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fury four to eight broad. Petioles longer than the leaves, 7 undric, smooth, the flowerbearing ones have a hairy joint near the middle, and from the joint up, a slit of between two and three inches in length opens on one side for the spike, its margins thin and hairy. Spike solitary, short-peduncled, simple, linear-oblong, three to tour inches long, imbricated. Bractes; exterior oval, truncate, with the transverse apex many-toothed, smooth, each embracing several small, pale, pink flowers, which expand in succession. • Inner bractes small, and membranaceous. Calyx, corol, and stamen, as in Germ three-celled, with one ovulum in P. parviflorum. each, attached to the bottom of its cell. Style, as in the other species, it grows to, and is blended with the tube of the corol, its apex free, thick and hooked. Stigma gaping, obliquely toward the anther. Capsule oblong, size of a large field bean, rugose, three-celled, three-valved, opening from the Seeds solitary, sitting on a partial aril, and attached to the bottom of the cell; external tunic hard, brown, and polished. Perisperm conform to the seed. Embryo erect, simple, the apex hooked. Radicle inferior, close to the umbilicus of the seed.

Obs. The simple, short-peduncled, imbricated, linearoblong spike, bursting from the middle of the petiole, readily points it out.

5. P. parviflorum. /?.

Stemless. Leaves radical. Heads of flowers petiolary; bractes acute.

A native of the eastern parts of Bengal. With P. capitaturn, it blossoms about the beginning of the rains.

Root tuberous, horizontal, hairy, in other respects as in P. capitatum, 8tc. Leaves long-petioled, elliptically-oval, polished, entire, short, acute, pointed. Heads of flowers sub-globular, sessile, always bursting from the inner side of the petioles, near, or above their middle, composed of many, imbricated sessile, distichous, compact, simple, or compound spikes.

Bracles; the exterior two are broad-ovate, and comiu the whole head; the rest within smaller; all are smooth, a*, end in a small, rigid, acute point. Flowers in pairs, small, nearly inconspicuous, yellow. Calyx, corol9 and stamen, as in capitatum. Germ short-pedicelled, smooth, but hairy round the insertion of the calyx, three-celled, and im this species I have only found one of the cells fertile, in it is one ovulum, attached to the bottom of the cell. In capitatum all the three cells are fertile. Style as in the other species, it grows to the tube of the corol, its apex free and hooked. Stigma infundibuliform.

6. P. capitatum. Linn. sp. pL ed. Willd. 1. 17.

> Stemless. Leaves radical, long-petioled, oblong. Heads of flowers p tiolary and terminal, glomerate. JBractes tfuncate, incurvate.

Naru-killa. Rheed. Mai. 11. p. 67. t. 34.

Phyllodes Placentaria. Lour. Cochin Ch. 16. 17.

Kudali. Seng, which also signifies a Plantain.

A native of Cliittagong, and of various other parts of India. From the former place it was sent to the Botanic garden at Calcutta, by Dr. Buchanan in 1797. Flowering time the rainy season, the seeds ripen in the cool season.

Root perennial, tuberous like ginger, with long, fleshy fibres from the crown, and various other parts. Stem none. Leaves radical, long-petioled, oblong, entire, smooth on both sides; from six to eighteen inches long, and broad in proportion. Veins numerous, fine and parallel. Petioles longer than the leaves, slender, round, smooth, taper a little from the base, and are there expanded into a sheath for those immediately within; such as are destined to bear the flowers have a joint a little above the middle; immediately above this joint there is a swelling, which in due time is forced open on the inside by the growing flowers exactly as in our Indian species of $Pontederia_m$ It however sometimes appears, and even in the \$ame plant, that some of the petiole?, now scapes, extend no

further than the flowers. Flowers numerous, collected into a pretty large, sessile head, which Jmrsts from the anterior margin of the jointed petioles, small, and nearly hid among the large bractes; when they first expand in the morning rose-coloured, gradually becoming purple by the evening. Bractes, calyx of Louriero's Phyllodes, several, collecting the small sessile flowers into several fasciculi of two, three, or four pair, each of which expand in succession. terior one of each fascicle is large, subcylindric, of a firm texture, and reddish colour; apices truncate, with scariose, incurved margin; the rest are smaller, and more or less Calyx superior, three-leaved; leaflets cnsiform, length of the tube of the corol, hairy about the points. Carol Tube funnel-shaped, scarcely perforated* one-petalled. B&Mer double; exterior of three, equal, purple, spatulate, recurvate segments; interior more elevated on a continuation of the tube, and consists of five, very unequal segments; the exterior two larger, round, curled, and of a pale rose colour; '\e innermost one small, and running down the side of the Tfilament like a wing. Filament solitary, short, inserted on the mouth of the tube close by the free, curved end of the style. Anther simple; gTains of the pollen white, large, and Germ inferior, oblong, very short pedicelled, spherical. hairy, three-celled, with one ovulum in each, attached to the bottom of its cell. Style growing to, or blended with the tube of the corol. Stiff ma large, funnel-shaped, obliquely-incurved or hooked towards the anther. Capsule short, turbinate, three-sided, pretty smooth, size of a gooseberry, threecelled, three-valved, opening from the apex. Seed solitary, nearly round, smooth, dark grey, resting on a small, squamiform aril, which is attached to and surrounds the short umbilical cord which unites the seed to the bottom of the par-Integument double; exterior spongy, inner thin and tition. rather hard, adhering to the exterior, and to the perisperm. Perisperm conform to the seed, horny, tinged with pale bine; a fissure roplete with a brown substance penetrates from the

base to a considerable distance upwards. *Embryo* pure white, hooked, with the convexity upwards, which corresponds with, the periphery of the seed.

HEDYCHIUM. Kön.

Corolla with a long, slender tube; both borders three* parted; inner resupinate. Anther double, naked. Capsule three-celled, three-valved. Seeds numerous, arilled* Embryo simple, and furnished with both perisperm and vitellus.

1. H. coronarium. Linn. sp. pi. ed. Willd. i. p. 10. König V» Retz. Obs. 3. 73.

Leaves lanceolate. Spikes compactly imbricated; *&egments of the cleft lip of the corol semi-lunar.

Gandsulium. Rumph. Amb. 5. t. 69. f. 3.

Goruk-natha of the Bengalees, also by them called Doo-lala-champa.

A native of various parts of Bengal and the neighbouring provinces. Flowers during the rains; and the seeds ripen in the early part of the cool season.

Root horizontal, perennial, round, fleshy, marked with annular cicatrices, about as thick as a man's thumb, fleshy, with fibrous ramifications issuing from the cicatrices; taste simply herbaceous. Stems erect, from three to four feet high, round, every where .covered with the sheaths of the leaves. Leaves sessile, alternate, bifarious, lanceolate, tapering to an evanescent point; above, a deep smooth green; below, striated, pale, and slightly covered with depressed, soft, white hairs; from nine to twelve inches long, and about two broad. Slieaths smooth on both sides, striated, terminating in a ligulated process, (as in many of the grasses) which is often two-parted. Spike terminal, solitary, erect, linear-oblong, about the size of the thumb, compactly imbricated with many large, oval, concave, green, common, permanent

bractes. Flowers large, pure white,* very fragrant, from two to four to each common bracte, but seldom more than one or two expand at the same time. Bractes; besides the common exterior ones, already mentioned, there are as many interior as there are flowers in the fascicle; the largest of which is about half the length of the common bracte, and envelopes not only the most forward (exterior) flower, but all those of the same fascicle, gradually diminishing in size; all have a sheathing jpase, are membranous, and striated. Calyx superior, one-leafed, a little inflated, contracted at the inouth, a little hairy, striated, half the length of the tube of the corol. *Corol* one-petalled. Tube long and slender, from the apex of the exterior bractes recurved. Border flat, double. Exterior three-parted; divisions equal, laijceolate, acute, membranaceous, striated. Interior resupinate, three-parted; lower two divisions obliquely oval, shortclawed; upper division broad, obcordate, banner-like, with the fissure deep, and the lobes roundish; margins waved; towards the base tinged yellow. Nectary (of Kcinig and Retzius) two short, fleshy, subulate bodies embracing the base of the style. Filament from the lower margin of the mouth of the tube, between the insertions of the inner border of the corol, ascending; upper side channelled for the style, and inserted into the anther a little above its base. Anther linear, sub-erect, two-lobed. Germ obsoletely threesided, three-celled, with many ovula in each, attached to the Style slender, in length sufficient to elevate the large, hairy, perforated, glandular, green stigma just about the apex of the anther. Capsule oblong, three-celled, threevalved, opening from the apex; inside orange coloured. Seeds many in each cell, invested in their proper, multifid, crimson aril. Integuments two. PeHsperm and vitellus

[•] A variety deeply tinged with yellow, is found in some of the interior provinces; .^d another of a pale yellow: all are equally fragrant.

together conform to the seed; the former occupies the lower and exterior portion; and the latter the upper and interior portion, and is in immédiate contact with the embryo. *Embryo* simple, subcylindric, nearly as long as the seed.

Obs. This, to me, is the most charming of all the plants of this natural order that I have yet nfet with; the great length of time it continues to throw out a profusion of large, beautiful, fragrant blossoms, makes it particularly desirable.

2. $H.Jlavum. R_m$

Leaves broad-lanceolar. Spikes terminal, imbricated. JBractes about four-flowered: interior two segments of the corol linear; lip obcordate, with apex deeply retuse.

~' A native of the vallies amongst the hills neariSilhet, where it is called Kattia-rityam by the natives. *Flowering* time the rainy season.

Root tuberous, like that of most other Scitaminea. Stems erect, two or three feet high, and rather stout. Leaves lanceolar, very fine pointed, smooth on both sides. **Sheatlis** smooth, with a very large, smooth membranaceous stipula rising far above the mouth. Spike terminal, solitary, erect, oblong, imbricated; from six to eight inches long. Flowers numerous, large, yellow, resembling those of H. coronarium, fragrant. JBractes; exterior between oval and oblong, rather obtuse, smooth, finely nerved, three or four-flowered, about two or two and half inches long and nearly one and a half broad. Interior, one to each flower, and much smaller. Calyx superior, nearly as long as the tube of the corol, membranaceous, inflated, obliquely two or three-toothed. Corol; tube slender, length of the exterior bractes, all the five proper segments of the border linear, the inner two more deeply coloured and obtuse. Lip or sixth segment, obcordate, deeply retuse, placed on the interior or upper side opposite to the filament. Filament linear, and together with the twolobed anther about as long as the lin! Germ hairy, threecelled, with numerous ovula in er ii, attached to the inner angle. Style length of the corol. Stigma large, and villous Capsule turbinate, size of an olive, smooth, when ripe yellow, three-celled, three-valved. Seeds a few, smooth, bright deep red, with a partial ragged aril of the same colour. Embryo simple, sub-lanceolate, furnished with both perisperm and vitellus.*

3. H. angustifolium. R.

Leaves linear-lanceolate. Spikes open; fascicles of flowers subtern, segments of the cleft lip oblong; the other five segments of the corol linear.

J2eng. Bhoo-ada.

Native of Chittagong, Silhet, and the eastern parts of Bengal, where it flowers about the beginning of the rains, in June.

Root tuberous, horizontal, jointed, &c. as in the other scitamineous plains. Stems erect, from three to six feet high, entirely invested in the sheaths of the leaves. Leaves bifarious, sessile on their smooth sheaths, narrow-lanceolate, very fine, I may say filiform, pointed, smooth on both sides; from ten to fourteen inches long, by one to two broad. Spike terminal, erect, rigid, from six to eighteen inches long, smooth. Fascicles of flowers generally three-fold, and spreading out considerably from the rachis. Bractes; exterior of the fascicle cylindrical, linear; interior one to each flower, and smaller. Flowers rather small, dull red (laterititis,) generally about

* In January 1816 I received roots of this most' charming species from Mr. Smith at Silhet, which produced blossoms in the Brftanic garden in October the following year. It differs from H. coronarium, in regard to its flowers, which are about one third smaller, having the inner segments of the corol linear clavate, the fissure of the lip narrow with straight sides, and its base contractinto a linear claw. They partake not only of the yellow colour of those of Michelia champaca, but possess even the peculiar fragrance of the latter, only in a less powerful and therefore more grateful degree. In stature and leaves both species are alike.

four in the fascicle, and expanding in succession. Calyx superior, cylindric, length of the tube of the corol; mouth equally three-toothed. Corol; tube slender, cylindric, about an inch long; five segments of the border linear (sub-filiform,) variously revolute. Lip lateral, with linear, channelled and two-parted lamina; the segments thereof semioval/ Filament opposite to the lip, and twice its length, nearly straight, filiform, grooved for the style. Anther two-lobed, naked. Germ oval, a little hairy, three-celled, with many ovula in each, attached to the axis. Style filiform, its base embraced by* the usual two subulate bodies. Stigma funnel-form, projecting from the apex of the anther.

Notwithstanding the opinion which the distinguished Botanist Edwards (in his *Bot. Regist.*) has expressed, I am led to suspect that H. *coccineum* of Sir J. Smith (*Ree&& new Cyclopaedia*, in loco) is a distinct species, of which I have examined the original drawing, left by m^inestimable friend and predecessor, Dr. F. Buchanan at the Botanic garden at Calcutta.

4. H. gracile. R_m

Leaves lanceolar. Spikes terminal, open; Jiowers solitary scattered; segments of the bifid, sessile lip, semi-lanceolar, the other five segments of the corol linear.

Khasee name, Kattia Laphya.

Obs. This is a slender species, about three feet in height, a native of the mountains on the North-East border of ^engal. Like the preceding two species it flowers in the rainy season. Its solitary-flowered spike of white corols with their scarlet filament, and its lanceolar leaves, distinguish it from H. angustifoKum.

KMMPFERIA. Linn, gen.pl ed. Sckreb. No. 9.

Corolla with a long, slender tube, and both borders three-parted. Ant Jter double, with a two-lobed crest Capsule three-celled, many-seeded.

1. K. Galanga. Linn. sp.pl. ed. Willd. 1. 15.

Leaves sessile, round-ovate-cordate. Spikes central. Upper segments of the inner border of the corol oval:

Katsjula Kelengu. Rheed. JUal. 1L, p. 81. t. 41.

Alpinia sessilis. Kön. in Retz. Obs. 3. p. 62.

Soncorus. Rumph. Jlmb. 5. p. 173. t. 69.y. 2.

Sans. Chttndro-moolika.

A native of various parts of India, and common in gardens also. Flowering time the rainy season.

Root biennial, tuberous, with fleshy fibres from the tubes. Leaves radical, petioled, spreading flat on the Stem none. surface of the earth, round-ovate-cordate, between acute and obtuse; margins membranaceous, and waved; upper surface smooth, deep green; below taper and somewhat woolly; streaked lengthways with ten or twelve slender lines. tioles hid in the earth; in short they are only cylindric sheaths embracing those within, and the fascicle of flowers, their mouths being crowned with a membranaceous process. Flowers collected in small fascicles, from six to twelve, within the sheaths of the leaves, expanding in succession; pure, pellucid white, except a purple spot on the centre of each of the divisions of the inner border, or lip. Bractes three to each flower; a larger exterior; and two within at the sides; all are linear, acute,, membranaceous, and half the length of Calyx length of the bractes. Corol; the tube of the corol. tube long, filiform; border double, both three-parted. Exterior divisions linear, acute; interior, upper two divisions ovate, erect; under one expanding, two-parted, with lobes bifid. Filament short, apex two-parted, and recurved. Anther replete with white pollen, crowned with a bidentate crest, or continuation of the filament above the anther. *Stiffma* funnel-shaped. *Nectarial* filaments of KSnig two, filiform, erect, pretty long, embracing the lower part of the style. *Pericarp*; I never saw it ripen.

Obs. The roots possess an agreeable, fragrant smell, and somewhat warm, bitterish, aromatic taste; the Hindoos use them not only as a perfume, but also medicinally. They are unknown to our best judges in London.

2. K. rotunda. Linn, sp.pl. erf. Willd. 1. 15.

Leaves oblong, coloured. Spike radical, appearing before the leaves. Upper segment of the inner border of the corol lanceolar, and acute.

Malan-Kua. Rhced. Mai. 11. p. 17. t. 9.

Sans. Bhoo-chttmpttca. See Asiat. Res. iv. 242.

· Benff.' and Hind. Bhooi-champa or Bhoo-champa.

This elegant plant is very generally found cultivated in gardens on account of the beauty and fragrance of its flowers, and though no doubt a native of various parts of India, yet I cannot say where it is indigenous. Flowering time in our gardens March and April, at which period the plant is totally destitute of leaves.

Hoot biennial, tuberous. Stem none. Leaves radical, petioled, oblong, waved, smooth, generally coloured underneath; about a foot long in a good soil, and from four to six inches broad. Petioles sheathing, united into a short stem, as in Curcuma. Scapes just sufficient to elevate the flowers above the earth, embraced by a few common sheaths, of a greenish purple colour. Flowers sessile, from four to six to the scape, or spike, very large, fragrant; colour of various shades of purple, and white. Bractes two to each flower, surrounding the base of the germ; the inner one has its apex two-parted; the exterior, or longest is here only about half the length of the calyx. Calyx above, one-leaved, as long dfi the tube of the corol, 'somewhat gibbous; apex generally two-toothed, and of a dotted, purplish colour. Corol; tube

s.->ng, slender, cylindric, nearly erect, obliquely funnel-shaped towards the mouth; border double, both three-parted. .Exterior divisions drooping, linear, with margins involute, Interior border, the two uppermost divisions pure white. erect, lanceolar, acute; colour also white, with the margins slightly tinged with purple; the remaining inferior one is divided into two broad, obcordate, deflected lobes, of a deep purple colour, particularly towards the centre, and base. Nectarial filaments of Konig as in K. Gafagga. filament short, erect, broad, inserted on the base of the uppermost two interior divisions of the corol. Anther linear, and enlarged with an ovate, two-forked, coloured, somewhat recurved crest. Germ ovate. Style filiform. Stigma funnelshaped.

Obs. Woodville observes, at page 362 of his Medical Jiotany, that the roots of Zedoaria longa, and rotunda are both produced by the same species of plant, and are indiscriminately used in the shops: the former, he says, are brought to us in oblong pieces, about the thickness of the little finger; two or three inches in length, bent, rough, and angular; the latter are roundish, about an inch in diameter, of an ash colour on the outside, and white within. I have never met with any of the roots of this plant that agree with his description of the long sort, and they are too small for the round; so that I must conclude they are the produce of some other plant: at the same time Dr. Woodville's observations on the same page, give me reason to think my Curcuma Zedoaria may be the plant, which yields this round sort of Zedoaria.

3. K. angustffolia. R.

Leaves radical, linear-lanceolate, waved. Spikes hid in the centre of the leaves. Upper two segments of the inner border of the corol linear, oblong, obtuse.

Hind. Kvnjan-bo*ra, also Mada nirhisha.

A native of Bengal. Flowering time the rainy season.

Root biennial, tuberous, with numerous ramous fibre Leaves radical, numerous from every part. Stems none. sessile, linear-lanceolate, keeled; margins entire, and much waved; striated lengthways, with darker and lighter coloured green, smooth in every part; from six to eight inches long, and about one broad. Spikes hid in the centre of the leaves, bearing from four to six large, beautiful flowers in succession. Bractes two or three to each flower; one or two interior embrace the germ laterally, the exterior one is larger, all much pointed, and of nearly the same length. Calvx superior, one-leaved, half the length of the tube of the corol, opening obliquely, (spathe-like,) near the apex, which is a single acute point. Corot; tube very long, and slender, elevating the border about two inches above the earth; border double, &c. as in K. rotunda. Nectarial filaments of Konig, stamens, and pistil as in the last quoted species.

Obs. The root is used as a medicine for cattle, by the people of Bengal.

4. K. pandurata. R.

Leaves petioled, broad-lanceolate, smooth. Spike central. Corol, with the upper segments of the inner border obovate, the inferior one much larger, and panduriform.

Zerumbet *claviculatum*. *Rumph.Amb*. 5. p. 172. t. 69. f. 1; and I could almost wish to quote Manja-kua, *Rheed*. *JtfaL* 11. p. 19. t. ii. although referred to already by Linnaeus for *Curcuma rotunda*^ a plant I have never met with, if this be not it.

From Sumatra, this beautiful plant was sent by Dr. Charles Campbell to the Botanic garden at Calcutta, where it blossoms during the rains, chiefly in August.

Root perennial, tuberous like ginger, but of a tolerably bright yellow colour; from this, straight, slender, fusiform, paler coloured portions descend deep into the soil. Stems scarcely any; height of the plant about a foot and a half, Leaves bifurious, petioled, oblong, acute, smooth; deeper

green on the upper surface; veins parallel, and pretty conspicuous, from six to twelve inches long. Petioles above the bifid lig*ula, deeply channelled, and from two to six or eight inches long; the lower portion sheathing, and forming something like a stem. Spike hid in the centre of the sheaths of the leaves, unilateral, being imbricated on one side, (say the anterior,) with many, sessile, slender, lanceolate, colourless, oneflowered pairs of (exterior and interior) scales or bractes. Flowers pretty large, expanding in succession, and rarely more than one at a time. Calyx superior, membranaceous, Corol; tube long, and slender. irregularly three-toothed. Border double; exterior of three, slender, lanceolate, nearly equal, straight, pale pink-coloured segments; inner of three unequal portions; the two superior, or lateral, obovate, the colour and length of the exterior tliree: the lower, or lip, somewhat panduriform, much broader and longer than the former, and of a much deeper colour. Filament very slen-Anther two-lobed, and crowned with an emarginate, Germ three-celled, each cell containing recurved helmet. many ovula, attached to the axis. Stigma large, with a seniilunate opening, which has the straight portion of its margin three-toothed, and the Remi-circular one even, Nectarial scales long and slender.

5. K. ovalifolia. Roxb.

Leaves oval. Spikes central, crest of anthers laciniate.

A native of the peninsula of Malacca, and from thence sent, by Major Farquhar, to* the Botanic garden at Calcutta, where it blossoms in July. It is an intermediate species, both with respect to size and habit, between K. *Galanga* and *rotunda*, and ought to be placed between them in the system.

Root tuberous, as in the other species, and about biennial. Stems very short; I may say scarcely any. Leaves few, bifarious, patent, oval, with a short acute point, smooth on both sides, about six inches long, by four broad. Spikes central, hid by the short sheaths of the leaves, few-flowered; the flow-



ers expand in succession, all pure white except the purple lip. *Corol* nearly as in *rotunda* anil *anr/ustifblia*, the upper two segments of the inner border are obtusely lanceolate, as in the latter: the *lip* or *nWttarium* of a deep variegated purple colour, the shape cuneate-obcordate, and divided from the apex nearly half the length-into two long-cinarginate lobes. *Filament* short. *Anther* two-lobed, and crowned with a large, laciniate, erect, white crest. *Germ* three-celled, &c. as in the genus.

CURCUMA. Linn. gen. pi. ed. Schreb. No. 8.

Corolla with both borders three-parted. Anther double, base bicalcarate. Capsule three-celled; seed numerous, ariU led. Embryo simple, and furnished with both perisperm and vitellus.

SECT. I. Spikes lateral.

1. C. Zerumbet. Roxb. Ind. pi. 3. N. 201.

Bulbs and palmate tubers pale straw-coloured throughout. Leaves green, petioled, broad-lanceolar, a dark purple cloud down the middle. Flowers shorter than iheir bractes.

Sans. Shtttee, Gftndha-moolee, Shttd-grtmthh&a, Kwrvoora, Kwrchoora, and Pfdasha.

Hin4* and Teling. Kwchoora.

JBengx Shtithce, Kuchoora.

Per*. Zeruiubad.

Kua. Rheed. Mai. vol. U.p. 13. /. 7.

Zerumbed. Rnmph. Amb. 5. p. 168. t. 68.

Amomum Zervmbeth. Kim. in Retz. Obs. 3.55.

Zerumbet, or Cachora of Garcia*.

· ii'^Xhe plants from which the following description was taken, Were sent by Dr. F. Buchanan, from Chittagono-, where they are indigenous, to the Botanic garden at Calcutta, in 1798, where they grow freely, and blossom i_n i^g month of April*

Others have since been procured from thence under the Bengalee name Kwthoora. From that place the native druggists in Calcutta, are chiefly supplied with the root or drug.

Root consists, as in all the other species of this genus, of ovate bulbs, giving support to the parts above ground; from their opposite sides spring the palmate tubers; these two sorts are inwardly of a pale yellow, or straw colour, and possess an agreeable camphoraceous smell, and warm bitterish, spicy taste. From the bulbs chiefly, the proper fibrous roots issue: some of these are thicker than others, penetrate deeper into the soil, and end in an oblong, pearl-coloured, solid tuber; which is more spongy and less fragrant when cut, than the bulbs and palmate tubers. Stems no other than the united sheaths of the leaves, surrounded by two or three obtuse, smooth, green, faintly striated, appressed scales. Height of the whole plant about three feet, or three and a Leaves from four to six together, sub-bifarious; in general a pretty long, somewhat winged petiole intervenes between each and its stem-forming base. The leaf itself is broad-lanceolar, fine-pointed, and smooth on both sides; constantly a dark purple cloud runs down the centre; veins numerous, fine and parallel; from one to two feet long. Scape rises distinct from the leafy stems, and rather before or with them, stout, from five to six inches long, and surrounded with a few, obtuse, lax, green sheaths, of various length. Spike tufted, from four to five inches long, (so that *te apex is elevated nearly a foot above the surface of the eaith.) covered with imbricated, oblong, concave bractes, connected by the lower half of their inner margins to the backs of those immediately above, forming as many sacks, or pouches ag there are bractes; the lower half of these are broad, shorter; scarcely tinged with red, containing each about three or four beautiful, yellow, sessile flowers, which expand in success[^] allei nr_e embraced laterally by their own proper, smaller, abort, colourless bractes. The superior half of the large coloureci ones, which form the tufts, are generally sterile, and of a deeper crimson, or purple colour, than those which contain flowers. Calyx superior; scarcely one-third the length of the corol, irregularly three-toothed, Corol funnel-shaped. Tube a little curved. pellucid. Border double; exterior three-parted, the two lateral segments equal: the third or upper one vaulted and crowned with a subulate point; colour a very faint yellow. Interior three-parted; lower segment, or. lip, broad, deep vellow^ projecting, recurved, bifid; upper or lateral segments obovate, equal, pale yellow, nearly as long as the lip. Filament short. Anther double, the lower end of each lobe terminating in a long, sharp, subulate spur. Germ beneath, hairy, three-celled, with many ovula in each, attached to the inner angle of the cell. Style slender at the base, embraced by the two nectarial filaments. Stigma two-lobed, crowning the anther. Capsule oval, smooth, of a pale straw-colour, thin and nearly pellucid; three-celled, but without any regular division into valves: when the seeds are ripe the elasticity of the segments of the arils bursts the vertex into various portions, from whence the seeds are soon expelled. Seeds several in each cell, arilled; shape various, but the most prevailing is oblong. Aril cut to the very base into several slender, unequal, white, fleshy segments, which are united to the seed round the umbilicus. Integuments two; exterior spongy, with highly polished slippery, light brown surface; interior membranaceous. Perisperm 'pure white, hard but friable, and occupies the lower half of the seed. Vitellus clearer, but less white and of a tougher consistence than the albumen; it forms or occupies the upper half of the Embryo nearly as long as the seed, tending to be clavate, both ends truncate, the upper half lodged in the vitellus, and the lower in the albumen, or perisperm,

Obs. The dry root powdered and mixed with the powdered wood of the C&salpinia Sappan makes the red powder called Abeer by the Hindoos, and Phag by the Bengalees. It is copiously thrown about by the natives during the Hooli,

or Hindoo holidays in the month of March. The root is also used medicinally amongst the natives.

In 1805, I gave some of the sliced and dried bulbous, and plamate tuberous roots of this plant to Sir Joseph Banks, which he gave to Dr. Comb, who found that it was the real Zedoaria of our JWateria Medica, and by the same means ascertained that the root of my Curcuma Zedoaria, is Zedoaria rotunda of the shops.

2. C. Zedoaria, R.

Bulbs small, and, with the long palmate tubers, inwardly yellow. Leaves broad-lanceolar, sessile on their sheaths, cericeous underneath; the whole plant of a uniform green.

Amomum Zedoaria. Linn. sp. plant, ed. Willd. i. p. 7.

San*. V?/na-h*mdra, Sholee, Vtmarista, Shoh'ka.

Seng. Junglee, or Ban Httldi, (wild turmeric*)

Arab. Jedwar, or Zadwar.

This beautiful species is a native, not only of Bengal, (and common in gardens about Calcutta,) but is also a native of China, and various other parts of Asia, and the Asiatic islands. Flowering time the hot season, the leaves appear about the same period, or rather after; for it is not uncommon to find the beautiful, large, rosy, tufted spikes rising from the naked earth before a single leaf is to be seen.

Root biennial, tuberous, &c as in the last, and inwardly of a pretty deep yellow colour, approaching to that of turmeric. Stem no other than the sheaths of the leaves. Leaves petioled, broad-lanceolar, entire, underneath covered with soft cericeous down, which is particularly conspicuous whem the leaves are dry. The scape rises distinct from the leaves during the dry season, and often not only at some distance, but also sometime before them; it is round, as thick as a man's fore finger; a few inches long, and embraced by its own short, proper, green sheaths. Spike from six to twelve inches long, &c. exactly as in*the last species* Uractes and calyx as in the before-mentioned species. Corol one-

pelalled; at the base tubular. Tube short, widening a little; its mouth shut with fine yellow pubescent glands; throat ample. Border double; exterior of three'pale pink-coloured, erect, oblong division*; the upper one more pointed, and incumbent over the anther and part of the two upper divisions of the inner border. Interior somewhat riugent, three-parted, fleshy, yellow; the lower lobe or lip longest, obovate, entire, projecting with a crown and erect margin, while a broad elevation of a deep yellow colour runs along its middle; upper two divisions obovate, and with the upper segment of the exterior border, forming a complete covering or dome over the anther. Filament short, inserted between the two upper divisions of the inner border of the corol. Anther two-lobed, each ending in a long, sharp spur at the base. Germ inferior, &c. as in the last. Style filiform. Stigma three-Iobed, with a perforation in the centre.

Obs. The plant when in flower is highly ornamental, few surpassing it in beauty; at the same time it possesses a considerable degree of delicate aromitic fragTance.

Dr. Woodville's observation and quotations, at page 362 of his *Medical Botany*-, induce me to think that the roots of this plant are not only the longer species of the *Zedoaria* found in the shops; but also the shorter or roundish, their form and size depending on the manner in which they may have been cut for drying: and I have lately learned from Sir J. Bank's, that the dried root of this species agrees well with *Zedoaria rotunda*.

The Hindoos use the roots as a perfume, and also medicinally; they are sold in their shops, under the Arabic name *Judicar*, or the Bengalee one of *Bun Hnldi*. When fresh as well as when dry, they are of a pale yellow colour; and possess at all times an agreeable fragrant smell, and warm, bitterifeh, aromatic taste; whereas the roots of *Kcempferia rotunda* possess little or nothing *of* these sensible qualities, and are withal too rare in every patt of India, where I have been, *to*

allow me to think, any quantity of them can ever be collected for exportation.

