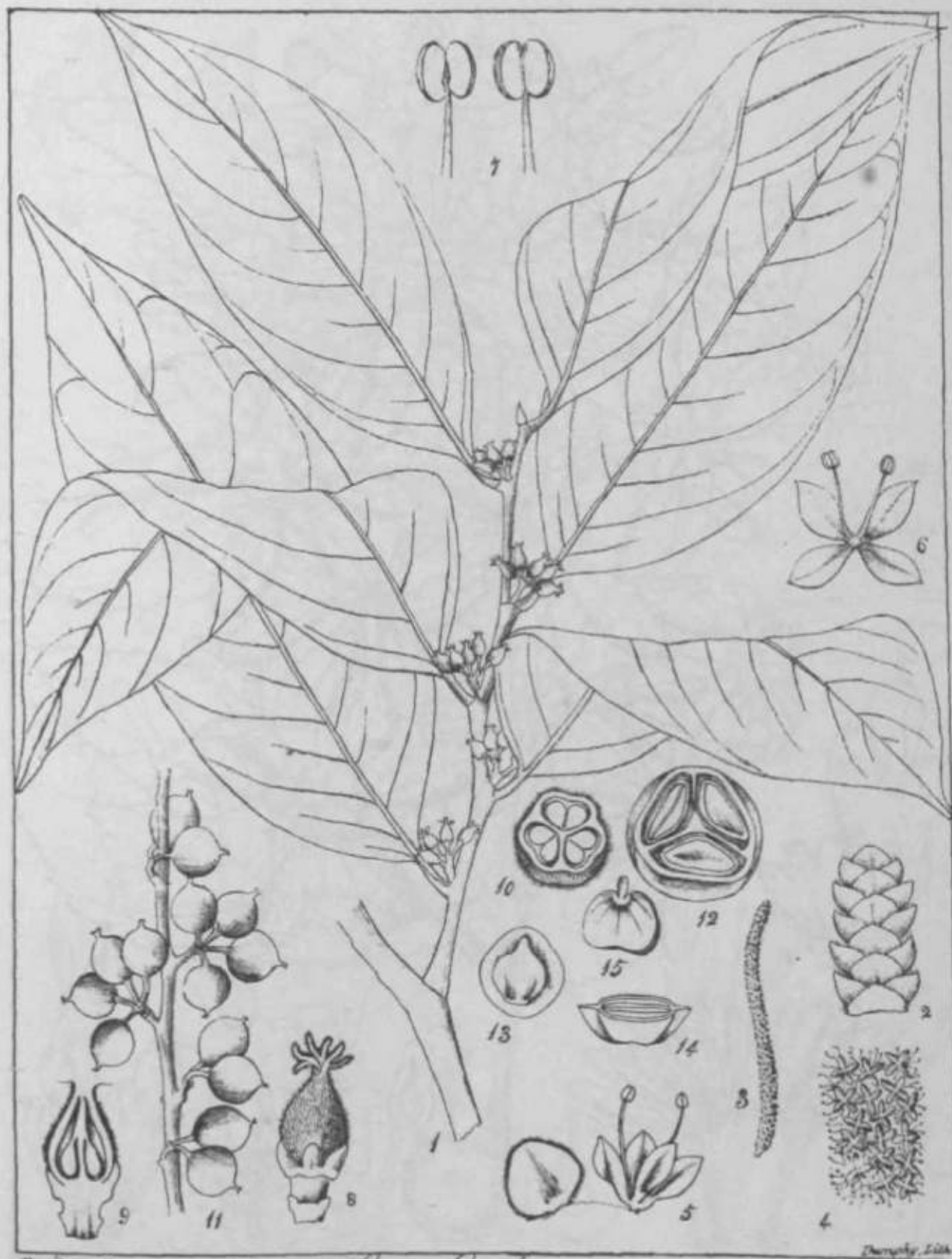
Dumort., Lith.



Rungtshel del.

Isonandra villosa (R.W.)

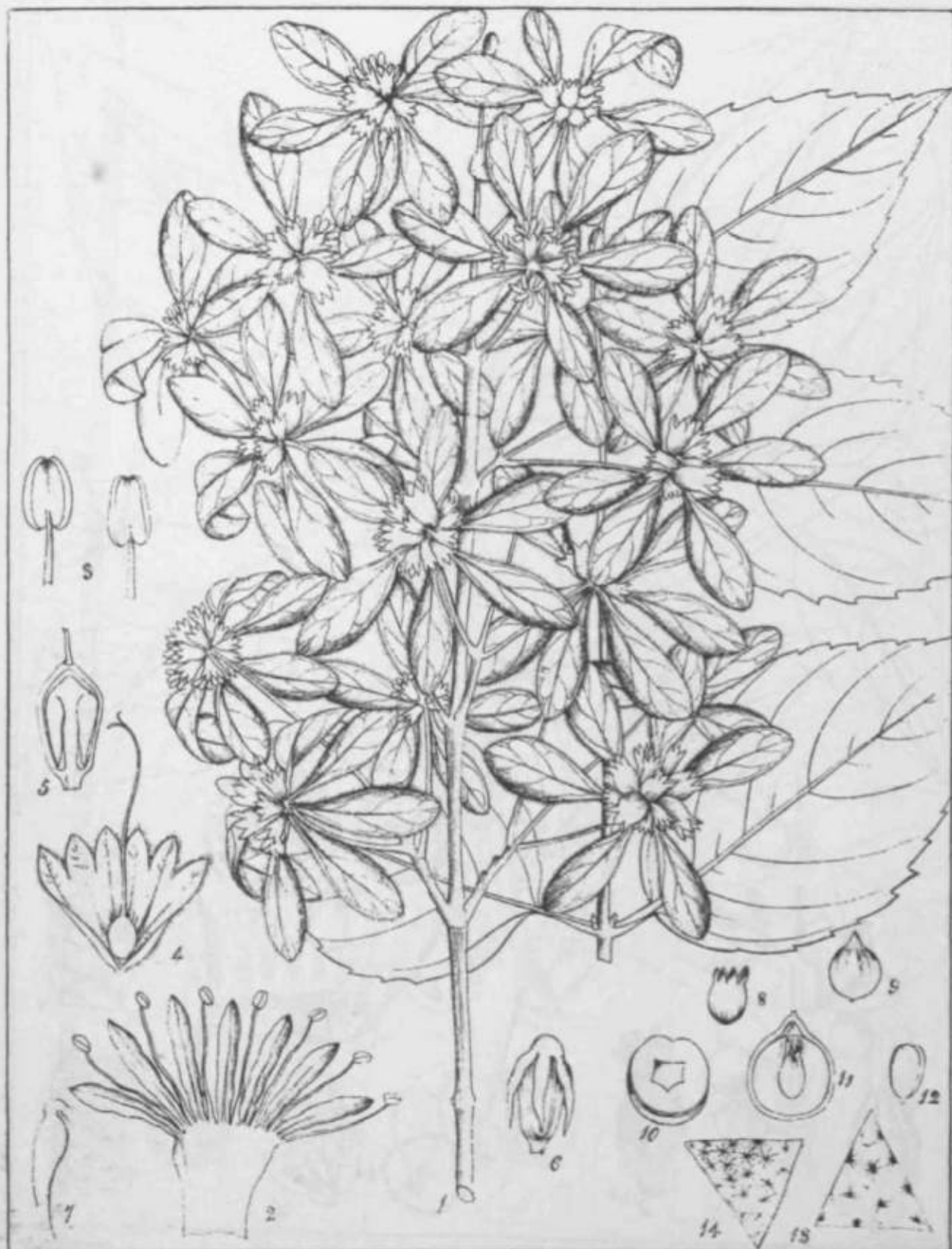
Bartholomew, Lith.



Maryland, del.

Scea Lindleyana.

Thompson, Lith.



Symphora etc.

Symphoremia involucrata (Roxb.)

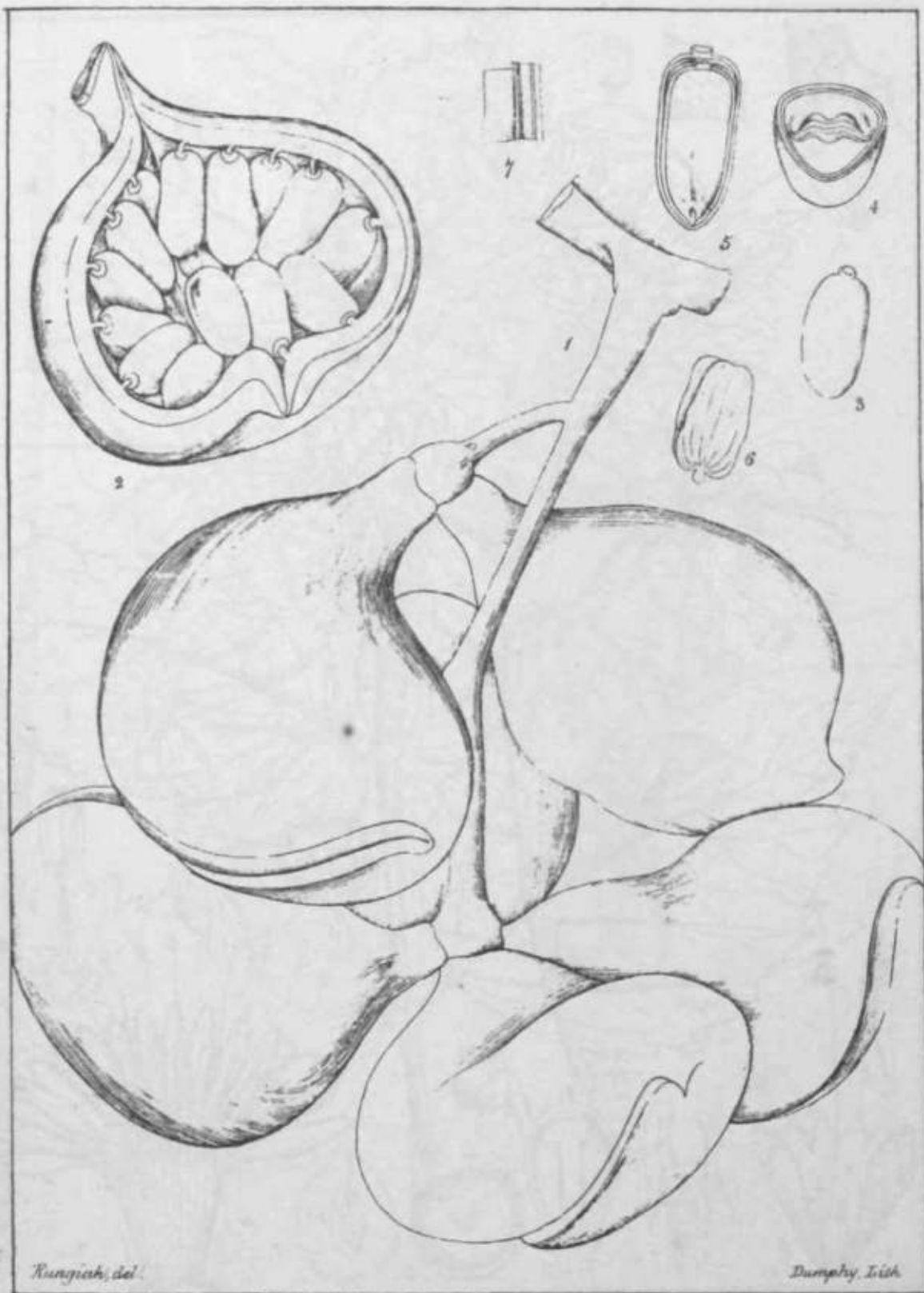
Dumphy, Esch.



Rungtshar, del.

Symphoricarpos alberti (R. & S.)

Thompson, Lith.



Cochlearia pedunculata

Xjvn/

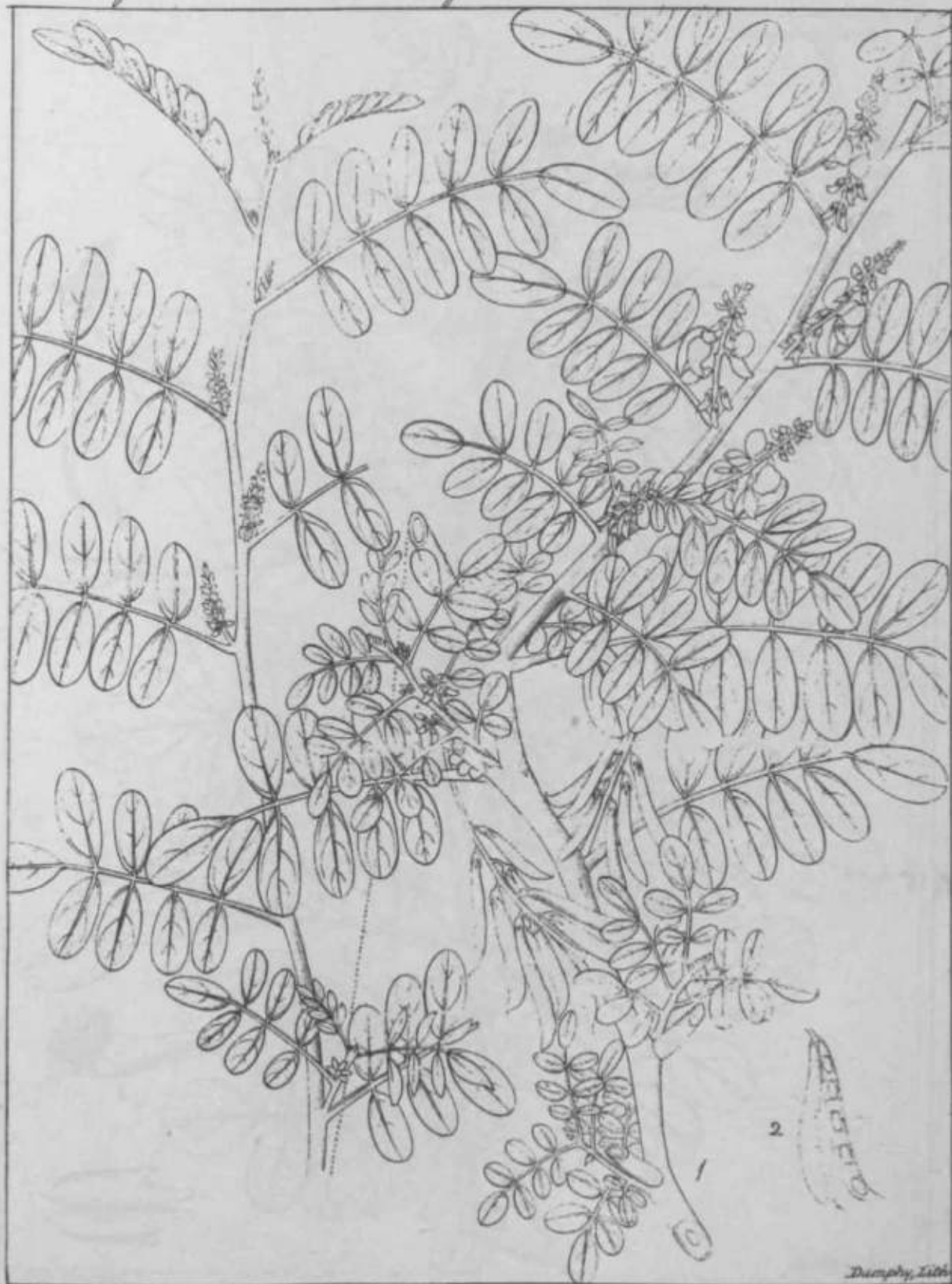
dftwcuaafkudcu'(Uin>rtJj

Fabionaceae!
Roxburghiana!

Leguminosa!

Lotea!

$\frac{365}{633.}$



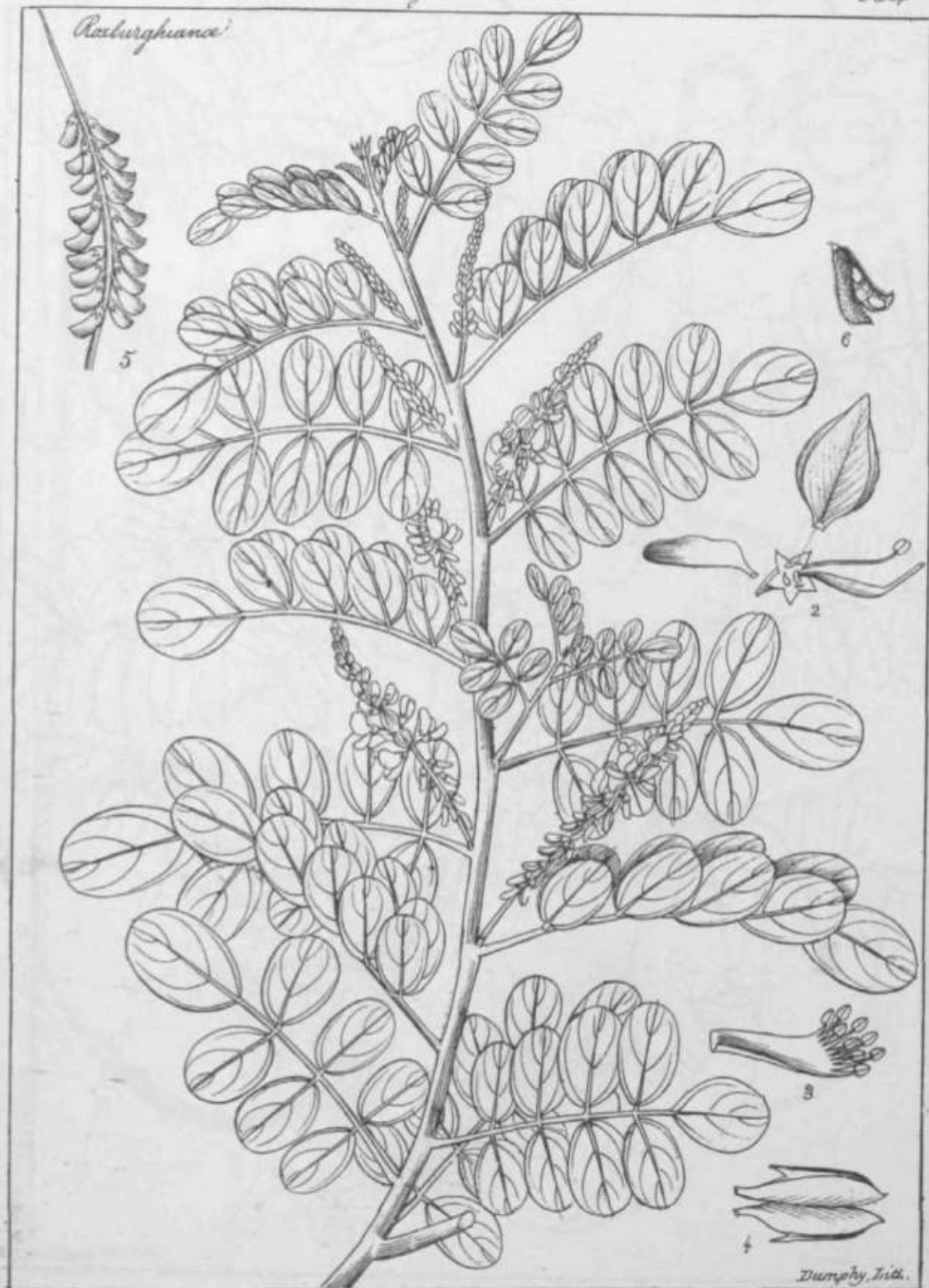
Indigofera tinctoria (Linn.)

A//?JJn naceae!

~J<XL uminosa.

-Jtfce/

3SS
634



Indigofera carulea (Roxb.)

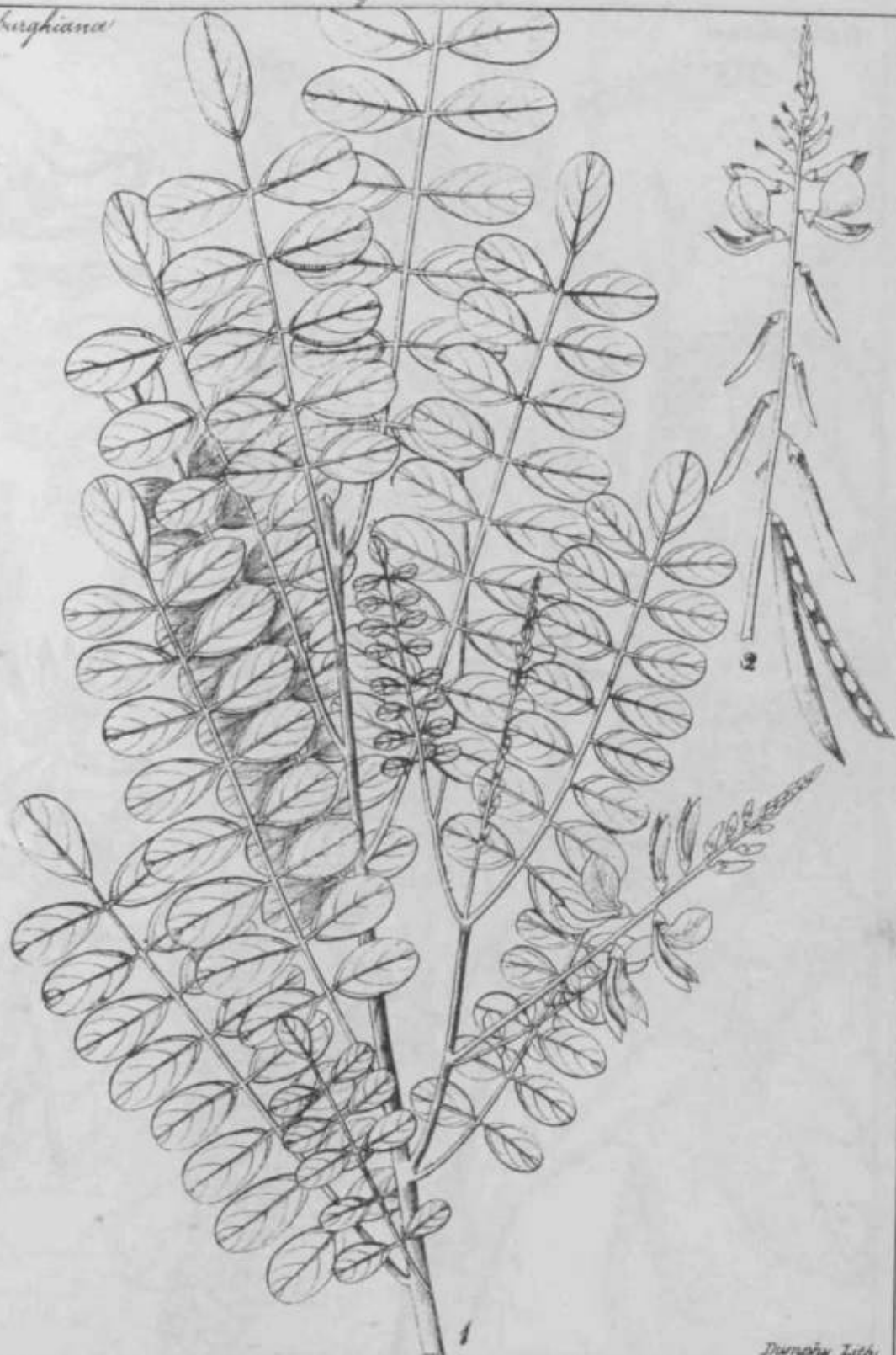
Papilionacea.

Leguminosa.

Lotea.

$\frac{367}{633}$

Rachurgiana



Dumort. Lith.

Indigofera pulchella (Roxb.)



Indigofera arborea (Reichb.)



Indigofera atropurpurea (Roxb.)

Papilionaceae.

Leguminosae.

Loka

$\frac{376}{657}$

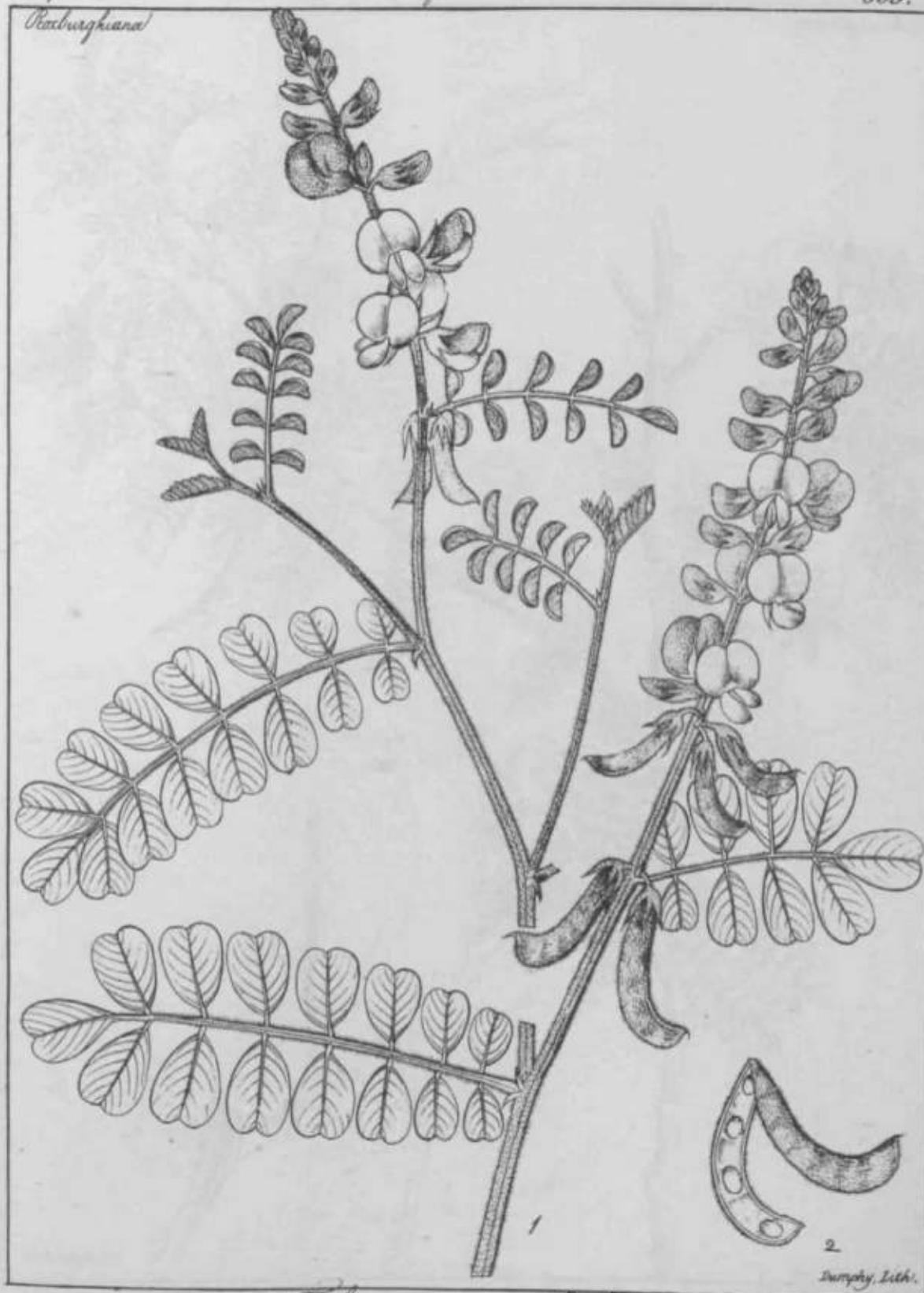
Reichbiana



Dumphy, Lith.

Tephrosia [^] *in Mafi* (Pers.)
Gallego pontaphylla (Reichb.)

Roxburghiana



Smyth, Lith.

Tephrosia incana (Graham)
Galiga incana (Roxb.)

Papilionacea.

Leguminosa.

Loka.

572
663.

Roxburghiana



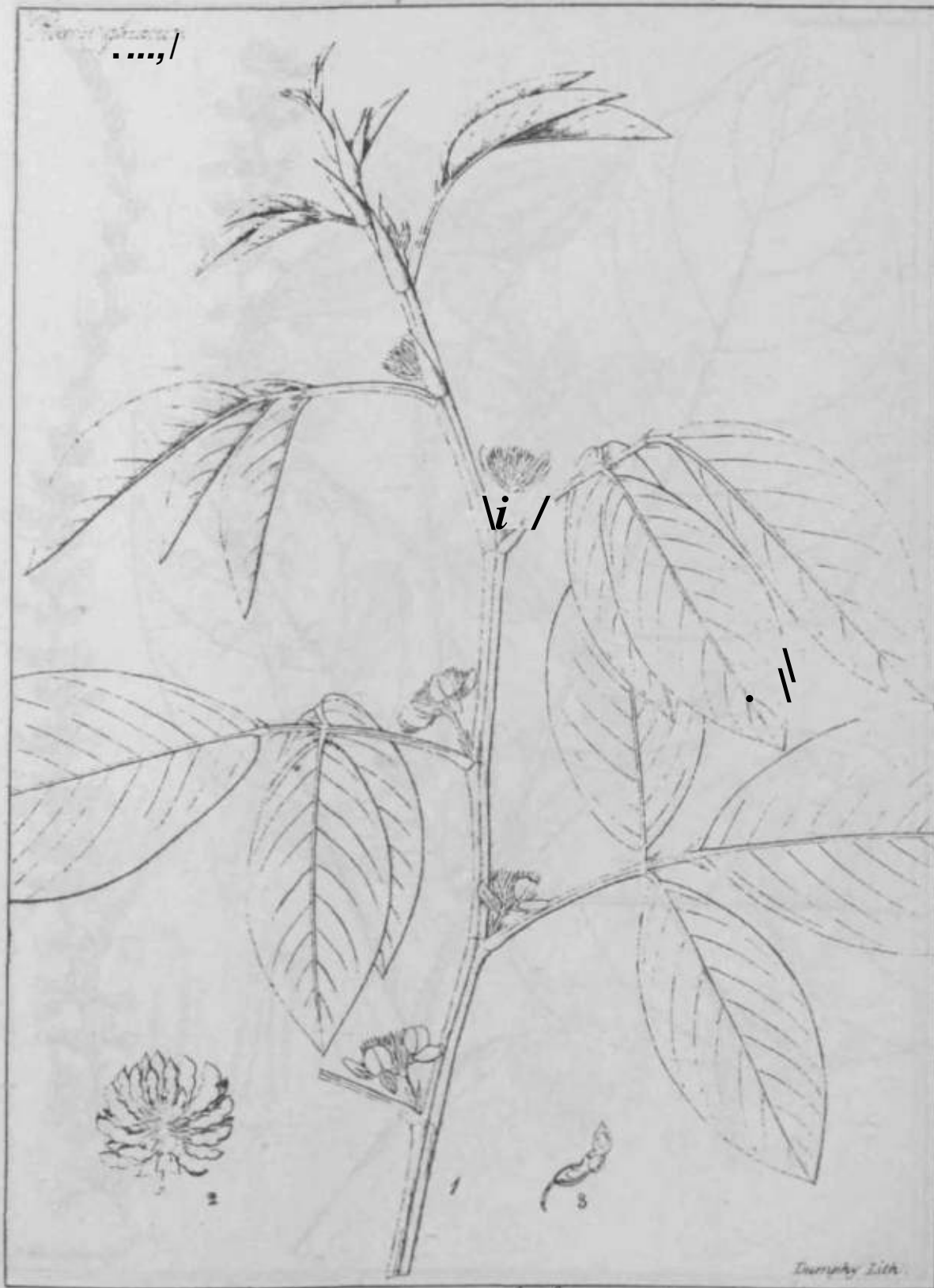
Tephrosia spinosa (Pers.)
Galega spinosa (Roxb.)

Hedysarum (Lamiaceae)

leucum

Hedysarum

373
694



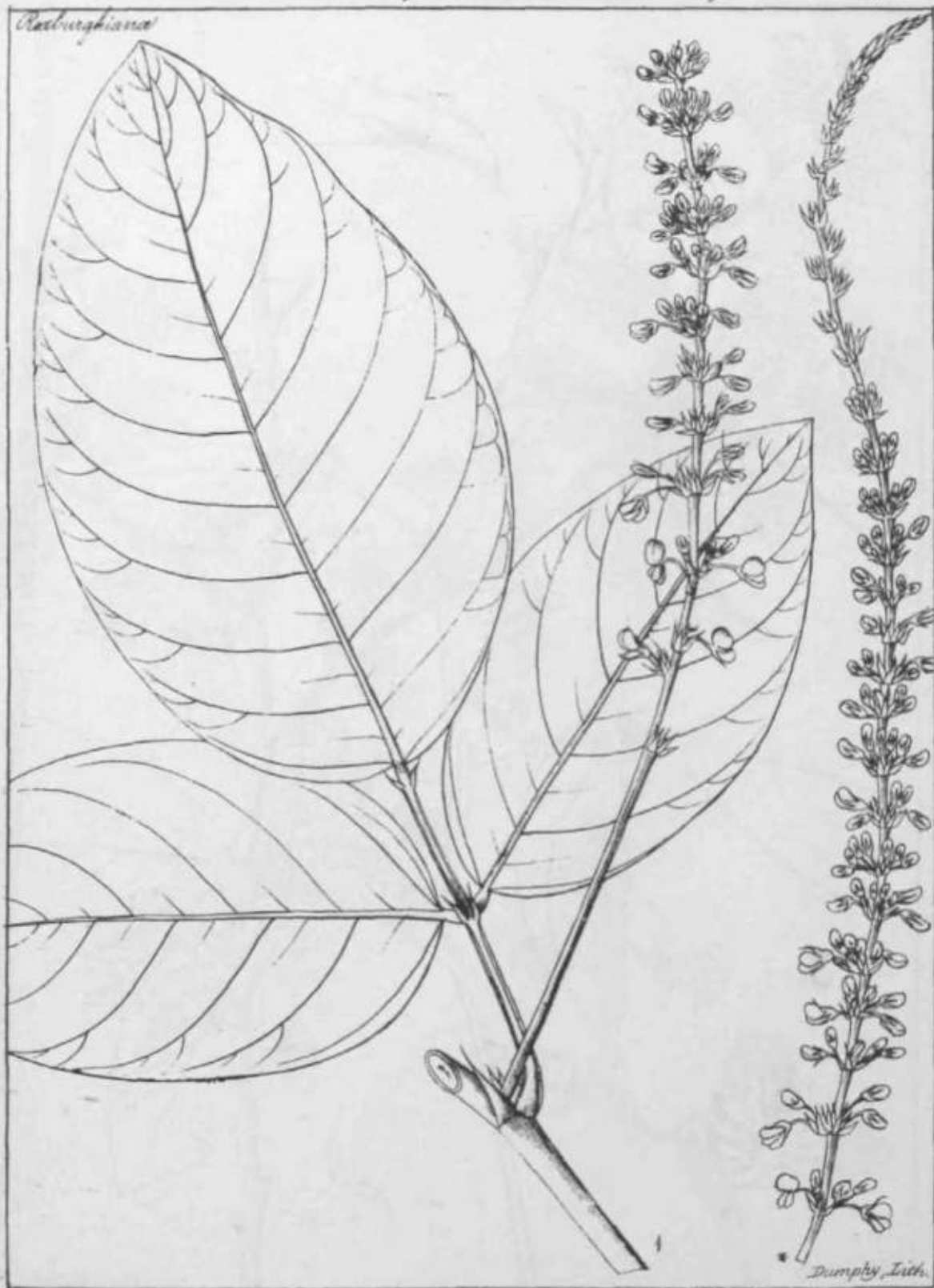
Desmodium cephalotes (Wall.)
Hedysarum cephalotes (Roxb.)