3. C. zanthorrhiza. R.

Bulbs ovate, with both plamate and pendulous tubers deep 'yellow. Leaves sessile on their gTeen sheaths, broad lanceolar, a permanent purple cloud down the middle.

From Amboyna, this remarkable species was brought to the Botanic garden at Calcutta, in the year 1798, and only flowered for the first time in April and May, 1810. It is the only kind I have yet met frith, which has its pendulous tubers inwardly of a deep yellow colour, like that of the bulb and palmate tubers. The *sheaths* of the scapes nnd leaves are green. The *coma* large, and of a deep purple, or crimson colour. *Exterior border* of the corol red. *Leaves* broad-lanceolar and oblong; there is a narrow purple cloud down the middle of them, which penetrates to the under side; the whole-height about four feet.

4. C. elata. R.

Bulbs oblong, obovate, and with the numerous, large, incuTvate, palmate tubers, inwardly of a pale yellow. Leaves sessile on their sheaths, oblong, villous underneath; the whole of an uniform streen.

A native of Bunna, and from thence introduced by Dr. W. Carey, into the Botanic garden at Calcutta, where it flowers in March and April.

A full description of this species is unnecessary, as it resembles the other epecies already described, in every respect, except, in such as are pointed out in the definition, viz. its imniepsely large and numerous *bulbs* and *tubers*, which are inwardly of a pale yellow colour; the latter run very near the surface of the ground, and are much incurved. The *pendulous tubers*, as in every other species, except C. *zanthor-rhvta*, are inwardly pearl-colourefle every part above ground is of a uniform green, the spikes excepted. The *leaves* ap-

pear when the flowers begin to decay, and are larger than in any other species 1 have yet seen; being from two to three, or even four feet long, by one broad, and villous underneath; the whole height is about six feet. The *spikes* are large, with a deep rosy, or even crimson coma. Its external appearance resembles most C. *Zedoaria*, the roots however differ much, independent of their size. This plant is altogether a larger species than that.

5. C. cassia. R.

Bulbs ovate, and with the palmate tubers inwardly bluish. Leaves lanceolar, petioled; a deep ferruginous purple cloud down the middle, which penetrates to the under surface; every other part green.

Beng. Neel-kwnt'ha, or Kala Hwldi.

Tommon-itam. Humph. Amb. 5. p. 169.

This elegant, strongly marked species is a native of Bengal, where it blossoms in May, while the greatest heat prevails, just before the periodical rains begin: about the same time the leaves begin to appear. In the deep ferruginous* purple cloud down the middle of the leaves, it resembles C. Zerumbet, but differs widely in the colour of the root. *

Bulbs ovate. Palmate tubers many, and generally simple; these and the bulbs are inwardly pale blue, verging towards grey, (cesius of Willdenow's scale,)-in some the blue is pretty deep. Pendulous tubers ovate, oblong, inwardly of a pale watery pearl-colour, and less fragant than in the former two species. This indeed is the case with all the other species I have examined. Leaves bifarious, petioled, lanceolar, smooth on both sides, a deep ferruginous cloud runs the whole length of the rib, and penetrates through to the underside; every other part, petioles, and their sheaths, of a clear deep green colour; about eighteen inches long, by five broad. Petiole^and their sheaths together, about as long as the leaves, making the whole height of the plant about four feet. -Spikes lateral, appearing with, or rather

before the leaves, about as long as their scapes, together about a foot long. *Scales*, lower fertile; *bractes* green, with a ferruginous tinge. *Coma* deep bright red, tending to crimson. *Corol; exterior* border red; *inner* yellow*

6. C. aruffinosa. R.

Bulbs ovate, and with the numerous palmate tubers, in* wardly seruginous. Leaves petioled, broad-lanceolar, smooth, above the middle a faint ferruginous, evanescent cloud on the upper surface only; every other part green.

A very stately species, introduced from Burma by the Rev. Dr. W. Carey, into Bengal, where it blossoms in May, immediately after which the leaves begin.to appear. tii^uished from all our other Curcumas by the internal eeruginous, or verdigrease-like colour of its ovate bulbs, and its short thick palmate tubers; while the oval pendulous tubers, with which it abounds, are inwardly of a clear pale pearl colour. The comose lateral *spike* is in this, as it is in the other The *exterior* border of the *corol* is rose-coloured: species. the interior deep yellow. The leaves are broad-lanceolar, of a firm texture, and smooth on both sides; from two to three feet long, and from six to nine inches broad. *Petioles* and their sheathing portions together from two to three feet long; which gives to the whole plant a height of from four to six feet.

7. CJerruginea. R.

Bulbs and palmate tubers copious, inwardly pale yellow. Sheaths of the scapes, and leaves ferruginous-red, with a faint mark of the sSme colour on the middle of the upper surface of the leaves.

A native of Bengal. Flowers i» April and May. By attending to the pale yellow very fragrant roots, and to the rusty reddish sheaths of the scapes and leaves, this species will be readily known. The *leavS*, as in most of the others, are broad-lanceolar, (that is, they taper equally towaVd each

end,) including the sheaths and petioles, they are four feet high, or more; a very faint ferruginous tinge runs down the middle, which is very conspicuous in those that appear first in the season; whereas it is scarcely to be observed in the latter. The *flowers* are large, few in number, with the *exterior* border red, and the *interior* deep yellow. The *bractes* to the fertile part of the spike ferruginous, those of the *coma* few, and of a pretty bright crimson colour.

8. C. rubescens. R.

JBulbs ovate-lanceolate, and with the palmate tubers inwardly pearl-coloured. Leaves broad lanceolate, on red wing* ed petioles, above the sheaths; rib red. Scape and scales red. Flowers longer than their bracte s.

A native of Bengal, Flowering time the months of April and May, soon after which the leaves appear; and decay about the beginning of the cool season,*1 in November. Every part has a strong, but pleasant aromatic smell when bruised, particularly the root.

Root of several, erect, solid, conical, pale straw or pearlcoloured, powerfully aromatic bulbs, which gave support to the former years foliage, and are strongly marked with the circular scars thereof; from their opposite sides, the scapes and stems of the succeeding year spring, which form similar new bulbs when those of the former year decay; but during their existence, there issues round their lower half, a number of strong fleshy fibers, many of which end in ovate or sub-cylindrical, pale white, slightly aromatic tubers, which also perish with the original parent bulb. in the other species, no other than the united sheaths of the leaves, which like them, decay annually about the month of October, and appear again when the flowers begin to perish In April. Leaves hilarious, (six or eight of them forming the above-mentioned stems, of about three or four feet in height, leaves included,) petioled on their sheathing base, broad-lanceolate, cuspidate, smooth, strongly marked with

parallel veins; of an uniform dark-green, with the nerves or ribs red, from twelve to twenty-four inches long, by five or six broad. Petioles and sheaths channelled, smooth, and of a deep red colour; a projecting process on the inside marks, in all this natural order, the limit of the sheath, and the beginning of the petiole. Scape radical, lateral, cylindric, about six inches long, invested in several, dark reddish Spike tufted, five or six inches long, erect. Coma sheaths. less deeply coloured than in Zerumbet. Bractes, or scales of the spik[^] exactly as in the other species, each embracing four or five flowers, which expand in succession. small, bright yellow, rather longer than their bractes, fragrant. Tube of the corol slender, its mouth completely shut with three villous, yellow glands. JFrnit not seen in a ripe state.

Obs. The ovate oblong, pendulous tubers of several species of Curcuma, yield a very beautiful, pure starch, like the ^rrow-root9 produced from Maranta arundinacea and Tacca pinnatifida, which the natives of the countries where the plants grow, prepare and eat. In Travancore, where some of these species abound, this flour, or starch, forms, I am told, a large part of the diet of the inhabitants. My G. angu&țifolia is another species which yields the same substance; and I have no doubt but the pendulous tubers of this species yield it also, and equally good.

Since writing the above, I have received from Chittagong, Bhagulpore, and Mirzapore, plants of three other sorts, all employed for the same purpose.

9. C. comosa. /?.

Bulbs large, oval, inwardly pale ochraceous. Spikes clavate fertile bractes of a pale pink colour; coma copious and rosy. Leaves broad-lanceolar; a faint ferrnginous cloud above the middle of the earliest ones; 'very other part green,

A native of Burma. From Rangoon Mr. Felix Carey sent plants to the Botanic garden at Calcutta, where they thrive well, and blossom in May, at which time it is by ar the most beautiful, and the largest of the genus, I have yet seen.

Bulbs very large, oval, inwardly of a pale ochraeous colour. Palmate tubers scarcely any. Pendulous tubers Ianceolar, and connected to the bulb by uncommonly long, thick, fibrous cords. Leaves bifarious, petioled on their sheaths, Janceolar, smooth, and green in every part, except in those which appear first in the season, which have a faint ferruginous cloud on the centre of the upper surface beyond the middle; from two to three feet long; the petioles with their sheathing bases measuring about as much more, making the whole height of the plant five or six feet. Spikes lateral, appearing rather before the leaves, short-scaped, large, clavate. Fertile bractes of a beautiful pale pink. Barren ones of the coma a deep, lively, rosy red; on account of the beauty and size of this part, I have given it the trivial name comosa. Corol with the exterior border pink; inner pale yellow.

10. C. leucorrhiza. R.

Bulbs ovate; plamate tubers long and far-spreading, like the former they are inwardly of a pale straw colour. Leaves petioled, broad-lanceolar, smooth, of an uniform green in every part. Spikes few-flowered, with a coma as long as the fertile portion.

A native of the forests of Bahar. From Bhagjulpore Mr. John Glass, the surgeon of that station, sent roots to this garden, under the name *Tikoir;'* and observed that the plant is not cultivated, but grows in the jungles, to the southward of that plagg. The process, he says, for obtaining the starchy substance called Tikor, is as follows: "The root is dug up, and rubbed on a stone, or beat in a mortar, and afterwards rubbed in water with the hand, and strained through a cloth; the fecula having subsided, the water is poured *off*, and the Tikor, (fecula,) dried for use."

Tliis plant grows freely in the Botanic garden, and flowers in May. Here the *palmate*, or *horizontal tubers*, are particularly straight, and often near a foot long*: they run deep in the earth, and far. Their inward colour, as well as that of the bulbs, is a very pale ochraceous yellow, almost pure white. Pendulous tubers numerous, oblong-, inwardly pearl white. Leaves broad-lanceolar, uniformly green, about two feet long; whole height of the plant from three to four feet. Spikes lateral, the inferior fertile portion not longer than the rosy coma. Flotoers the length of the bractes: exterior border slightly tinged with pink; inner yellow. In the structure of the fruit it agrees perfectly with that of C. Zerumbet.

11. C. qugustifolia. R.

Bulb oblong, with pale, oblong, pendulous tubers only. Leaves petioled, narrow-lanceolar. Flowers longer than the bractes.

Tikor of the Hindoos.

Found by H. T. Colebrooke, Esq. in die forests from the banks of the Sona to Nagpore, and by him introduced into the Botanic garden at Calcutta, where it blossoms in July. The leaves make their appearance at the same time with those of the other species, and decay about the beginning of the cool season, in November.

Root, from a fusiform biennial crown issue many fleshy fibres, which end in smooth, oval, succulent tubers. Stem, consisting of a few pale-coloured, leafless, surrounding sheaths. Leaves petioled, narrow-lanceolar, most acute, striated with fine parallel veins, smooth on'both sides; from one to three feet long, (petiole and sheath included,) which is in fact the whole height of the plant. Petioles from six to^twelve inches long, the lower. half or more of which, expands into a sheath to embrace those within; the upper half or proper petioles slender, and channelled. Spike radical; from four to six inches long, separate from the leaves, crowned with a tuft of oval, lively purple, neuter bractes. Bractes covyion below the coloured neuter ones, ovate-cordate, obtuse, expanding recurvedly, each embracing three or four flowers, which open in

succession. .Bractesproper boat-shaped,embracftg the proper perianth, and germ of each flower. Flowers large, longer than their bractes, bright yellow, expanding at sunrise, and decaying at sunset of the same day. Calyx above, threetoothed, somewhat inflated. Corol; tube somewhat gibbous, contracted at the mouth, and there shut with short hairs; throat campanulate; exterior border pale-yellow, consisting of one large, vaulted, upper segment, and two lower, oblong, smaller, concave ones; inner border three-parted; lower segment or lip with its exterior part sub-orbicular emarsinate, or bifid; upper segments obovate, cuneate, with the filament, or short antheriferous segment, between them. Anther as in the genus, double, with a spur from the lower end of each lobe. Germ beneath, villous, three-celled, with many seeds in each. Style slender, at its insertion are (he usual two nectarial bodies. Stigma globular, gaping on the anterior side.

Obs. From the oval pendulous tubers, Mr. Colebrooke observes, a sort of *starch* or *Arrow-root-like Jecula* is prepared, which is sold in the markets of Benares, and is eaten by the natives.

SECT. II. Spikes central.

12. C. longa. Linn.sp. pi. ed. Willd. 1.14. Retz. 06s. 3.72. Bulbs small, and with the numerous, long, palmate tubers9 inwaidly of a deep orange yellow. Leaves long-petioled, broad-lanceolar, of an uniform green.

Amomum Curcuma. Gmelin. and Jacq. HorU Vind. 3. t_m 4. Manjella-kua. Rheed. Mai. \|.p. 21. t. 11.

Curcuma domestica major. *Rumph. Amb. b.p.* 162. *U* 37. Carcumaa of Avicenna.

Dar-zard of Garcias.

Sans. Hwr/dra, Hwldee, Peeta, Kanriwnee, Ntsha, Virrw-vitrm'nee, Ki^piglina, Yoshitpriya, Hurmlas/nee.

Hind, and Beng. H?/Idee, lluludee, Pit-ras.

Heb. Kurkum.

Arab. Urnkus-sufr, Urukus-saboghiu.

Teling. Pampee.

Pers. Zerd-chob.

Hulicd, or Hulu&ee. Mahrat.

Is much cultivated about Calcutta, and in all parts of Bengal. König's description published by Retzius, is so very exact and complete, that there is nothing left for me to add.

Cultivation.

The ground must be rich, friable, and so high as not to be overflowed during the rainy season, such as the Bengalees about Calcutta call Danga. It is often planted on land where sugar-cane grew the preceding year, and is deemed a meliorating crop. The soil must be well ploughed and cleared of weeds, &c. It is then raised in April and May, according as the rains begin to fall, into ridges, nine or ten inches high, and eighteen or twenty broad, with intervening trenches nine or ten inches broad. The cuttings or sets, viz. small portions of the fresh root, are planted on the tops of the ridges, at about eighteen inches, or two feet asunder. acre requires about from nine hundred such sets, and yields in December and January, about two thousand pounds weight of the fresh root.

13. $\langle 3. Amada. R.$

Bulbs conic, and with the palmate tubers, inwardly pale-yellow. Leaves long-petioled, broad lanceolate, smooth. Spikes scanty, few-flowered. The whole plant uniformly green.

. Amada of the Bengalees, which means *mango-ginger*, the fresh root possessing the peculiar smell of a grefcn mango. It is used medicinally by the natives. It is a native of Bengal. Flowering time the latter part of the rains.

Root consisting of horizontal, palmate, sessue tubers united to the sides of an ovate-conic bulb of the same colour, which

gives existence and support to the leaves, and'spike; from its sides and base long fleshy fibres issue, which penetrate deep into the soil; some of which end in oblong, paler (pendulous) tubers. Stems no other than the united sheaths of the leaves. Leaves radical, bifarious, petioled above their sheaths, ventricose, lanceolar, cuspidate, smooth on both sides; from six to eighteen inches long, by three to six broad; they decay about the end of October, and appear again with the first showers of April or May. The petioles I divide into two portions: the lower or sheathing part from six to twelve inches long; and the upper or proper petioles, from three to nine; the whole measuring in general, from one to two feet. Scape central, about six inches long, invested in several alternate sheaths. Spike shorter than the scape, cylindric, crowned with a tuft of loose, coloured, pale rosy, abortive bractes. Bractes oblong, imbricated, the lower half of their margins united to the backs of the two next above, forming a pouch, for a fascicle of four or five, rather small, yellow flowers, which expand in succession; these have each a proper bracte, which embraces the tube of the flower only, and may be called an inferior calyx. Calyx superior, unequally three-toothed. Corol with a slender tube; its mouth shut with three yellow hairy glands; faux sub-campanulate. Border double, both three-cleft, &c. as in the other species. Germ oval, hairy, three-celled, with several seeds in each attached to their central receptacles.

14. C. viridiflora. JR.

Bulbs oblong, and with the palmate tubers inwardly of a deep yellow. Leaves long-petioled, broad-lanceolar. The whole plant, (even the spike and coma,) uniformly green.

Taminon Siring seu Giri. Rumph. A nib. 5. 169.

A native of Sumatra, and the other eastern islands; from Bencoolen Dr. Charles Campbell sent plants to this garden, where they grow luxuriantly, and blossom in July and August.

Root consisting-, like that of the other species, of bulbs, and palmate, pendulous tubers \$\\$\$ aromatic, and bitter, and employed by the Malays of Sumatra to dye with. Leaves petioled, broad-lanceolar, smooth; from one to three feet long; the petioles,, and sheaths thereof about as long. Spike central, large. Bractes 9 even those of the coma, uniformly green; the latter only paler. Flowers small, very pale yellow*

15. C. montana. -Corom* pi. 2. JV. 151.

Bulbs conic, with pale-yellow palmate tubers. Leaves short, petioled, oblong. The whole plant uniformly green, except the rosy coma of the spike.

It grows in moist places, amongst the Circar mountains. Flowering time the rainy season.

Root perennial, consisting of conical bulbs enveloped in the remaining sheaths of the leaves, and also of horizontal tubers, as in ginger, &c. with large fleshy fibres from their Leaves radical, three or four-petioled, their petioles from eight to twelve inches long, enveloped in a few sheaths, forming something like a stem; the leaves themselves are oval, pointed, beautifully veined, smooth, from eight to twelve inches long, and from five to six broad. Spikes rise from the centre of the petioles; their peduncle is of their length, and involved in its proper sheaths. Bractes numerous; the inferior roundish, the superior oblong; the lower half of the base of the two inner are united to the margins of the next without, forming a sack, which contains from two to four flowers, each of which has a smaller wedge-formed membranaceous proper bracte. The coma or superior bractes large, waved, rose-coloured, and (generally) without flowers. Calyx as in the two former species. Tube of the corol widensomewhat campanulate; border double. three-parted; divisions equal, entire. Interior two-lipped; upper lip erect, three-cleft; under lip entire, roundish, border waved, and a little notched. Filament no other than the middle segment of the upper lip of the interior border of the

corol; anther two-lobed, linear, the under point of each lobe ending in a long sharp spur. Germ below. Base of the style embraced with the usual two nectarial bodies, which in this species are larger; stigma large, globular, two-lipped, somewhat marked.

16. C. reclinata. R.

Bulbs fusiform, with scarcely any palmate tubers, but many straw-coloured, oval, pendulous ones. Leaves petioled, oblong, reclinate.

Discovered by H. T. Colebrooke, Esq. in the interior parts of India, where it blossoms during the rains.

Root a bulbous head, from which descend many fleshy fibres, ending in large, smooth, oval tubers. Stem none, but the height of the whole plant (viz. the spike) is about sixinches; the leaves, being reclined, add nothing to its height. Leaves • radical (in the only plant at present in my possession, from which this description is taken); four in number, two on each side of the spike, embracing it closely, with the lower sheathing part of their petioles reclined, oblong, acute; margins slightly waved; smooth on both sides; length, exclusive of the petiole, about nine.inches, and about four or five broad. Petioles, including the sheathing base, from three to four inches long, deeply Channelled, and smooth. Spike from the centre of the lea yes, its short scape entirely hid by their sheaths, the rest loosely imbricated, with lainge, ovate, obtuse, expanded coloured bractes: the superior sterile, and more .deeply coloured as in the other species of this family; but here, and in no other that 1 have yet seen, are the whole deeply coloured. Flowers small, of a dull dark pink colour, except the lower segment of the inner border, which Calyx inflated, obscurely threeis tinged with yellow. toothed, scarcely half the length of the tube of the corol. Tube of the corol sub-cylindric; throat campanulate. The border, stamen, and pistil, as well as the nectarial scales of König, as in the other species, already described.

17, C. petiolata. /?.

Bulbs and palmate tubers few and small; inward colour pale yellow; tubers numerous, pendulous, on short fusiform fibres. Leaves long-petioled, oblong, ovate with the base rounded, (this is the only species known to me, in which they have this form.) The whole plant uniformly green, except the lilac-coloured coma of the spike,

A native of Pegu, and from thence sent by Mr. F. Carey to the Botanic garden at Calcutta, where it blossoms in August.

Obs. This species differs conspicuously from all my other *curcuma*.* in the cordate shape of the *leaves*. The spike is central, as in the other late flowering species, its *coma* small, and of a lilac colour; the *bractes* very perfectly united almost to the broad, reniform apex, forming uncommonly deep pouches for the small yellow $flowers_m$

AMOMUM. Sckreb. gen. plant N.3.

Corolla with the interior border unilabiate. Anther double, surmounted with an entire, or lobate crest. Capsule three-celled, three-valved. Seeds many, arilled. Embryo simple, and furnished with both perisperm and vitellus.

1. A. cardamomum, Linn, spec.pl. ed. Willd. 1. 8.

Leaves short-petioled, lanceolar. Spikes half immersed in the earth, loosely imbricated with villous, lanceolate., acute, one-flowered bractes. Lip with the anterior margin three-lobed. Crest three-lobed.

Cardamomum minus. Humph. Amb. p. 152. t. 65. f. 1. .

A native of Sumatra, and other islands to the eastward of the Bay of Bengal, and sent by Dr. Charles Campbell from Bencoolen to the Botanic garden at Calcutta, where it blossoms in April.

Root perennial, creeping under the surface of the soil, like that of ginger, but smaller, less fleshy, more ligneous, and

white; from which descend, and spread, many fleshy fibres. Stems about biennial, several rising obliquely to the height of from two to four feet, about as thick as a stout ratan, invested in the smooth, deep green sheaths of the leaves. ternate, bifarious, short-petioled on their smooth stem-clasping sheaths; from broad-lanceolate below, to narrow-lanceolate at top, entire and smooth on both sides; point long, and very fine; from six to twelve inches long. Spikes radical, sessile, oblong, appearing amongst the stems, half immersed in the earth, loosely imbricated with one-flowered, lanceolate, acute, villous, nervous, scariosc, ash-coloured bractes; when old their brittle tops are often broken off. Bractes; besides the exterior one-flowered ones, just mentioned, there is an inner, striated, downy, scariose, two-toothed, tubular one, (which I have sometimes considered an exterior and inferior calyx, and which Konig sometimes called an involucre,) inserted round the base of the germ. Flowers opening in succession, and not very conspicuous. Calyx clavate, tubular, downy, three-toothed, length of the tube of the corol. Tube of the corol, slender, and slightly incurved. Exterior border of three subequal pellucid divisions. JLip9 or inner border, rather longer than the exterior great border, somewhat threelobed, with acrenate, curled margin; middle lobe yellow, with two rosy lines leading up to it from the mouth of the tube. /** £lament scarcely half so long as the border of the corol, incurved over the mouth of the tube. There is a slender subulate horn on each side of the base of the filament, and nearly its length. Anther double, large, fleshy, with a large, three-lobed, concave crest; infundibuliform stigma rising through a deep groove between the two polleniferous lobes. Germ beneath, downy, and crowned with the two nectarial scales, within the base of the tube of the corol; in this species they are short, and truncated.

 Obs_m The seeds are to the taste agreeably aromatic, and are used by the Malays as a substitute for the true Cardamo-mum of Malabar.

2. A. angustifolium. Linn. spec. pi. ed. Willd. 1. p_m 8. Leaves broad-lanceolate. Spikes elevated, linear-oblong¹, compact; clavate bractes oblong, rather pointed. Lip obovate, cuneate, entire. Crest three-toothed.

Amomum angustifblium. Sonnerat. it. 2.J*. 137.

A native of Madagascar. From the island of Mauritius Captain Tennant brought plants thereof to the Botanic garden at Calcutta, in 1802, where they grow freely, and blossom at various times of the year. £ very part of the plant, when bruised, or wounded, diffuses a strong, but pleasant aromatic smell.

Root perennial, tuberous, horizontal; strong fleshy fibres, together with runners, issue from the crown, or bulb; by these runners the plant soon spreads, and by these it is easily multiplied. Stems numerous, straight, round, smooth, rising¹ to the height of from six to ten feet. Leaves alternate, bifarious, sub-sessile on their sheaths, broad-lanceolate, finepointed, smooth on both sides; from twelve to eighteen inches Ions*, and from about four to six broad. Sheaths embrace about three quarters of the stem, are smooth, and rise in an obtuse process, (ligula,) above the insertion of the leaves. Scapes from the bulb, or base* of the stem, where it unites with the root, rather slender, from six to twelve inches long¹, and closely imbricated with many, mucron&te, smooth, sheathing scales. Spikes linear-oblong, about the size of a man's thumb, imbricated with similar, but larger scales than those of the scape; the inner more deeply coloured. Flowers few, pretty large, and possessed of a strong spicy fragrance. JBractes; proper two to each flower, linear-oblong-, inserted round the base of the germ, like an inferior perianth. superior, deep blood red, smooth on both sides, slit twothirds on the outside, apex obscurely three-toothed. tube clavate, about as long: as the bractes. Exterior border red, consisting of one large, erect, oblong, concave segment, which protects the anther and stigma; and of two inferior, very narrow segments. Lip obovate-cuneate, entire, or slightly three-Iobed, yellow, and about as long as the exterior border. *Filament* broad, particularly toward the base, where it has a small coloured hornlet on each side. *Anther* double, surmounted with a large, three-toothed coronet. *Germ* clavate, obscurely three-sided, three-celled, with many ovula in each, attached to the partitions. *Stigma* funnel-shaped, somewhat bilabiate. *Nectarial bodies of König* are here larger, and longer than in the other species.

3* A. aeuleatum. R.

Leaves sub-sessile, cordate-lanceolate. Spikes obovate, lax, even with the ground. Lip oval, ventricose. Crest amply three-lobed. Capsules echinate.

A native of the Malay Archipelago. It was raised from seed sent to the Botanic garden at Calcutta by Mr. W. Roxburgh, in 1802, where the plasts blossom in April and May, and ripen their seed in October and November.

Root perennial, tuberous like ginger, with many, thick, fleshy fibres. Stems a little recurvate, the thickness of a walking cane, slightly pubescent; from five to ten feet high. Leaves alternate, bifarious, very short-pctioled, cordate-lanceolate, mucronate, smooth, dark green; generally from twelve to eighteen inches long, and from three to four inches broad. Sheaths half stem-clasping, villous on the outside. Ligula short, and of a semi-lunar shape. Scapes issuing from the base of the stem, under the surface of the ground, where it joins the root, diverging a little way under the surface of the earth, invested in oval, fleshy scales; those next to the spike longer, and more pointed. Spikes obovate, rising obliquely among, or near the stems, just so much as to elevate its flower-bearing apex above the surface of the earth. Flowers numerous, and expand in succession; prevailing colour deep orange, Bractes; exterior ^no-flowered, linear-oblong, length of the tube of the corol; inner tubula with two-toothed margin, and inserted round the base of the germ, like an inferior. perianth. Calyx above, tubular, two or three-toothed. Corol,

tube slightly incurved. Exterior border three-parted; seg~ meats unequal, erect, oblong, obtuse, the middle one larger, concave, and incumbent over the fissure of the inner border, together forming a campanulate tube. Lip sub-rotund, with crenulate, curled margin, and marked with, beautiful crimson spots down the middle, on the inside. Filament erect, with a hornlet on each side of its base. Anther two-lobed; lobes linear-oblong, and surmounted with a broad, three-lobed crest. Germ inferior, three-celled; with many ovula in each, attach-Stigma funnel-shaped. ed to the inner angle. Capsule the size of a large nutmeg, oval, (not sulcate as in K drag's Amovium or Globba crispa, Retz. 3. p. 50.) but thickly beset with numerous, stout prickles, three-celled, three-valved; valves fleshy (not nuciform as in Globba crispa> Rump. Jlmb. 6. p. 137). Partitions membranaceous. Seeds many in each cell, oval, smooth, brown; surrounded with a pale, gelatinous, sweetish-acid pulp or aril, intermixed with fine woolly filaments, and attached to a central receptacle by very slender cords, which are enveloped in the same gelatinous pulp which surrounded the seed. Perisperm white, cartilaginous. Vitellus nearly spherical, lodged about the middle of the perisperm, and of a clearer colour, and harder texture. $Em \sim$ bryo sub-cylindric, the inner end, or cotyledon, lodged in the vitellus, which in some seeds it passes entirely through. Radicle pointing directly to the umbilicus.

4. A. maximum. R.

Leaves petioled, lanceolar, villous underneath. Spikes oval, even with the earth. Bractes lanceolate. Lip elliptic. Coronet of one semi-hinar lobe. Capsules round, niiiewinged.

This plant is now growing in the Company's Botanic garden near Calcutta; it was introduced from the Malay islands by the late Colonel Kyd. Flowering time the hot season; the seeds ripen three or four months afterwards.

Root tuberous, as in ginger, but much larger, and with large, conical bulb-like bases to the oldest stems. nearly erect, round, and smooth; from six to eight or more feet high, invested in the smooth, long sheaths of the leaves. Leaves alternate,* petioled, lanceolar, and linear-lanceolar, acute, smooth above; villous underneath, with many large parallel veins; from two to three feet long, and about six inches broad; when dry the under side appears to be more closely covered, with most beautiful, soft, sericeous down, than while fresh. *Petioles*₉ the sheathing part long, between each petiole and its leaf there is a short, somewhat triangular portion, with a stipulary process, or ligula at the inside of its Spikes radical, short, their flower-bearing apex being only just above the earth; below the flowers it is covered with large, oval, concave scales. Bractes solitary, oneflowered, lanceolate, membranaceous, rather longer than the tubes of the flowers. Calyx tubular, a little gibbous, length of the tube of the corol; mouth three-toothed. Corol: tube funnel-shaped. Exterior border three-parted, as usual; but here they all converge upward into one helmet over the anther and stigma, as in the Orchideie.' Lip entire, expanding, oblong, marked with-a yellow stripe down the middle; margins waved, and crenulate. Filament short, from the mouth of the tube of the corol, opposite to its interior border, on each side of its insertion, is a small hornlet. Anther double, or two-lobed, and crowned with a beautiful, broad, semilunar crest. Nectarial bodies of König linear, fluted, and truncate. Germ short-pedicelled, striated, three-celled, with numerous ovula in each, attached to the inner angle, (axis.) Stigma funnel-shaped, but shut transversely, Style slender. except during anthesis. Capsule almost globular, size of a gooseberry, three-celled, three-valved, ornamented with nine, firm, short, ragged (when old and dry), membranaceous wings.

Obs. The seeds possess a warm, pungent, aromatic taste, not unlike that of *Cardamoms* but by no means so grateful.

5. A. dealbatum. R_m

Leaves broad-lanceolar, villous underneath. Spikes radical, .Bractes lanceolate, obtuse, (very perishable.) Exterior border vaulted. Lip round-oval. Crest of one, broad, truncated lobe. Capsules ovate-oblong, nine-wjnged.

A stately species, a native of Chittagong, and other countries which form the eastern frontier of Bengal: from the former it has been introduced into the Botanic garden near Calcutta, where it grows luxuriantly, and flowers freely during the months of March and April; and the seeds ripeii in September and October.

Roots perennial, tuberous, crooked, jointed, creeping, like common ginger, with strpng, fleshy fibres; inward colour of the tubers pale dull yellow, and when newly cut considerably aromatic. Stems numerous, erect in the centre, and oblique in the circumference of the clump, from three to five Leaves sub-bifarious, the lower sessile on their feet high. sheaths and oblong, the superior short-petioled and lanceolar; all are very villous, and paler underneath, length from six to twenty-four inches, breadth from three to six. Sheaths smooth, rising in a bifid ligula above the mouth. Spikes radical, roundish-obovate. Scape short and imbricated with scales, &c. Bractes from ovate to lanceolate, obtuse, very perishable, pale, one-flowered. In this species there is no inner bracte, like an interior calyx attached to the base of the germ, so general in F.lowers numerous, large, white. this natural order. superior, rather longer than the tube of the corol, three-cleft, and the bractes very perishable. Corol; tube short, the three exterior segments of the border form a vault over the anther, they are linear-oblong, and nearly equal. Lip broad-oval, emarginate; margins curled, white, with a little yellow in the centre. Filament frhort. Anther linear, crowned with an entire, broad, truncate, pure white crest. Germ short pedicelled, three-celled, &c. as in the genus. Capsules ovate-oblong, size of a nutmeg, nine-winged, three-celled, but I have not observed them separate into valves. Seeds many, shape various,

but oval and ovate affe most common. *Integuments* besides the aril, or its dried remains, a single, very hard, dark coloured, brittle one. *Perisperm* conform to the seed, white and cartilaginous. *Vitellus* lodged in the upper part of the perisperm, of a roundish shape, hard, sub-hyaline. *Embryo* subcylindric, its apex immersed in the vitellus, and its base at the umbilicus.

Obs. The seeds of this plant are insipid, whereas those of *Amomum maximum*, which is nearly allied to it, are aromatic, and pass for a sort of *Cardamom*.

6. A. subulatum. R.

Leaves lanceolar, smooth. Spikes ovate, echinated with the long subulate points of the bractes, calyx, and upper segment of the exterior border of the corol. Lip oblong.

A native of the lower range of mountains which skirt the plains of Bengal on the north, where it grows on the borders of the rills of water between the hills. Flowering time in the Botanic garden near Calcutta, March and April; and the seeds ripen during the rains.

Root tuberous, creeping at a small distance under the surface of the soil, &c. as in the genus, and amply furnished with numerous, strong fibres. Stems erect, about three or four feet high, and about as thick as the little finger. Leaves alternate, bifarious, sessile on their sheaths, narrow-lanceolar, fine* ly acuminate, deep green, and smooth on both sides; from twelve to fifteen inches long*, by three or four broad. Sheaths smooth, margins coloured and rising above the mouth into an emarginate ligula. Spikes radical, compact, a little elevated above the soil, obovate, size of a goose-egg, echinate with the long, subulate, pale vellow points of the bractes, inner, calyx and upper segments of the exterior border of the corol. Bractes numerous, the exterior imbricated upward, obovate, dark-red, smooth, long-subulate, pointed, one-flowered; t/ieinner, or inferior calyx, spathifonn, opening on one side. Flowers large, yellow. Calyx superior, three-cleft, segments

subulate, and much longer than the tube of the corol. *Corol;* exterior border of three nearly equal segments, the nipper one ends subulately. Lip oblong, often emarginate; margins a little curled, deeper yellow than the exterior segments. Filament flat. Anther two~lobed and crowned with an entire crest. Germ three-celled, with many ovula in each, attached to the thick partitions, a little removed from the axis. Style, stigma and nectarial scales of Konig as in the genus.

7. A. aromaticum. R.

Beng. Morung Elachi.

A native of the vallies on the eastern frontier of Bengal, where, as well as in the Botanic garden near Calcutta, it blossoms during the hot season, before the periodical rains begin; and the fruit ripens in September; the capsules are then carefully gathered by the natives, and sold to the druggists, who dispose of them for medicinal and other purpose, where such spices are wanted, under the name of *Morung elachi*, or *cardamon*; though the seed vessel of this species differs in form from all hitherto described sorts of this drug; however the seeds are similar in their shape and spicy flavour.

Root tuberous, running for a small extent at a small depth under the surface of the soil, &c. as in the order. Stems in tufts, erect, or more or less oblique according to their situation in the tuft, those in the centre being nearly erect, while on the outside they bend out considerably, all are covered with the sheaths of the leaves, general height two to three feet; duration from one to two years. Leaves bifarious, lanceolar, acuminate, smooth; from ten to twelve inches long, and from two to four broad. Spikes radical, imbricated, at first clavate, afterwards becoming roundish as the fruit advances. Scape from one to three inches long, hid under the surface of the earth, and embraced by numerous imbricated, sheathing scales. Flowers of a midding size, pale yellow. Bractes; exterior one-flowered, oblong, concave, smooth; interior•,

or inferior perianth, tubular, sheathing the germ, and lower half of the proper perianth. Calyx superior, cylindric, entire, or dentate, villous. Corol with a long, slender tube; segments of the exterior border sub-lanceolar, obtuse, the upper one somewhat vaulted over the stamina, and stigma. Lip nearly round, and undivided, tinged with red down the middle; no spurs, or projections between it and the base of Filament linear, incurved. Anther crowned the filament. with a three-lobed crest. Germ villous, three-celled, with many ovula in each, attached to the axis. Capsule ovate, size of a large nutmeg, rather fleshy; surface somewhat rugose, three-valved, three-celled. Seeds several in each cell; oval, and obovate are the most prevailing forms. Perisperm. conform to the seed. Vitellus nearly round, occupying a considerable portion of the upper part of the perisperm. Embryo clavate, length of the seed, its apex passing through the centre of the vitellus.

8. A. sericeum. /?.

Leaves lanceolar, sericeous underneath. 'Racemes radical, sub-globular, ramous. Lip obovate, base calcarate.

A native of the mountains on the north-east border of Bengal, where it is also called Dooi Kesha. It is a stately plant, with leaves about two feet long, and of the colour and appearance of highly polished silver underneath. inflorescence a completely compound, sub-globular raceme with the short, villous, branches thereof two or three-flowered, each flower pretty long-pedicelled and embraced during their early period with villous, oblong, membranaceous bractes, which soon perish; the calyx is more permanent, tubular, villous, and three-toothed. Flowers large, white, centre of the lip variegated with pink veins on a yellow ground; exterior border of three, nearly equal, oblong, white segments, the upper one ends subulately from an obtuse apex; two large spurs between the base of the lip and that of the rather long filament j anther of two linear lobes, crowned with a very large, curled, semi-lunar crest. *Germ* villous, nine-ribbedf three-celled, &c. as in the genus.. *Capsule* long, narrow, ovate-oblong, three-celled, three-valved, surface *even* and smooth, colour a brownish red, inside deeper and brighter. *Seeds* many, obovate, black, and pretty smooth, aril white and fleshy. *Embryo* simple, erect, length of the seed, and furnished with both perisperm and vitellus.

ZINGIBER.

Corolla with the interior border unilabiate. Anther double, crowned with a single, horn-shaped, curved beak. Capsule three-celled, three-valved. Seeds many, arilled. Embryo simple, and furnished with both perisperm and viteltus.

SECT. I. Spikės radical.

1. Z. officinal. Roscoe in Trans, of Linn. Sjpc. viii. 348.

Leaves sub-sessile, linear-lanceolate, smooth. Spikes elevated, oblong; bractes acute. Lip tliree-lobed.

Amomum Zingiber. Rinn. sp. pi. ed. Willd. 1. 6«

Scats. Ardr#k?/in, ShHngwverwra.

Arab. Zenjabil.

Deng, and Hind. Adraka, or Ada. The dry root Soontha. Teling. Allam.

Inschi, sel Inschi, kua. Rheed. Mai. 11. p. 21.1.12.

Zingiber majus. Rumph. Amb. 5. p. 156. t. 66. Jig. 1.

This plant is universally known, and cultivated over all the warmer parts of Asia; where to be found indigenous 1 know not. Flowering time the rainy season; but it is very rarely found in that state; nor have I ever met with the seeds.

Root tuberous, biennial. Stems erect, and oblique, invested in the smooth sheaths of the leaves; generally three or four feet high, and annual. Leaves sub-sessile on their

long, vagina ted sheaths, bifarious, linear-lanceolate, very smooth above, and nearly so underneath. A Sheaths smooth, crowned with a bifid stipulary ligula. Peduncles radical, solitary, a little removed from the stems, from six to twelve inches long, enveloped in a few obtuse sheaths, the uppermost of which sometimes end in tolerably long leaves* Spikes, oblong, the size of a man's thumb* Bractes; exterior imbricated, one-flowered, obovate; smooth, membranaceous-bordered, faintly striated lengthway; interior solitary, enveloping the germ, perianth, and the greater part of the tube of the corol. Flowers rather small, when compared with, the rest of this natural order. Calyx superior, oneleaved, opening* on one side, apex three-toothed. Corol with a double border; exterior of three, nearly equal, oblong segments. Lip three-lobed, and of a dark purple colour. Neetarial filaments of Konig large, subulate, fine-pointed. Anther oblong, double, crowned with a *Filament* short. long, curved, tapering, grooved hornlet. Germ oval, threecelled, with many ovula in each. Style filiform. funnel-shaped, ciliate, lodged just under the apex of the hornlet of the anther. This famous plant is too well known to require any further description.

2. Z. zerumbet. Roscoe in Trans, of Linn. Soc. viii. 348.

Stems declinate. Leaves bifarious, sessile, lanceolar. Spike long-peduncled, oval, compact, obtuse. Bractes broad-obovate, obtuse, margins coloured. Lip- three-lobed.

Amomuin Zerumbet. Linn. sp. pi. ed. Willd.]. 6.

Katou-Inschi Kua. Rheed. Mai. 11-p. 27. tab. 13.

Lampujum. Rnmph. Amb. 5. p. 148. tab. 64.* Jig. 1.

Zinziber spurium. Kön. in Retz. Obs. 3. 60.

Beng. Butch, or mahab?«ree-butch.

Found wild in the woods about Calcutta. Flowering time the rainy season, the seeds ripen in November and December.

Root biennial, tuberous, as in ginger, externally whitish; internally pale yellow, # and of a bitter aromatic taste.

Stems annual, oblique, about three or four feet high, completely invested in the sheaths of the leaves. Leaves bifarious, sessile, broad-lanceolate, entire, smooth, waved; veins numerous, slender, parallel; deep-green above, pale under* neath. Sheaths crowned with a large, broad, membranaceous, einarg'inate ligula. Peduncle solitary, a little removed from the steins, erect, from twelve to twenty-four inches long, enveloped in imbricated sheaths. Spikes oval, obtuse, or with a round excavation on their apex, about the size of a gooseegg¹. JBractes (or scales of the spike) the exterior one-flowered, imbricated, broad-obovate, obtuse, with a broad meicbranaceous border; interior (or proper) solitary, one-flowered, enveloping the germ, perianth, and most of the tube, of the corol. Flowers large, pale, of a sulphur colour. superior, one-leaved, sheathing the lower half of the tube of Corol; exterior border three-parted, &c. as in the genus; interior, or lip broad, with the lateral lobes thereof particularly large; middle division two parted; they are all beautifully curled, an4 of a pale yellow colour. Nectarial filaments of Konig as in the order. **Filament** scarcely any. Anther large, double, with its long, curved horn projecting over the lip. Stigma funnel-shaped, fringed with long, distinct hairs.

3. Z. Cassumvnar. R.

Straight. *Leaves* sessile, linear-lanceolate. *Spikes* radical, strobiliform, oblong, acute. *Bractes* obovate, acuminate. *Lip* three-lobed.

Sans. Vuna Ardrwk?«n.

Hind, and Beng. Bun Ada, (wild ginger.)

Teling. Karpushpoo, (small turmeric.)

A native of Coromandel, Bengal, and Bahar. Flowering time July and August, seed ripe in November and December.

Root perennial, tuberous, furnished with long, white, fleshy fibres, and jointed like ginger, but much larger; when

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fresh of a deep yellow; possessing a strong, not very agreeable, camphoraceous smell, and warm, spicy^ bitterish taute. Stems annual, erect, round, from'three to fire feet high, en* tirely enveloped in the imbricated sheaths of the leaves. Leaves bifarious¹, approximate, sessile on their sheaths, linearlanceolate, deep green above; villous, and paler underneath, where the nerve also is hairy like the sheaths; from one to two feet long, and about three inches broad. clothed with exceedingly pungent hairs on the outside; their mouths ending in a stipulary process on each side of the insertion of the leaf. Scapes radical, from six to twelve inches long, invested in several oblong, downy sheaths. Spikes oblong, strobiliform, compact, sharp-pointed, closely imbricated with numerous obovate, acuminate, greenish ferruginous (where exposed), villous bractes. Flowers solitary, (that is, one to each bracte of the spike, and blossoming in succession,) large, every part of a pale, uniform, sul-Calyx double; the exterior smooth, spathiphur colour. form, three-dentate one, may be considered a bracte; it is inserted round the base of the germ, which, as well as die inner, or proper perianth, it entirely envelopes; when forcibly expanded, oval. Inner or proper perianth^ superior, oneleaved, somewhat gibbous, membranaceous, three-toothed, on the outside divided nearly halfway down. Corol: tube slender, as long as the scale of the spike; vpper division of the exterior border boat-shaped, projecting over the stamen; •under 9 two narrower and reflexed under the lip. Lip three-. lobed; lateral lobes obliquely obovate, erect; middle lobe nearly round, with the apex emarginate, and the border Anther ending in a long, subulate, slightly curled. Stajn. recurved beak.

4. Z. roseum. Roscte in Trans, of Linn. Soc. 8. 348.

Leaves short-petioled, lanceolate. Spikes lax, half immersed in the earth. Bractes lanceolate, coloured. Lip entire.

Amentum roseum. Corom. pi. 2. JV_# 126.

Teling. Bumacatchicay.

Is a native of the northern Circars, where it flowers in the rainy season.

tHoot biennial, horizontal, jointed, and white; with many large fibres. Stems several, invested in the sheaths of the leaves, &c. as in the other scitamineous plants, about two or three feet high, leaves included. Leaves somewhat petioled, bifarious, lanceolate, acute,, tending to One side, smooth, finely veined, about twelve inches long, and from three to four broad. Spikes remote from the stems, just appearing above the ground when in flower, imbricated with lax, lanceolate, reddish, one-flowered bractes. Flowers solitary, colour a mixture of red and yellow. Bractes, besides the exterior one* already mentioned, there, is an interior one for each flower between it and the rachis, which is linear, with an obtuse, Valyx one-leaved, tubular, above, memnotched apex. branaceous; mouth toothed. Corol; tube cylindric, erect, considerably longer than the bractes. Border double; carferior three-parted; in this plant the two approximated divisions are above, linear, pointed, and recurved, sometimes revolute; the lower division stands single, and is like the superior two, linear and revolute; all are of a bright red colour* Interior, or lip single, broad, obtuse, reflexed over the superior two divisions of the exterior border. Filament, and anthers as in the other species. Style rather longer than the horn of the anther. Stigma perforated, and ciliate. Two similar awl-shaped nectarial bodies at the base of the style, are also present here.

Obs. I have not found that the nativeg make any use of this plant.

5. Z. ligulatum. R.

Leaves approximate, sessile, lanceolate. Spikes lax, more than half hid in the earth, obovate. Bractes cuneiform. Lip sub-hastate.

A native of Hindoosthan. Flowering time in the Botanic

garden the rainy season; the seeds ripen in November and December.

Root jointed, running horizontally at some depth under the surface of the earth, and furnished with long fleshy fibres frpm the joints; from these joints shoots rise, and by them the plant is readily propagated. Stems about two feet high, bending considerably to one side. Leaves alternate, approximate, bifarious, sessile on their sheaths, from cordate below to lanceolate toward the top of the plant, both sides smooth, and marked with paralleled veins, the under side paler green, length from three to twelve inches, and breadth about four. Sheaths smooth, from the rnouth of each rises a remarkably large long strap, or ligula, which by the growth of the plant becomes bifid, and by age scariose. Spikes radical, half hid in the earth, oblong, loosely imbricated with cuneiform, pink-coloured, one-flowered, exterior scales or bractes; and the same number of inner colourless, tridentate shorter bractes; or, as they may be called, inferior perianths. Calyx superior, one-leaved, spathiform, about half the length of the tube of the corol, irregularly tridentate. slender, the length of the exterior scales of the spike, incurved. Exterior border of three, nearly equal, linear, acute, smooth, reddish divisions. Lip oblong, obtuse; margins much curled, with two expanding*, more or less acute lobes at the very base; colour a pale yellow. 'Filament short; below the two-lobed anther, linear, ending above in the usual long, taper, curved, grooved beak. Germ oval, villous, three-celled, each containing many ovula attached to a central receptacle. Style very slender, and so long as to elevate the funnel-shaped, ciliate stigma to an equal height with the apex of the fi-Nectarial scales long and slender, embracing the lament. base of the style within the bottom of the tube of the corol. Capsule ovate, 6ize of a large olive, three-sided, three-celled, three-valved, opening from the apex down the angles; inside of the cells crimson. Calyx leathery, striated, pale, dull yellowish straw colour. Seeds many, oval, blackish brown;

rugose, arilled. Aril white, nearly complete, and i at the upper end. Perfoperm conform to the seed, DUS. Embryo cylindric, central, nearly as long as the 10.7m.

6. Z. rubens. /?.

Leaves lanceolar. Spikes lax, half immersed in the esyrth. JBractes linear-lanceolate, straight. Lip narrow-ovate, entire.

A native of the interior of Bengal; from the district of Rungpore Dr. Buchanan sent the plants to the Botanic garden, where they blossom in August.

Root tuberous, &c. as in the osher species. Stems herbaceous, somewhat decimate, from two to four feet high. Leaves alternate, bifarious, sessile on their sheaths, smooth on both sides; general length about twelve inches, and from four to Sheaths with a large, membranaceous, stipulafive broad. ry process at the mouth. Spikes several from the base of the stems, where they join the root, half immersed in the earth, sub-obovate, fastigiate, laxly imbricated with numerous straight, erect, linear-lanceolate, acute, involute, red, slightly villous, exterior bractes. Inner bractes, or inferior perianth, the length of the tube, but shorter than the exterior bractes, and irregularly tri-dentate. Calyx superior, sub-cylindric, membranaceous, ptellucid, most slightly villous; mouth three-Corol with a long, slender, cylindric tube; segtoothed. ments of the exterior border linear-lanceolate, acute, red. Lip ovate-oblong, entire, speckled with red and yellow. Filament scarcely any. Anther of two long lobes, crowned with the long, characteristic, curved horn, which is incumbent on and reaches' to the apex of the lip. Nectarialjilamerits of König oblong, and obtuse. Germ hairy, three-celled, with many ovula in each, attached to the axis. Stigma funnel-shaped, and ciliate. Capsule.

7. Z. squarrosum. R.

er and

Leaves lanceolar. Spikes squarrose, half immersed ii earth. Bractes linear, with long, taper, waved, reciter the apic6s. Lip three-lobed, apex bifid. es frpm

A native of Burma, where it ripens its seeds in Decc^in the From Rangoon Mr. F. Carey sent the fresh roots, entire capsules, and ripe seeds to this garden, where the plants from both, the seeds and roots grew freely, and the latter blossomed in August.

Root tuberous, as in ginger, &c. Stems herbaceous, considerably recurvate, from two to three feet high, entirely hid in the sheaths of the leaves. Leaves bifarious, sessile, lanceolar, smooth above, slightly villous underneath, cuspidate. Sheaths with two large conical processes rising from their mouths, one on each side. Spikes from the base of the stems, three-fourths hid iif the earth, ovate, laxly imbricated, size of a goose-egg. Bractes green; the exterior solitary, oneflowered, linear, concave, long, taper, waved, recurved^ Inner, one or two, (generally one), as long as the tube of the corol, with a three-toothed apex. Flowers pretty large, inodorous. Calyx superior, &c. as in the other species. Corol with a slender tube. Exterior border of three, pink-coloured, lanceolate, acute segments. -Inner, or lip two-lobed at the base;, apex bifid, colour a speckled mixture of purple, red, and yellow. Filament short, anther and beak together nearly as long as the lip. Germ villous; three-celled, with many ovula in each. Style and stiff ma as in the genus. Capsule short-pedicelled, ovate, conic, three-celled, threevalved, opening from the apex, inside of the valves bright (Those sent from Rangoon by Mr. F. scarlet while fresh. Carey, were, when they reached me, perfectly dry, and then measured three inches in length, and one in diameter.) Seeds many in each cell, arilled, arranged in two rows, and attached to the inner edge of the partitions. Aril complete, fleshy, Perisperm conform to the seed. Vitellus covers white.

^fj. art of the *embryo*, which is clavate, and nearly as long¹ ivefeed.

1Q. Z panduratum. R.

Leans $P^{e_{**}\circ e_{'}}$ above their sheaths, broad-lanceolar, smooth $PJ^{u\wedge a}$ large and scariose. Spikes radical, half immerse'i i^{in} the earth i^{in} lax. Bractes lanceolate. Lip panduriform, with oval, emarginate lamina.

This middling sized species is a native of the country about Rangoon. From thence Mr. F. Carey sent seeds to the Botaivc g-arden in 1808, and in July, 1810, the plants raised from ahem blossomed abundantly.

Root; numerous, long, fleshy, fibrous fibres, some of which swell into lanceolar tubers, as in Curcuma; uo palmate tubers, as in that genus. It possesses but little taste and no fragrance. Stalks erect, herbaceous, about three feet high. Leaves bifarious, petioled above their sheaths, broad-lanceolar, acute, smooth on both sides; from six to twelve inches long, from three to four broad. Sheaths smooth above their respective leaves; each ends in a very long, scariose, smooth Spikes radical, the lower half immersed in the soil, lig*ula. oblong, and rather loosely imbricated with lanceolate, coloured, concave, one-flowered, interior and exterior bractes. Flowers rather small; exterior border of three, nearly equal, lanceolate, acuminate, pale red segments; inner or Up very pale yellow, pandurifonn, that is with two, pretty large, rounded lobes at the base, and the lamina nearly oval, retuse₉ truncate, or emarginate. Filament broad, and short. Anther double, and crowned with the usual beak. Germ threecelled, with many ovula in each, attached to the inner angle Stigma infundibuliforin. of the cell.

SECT. II. Spike* terminal.

9. Z. capitatnm. R.

Herbaceous; *leaves* linear-lanceolate, «tem-clasping. *Spike* terminal, erect, strobilifonn; *bractes* lanceolate.

Zr

A native of the forests of Rohilcund, from thence Thomas Hardwicke sent plants to the Botanic garded ii the vernacular name *Junglee Adruk*. Here it flowerjci the rains and the seeds ripen in September and Octo

Root composed of many, long-peduncled, ovaLce pale-coloured, insipid, watery tubers, issuing froots, and sides of the bulb, and palmate tubers, whicljits pale yellow colour, and soirfewhat spicy taste. Stems erect, round, enveloped in the sheaths of the leaves, which are often a little hairy; height of the whole plant when in blossom, from two to three feet. Leaves sub-bifarious, alternafy, sessile on their sheaths, narrow-lanceolate, acute, smooth Lbove, a little hairy underneath, about twelve inches long, and about Spike terminal, sessile on the mouth of the two broad. sheaths of the superior leaves, linear-oblong, somewhat strobiliform, many-flowered. Flowers sessile, large, pure yellow in very part. Brontes in pairs, one-flowered, permanent; exterior lanceolate, concave, erect, longer than the tube of Inner ovate, shorter, immediately enveloping the the corol. germ, calvx, and nearly the whole of the tube of the coroK Perianth superior, one-leaved, about half the length of the tube of the corol, membranaceous, white, two or three-tooth* Corol; tube cylindric, narrow. Lip with two, oblong, very distinct, expanding, lateral lobes; middle lobe very large, and nearly round. Anlhet with a very long curved Stigma (as in most plants of the order), funnel-shaped, with ciliate margins. *Nectarinl* scales (of *König*) or bornlet conical. Capsule oval, three-sided, with the angles rounded, pretty smooth, size of a small olive, three-celled, three-valved; each cell containing several, black, shining seeds, enveloped in a deeply jagged, white aril. Perisperm conform to the lower half of the seed which it occupies, pure white, cartilaginous. - Vitellus above the perisperm, occupy* ing nearly, the upper half of the seed. *Embryo* vertical, pass* ing through the centre of both perisperm and vitellus, subcylindric, both ends obtuse, &c. in every respect so exactly

like Z. Cassumunar, that the same drawings and description may well serve for*both.

10. Z. marginatnm. R.

Leaves sessile, lanceolate; ligula large and membranaceous. Spikes terminal. Bractes obovate, with transparent, membranaceous margin. Nectary three-lobed.

11. Z. elatum. R.

Leaves bifarious, linear, recurved. Spikes terminal, Ianceolar, compactly imbricated with lanceolate, one-flowered bractes.

A native of the interior of Bengal; in the Botanic garden it blossoms in July and August, and the seeds ripen in September and October.

Root tuberous, as in common ginger, but inwardly yellow; from the tubers proceed the proper roots, many of which end in oblong, paler coloured tubers as in Curcuma. Stems herbaceous, straight, from four to five feet high, including the spike. Leaves bifariotis, litifear, recurved, smooth above; with many adpressed, short, soft, white hairs underneath; from twelve to eighteen inches long, and only -one inch broad. Sheaths a little hairy; mouth crowned with a very narrow, membranaceous process. Spikes terminal, solitary, of a narrow lanceolar shape, six inches long, and three in circumference, every part compactly imbricated with lanceolate, one-flowered bractes, which are an inch and a half long, and a little hairy on the outside* Bractes; interior, or inferior perianth slfbrter and broader than the exterior9 but like them stiff, and a little hairy. Calyx superior, white, smooth; mouth unequally toothed, little more than half the length of the bractes. Corol exactly as in the other species, only considerably longer; the colour a tolerable bright, lively yellow. Stamina with a short filament, and very long curved beak crowning the linear two-lobed anther. Nectarial bodies subulate. Germ oval, hairy, three-celled, with numerous ovula in each, attached to theuaxis. *Stigma* x?iliate. *Capsule* oval, size of a small olive, three-celled, three-halved. *Seeds* numerous, lucid, black, enclosed in a large white ragged aril. *Embryo* simple, sub-lanceolate, base truncate, embraced by the perisperm: the upper half by the *vitellus*.

COSTUS. Schreh. gen. No. 4.

Corolla with the interior border of one, campanulate, backcleft lobe. Filament lanceolate, with the double anther attached far below its apex. Capsule three-valved, three-celled. Seeds numerous, arilled. Embryo simple, and furnished with both perisperm and vitellus.

1. C. speciosus. Smith in Trans, of Linn. Soc. 1.240* Linn, sp. pi. ed. Willd. 1.11.

Leaves sub-sessile, spirally arranged, oblong, cuspidate, villous underneath.

Tjana-Kua. Rheed. Mai. 11./*. 15./. 8.

Tsiana speciosa. Gmel. 9.

Ilerba spiralis hirsuta. Rumph. Amb. 6. p. 143. t. 64. f. 1. Sans. Kemoo&a.*

Hind, and lieng. Keoo.

Banksia speciosa of Dr. Kb'nig, See Retz. Obs. 4. 75.

This is one of the most elegant looking plants of the natural order *Sdtaminea*. It is a native of moist shady places, such as the low banks of water courses, &c. Flowers during the wet season.

Obs. König's description agrees so well witM-my plant, that I have scarcely any thing to add: the chief differences are,

Ist. Mine is generally from three to four feet high, ascending spirally, with the leaves spirally disposed up and round the stem.

2d. In this the spike is at all times erect, and rigid; from about three to six inches long.

3d. There is nothing like a crown to the antliers; and,

4th. The stigma consists of two, broad, glutinous lips, which gnpe wide while the pollen is shedding; between them is evidently seen with the naked eye, the mouth of the perforated style; on the back of the upper lip are seen the two white glands mentioned by Konig, I impute his not taking notice of the two large lips of the stigma, to his having examined the flowers sometime alter they were gathered, when they coalesce.

The fresh roots are almost insipid. The natives make a preserve of them, which they deem wholesome, and nutritious; the dry root does not at all resemble the *Costus arabicus* of the shops.

ALPINIA. Schreb. gen. No. 5.

• Corolla with the interior border unilabiate. Anther double, nuked. Capsule berried, three-celled. Seeds few, or many, arilled. Embryo simple, and furnished with both perisperm and vitellus.

SECT. I. Inflorescence terminal.

1. A. Galanga. Linn. sp.pl. ed. Willd. 1. 12. Roscoe in Trans, of Linn. Soc. 8. 345.

Perennial. Leaves sessile, broad-lanceolar. Panicle terminal. Lip oblong, ung uiculate; apex bifid. Capsule obovate, smooth; seeds few.

Galang-a'mo/or. Rnmph. Amb. 5. t. 63.

Sans. Koolunyoga, Dhianopla, Teekshna-moola, Koolim-jwna, Soogundha, Muhabhura-vucha.

Hind. Koolinjan.

Arab. Kholinjan, or Khoolunjan.

Dr. Charles Campbell, at Bencoolen, sent the roots of these species from thence to the Botanic garden near Calcutta, where the plants thrive remarkably well, and are in blossom during the latter half of the hot season, April and May. Seeds ripen, though rarely, in November.