Papilionaceae.

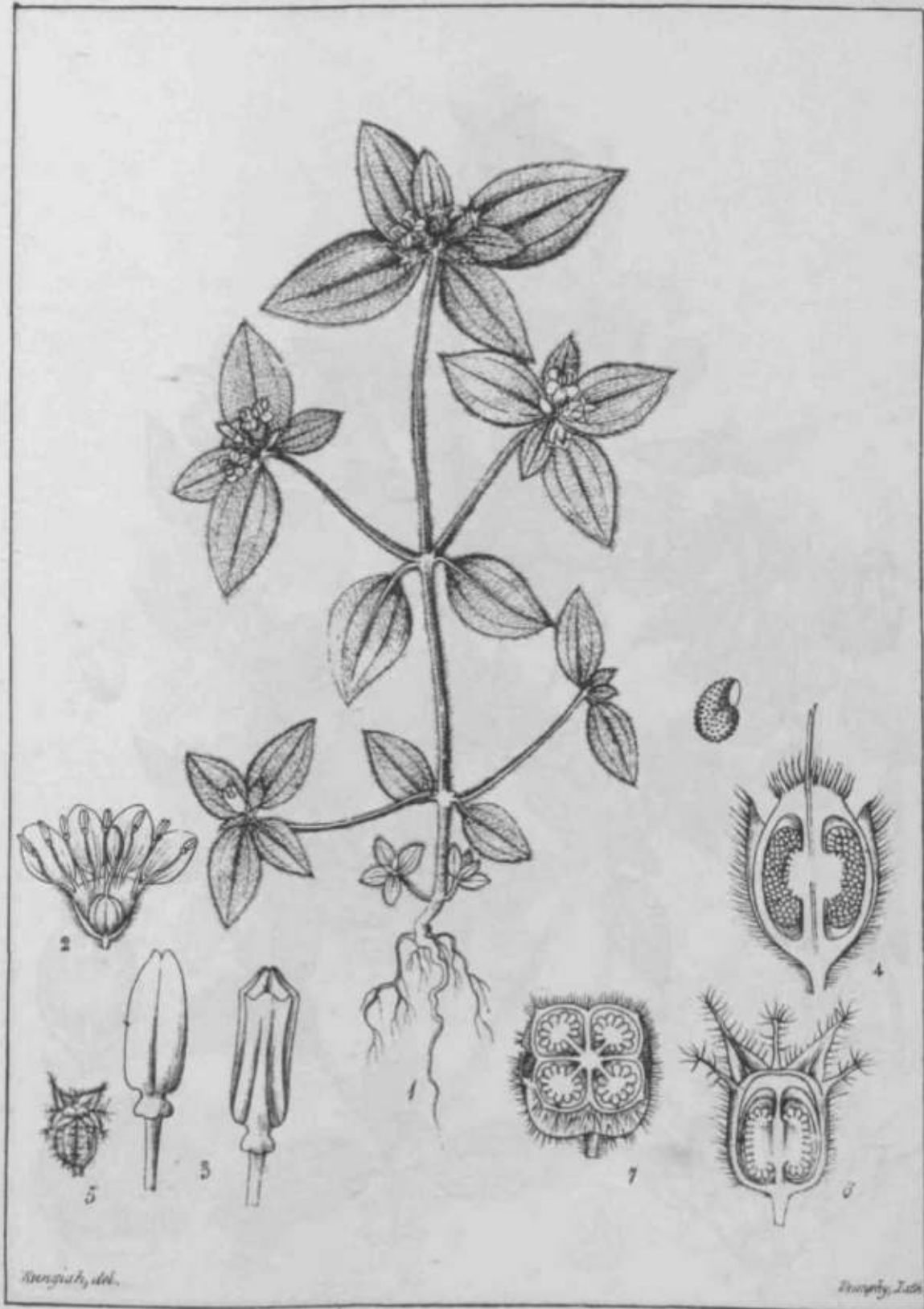
Leguminosae.

Hedysareae

374-
700



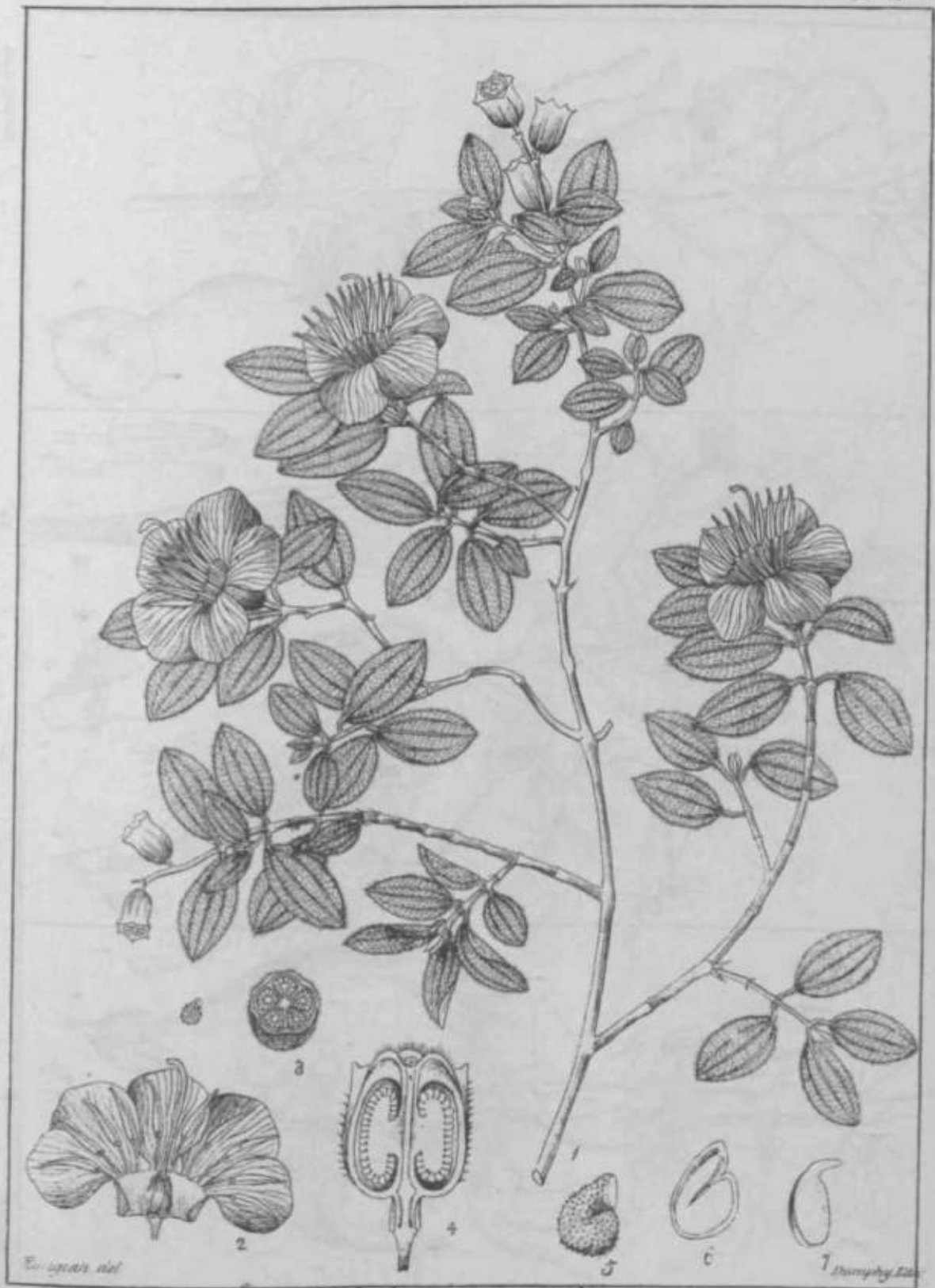
Desmodium recurvatum (Graham)
Hedysarum recurvatum (Roxb)



C. b. .;W fat/ita/a rt<'mst)



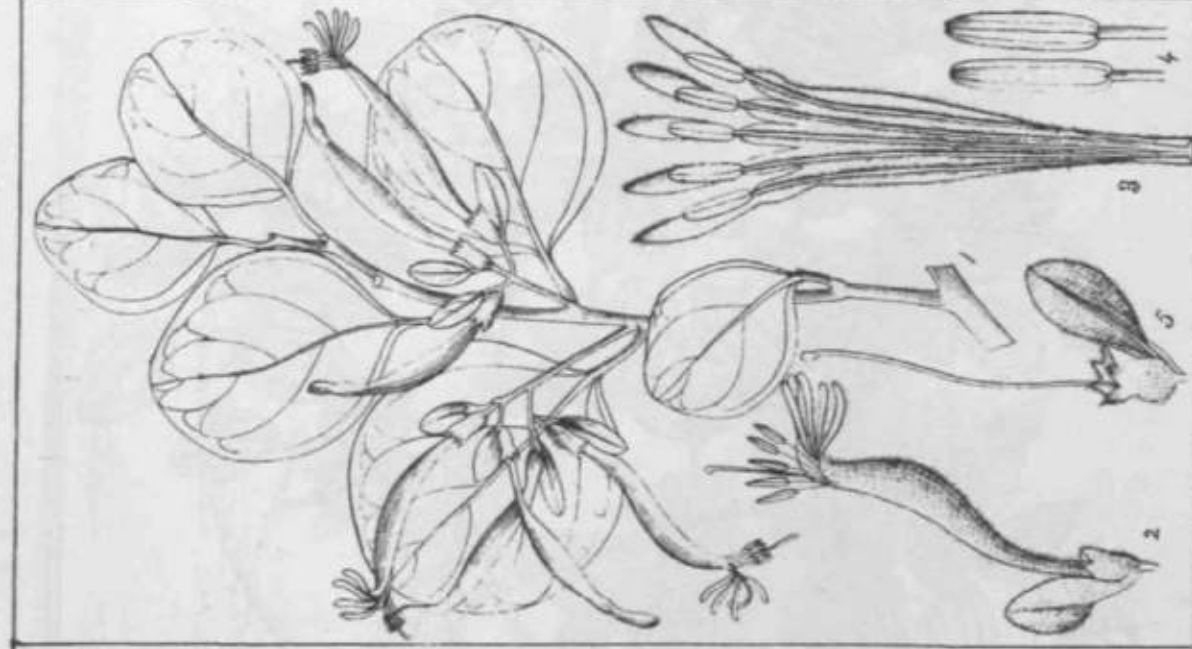
Osbeckia virgata (Don! mst.)



Oebeckia aspera (Blume)

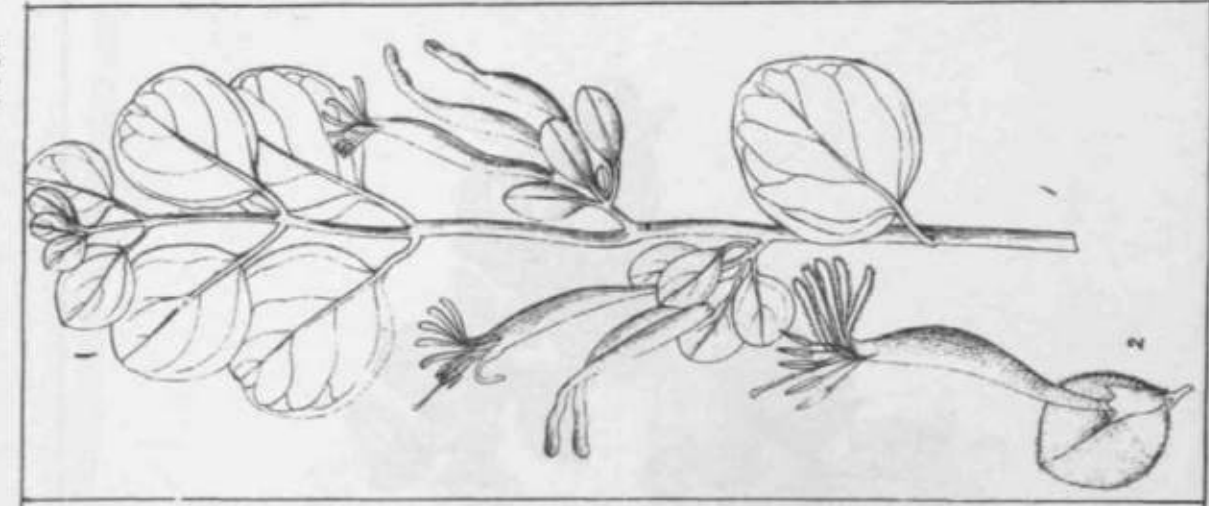


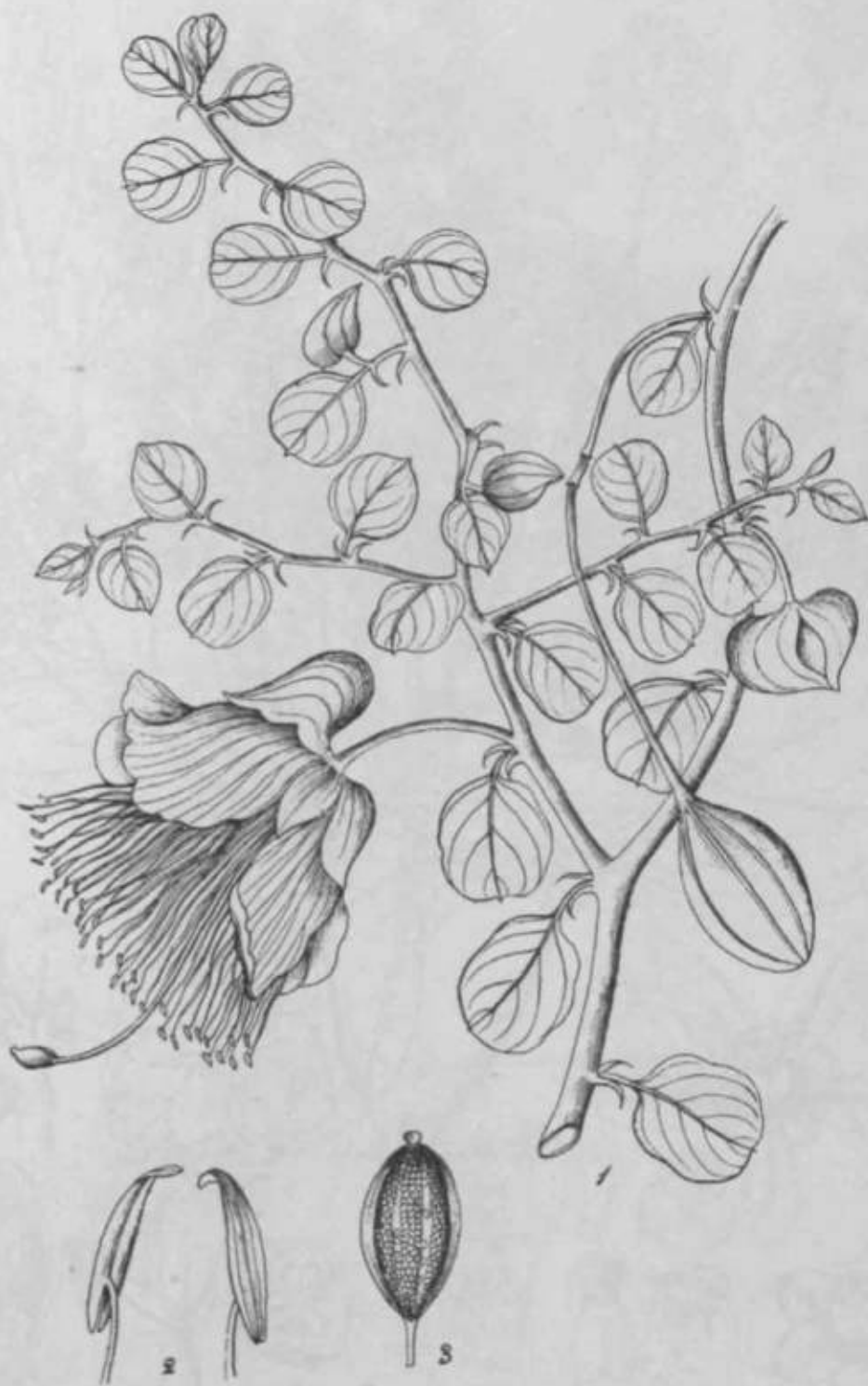
Rungtshak, det.



*Loranthus tomentosus (Hayne.)
(three varieties)*

Thompson, det.

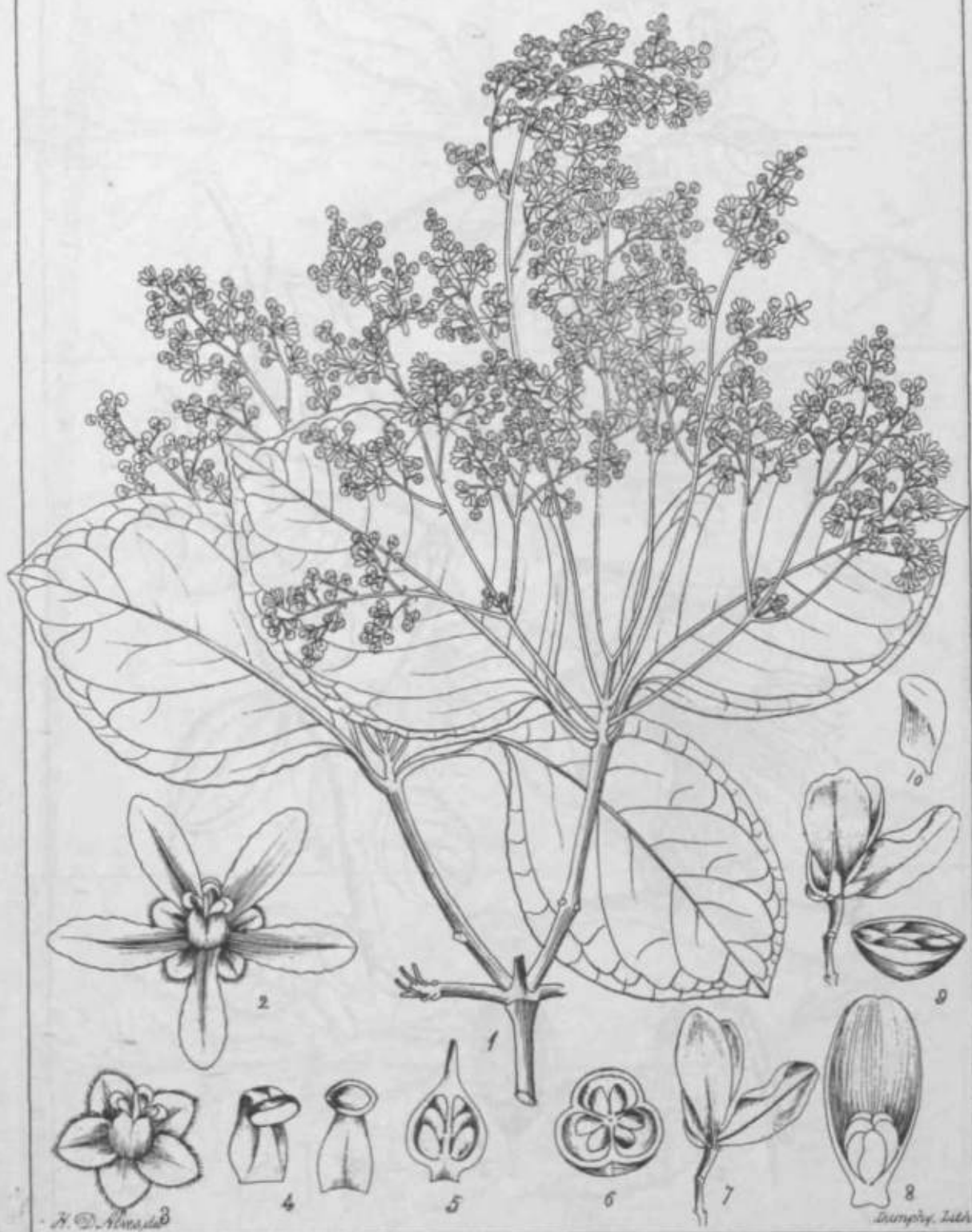




Rungiah, det.

Dumphy, Lith.

Capparis Murrayana (Graham)
Cat. Bombay Plants P. 9.



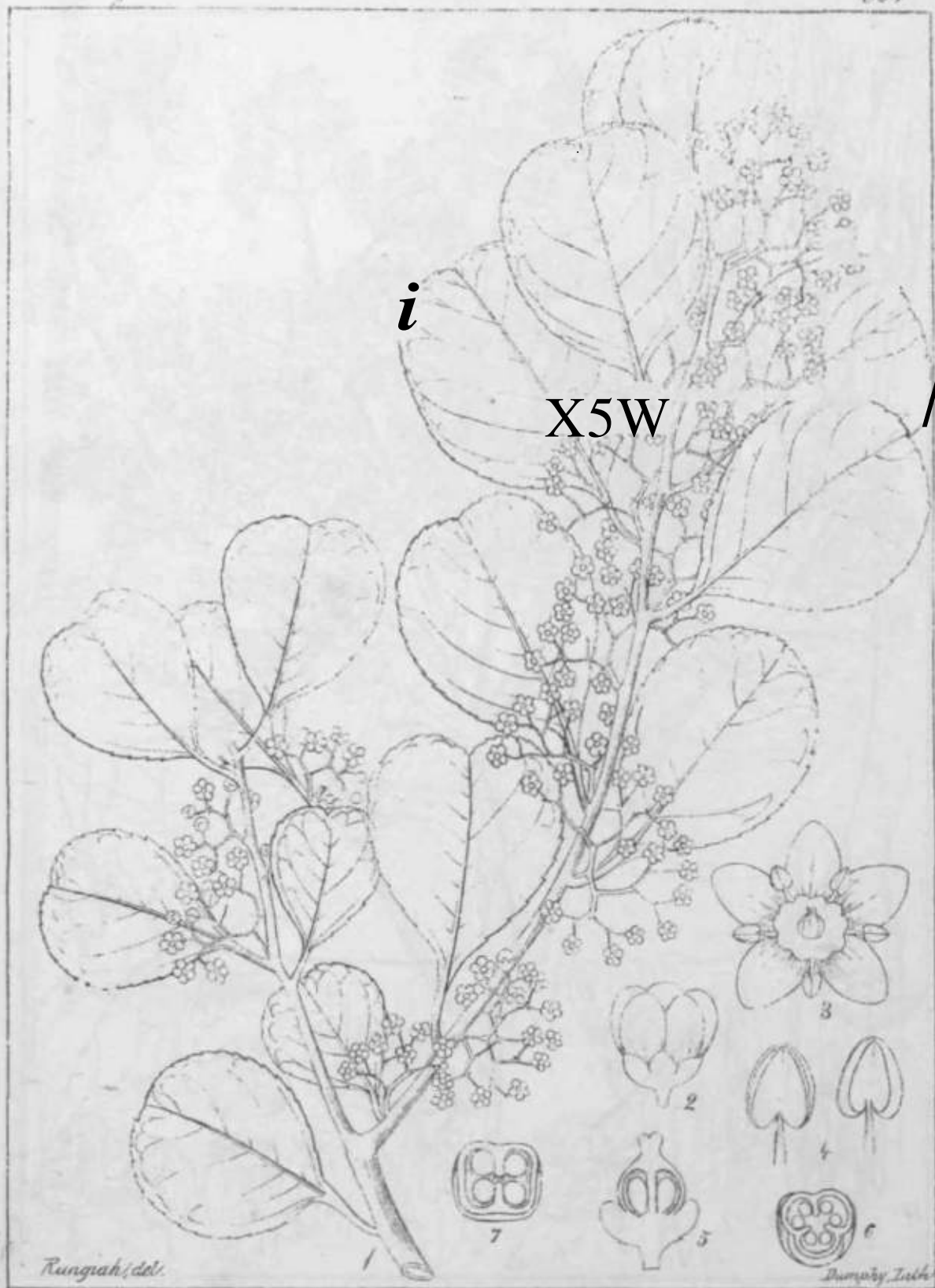
Hippocratea Gr.:mmU' (R.W.)



Kunze, del.

Hiraa Indica (Roxb.)

Dunphy, Lith.



Celastrus montana (Roxb.)



Rungiah, del.

Crotalaria oblecta (Graham)

Dumphy, lith.

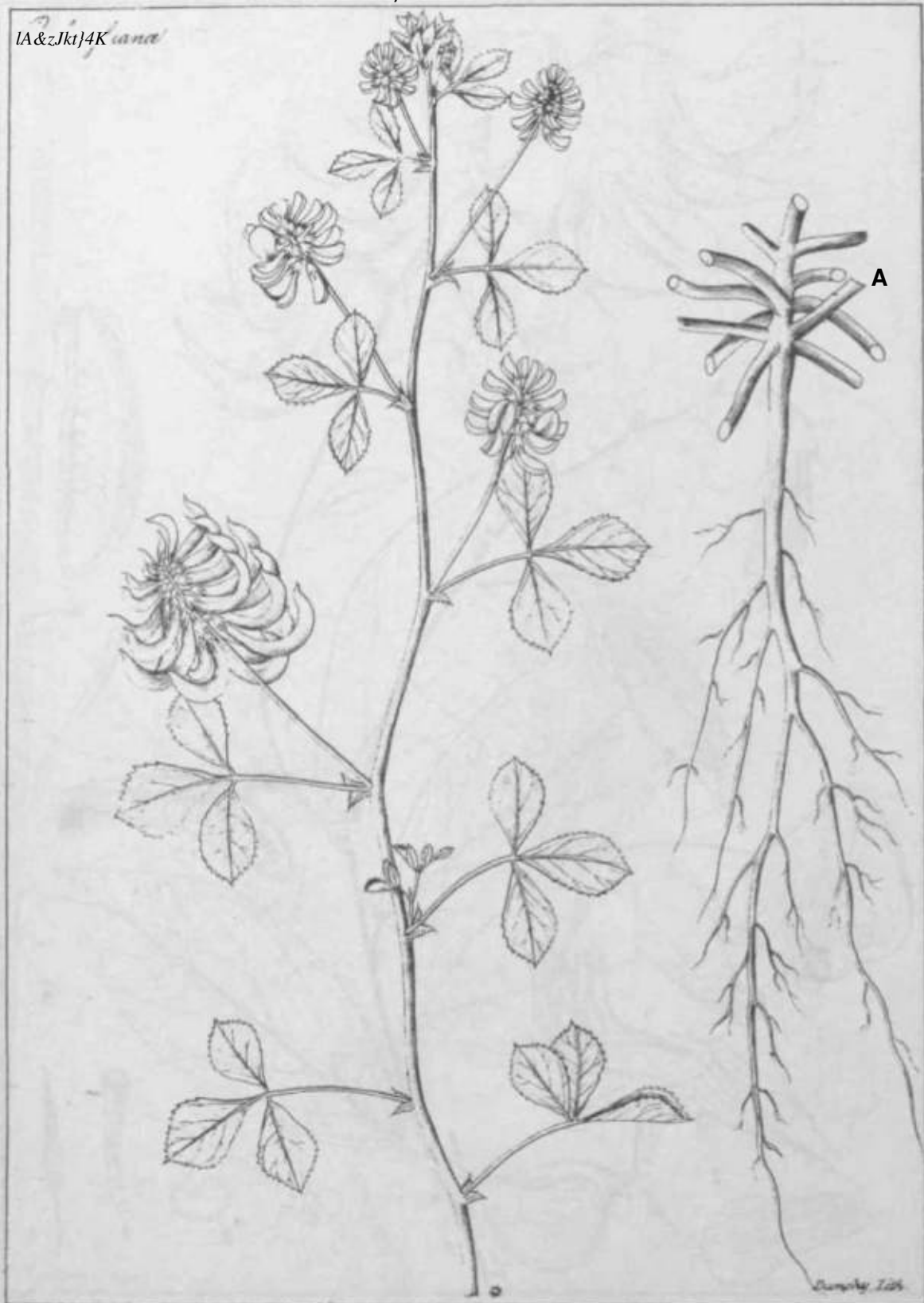
Papilionaceae

Leguminosae

Pea

$\frac{384}{614}$

IA&zJkt/4K



Trigonella corniculata (Linn.)
Medicago corniculata (Roxb. m. s. s.)

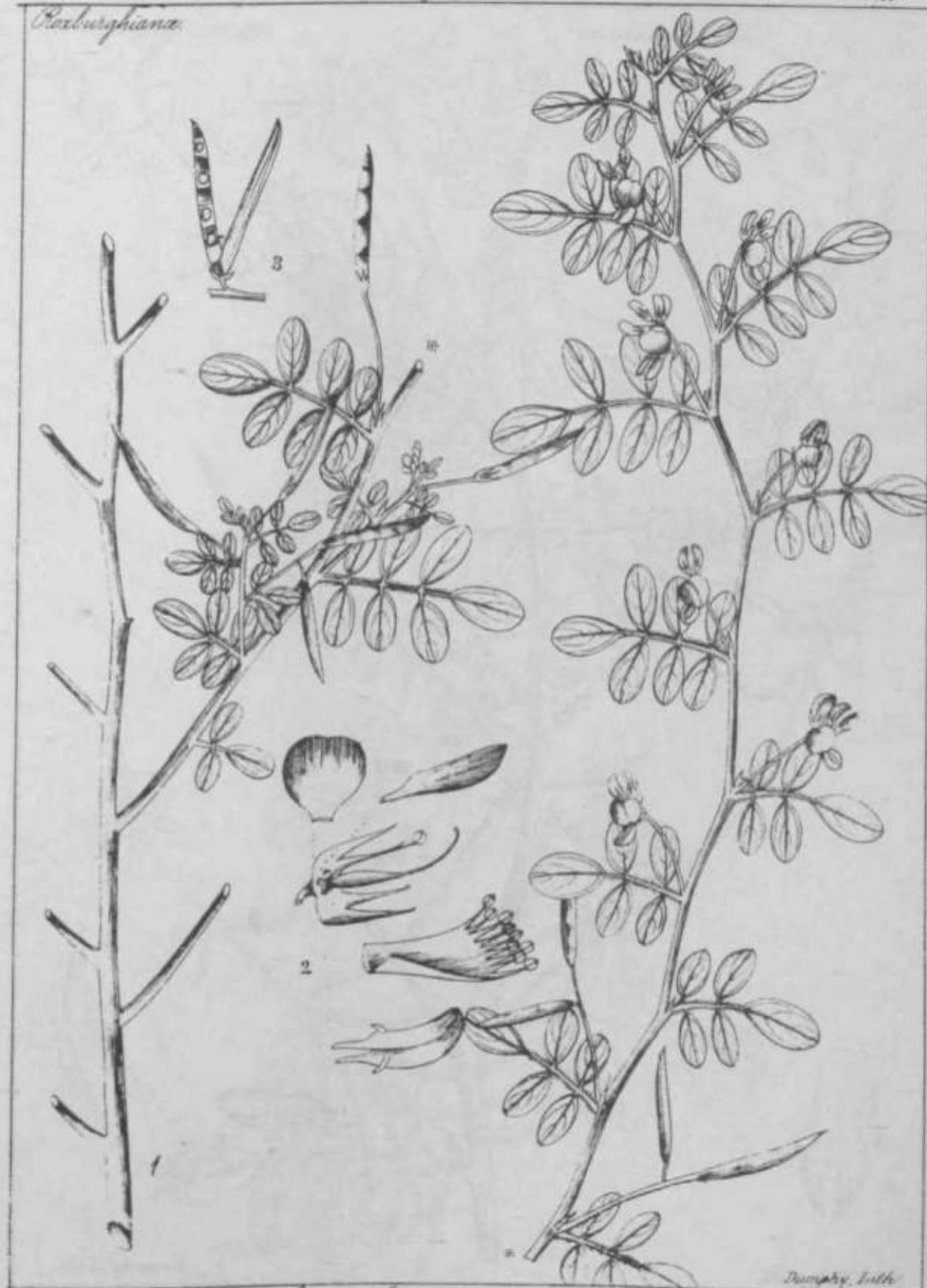
Papilionacea!

Leguminosae!

Lotia!

385
624

Roxburghiana.



Indigofera pentaphylla (Linn.)
Indigofera fragrans (Retz.)

Leguminosae

Leguminosae

Lotea

536
£36

Roxburghiana

f J ..