Root perennial, tuberous as in ginger, &c. possessing a faint aromatic smell, and strong pungent taste, like a mixture of pepper and ginger, accompanied with some degree of bitterness, and now ascertained to be the real Galanga major of the shops. Stems perennial, or at least more durable than those of herbaceous plants, nearly erect, mund, smooth; general length, when in flower, about six or seven feet; and as thick as a slender walking cane. Leaves occupy from the middle of the plant upward; the lower half being inverted in leafless sheaths only; they are short-petioled, bifarious, lanceolar, margins white and somewhat callous, both surfaces smooth; from twelve to twenty-four inches long, and from four to six broad. Sheaths smooth, with a short, rounded, ciliate, stipulary process above the insertion Panicle terminal, erect, oblong, crowned with of the leaf. numerous, spreading, simple dichotomous brandies, each supporting from two to five, or six, pale greenish white, somewhat fragrant flowers. *Involucre* of Konig, in our plants generally two-leaved, lanceolate, first withering, then falling before, or while if blossom. Bractes concave, solitary at the divisions, and sub-divisions of the panicle. Calyx superior, sub-cy lindric, smooth, white, scarcely the length of the tube of the corol; mouth one-toothed. Corol; exterior border of three, nearly equal, linear, recurved, smooth, pale greenish divisions. Inner border or lip unguiculate, somewhat ascending, HO as nearly to meet the slightly declining anther; oval or ovate oblong, concave, apex divided into two lobes by a pretty deep, straight fissure; margins incurved, curled, minutely laciniate, white, with here and there a small reddish speck, and two recurved fleshy, coloured hornlets at the' base of the claw. Filament rather longer than the claw of the lip ^ Anther double, apex deeply emarginate, projecting horizontally over the middle of the lip. Germ beneath, smooth, oval, three-sided, three-celled, with only two ovula

in each cell, attached to the middle of the partition. Stigma funnel-shaped, fringed; while the flower is in vigorous blossom, erect between the lobes of the anther. afterwards recurved under the anther. *Nectarial* bodies (of König) nearly square, fluted. Germ oblong, smooth, three-celled, with two ovula in each, attached to the axis. Capsule the size of a small cherry, obovate, smooth, deep oraggg red, three-celled, but entire, as no separation seems to exist, the thin dry cortex crumbles, or breaks £> pieces, without any tendency to separate into valves. Seed one, rarely two in each cell, much compressed, size of a grain of black pepper. Aril nearly complete, there being only an opening at the apex, thin, rather fibrous, and of a dull white colour. Integuments two, or three; exterior, tough, fibrous, polished, of a cfark chesnut colour, a little wrinkled; inner hard, dark brown; between the two is a spongy lamina of the same colour, and I cannot well say to which it most properly belongs. Perisperm white, friable, and very hard. simple, dull white, (canus,) roundish in the body of the perisperm, and with the narrow, conic radicle, passing through it and pointing to the umbilicus.

_Note by Mr* Colebrooke. "The root of this plant being ascertained to be the Galanga major of the druggists, comformably with what has been said of it by Rumphius, there is no doubt of its being Kholmjan of the Arabs, termed in Hiiidee Kulinjan. In Sanskrit it is called Kulanjana, according to one authority, .(the Rajnighantu;) but Sugranrf/m-vacha, sweet-scented Acorus; as also Mahabharivacha, according to another Indian treatise, (the lihavapracasa.J If the first name be genuine Sanskrit, which is however doubtful, the similar names in other languages, including the European, must be derived directly, or immediately from it."

2. A. Allughas. Roscoe in Trans. Linn. Soc. 8. 346.

Leaves lanceolar, polished. Panicle terminal. Lip bifid;

lobes retuse. Capsules spherical, (black,) one-valved, many* seeded.

Hellenia Allugluts. Linn. sp. pi. ed. Willd. 1. 4.

Mala-inschi-kua. Kheed. Mai. 11. p. 29. t: 14.

Sans. Taraka.

Seng. Tarrcko, or Tara.

This plant is common near Calcutta, in low moist places, among brush wood. Flowering time the beginningibf the rainy season.

Root tuberous, biennitd, or perenniaj, horizontal, brownish, with many pretty thick fibre?, considerably aromatic. erect, slightly compressed, entirely covered with the sheaths of the leaves; from three to six feet high. Leaves alternate, bifarious, petioled, oblong, ending in a fine twisted point; both sides smooth, and glossy; the under side paler colour; veins numerous*, straight, exceedingly fine, going off at an acute angle; generally about a foot long, and four inches Petioles sheathing with a stipulary rounded process broad. rising above the insertion of the leaf. Panicle terminal, bending slightly to one side. Flowers numerous, in succession, large, of a beautiful rose colour, inodorous. superior, gibbous, fleshy, generally two or three-toothed. Corol one-petalled; tube short; border double; the exterior three-parted; divisions nearly equal, outwardly downy, concave, particularly near the ends, pale greenish rose colour; the superior one more remote. *Interior* border, or *lip* twocleft, with two fleshy protuberances near the base; divisions with two-toothed apices and waved margins, colour a beautiful mixture of deep, and pale rose. Nectary (of König and Retz.) two oblong, compressed, fleshy bodies, embrácing the Filament short, broad, much flattened. base of the style. Anther double, each lobe ending in an obtuse honilet. Germ inferior, globular. Style lodged in the groove of the filament. A Stigma clubbed, somewhat three-sided, obtuse, with a crescent-like fissure, and ciliate margin. Capsule globular, inclining to be three-sided, smooth, when ripe black,

and friable, not opening by sutures, but crumbling to pieces, crowned with the permanent, withered calyx, and corol, three-celled.

3, A. bracteata. R.

Leaves lanceolar, ^-illous' underneath. Raceme terminal, simple pedicels one-flowered. Braces gTeen.

A native of the eastern parts of Bengal. In the Botanic gar4en near Calcutta it flowers in March. This is one of the smallest of our East India Aipinias; this circuihstance, and the green bractes, immediately distinguish it from malaccensis* which is not so easily done in a specific definition.

Root biennial, or perhaps, perennial. Stems erect, about three feet high, entirely invested in the smooth sheaths of the leaves. Leaves bifarious, petioled, from ovate-oblong" below, to lanceolar above, fine-pointed; the upper surface smooth, polished, deep'green, villous and paler underneath; length from six to eighteen inches. Petioles proper, about an inch long, and deeply channelled. Sheaths smooth, rising a little above the insertion of the proper petioles on the inside. Raceme terminal, erect, simple, about a span long, slightly villous; before expansion, embraced by one or two caducous sheaths. Pedicels throughout one-flowered, round, short, and villous. tirades (or inferior perianth) solitary, one-flowered, more permanent than in the other species, and of a dull green colour, billing the calyx. Calyx shorter than the bracte, open on the underside, bidentate. Corol; exterior border of three oval, nearly equal, white segments; lip somewhat three-lobed; lateral lobes large and incurved into a tube round the stamina; exterior narrower, witb^a bifid apex, colour a beautifill mixture of crimson and vellow, with a paler belt on each. Filament short, with two curved spurs at its base. Anther double, linear. Germ oval, three-celled; with jawiny ovula in each, attached to the inner angle. Stigma funnelshaped, sub-ciliate.

• 4. A. malaccensis. Roscoe in Trans. Linn. Soc. 8. 345.

Leaves lanceolate, petioled, villous underneath. Raceme terminal, simple. Lip obscurely tliree-lobed, with two spurs at the base; lateral lobes incurved. Capsules obliquely spheroidal.

Maranta malaccensis. Linn. sp. pi. ed. Willd. 1. 14.

Galanga malaccensis. Rumph. Amb. 5. p. 176. t. l\.f. 1.

A most beautiful and stately plant, a native of Chittagong*, and from thence sent by Mr. W. JVL Maddern, to the Botanic garden near Calcutta, where it blossoms in April and May, the very hottest time of ihe year; and ripens its seed in the rains.

Root perennial. Stems numerous, (within four years, a single root increased so much, as to produce about fifty,) from six to ten feet in height; those in the centre erect, in the circumference bending out; in two, three, or four years, the stoutest blossom, ripen their seed, and decay. Leaves bifarious, petioled, lanceolate, acute; margins often waved, and slightly fringed with short brown hairs; upper surface smooth; under downy; length from two to three feet, and from three to eight or nine inches broad. Sheaths smooth, embracing the stems completely; ligula ovate, obtuse, entire, villous. Petioles (I mean the space between the ligula and leaf), about three inches long and channelled. Racemes terminal, solitary, erect, always simple; from six to twelve inches long. Peduncle round, and villous. Pedicels short, villoup, one-flctoered, the largest sometimes droop a little from the weight of the flowers. Involucre of two, or three, caducous, boat-shaped leaves embracing the-raceme. Flowers very large, a pure smooth shining white, except the inner border, or labium; wkjch is a beautiful mixture of orange and crimson. $Bractes_{g}$ (or inferior calyx), gibbous, bursting on one side to the base, and partially on the other. Calyx superior, one-leafed, gibbous, length of the bracte, splitting into various portions. Corol; exterior border of three, oblong, obtuse, entire segments, of which the upper is largest.

Inner border or labium, very large; when expanded, three inches broad, and two and three quarters' long, somewhat tbree-lobed, the two lateral semi-circular and incurved into a tube; the middle one smaller, more projected, curled, and sometimes bifid; from the base on each side an incurved, sharp spur. Filament about as king* as the large, broad, deeply bifid, obtuse, two-lobed anther. Nectary of Konig; in most of the other plants of this order, I have found this part to consist of two distinct bodies, here it is of one, very thick and short, with its truncated apex tuberculate. Germ inferior, obovate, hairy, three-celled, with many ovula in each, attached to central receptacles. Style toward the apex, hairy. Stigma rising erect through the bifid apex of the anther, funnel-shaped, Capsule obovate, spheroidal, size of a very large hairy. gooseberry, ármed with short, sharp, stiff, slender bristles; when ripe nearly dry, and vellow, three-celled, three-valved*. Seeds numerous, ovate, oval, or obovate, immersed in a large portion of a soft pulpy matter, which in the immature state form distinct arils; on each side, and round the apex a Integuments two, brown, and rather thin. groove. perm cartilaginous, cloven at both ends by a brown spongy .lissure, but deepest from the apex. Vitellus, the centre of each of the superior limbs of the perispenn, is occupied by a small, thin, oblong body of a clearer colour; and widely distinct from both embryo and perispenn. Embryo9 the upper part crescent-shaped, with its horns projecting into the limb of the perisperm, and in some degree into the vitellus. dicle inferior, projecting straight from the convex, or under side of the crescent, with its base to the umbilicus.

Obs. This is the most beautiful plant of the whole genus, even surpassing A. nutans, which I believe the Botanical Repository considers a species of Renealmia.

5. A. nutans. Roscoe in Trans, of Linn. Soc. 8. 346.

Leaves lanceolar, short-petioled, smooth. Racemes com*
pound, by the lower pedicels being two or three-flowered,

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drooping¹. Lip broad, three-lobed, the lateral incurved into a tube; the exterior curled and bifid. Capsules spherical, opening on the sides. Seeds few.

JBeng. Poonnag-champa.

Renealmia nutans. Andr. Bot. Repos. 5. t. 360.

Globba nutans. Linn. sp. pL ed. Willd. 1. 15. 3.

This very elegant plant, a native of the Eastern Islands,was introduced by the Rev. Dr. Carey, into the Botanic garden near Calcutta, where it blossoms in April, and May.

Root perennial, tuberous, &c. as in the other species. Stems more or less bent to one side, (a direction common to most of the plants of this order,) from four to six feet high. Leaves bifarious, sub-sessile on their sheaths, occupying the upper half of the stems; the lower are broad-lanceolar, the upper much narrower, all are entire, and remarkably smooth on both sides; while young the margins villous; length from Sheaths of the leaves smooth, with a stipuone to three feet. lary bearded process, rising above the insertion of the leaf. Racemes terminal, compound, variously curved, villous, about a foot long, drooping under the leaves. *Involucre* of generally two, caducous, lanceolate, boat-shaped sheaths. Flowers numerous, large. Pedicels two or three-flowered. Bractes large, concave, pure white, with a pink-coloured apex, smooth; a common one to the two or three flowers, and a proper, smaller one to the second and third flowers, which expand in succession for a long time after the first. superior, colour of the bractes, three-toothed. Corol with a double border; exterior three-parted, pale pink, with deeper rosy apices; upper division oval, incumbent; lower two linear-oblong, revolute, with the apices rounded. lip large, ovate-cordate, obscurely three-lobed, lateral lobes incurved into a large campamilate tube; apex of the interior lobe bifid, margins curled; at the base are two spurs which embrace the base of the style, colour of the whole a mixture of deep orange yellow, with a dark crimson ground, and veins. Germ beneath, oval, hairy, three-celled, with many. ovula in each; attached to the inner edge of the partitions. *Stigma* on the first expansion of the flower erect through the fissure of the apex of the anther; afterwards, as the style lengthens, its apex becomes involute, and throws the stigma under the anther, *Nectaries* (of Konig) two, square, fluted, fleshy bodies within the tube, on the apex of the germ, embracing the base of the style.

Obs. This is no doubt one of the most gaudy of our East Indian Scitaminete. It multiplies itself by the root very fast, grows quickly, and continues to produce its numerous, large, elegant, drooping panicles, of beautiful flowers for two months, and more or less the whole year round.

6. A. mutica. R.

Leaves short-petioled, nanwv-Ianceolar, polished. Racemes erect, compound. Lip three-lobed, base spurless. Capsule buried. Seeds numerous, angular. Aril evanescent.

Found indigenous in the forests of Prince of Wales' Island by Mr. W. Roxburgh, and from thence introduced into the Botanic garden near Calcutta, where it flowers about the beginning of the rains, and ripens its seed from October till January.

Stems numerous, erect, involved in the sheaths of the leaves, from four to six feet high, generally biennial, as they do not perish till after the seed is ripe. Leaves alternate, bifarious, short-petioled, narrow-lanceolar, acute polished, and entire, from ten to twenty-four inches long. Sheaths smooth, ending- in a rounded ligula, above the insertion of the leaf. Racemes terminal, erect, compound, conical, many-flowered; peduncles a little downy. Pedicels alternate, short, villous, two, three, or even four-flowered. Bractes of the pedicels, and pedicelli solitary, oblong, caducous. Flowers numerous, large, drooping. Calyx longer than the tube of the corol, widening from the base; ipouth irregularly three-toothed, with the lower fissure deepest, pure white. Carol; tube

piuch recurved, much shorter than the calyx; border double* Exterior three-parted; superior divisions incumbent, oval, concave, iitferior two smaller, linear-oblong, narrower than the *superior* one; all are obtuse and of a pure glossy white colour. Lip or inner border, large, elegantly variegated with crimson and yellow, surrounded with an orange-coloured edging, three-lobed; the two lateral lobes semi-lunar, and incurved into a large sub-campanulate tube under the upper segment of the exterior border; exterior lobe smaller, curled, and bifid. In this species there 31*6*110 spurs between its base and the filament, as in most of the other species of this genus, filament nearly as long as the broad double anther, which projects over the middle of the lip. Germ round, villous, three-celled, with many ovula in each attached to the partitions near the axis. Style filiform, embraced at the base by a single, truncate, dentate, glandular body, (nectary of König, Retzius, and Willdenow.) Stigma funnelshaped, ciliate, rising with a curve through the biiid apex of the anther. Capsule berried, size of a large gooseberry, deep orange, or yellow, according to their state of maturity; not opening spontaneously as in A. nvtans, when dry, wrinkled, and a little hairy. Seeds numerous, angular, aril Jed. Aril complete, but thin, and when perfectly dry scarcely traceable. Integuments two; exterior thin, inner dark brown, and spongy. Perisperm cartilaginous, a deep pit at the base, and a deep cleft from the apex down to near the middle. Vitellus as in Alpinia malaccensis, in the centre of each of the superior lobes of the perisperm, is a somewhat clearer, distinct body, as if a continuation of the homs of the crescent of the embryo, but perfectly distinct, and readily separable from them and the perisperm. Embryo an inverted crescent, with the cylindric radicle descending from the convex side through the pit at the base of the perisperm to the umbilicus.

Obs. This is also a ver^ elegant species, and holds a middle rank between nutans and calcarata. 7. A. calcarata. Roscoe in Trans, of Linn. Sog. 8. 347.

Leaves linear-lanceolar, polished. Spike compound, erect. Lip ovate-oblong, apex curled, and bifid.

Renealmia calcarata. Andr. Hot. Repos. 6. t. 421.

A native of China, and from thence introduced by Captain J. Garnault, into, the BotaniS garden near Calcutta in 1799; where it thrives luxuriantly in the common soil of the garden, and blossoms in March, April, and May, but more or less all the year.

Root perennial, horizontal, somewhat woolly, crooked, pale-coloured, stoloniferous, fragrant, enveloped while young in short, alternate sheaths; when old marked with their cicatrices; and furnished with many fleshy ramous fibres. Stems oblique, smooth, from two to four'feet high. alternate, bifarious, short-petioled on their sheaths, narrow lanceolar, fine-pointed, entire, smooth on both sides; length frequently twelve inches, and the breadth from one to two. Sheaths of the leaves stem-clasping, smooth, with a stipulary process projecting above the insertion of the leaf. terminal, solitary, erect, compound. Flowers numerous, large, generally in pairs or more, but expanding at different periods. Bracies solitary, boat-shaped, white, one-flowered. Perianth superior, three-toothed, white, smooth. Corol with double border. Exterior three-cleft; divisions equal, linear, expanding, pellucid, white. *Interior* or *lip* ovate-oblong, large, deeply coloured with dark purple veins on a yellow ground, apex two-lobed, lobes rounded and curled; there are no lateral lobes in this species, nor are the sides much incurved; but two, incurved, sharp, subulate horns project from its two posterior angles, and embrace the base of the filament. Filament single, opposite to the lip of the corol, projecting, &c. as in the genus. Germ spherical, hairy, three-celled, with many ovula in each, attached to the inner angle of the cells. Stigma funnel-shaped, ciliate. Nectarial scales nearly foursided, with apices crenulate.

8. A. spicatet. R_0

Spike terminal, oblong, compactly imbricated with narrow lanceolate, acute bractes^

A native of Sumatra, from thence introduced by Mr. Roxburgh into the Calcutta Botanic garden in 1803. Is the slowest growing and smallest of the genus, in this garden* Flowering time the close of the rains.

Root as in the other species. Stems arising in an oblique direction to the height of about two feet, when from two to three years old the flowers appear, and after their functions ave performed, the steins decay. Leaves bifarious, sessile on their sheaths, broad-lanceolar, fine-pointed, surfaces and margins smooth, from six to twelve inches long. Sheaths of the leaves smooth, ending in a long, bifid, or simple ligula* Spikes terminal, strobilifonn, compact. Bractes, the exterior imbricate, ensiform-lanceolate, one-flowered, outside slightly viUous. Interior or inferior calyx, one-leaved, sub-cylindric, length of the perianth proper, mouth obliquely truncate, Calyx superior, like the inner bracte, and outside villous. of the same length, &c. Corol, exterior border of three, very acute, linear-lanceolate segments. Inner or lip uncertain," as the only two spikes I have yet seen did not expand sufficiently, to allow me to ascertain its form. short, anther large, of two, long linear lobes with the style sunk between them. Germ oval, very hairy, three-celled, with numerous ovula in each, attached to the axis. Style Stigma large, consisting of two, gaping, unequal slender. lobes.

SECT. II. Inflorescence radical

9* A. cardamomum. R.

Scapes from the base of the stem, compoundly flexuose, procumbent. Lip three-lobed, with calcarate base.

Amomum repens₉ seu Cardamomum. Wood, v. 2. p. 365. f.131.

Amomura repens. Roscoe, Willd. and Sonnerat.

Elettaria. Rheed. JUal. 11. p. 9. t. 4 and 5.

Cardamomum minus, Pharriu Lond. and Edinburgh.

Sans. Prithweeka, Chwndiwvala, Ela, Nishkootf, Bwhoola.

Beng. Elachi, Elaich.

Ailum chedy of the Maldbars, of the Malabar Coast* Hil of the Persians.

Kakulah, also Hal, of the Arabs.

Teling. Sana-yallacci.

Cardomum. Buck. Journey, 2. 336—510,538,awtf 3. 225.

A native of the mountainous part of the Coast of Malabar.

Root tuberous, with numerous fleshy fibres. Stems perennial, erect, smooth, joined, enveloped in the spongy sheaths of the leaves; from six to nine feet high, leaves bifarious, subsessile on their sheaths, lanceolate, fine-pointed, somewhat villous above, and sericeous underneath, entire; length from one to two feet. Sheaths slightly villous, with a rounded stipulary process rising above the mouth. Scapes several (three or four) from the base of the stems, resting on the ground, flexuose, jointed, ramous, from one to two feet long. Branches or racemes alternate, one from each joint of the scape, suberect, two or three inches long. Tirades solitary, oblong*, smooth, membranaceous, nerved, sheathing, one to each joint of the scape, which embrace the insertion of the raceme, or branch; and one at each of their joints. Flowers alternate; short-pedicelled, solitary at each joint of the racemes, opening in succession for a length of time, as the racemes lengthen. Calyx above, widening to the three-toothed mouth, about three quarters of an inch long, striated with fine nerves, permanent. Corol withering. Tubes slender, as long as the calyx. Border double, exterior of three, oblong, concave, nearly equal, pale greenish white divisions. Inner lip or nectary obovate, much longer than the divisions of the exterior border; margins somewhat curled, with the apex slightly threelobed, marked chiefly in the centre, with purple violet stripes: at each side of its insertion and close by the base of the

filament is a small acute hornlet, as in most of the plants of this genus, and in several of the other genera of our other Indian *Scitaminete*. *Filament* short, erect. *Anther* double, einarginate. *Germ* beneath, oval, smooth. *Style* slender. *Stigma* funnel-shaped. *Nectarial* scales of König, subulate, almost half the length of the tube of the corol. *Capsule* oval, somewhat three-sided, size of a small nutmeg; three-celled, tbree-valved. *Seeds* many, angular.

Obs. The following account of this interesting plant has lately been transmitted to me by Captain Dickson, the Commanding Officer of the district of Wynaad where the *Cardomum* is cultivated, viz.

"The *Cardomum* shrub is found in great abundance among the western mountains of Wynaad, and is called by the natives of Malabar *Ailumchedy* (the *Ailum shrub*). I cannot obtain any satisfactory derivation of the true import of the word *Ailum*, unless, as is alleged, it implies in the Sanskrit language, celebrity, and eminence.

"The shrub is said to be produced as follows. Before the commencement of the periodical rains, in June, the cultivators of the Cardomum ascend the coldest, and most shady sides of a woody mountain; a tree of uncommon size and weight is then sought after, the adjacent spot is cleared of weeds, and the tree felled close at its root. The earth shaken, and loosened by the force of the fallen tree, shoots forth young Cardomum plants in about a month's time. I have repeatedly enquired of the natives the means by which the Cardomum plants are first produced, and have invariably been told as already stated. They attribute no other effects to the falling tree, which may be selected from any species, than such as are derived from its weight and strength, added to the shade and shelter which its branches afford to the young plants. I have heard it by some asserted that the Cardomum, ike the famed Phcenix, would emerge from the ashes of any large forest tree, but these stories were uttered only by the ignorant, and are too absurd o require comment.

"The shrub continues to grow in this manner until after the early rains of the fourth year, in February, when it has reached its utmost height, which varies from six to nine feet; four or five tendrils are now seen to spring from its stem near the root, and afterwards the fruit is produced, which is gathered the following November; and requires no other preparation, than drying in the sun. The fruit is annually collected in this way, until the seventh year, when it is usual to cut it down, and from the trunk other 'Sprouts arise, in course of the next monsoon; which grow, flourish,/a\$id are cultivated as before. The husk with the seed I have called the fruit, as it corresponds with the native name. The seeds are termed the rice, and the tendrils the threads of the plant.

"I do not hear of any varieties in the species, and now enclose you a specimen of some just given to me by the person who farms the collection, and accounted of an inferior growth. It may not be unnecessary to mention, that this commodity yields to Government from 25 to 30,000 rupees per annum. The inhabitants use it as a general condiment to their food, and it is likewise held in sacred estimation for the purposes of sacrifice. It is constantly chewed with betle, and some medicinal properties are ascribed to it when used in decoction for complaints of the bowels. I am assured, by all, that the seeds of the *Cardomum* will never produce plants, and that it is only to be propagated as already stated, or by cuttings/*

10. A. punicea. R.

-Leaves lanceolate. Spikes radical, compact, imbricated. Lip entire, sub-parabolic; base spurless.

A stately species, a native of Sumatra, from thence sent by the late Dr. C. Campbell, to the Botanic garden near Calcutta, where it blossoms in March and April.

Roots hard and bifarious. Suckers numerous, running far under the surface of the earth. Stems numerous, erect, or oblique, smooth, swelled near the base; general height

about six or seven feet, and as thick as a slender walking Leaves sub-bifarious, short-petioled on their sheaths, lanceolate, rounded at the base, both sides smooth; from six to twenty inches long, by from three to six broad. smooth on both sides,' rising into a short, ciliate ligula, above the insertion of the short, semi-cylindric, proper petioles* Spikes radical, half immersed in the earth, sub-cylindric, pretty compactly imbricated with from oblong to lanceolate, coloured, smooth, one-flowered bractes. Flowers large, colour a bright red, like the finest carmine. Bractes interior* or inferior perianth₉ tubular, length of the tube of the corol; with an unequally two, or three-toothed mouth. Perianth proper superior, tubular, length of the tube of the corol; mouth generally bifid. Corol with long, slender tube hid within the bractes, and perianths. Exterior border of three, small, paler coloured, lanceolate segments. Lip highly coloured, large, entire, horizontal, sub-parabolic, the lower part broad, and incurved round the stamina; lamina linear, with entirely rounded, or slightly margin ate apex. Filament short, base spurless. Anther double, apex bifid, and naked. Germ three-celled, with numerous ovula in each, attached to their respective receptacles, a little removed from the axis.. Base of the style embraced by two subulate nectaries.. Stigma a lamellate, ciliated gape*

11. A. Cardamomum medium. /?.

Leaves lanceolar, villous underneath. Spikes radical, lax. Lip ovate-lanceolate. Capsules pedicelled, of an ovate oblong, conical shape, and nine-winged.

A native of the hilly countries in the vicinity of Silhet, where the plant is called Do-Keswa. It blossoms about the beginning of the rains, in June, and the fruits ripen in September, when they are gathered, and sold to the dealers in drugs.

Leaves petioled above their sheaths, linear-lanceolar, downy underneath, from two to three feet long, by two to

four inches broad. Sheaths villous, rising in an obtuse ligu* la above the insersion of the leaf. Spikes radical, oblong, laxly imbricated, rising but little above the earth; lower part, or scape hid in the soil, and clothed with shorter scariose Flowers numerous, large, red, fragrant. Bractes; exterior, one under each flower, lanceolate, ribbed, smooth, yellowish pink; interior, or inferior perianth tubular, length of the proper perianth. Calyx superior, length of the tube of the corol, tubular, with three-toothed, coloured apex. Corol; tube cylindric, long and slender; segments' of the border linear-oblong, obtuse. Lip with pretty broad cordate base, from thence tapering to its entire obtuse point, much longer than the segment of the exterior border; margins curled. '.Filament, anther; germ₉ style, stigma, and neetarial bodies, as in the genus. Capsules pretty long-pedicelled, ovate-oblong, while fresh above an inch and a half long, and nearly one in diameter, somewhat three-lobed, each angle marked with a larger vertical wing, and two smaller on the flatter sides, between the large ones, three-celled. Seeds numerous, obovate, with a groove on one side. Integuments two; exterior soft, while fresh it may be called the succulent aril; interior white and rugose. Perisperm conform to the seed, white, and friable, perforated by a spongy, brown substance above the embryo. Vitellus somewhat hyaline, rising on each side of the perforation like two horns. Embryo sub-clavate, its small end lodged at the umbilicus.

Obs. The form of the capsule, which resembles that of {G&ertner's Zinziber JEnsal, and the acrid, aromatic taste of the seeds, induce to conclude that this is the plant which pro* duces the Cardamomum medium of the writers on Materia Medica.

12. A. Unguiforme. /J.

Spikes radical, linear, rather open. Lip linguiform, bifid; base broad, and spurless; sides incurved.

A native of the interior parts of Bengal, where it blossoms during the raiua

Root perennial, throwing off numerous suckers, which run both above and under the surface of the earth, by which this species is soon multiplied. Stems many, erect, or nearly so, as thick as a man's forefinger, smooth, from four to 6ix feet high. Leaves bifarious, sessile on their sheaths, lanceolate, smooth on both sides; from twelve to twenty inches long, by from four to five broad. Sheaths smooth, rising little Spikes radical, solitary, the above the insertion of the leaf. apex only rising above the soil, laxly imbricated with oblong, obtuse, smooth, exterior, and interior, one-flowered, green bractes; besides the interior, proper, tubular, thin, colourless bractes or inferior calyx. Calyx superior, tubular, length of the tube of the corol; mouth three-toothed, split quite down on one side; colour from the middle upwards deep red. Corol; exterior border of three, sub-lanceolate, obtuse, red segments. Lip sub-linguiform, the base broad, and axis incurved, forming an envelope for the stamen, from thence projecting almost horizontally, into a long linear, bifid lamina, with curled margins; colour yellow, with a little red down Stamen as in the genus. Germ hairy, threethe centre. celled; ovula many, attached to one fleshy receptacle in the Style embraced at the base by the nectarial inner angle. bodies, which are in this species bidentate. Stigma large, and red.

GLOBBA. Schreb. gen. plant. N. 54.

Corolla with the interior border two-lobed, or none. Filament very long, base tubular, and winged with a cruciform lip. Anther double, with an appendix, or naked. Capsule one-celled, three-valved. Seeds many, attached to three parietal receptacles. Embryo simple, and furnished with both perisperm and vitellus.

1. G. marantina. Willd. spec, plant. 1.153.

Leaves lanceolar. Spike terminal, sub-sessile, strobiliform, bulbiferous. Anther four-horned.

G. marantina. Smith's Exot. Bot. 2. p. 85. t. 103. Roscoe in Trans, of Linn. Soc. 8. 350.

Lompuj urn silvestre minus. *Humph. Amb.* 5.150. $t \cdot 64. f.$ 2.

A native of the Moluccas, and from thence introduced into the Botanic garden near Calcutta by bits of the root found amongst the earth in which nutmeg and other plants were brought from Amboyna. Flowering time, in Bengal, the rainy reason.

Root perennial, consisting of many, small, oblong, fleshy tubers, united to the base of the stems. Stems annual, about twelve or eighteen inches high, somewhat recurved, enveloped in the sheaths of the leaves, the whole as thick as a rattan and a little compressed. Leaves bifarious, sessile on their half stem-clasping sheaths, broad-}anceolate, acute, smooth above, somewhat villous and whitish underneath, margins waved; length from one to six inches, the lower being very small, and cordate. Sheaths half stem-clasping, smooth, with semi-lunate, projecting, bearded mouths, rising above tflfc insertion of the leaves. Spikes terminal, sessile, solitary, fitrobiliform, oblong. Bractes numerous, ovate-cordate, the lower half, or more, and sometimes even the whole, have each a single, small, brownish, sessile, pointed, ovate bulb in the axill; the superior are smaller and generally embrace a single flower each. Flowers slender, bright-yellow, and fragrant. Calyx superior, somewhat gibbous, three-toothed. Corol onepetalled. Tube long, and very slender. Border'double; ex* terior three-parted, nearly equal, oblong, concave, and reflexed; inner of two lobes, which are longer by one-third than those of the exterior border, cuneate, and of a deeper yellow, reflected over the anterior two divisions of the outer border. Lip elevated on a continuation of the tube, a little above the former, consisting of two cuneate, reflected segments, united at the middle only. The upper end continued into a very long, slender, incurved, grooved filament. *Anther* double, with two horns from each side. *Germ* beneath, round, tubercled, one-celled, ovula parietal. *Style* slender, as long as the tube of the corol and filament, and lodged in a groove therein. *Stigma* funnel-shaped. *Pericarp*; I have not found it come to maturity. The little bulbs found in the axills of the lower bractes of the spike, readily vegetate, and thus the plant is abundantly propagated*

2. G. bulbifera. R_m •

Stems bulbiferous. Leaves oblong. Racemes terminal, erect, shorter than the leaves, bulbiferous.

Teling. Conda pooshpoo.

A native of the northern Circars.

3. G. orixensis. R.

Leaves oblonir. Panicle terminal. Anther naked. Capsule verrucose.

Is a native of the moist vallies in the northern Circars, and flowers during the rainy season.

Roots biennial. Stems annual, bending obliquely to one side, as in the case with most plants of the natural or<k,r, about two or three feet long; lower part involved in a few simple sheaths, above with the sheathing petioles of the leaves. Leaves alternate, bifarious, very short-petioled, oblong, ending* in a tapering* filiform point, entire, smooth, finely veined; from eight to ten inches long, and from two to four broad. Sheaths opening on the side opposite to the Petioles short. leaf. Panicles terminal, erect, oblong, thin, rigid. Flowers sessile, small, deep orange yellow. Bractes solitary; one-flowered, oval, falling. Calyx one-leaved, mouth three-toothed. Corol; tube a little curved, widening gradually to the mouth, twice the length of the calyx. Border double; exterior three-parted; upper division largest, sub-erect, concave; the other two inferior, and ovate. Interior of two, smaller, opposite, ovate lobes, Filament very long, much curved, base tubular, and ornamented with a large, orange-coloured, two-lobed lip, or apron. Anther at the extremity of the filament, naked, double, or two-lobed. Style embraced at the base by the two subulate bodies (nectaries of König); above the tube of the corol, it takes a curved direction like the filament, but is shorter, so that the curve is less; its end passes between the lobes of the anther. Stigma clubbed, half immersed between the lobes of the anther. Capsule sub-globular, watery, fleshy, one-celled. Seeds many.

4. G. Hura_m JR.

Leaves ovate-oblong. Racemes terminal, erect; pedicels tern, three-flowered. Anther with a membranaceous crest.

Hura siamensiutn. Kön. in. Retz. Obs. 3. 49.

Native of the peninsula of Malacca.

5. G. pendula. R.

Leaves lanceolate. Racemes terminal, compound, much longer than the leaves, pendulous. Anther bicalcarate.

Found by Mr. William Roxburgh, on the Island of.Pulo-Pi&^ng. Flowering time the rainy season.

Root fibrous. Leaves lanceolate, smooth, fine-pointed. Sheaths a little hairy on the outside. Racemes terminal, solitary, compound, very long, pendulous. Pedicels remote, diverging, generally three-flowered. Bractes caducous; those of the pedicels solitary, oblong, ciliate; those of the flowers oval, ciliate. Calyx campanulate, three-toothed. Corol; tube ascending, long* and slender; border double. Exterior three-parted, of these the upper one is concave; the other two obliquely obovate, expanding, and flat. Interior border of two, opposite, lanceolate, expanding lobes. Filament very long, curved; base tubular and winged, with a bifid, cuneiform, yellow lip or apron, above it is grooved for the reception of the style. Anther two-lobed; each lobe bending in a long curved spur. Germ beneath, oval. Style

filiform. Stigma funnel-shaped, mouth ciliate. I have not seen the fruit.

6. G. Careyana. /?.

Leaves ovate-lanceolate, villous underneath. Racemes ter* mina^ compound, bulbiferous. Corol with the two segments of the inner border as long- as the lip. Anther naked, sub-orbicular.

From Pegue this pretty little plant was introduced by Mr. F. Carey into the Botanic garden near Calcutta, where it flowers in August.

Root ^tuberous, about biennial, perishing at one end, and shooting forth at the other. This may be considered the general habit of all the species. Stems numerous, oblong, as thick as a slender ratan, about eighteen inches high, and invested in the; sheaths of the leaves. . Leaves sessile on their sheaths, alternate, bifarious, from broad-lanceolate to ovateoblong, very finely acuminate, villous underneath; about six inches long, by two broad. Sheaths villous on the outside, scarcely ending in any ligula, but rising a little on each side*. . Hacemes terminal, erect, composed of little, alternate fascicles, of about three flowers each, supported on very short, common pedicels; each of the lowermost of them produces a small, obovate bulb, and two or three more between the racemes and the leaves. Flowers numerous, small, of a deep orange colour. Bractes concave, acute, one to each fascicle; and a smaller coloured one to each flower; all caducous. Calyx superior, tubular, three-toothed, coloured. Corol; exterior border of three, nearly equal, oval lobes * Interior of two linear lobes, which are as long as the lip; soon after expansion they are reflected back over the exterior border, but become involute before the flower drops. Lip a little elevated above the five segments of the exterior border, bifid at both ends. Filament long, incurved, &c. as in the genus. Anther broad, ovate, or nearly round, with its two poUeniferous cells within, projecting at the sides a little

beyond its periphery, but without any other kind of appendage, as in most of the other species. Germ round, rug-ose, one-celled, containing many ovula, attached to three parietal Style length of the corol and filament, filiform, receptacles. taking a more direct course to the anther than the groove of the filament. Stigma funnel-shaped, ciliate. Capsule globular, size of a large marrow-fat pea, warted, one-celled, Seeds several, attached to the middle of the three-valved. valves of the capsule, round-ovate, resting on a large spongy pedicel. Integuments two; exterior .firm, light brown, a little villous; interior membranaceous. Perisperm conform to the seed, hard, and friable, even while fresh. Vitellus in small quantity, clear, lining the inside of the upper part of the cavity of the perisperm so as to embrace the upper half of the clavate embryo.

7. G. subulata. R.

Panicles radical. Filament with a subulate wing on each side near the base; anthers semilunar, winged.

Found wild in the forests of Chittagong by Mr. W. Roxburgh, and by him introduced into the Botanic garden near. Calcutta, in 1801; where it blossoms in April, May, and June, during which period the new foliage also appears above the ground. There is a constant succession of flowers from the extremities of the lengthening branches of the panicle, for nearly two months, which renders this lovely plant one of the most charming of the whole natural order that I have yet met with. The specific name is taken from the shape of the wings of the filament.

Root perennial, composed of numerous, diverging, fleshy fibres, some fusiform, some columnar. Stems annual, bending a little to one side; from one to two feet high. Leaves alternate, bifarious, sessile on their sheaths, lanceolate, with a long, withered, filiform point; villous on both sides; from six to nine inches long*, and about one and a half broad. Sheaths smooth, keeled; ligula, or stipulary process truncat-

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ed. Scapes radical, from three to four inches long, often several arise from the same cluster of roots, erect, enveloped in three or four, alternate, smooth, short sheaths. Panicle erect, about a foot high, including the scape, and expanding nearly as much, the whole a very lively bluish purple Ramifications alternate, long, simple, diverging, bearing in succession numerous, alternate, sessile, small, lovely purple and yellow flowers. Bractes solitary, light purple, smooth; those of the ramifications oblong; those of the flowers cor-Flowers solitary, sessile in the axills of their proper bractes. Calyx superior, clavate, smooth, light purple; mouth three-toothed, permanent, with the lower half of the tube of the corol. Corol; tube long and very slender; the lower half, which is inclosed in the tube of the calyx, projecting horizontally; the upper half erect; at the angle, which those portions of the tube make with each other, and which is nearly a right one, the flower drops, leaving the lower half to wither. Border single and three-parted; upper division erect, pressing on the back of the base of the filament, oblong, boat-shaped; lower two divisions obliquely cordate, and reflexed, all the three are of a light purple colour. Lip cuneate, deeply two-parted, much larger than the divisions of the exterior border, deep orange yellow, forming a pretty contrast with the lively purple of every other part of the panicle. Filament very long, very slender, on the first day much incurved, afterwards revolute, finely grooved on the underside for the reception of the style; near the base are two, very long¹, slender, flat, subulate, diverging, recurved wings. In my other six species with terminal inflorescence, these are entirely wanting, but the inner twolobed border is present. - Anther double, and enlarged at the sides with two, broad, reniform wings. Germ beneatij, oval, with nine longitudinal ridges, a transverse section exhibits one cell only, with numerous seeds, affixed to three parietal receptacles. Style most slender. Stigma funnelshaped. Capsule globular, purple, size of a small cherry, six-ridged, one-celled, three-valued, opening spontaneously from the apex. *Receptacle* a longitudinal ridge on the inside of each valve. *Seeds* many, minute, oblong, villous, connected by a large, white, spongy membrane to the parietal receptacles.

8. 6« Spathulata. R.

Panicles radical. Filaments, with a spatulate wing on each side near the base; anthers semilunar, winged.

This second, beautiful species, with large azure coloured, radical inflorescence, is a native of the vallies on the north and eastern boundaries of the province of Silhet, and from thence was introduced by Mr. M. R. Smith into the Botanic garden near Calcutta, where it flowers in April, at which time the foliage begins to appear. At the beginning of the cold season it perishes down to the root.

Panicles radical, erect, oblong, from eight to twelve inches high, composed of many, diverging, simple, lengthening branches, every part, bracte included, of a pretty, light azure colour. Bractes oval, and oblong, concave, a larger one untlejc each branch of the panicle, and one to each flower, Flowers numerous, produced in a continued succession for several weeks on the same panicle. Perianth superior, widening to its three-toothed mouth. Corol; tube long, slender, curved, and villo.us. Border three-lobed; lobes nearly equal and equally arranged, shape oblong, and concave. Ztip as in G. subulata, but less divided; yellow, as in that species. Filament long, slender, recurved, &c. as in the genus; near the base, instead of an inner border to the corol, there is a spatulate, diverging wing on each side. From its shape the specific name is taken, and readily distinguishes this species from subulate, which it very exactly resembles when-in flower. Anther with a semilun r wing Germ one-celled, containing many ovula, aton each side. tached to three parietal receptacles.

SALICORNIA. Schreb. gen. N. 14.

Calyx gibbous like an aril lining the inside of the cavities of the iructification in the joints. Corol none. Seed one.

1. S. brachiata. R.

Perennial, erect; branches numerous, decussate, joints clubbed. Spikes cylindric.

Teling. Quoiloo.

This seems an undescribed plant; nor can I collect what Dr. König thought it was. It is a small, generally erect, perennial species, growing plentifully on such low, wet, salt ground as is overflowed by the spring tides. Flowers all the year round. It should be compared with S. herbacea.

Stems generally erect, woody, about as thick as a goosequill, though sometimes at the base as thick as the little finger; from twelve to eighteen inches high. **Branches** decussate, ascending, very numerous, divided, and subdivided in the same manner; their extremities are the succulent, cylindric jointed spikes. Joints of the spikes, or leaves, thick, succulent, annular, cap-like, portions, that closely surround the extremities of the filiform, woody branchlets, like beads strung on a thread; above they are concave, with two opposite elevations, the lower convex end of the next leaf above enters this concavity; these elevations, like the branches, are decussated with those of the next above and below, with a ring. Flowers conspicuous, three-fold, (three on each side of each joint,) opposite. Calyx, a flask-like fleshy substance, with a longitudinal slit forlhe stamen, and style; they adhere firmly to one another, and to the substance of the leaf, till the seed is ripe. Corol none. Stamens constantly one. JInther sagittate. Stigma two-cleft. sule, no other than the calyx now dry, which separates, and drops with its single seed.

2. S. indica. VahL eiium. pL 1. 10.

Perennial, diffuse; joints gibbous. Spikes cylindric; /lowers hid.

Seng. Jodoo Palwng.

Teling. Quoia-pipaly.

This is also very common, and grows with the former on similar ground.

Stems and large branches woody, diffuse over an extent of some feet; the latter sometimes alternate, sometimes opposite, those that are young, and covered with the leaves are ascending, or nearly erect. Joints, or leaves longer than in the former species, but in other respects the same. Floral joints or leaves, very short. Spikes terminal, cylindric, erect, obtuse. Flowers inconspicuous, opposite, three-fold, hid by the upper margin of the next floral leaf below. Calyx as in the former. Stamen; in this species I have never been able to discover even the rudiments of one. Pistil, &c. as in the former.

Obs. Cattle will not eat these plants, although their taste is simply saltish. These two species are very plentiful on the coast of Coromandel, where large quantities of the fossil al-|s2& it light no doubt be made at a low rate. Such manufactures deserve much encouragement, particularly here, where there are many more labouring people* than can possibly find employment. Large quantities of this substance are annually imported into England from the Mediterranean, for making soap, glass, &c. It is worth about twenty-eight or thirty shillings per cwt. and as labour is cheap on this coast, the alkali might be made, I think, at so low a rate as to admit of its being sent to England, and paying a freight of £10 the ton, or more; provided it could be there imported duty free.

* This was written before the famine of 1791, % and 3; the case is now (1794) different, as fully half, if not more of the labouring classes were carried off by that deplorable calamity.

CLASS 11.

DIANDRIA MONOGYNIA.

NYCTAJSTTHES. Schreb. gen. AT. 21.

Calyx campanulate. Vorol salver-shaped. Capsule superior, obcordate, compressed, two-celled, two-valved. Seeds solitary. Embryo erect, without perisperm.

1. N. arbor tristis. Linn, spec plant, ed. Willd. 1. 35. Parlium arbor tristis. Gcert. Sem. 1.234. t. 51*
Scabrita scabra. VahL Symb. 2. 28. Geert. Sem. 2. 265. t. 128.

Scabrita triflora. *Linn. Mant. I. p.* 37. Manja pumeram. *Rheed. Mai. 1. p.* 35. *t.21** Sephalica. *JIs. Res.* 4. 244.

Sans. Hind, and Beng* Singahar, Sewly, Nibari, Harsinghar, &c.

Of what country this is a native I know not, for I have never found it but in a cultivated state; and it is always raised from seed, which may be the reason we have no varieties of this most delightfully fragrant plant. In our gardens it is found in the state of a large shrub, or small tree. Flowers on the Coast nearly the year round; in Bengal only during the rains. The seeds ripen in the cold season.

Trunk erect. Bark scabrous. Branches numerous, spreading in every direction; the young shoots alone are four-sided; four ligneous, cord-like nerves, under the bark, forming the angles. Leaves opposite, short-petioled, cordate, those near the flowers oblong, pointed, sometimes entire, sometimes very grossly serrate, and sometimes the lower parts are angular; scabrous j from three to five inches long, and from one to

three broad. Inflorescence a large, terminal, leafy, crossarmed panicle, composed of small, five-flowered, terminal Flowers numerous, middle-sized, exquisitely umbeilets. fragrant, open at sun-set, and fall oft¹ at sun-rise; the tube orange-coloured, and the border white. Involucre to the umbellets four-leaved, leaflets inverse-cordate, opposite, sessile. Calyx campanulate; mouth a little contracted, and lightly five-notched, downy, withering. Corol; tube cylindric, length of the calvx. Border spreading, from five to eight, but generally six or seven parted, contorted; segments triangular, or obliquely lobed, exterior margin scolloped. Filaments scarcely any. Anthers two-lobed, sitting within the tube. Germ, above, compressed. Style length of the Stigma headed, glandular. Capsule size of a man's tube. thitmb nail, obcordate, or nearly orbicular, compressed, twocelled, two-valved, opening transversely from the apex. Seeds one in each cell, compressed, &c. as described and figured by Gsertner; I have not, however, been able to detect any thing like a perisperm.

Obs. The flowers of this tree are exquisitely fragrant, partaking of the smell of fresh honey, and on that account the plant is much esteemed; for when destitute of flowers it has but an indifferent appearance. The orange tubes of the flowers dye a most beautiful buff or orange colour, with the various shades between them, according to the preparation, and mode of conducting the operation; but unfortunately* no way has yet been discovered of rendering this elegant colour durable.

JASMINUM. Schreb. gen. N. 22.

Corol salver-shaped. Germ two-celled, one-seeded.* Ber-

* In all the species here after mentioned, there is a two-lobed, two-celled germ, with one seed in each, attached to the upper end of the partition; and succeeded by two one-seeded berries, when both come to maturity,

Ties one or two, superior. Seed solitary. Embryo erect, Without perisperm.

1. J. Zambac. Willd. I. 35.

Shrubby, twining. Leaves opposite, sub-sessile, from cordate to oblong, acute, or obtuse. Segments of calyx subulate. Berries globular.

Magorium Sambac. Lamarck. Encycl. iv. 210.

Of this we have three varieties, viz.

1st. Single-flowered Arabian Jasmine, which I suppose to be,

Jasminum undulatum. Willd. 1. 36.

Tsjiregam-Mulla. Rheed. Mai. 6. p. 97. t. 55.

Mallica, and Asphota, As. Res. 4. p. 245, are I suspect both this variety. The first is found in gardens, though a small flower, and the second wild in hedges, &c.

JBeng. B*/n mwKka; or Deshi-imtllika.

2d. Double-flowered Arabian Jasmine.

Nalla-mulla. Rheed. Mai. G. p. 87. /. 50.

Jasminum Limonii folio conjugato. *Burnt, zeyl.* 128. t. 58, f.2.

Flos Manorae. Rumph. Amb. 5. p. 52. t. 30.

Sans. Swptala, Nwva-mullika. See As. Res. /. c.

Bevg. Bela, or mtcb'ka.

3d. Great double Arabian or Tuscan Jasmine.

JBeng. Mootta-bela; Bz/ra-bela, or Patna mtellika^

Kudda-mulla. Rheed. Mai. 6. p. 89. t. 51.

Flos A'pnorae plenus. Rumph. ibid.

Septala. As. Res. I. c.

All the varieties flower during the rains chiefly.

The Mingle variety of tins plant, (which is the one described,) is one of the most common in every forest on the Coast* Birds eat the berries, and drop the seeds, which vegetate. In this way, I account for its being so general. Flowers during the hot season.

Stem and branches woody, twining. Bark scabrous on

old plants. Leaves opposite, short-petioled, cordate-ovate, or oblong-waved, sometimes scollopped, pointed, smooth, except when young; in the axills of the veins on the back of the leaves there are tufts of down, as in some species of Gardenia. Flowers terminal, generally forming small, trichotomous umbellets, white, fragrant. Calyx bordered with from five to nine, long, subulate, permanent segments. Stigma clubbed. Germ two-lobed, one ovulum in each, attached to the lower part of the partition. Berries twin; each round, smooth, juicy, one-seeded, when ripe of a beautiful shining black. Seed conform to the berry; integument single. Perisperm none. Embryo erect. Cotyledons conform to the seed* Radicle small, inferior.

Obs. From this species we have the common double; and rose, or great-flowered, and full *Moogaries*, (Arabian, or Tuscan Jasmines;) these are always raised from layers, and have been improved by culture into their present state as above noted.

The plant that bears the common double sort still retains its twining habits, but it is lost in the great rose, or full-flowered sort; here the branches are erect, or spreading, but never twining.

I am inclined to think that *Nyctanthes undulaţa, sp, pi*. 2. *p*. 8. is only a variety of this species, arising from soil, culture, &c. for with the utmost attention, I could never discover any thing like a fixed specific character to distinguish it from *Zambac*, as the number of petals or divisions of the cord are inconstant, and at most mark only the variety.

2. J. scandens. Willd. 1. 37.

Shrubby, twining, and scandent, smooth. *Leaves* opposite, simple, cordate-oblong, entire, taper-pointed. *Corymbs* terminal, globular, trichotomous. *Calycine segments* six or seven, bristle-shaded, of the corol six to eight, lanceolate, very acute, nearly the length of the clavate tube. *Stigma* bilobate.

Nyctarithe scandens. Rets. Obs.fasc. 5: p. 9.

`A native of the southern parts of Bengal. The plants in the Botanic garden near Calcutta were reared from seed sent from Ghittagong; which after they were two years old began to blossom in January and February, and continue so to do, but have not produced good seed.

Trunk none, but many, long, ligneous, at first scandent, but finally twining, round, smooth branches of considerable extent. Leaves simple, opposite, short-petioled, cordate-oblong, tapef ing from near the somewhat re-entering base, finepointed, entire, smooth, and rather lucid on both sides: from one to six inches long, and from half an inch to two inches broad. Petioles flattened, channelled. Corymbs terminal, sub-globular, dense, that which terminates the larger branches more compound. Peduncles short, with the pedicels still shorter, all are villous. Flowers numerous, pure white, delightfully fragrant. Calyx villous, border of six, or seven, bristle-shaped, spreading, villous segments. Tube of the corol widening to the mouth, and more than twice the length of the segments of the calyx. Border of from six to eight, lanceolate, acute segments, which are rather shorter than the tube. Germ turbinate, two-celled, with one seed in each, attached to the thickened middle of the partition.

3. J. elongatum. Linn, sp.pl. ed. Willd. 1. 37.

Scandent. Leaves opposite, and alternate, lanceolate, villous on both sides. Corymbs terminal. Corol eight or twelve-cleft; segments linear. Stigma bifid.

Nyctanthes elongata. Linn. suppl 82.

A native of the forests about Hidgelee, near the mouth of the Hooghly in Bengal. Flowering time the beginning of the hot season.

Stem woody, straggling to a considerable extent, or climbing. Bark of the woody parts light aSh colour; of the young shoots very villous. Leaves opposite, and alternate; short-petioled, from lanceolate Jo ovate-lanceolate; very eoft

with fine down in both sides; length from one to five inches. Flowers terminal, from simply tern to a large compound' corymb, pretty large, pure white, fragrant. Pccftcefo clavate, villous. Bractes short, subulate, villous. Calyx villous, five or six-cleft; divisions short, and subulate. Carol: tube swelling towards the mouth, much more than the calyx. Border of from six to twelve, linear, spreading divisions with margins revolute. Filaments short. Anthers lodged just Germ turbinate. within the mouth of the tube of the corol. Style so long as to elevate the two-lobed stigma so as to make it level with the anthers.

Obs. The species differs from my arbotfescens in being scandent, and in the shape of the leaves, as well as in the pubescence; here they are lanceolate, and very villous; there cordate and smooth.

4. J. pubesceus. Limn. sp. pi. ed. Willd. 1.37.

Leaves cordate, downy. Umbels tefminal, sessile, many-flowered.

Katu-Tsjiregam-Mulla. Rheed. JUaL 6. p. 95.1. 54«

Nyctanthes multiflora. Burm. Flor. Ind. p. 5. t. 3.j\ 1.

•Jty.ctanthes pubescens. Retz. Obs. 5. 9.

Sans. Maghyun, Koondum. See Asiat. Res. 4. 244. JBeng. Koonda.

A very ramous shrub, brought originally from China into the Company's Botanic garden. It is also indigenous in Bengal. Is in flower during the rains chiefly.

Stem scarcely any; branches numerpus, covered with ash-coloured bark; the young parts very downy. Leaves opposite, short-petioled, cordate, entire, downy, particularly while young; the terminal ones crowded (involucre-like) round the umbels. Umbels terminal, sessile, teivJing to be trichotomous, containing from ten to thirty, sessile flowers; downy in all parts. Flowers large, pure white, fragrant. Bractes few, lanceolate. Calyx six-cleft; border of the corol from six to nine-parted; divisions lauceolate. Stamens within the

tube. Anthers beaked. Germ, two-lobed, two-celled, with one ovulum in each, attached to the upper part of the partition.

Stigma entire, clubbed.

Obs. This is a goodly looking plant, its numerous, large, pure white, fragrant flowers, opening in succession make it very desirable.

5. J. laurifolium. R.

Scandent, polished. *Leaves* opposite, ovate-lanceolate, lucid, three-nerved. *Flowers* axillary, and terminal, from one to five, long-peduneled. *Calycine segments* six or seven, filiform; those of the corol from nine to twelve, linear, length of the tube.

A very elegant, climbing and twining, highly polished, shrubby species; a native of the mountainous countries east of Bengal, where it flowers during the cool season.

Leaves opposite; sub-sessile, lanceolate, firm and glossy < margins entire, somewhat thick, faintly three nerved, from two to four inches long, and from one to two broad. Peduncles terminal and axillary, sometimes single, sometimes several together, and sometimes, when terminal, sub-racemed; long and slender. Bractes opposite, subulate. Calyx from five to seven-cleft*, segments long, slender, subulate, and smooth. Corol; tube twice the length of the calyx, sub-clavate; border of from nine to twelve, ensiform, spreading segments, which are as long as the tube. Stamina within the tube. Germ two-celled^ with one ovulum in each, attached to the middle of the partition. Style and stigma clavate, scarcely reaching to the anthers.

6. J. coarctatuh;. R.

Shrubby. *Leaven* oblong, smooth, acute. *Corymbs* terminal, peduncled, crowded with ternate, sub-sessile flowers, and amply bracted. *Calyx* five-cleft.

A very ramous shrub, without any tendency to ramble or

climb. It is the first simple-leaved Indian *Jasmine* I have found which has not that habit. Is a native of the hills near Chittagong, where it flowers in April and May; may be readily known, without any other mark, by the great number of flowers which form the little dense corymbs.

7. J. trinerve. Vahl. Sypib. 3. p. 2.

Scandent, polished. *Leaves* ovate-lanceolate, long-acuminate, three-nerved, polished. *Flowers* axillary and terminal, solitary. *Calycine segments* six or seven, subulate; those of the corol six or eight, sub-filiform, and longer than the long tube.

A native of the forests near Silhet, where it blossoms in March and April, and the berries ripen in June.

Stem and branches together, some fathoms in extent, running up, and over large shrubs and trees. Bark of the old woody parts ash-coloured and rather rough; tender shoots polished, deep green. Leaves opposite, petioled, ovate-lanceolate, long, fine-pointed, firm and glossy, three-nerved, three or four inches long*, and one or one and a half broad. Petioles short, with a remarkable joint near the middle. Flowers terminal and axillary, solitary, sub-sessile, very large, white and sweetly fragrant. Calyx with a short, smooth tube, border of about six subulate segments which are nearly half the length of the tube of the corol. tube long, widening above the middle for the stamina; border of six to eight slender, spreading* segments, which are an inch and a half in length. Filament short. Anthers linear, lodged about the middle of the tube of the corol. oval, two-lobed, two-celled, with one ovulum in each, attached to the partition. Style length of the tube of the corol. Stigma bifid.

Obs. The flowers were solitary the first year the plants were in the Botanic garden, but during the rainy season of the second year there were usually nine:

8. J. bracteatnm. R.

Twining. Leaves opposite, ovate-oblong, acute, villous. Flowers in terminal bracted fascicles of three, five, or eleven flowers. Calycine segments from five to seven, subulate; those of the corol from five to eight, oblong, with rounded acuminate apices. Style longer than the tube. Stigma entire.

Amative of the island of Sumatra. From Bencoolen Dr. C) Campbell sent plants to the Botanic garden, under the name *Coast Jasmine*. In Bengal they blossom during the cool, and the beginning of the hot season; the seed ripens in April.

Stem scarcely any; branches numerous, ligneous, climbing and twining, extending up and over trees of considerable size; tender parts round, and clothed with much, very soft, short, p?ile green down. Leaves simple, opposite, short-petioled, ovatc-oblong, acute, entire, downy, two or three inches long, and one or two broad. Flowers numerous, pretty large, white, fragrant, in terminal fascicles of generally three, or five, sub-sessile ones, or growing on short, axillary branchlets; embraced by one, or two pair of large bractes, and by a greater number, when the fascicle terminates a primary branchlet; the addition in this, as in most of the other Indian species, proceed in opposite pairs of three-flowered peduncles. Bractes opposite, always two, generally unequal pairs, of an ovatecordate shape, under each fascicle, and some small subulate ones within them, all villous, like every other tender part of the plant. Calyx downy. Tube short. Segments five, six, or seven, subulate. Corol smooth. Tube twice the length of the calyx, sub-cylindric. Border of from five to eight, oblong segments, rounded at the apex, with a small point in the middle. Germ two-celled, one ovulum in each. Style longer than the tube of the corol. Stigma entire, linear, with a groove on each side. Berries one or two, united from the middle down* wards, size of a large pea, oval, smooth, succulent, and of a shining black colour when ripe, one-celled. Seed single, oval. Integuments two; exterior composed of woolly fibres;

inner thinner and more tender, both dark, brownish black, Perisperm none. Embryo erect* Cotyledons conform to the seed, green. Plumula two-lobed. Radicle patelliform, inferior.

9. J. latifolium. R.

Shrubby, twining. Leaves opposite, petioled, cordate. Corymbs terminal; calycyie segments from five to seve subulate; those of the corol from ten to twelve, linear, and cuspidate. Berries kidney-shaped.

Teling. Adivi-mulH.

To the best of my knowledge, this species is a native of the mountainous parts of the Circars only. It is much larger than the other species, though like them it has a woody twining, or climbing stem, but its branches are in general straight and spread. Branchlets opposite, smooth. Leaves opposite, petioled, varying from oblong to broad-cordate, pointed, entire, smooth; size various. Corymbs terminal, divided by threes, diffuse. Flowers large, white, fragrant. Calyx with a short tube, and seldom more than five-cleft border. Corol tubular; border from eight to twelve-cleft; segments slender, and patent. Berries one or two; when single oblong; when two kidney-shaped.

10. J. arborescens. R.

Arborescent. *Leaves* opposite, and three-fold, oblong, downy. *Flowers* terminal, numerous, cerymbiforig, border from ten to twelve-cleft. *Stigma* two-lobed.

Sans. Soptula, Nwva-midlika.

Beng. Bura-Koonda, N?tva-inullika.

Nyctanthes grandi/lora. Loureir* Cochin Ch. 26.

A native of the more elevated parts of Bengal, where it blossoms about the beginning of the hot season.

Trunk scarcely any; branches many, stout, woody, suberect, covered with smooth, ash-coloured bark; young shoots round, and somewhat villous. Height of the whole tree tea or twelve feet. Leaves opposite, rarely three-fold, or alternate, short-petioled, ovate-cordate, acuminate; margins entire, and often waved, smooth on both sides; from two to four inches long, and from one to three broad. Petioles channelled, jointed near the middle. Flowers on terminal, trichotomous, three-flowered peduncles, often forming large, corymbiform panicles; they are large, white, and very fragrant Bractes subulate, villous* Calyx crowned with five or six subulate, incurved, villous divisions. Corol; tube longer than the calyx. Border of ten or twelve, somewhat acute, linear divisions. Anthers ovate, within the tube. Germ turbinate, two-lobed, two-celled, with one ovulum in each, attached to the upper part of the^ partition. Stigma two-lobed, about halfway up the tube of the corol.

dbs. This species is nearly allied to my J. latijblium₉ and indeed the only specific difference I have yet been able to observe, is, that this species has no tendency to twine or climb; that is twining.

11. J. angustijblium. Vahl. en.pl. 1. 29. Linn.sp.pl. ed. Willd. 1.36.

Shrubby, twining; polished. *Leaves* opposite, petioled, ovate, smooth, of a shining deep green. *Flowers* terminal, one, two, or three, *corol* eight or nine-parted. *Berries* single, ovate.