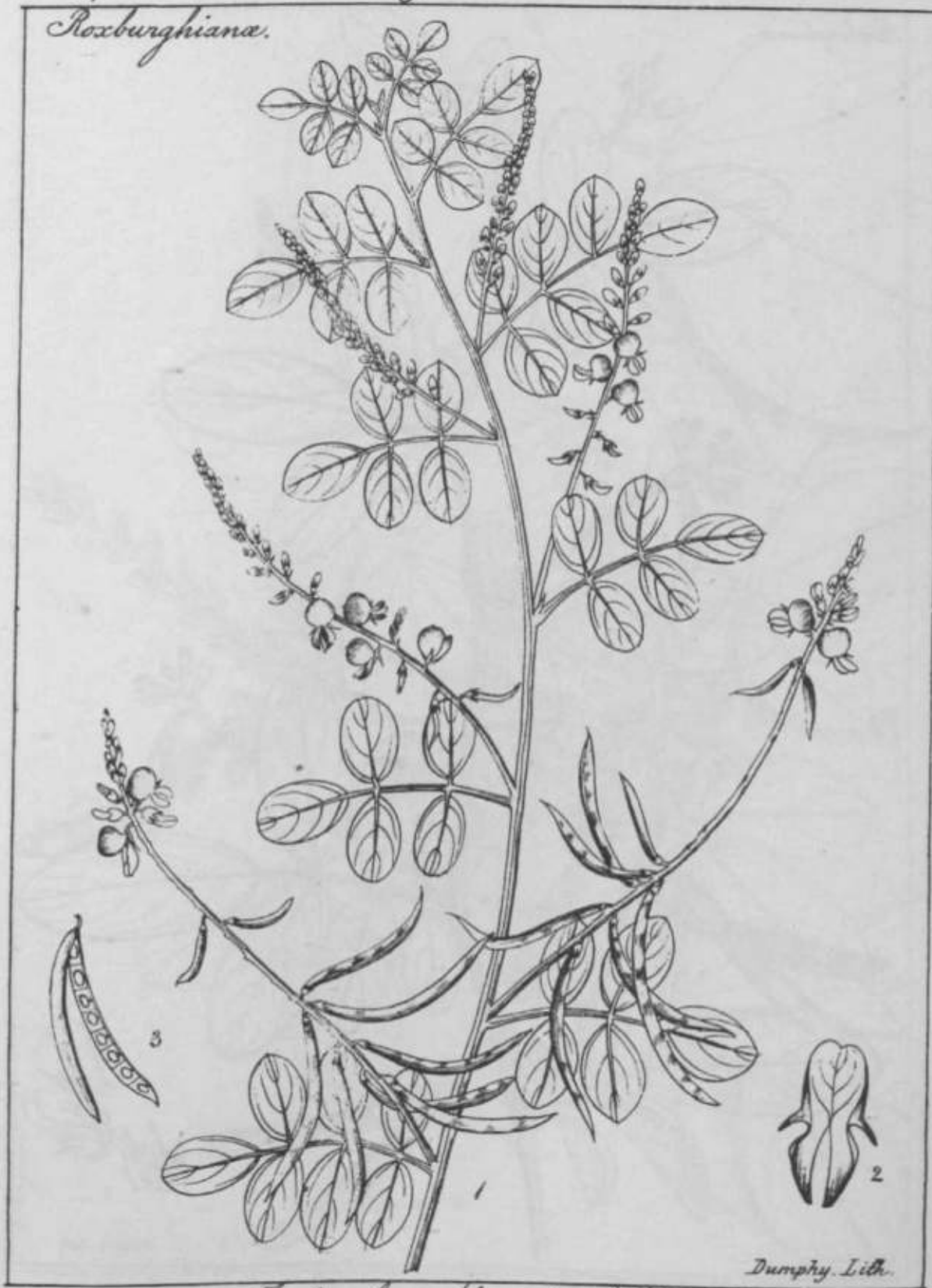


Dumphy Lith.

Indigofera trita. / Linn /
Indigofera cinerea. / Roxb. /

Papilionaceae. Leguminosae. Loteae. ³⁸⁷/₆₃₈

Roxburghiana.



Indigofera flaccida. / Koen. /

Leguminosa!

388
650.

Roxburghiana!



Tephrosia tinctoria! B
Galega Horyneana! (Roxb.)

Fapilionacea.

Liguminales.

Phaseolae. 389

Andropogon



Flemingia nana (Pent.)

Thompson, 1884

Papilionaceae!

Leguminosae!

Phaseoleae!

390

740



Moringia congesta (Roxb.)

Bartholomew, Lith.

Papilionacea!

Liguminales!

DaMtauw! ML

Reichb. f. h. n. c.



Dalbergia odoratissima (Roxb.)



Cassipouia guianensis (Lam.)
C. hirsuta (Hem. in Barb.)

Thunberg, Act.

Euphrocynaea

Richthiana

Apocynaceae

393



Dumphy, Zichl.

Tabernaemontana parviflora (Roxb.)



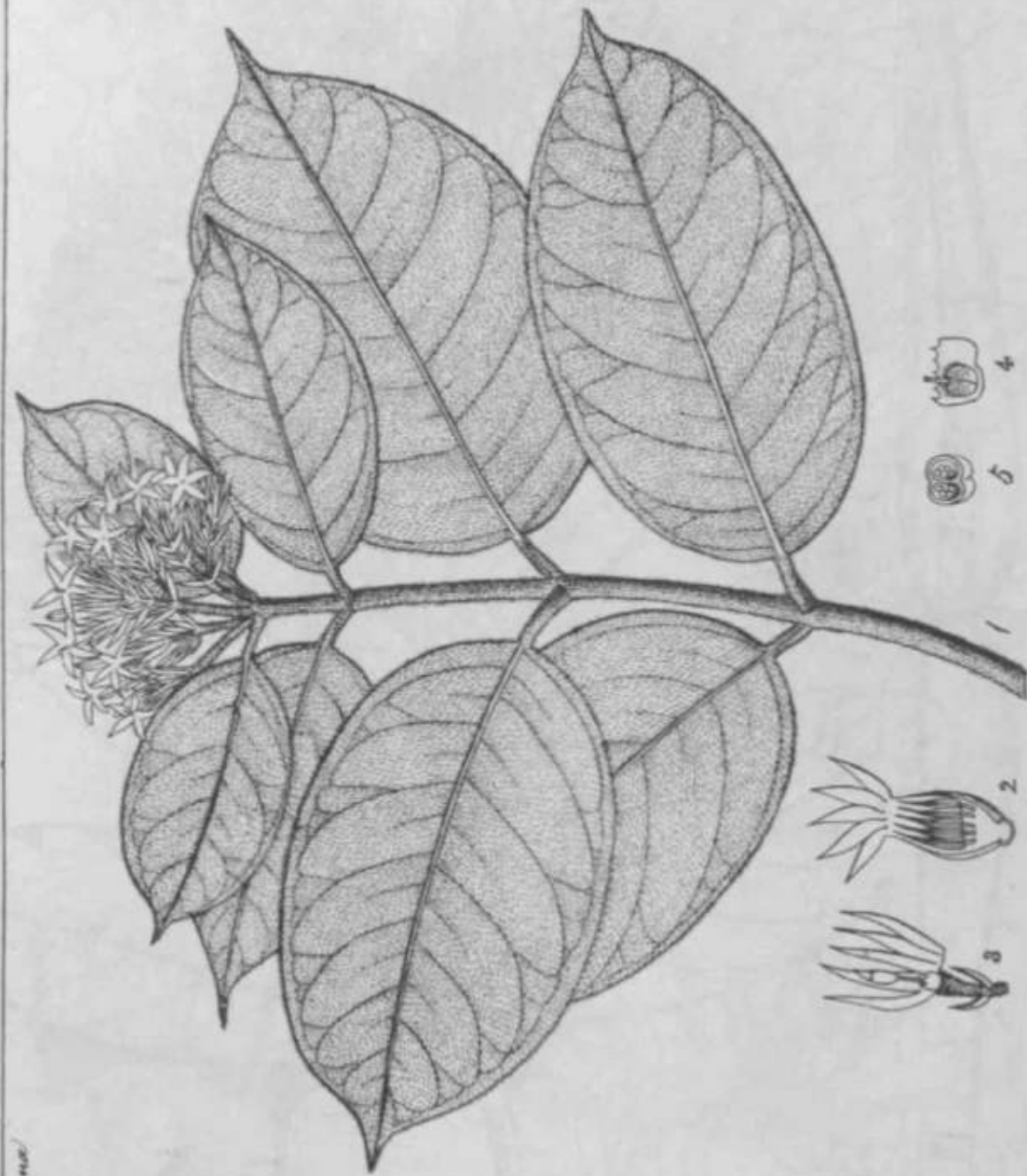
Melodinus ••> *nuneattus*

Echites

Apocynaceae

395

Barbieriana



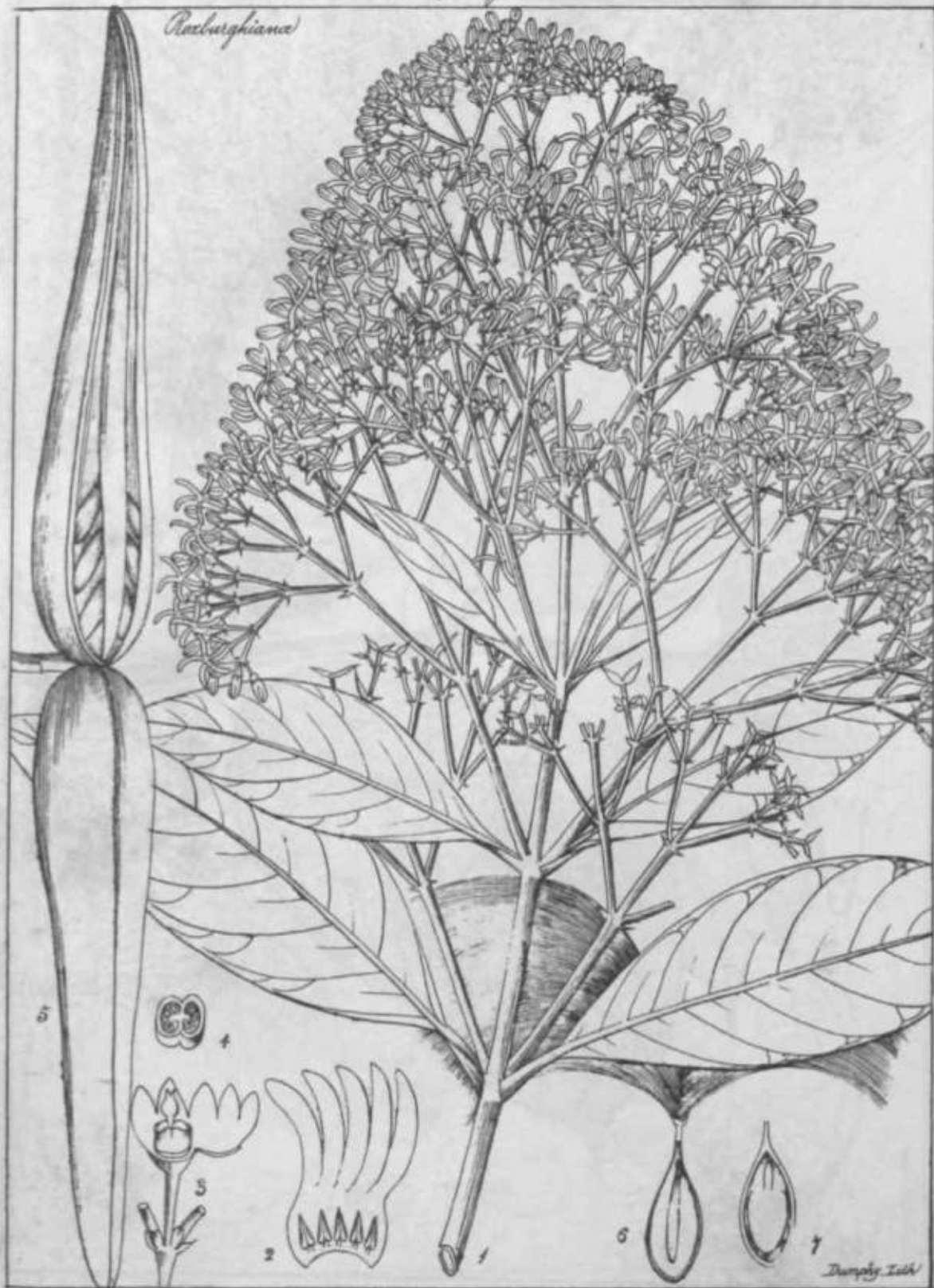
Echites cymosa (Boott.)

Boott.

Echites!

Apocynacea!

3&T

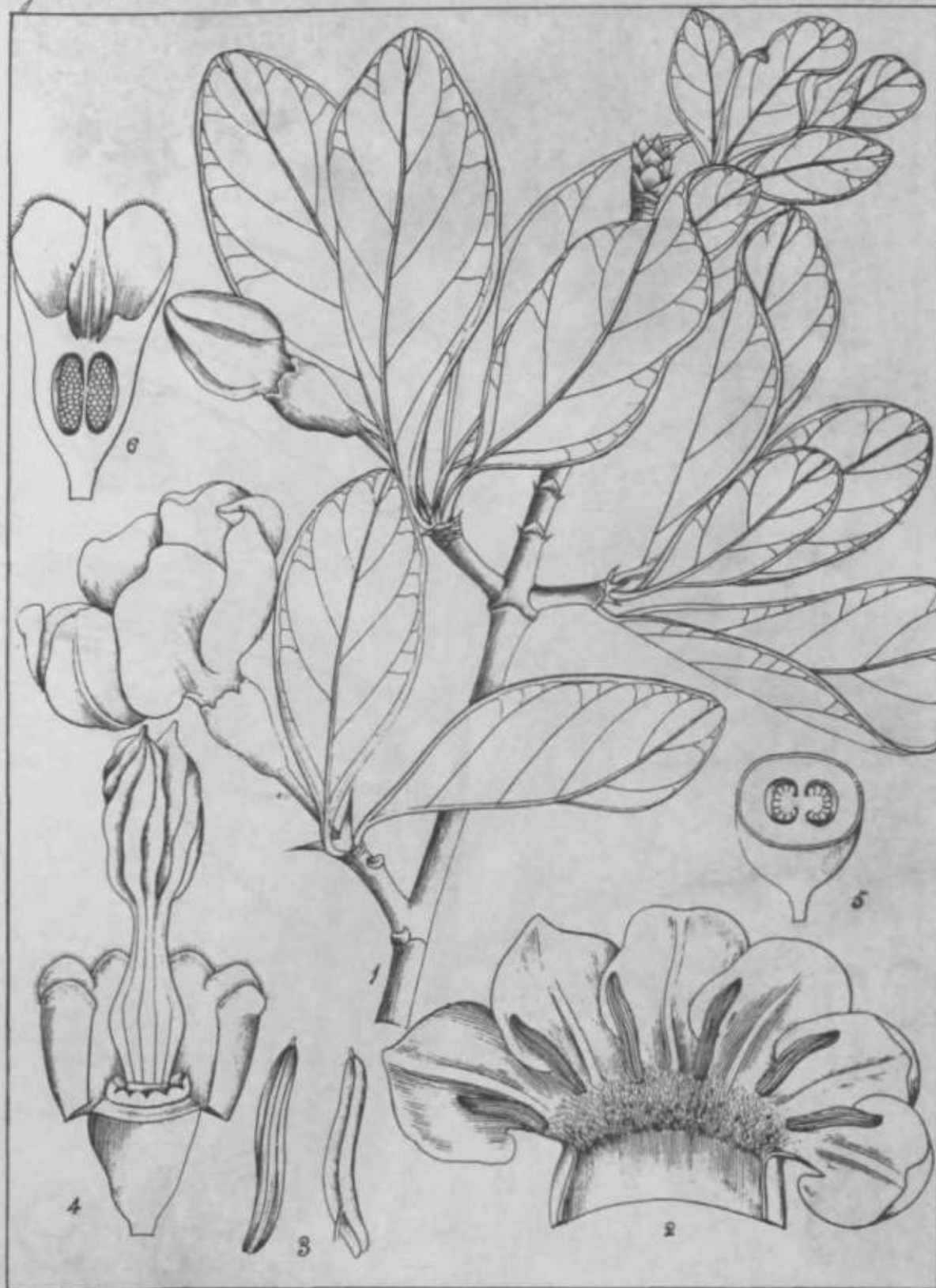


Echites paniculata (Reichb.)

Gardeniaceae.

Rubiaceae.

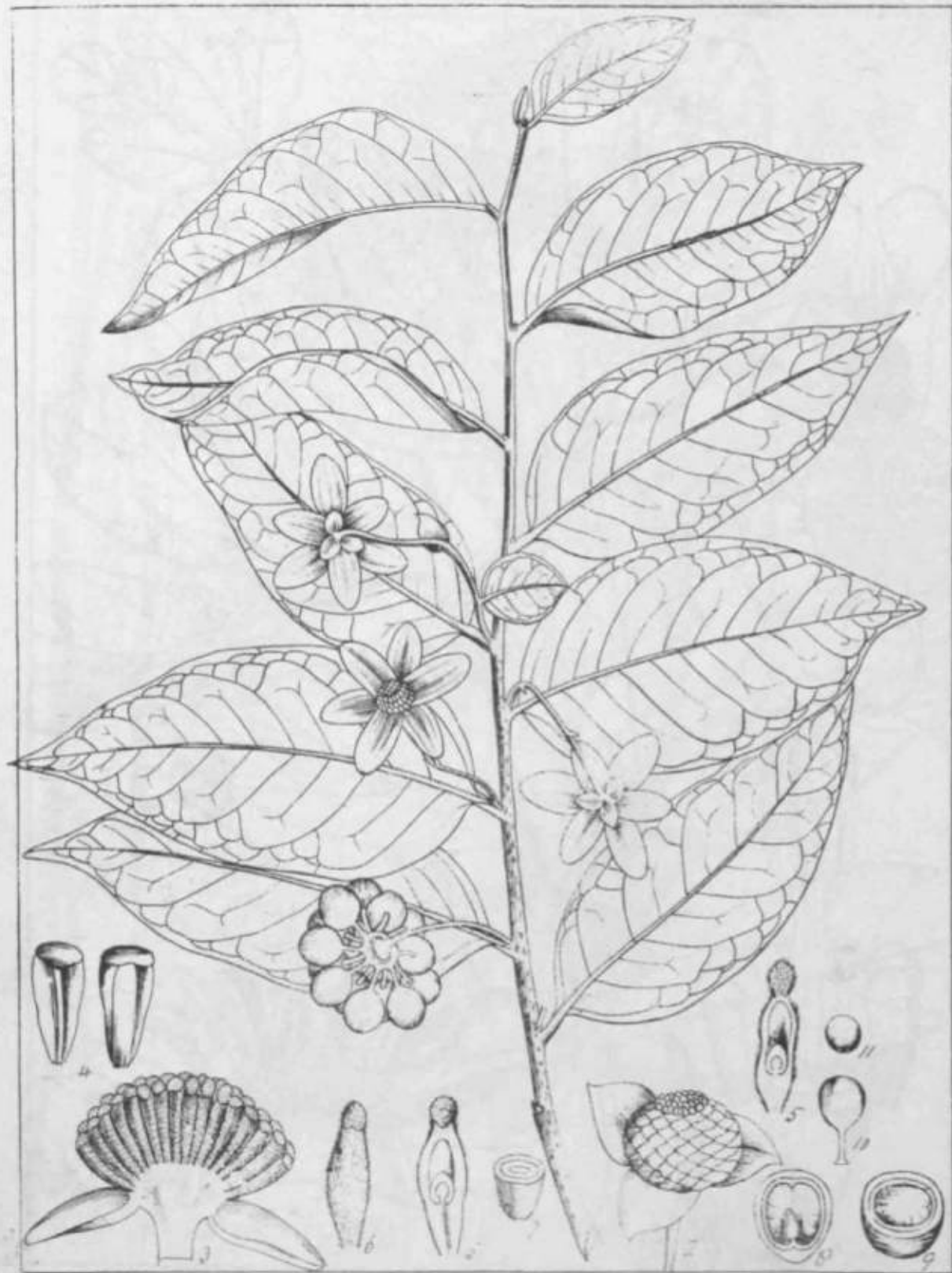
397
1230



Rungtshidab

Qaamdut-ua & *D. spinosa* (D.C.)

Dumphy, Lohr



H. D. Blevins, del.

Guathria Korinti (Dun.)

Dumphy, Lith.



Kunze del.

Adonis vernalis (Moench!)

Dumort. Linn.



Rumph. del.

Eriodendron anfractuosum (D.C.)

Thunberg. Lith.



Schmidelia villosa
Ornitrophea villosa (Roxb.)



Eupania pontaphylla (R. W.)
Schleichora pontalapetala (Roxb.)

Papilionacea.

Leguminosa.

Lotea

403
621

Roxburghiana



Indigofera enneaphylla (Linn.)

Dumphy, Lith.

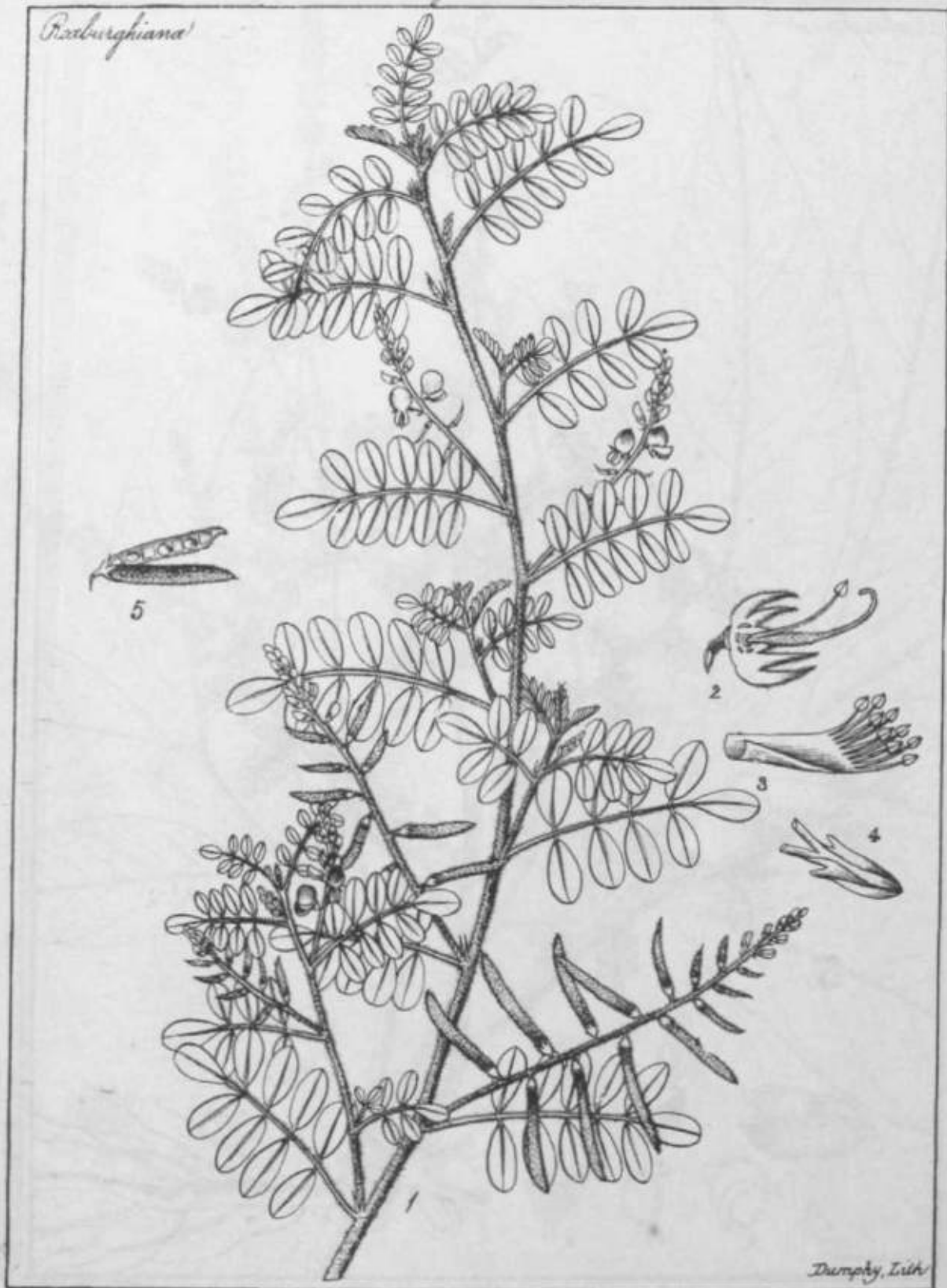
Papilionaceae

Leguminosae

Lotae

404
625

Barburghiana



Dumphy, Lith

Indigofera viscosa (Lam.)

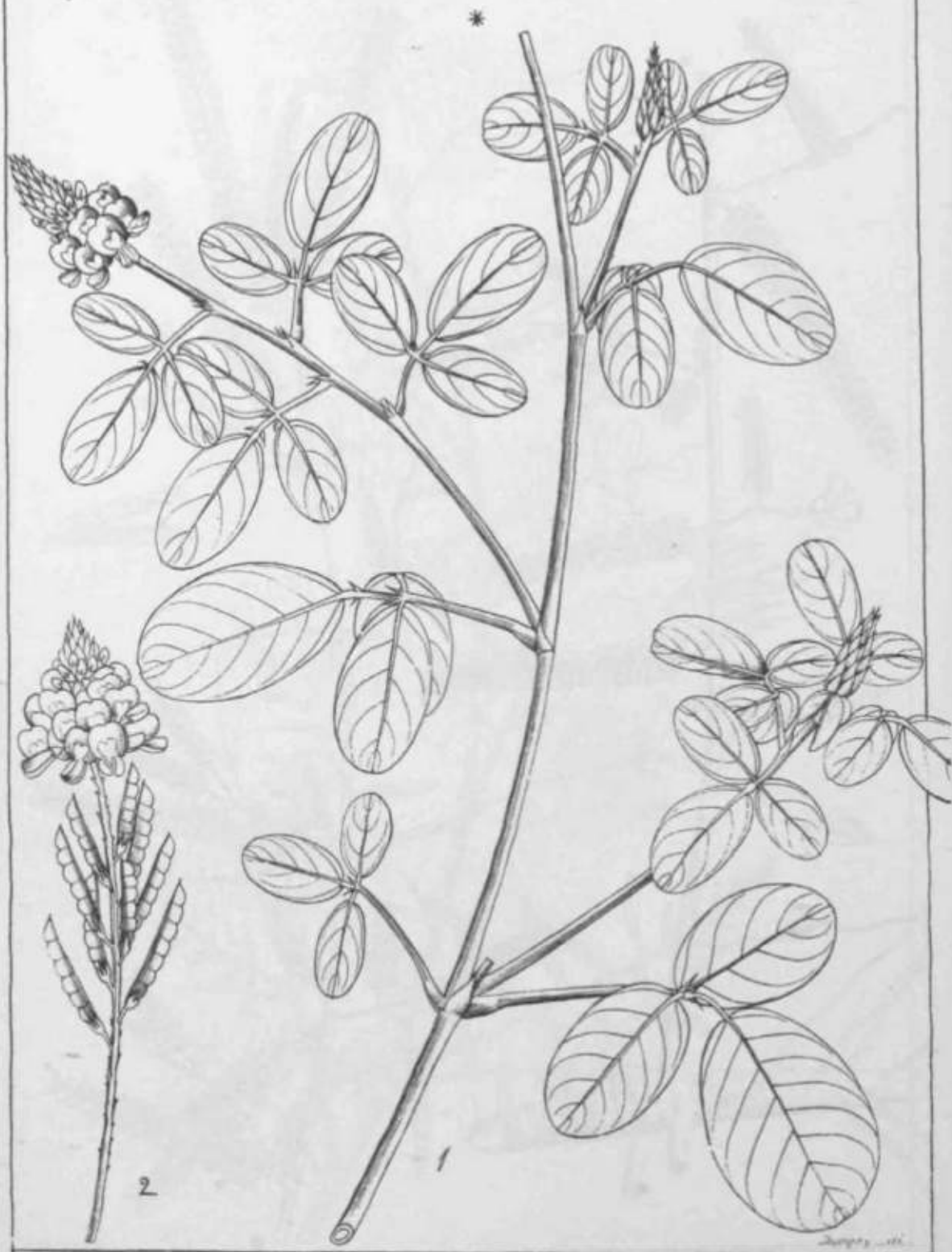
Papilionacea.

Leguminosae.

Hedysarum.

$\frac{406}{703}$

Ratburiensis.



Hedysarum Ratburiensis (DC.)
c/iWt/.uttit>n/wrfi-iüttm -' I (1891)

Lupionaceae.
Acroburchiana.

Liquimiosa.

Halysarac.

407



Psoralea patens
Halysaracum patens (Roxb.)

Redinghiana.



Flemingia procumbens
Hydysarum procumbens (Roxb.)

Papilionacea.
Rhodurghianae.

Leguminosae.

Hedysarea

409
589



Hedysarum diffusum (L.)

Hedysarum diffusum (Ledeb.)



Cassia nodosa (Roxb.)

Papilionacea.

Liguminosae.

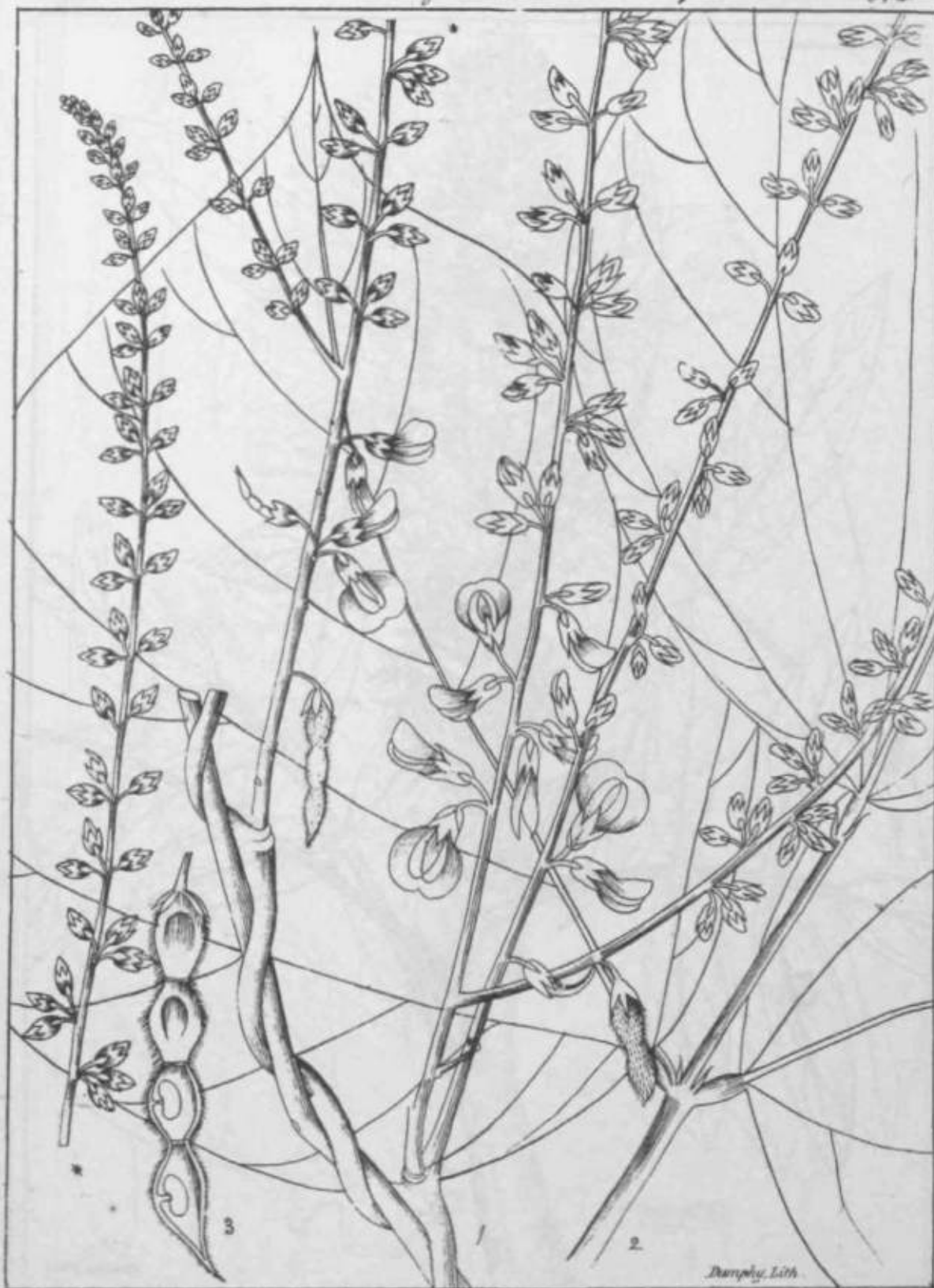
Hedysaraceae.

411
638

Ruburghiana

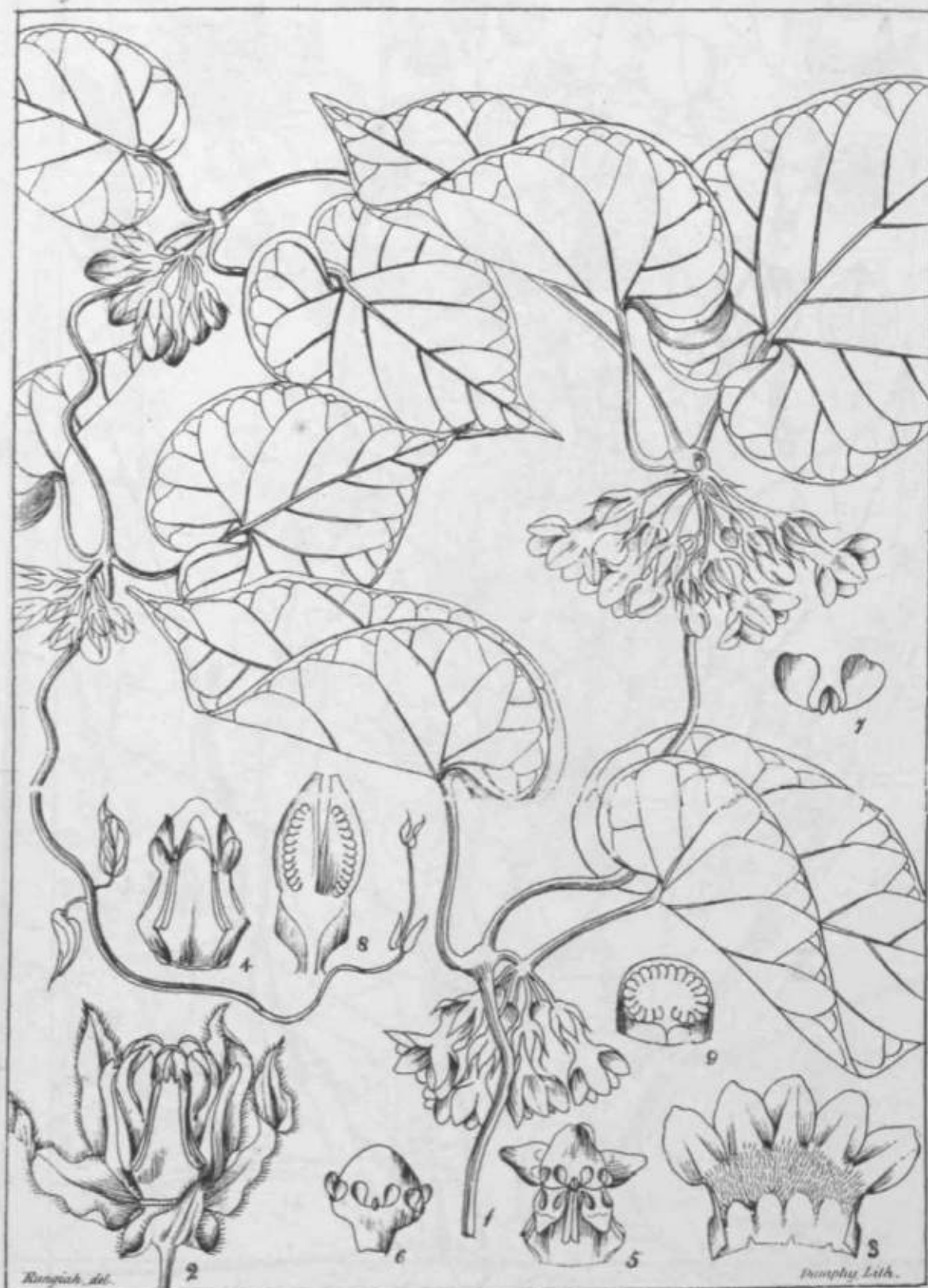


Uraria picta (Deer)
Hedysarum crinitum (Reed.)