Nyctanthes triflora. Burm. Ind. 4. t. 2.

•7. vvtineam. Willd. loc. c&t.

Katu-pitsjegam-Mulla. Rheed. Mai. 6. p. 93. t. 53.

This is much like *Burvian's* figure quoted above, but does not accord with his character of alternate leaves; it is very common, and at the same time one of the most beautiful species of Jasmine I know. It abounds in every forest on the coast of Coromandel. Blossoms during the hot season; but in a state of cultivation flowers are produced the greatest part of the year.

Stem and branches woody, twining, smooth. Leaves opposite

on every part of the shrub, short-petioled, ovate-oblong, or oblong-, sometimes nearly cordate, finely-pointed, smooth, shining, firm, very deep gTeen, veinless. Flowers terminal, generally three-fold, peduncled, large, white, with a faint tinge of red, star-shaped, having a peculiar but very pleasant fragrance. Peduncles clubbed, smooth* Calyx; tube short; segments acute. Carol; border generally eight or nine-parted; divisions lanceolate. Style short. Stigma lanceolate, ferries oblong.

Obs. I have for many years cultivated this species. It grows easily in every soil and situation, is constantly covered with leaves, and their bright, shining deep green colour, renders it always beautiful, and particularly well adapted for screening windows, covering arbours, &c.

12. J. tubiflorunu R.

Scandent. Leaves sub-sessile, ovate-oblong, smooth. Flowers terminal, from three to five, short-peduncled. Calychie segments from seven to eight, subulate, one-sixth the length of the very long slender tube of the corol. Berries ovate.

A- native of the Malay Archipelago, differs from all the other Indian species hitherto examined by me' in the great length of its slender tube, which is* three times longer than the seven or eight, lanceolate segments of its border.

13. J. simplicifolium. linn. sp. pi. ed. Willd. 1. 38.

Shrubby, spreading. *Leaves* oblong, polished. *Flowers* from three to many terminal. *Border* of the corol of from six to eight, linear, acute segments, equalling the tube in length.

Native place, the Friendly Islands, and the Eastern Archipelago, &c. Flowering time in the Botanic garden the hot season. It does not ripen seeds in Bengal.

Trunk scarcely any; branches many, stout, ligneous, round, smooth; branchlets spreading* in all directions. leaves sim-VOL.I. pie, opposite, short-petioled, oblong, entire; highly polished on both sides; abouttwo inches long, and about one broad. Flowers terminal, from three to a decussute panicle, with its ramification trifid. Pedicels clavate, round, smooth. Bractes minute, subulate. Calyx campanulate, with a five-toothed border. Corol; tube, many times longer than the calyx. Border from six to eight-parted; divisions linear, acute, about to long as the tube. Anthers half erect. Style shorter by halfnan the tube of the corol. Stigma two-cleft.

14. J. auriculatum. Linn. sp. pi. ed. Willd. 1. 38.

Shrubby, twining. *Leaves* sub-ternate, leaflets ovate, the pair minute or wanting. *Border* of the calyx with five, obscure, glandular teeth. *Corol* seven-cleft. *Berries* globular.

Sans. Magudhee, Gwnika, Yoot'hika, Umbustha. See Asiat. Res. iv. 246.

Beng. Jut'hi, or Jui.

This species is a native of various parts of India, but not common. Its habit is twining, with a woody stem, aud branches.

Leaves opposite, ternate. Leaflets, the pair very small, standing opposite, sometimes wanting; the terminal one .at least ten or fifteen times larger; all ovate, entire, with a minute poinf, smooth, except when young, when they are downy. Corymbs terminal, always three-forked, dense. Flowers small, white, sweet-smelling, though less fragrant than those of the former species. Calyx five-notched, with a round firm glandular process on the outside of each. Corol; border from five to eight-cleft, divisions oblique, obtuse. Stigma clavate. Berry exactly as in Sambac.

15. J. lanceolaria, R.

Shrubby, erect. *Leaves* ternate; leaflets lance olar. *Corymbs* terminal.

A native of the juggles or copses of Silhet, where it blossoms in May.

16:'3; paniculatum. R.

Shrubby* erect, every part polished. *Leaves* ternate; *leaflets* oval, obtusely acuminate. *Panicles* terminal.

Sam-yeip-son-hing of the Chinese.

From Canton in China this fine erect, shrubby, highly polished species was received into the Botanic garden, where it blossoms during the rains. The leaflets are from oval to oblong, with an obtuse point, polished, of a hard future. The flowers are small and white, but numerous, on terminal pretty large open, brachiate panicles.

17. J. chrysanthemum. R.

Shrubby, erect. *Leaves* alternate, pinnate; *leaflets* three, five, or seven, lanceolate. *Corymbs* sub-terminal. *Calycine segments* attenuate.

Hemapushpica, or yellow yuthica. *Asiat. Res.* iv. 246. *Sans.* Hema-psoohptka.

A native of the mountainous countries north of Hindoostan. Colonel Hardwicke found it on his journey to Sirinagur, (see *Asiat. Res.* vi. 349. Jasminum, No. 3.) and Dr. Buchanan in Nepal. In the Botanic garden it grows freely from cuttings, an3 becomes a stout, erect ramous shrub, even a small tree, without the smallest tendency to lean, or twine. Flowers more or less the whole year; but, like the other species or less the whole year; but, like the other species the proper season is April and May, at which time it is the most desirable Jasmine I have yet seen.

Stem stout and woody, in plants seven or eight years old as thick as a man's leg. Bark smooth, ash-coloured. Young shoots erect, flexuose, angular, smooth; height of the shrub from eight to twelve feet. Leaves alternate, unequally pinnate; at the base of the young shoots ternate or even sometimes solitary. Leaflets two, or more generally three pair, and a terminal one; opposite, lanceolate, smooth, dark green, but not glossy; from one and a half to three inches long. Corymbs generally terminal, from ten to twenty-flowered, as in the figure of Jaminum odoratissimum, in Curtis'* Bot.

Mag. No. 285. Flowers large, bright yellow, delightfully fragrant. Bractes ensiform. Calycine segments five, alternate, nearly as the tube of the calyx. Segments of the cbrol five, oval, obtuse, length of the tube. Filament short. Anthers linear, with their apices rather above the mouth of the tube of the corol. Germ two-celled, with two ovula in each, attached to the middle of the partition. Style half the lengtictof the tube. Stigma clavate.

18. J. grandiflorum. Linn, sp.pl. ed. Willd. 1. 41.

Shrubby, scandent (in India). Leaves opposite, pinnate; exterior three or five leaflets confluent. Peduncles terminal.

Catalonian, or Spanish Jasmine.

Pitsjigam mullo. Rheed. MaL 6. U 52.

Sans. Sooim/na, Malutee, Jati.

Beng. Jatee.

This plant I have only found in gardens, where it flowers the greater part of the year.

19. J. heterophyllum. R.

Shrubby. Leaves alternate, petioled, simple, sometimes temate, ovate-lanceolate, waved, lucid, finely actiminatc.

A stout shrubby species, a native of Nepal. In the Botanic garden its branches are weak and variously bent; the bark roughened with little elevated gray spots. ^ While the plants are young the leaves are for the most part temate, afterwards they are simple.

PHILLYREA. Schreb. gen.plant. N. 24.

Calyx four-toothed. Corol one-petalled, four-cleft. Germ two-celled, two-seeded. Drupe or berry superior, one or two-seeded. Embryo inverse, and furnished with a perispenn.

1. P. paniculata. R.

Arboreous. Leaves opposite, ovate-oblong, entire, smooth. Panicle terminal.

A native of China and from thence introduced into the Botanic garden near Calcutta, before 1^93. Now, 1802, they have grown to be beautiful small trees, of from fifteen to twenty feet in height, clothed almost to the ground, with numerous, opposite, spreading, and drooping branches, covered with smooth, ash-coloured bark.

Leaves opposite, petioled, drooping, ovate-oblong, sides incurved, entire, leathery, smooth on both sides, above a shining deep green, underneath glaucous, with two or more obscure glands near their base: from four to five inches long, and from two to three bread. Petioles short, recurved, chan-Stipules none. Panicles terminal from the exterior nelled. axills, ramifications thereof opposite, and smooth. Flowers very numerous, rather small, pure white, somewhat fragrant. Bractes minute, caducous. Oalyx obscurely four-toothed. Corol one-petalled; tube short; segments linear, revolute, smooth. Filaments opposite, inserted into the bottom of the tube of the corol, and about as long as the segments of its border. Anthers incumbent. Germ above, but lodged deep in the bottom of the calyx, two-celled, with two ovula in each. Style short. Stigma clavate, entire. Drupe size of a small French bean, obliquely obovate, smooth, generally one-celled. JVut solitary, with the rudiment of a second, but I never saw more than one come to maturity; pointed at the base, furrowed on the outside, covered with a thick, Somewhat indurated envelope, though scarcely hard enough to be called a nut. Embryo inverse, lodged in a pearl-coloured amygdaline perisperm.

Obs. Ligustrum japonicum. *Thimb. Flor. Japan, p.* 17. $J \setminus J$ 1. is a tolerably good representation of this tree; but the one-seeded nut, short sfyle, and clavate stigma of my plant, will not allow me to think they can be the same.

2. P. robusta. R.

Leaves ovate-oblong, entire, acuminate. Panicles terminal, large and spreading. Berries sub-cylindric, one-seeded.

Bhooeemoora, the vernacular name in Silhet, where it grows to be a very large tree, and furnishes the natives, &c. with very hard durable wood. Flowering time June and July; the seed ripens in January and February,

Young shoots void of pubescence, but dotted with small whitish specks. Leaves opposite, short-petioled, ovate-lanceolate, acuminate, entire, smooth; three or four inches long, and one or one and a half broad. Panicles terminal, large, very ramous; ramifications four, round, and villous. Floieers oblong, acute, villous. Calyx bowl-shaped, four-Corol campanulate. Tube very short; border toothed. four-parted. Filaments short, inserted on the little tube of the corol opposite to each other. Anthers oblong. Germ superior, depressed, two-celled, with two ovula in each, attached to the top of the partition. Style and stigma clavate, apex flat and emarginate. Berries (for they can scarce be called drupes) sub-cylindric, smooth, succulent, dark olivepurple, size of a large berry, rarely more than one-celled. Seed solitary, conform to the berry. Integuments two; exterior fibrous, and striated; interior rather thick, brown, adhering to the perispenn. Perisperm conform to the seed, oily. Embryo straight, nearly as long as the perisperm, inverse. Cotyledons lanceolate. Radicle cylindric, superior;

MILL1NGT0NIA. R.

Calyx three-leaved, calycled. Corol three-petalled, nectarial scale on the inside of each. Germ two-celled, two-seeded. Drupe with one, or two-celled, two-valved nut; seed solitary* Embryo curved and folded, with little or no perisperm, and with a curved inferior radicle.

Having found it necessary to deprive our countryman the late Sir Thomas Milling-ton of the genus assigned to his memory by the younger Linnaeus, (Supl. 45 and 201) because, on finding the ripe seed vessel of the only species thereof, I ascertained it to be a true Bignonia as I suspected; 1 have

therefore restored that respectable name to the system, under a different dress, by giving it to the two trees which at present constitute this strongly marked family, and which, I am inclined to think, have not, until now, been described. .

1. M. simplicijblia. R.

Leaves alternate, simple, broad-lanceolate.

A large tree, a native of Silhet, where it is called *Dantrungee* by the natives; the timber is used for various purposes. *Flowers* in February and March; seed ripens in July and August.

Leaves alternate, petioled, broad-lanceolar, tapering most toward the base, entire, or very remotely sub-serrate, in very young plants completely serrate, rather acuminate, smooth; veins simple and paralleled; from six to twelve inches long, by three or four broad. Panicle terminal, large, oblong, patent, brown, villous branches. Flowers numerous, sessile, very minute, yellow. Bractes oblong, clothed with ferruginous pubescence. Calyx three-leaved, independently of two or three minute, villous bractes, like a calycle; leaflets ovate, smooth, permanent. Petals three, broad-ovate, waved, twice the length of the calyx, permanent. Nectary a variously lobed, smooth scale from the base of each petal on the inside, they form a dome over the pistillum, and round the base of the germ is found a flat, triangular body, with its angles bidentate. Filaments two, opposite, incurved, inserted without the interior, three-angular nectary; bifid, the inner lamina supporting on its apex a patelliform receptagle, on which die two-lobcd yellow anther rests. Exterior lamina bifid, segments subulate, rising rather higher than the anther. Germ superior, two-celled, with two ovula in each, attached to the thickened middle of the partition. Style single, short. Stigma obscurely two-lobed. Drupe size of a pea, nearly round, succulent, smooth, black, one-celled. Nut conform to the drupe, rarely more than one-celled, hard, cell somewhat % angular; the second or abortive cell always traceable. Seed

solitary, concave on the side next the abortive cell of the nut, hemispheric on the other: *Integument* single, membranaceous. *Perisperm* none. *Embryo* curved, and doubled, as in the *Convolvulacece*, with a curved inferior *radicle*.

2. M. pinnata. R.

Leaves alternate, abruptly pinnate; leaflets from six to twelve" pair, sub-opposite, lanceolate.

Batiwa, the vernacular name in Silhet, where it is indigenous, growing to be a middling sized tree, the wood of which is employed by the natives in constructing their houses. Flowers iii April and May. The seeds ripen in September.

Branchlets smooth. Leaves alternate, abruptly-pinnate; from six to eighteen inches long. Leaflets from six to twelve pair, sub-opposite, short-pctioled, lanceolate, remotely serrate, acuminate, smooth, three to six inches long, by one or one and a half broad. Panicles terminal, very large and very ramous, a little hairy. Bractes minute. Flowers numerous, small, white. Calyx three-leaved, with two smaller ones under them, which may be called bractes or a calycle; or, the calyx may be called five-leaved. Nectary, from the inside of the base of each petal arises a variously lobed, ragged leaflet or scale, which is incurved over the germ; besides which round the base of the germ is a small, three-sided cup with bidentate angles. Filaments two, opposite, length of the germ, short, broad, with enlarged apex; from the base on die outside, rises a broad, tridentate scale, of about the length of the filament. Anthers twin, each lobe globular, opening transversely on the inside. Germ superior, qordate, two-celled, with two ovula iu each cell, attached to the partition. Style short. Stigma small, bidentate. Drupe size of a pea, smooth, black, succulent, one-celled. Nut roundish, thick for its size and very hard, rugose, one-celled, two-valved, with a projection into the cell opposite to the remains of the style on one side near the base, which marks the abortive lobe. litary, conform to the nut. Integument single, meiubranaceous.

Perisperm none, or in small quantity, and blended with the integument. Embryo curved, and folded up nearly as in the Convolvulacea. Cotyledons ovate-oblong. Radicle inferior, curved.

OLE A. Schreb. gen. N. 25.

Corol and calyx four-cleft. Germ two-celled, two-seeded. Drupe superior, one-seeded. Embryo inverse, and furnished with a perisperm.

1. O.Jragrans. Linn. sp. pi. ed. Willd. 1. 4. 6.

Shrubby. Leaves oblong-lanceolate, slightly serrate. Peduncles axillary.

Olesijragrans. Thunb. Jap. 18. t. 2. good.

A native of China, in the Botanic garden it blossoms during the cool season.

2. O. paniculata. R.

Leaves opposite, petioled, oblong, entire, smooth. Panicles axillary. Bractes deciduous. Lobes of the stigma divaricate.

A small tree; a native of the Circar mountains. Flowers during the hot season.

Leaves opposite, petioled, oblong, waved, entire, running down the petiole, smooth on both sides, firm, about five inches long, and two broad. Petioles an inch and half long, smooth, flat above. Stipules none. Panicles below the leaves, and also from the, axil Is, small, thin, bracbiate. Bractes small, nearly sessile. Calyx four-cleft, small. Corol one-petalled; tube shorter; border four-cleft; divisions oblong, spreading, concave; apices sharp and incurved. Filaments two, opposite, short. Anthers large, oblong, erect. Germ superior, round. Style very short. Stigma two-cleft; divisions entire, acute. Ripe fruit not observed.

3. O. dioica. R.

Arboreous, dioicous., Leaves opposite, short-pctioled, oblong, serrate. Panicles axillary.

Atta-jam, the vernacular name in Silhet, where it is indigenous; also on the lulls of Chittagong. In both places it grows to be a pretty large tree, the timber of which is reckoned excellent, and put to many uses by the natives. Flowering time the month of March and April; fruit ripe in July.

• Bark of the old ligneous parts ash-coloured; of the young shoots smooth and green. Leaves opposite, short-petioled, oblong, tapering equally at each end, remotely, and acutely serrate, acuminate, smooth, from four to eight inches long, by Stipules, the oval concave scales of from two to four broad. the buds only. Panicles axillary, and opposite, below the leaves, thin' and not above half their length. Male flowers more numerous, small. Calyx four-toothed. Corol one-petalled, tube very short; border four-parted. Filaments two, very short, inserted on the short tube of the corol. oval, hid in the corol. . Germ none, a small two-lobed gland supplies its place. Female on a separate tree, (probably HERMAPHRODITE, and in that case all the corols with the stamina, must have fallen off at a very early period; which I have no reason to think was the case, as they were examined at what I consider a proper age, and no traces of the place where a corol grew could be found.) Calyx as in the male. Corol none. Germ superior, ovate, two-celled, with two ovctla in each, attached to the top of the partition. Style short. Drupe nearly round, in size and colour · Stigma two-lobed. much like the common sloe, Prunus Spinosa9 one-celled. Nut conform to the seed, thin and rather brittle than hard, onecelled. Seed solitary, conform to the nut. Integument single, Perisperm conform to the seed, firm, pearl-colour. thin. Embryo inverse, shorter than the perisperm, and considerably narrower. Cotyledons ovate-lanceolate. Radicle superior.

CHIONANTIIVS. Schreb. gen. N. 26.

Calyx four-parted. . Corol one-petalled; segments long. Germ two-celled, two-seeded. Drupe superior, one or two-fseeded. Embryo inverse, without perisperm.

1. C. ramiflora. R.

Arboreous. *Leaves* opposite, broad-lanceolar, entire. Panicle below the leaves.

• A native of the Moluccas. Flowering time March and April. Seed ripe in September.

Trunk erect, bark smooth, ash-coloured; branches opposite; young shoots smooth, and round. Leaves opposite, pctioled, broad-lancoalar, entire, acute, smooth on both sides; length about six inches. Petioles channelled, smooth, about an inch long. Panicles opposite, from the naked brandies bek>w the leaf-bearing shoots, ovate, brachiate, much longer than the leaves, smooth in every part. Floicers numerous, JBractes opposite, lanceolate. small, yellow. Calyx fourparted. Corol to the base four-cleft, consequently there is litile or no tube, segments of the border lanceolate, with incurved margins. Filaments short and thick, inserted both on the base of the corol and the receptacle. Anthers a polleniferous groove on each side of the short, thick filaments. scarcely any. Stigma four-lobed. Drupe oblong, one-celled. Nvt oblong, striped, one-celled. Perisperm none. inverse. Cotyledons conform to the seed.

2. C. Zeylanica. Linn. \$p. pi. ed. Willd. 1. 47.

Leaves opposite, short-petioled, obovate, entire, smooth. Racemes axillary, often compound; flowers ternary, liractes ova<u>il</u>

Lin<^m purpurea. Vahl. En. pi. 1.47. Said to be a native of Ceylon.

3. C. dichotoma. R.

Shrubby, dichotomous. Leaves cuneiforin-lanceolar, recurved, entire. Racemes axillary; pedicels three-flowered.

Native place Coromandel. The Asiatic synoiiima are uncertain. Flowering tune in the Botanic garden the month of March.

Trunk short; bark dark ash-coloured, with many, elevated, lighter coloured specks. Branches dichotomous throughout, very numerous; height of the shrubs in the Botanic garden, about seven feet in seven years. Leaves opposite, short-petioled, broad-cuneiform, lanceolar, entire, rather obtuse⁴; surfaces smooth, texture hard; three inches long by one broad. Racemes axillary, solitary, scarcely half the length of the leaves. *Pedicels* sub-opposite, diverging, three-flowered. Flowers small, white, inodorous. Calvx fourparted; segments ovate, obtuse, villous. Corol, the segments can scarcely be said to be united at the base, except by the filaments, which are inserted on the bases of two, and in that manner form two pair of segments; they are nearly exact, taper a little, and have their margins much incurved. Filarments two, short. Anthers large, with bifid apex. four-sided, ovate, two-celled, with two ovula in each attached to the middle of the partition. Style short. Stigma obscurely two-lobed. Drupe superior, oval, or short obovate, size of a black current, succulent, when ripe purple, one-celled. Nut obovate, rather thin, and tender, marked with four ribs from the apex to the base, with four small, imperfect ones between, one-celled. Seed solitary, conform to the nut. *Integument* single, thin, and tender. Perisperm none. Em-Cotyledons conform to the seed. Radicle pabrvo inverse. tellifonn, superior.

SCHREBERA. R.

Calyx bilabiate. Corol salver-shaped. Capsule superior, turbinate, two-celled, two-valved. Seeds several, membranewinged.

S. swietenioides. U. Corom.pl. 2. N. 101. Teling. Mucaadi.,

Tarn. Mogalinga marum.

A large timber tree, a native of vallies over the mountainous parts of the Raja-mundri Circar, Balaghata mountains, &c. FJowering time the beginning of the hot season.

Trunk erect. Bark scabrous. Brandies numerous, spreading in every direction, so as to form a large beautiful shady head. Leaves nearly opposite, petioled, pinnate with an odd one, about a foot long. Leaflets, three or four pair, opposite, short-petioled, the lowermost largest, and obliquelyovate, or cordate, while those towards the apex become narrower; all are entire, pointed, smooth on both sides, and about three or four inches long. Petioles round, smooth. Stipules none. Panicles terminal, thin, trichotomous. Bractes small, caducous. Flowers rather small, white and brown, variegated, very fragrant during the night. Calif x beneath, tubular, somewhat two-lipped; lips nearly equal, emarginate, sometimes there are two lateral toothlets, one on each side in the fissures which separate the lips. *Corol* one-petalled, salver-shaped. Tube cylindric, three times longer than-ilie calyx. Border spreading, divided into five, six or seven cuneate, truncate segments. Filaments two, short, inserted below the middle of the tube. Anthers oblong, hid within the tube of the corol. Germ above, oval. little longer than the tube. Stigma bifid. Capsule large, pear-shaped, size of a pullet's egg, scabrous, very hard, twocelled, two-valved, opening from the apex. Seed four in each cell, they are irregularly oval, and compressed, with a long membranaceous wing.

Obs. The wood of this tree is of a gray colour, very closegrained, heavy and durable. It is reckoned less subject to bend or warp than any other hereabouts; on which account it is employed by weavers in many parts of their looms, particularly the beam. It is also used for a great variety of other purposes. I am inclined to think it would answer well for scales to mathematical instruments; it does not Jook so well as box, but its not being subject to warp may render it fitter, though not so handsome.

ERANTHEMUM. Linn. Flor. Zeyl. 15.

Calyx five--cleft. Corol hypocrateriform; border regular, or nearly so. Filaments four, two of them sterile. Capsule two-celled, two-valved, bursting with elasticity opposite to the partition.

1. E. montanum. JR.

Shrubby, diffuse. Leaves oblong, acute. Spikes terminal. Bractcs linear, hairy.

'Jvstica montana. R. Corom.pl. 2. N. 176.

A small, straggling, jointed, under shrub; a native of the Circar mountains, flowers during the cool season.

Stems many, striated, jointed, smooth, leaning on the ground, and rooting at the joints, young shoots four-sided. Leaves opposite, pctioled, oval and oblong, pointed, running down the petioles, from three to four inches long, and uboiit Spikes many, terminal, erect, slender. Peduntwo broad. cles four-sided. Bractes exterior, opposite, decussate, linear, acute, hairy, one-flowered. Bracteoles two to each flower, pressing laterally the calyx, and like the exterior, but much smaller. Flowers opposite, solitary, decussate, very pale blue. Calyx five-parted; segments subulate. Corol with a very long, and very slender tube, border of five equal obovate truncate, pale blue segments. Filaments short. Anthers single, oblong, within the tube of the corol. Style length of the tube of the coroL Stigma unequally bifid, appearing inst without the tube. Capsule linear-oblong, compressed, pointed, two-celled, two-valved, opening across the partition, with an elastic jerk. Seeds two in each, compressed.

2. E. pulchellum. Andrew's Repos. vol. ii. 88.

Shrubby, erect. *Leaves* ventricose-obloug. *Spikes* terminal, imbricated. *Bractes* ovate-oblong.

Justicia pulchella. Roxb. Corom.pl. 2. No. 177,

Justicia nervosa. Vahl. En. pi. 1. 164.

Beng. Kalla-Jat ...

Hind. Gool-sham.

A most beautiful, stout, flowering shrub; a native of dry, uncultivated, shady places, over various parts of Iudia, flowering time the cold season. It is generally in its full beauty in February.

Stems many, erect, and ascending or nearly so; two or three feet high. Branches many; young shoots four-sided, smooth. Leaves opposite, sbort-petioled, oblong, waved, pretty smooth; from six to nine inches long, and from three to four broad; they are of a much deeper and brighter green than in E. montana/which this resembles most. Spikes terminal, Bractes disposed as in the former, but larger, broader, oil iate, and much nearer to each other. Flowers disposed as in the former but large, and of a deep bright blue purple colour. Capsule and seeds as in E. montana.

3. E. suffruticosum. /?.

Shrubby, erect. *Leaves* ovate-oblong, smooth. *Spikes* terminal; *bractes* wedge-shaped, naked. *Stamens* within the tube.

A native of the Andaman Islands, whence several plants were brought to the Botanic garden, by Colonel Kyd; and are now (March 1797) in blossom. It is a small &hrub, and of slow growth.

Stem and branches sub-erect, jointed; ,the younger somewhat four-sided and a little hairy. Leaves opposite, shortpetioled, oblong, and ovate oblong, somewhat repand, smooth on both sides. Spikes terminal, flowers opposite. Bractes three-fold, one-flowered, the exterior largtf, wedge-shaped, and naked; the interior daggered. Corol; tube length of

the exterior bractes. *Jtorder* regularly five-parted, pale blue. *Stamens* two, abortive filaments issuing from the base of the two fertile ones. *Anthers* half hid in the tube of the corol.

4. E. diantherum, R.

SufFruticose, erect. *leaves* broad-lanceolar, smooth. *Racemes* terminal, in axillary, peduncled umbellets. *Corol* somewhat bilabiate. *Anthers* twin.

A small delicate, perennial plant, brought from the Moluccas in 1800, blossomed in the Botanic garden in September 1801.

Stem curved, simple; branches few in our small young plants. Leaves opposite, petioled, ovate-oblong, entire, obtuse, destitute of pubescence, somewhat bullate; about two or three inches long, by one broad. Flowers numerous^ collected on small, long-ped uncled, axillary umbellets; and in opposite fascicles, or solitary on a long terminal, slender, erect raceme; small, white, with a slight tinge of red, and soige minute red spots on the base of the middle divisions of the under lips. Bractes₉ a single, ensifonn one, at the base of each peduncle, with one or two, still smaller, ah*''Vt tne middle of each pedicel. Calvx divided almost to the base into five slender, acute divisions. Corol; tube long, slender, Border sub-bilabiate: upper lip erect, twoand curved. parted; lower three-cleft; all the five segments equal. Filcbments four, short, in the mouth of the tube, two of them very minute, and abortive. Anthers erect, twin. Capsule with , two, or four, somewhat scabrous flattened orbicular seeds.

Obs. Is nearly allied to my E. racemosum, but differs from it in having long, slender-peduncled fascicles of flowers in the axills of the leaves, as well as in having from one to three or more flowers on each of the lower opposite peduncles of the racemes, while in that there in only one; and lastly, in having the upper lip of the corol only two-parted, which in that is three-cleft.

5. E. racemosum. R.

SuftVuticose. Leaves oblong, ventricose. Racemes terminal; corol somewhat bilabiate, beth lips three-parted.

A small, under shrub, of great beauty, brought into the Botanic garden from the Moluccas, in 1798 5 and blossomed in November, 1799.

Stem small, with a few, slender branches; height of the whole plant about two feet. Leaves opposite, petioled, oblong, ventricose, and running down on the petiole, entire, and pretty smooth; from .two to three inches long, and broad in proportion. 'Racemes terminal, some of them long, and slender; others shorter. Flowers opposite, pedicelled, approximate, pretty large, colour a pale pink, or white, tinged with red. Bractes subulate, one at the base of each pedicel, and two on it. Calyx; divisions equal, and subulate. Corol infundibuliform; border somewhat bilabiate; both lips three-parted, the under one considerably larger. Filaments four, short, inserted within the mouth of the tube, two of them minute, and abortive. Anthers half erect.

6. E. barlerioides. Roxb.

S-Vsjbby, erect. Leaves ovate-oblong, smooth. Spikes terminal. Bractes wedge-shaped, naked. Stamens within the long slender tube, adjoined to them are two abortive filaments.

A native of the Andaman Islands, from whence several plants were brought to the Botanic .garden, by Colonel Kyd» which blossom in' March. It is a small shrub, and of slow growth.

Stem and branches sub-erect, jointed, the younger somewhat four-sided, and a little hairy. Leaves opposite, short-petioled, oblong and ovate-oblong, somewhat repand, smooth on both sides. Spikes terminal; flowers opposite. Bract ss three-fold, one-flowered, the exterior large, wedge-shaped, and naked; the interior daggered. Corol; tube length of the exterior bractes. Border regularly five-parted, pale blue.

Stamens* two abortive filaments issuing from the base of the two fertile ones. Anthers half hid in the tube of the corol.

JUSTICIA. Schreb. gen. N. 35.

Corolone-petalled, irregular. Capsule superior, two-celled, two-valved, bursting with elasticity contrary to the partition.

SECT. I. Anthers' single.

1. J. Ecbolium. Linn. sp. ph erf. Willd. 1. 86.

Shrubby, erect. *Spikes* terminal, four-sided. *JBractes* oval, ciliate. *Corol* bilabiate, tube filiform; upper lip linear, reflexed, with bipartite apex. *Capsule* two-seeded.

Carim curini. Rheed. JlIaL 2. t. 20.

Hind. Oodoo-ÿ<iti.

A native of our Indian forests. Flowers the greatest part of the year.

* Stems several, woody, straight, round, smooth, jointed, and swelled above the joints; from two to four feet high. Leaves opposite, petioled, oval, tapering a little towards each ead, smooth, a little waved. Spikes terminal, four-sided, imbricated with four rows of large, oval, sharply serrated, waved, cine-flowered bractes. Flowers a pale blue or azure colour. Corol; tube very long and slender; upper lip linear, reflexed, becoming revolute, apex bifid; under lip very broad, three-parted. Anthers simple, linear, erect. Stigma perforated, ciliate. Capsule two-seeded.