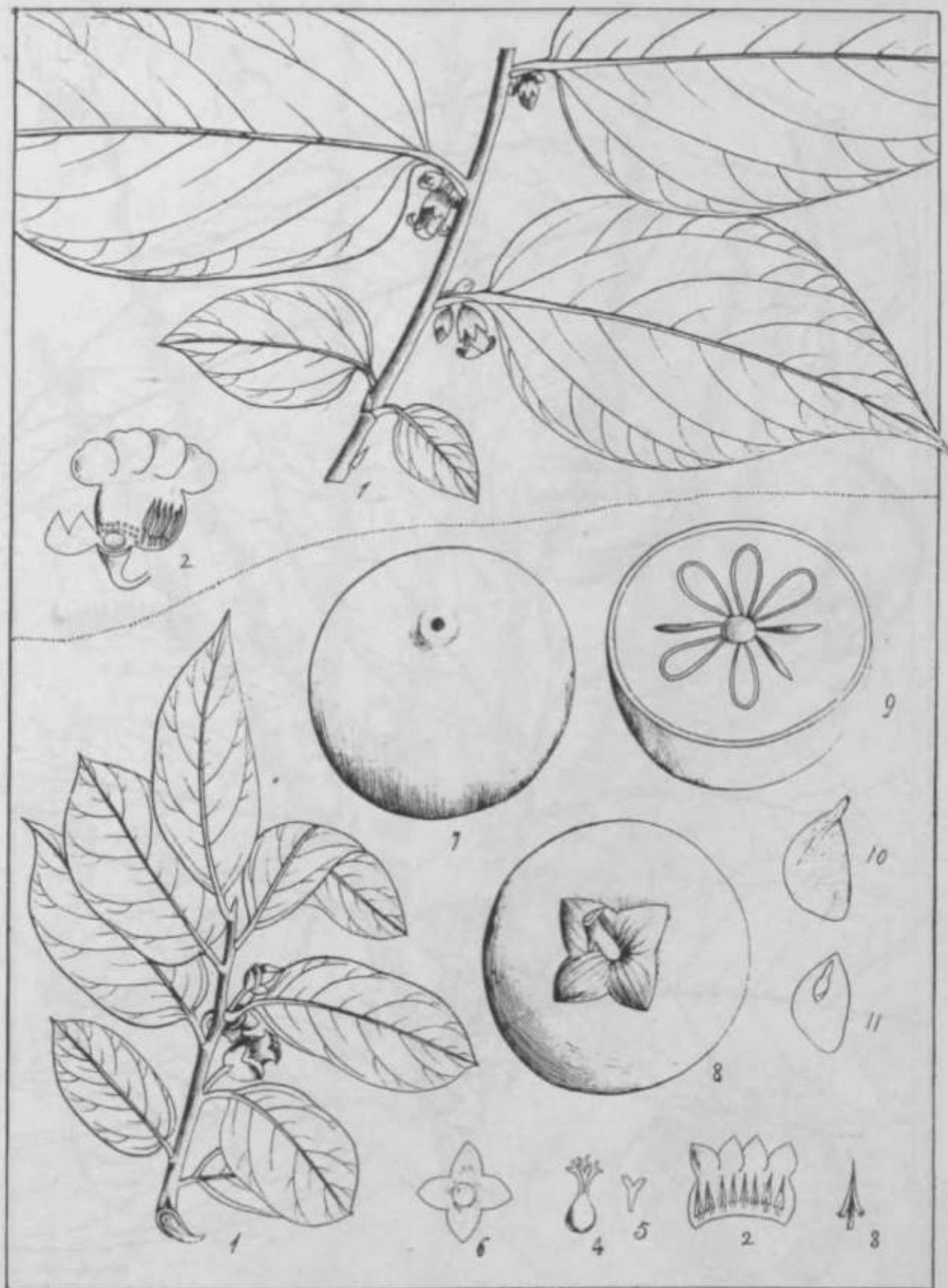


Pueraria tuberosa (Dc.)
Hedysarum tuberosum (Rostk)





Pergularia odoratissima.



Diospyros kaki (Pers.)

Dumort. Lith.



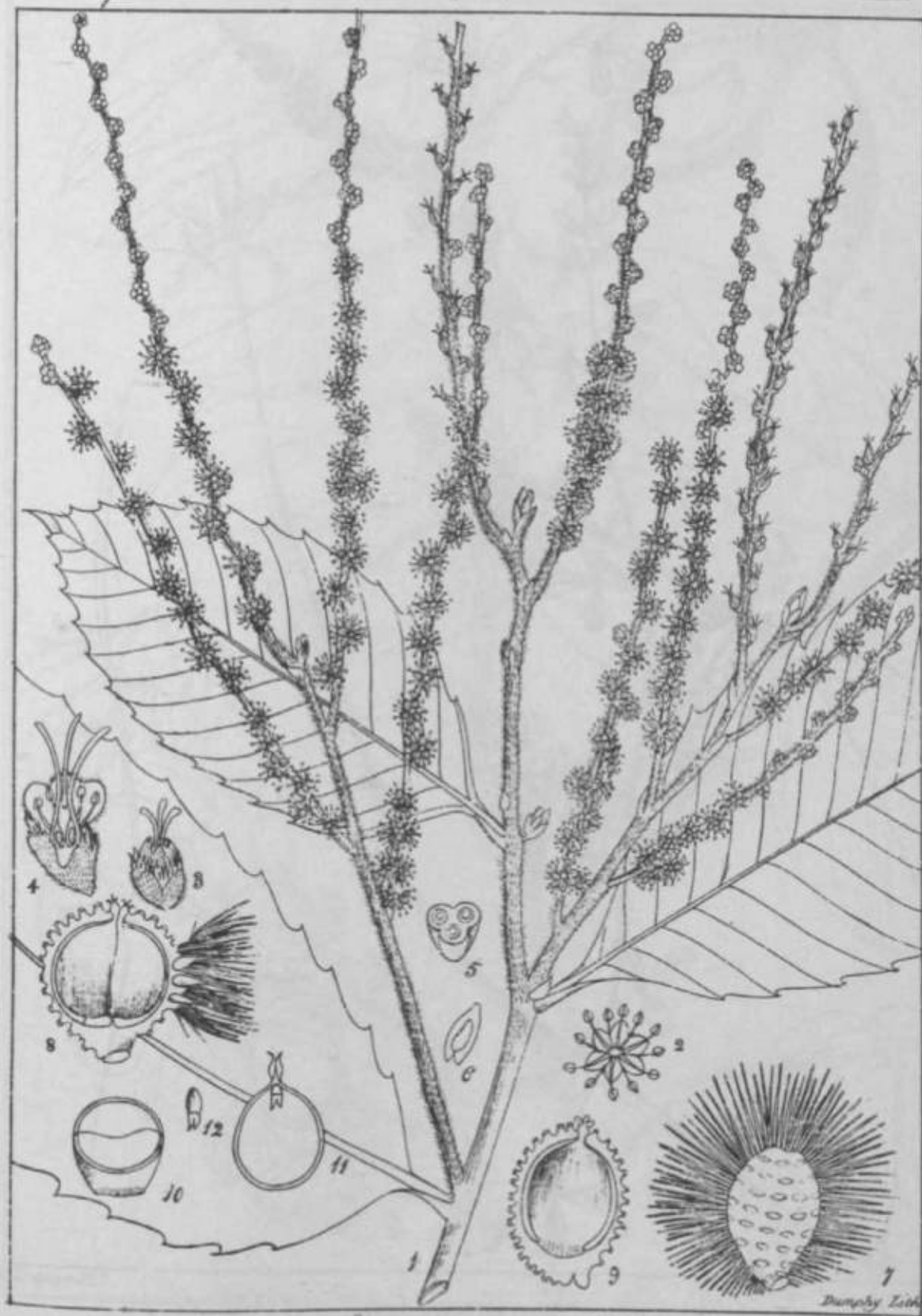
Diospyros racemosa (Roxb.)

H. burgliana



Dicerna biarticulatum (D. C.)
Hedysarum biarticulatum.

J. Dampf Lith.



Castanea indica (Roxb.)



Pongamia elliptica (Walt.)
Cyllodupia elliptica (Roxb.)

Lamproli 1818.



Cratogeomys rhipidostomum, Willd.

Holoneia.

Apocynica.

JH

Barbighiana.



Holoneia scholaris (R. Br.)
Echites scholaris (Lam.)



Echites parviflora (Roxb.)

Dumphy, Lith.

Echitea

Apocynacea

424

Radurghiana



7MWt&rrta \ lot mittda l tf (Don)

/>00>*<, 1,1A

Rachburghiana



Dunphy, Lich.

Aganosma marginata (C. Don.)
Echites marginata (Roxb.)

Carissae!

Apocynae!

426

Racibughiana

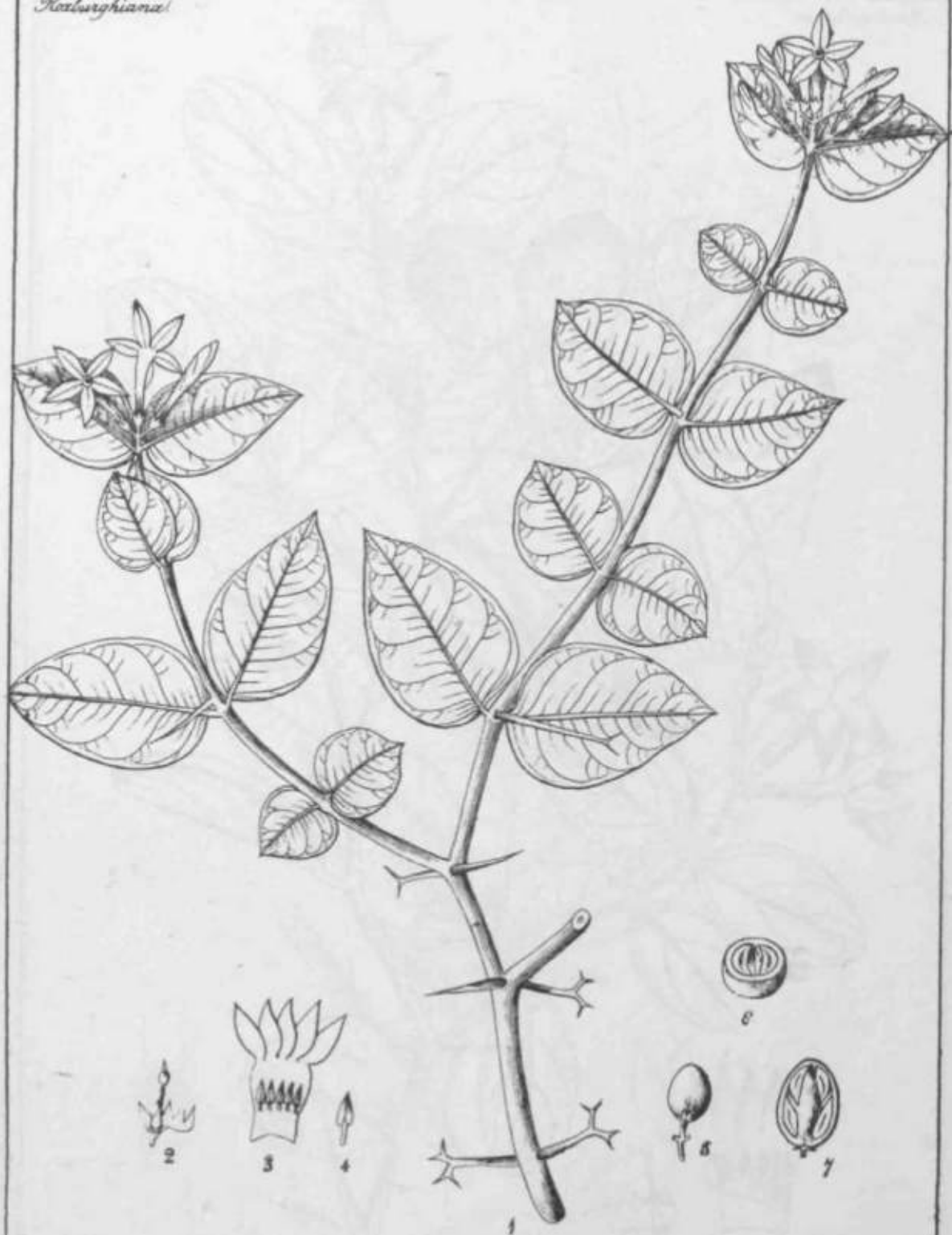


Dumphy, Lich

Calaca bush!

Carissa grandis (Lin.)

Reinhardtiana



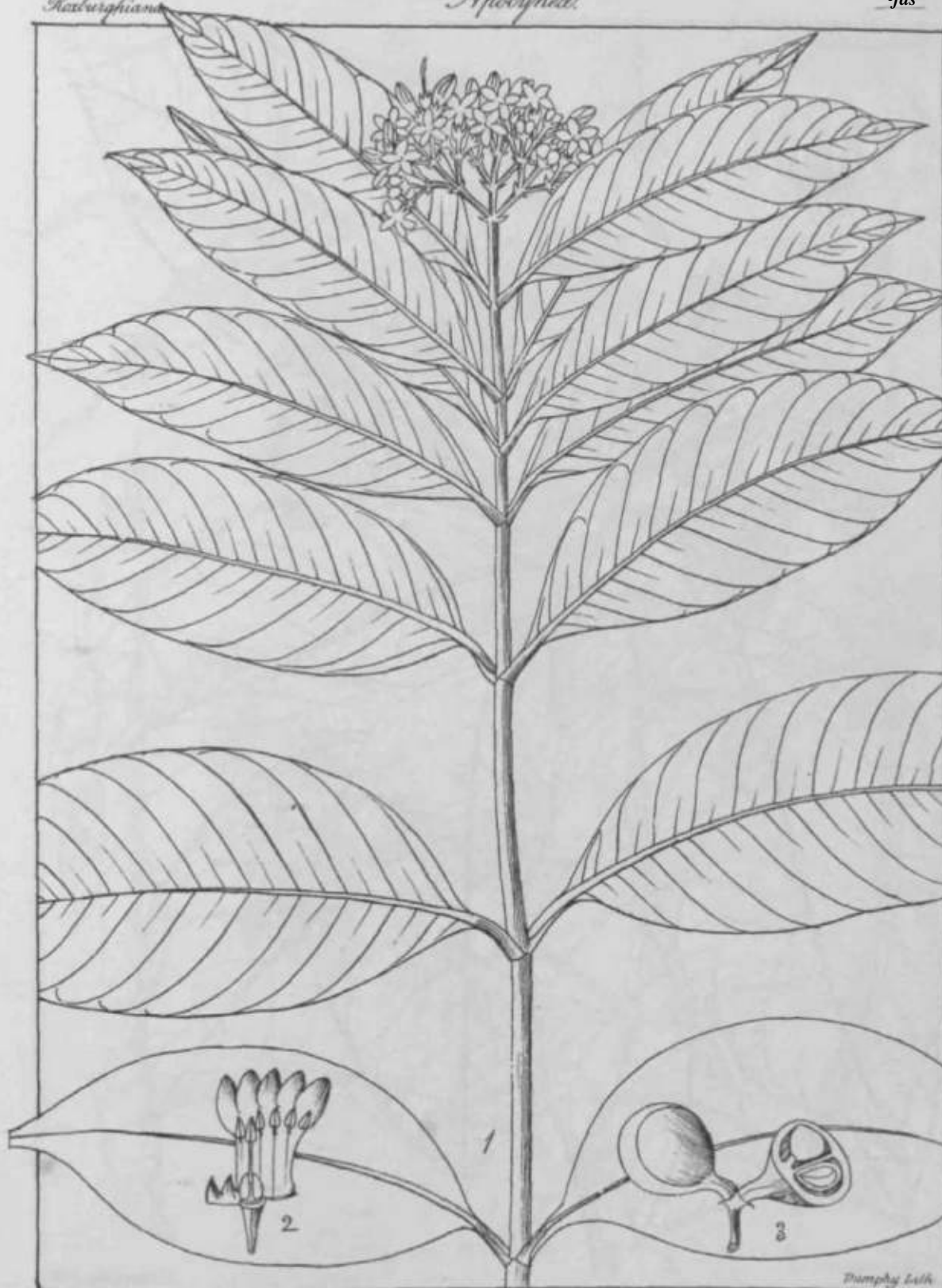
Dumort. & Sch.

Car. s.i. Ut Jd/fihkt Al (rub.)

Plumeria
Roxburghiana

Apocynaceae

•fas



Plumeria rubra (Frax)

Dumphy del.



Vallaris Perulana (Burm.)
Echites hircosa (Reichb.)

Cephaexylea.

Apocynaea.

431

Roxburghiana



Dumphy, Lith.

Calpicarpum Roxburghii (G. Don)
Cerbera fusca (Roxb.)

Raciburgiana



Echinocarpus frutescens (R. Br.)
Echites frutescens (Roxb.)

Sparganium

Chilae

Botanophora



Chenopodium rubro-fulvum (L.) DC.
Chenopodium rubro-fulvum (L.) DC.

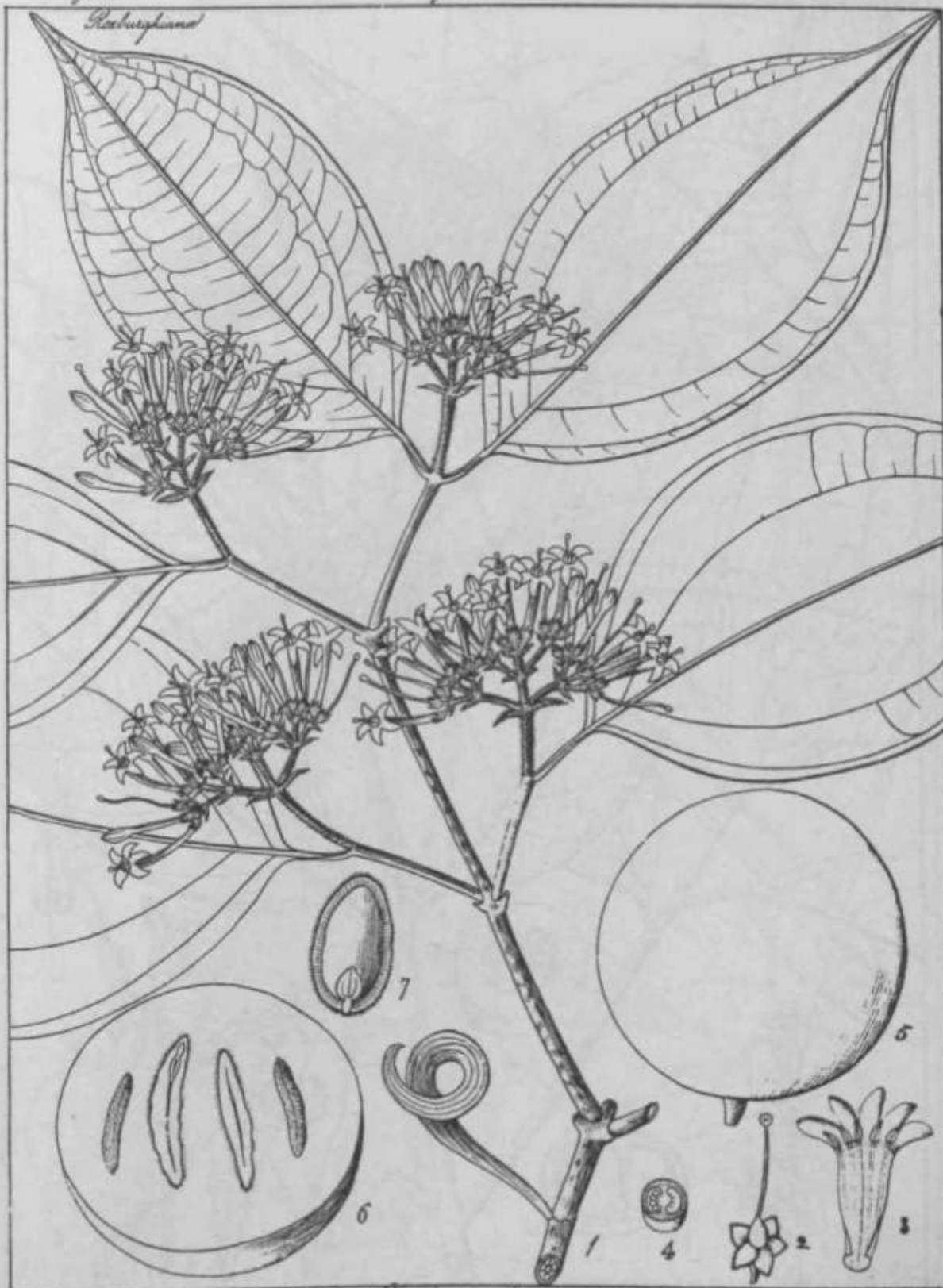


Tabernaemontana dichotoma (Rubiaceae)

Strychnos

Loganiaceae

Rooburghiana



Strychnos colubrina (Lin.)

Dunlop, Lich.

Myrtac.

Myrtaceae

435
1032



Pungier del.

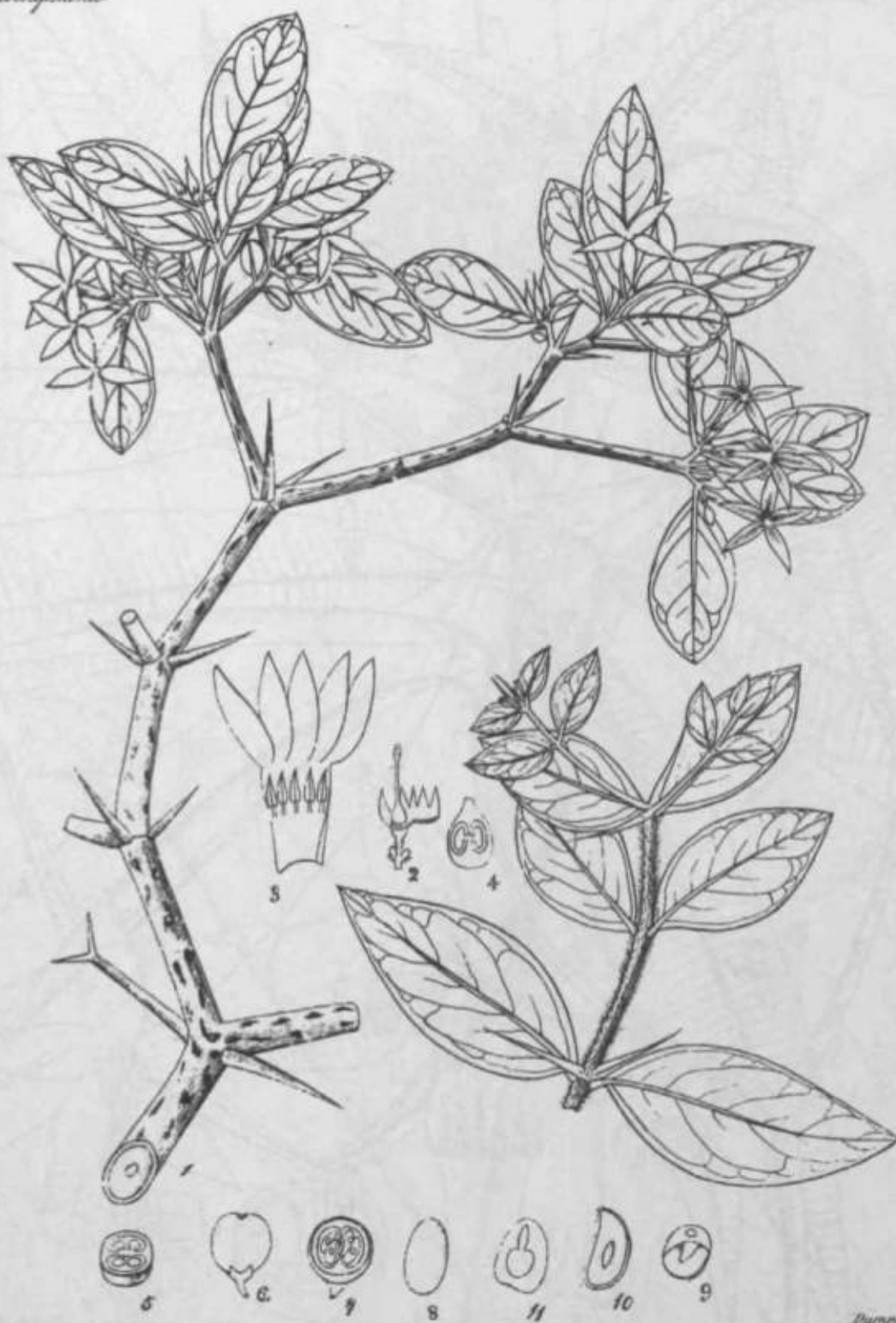
Pambosa vulgaris (D.C.)

Pungier lith.



Alstonia venenata (R.Br.)
Echites venenata (Roxb.)

Rachyphana



Dumphy, Zett

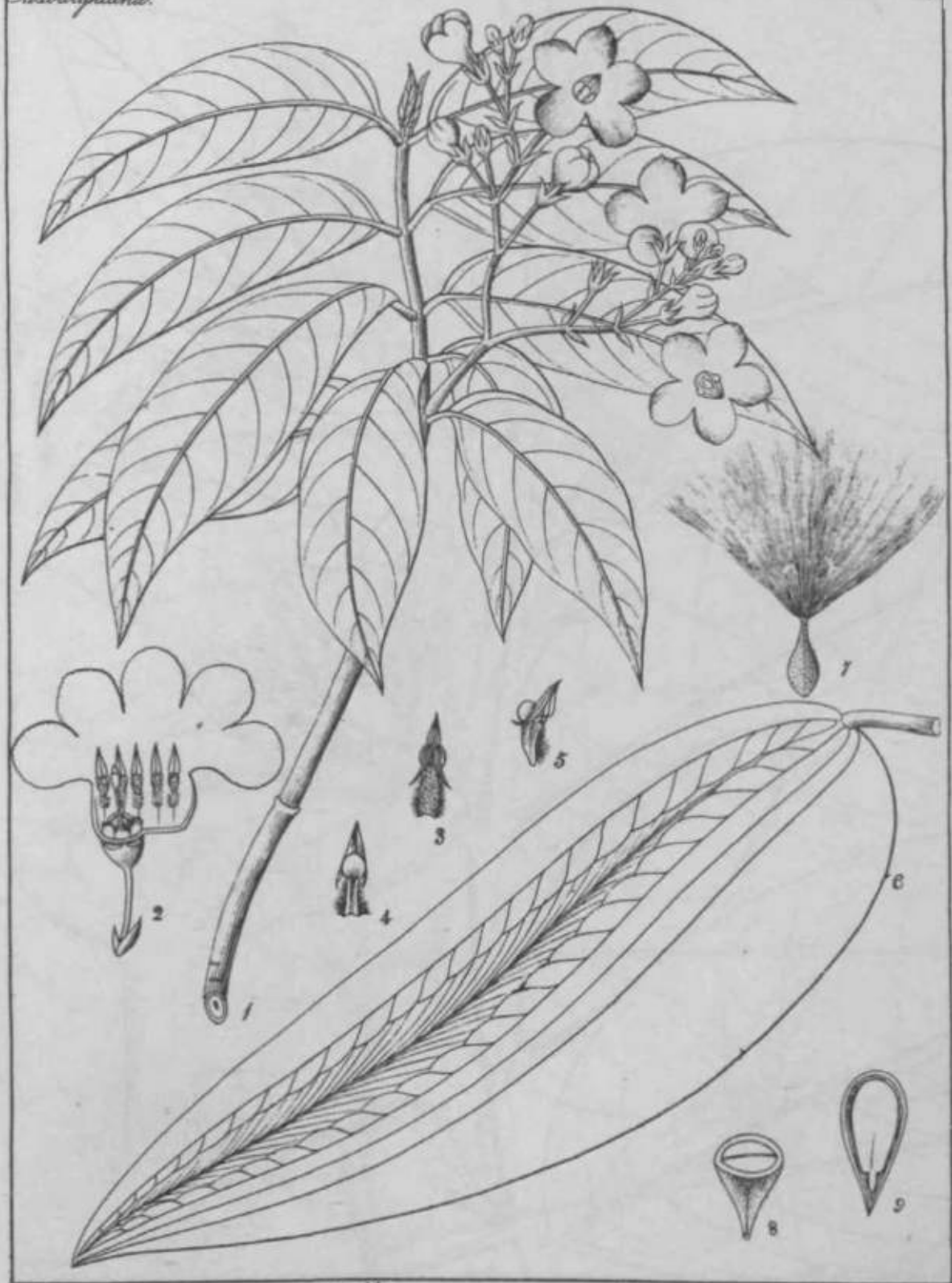
Carissa villosa (Roxb.)

Echitea!

~sWuwu*teaS

43S.

Rochburghiana!



Vallaris dichotoma (Wall.)
Echites dichotoma (Roxb.)

Dumphy Lith.

Echites!

^ym4?ou<nfa>'.
4

439

Roxburghiana



Chonemorpha (?) *antidysenterica* (G. Don)
Echites antidysenterica (Roxb.)

Echitea.

^Tn&ouTie&t

44?

Roxburghiana



Dumphy. Lith.

Aganema Roxburghii (G. Don)
Echites caryophyllata (R.)

Ophioxylea

ym0cwnec&.

44/.



Odollum, Malab.

Cerbera odollum (Gaert. Roxb.)
Sanguinaria odollum (G. Don.)

Roeburghiana.



Wrightia coccinea (Sims)
Nerium coccineum (R.)

Wrightia
Rachirghiana

Apocynae!

443



Wrightia tomentosa (L.) Don
Nerium tomentosum (L.)



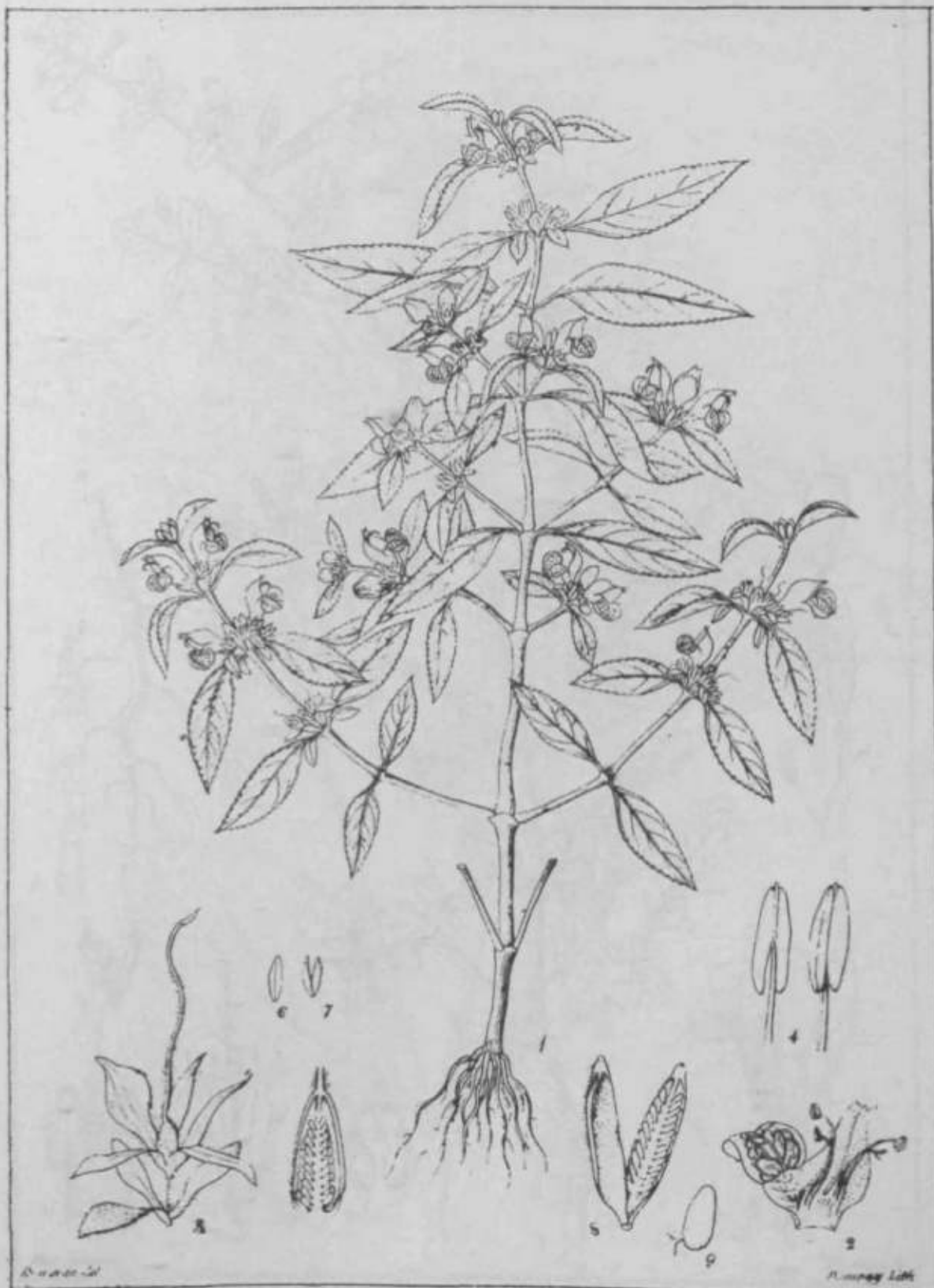
Wrightia tinctoria (R. Br.)
Nerium tinctorium (Roxb.)



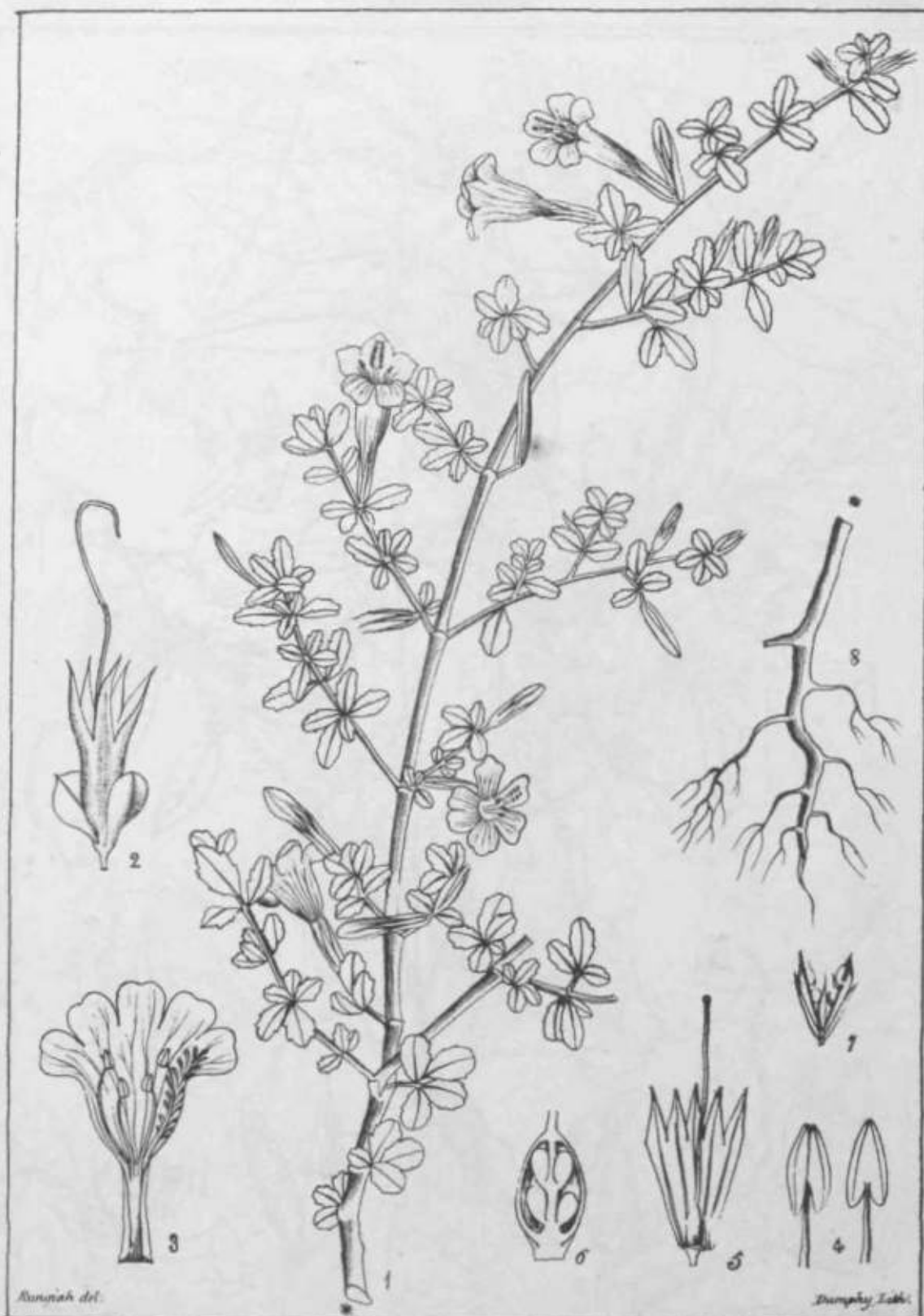
Mingos, del.

Dumasia V-wr/<*/<i i fft,i/tant

Dumphy, Lith.



Adenocaulon balaamea (papa)



Dryaschotj< dffluOi (Nies)
Ruellia litteralis (Linn.)



Rungtiah, del.

Phlebophyllum kuanthianum (Nees)

Dumphy, Lith.



Kunze del.

Dumort. col.

Barleria
maritima } *longifolia*

Astrocyantha longifolia (Nees)



Barleria fwtvnakfrit ffl

Barleria. fwtvnakfrit ffl



Maracoultus. Jacq.

Barleria pinnatis (Linn.)



Barleria cuspidata (Klein)
Vallanville Lam.

Barleria cuspidata (Klein)



Thunberg, del.

Thunberg, del.

Neethamoclea Jacq.

Barleria cristata (Linn.)

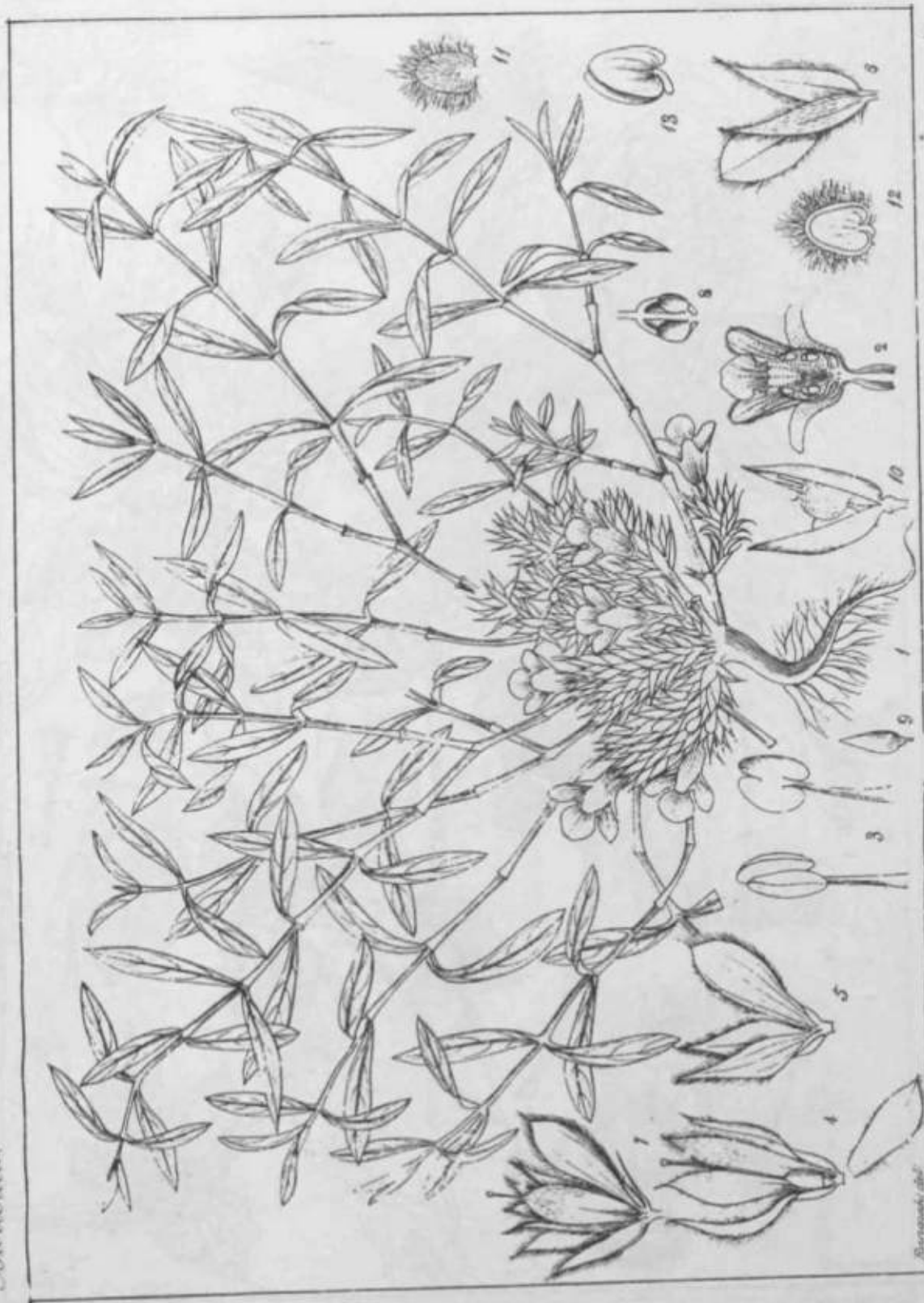


Thunberg, det.

Malabaricum } Fam.

Barleria nitida (Nees.)

Dumphy, L. 18.



Bourgeois, Zich.

Lepidagathis cristata (Willd.)

Barleria cristata (L.) Ait.
Lepidagathis cristata (Willd.) Benth. & Hook.



Kempster del.

Dumphy L. d.

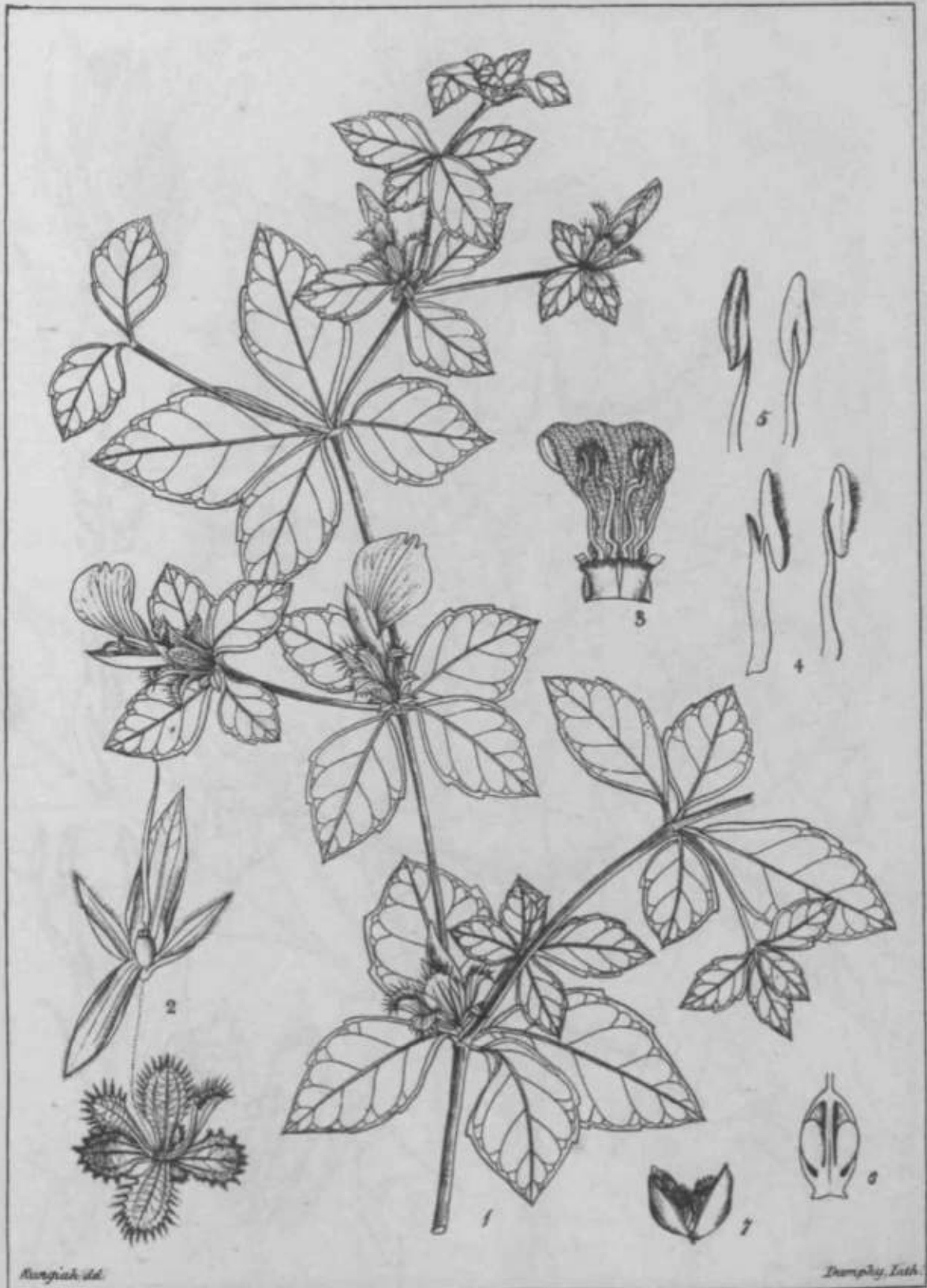
UTAH BOT. SURV. —
Pachirandee 57...

Lepidagathis pungens (Nees)



am 20. April
Gottschalks Name

Lepidogathis scariosa (Nees)



Blepharis Boerhaaviaefolia (Puss)



Rangiah del.

අප්‍රියාංගිකාංගො, }
 වෛශ්වකාරි, මූල, }
 මංගල්ල.

Dilivaria ilicifolia (Sufr.)

Drumpp & Lat.



Crossandra axillaris (Nees)
Crossandra axillaris (Nees)
Crossandra axillaris (Nees)

Crossandra axillaris (Nees)

Dumphy, Zich.



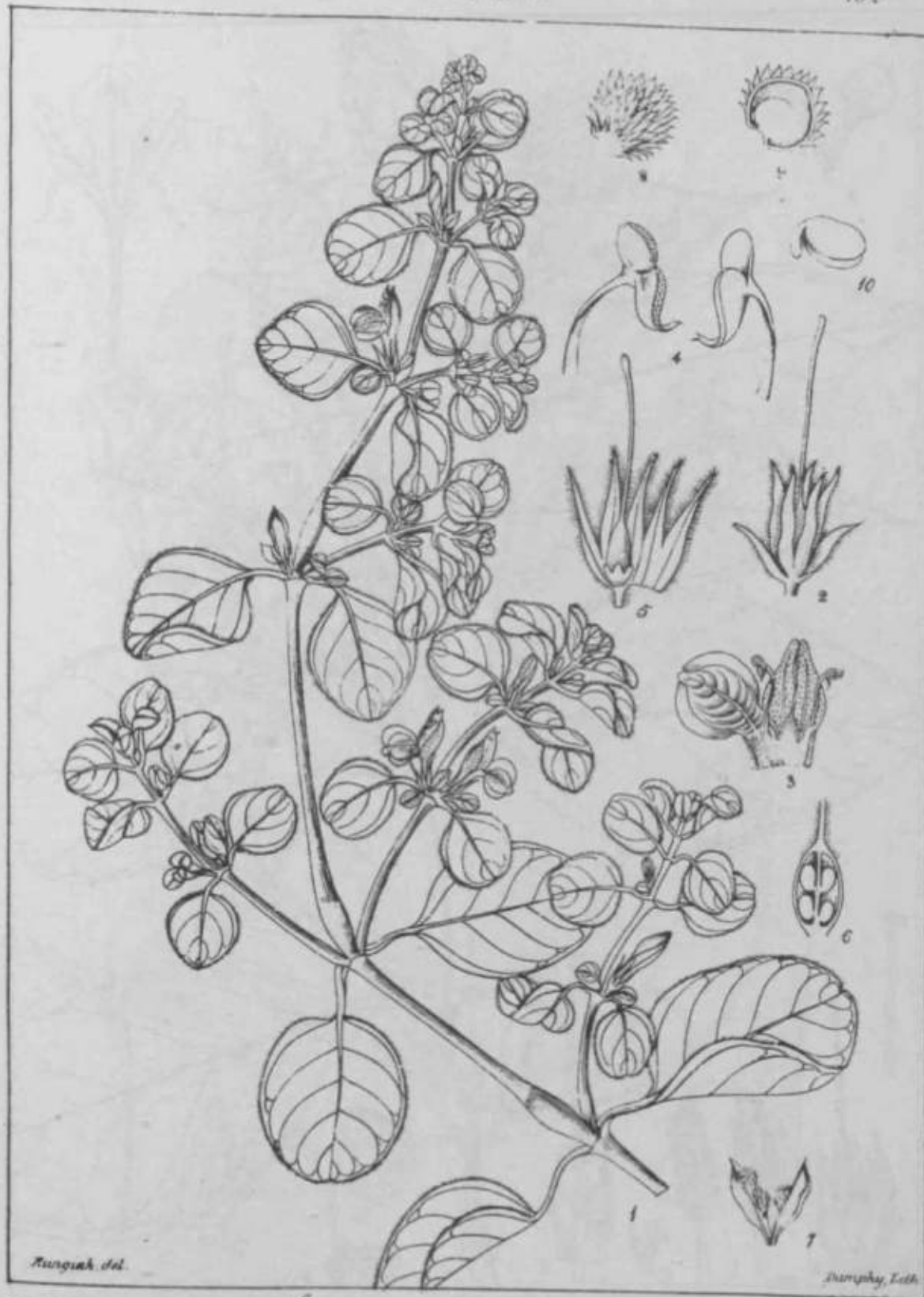
มอญบาละยาราว } Jam. *Cressandra infundibuliformis* (Hb. n.)
 (พอนด์)

Drumh. & Willd.

1

Scanthus

162



Kurjak del.

Bartholomae, Lith.

Gendarussa hanquebarensis (Nies)
Gendarussa hanquebarensis (Nies)
Gendarussa hanquebarensis (Nies)

Gendarussa hanquebarensis (Nies)

Justicia

Acanthaceae



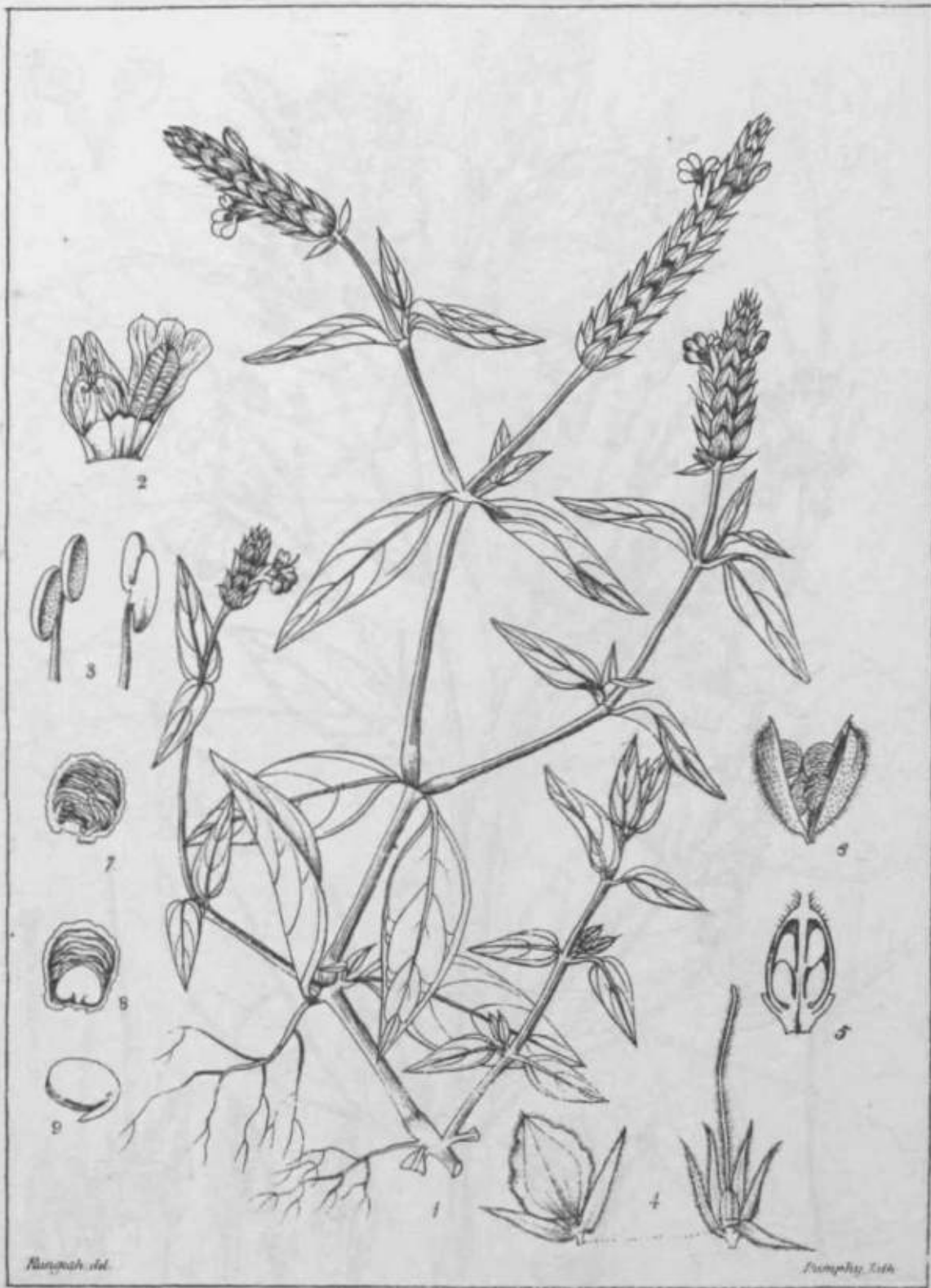
Shorea
Justicia adhatum { *Justicia*

Justicia adhatum (Linn.)



Rhinacanthus communis (Nees)

Rhinacanthus communis (Nees)
Rhinacanthus communis (Nees)
Rhinacanthus communis (Nees)



Rungia del.

Franchet del.

சுருங்குதொழை } Tamil
Surisaycodlopie

Rungia repens (Ait.)



Eranthemum
a. fulvum (Nees)

Eranthemum montanum var. *a* (Nees)



Chauzandayana
Solarumkangrei } Jam.

Andrographis echinoides (Nees)



Rangiah, del.

Gondarussia vulgaris (New)

Perseus, col.

6.a.

Cordia.

469



Cordia serrata (Ait.)

Dumortier del.

Redoubtiana.



Tabernaemontana pubiflora (Redb.)

Thompson, Lillb.

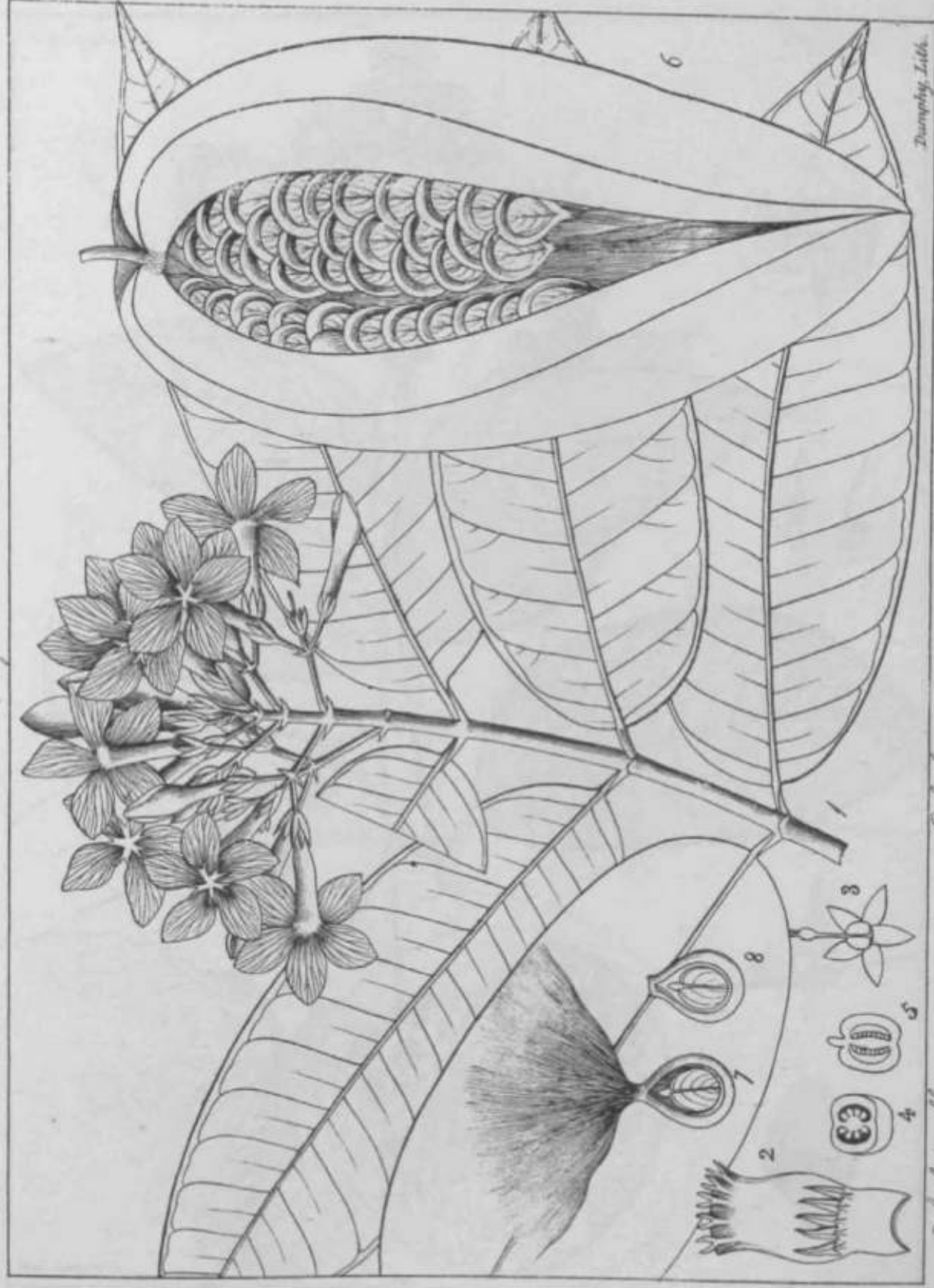


Plumeria acuminata : <'/>n >

Epilob.

Apocyn.

172



Epilobium piscidium (R. W.)
Aprium piscidium (R. W.)

Epilob. scit.

Reaburghiana



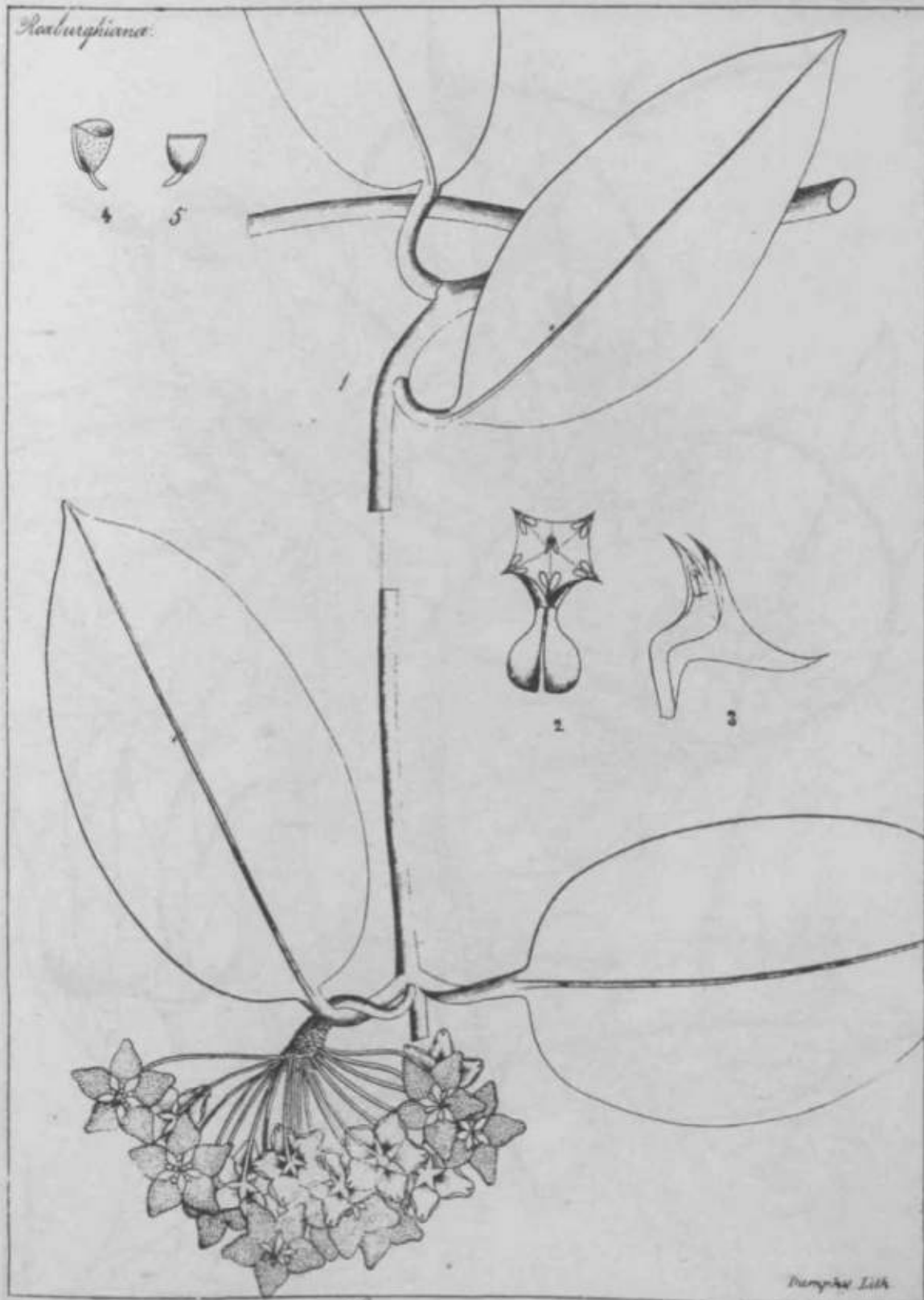
Ureola plastica (Roxb.)

Strophomena

Asclepiadea

474

Roxburghiana



Ramphal Lith

Stropha pendula (W & A.)
Asclepias pendula (Roxb.)

(J/twmtuea?.

Apocynaea

417

Rebirghiana



Taberna montana coronaria (R B)

Scamonea

Asclepiadea

475

Roxburghiana



Dumphy, Lith.

Isocarpos Roxburghii (W & A)
Asclepias longistigma (Roxb.)

Fluminea

Apocynia

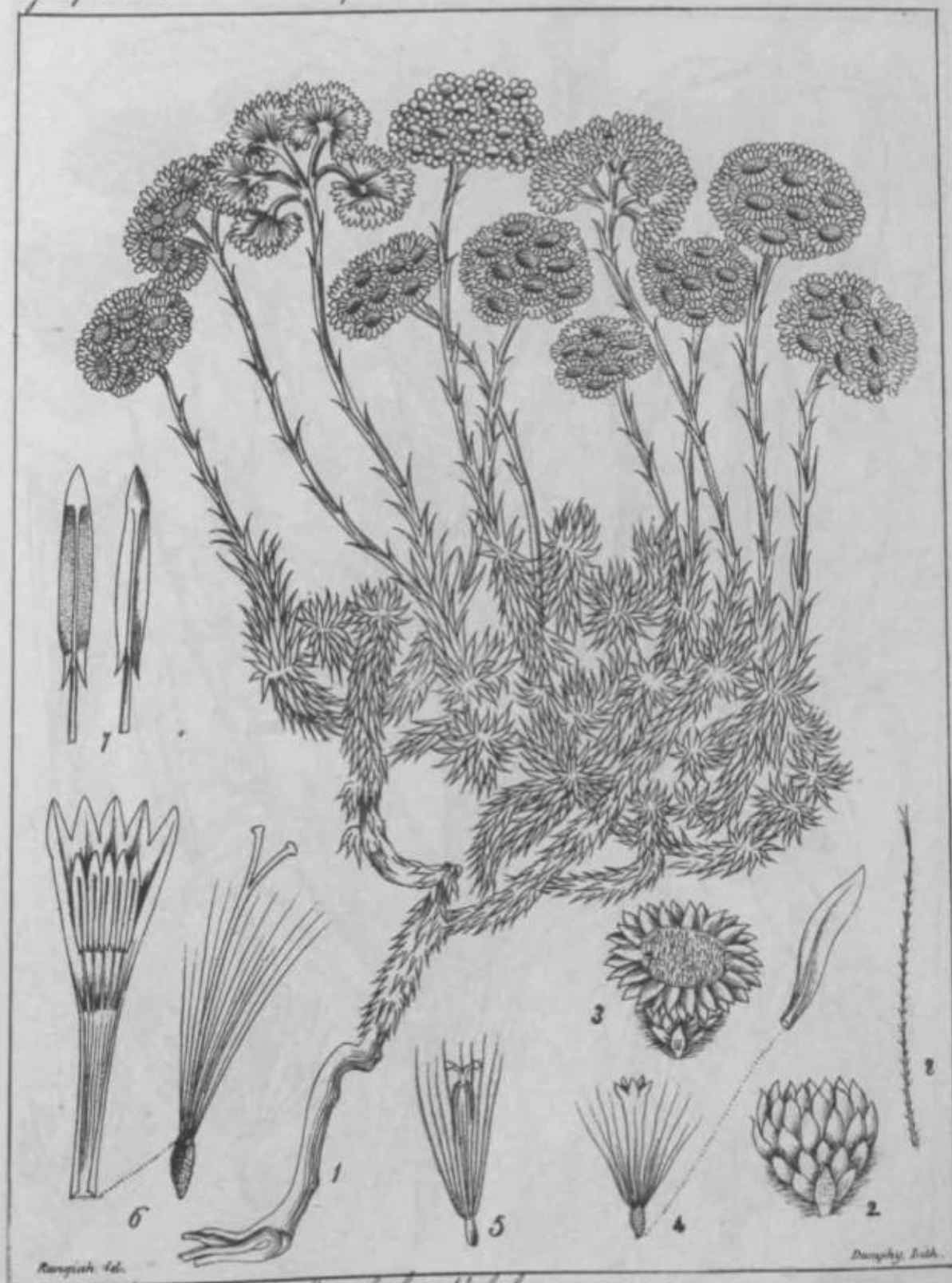
476

Boehmeria



Dumphy, Lith.

Tabernaemontana racemosa (Berb.)