2. J. thrysifiora. R.

Shrubby, erect, smooth. *Leaves* lanceolar, drooping. *Racemes** terminal, flowers verticelled. *Corol* sub-bilabiate. *Capsule* clavate, ten or twelve-seeded.

This beautiful stately species is a native of the interior part of Bengal, and from thence was introduced by **Dr.**

William Carey, into the Botanic garden, where it flowers in January and February, and the seeds are ripe in March and April.

Stem straight, woody. Branches nearly Root ramous. straight, general height from four to eight feet; woody parts round, and covered with smooth ash-coloured bark; young shoots smooth, swelled at the insertion of the leaves, somewhat. four-sided, and tinged with dull purple. Leaves opposite, short-petioled, drooping, lanceolar, entire, smooth on both sides, of a firm texture, the upper side deep green, the under, side pale; from four to eight inches long, and from one to two broad. Racemes terminal, often solitary, though sometimes two, or even three-fold, thyrsiform, shape of the flame of a candle, crowded with large orange-coloured flo^vers. Pedicels four-fold, verticelled, approximate, one-flowered, shorter than the divisions of the calvx. Bractes three-fold, subulate; the inner two permanent, and inserted on the base of the pedicels; the exterior single one larger and caducous. Calyx simple, five-cleft, to the base divisions equal, straight, subulate, half the length of the tube of the corol. Carol about an Tube incurved, compressed, laterally somewhat inch long. vilitAMp., Border bilabiate; tipper lip broad, projecting straight forward, deeply emarginate; under lip of three, equal, deeply-divided, ovate, acute divisions. Anthers even with the upper lip of the corol, dark brown, oval, an opening on the under side for the discharge of the white pollen, and studded on the back. Style scarcely so long as the stamina. Stigma entire. Capsule linear-davate, smooth. Seeds five or six in each cell.

Obs. This is .one of the most beautiful species of *Justicia* I have yet met»with in India, even when only in foliage. It grows readily from cuttings.

3. J. vitellina. R_m

Shrubby, erect. Leaves broad-lanceolar, reflexed, smooth. Racemes terminal, cylindric; flowers opposite; below fas-

cicled, about the middle tern, and above single; sub-ringent, with ample-campanulate throat. *Capsule* linear, few-seeded.

A native of the hilly parts of Chittagong, where it blossoms in February and March.

Steins scarcely any, but several, erect, stiff, short branches, with their ultimate tender divisions four-sided, the angles sharp, and rather rough; whole height of full grown plants about three feet. Leaves opposite, short-petioled, reflexed, from oblong to Ianceolar, entire and pretty smooth; from two to four inches long, by from one to two broad. Racemes terminal, solitary, rigidly erect, cylindric; from three to six inches long. Rachis four-angled. ther small, colour yellowish pink, on the lower part of the raceme in opposite fascicles, about its middle in threes on common very short peduncles and pedicels; above single. Sractes to the single flowers, solitary; to the lower, three. Califx single, five-parted; divisions broad-subulate. with the tube shorter than the calyx, and an ample-campanulate throat; border sub-bilabiate; upper lip projecting* almost horizontally, bifid; lower lip broad, and three-parted. Filaments mucji curved, hairy near the btuse. single, linear, lodged under the upper lip of the corol $G^{\wedge}rm$ two celled, about four ovuia in each. Stigma simple, obtuse. Capsule linear, smooth.

4« J. alba* 22.

Shrubby, erect, smooth. *Leaves* opposite, ovate-lanceolate. *Spikes* terminal, and axillary. *Flowers* remote. *Corol* with filiform* tube, and bilabiate border.

This very pretty plant, a native of the Great Andaman, was brought from thence to the Botanic garden, by Capt. Stokoe. Flowering time the beginning of the hot season.

Stem erect, round, smooth, while young swelled above the insertions of the leaves. Leaves opposite, short-petioled, oblong, waved, smooth, and shining on both sides. Spikes numerous, terminal, and axillary, spreading, with a consider-

able recurvature, longer than the leaves, round, and smooth. Flowers opposite, remote, pure white, JBracles, three small ones to each flower, shorter than the calyx. Corol; tube long, straight, filiform; upper lip of two, erect, wedge-shaped divisions united below the middle; under lip three-parted; divisions broader and pointing downwards. Filaments short. Anthers just without the tube.

5, J. pi eta. Linn, sp. pi. ed. Wifld. 1. 88.

Shrubby, erect. *Leaves* broad-lanceolate, pointed. *Racemes* sub globular. *Tube* of the corol widening, vertically compressed, margins of the segments of the border re volute.

Tsjude maram. Rheed. MaL 6. p. 111. t. 60.

Folium bracteatum. Rnmph. Jlmb. 4. p. 73. t. 30.

A large, elegant, ramous shrub, common in gardens, and one of our finest ornaments. I never saw it wild; it is in flower most part of the year.

Leaves opposite, short-petioled, ovate-lanceolate, smooth-pointejd, generally variegated with large white spots, though sometimes of a uniform green, and we have a variety with the leaves uniformly ferruginous. Raceme\$ terminal, short, erect, smooth. Flowers large, generally of a beautiful crimson colour. Eractes opposite; below three or four-flowered; above one-flowered. Corof, throat compressed, divisions of the border soon after they expand becoming* spirally revolute, with their inside wrinkled, and beautifully ornamented with small chrystalline specks.

6. J. paniculata. Linn. sp. pL ed. Willd. 1. 89.

Herbaceous, erect, four-sided, brachiate.' *Leaves* sub-sessile, lanceolate. *Racemes* terminal; *flowers* secund, erect. *Corol* bilabiate; *lips* linear, revolute. *Jfntliers* coalesced, and bearded at the base. *Capsules* linear, many-seeded.

Beng. Kala-megh, Kalvp-nath, or M?/ha-t?ta; the last name implies King of bitters, and a very powerful, much esteemed one it is.

{^% Kreat is the name by which it is known on the Malabar coast, &c. where it is much used in medicine, and is the bitter of the famous Nortrum, called *Drogue amere*.

Cara-canirum. Rheed. Mai. 9. p. 109. t. 5. 6.

Teling* Nella-vemgoo.

A native of dry ground, under the shade of trees, bushes, &c. Flowering: and seed time, the wet and cold seasons.

Stem erect, generally annual, at least down to the root, branchy; slender, four-sided, jointed, smooth, one to two feet high. Branches opposite, cross-armed, four-sided, spreading. Leaves opposite, short-petioled, lanceolate, entire, smooth; two or three inches long. Racemes terminal, and from the exterior axills, horizontal, long secund, four-sided. Flowers remote, rose-coloured, long-pedicelled, alternate, erect, downy. Bractes a large, exterior opposite pair; within the flower-bearing one there are two smaller, embracing the base of the pedicels. Corol bilabiate. Tube recurved; lips linear, and reflected; the superior broadest, three-toothed; the inferior two-toothed. Filaments as long as the lips of the corol, projecting, hairy. Anthers very flat, obovate, firmly united at the b^pe, and three-bearded. Capsule erect, subcylindric. Seeds three or four in each cell, cylindric.

7. J. echioides. Linn. sp. pi. ed. Willd. 1. p. 87.

Annual, erect, four-sided, hairy. *Leaves* sessile, decussate, oblong and linear. *Spikes* axillary, recurved over the bosoms of the leaves, secund. *Capsule* oblong, with four, verrucose seeds.

Pee-tumba. Rheed. MaL 9. /. 46.

A native of Coromandel, and generally found on old walls, in flower all the year.

Stem annual, erect, four-sided, hairy, with ascending, opposite, similar, branches from the base; whole height about a foot. Leaves opposite, decussate, sessile, from oblong to linear, obtuse, recurved, hairy; from one to two inches long. Spikes axillary, spreading out over the bosom of the leaves,

and in general shorter than them; in luxuriant plants compound. Bractes opposite, small, lanceolate, hairy. Flowers alternate, sessile, erect; upper lip purple, the rest white. Calyx of five, long, hairy, ensiform divisions. Corol bilabiate. Tube sub-cylindric; vpper lip erect, broad, and trifid; under lip narrower, recurved, and bidentate. Filaments projecting, straight, and about as long as the lips of the corol. Anthers simple, united and bearded at the base. Capsule oblong, erect, hairy, length of the calyx. Seeds generally two in each cell, oblong, rough.

8. J. polysperma. R_m

Annual, creeping, round, jointed. Leaves sessile, lanceolate, downy. Spikes imbricated. Bractes three-fold, oneflowered, woolly. Capsule with from twenty to thirty seeds. Beng. Chhota-inicheta.

It is a native of Bengal, and appears during the cold season amongst grass, &c. in uncultivated places.

Stems diffuse, or creeping, very ramous, six to twelve inches long, round, jointed, a little downy. Leaves opposite, sessile, lanceolate, entire, downy. Spikef terminal, and axiiiary, imbricated with opposite, decussated, flowers, and bractes. Flowers small, pale blue. Bractes three-fold, one-flowered, the lower one a little broader than the two lateral, all are woolly. Calyx woolly. Capsules linear, containing from twenty to thirty, small roundish seeds.

9. J. acaulis. Linn. sp. pi. ed. Willd. \.9A.R. Corom. pi. 2. N. 127.

Root perennial, stemless. *Leaves* radical, sessile, ovateoblong, crenate. *Spikes* ascending, imbricated. *Corol* ringent. *Capsules* many-seeded.

Elytraria crenata. VahL Enum. plant. \. 106.

Teling. Nella mura.

Grows on pasture ground, generally under the shade of trees. Flowering and seed time the wet and cold seasons.

Hoot perennial. Stem none. Leaves radical, spreading close on the ground, sessile, wedge-form or oblong, crenulated, rugose, woolly on the under side; from six to twelve inches long. Spikes radical, several, as long as, or longer than ttie leaves, ascending, imbricated from top to bottom, with small, rigid, pointed bractes, each of the superior ones embracing a flower, and two small lateral bractes. Jeyowsers small, white. Calyx five-leaved, the superior leaflets much the largest. Curol; tube cylindric, recurved; upper lip vaulted, under lip broad, three parted, with the divisions two-parted. Capsules conical, eight-seeded. Seeds kidney* form.

SECT. II. Corols bilabiate. Anthers double.

10. J. nasuta. VahL Symb. 2. 15. Linn. sp. pL ed. Willd. 1. 90.

Shrubby, erect. Xeaws short-petioled, lanceolate. *Panicle* axillary and terminal. *Upper Up* of the corol, linear and bidentate; *under Up* broad, three-Iobed.

Pul-colli. Rheed. Mai. 9. 135. t. 69.

Sans. Yooth?ka-/>t£rnee.

JSeng. Jooi-pana.

Teling. and Tamul. Naga-mull*.

This species 1 have only found in gardens: from whence it originally came, I cannot say. Flowers all the year round, but never ripens its seed, owing 1 imagine, to its being always propagated by cuttings, layers, or slips. It grows to be a'large thin shrub, of five or more feet in height.

Root woody, rainous. Stems many, erect, ramous, the old woody parts round, and covered with pretty smooth ash-co-loured bark; the tender branches, and young shoots jointed, smooth, and obsolctely six-seeded. Leaves opposite, pctioled, broad-lanceolate, point obtuse, above smooth, below a little downy, entire; from two to four inches long, and from one to two broad. Panicles corymbiform, axillary, and terminal, al-

ways three-cleft, as also the sub-divisions. *Peduncles* and *pedicels* short, round, a little downy. *Bractes* minute. *Flowers* small, white. *Corol with* a long, slender, compressed tube; *vnder lip* broad, three-cleft; *upper lip* erect, linear, sides reflected, apex bifid. *Nectary*, a fleshy ring surrounding the base of the germ. *Anthers* without the tube, twin. *Capsule*; I have not seen it.

Obs. Milk boiled on the roots, is reckoned, by the Indian physicians aphrodisiacal, and as such often employed; for no medicines are more sought after by the natives of India than those which are imagined to belong to that class.

The roots rubbed with lime juice, and pepper, are used, and often with good effect, *to* cure the *ring worms*, or Herpes miliaris, which in India is a most troublesome disease, and very common.

They are also used for the bite of poisonous snakes; hence the *Telinga* and *Tamul* name *Naga muW*, or Jasmine of the *Cobra de capella*; *Naga* is therefore prefixed to the name of the most of their antidotes, or medicines supposed to destroy the effect of poison, and occurs very often *in* their writings. For like the ancient physicians of Greece, Rome, &c. those of Iiidia at this day, make poisons, and their antidotes a very chief part of their studies; but from the seeming inactivity of a very large share of them, we may safely conclude, that their practice is equally frivolous with that of the ancients, and ought to be discouraged as muph as possible; because at least, they prevent the application of more efficacious remedies.

11. J. lanceolaria. JR.

Shrubby, erect. *Leaves* petioled, lanceolar, smooth. *Fascicles* terminal, panicled, clammy, from two to four-flowered, embraced by many, long, ensiform, bractes. *Tube* of the corol curved, and twisted; *upper lip* three-dentate; *under lip* entire.

This beautiful shrub is a native of the Silhet district, where it is called *Toogee*. Flowering time, the cold season.

Stein erect, or nearly so; branches round and smooth, and while young, swelled just above the insertion of the leaves; whole height from two to four feet. Leaves opposite, petioled, lanceolar, (that is tapering equally at each end) entire, acute, smooth; from three to six inches long, and one or two broad. Flowers numerous, large and rosy, collected in numerous terminal, clammy, fascicles of from two to four each, and embraced by numerous, ensiform, clammy bractes, like a common calyx, and longer than the proper perianths; the whole forming a pretty large panicle at the end of each Calyx five-parted; segments ensiform, smooth. Corol; tube long, slender, curved outward, and like my J. speciosa, latebrosa, &c. has a half twist; which, as in the orchidece, brings the lower lip uppermost. Border bilabiate, lips nearly equal, oblong; the superior9 in its inverted* 6tate, three-toothed; inferior entire. Filaments from the mouth of the tube of the corol, shorter than the lips, and projecting straight over the under one. Anthers double, one at the end of the other, forming one straight line; the exterior half of the posterior one being attached to the apex of the filaments, and to the base of the exterior anther.

12. J. speciosa. R.

Perennial, erect. Leaves ovate-cordate. Peduncles axillary and terminal, proliferous, few-flowered. Bractes opposite, foliaceous. Corol bilabiate, tube curved, and twisted; lips equal; upper one tridentate, lower one bidentate.

A native of the interior parts of Bengal, where it blossoms during the cold season, and is then one of the greatest ornaments of the forests.

Stems erect, jointed. Branches few, and erect. Bark of the lignous parts ash-coloured; of the young shoots smooth and green. Leaves opposite, decussate, petioled, ovate-cordate, entire, rather obtuse, a little wrinkled; from one to four

inches long. Peduncles axillary, often proliferous and much longer than the petioles, supporting two, or three flowers. Flowers large, beautiful, bright eannine colour. Bractes or floral leaves opposite, sessile, from ovate to linear. simple, divided almost to the base into five ensiform, equal portions. Corol; tube long, slender, curved, villous, and somewhat twisted; upper lip linearobloiig, recurved over the tube, apex three-toothed, at the base some dark coloured spots; under lip broad-lanceolate, pointing directly to the earth, apex slightly two-toothed. Filaments inserted in the mouth of the tube of the corol, nearly as long as its border, and, with the lower lip, pointing downwards. Anthers double, linear, purple, with pale coloured pollen. Style as long as the stamens, and beyond the tube taking the same direction with them. Stigma slightly emarginate. Capsules pedicelled, with two seeds in each cell.

:13. J. tinctoria. ft.

* Shrubby. Leaves petioled, ovate-oblong. Floicers terminal, fascicled, involucred. Anthers linear.

*l-'Fotium *inctorium. Humph. Amb.* vi. 51. *tab.* xxii.*,/! 1. *Beng.* Batia-rung.

Found in the woods about Calcutta, in full flower in October.

Stem scarcely any; brandies numerous, sub-erect; young shoots jointed, and swelled above the joints, round, a little downy. Leaves opposite, petioled, oblong, entire, covered with a little harsh pubescence, two to three inches long. Peduncles terminal, forming* the exterior axills, each supporting some few fascicles, of four to feix sessile flowers. Bractes opposite, sessile, entire; those of the flowers (better perhaps called involucels) linear, oblong, cordate, unequal: the uppermost being larger and incumbent over the fascicle of flowers. Calydne bractes small. Calyx five-toothed. Corol; tube₉ length of the largest involucres, filiform, having a

small twist near the apex. *Border* two-parted, both divisions oblong", the upper one three-toothed. *Nectary* a gaping- cup in which the germ rests. *Stamens* projecting¹. *Anthers* two on each filament. *Style* rather longer than the stamens. *Stigma* obtuse.

14. J. bivalvis. Limn, sp.pl. erf. Willd. 1. 82.

Shrubby. Leaves lanceolate. Peduncles axillary, and terminal, three to six-cleft; lateral pedicels often trifid; ultimate divisions bearing¹ a small head of sessile flowers, between two, unequal, linear bractes. Capsule clavate.

A native of the Moluccas.

Folium tinctorium of Rum phi us, quoted under the preceding species, does not so well agree with J. bivalvis. I think Adel Odagam₉ Itheed. Mai. ix. 81. t. 43. belongs to neither of them.

15. J. chinensis. Vahl. en. pi. 1.110.

Perennial, retroflex. Leaves cordate. Umbellets axillar from three to five, and with the pedicels (from three to five distichous, involucels obovate, unequal. Capsules roun and thin.

J. chinensis. Linn. sp. pi: ed. Willd. 1. 80. Burm. ind. (t. 4.y. l.'is bad if intended for this plant.

A middle-sized, strag-gliiig, suffruticosc species introduce from China into the Botanic garden, where it flowers froi August till December.

Stem scarcely any; branches several, scarcely ligneou straggling and ascending, slender, somewhat six-angula pretty smooth; striking root where they rest on the ground from one to two feet long. Leaves opposite, petioled, ovai cordate, entire, somewhat acuminate, smooth, from one to tw inches long. Peduncles axillary, from three to five in eac axill, distichous; of various length, each supporting a littli distichous mnbellet of from three to five, one or two-flowere short pedicels. Involucres of the pedicels two, subulati

opposite, of the flowers two, sessile, unequal, obovate, or oblong--ventri cose, embracing¹ between them one or two complete flowers, and one or two rudiments. *Bractes* (or inner calyx), en&iform, two to each flower, and rudiment. /*Yoio*ers* small, pale-pink. *Calyx* five-parted, segments ensiform. *Corol*; *tube*, length of the involucres, a little twisted. jBor*der* bilabiate; *upper lip* linear,three-toothed; *under lip oval*, and slightly emavginnto. *Anthers* two on each filament, purple. *Capsule* pedicel led, small, flat, round, villoug, two-celled, with two thin round seeds in each cell.

Obs. I have two varieties (if not distinct species) from the coast of Coromandel. In the first, the leaves are much narrower, and run more down on the petioles, and, with the bractes of the flowers, longer, more cuspidate, and ciliate. In the second variety, the leaves are cuneiform lanceolate, and the bractes of the /lower broad-ovate, short cuspidate, and hairy.

16. J. latebrosa. K6n. MSS.

Herbaceous; branches straggling, round, smooth. Leaves petioled, cordate-oblong, pointed. Tube of the corol twisted; lips \ildot i \most equal; the upper one three-dentate, the lower one bidentate. Seeds solitary.

It grows always among bushes, or under their shade, in a dry barren soil. Flowering time, the wet and cold seasons*

Root perennial. Stem scarcely any; branches many, straggling, weak, round, smooth, jointed, ramous. Leaves opposite, petioled, cordate-oblong, pointed, entire, smooth; size very various, flowers terminal, large, of a bright, red colour. Bractes numerous, lanceolate. Calyx single. Corol; tube twisted at the middle; lips equil, linear; the upper one three-toothed, and the under one emarginate. Stamens as long as the lips of the corol, projecting nlong the under lip. Anthers double. Stigma tjvo-cleft. Capsules two-seeded, one in each cell.

17. J. bicalyculata. JLAm. sp. pi. ed. Willd. 1. 81.

Annual, erect, six-sided, scabrous. *Leaves* short-petioled, ovate-cordate, oblong, pointed, *calyx* double; *tube of* the corol twisted, border bilabiate, seeds solitary.

Dianthera malabarica. Suppl 85.

- J. malabarica. Ait. Hort. Kew. 1. 27.
- J. ligulata. Lam. iilustr. 1. 40.1. 12. f. 2. Cavan. icon. 1. 52. t. 71.

Seng. Nasa-bhaga.

Teling. Chebiera.

A poor looking plant, a native of rubbish, road sides, and hedges. Flowering time the wet and cold seasons.

Stem erect, annual, ramous, six-angled, jointed, scabrous, and hairy, from three to five feet high. Z<eave«jppposite, petioled, ovate-cordate, hairy, somewhat scabrous, size very various. Flowers terminal, and axillary, numerous, red, generally three-fold, or rather sub-panicled, and divided by threes. Bractes small. Calyx* double, or rather some bractea embracing the proper perianth. Tube of the corol with a half twist about the middle; upper lip narrowest, linear, three-toothed; lower lip broad, oblong, emarginate. Filaments shorter than the corol, projecting along the under lip. Anthers red, two on each filament. Capsules four-seeded, two in each cell.

SECT-III. Coroh r in gent. Anthers double.

18. J. Adhatoda. Willd. 1.96'.

Sub-arboreous. *Leaves* broad-lanceolar. *Spikes* short, long-peduncled; exterior bractes ovate, permament. *Corol* ringent, upper lip vaulted, and emarginate.

Sans. Vidywmatri, S?nghee, Vasika, Vrishtt, .*Uturoosha*, Singhasbya, Vasooka, Vaj?dwnt?<ka.

Hind, and Beng. Bakus, Va&ooka.

* The outer calyx may be called common, for there are always rudiments or buds of more than one flower in it* which often expand in succession.

This small tree or large shrub, is common over most parts of India. Flowering time the cold season.

Trunk straight, bark pretty smooth, ash coloured. Branches sub-erect, with bark like that of the trunk, but smoother. Leaves opposite, short-petioled, broad-lanceolar, long, taperpointed, smooth on both sides, about five or six inches long, and one and a half broad. Spikes from the exterior axills, solitary, long-peduncled, the whole end of the branchlet forming a leafy panicle, flower-bearing portion short, and covered with large bractes. Flowers opposite, large, with small ferruginous dots; the lower part, of both lips streaked with purple. Bractes three fold, opposite, one-flowered. rior one of the three, large, ovate, obscurely five-nerved. Interior pair, much smaller, and sub-lanceolate; all are permanent. Calyx five-parted to the base; divisions nearly equal. Corol ringent. Tube short; throat ample; upper lip vaulted, emarginate; lower lip broad, and deeply three-parted; both streaked with purple. Filaments long, resting under the vault of the upper lip. Anthers twin.

Obs. The wood is soft, and esteemed very fit for making charcoal for gun-powder.

19. J. decusata. /?.

Shrubby, erect; branches twiggy, villous, and decussated. Leaves from ovate to oblong¹. Flowers in opposite fasciculi on the leafless branchlete. Anthers double, all calcarate.

A tall, stout shrubby ^>lant, a native of the country above Rangoon; and from thence introduced into the Botanic garden, where it is in flower during the month of February and March.

Stem straight to the plant, ligneous; in two years' old plants as thick as a walking cane. Branches regularly decussate, straight, all the younger shoots villous, and as they shoot into flower nearly leafless. Leaves, short-petioled, ovate-oblong, entire, pretty smooth; from three to twelve inches long. Flow* ers in numerous little, opposite fascicles, of three to six,

appearing stib-verticelled, over the slender, leafless twigs, sub-sessile, pale rose colour. *Bractes* numerous, slender, Olid very downy. *Calyx* five-parted; *segments* ensiform, villous. *Corol* ringent; *tube* gibbous near the base; *upper lip* sub-fanceolq|e, concave, erect; *under Up* broad and three-lobed. *Filaments* nearly as long as the upper lip; *apex* much enlarged. *Anthers* two on each-filament, all with a ca lea rate base. *Germ* oblong, sitting in a large, glandular, yellow ring. *Style* the length of the stamen?. *Stigma* simple.

20. J. Gendarussa.* Linn^sp. pi. ed. Willd. 1.87.

Shrubby, diffuse, smooth. *Leaves* nnrrow-lanceolar. *Spikes* terminal, sub-verlicelled. *Lower* anthers calcarate.

Vada-Kodi. Jiheed. Mai. 9. p. 79. t. 42.

Gendarussn. Humph. Amb. 4. p. 70. t. 28.

Seng. Jvgut-mudun.

A handsome shrub. I have never met with it wild, but in gardens it is common, and grows readily from slips and cuttings; it is in flower during the wet season chiefly. I am told it is indigenous on the Malay Inlands.

Stem scarcely any. Branches numerous, long, straggling, except when kept cut, they are then more erect. Bark cf the young parts generally dark purple, and very smooth; in some varieties gTeen. Leaves opposite, ^hort-petioled, lanceolar, obtuse, frequently a little scolloped, smooth; nerve and veins dark purple, from three to six inches long, and from half an inch to an inch broad.# Spikes terminal, erect, verticelled. Anthers double, the lower ones have a spur-like process projecting downwards and outwards.

21. J. Betonica. Linn. sp. pi. ed. Willd. 1. 96.

Shrubby. Leaves sub-ovate. Spikes terminal. Bractes white, with gTeen veins. Corol ringent. Anthers two-lobed, the lower calcarate[^] Seeds turbercled, two in each cell.

* Willdenow has spoiled this name. Linnaeus wrote it Gandaru8sa, which is nearer the truth. The word is Gundluzrasa.

-Bem-Curini. RTieed. JUal. 2. p. 33. t. 21.

A perennial species; a native of Coromandel. Flowering time the dry season chiefly, though it is more or less in blossom all the year, particularly when in a cultivated state.*

Stems several, while young, erect by age, leaning in various directions, round, smooth, swelled above the joints, the height of the whole plant from., two to four feet. Leaves opposite, petioled, nearly ovate, entire, or -slightly waved, smooth on both sides; from one to six inches long. Spikes terminal, secund, sub-cylindric, erect. Bractes of the rachis opposite, ovate-oblong*, villous, #hite with green veins, the posterior one always abortive; those of the flowers opposite and resembling those of the rachis, but narrower. Flowers pretty large, whitish, with rose-coloured veins. Calyx single, five-cleft; divisions ensiform. CWtf/ringent; upper lip vaulted and two-toothed; lower three-parted. Anthers twin, the low r one with a spur from the lower end. Capsule longer than the calyx, villous. Seeds two in each cell, tending to be round, rough with numerous sharp points.

22. J. ramosissima. R.

Shrubby, creeping, very ramous. *Leaves* sub-ovate. *Spikes* terminal, secund. *Bractes* lanceolate. *Lower* lobe of the anthers calcarate.

A native of Coromandel. Flowering time, in the Botanic garden, the cold season.

Stem none, branches numerous, rising in every direction, as well as spreading on the ground, and striking root at the swelled joints; the tender parts striated, and slightly villous. Leaves opposite, petioled, sub-ovate, rather obtuse, tapering down the petioles nearly to their base. Spikes terminal, secund, erect, many times longer than the leaves. Bractes in opposite pairs, lanceolate, coloured green and white; the posterior one of the rachis always abortive, the other two are calycine. Flowers scarcely longer than the bractes, dull white, with a few rosy veins on the centre of the lower lip.

Calyx of five linear-lanceolate, acute segments. Corol rjngent; upper lip vaulted, with a bidentate apex; under lip broad, and three-cleft. Anthers double; lower lobe with, a long curved, sharp spur. Capsule oblong, four-seeded, very protuberant at the seeds. Seeds nearly spherical, rugose.

Obs. In the foliage, spikes, flowers, and capsule, this species is exceedingly like J. *Betonica*₉ which however, is always *a tall, erect plant, with coloured bractes, while this is very bushy, spreads on the ground, and strikes root abundantly at the joints; the bractes also are narrower, and greener.

23. J. tranquebariensis* Linn. sp. pi. ed. Willd. 1.99.

Herbaceous. Leaves round, or broad-cordate. Spikes terminal, four-sided, occasioned by four rows of roundish ciliate bractes. Flowers solitary, in two rows on the fore-part ciff the spikes. Anthers calcarate. Common amongst bushes on, a dry barren soil, over the coast of Coromandel. Flo we¹ ingtime the wet and cold seasons:

Roots perennial, somewhat granulated. Stems in young plants erect, in old ones uncertain; branches annual, small, straggling, round, a little downy, jointed, and swelled above the joints, from one to two feet long. Leaves opposite, shortpetioled, oval, or round, entire, pretty smooth. Spikes terminal, peduncled, long, erect, generally four-sided, occasioned by four rows of orbicular, short-petioled, opposite, ciliate bractes; besides these there are a pair of small pointed ones which press the calyx laterally. Flowers a mixture of pale yellow, and red; standing in the ax ills of the two crows of bractes that occupy the fore-part of the spikes; on the back part they are generally wanting. Calyx single. Corol; upper lip emarginate, erect; under lip broad, three-cleft. Anthers double, the lowermost calcarate. Seeds two in each cell, bristly.

24. J. glabra. Km. MSS.

Herbaceous, erect, branchy, round, smooth. Leaves petiol-

ed, ovate, pointed. *Peduncles* trichotomous. *Upper lip* of the corol vaulted. *Lower anthers* calcarate. *Capsules* four-seeded.

A native of similar places with the last described. Flowering time the same.

Root perennial. Stems several, erect, branchy, annual, round, smooth, jointed. Leaves opposite, oblong-cordate, pointed, entire, smooth. Panicles axillary, small, three-forked. Flowers rose-coloured, yellow, and whitish green mixed. Bractes small, pointed; generally two below every division of the panicle, and two or thrdfe pressing upoji the calyx. Calyx single. Corol; tube short, widening; upper lip erect, vaulted; under lip broad, * and three-parted. Filaments concealed under the upper lip. Anthers double, the lqwer ones calcarate. Stigma slightly bifid. Capsule four-sided, two seeds in each cell.

25. J. tomentosa. R.

Herbaceous, sub-erect, hairy. *Leaves* lanceolar, tomentose. *Spikes* terminal, strobiliform. *Anthers* distinct. *Capsules* conic, four-seeded.

Active of wet, rich, pasture ground. Flowering time the wet and cold seasons.

Hoot nearly spindle-formed, perennial. Stems several, suberect, round, hairy, from one to two feet high. Leaves opposite, petioled, broad-lanceolar, entire, very downy; the lower many times larger than the upper ones, the former being often twelve inches long, and the latter (or floral leaves) not more than one. Spikes terminal, oval, strobiliform, sessile on little terminal branchlets. Flowers small, bright, bluish purple. Bractes numerous, imbricated, oval, pointed, concave, hairy, one-flowered. Calyx four-cleft; the lower leaflet two-cleft. Corol; tube gibbous on the under side, contracted at the mouthy upper lip ovate, half two cleft, divisions pointed; under lip very broad, three-parted. Anthers twin, equal,

oval. Stigma two-cleft; segments broad. Capsules pointed, eight-seeded.