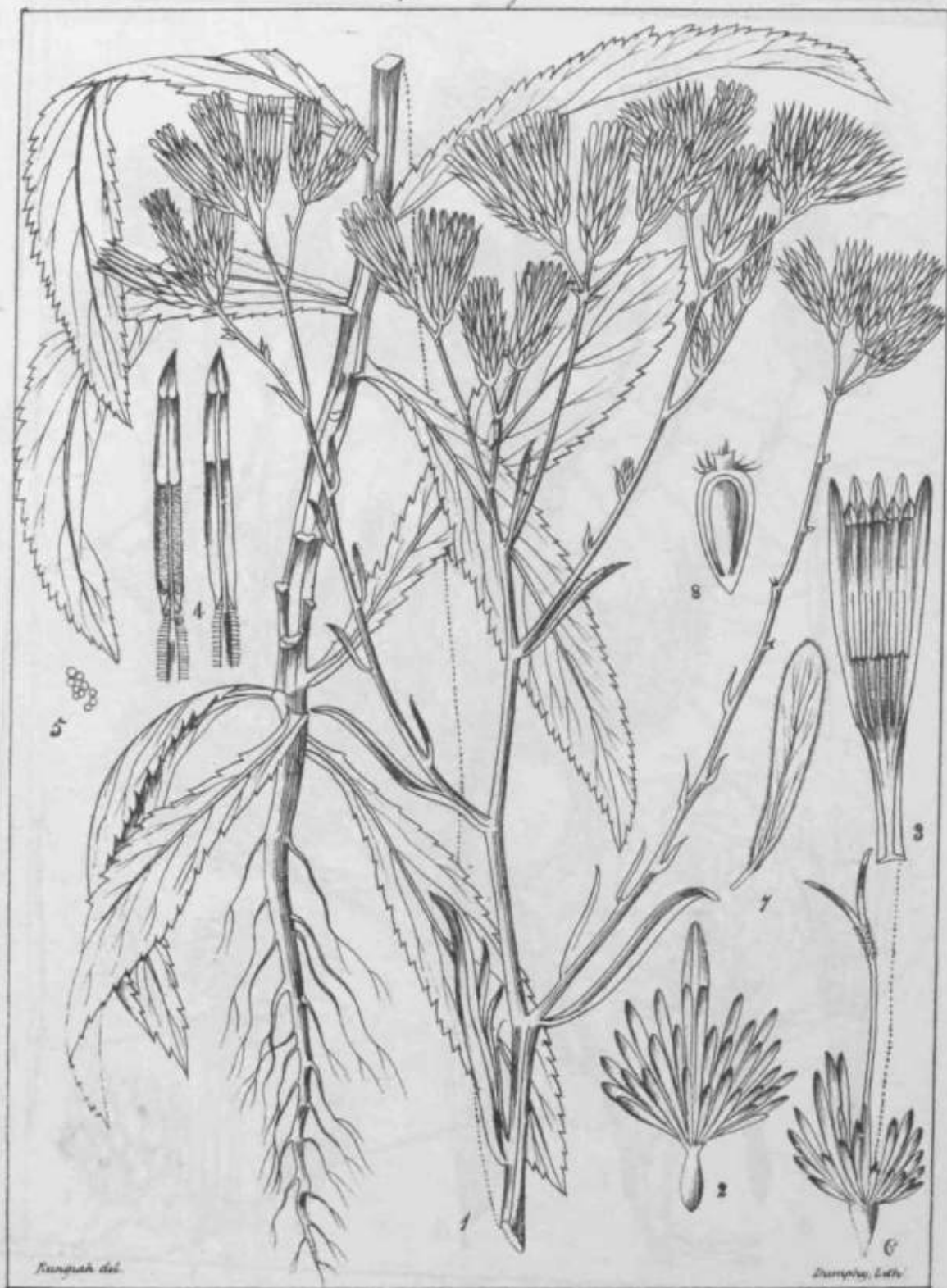


Gnaphalium Nelgherryana (D.C.)
Gnaphalium Nelgherryanum (D.C.) in Wright's contrib.

Contaurica.

Compositae-Cynarea

*!?



Ambrosia Indica (L.C.)



কৃতালারিা
লুনুলাতা

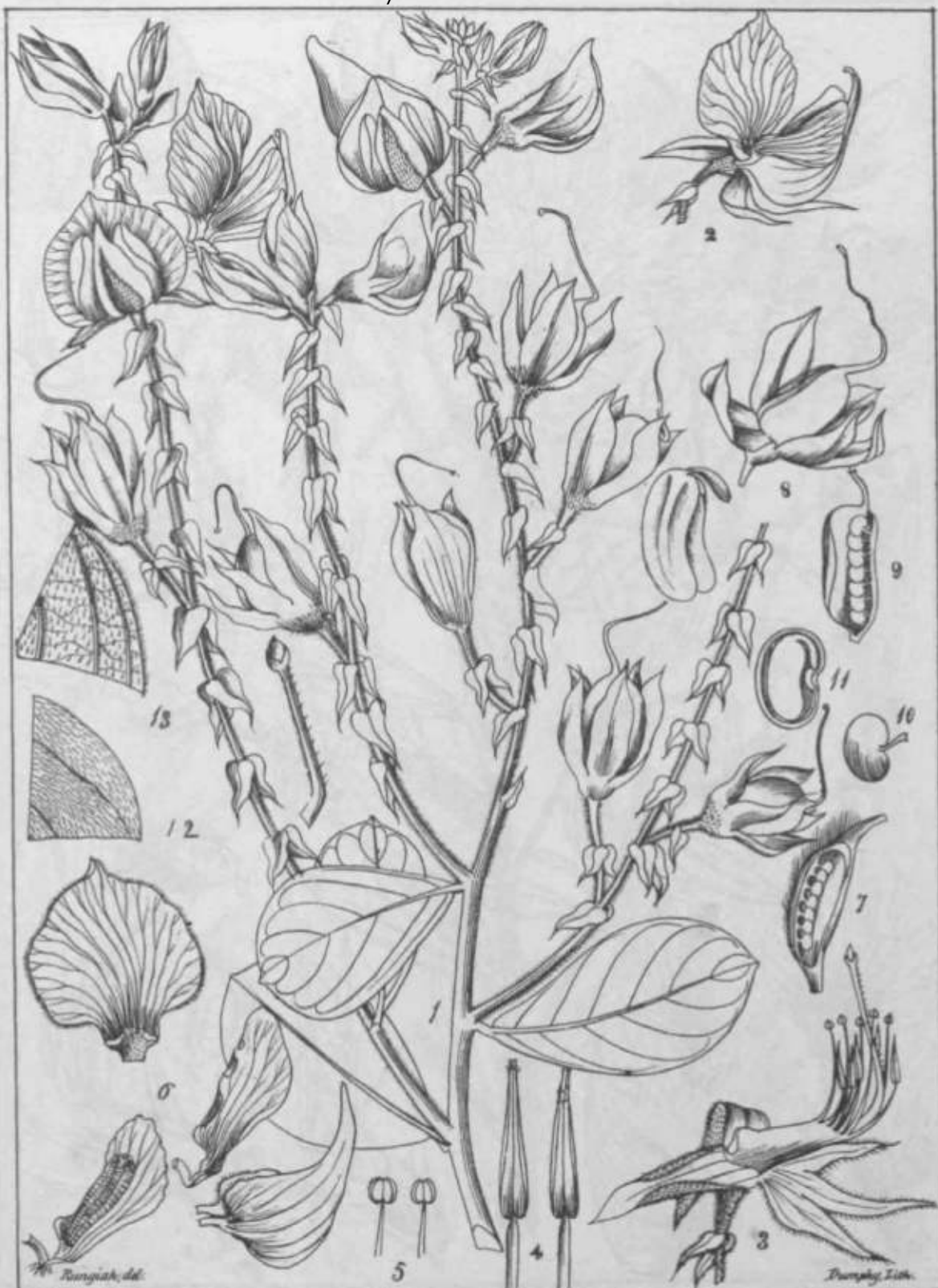
Crotalaria lunulata (Heyne.)

Papilionacea!

Scamminosa!

«UOKO!»

481
369.



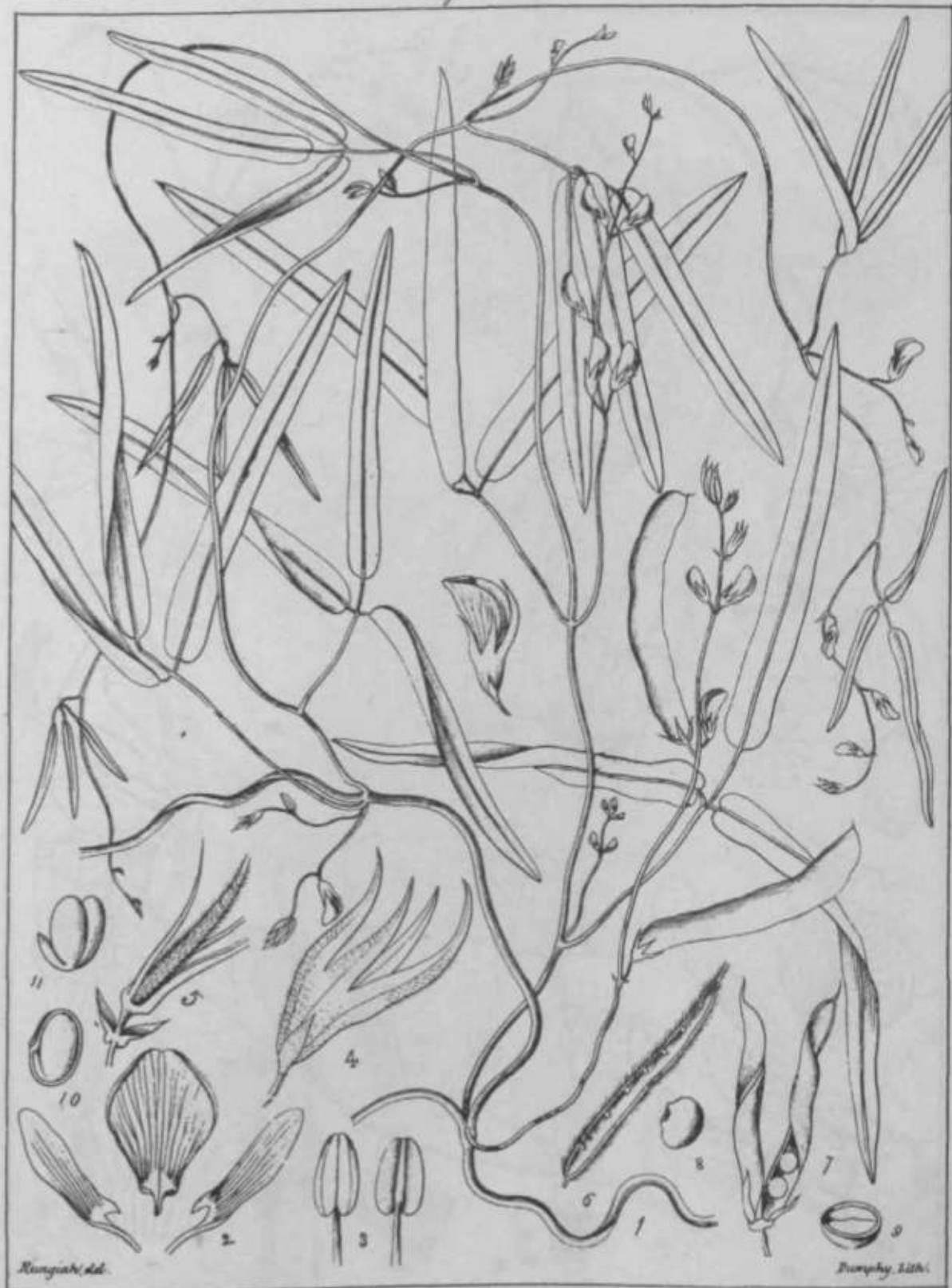
செவ்வெள்ளை
கொத்தகாய்

Crotalaria pulcherrima (Roxb.)

Loea.

Leguminosae.

482
644 X 645.

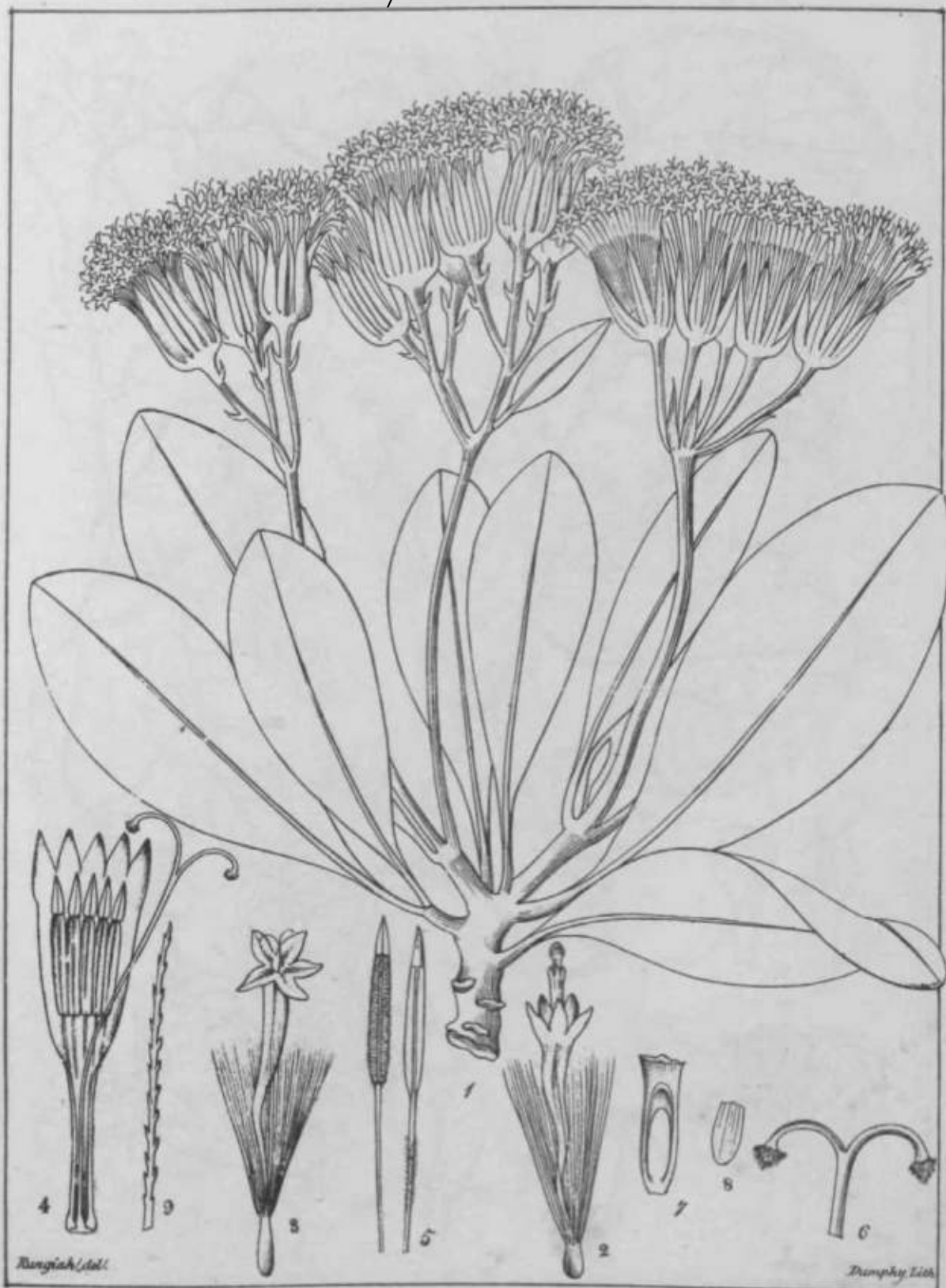


Galactia longifolia (R. W.)

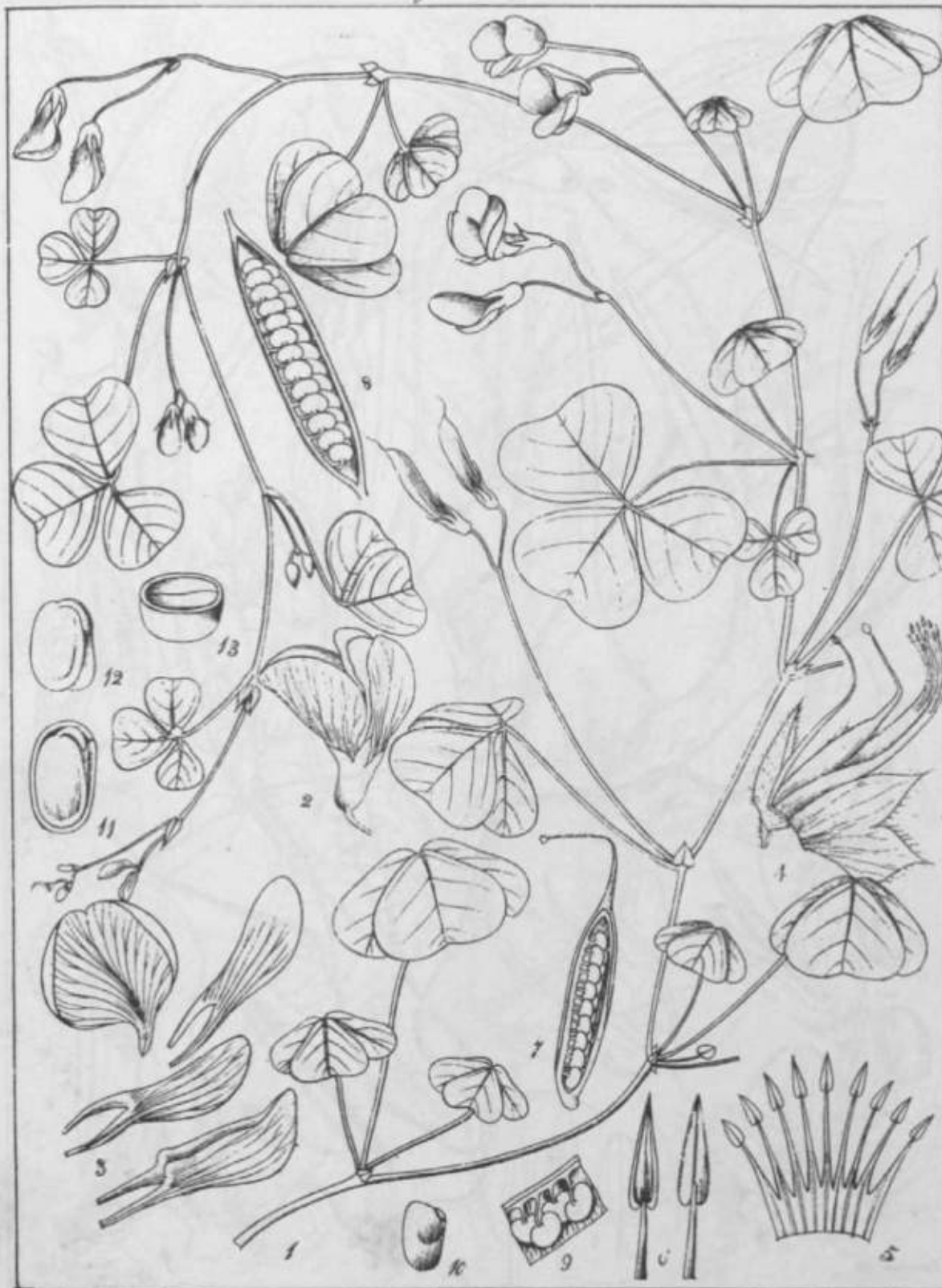
Papilionacea

Scamminosae

-Mai m



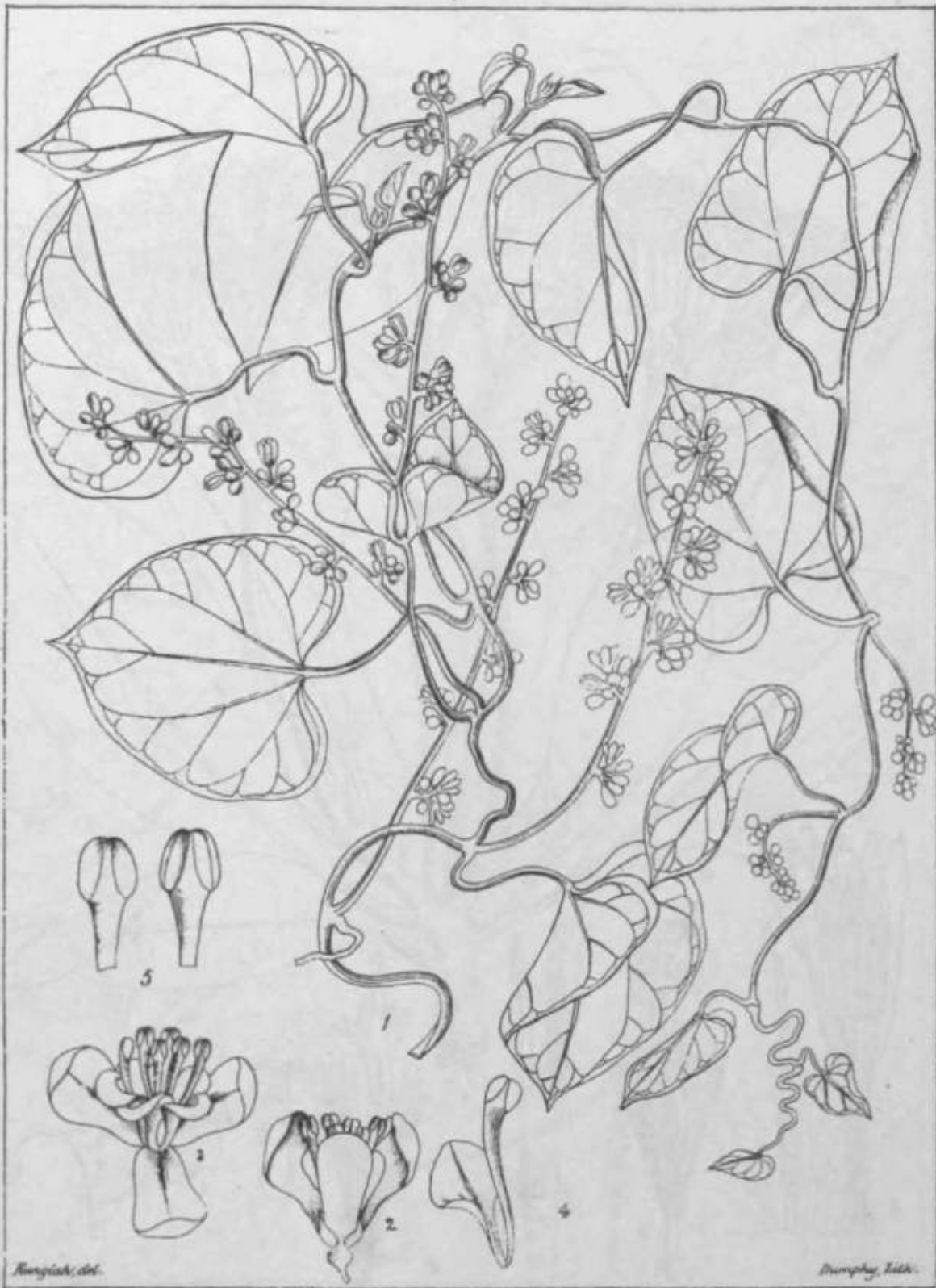
Notonia corymbosa



Kunze del.

Paroetus major (Dpn)

Bampho lith



Ercutus cordifolius B. (D.C.)



Cocculus cordifolius (D.C.)

Bythneria

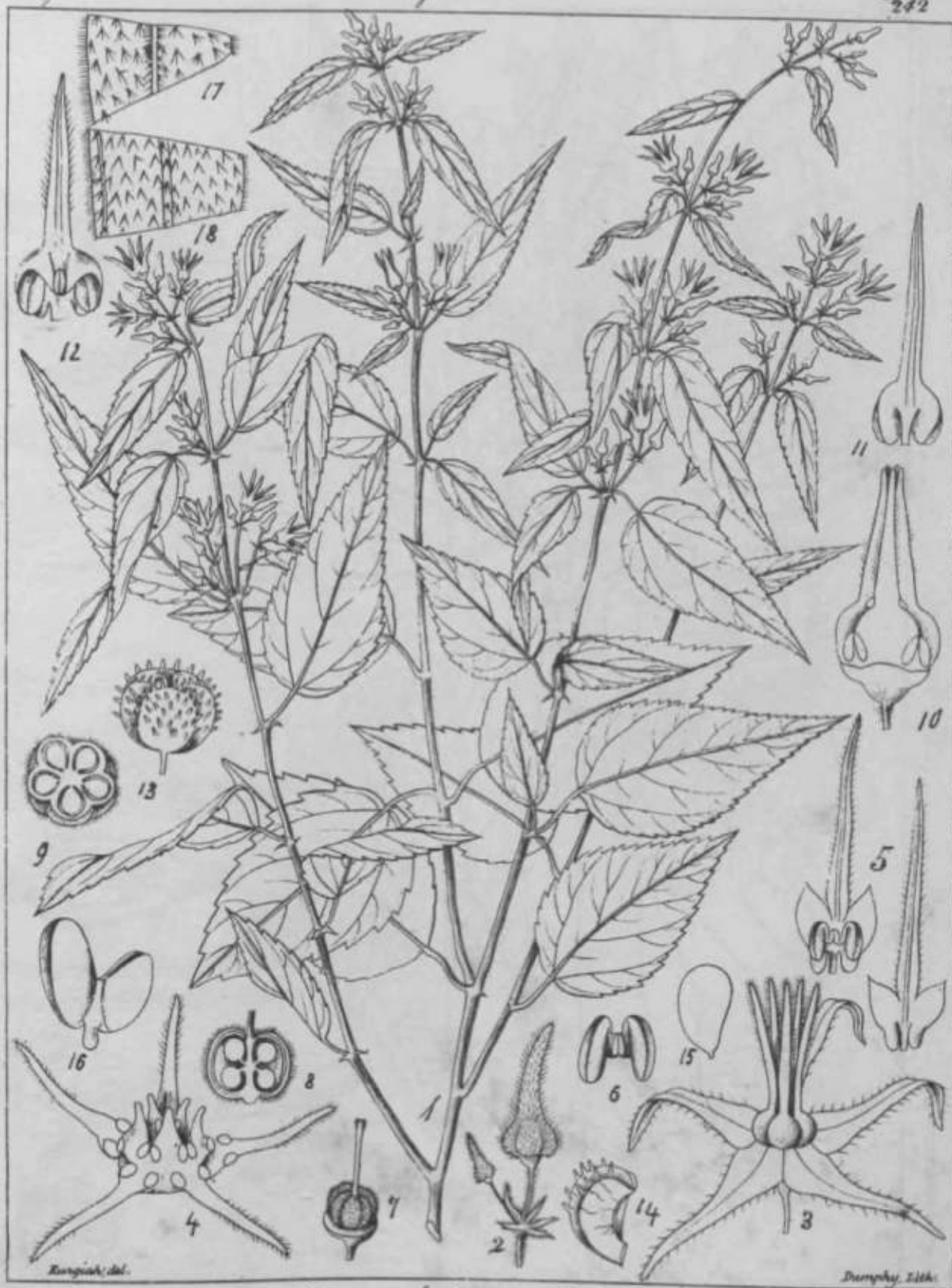
Stenactis



Stenactis bythnerioides

Stenactis bythnerioides (Roxb.)

Stenactis bythnerioides

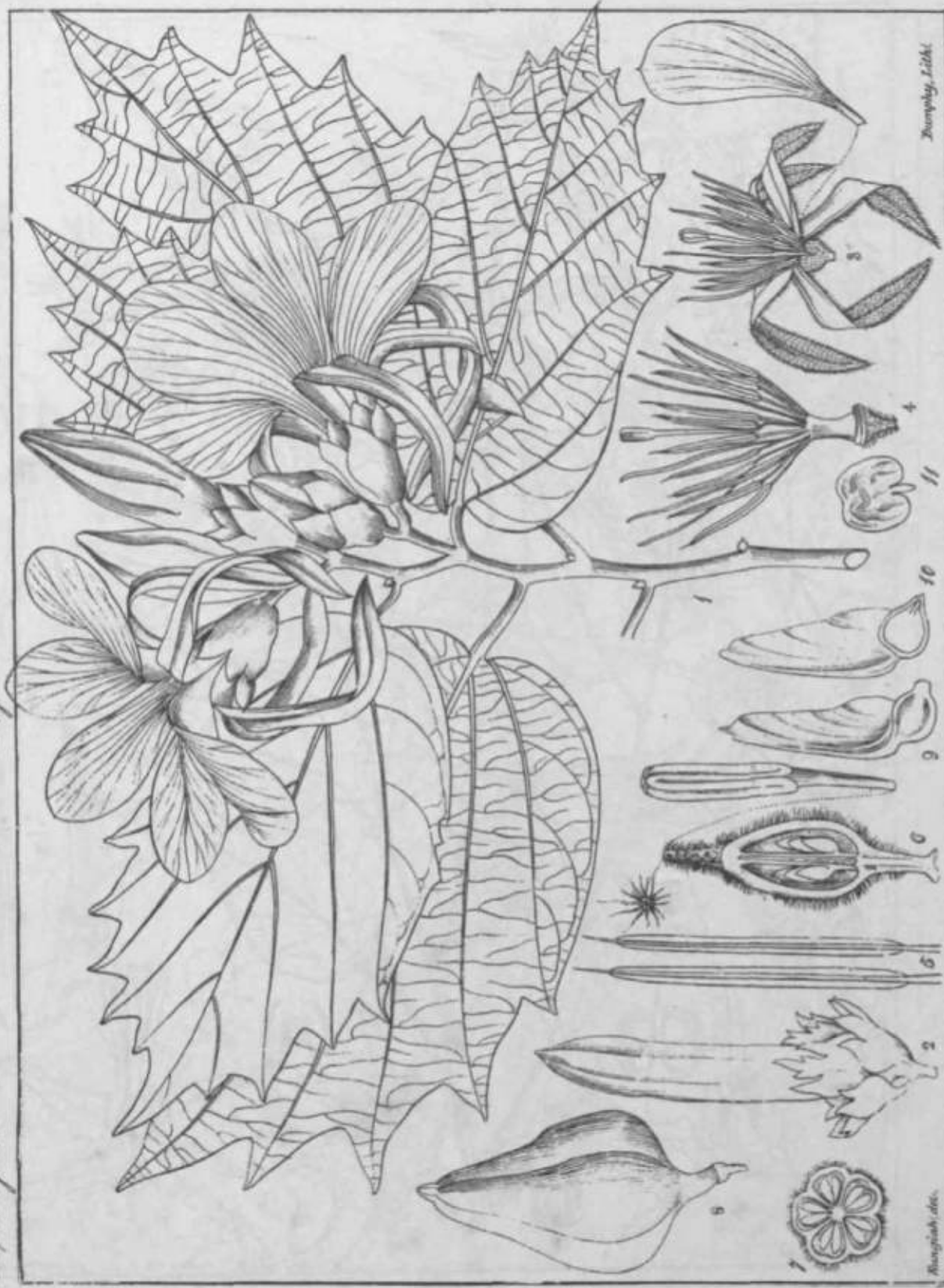


Bythneria herbacea (Roxb.)

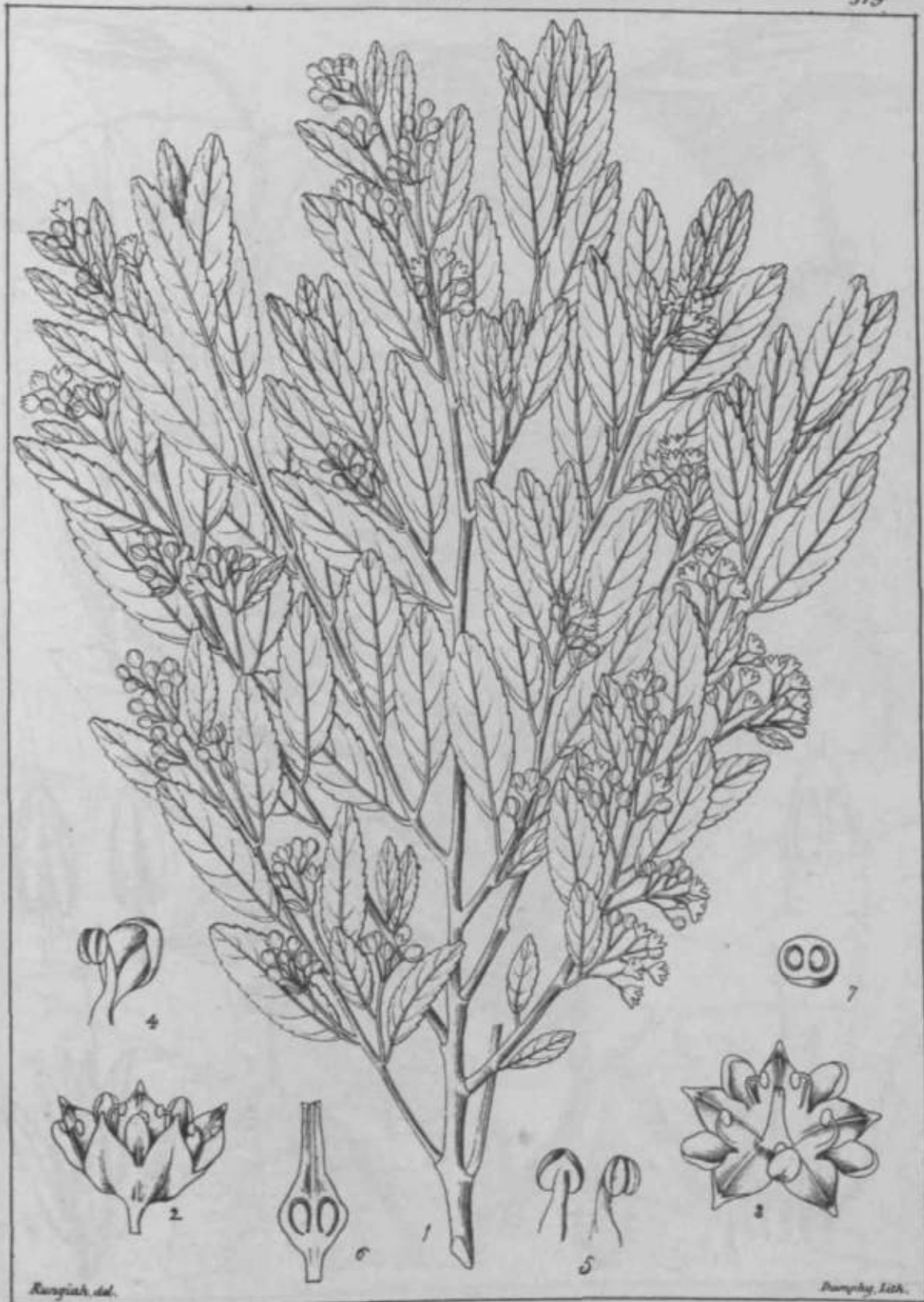
Dombeyaceae.

Brythneriaceae.

489
234.



Pterospherum Heynayanum (Hall)



Vitmannia Africana (W & A)



Batatas choisyana (R. W.).

Dunphy, Lith.



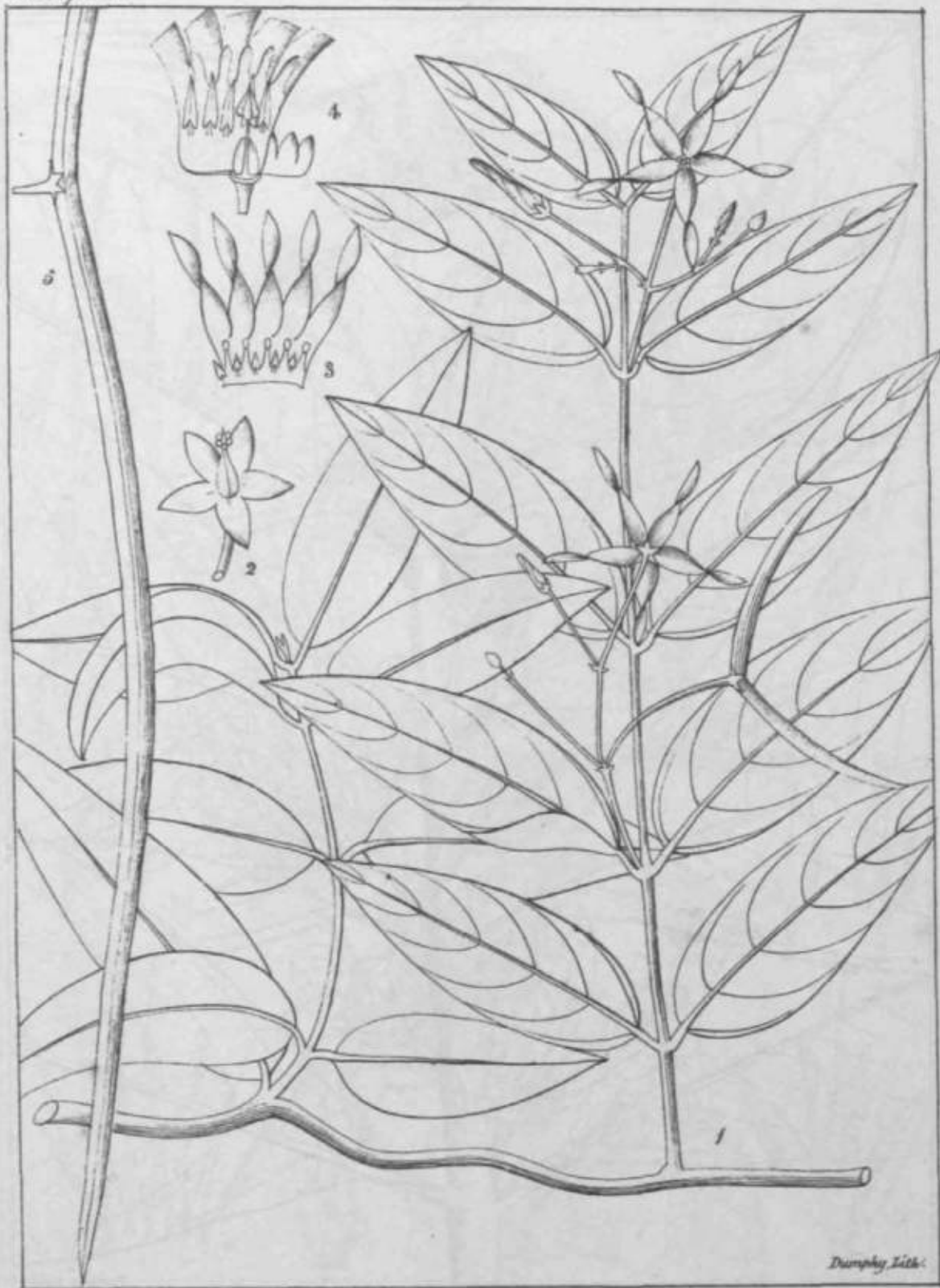
Dumphy, Lith.

Calceopis herbacea (Wight)
Asclepias herbacea (Roxb.)

Liriplocia
Rochfordiana

Asclepiadeae

493



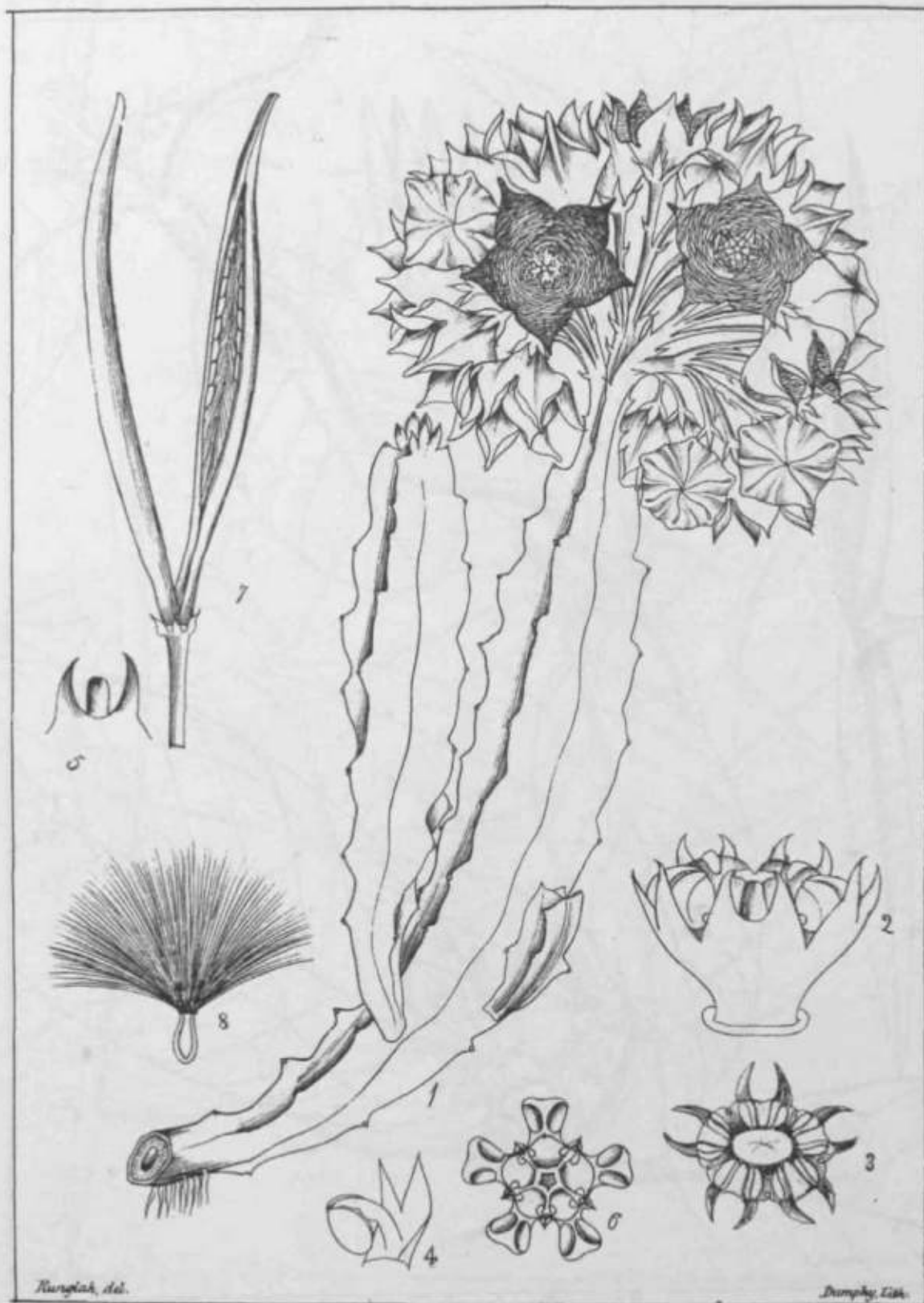
Dumphy Lith.

Cryptolepis? pauciflora (R. W.)



Dumphy, Lith.

Cryptolepis Buchanani (Roxb. & Sch.)
Nerium reticulatum (Roxb.)



Boucerasia umbellata (W & A)



Rungtsh. del.

Dumphy, Lith.

செங்குந்தம் }
Thoomallu. col. } T. 100

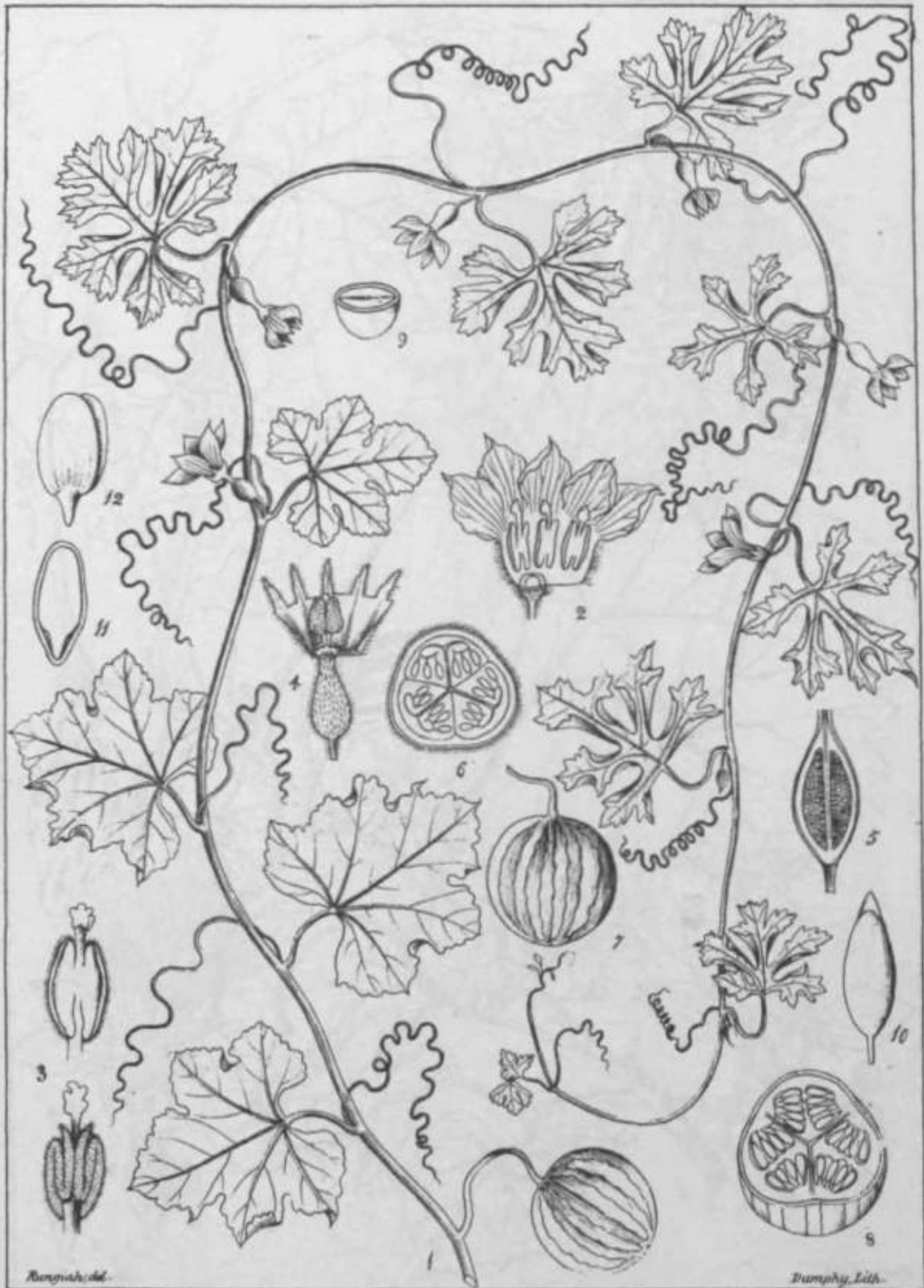
Cucumis pubescens (Willd.)

செங்குந்தம் }
Rendamatayak } Tel.

G?ucuwikat.

Cucurbitacea!

497
1060



செங்குந்த மரக்காய்
Pithecellobium - Tam.

Cucumis trigonus (Roxb.)



பெரும்பூட்டு

Citrullus Colocynthis (Aen)
Cucumis Colocynthis (Linn.)

Cucurbita.

Cucurbitacea.

499
1064



பெரிய கமுகு
Puffia pentandra

Puffia pentandra (Real)

பெரிய கமுகு
Puffia pentandra



King's College
Biology Department
Tamil

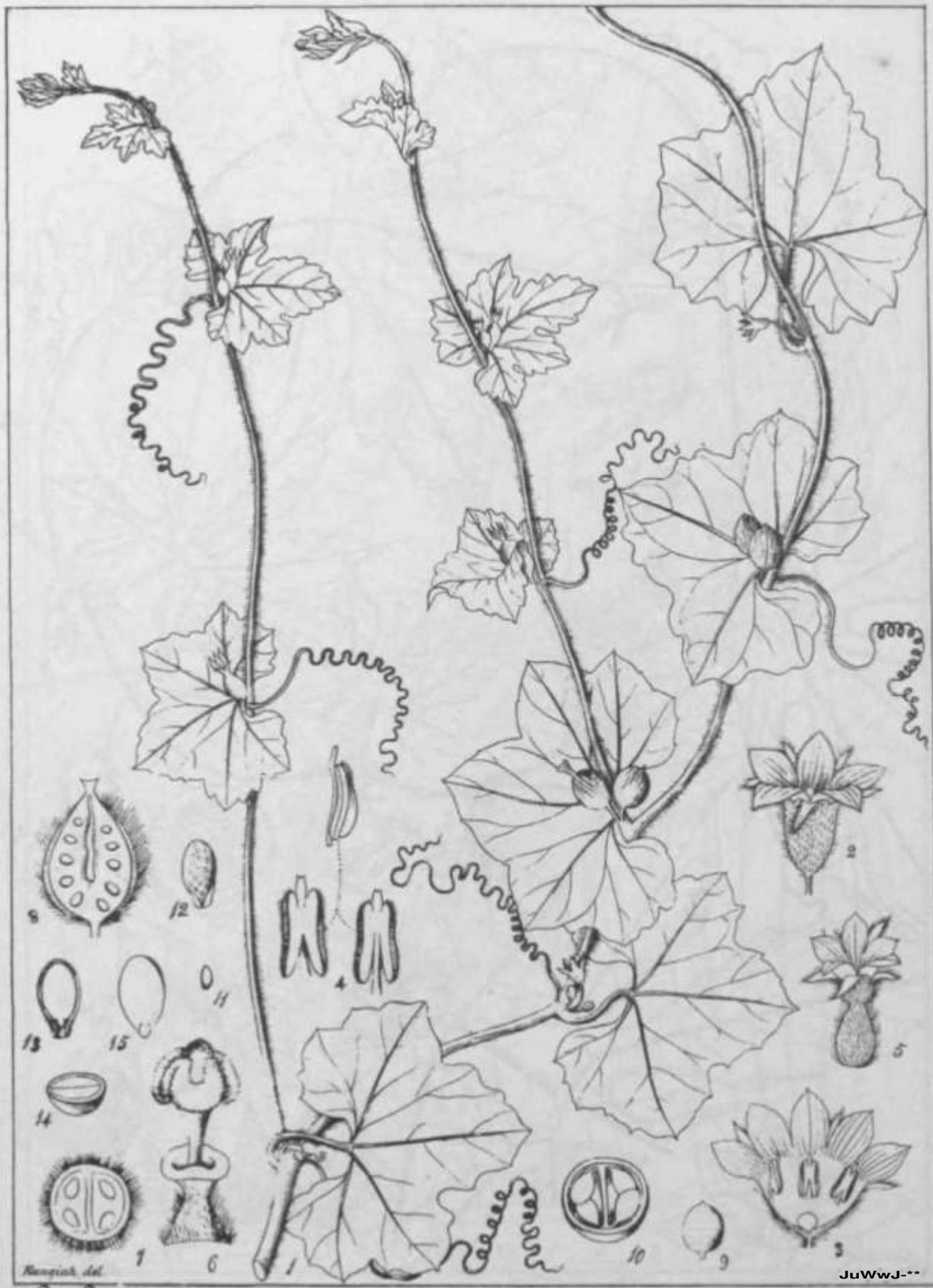
Bryonia laciniosa (Linn.)

Longthendavayal
20x60x30mm

Cucurbitae.

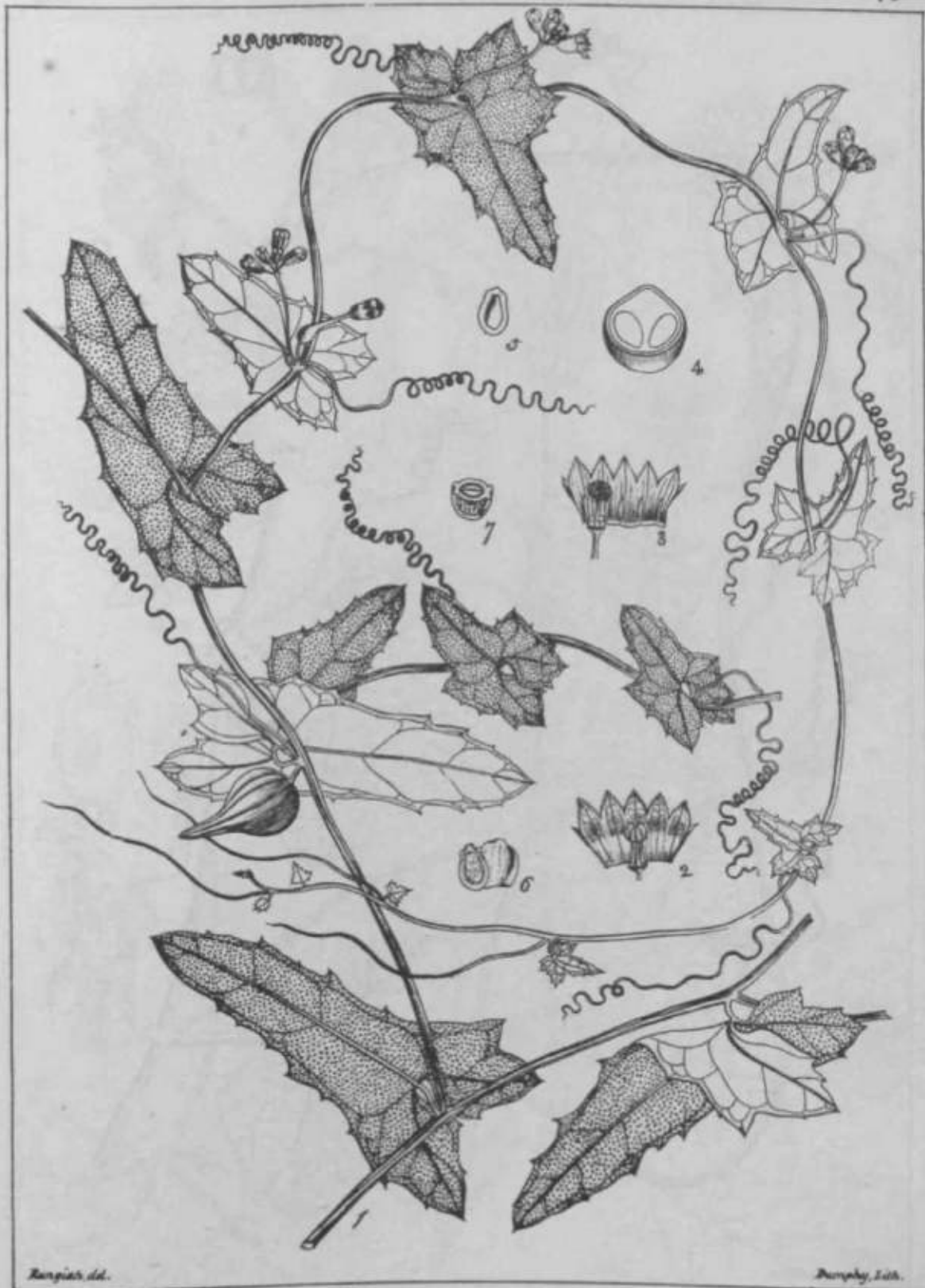
Cucurbitacea.

set
1674.



Leopoldus }
Hortensis }

io/moma .\ea/rrella , -Mnn .:j
Mukia (Arnott.)



Ruprecht. del.

Ruprecht. lith.

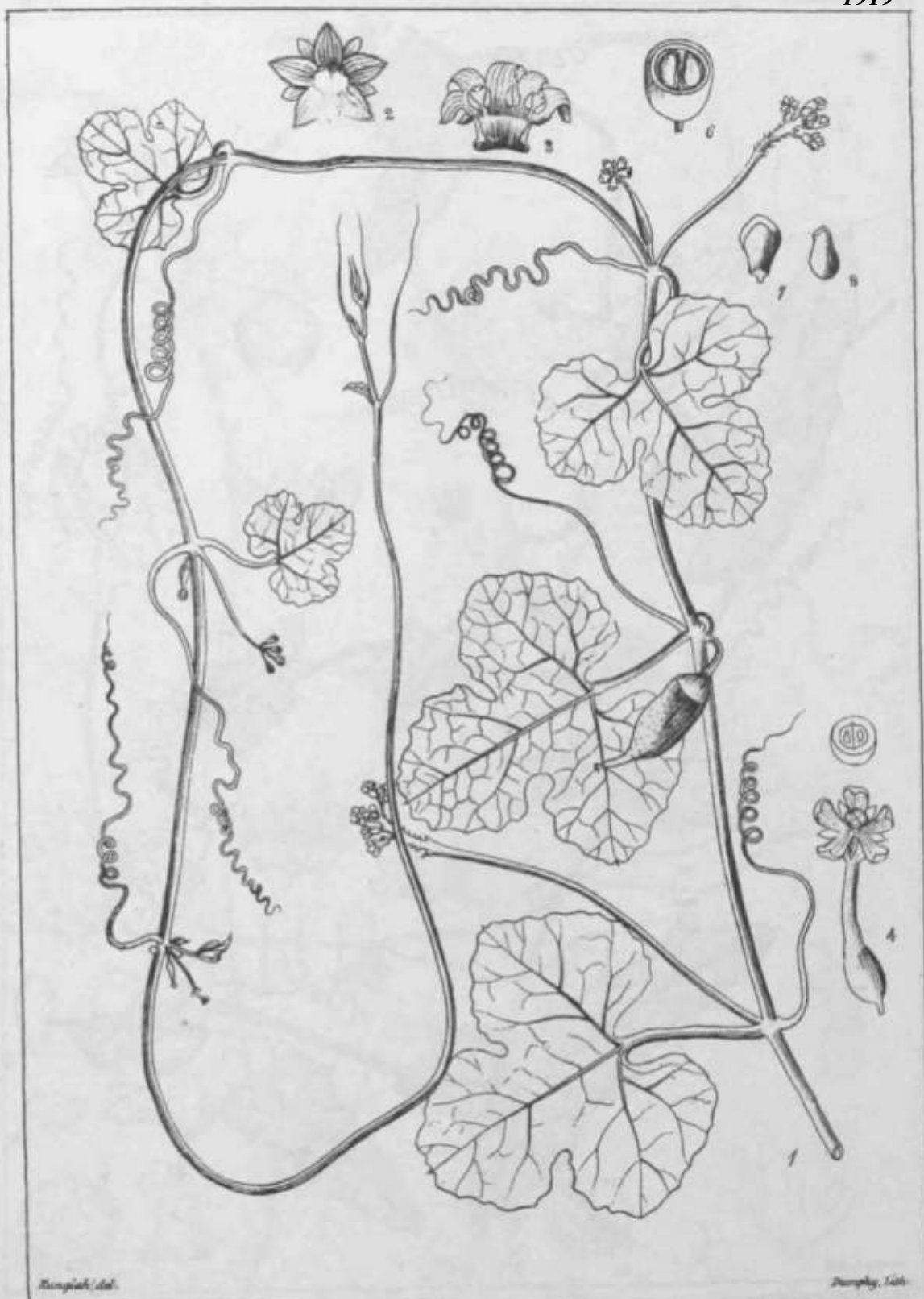
ബ്രയോണി അംപ്ലിക്സോകോളിസ് } Lam.
Ruprecht. del.

Bryonia amplexicaulis (Lam.)
Harms (Annett)

Cucurbita

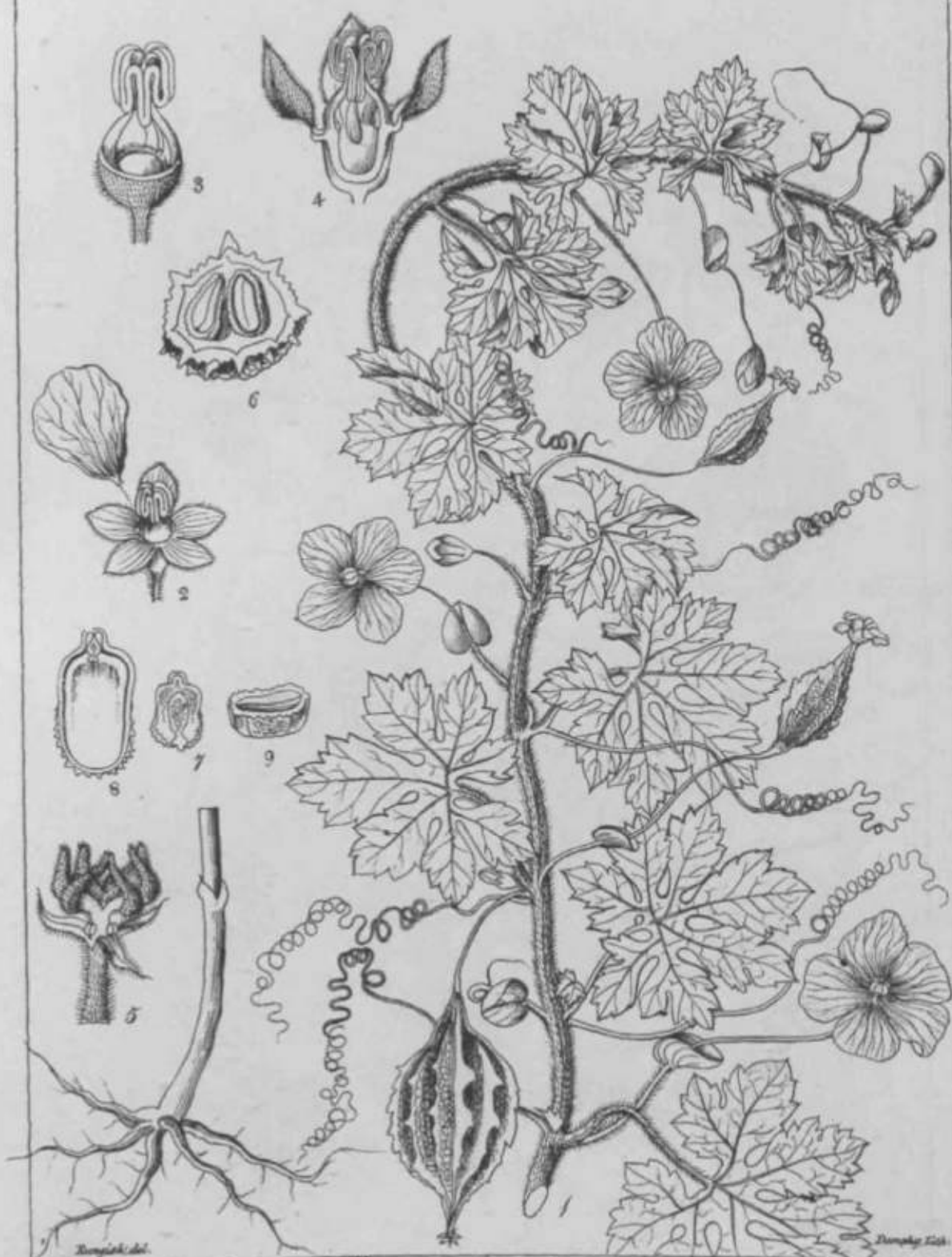
(Puai) bitacea.

583
T9T9



செய்துரை
அறிவுரை

Bryonia spigaea (Rottb.)
Aechmeandra (Pursh)



Rampish del.
M. charantia

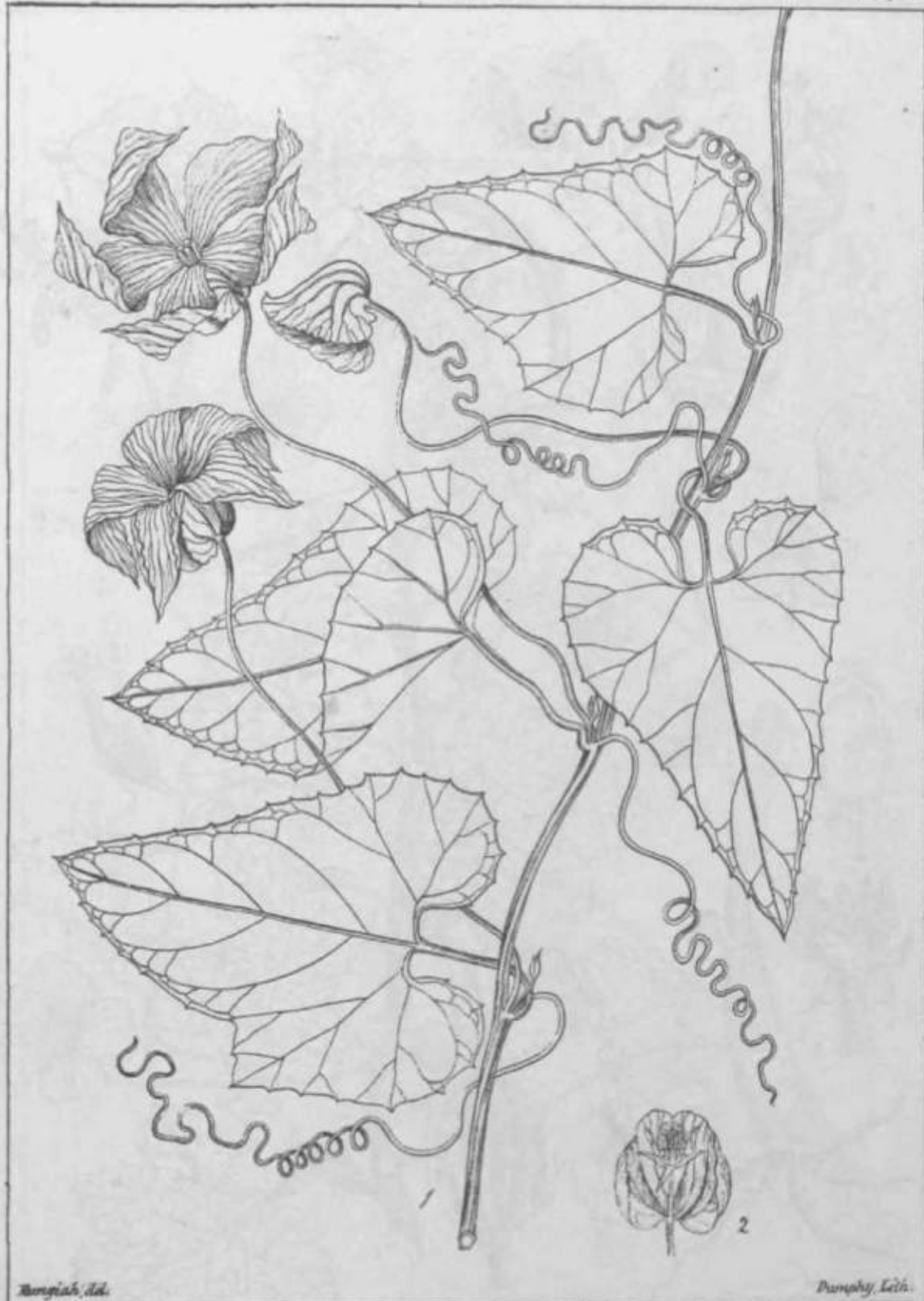
Momordica charantia (Linn.)

Rampish Lith.
M. charantia

Cucurbitae.

Cucurbitacea.

565
1087.



Bongibah, Ed.

Pamphig, Ed.

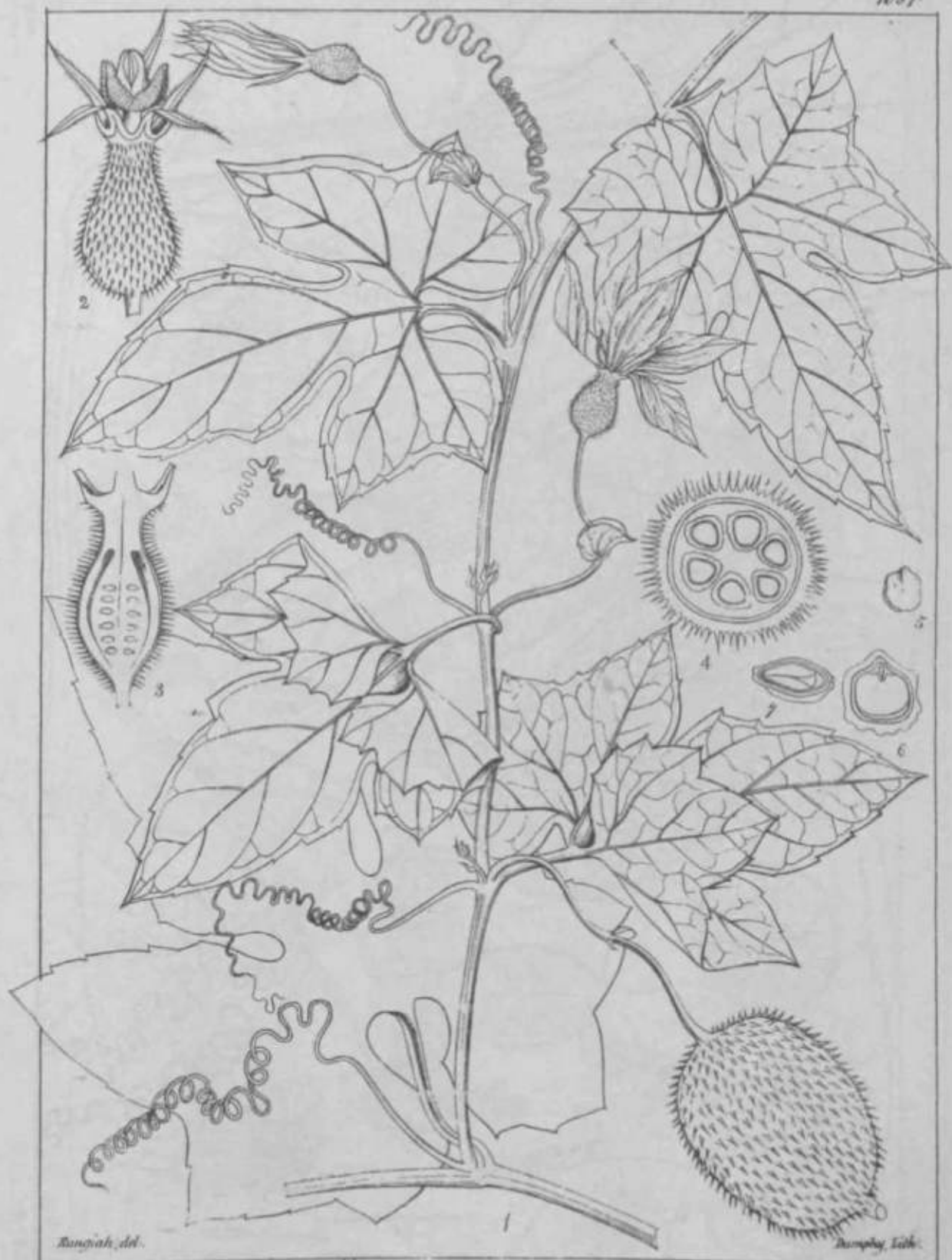
25 7 89 12 7 89 222 } *Tam.*
Thalopary

Momenditrdivka/cijSj mif

Cucurbita

Cucurbitacea

566
1087



Printed by the Government of India
Litho. Press, Calcutta

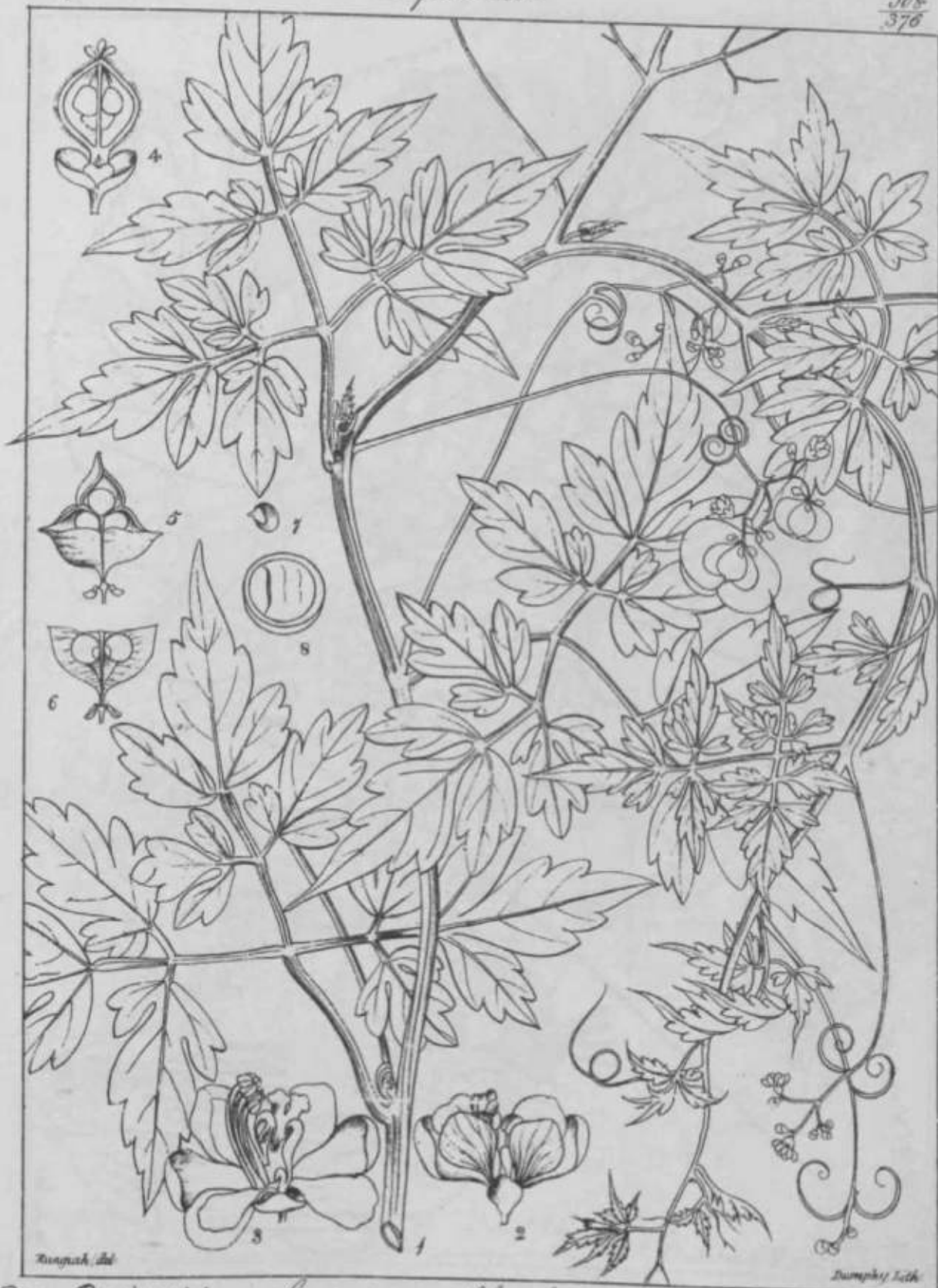
Momordica dioica (L.) Roxb.



Sapindea

Sapindacea

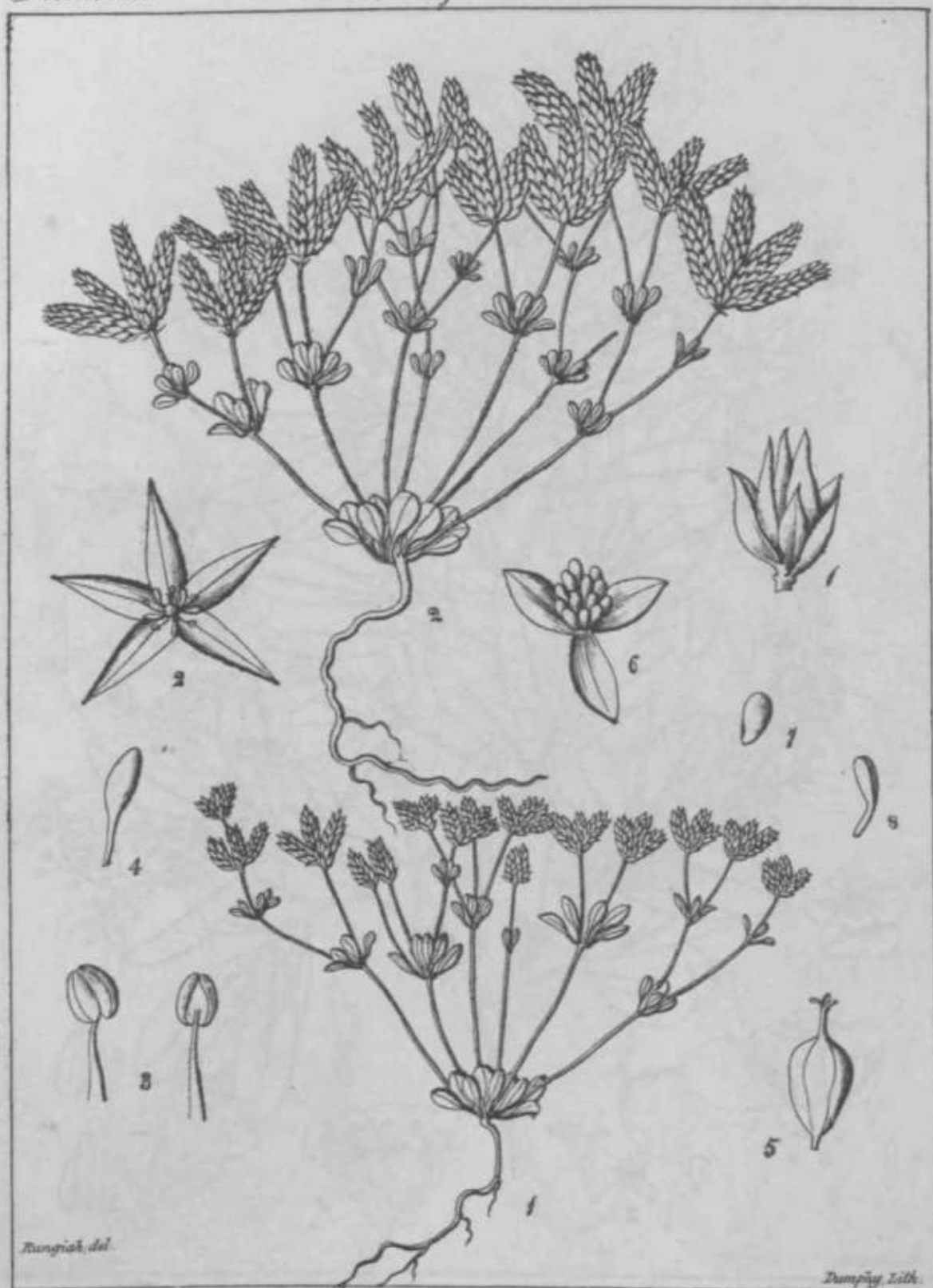
508
376



செடிகளில் பூக்கும்
Halicacabum } Tam

Cardiospermum Halicacabum (Linn.)

செடிகளில் பூக்கும்
Halicacabum } Tel



Rungtshel del.

Dumphy, Lith.

Polycarpha spicata (R. W.)



Vismia umbellata (Blume)
Glossospermum velutinum (Wall.)

Dumplings, Tabb!

www.elsevier.com/locate/jbiotec



Aglaia odorata (Lour.)



(అమరంతుస్) } Tamil
Amaranthus

Amaranthus spinosus

మొక్క గుర్తింపు }
Amaranthaceae



Kunth's del.
சார்க்குளா } Tam
Sarcocolla

Amaranthus histrix

Dumphy Lith
தாசகவுண்டி } Tel
Thasakavundi



Kunzius del.

Dumpher lith.

Foeniculum vulgare (Gartn.)



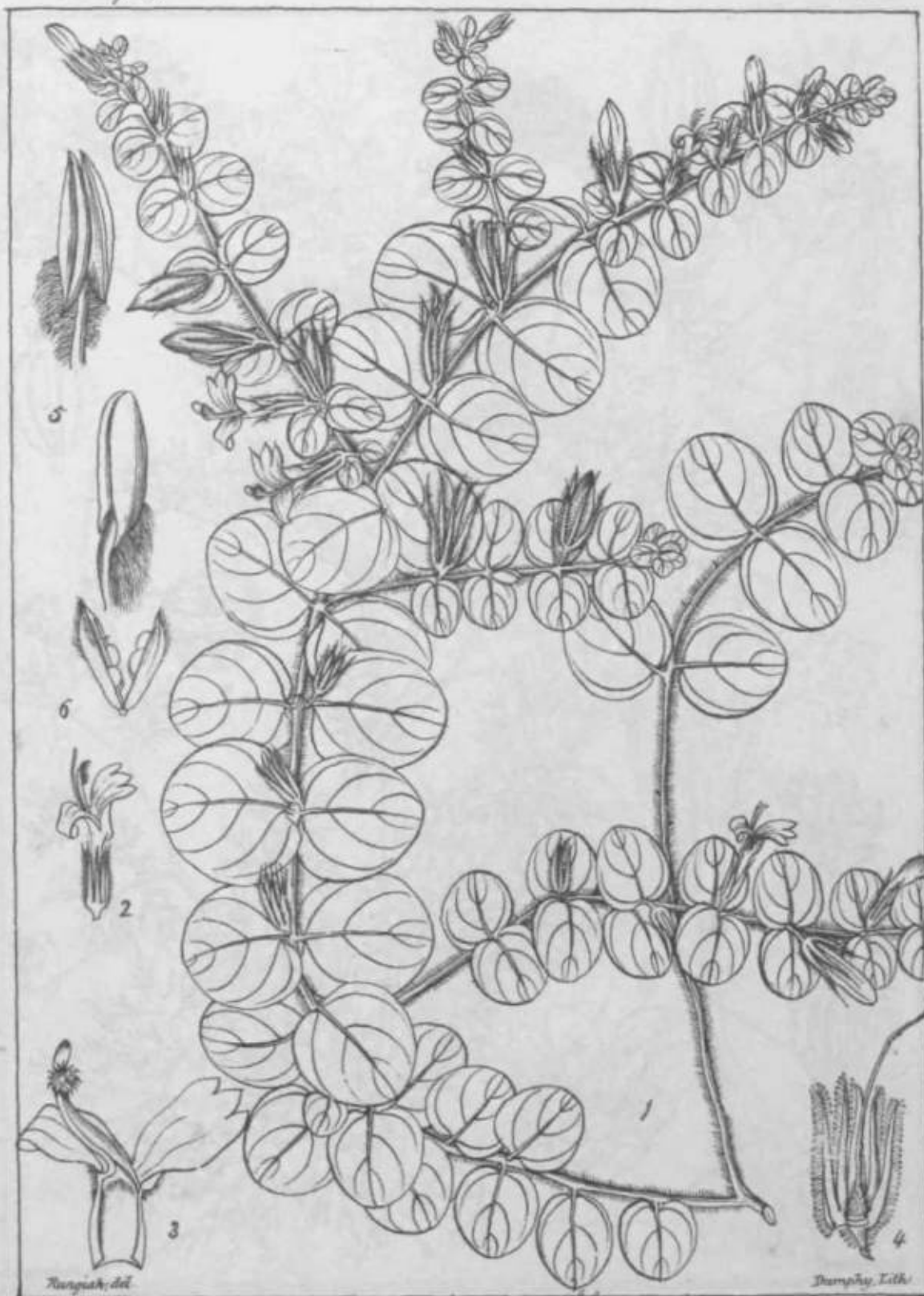
கொந்தைமரம் } Tam
Konthammaru }

Coriandrum sativum (Linn.)

Andrographidea

Acanthacea

to?



Andrographis serpyllifolia R. W.
Euphorbia (L.) *Eriuanthera* (Nees)



Andrographis paniculata
Lam.

Andrographis paniculata

Dumphy, Lith.

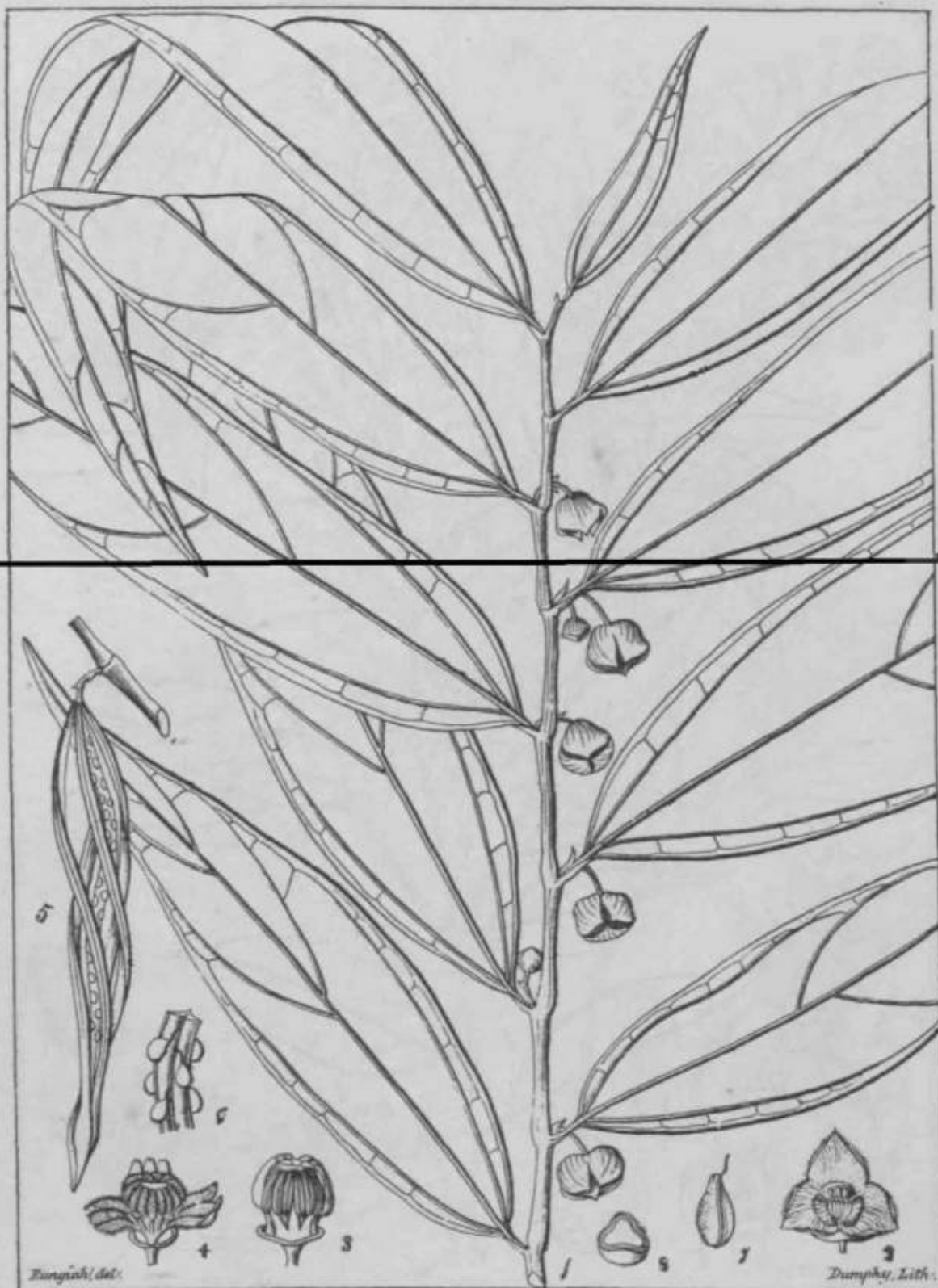


Rangiah, del.

Dumphy, lith.

ବିଟେକ୍ ନେଗୁଣ୍ଡୋ
Vitex negundo

Vitex negundo (Linn.)



Bragantia Wallichii (R.Br.)



Neliitis paniculata (Lindl.)

Myrtica

Myrtaceae

522



Myrtus tomentosa (Aiton)

Myrt.

tAut/muea/

5%.



Sossinia Indica RW.

ft m/ea

^rW^i/i/ao^e.

JIA



Monoxora spectabilis (R. W.)

/'""VV'Iia

Myrtaceae.

t-syfo/u'i/acet-

525



Eugenia (S) hemispherica



Eugenia / I / pauciflora

Myrtica

Myrtacea

-129

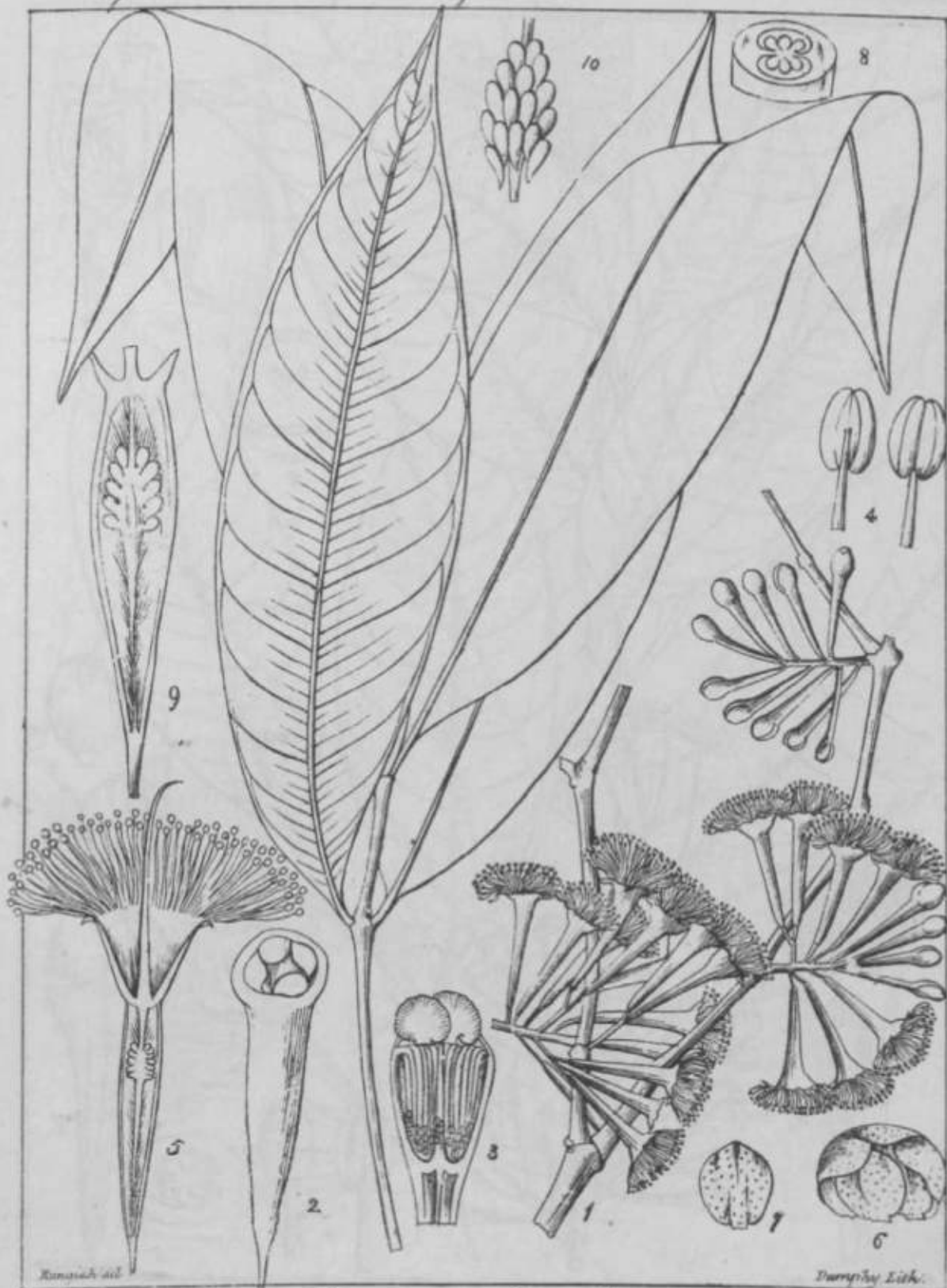


Eugenia (A) Wightiana

Myrtaceae.

Myrtaceae.

528

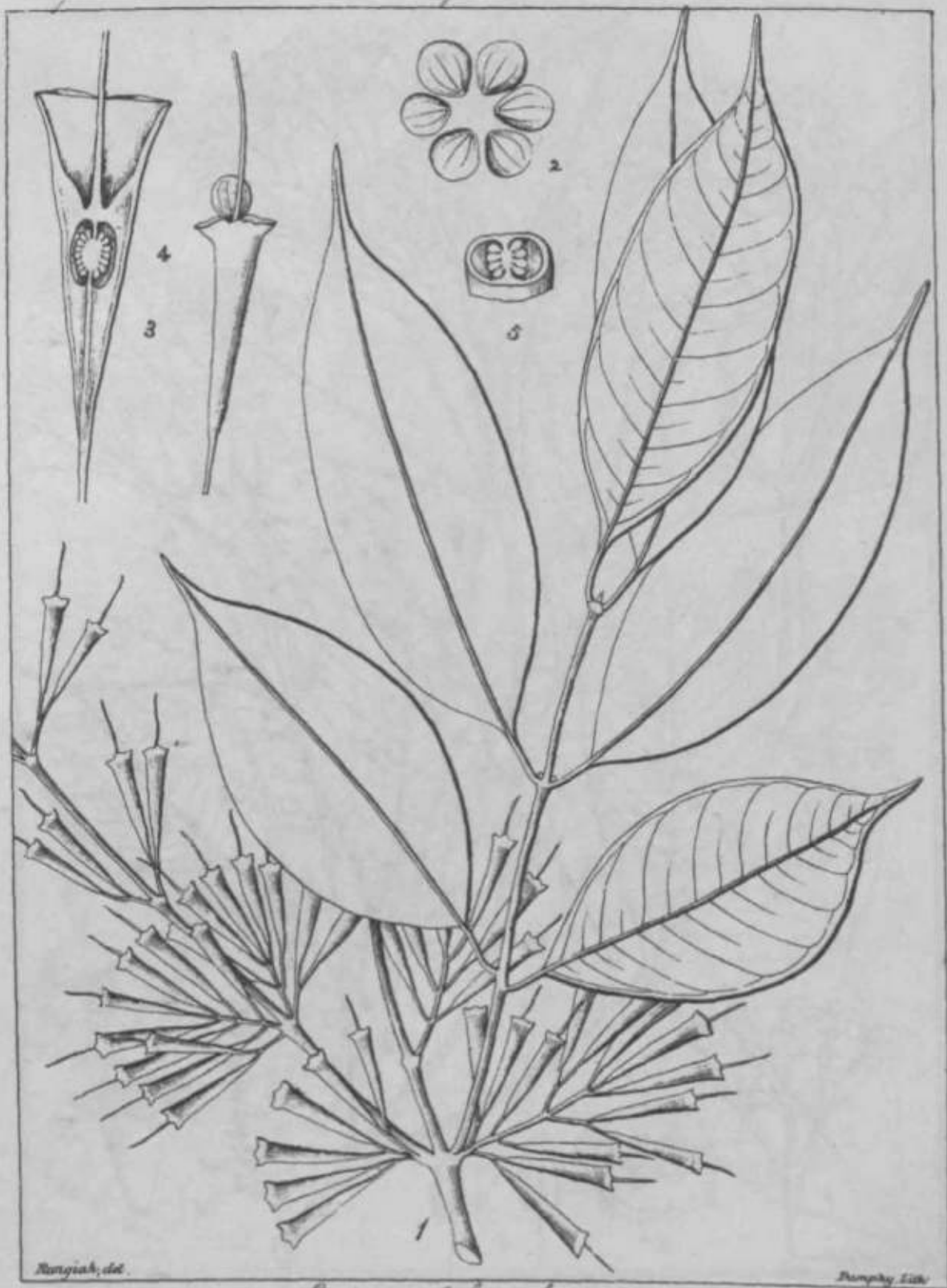


Eugenia (Al) leptantha (R. W.)

Myrtac.

Myrtaceae.

530
1021



Bongiah, del.

Bongiah, lith.

Eugenia (A) *lanceolata* Lam.
Eugenia lanceolata W & A

Myrtaceae

Myrtaceae

531



Eugenia (A) bracteolata (P.W.)



Eugenia (S.) sylvestris (Moon)

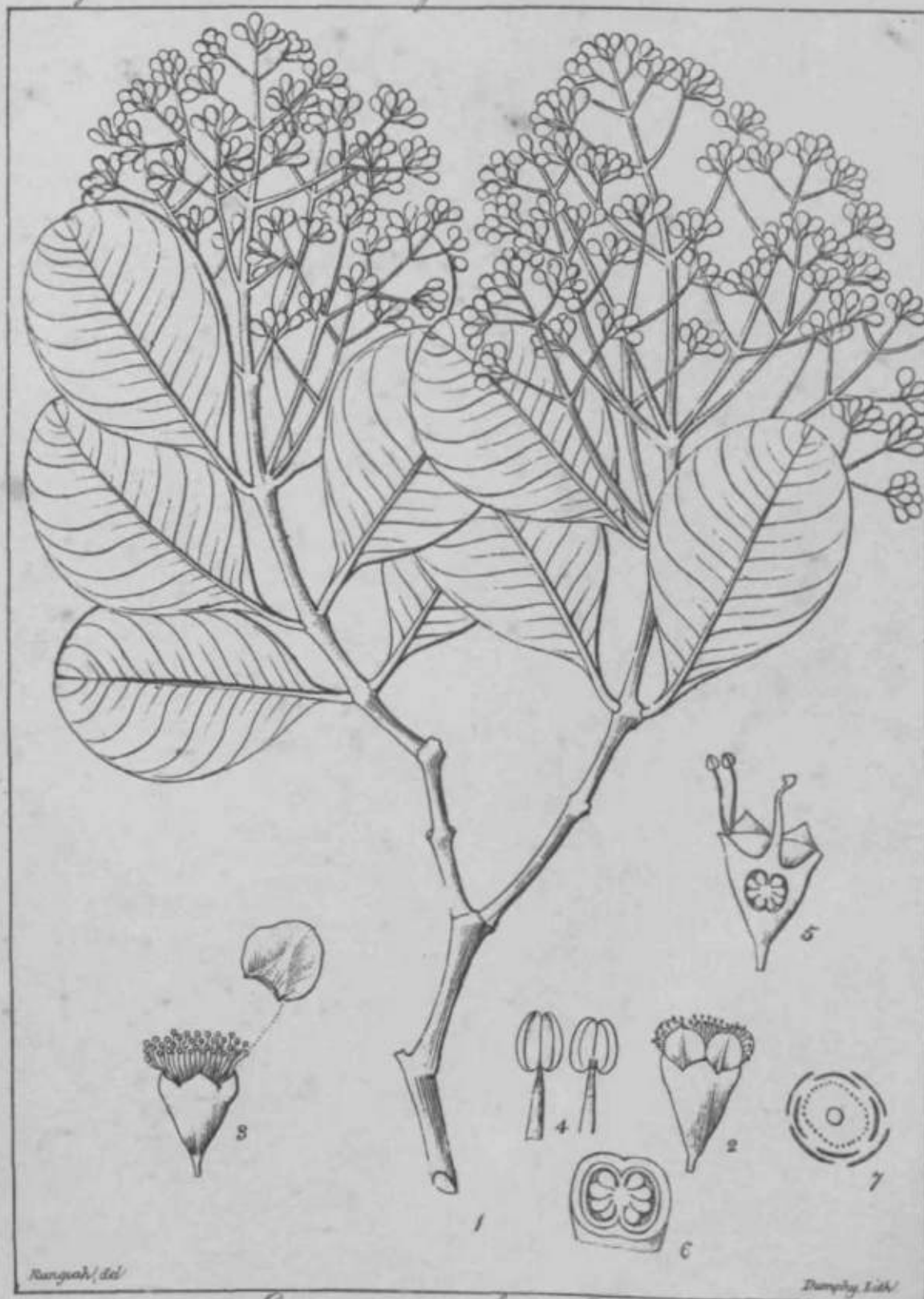


Eugenia (S) Nassiana (Arnot)

Myrtaceae!

Myrtaceae!

534

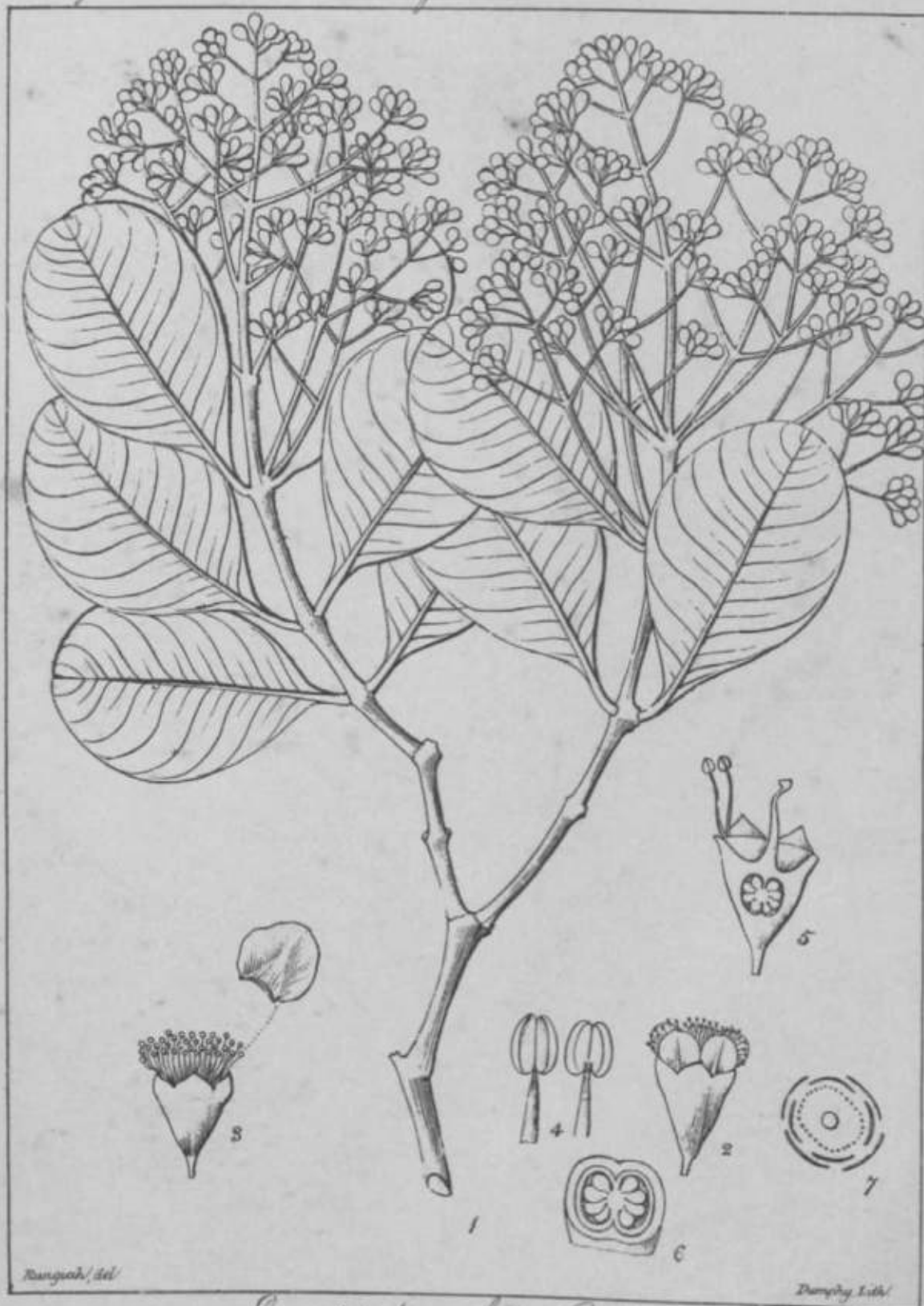


Eugenia (S) revoluta (R. W.)

Myrteae.

Myrtaceae.

534



Rangach, del.

Dumphy, Lith.

Eugenia (S) revoluta (R. W.)