26. J. orixensis. Kön. JUSS.

Herbaceous. *Branches* straggling, four-sided. *Leaves* cordate, repand. *Spikes* terminal. *Bractes* orbicular, c^iliate. *Capsules* length of the bractes, containing about four ecbinate seeds.

Obs. It is a native of high, dry, gravelly ground, in the vicinity of Samulcota. Is very like J. tranquebariensis.

27. J. repens. Linn. sp. pi. ed. Willd. 96. Corom. pi. 2. No. 152.

Herbaceous, diffuse. Leaves sub-sessile, lanceolate. Spikes axillary and terminal, compressed. Bractes ovate, white; membrane-bordered, posterior rows neuter. Lower anthers crescent-shaped.

Adhadota. spicata flosculos ex foliolis membranaceis producens. *Burnt*, *zejfl*. 7. t. 3.f. 2.

A native of pasture ground. Flowering time the wet and cold seasons.

Boot perennial. Stems many, diffuse, round, jointed, smooth, sometimes rooting at the joints; one to two feet long. Leaves opposite, short-petioled, broad-lanceolate, entire, sharp-pointed, smooth. Spikes axillary, peduncled, erect, somewhat compressed, secund. Bractes; exterior, four rows, oval, with a broad, white, membranaceous margin; the two rows on the back of the spike neuter; the two on the fore-part embracing the. flowers; the calyx of each flower is also embraced laterally by two smaller lanceolate bractes. Flowers alternate, pale rose-coloured. Corol, stamens, pistil and capsule as in J. procumbens, which it much resembles.

28. J. procumbens. Linn. sp. pi. ed. Willd. 1. 87.

Root perennial; branches diffuse, herbaceous. Leaves sessile, from orbicular to linear-lanceolate. Spikes terminal.

four-sided. Bracles lanceolate, rigid. Lower anthers calcarate.

Euphrasia, Alsines angustibre folio, &c. *Pluk. Aim.* 142, *t.56.f.3*.

Very common on pasture ground over the coast of Coromandel; flowering most part of the year.

Root often perennial. Stems many, spreading, jointed, five-striated, often rooting at the joints, extremities sub-erect: size very various, but generally from six ft) twelve inches long. Leaves opposite, sub-sessile, from round to linear-lanceolate, entire, a little downy; size various. Spikes terminal, erect, four-sided. Flowers opposite, decussate, small, rose colour. Bractes three-fold, lanceolate. Calyx; upper divisions very minute. Corol; tube short; upper lip erect, two-cleft; under lip broad, three-parted. Nectary a yellow ring surrounding the base of the germ. Anthers double; the lower calcarate or sharp-pointed. Stigma slightly bifid. Capsules four-seeded, two in each cell.

Obs. When this plant grows in wet places, it seems altogether another species, being many times larger, nearly erect, with linear-lanceolate leaves. I believe Dr. König described this?variety as a distinct species, under the name of J_{P} juncea9 or *fframitiea*.

29. J. quinqueangularis. Kb'n. JUSS.

Perennial in a dry soil; *branches* five-sided. *Leaves* ses-> ¹ sile, lanceolate. *Spikes* terminal. *Bractes* linear. *Capsules* rather larger than the bractes, four-seeded.

A native of the borders of rice-fields about Samulcota. It is but little removed from *procumbens*⁹ when growing in the same soil.

30. J.pectinata. Corom. pi. 2. JV. 153.

Herbaceous, diffuse. *Leaves* short-petioled, lanceolar. *Spikes* sessile, secund. *Bractes* five-fold, broad, white, membrane-bordered; *lower anthers* calearata.

Compare with J. parviflora. Ijietz. Obs. 5. p. 9.

A very beautiful, delicate, diffuse species, growing in shady places. Flowering time the cold season.

Stems frinany, diffuse, filiform, round, smooth, jointed* Branches alternate Leaves opposite, short-petioled, depending, lanceolate, entire, smooth; the pair are generally unequal in size. Spikes axillary or terminal, sessile, much shorter than the leaves, secund, generally three together, the middle one largest. Flowers very small, bright blue. Bractes y to each flower five, of different sizes, oval or lanceolate, with beautiful white, membranaceous margins. Corol; upper lip entire, acute. Anthers, the lower one of each filament has a long obtuse horn from the under end. Capsules four-seeded, two in each cell.

31. J. lamifolia. Kirn. MSS.

Whole plant very downy, procumbent, annual. *Leaves* oval. *Spikes* terminal, imbricated. *Calyx* four leaved.

Found in the vicinity of Calcutta, in uncultivated shady places, i

Root fibrous. Stems and branches very numerous, round, spreading close on the earth;, clothed with long soft hair, and down, somewhat glutinous, length from one to'three feet. Leaves opposite, sub-sessile, oval, entire, clothed and glutinous like the branches; about an inch long. Spikes terminal, oblong, closely imbricated with the bractes, and flowers. Flowers numerous, small, variegated with deep and light Bractes ovate, one-flowered, hairy, clammy. Calyx four-leaved, the under leaflet with its apex bifid. Corol rin-Tube gibbous; throat compressed; upper lip tivoparted, and streaked with deep purple; under lip broad, and three-parted. Filaments short, inserted into the mouth of the tube. Anthers twin, singly oval, and all equal. Stigma of two, broadish, spreading lobes. Capsule conical. Seeds eight or ten, roundish.

Obs. It has the calyx of a Barleria and the stamina of a

Dianthera. Mr. R. Brown informs me that he thought it would belong to a new genus, which he calls Nelsonia

32. J. verticillata. R.

Erect, hairy, spines verticelled with their apices bifid, ortrifid. Leaves petioled, ovate. Flower amongst the verticils of spines, sub-sessile.

Hind. Custoo\a.

Found by Dr. Hunter in the vicinity of Oujein, in seed and flower in March.

GRATIOLA. Schreb.gen. N. 37-

Corol one-petalled, irregular. Sterile filaments two, affixed to the lower lip of the corol. Anthers double, and connected. Capsules superior, two-celled, two-valved. Seeds numerous.

1. G. amara. R.

Annual (in Bengal), creeping. *Leaves* petioled, cordate, serrate. *Peduncles* axillary, four to six-flowered. *Calyx* four*!;?Evved, exterior pair cordate, inner subulațe, apices of the sterile filaments free. *Capsule* ovate, hid in the calyx.

Caranga amara. Vahl. enum. vol. 1. 100.

Serratula amara. *Humph. Amb.* 5. p. 459. t. 170. f. 1. which has been quoted by mistake* I presume, for *Scutella-ria indica*.

This pretty plant has been accidentally introduced into the Botanic garden, among spice and other plants from the' Moluccas. Flowering time the cold season.

Root fibrous. Sterns and branches creeping, with their extremities sub-erect, four-sided, coloured, smooth. Leaves opposite, petioled, cordate, deeply serrate, somewhat rugose, of a soft texture, but free of pubescence; in general about two inches long. Peduncles axillary, solitary, rather longer than the petioles, supporting at their extremities, two or three pairs.

of opposite pedicelled flowers. Bractes small, oblong, one under the insertion of each pedicel. Calyx of two pair of opposite leaflets; exterior pair large, cordate, often notched; the uppej one larger, and incumbent over the rest of the c&lyx, and-all the corol except the under lip; inner or lateral pair, linear-lanceolate, and much smaller than the exterior pair. Corol bilabiate; tube contracted at the middle; upper Up straight, narrow, with a two-lobed apex; under Up broad, three-lobed, drooling. Stamina, the fertile pair of filaments lodged under the upper lip of the corol with twin anthers, adhering by pairs, the sterile pair from the under lip, with large yellow, free, clavate apices. Stigma two-lobed. Capsules ovate, two-celled, hid between the exterior leaflets of the calyx. Seed numerous, very small.

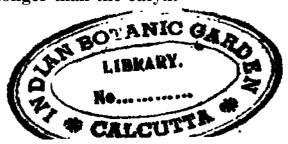
Obs. As Rumphius observes, the leaves of this plant are exceedingly bitter, and might no doubt answer valuable purposes in medicine.'*

2. G. grandijlora. Linn. sp. pi. ed. Willd. 1. 105. Corom. pi. 2. JV. 179.

Annual, creeping. *Leaves* sessile, broad-lanceolate, pointed, serrate. *F'lowers* axillary, solitary. *Capsules* linear.

A native of moist places. Flowers during the wet and cold seasons.

Stems several, annual, creeping, four-sided, smooth; from six to twelve inches long. Leaves opposite,* sessile, oblong, sharply-serrate, pointed, smooth. Peduncles axillary, about half the length of the leaves, erect, one-flowered. F'lowers light blue. Corol; tube cylindric, upper.lip entire; under lip broad, three-parted. Stamens, the two fertile filaments lodged under the upper lip, approaching archways. Anthers twin, united; the sterile filaments resting on the under lip and adhering to it, yellow, curved. Capsules lanceolate* longer than the calyx.



3. G. alata; R_m

Annual. Leaves petioled, ovate, serrate-dentate. Racemes terminal. Calyx five-toothed, and five-winged. Sterile fila, ment free. Capsule linear, hid in the calyx.

A native of the Moluccas, is one of the largest of our Indian *Gratiolas*, and readily*known by the five large membranaceous wings which run the whole length of the calyx.

4. G. involucrata. R.

Leaves unequally petioled, round-cordate, with large rounded lobes, many-nerved, serrulate, villous. Flowers collected into long peduncled, bracted heads. Sterile filaments free. Capsule hid in the villous, gibbous, five-toothed calyx.

This species is also a native of the Moluccas.

5.G. rotundifolia. Linn. sp. pi. ed. Willd. 1.103. Car.pl. 3. N. 204.

Annual, erect. *Leaves** sessile, round-cordate, serrate-dentate. *Peduncles* axillary, solitary, longer than the leaves. *Capsules* globular.

A native of moist places, appearing and flowering during the -wet and cold seasons.

Stems erect, four-sided, from four to six inches high. Leaves, opposite, sub-sessile, round-cordate, serrate, or notched, a little hairy. Iwwers axillary, or between the leaves, white. Peduncles longer than the leaves. Corol; stamens and stigma as in the foregoing species. Capsules round, as high as the calyx.

6. G. integrifolia. R.

Annual, while young straight, afterwards straggling, foursided. *Leaves* sessile, ovate, three-nerved, entire. *Pedun*^ *cles* solitary, axillary, one-flowered. *Capsules* the length of the calytf.

Tsjanga-pupum. Rheed. Mai. 9. /. &7.

A native of Bengal, where it appears as a weed in gardens, during the rains.

7. G. lucida. Linn. sp. pi. erf. Willd. 1. 103. hid. pi. 3. N. 202.

Annual, spreading, four-sided. *Leaves* petioled, ovate-cordate, serrate. *Flowers* long-ped uncled, axillary/and terminal. *Capsules* ovate, hid in the calyx.

Crustaollse minor. *Rumph. Amb.* 5. p. 460. t. $|709J\rangle$ 3. Annual, and like the rest, appearing in moist places during* the rainy season.

Stem scarcely any. Branches generally opposite, diffuse, four-sided, from six to twelve inches long. Leaves short-petioled, cordate, serrate, smooth. Flowers terminal, and also from the exterior axills, long-ped uncled, of a bright deep blue colour. Capsules ovatej rather shorter than the calyx.

8. G. veronicifolia. Linn. sp. pi. ed. Willd. 1.103. Corom. pi. 2. N. 154.

Annual, while young erect, afterwards creeping. Leaves sessile, lanceolate, serrate. Spikes terminal. Flowers opposite. Capsules linear.

Crusta ollae major. Rumph. Amb. 5. p. 460. t. YJQ.f. 2.

A native of similar places with the last described; flowering time the same.

Stem several, creeping. Branches erect, fotiPsided, sihooth; from six to eight inches long. Leaves opposite, sessile, decussate, oblong, glandular, smooth, fleshy, fine and most sharply serrate; serr&tures ending in a minute bristle. Racemes terminal. Flowers opposite, decussated, of a violet colour. Corol₉ &c. as in the last species.

9. G. racemosa. R.

Annual, erect. *Leaves* sub-sessile, linear-lanceolate, entire. *Racemes* terminal, brsichiate. *Flowers* loug-pedicelled. *Capsules* linear, three or four times longer than the calyx.

A native of cultivated land over various parts of India, appearing¹ in the rainy season.

10. G. oppositijblia. Linn, sp.pl. ed. Willd. 1.105. Cotorn. pi. 2. N. 155.

Annual, sub-erect. *Lower* leaves opposite to each other or to a one-floored peduncle, lanceolate, serrate. *Capsules* linear.

G. oppositijblia. Retz. Obs. t. 4. JV°. 5.

A native of moist pasture ground. Flowering in the wet season.

Stems several, nearly erect, ramous, four-sided, smooth; from three to six inches high. Leaves sessile, opposite to each other, or a flower, linear-lanceolate, senate, smooth. Peduncles leaf-opposed, or opposite to each other, short, horizontal, clubbed. Bractes solitary, embracing the insertion of the peduncle. Flowers small, blue. Anthers two pairs united. Sterile filaments small, white. Capsules linear, twice the length of the calyx.

11. G.serrata. R.

Annual, erect, four-sided, smooth. *Leaves* opposite, stem-clasping*, oblong¹, smooth, most acutely serrate. *Racemes* in the division of the branches, and terminal, long-peduncled. *Capsules* linear, diverging.

Beng* Bhooinfe-nim.

Pee-tsjanga-puspuin. *Rheed. Mai.* 9. t. 59. is exceedingly like this plant, though quotec by Linnaeus for *Ruellia attr-tipoda*, which I'have never met with, if this be not it.

A native of Bengal, and in flower during the rains.

Root annual. Stem erect, four-sided, ramous, smooth, from two to eight inches high. Leaves opposite, sessile, or stem-clasping, oblong, very obtuse, most acutely serrate; smooth on both sides. Racemes solitary, terminal, and also from the divisions of the plant, on long, four-sided peduncles. Flow fer «opposite, short-pedicelled, verging, piuk-coloured. Bractes

lanceolate, the lower pair of the racemes dentate. Calyx parted half way. $Corol_9$ upper lip small, incumbent. Capsules lanceolate, twice the length of the calyx.

12. G. reptans. /2.

Annual, creeping. *Reaves* opposite, from oblong* to round, serrate. *Racemes* terminal. *Sterile* filaments free. *Capsule* linear.

A native of the Moluccas; from thence introduced into the Botanic garden, where it blossoms during the rains.

Stems and branches round, smooth, and creeping close to the earth, with short, (about an inch long) floriferous, erect shoots. Leaves opposite, sub-sessile, oil the creeping shoots' round, on the erect flywer-bearing ones oblong, with rounded apices; all serrate, and smooth ou both sides. Peduncles or racemes terminal, on the short, erect shoots, bearing several, approximate pairs of short-pedicelled, opposite, large, pale bluish pink flowers. JBractes opposite, one-flowered, ovate. Calyx five-leaved. Corol with an enlarged throat, and ringent border; upper lip of one pale coloured segment; iin^ der lip broad, deeper coloured, and three-parted. Sterile filaments large, yellow, clavate, with the apices a little recurved, perfectly free. Stigma of two, thin, broad, round lobes. Capsule linear, as long as the calyx, two-celled, two-valved»

13. G. parviflora. 72. Corom. pL N. 208* •

Annual, erect, ramous. *Leaves* sessile, ovate-oblong, three-nerved, serrate. *Flowers* long-peduncled, solitary. *Sterile* filaments two-cleft. *Capsules* oblong*.

Stems erect, ramous, four-sided; with their angles acute, about six inches high. Leaves opposite, sessile, ovate-oblong, slightly serrate, acute, when large three-nerved. Flowers axillary, solitary, long-peduucled, small. I have seen some plants with white flowers, and others with blue ones. Anthers twin. Sterile filament two-cleft, each division headed. Cap* sules rather oblong, pointed, longer than the calyx.

14. G. Monnieria. Linn. sp. pi. ed. Willd. 1. 102.

Annual, creeping. Leaves sessile, long, obovate, entire. Peduncles' axillary, solitary, one-flowered. Calyx seven-leaved. Corol campanulate; stamina four.

Beng. Adha-birni.

Teling. Sambrami-chittoo.

A native of moist places, borders of brooks, &c. Flowering time the wet and cold seasons.

Stems several, annual, creeping, round, jointed, very ramous, smooth, succulent. Leaves opposite, sessile, obovate, wedge-shaped, or oblong, smooth, entire, obtuse, fleshy, dotted with minute spots. Peduncles axillary, alternate, solitary, round, smooth, shorter than the leaves, one-flowered. Flow* ers blue. Bractes two-awled, pressing on the calvx laterally. Calyx five-leaved, the exterior three leaflets large, oblong, the two interior small, linear, all are concave, smooth, pointed and permanent. Corol campanulate; border five-parted, Stamens as in Didynamia. Anthers two-cleft, nearly equal. at the base, blue. Stigma large, somewhat two-lobed. Capsule ovate, two-celled, two-valved. Seeds very numer-OHS.

Obs. This plant certainly ought to be placed in the 14th class; it has no one claim, that I can observe, to a place in this genus.

The natives use the expressed juice mixed with Petroleum, to rub on parts affected with rheumatic pains.

15. G. hyssopioides. Linn. sp. pi. ed. Willd. 1. 104. Corom. pi. 2. JV. 128.

Annual, erect. *Leaves* ensiform, stem-clasping, much shorter than the stem joints. *Peduncles* axillary. *Capsules* linear-oblong*.

G. hyssopioides. Kon. in Retz. Obs. \.p. 8. Linn. spec. pi. ed. Reichh. i. 48. Appears with the former species during the rains.

16. G.Juncea. Corom. pi. 2. N. 129.

.Annual, erect, columnar, nearly naked. *Lower* leaves lanceolate, stem-clasping; above minute. The two pair of anthers not united. *Capsules* globular.

Like! the rest, this species delights in a wet situation, where it appears arid flowers during the rains.

Stem erect, almost simple, round, jointed, smooth, from six to twelve inches high. leaves opposite, stem-clasping, lanceolate, obtuse, entire. Floral leaves minute, triangular. Peduncles axillary, solitary, one-flowered. Flowers rose-coloured, small. Anthers twin, not united. The sterile, filaments in this species stand between the fertile ones, and are very small. Capsules globular.

17. G. cvneijblif,. R.

Annual, erect, simple, nearly naked. *Leaves* one pair at the base, cuneiform, obtuse; above one or two minute pairs. *Flowers* solitary, long-peduncled. *Capsules* round.

A native of wet places on the coast of Coromandel, and nearly allied to G. lobelioides, and juncea.

18. G. lobelioides. Linn, sp.pl. ed. Willd. 1. 104. Retz. Obs_m 4. 7. VaJil. enum. l.p. 92.

Annual, on the lower part of the simple stem grew from two to* four pair of approximate, lanceolate, entire, sessile leaves. *Flowers* toward the apex, remote, solitary, long-peduncled. *Capsules* round.

A native of Coromandel, growing in wet places during the rainy season.

UTRICVLARIA. Schreb. gen. N. 41.

Calyx two-leaved. Corol ringent, and generally calca* rate. Capsule superior, one-celled. Seeds numerous.

1. TJ. stellar is. Linn. sp. pi. ed. Willd. 1. 113.

Floating, leafless. *Scape* with a verticil of bladders. *Corol* without a nectary,

Teling_m Natsoo.

Grows in sweet waters, appears ana flowers daring the rains.

Root conferva-like, swimming in, and not on the water; I have always found small utriculi adhering to its filaments. Scape sub-erect, simple; raceme above the verticil of bladders, AvLich rest on the surface of the water.

2. U.fasciculata. JR.

• Floating, leafless. *Scapes* naked; *racemes* four to.eightflowered. *Utriculi* sub-ovate, two-liorned, scattered amongst the fibres of the root. *Nectary* horn shaped, ascending to the edge of the under lip. *Capsules* beaked, drooping.

Teling. Natsoo.

Beng. Janjee.

Found swimming in stagnant water in the vicinity of Calcutta, at the end of the cold, and beginning of the hot seasons.

Stem jointed, length various, but often extending some* feet. Radicles most numerous, in alternate fascicles, multifid, filiform, armed with minute, acute bristles pointing forward. Utriculi scattered, semi-ovate, dotted, becoming black by age, with two horns from the mouth. Scape erect, from four to eight inches high, bearing generally from four tafceight, alternate, large, yellow, pedicelled flowers. Bractes ovate, obtuse, one-flowered. Calyx of two large, permanent leaflets. Corol as in the genus. Nectary horn-shaped, blunt, nearly as long as the under ljp, and bending up to its margins. Capsules conical, pointed, reflected.

3. U. biftora. R.

Floating, leafless. *Scape* naked, two-flowered. *Utriculi* ovate, with filaments from their apices. *Nectary* horn-shaped, ascending, as long as the under lip. *Capsules* globular, erect.

Beng. Chota-janjee.

wFound with the last described in stagnant water near Calcutta, during the same seasons. A much smaller plant.

Root of a few, scarcely compound, filiform fibres, and some scattered, subulate nigrescent utriculi, with two or more filaments from their apices, or mouths. Scape about three inches high, filiform, naked, generally two-flowered. Flowers yellow, small. Calyx and corol as in the genus, with the faux closed, and a borned, ascending nectary as long as the under lip. Capsules globular, erect.

LYCOPUS. Sckrch. gen. N. 44.

Corol four-cleft, with one of the divisions emarginate. Stamina distinct. Seeds four, retuse.

1. L. dianthera. Buck.

Annual, erect, four-sided. *Leaves* petioled, rhomb-ovate, serrate. *Calyx* bilabiate.

A native of Nepala; from thence Dr. Buchanan sent the "seeds to this garden, (in 1802,) where the plants thrive during the cold season, and blossom in March and April.

Stems annual, straight, four-sided; sides slightly grooved; angles somewhat hairy. Branches axillary, decussate, four-sided, &c. like the stem; height of the whole plant from one to two feet. Leaves opposite, petioled, declined, rhombovate; anterior margins serrate, dotted with minute, darker green glands underneath, general length about one inch, or less. Racemės terminal. Bractes opposite, lanceolate, one-flowered. Flowers pedicelled, sm^1, very pale pink, almost white. Calyx bilabiate; upper lip ascending, tridentate; lower lip bipartite, and defended with hair on the inside. Corol; tube short, somewhat four-sided; upper division of the border broad and emarginate; lateral two of the same length, but narrower and semicircular; under one large, and nearly round. Filaments four, short, in the angles of the

tube of the corol. *Anthers* twin on the long filaments, and tending- to be so on the shorter ones, but very small, and abortive. Is nearly allied to *Thymus*.

SALVIA. Schreb. gen. N. 50.

Corol irregular. Filaments two-forked; anthers on the superior ones. Seeds naked.

1. S. Bengalensis. Kbn. MSS.

Shrubby. *Leaves* linear ovate, lanceolate, entire. *Racemes* vert ice) led, verticils distinct, many-flowered. An *anther* to each division of the filaments.

The natives on the Coromandel coast have no name for it. From Bengal it was introduced into the gardens on the coast a few years ago, by Mr. Parsons; and is only found in gardens, where it grows to be a large, straggling shrub.

Trunk seldom erect, woody, sometimes as thick as a man's arm. Bark cracked, and peeling off in irregular pieces. Young shoots downy, round. Leuv.es as in salvia afltcinalis. Racemes terminal, often compound, verticelled. Verticils approximate, globular, many-flowered. Flowers White. Calyx gibbous, downy, three or four-toothed. Corol, both lips recurved, or spreading. Stamens, there are sometimes three or even four filaments, with their extremities bifid, each division bearing an oval proper anther.

Obs. Whe leaves of this plant smell and taste considerably stronger, I think, than those of S. *officinalis*, and ate applied to the same uses.

2. S. brachiata. R.

Annual, erect, brachiate. *Leaves* oblong, crenate, tomentose. *Racemes* verticelled; *verticils* six-flowered; *seeds* elevated on a receptacle*.

Is a native of moist places, over various parts of India. Flowering: time the cold season.

J

VOL. 1.

Stem annual, erect, ramous, four-sided, four-grooved, downy; from one to two feet high. Uranches opposite, cross-armed, ascending. Leaves opposite, petioled, running down on the petioles, oblong, irregularly crenulate, waved, rugose, a little downy; two or three inches long. Racemes terminal, long, verticelled. Verticils six-flowered, six-bracted. Flowers small, pale purple. Stamens as in the genus, with the rudiments of two additional sterile filaments between the large pair. Germ elevated on a large fleshy receptacle. This plant is slightly aromatic.

3. S. lanata. R.

Herbaceous, four-sided, villous. *Leaves* sessile, ovate-oblong, entire, woody. *Flowers* verticilla-te.

Found by Colonel Hardwicke on the most elevated mountain near Adwaanee, on the road from Hurdwar to Sirinagur. It is his S. *integrijolia*. See *Asiatic Researches*, vol. 6. p. 349.

Obs. Salvia rosea of Vahl, is the same as S. coccinea, an American plant, which though in a manner naturalized here, has no right to a place in this Flora.

BOERHAAVIA. Schreb. gen. N. 13.

Calyx inferior, gibbous, entire, permanent, and becoming an envelope for the seed. Germ one-celled; ovula single, erect. Corol campanulate, inserted on the calyx, feed solitary. Embryo conduplicate, with inferior radicle and central perisperm.

1. B. procumbens. Herb. Banks.

Root fusiform, perennial. Branches procumbent, smooth. Leaves variously cordate, covered with a silver coloured pellicle underneath. Flowers terminal, in long-peduncled heads. Stamina three.

Sans. Voonurnuva, Shotwghnee,

Beng. Gadha-poorna, the red variety; and Shweta-poorna, the white one.

Talu dama. Rheed. JMaL 7. p. 105. t.56. good for a young luxuriant plant.

B. diandra, and erecta. Burnt. Flor. Ind. p. 3. t.1. seem to be our plant, taken at different ages.

B. erecta. Ga>rt. Carp. ii. 209. 1.127.

This species, whatever it may be, whether diffitsa, erecta, repanda or diandra, or all of them, is the only one I have yet found in India. It is not common every where, but is one of the most troublesome weeds we have. The long, fusiform, perennial roots, strike so deep, as to render it no easy task to dig them up. It produces blossoms and ripe seed during the whole year.

Root perpendicular, fusiform, slender, perennial. none; branches many, herbaceous, with alternate, bifarious, round, smooth, jointed, often coloured branchlets spreading close on the ground, to an extent of many feet in a good soil, bift'never striking root. Leaves opposite, unequal in si^e, one of the leaves being alternately smaller in each pair; pctioled, variously cordate, margins more or less scalloped, waved, and often coloured; sometimes acute, sometimes obtuse; all are smooth above, and covered with a silver coloured pellicle underneath * size very various. Petioles shorter than the leaves, channelled. *Peduncles* solitary, from the naked swelled joints between the leaves, but nearest to the small leaf! At the ends of the branches, where the joints approximate, they are 60 numerous as to form a panicle, each supporting, from one to five, or six small heads of sessile, red or white, minute flowers. Calyx (apparently the germ), beneath, five-sided, covered with headed glutinous glands; mouth entire, and much contracted. Corol campanulate, plaited, inserted on the ci#tvn of the calyx. Nectary, a small fleshy, three-toothed cup, surrounding the base of the germ, in the divisions of which the filaments are inserted. It requires a powerful lens, and much patience to understand tinstructure of this jJbrt of the flower. Filaments generally three, as long as the style. Anthers of two round lobes. Germ oblong, hid in the belly of the calyx, one-celled; ovvlum single, attached to the bottom of the cell. Style slender. Stigma peltate. Pericarp turbinate, five-sided, covered with clammy, pedicelled glands, &c. exactly as in Gsertner's figures of his Boerhaavia erecta.

Obs. There are two varieties of this plant in Bengal; one with red, the other with white flowers; in other respects they are the same. In the St. Helena plant, B. repanda of the Hortus Bengalensis, the leaves are more angular, the inflorescence terminal, racemes verticelled, with one bracte only to each pedicel.

FRAXINUS.

Polygamous. Calyx none, or four-parted. Corol none, or four-petalled. Samara one-seeded, with lanceolate wings.

1. F. ckinesis, R.

'Arboreous, with erect branches. *Leaflets* from three to seven, lanceolate, serrate. *Panicles* axillary, and terminal. *Fldwers* without petals.

A native of China, from thence introduced into the Botanic garden by the late Col. Robert Kyd, prior to 1793: 'where they'blossom in April, but have not produced seed, or even full grown seed vessels.

Our small trees have little or no trunk; but pevergl, erect, straight branches and hranchlets; giving an entire height of from ten to twelve feet. Leaves opposite, pinnate, and ternate. Leaflets from three to seven, opposite, lanceolar, serrate, 'smooth. The pairs short-petioled, much smaller and shorter in proportion to their breadth than the terminal one, which is protruded on a longer winged petiplet. Petioles channelled, sometimes with a marginal wing. Panicles axillary, and terminal, small, drooping, and composed of most blender, simple and compound, sub-verticelled ramifications. Calyx,

in all four-toothed. *Corol* none. *Fila'jj/p.ts* in the completely *hermaphrodite flower* much longer than the calyx. In the *female* wanting-, or abortive, and hid within the calyx. *Male flowers* not found. *Germ* ovate. *Style* long, and curved. *Stigma* emarginate.

LIGUSTRUM.

Corol four-cleft. Berry superior of two cells with two seeds in each cell.

1. L. nepalense. Wall.

Leaves ovate, or ovate-oblong, acuminate, villous below. Panicle terminal, villous, consisting of sub-erect crowded racemes.

A native of the mountains of Nepala, where it is called *Goomgacha* and grows to be a considerable tree, producing profuse clusters of white, sweet smelling flowers from April f^Jhine; *berries* ripen in four to six months.

~ Bvknches round, opposite^ ash-eoloured, dotted with callous spots; all the younger parts covered with abundance of Leaves opposite, spreading, on very short chansoft hairs. nelled petioles, varying considerably in size and figure, mostly ovate with a rounded base, sometimes oblong or lanceolar, generally tapering into a long apex, terminated by a short cylindric point; from one to frvo, or even three inches_Jong_of a firm texture, shining above, densely villous underneath, when old entirely smooth, with very fine remote nerves communicating: with each other in reticulated arches near the margin. Panicle somewhat contracted, ovate, from four to six inches long, sessile, consisting of pretty crowded racemes, the uppermost very short and alternate. Peduncles round, villous, with a deciduous small lanceolate bracte under each division. Fiercers short-pedicelled, smooth, dispos-Calyx truncate, with four hardly dised in small bunches. Corol; tube equalling the calyx; segments cernible teeth.

of the limb spreadi^ lanceolate, acute, twice as long* as the tube. Stamina almost as long as the corol: filaments inserted within its mouth between two opposite fissures; anthers oblong-, bursting lengthways on both sides. Pistil shorter than the stamina, smooth; ovarium roundish, two-celled, with two pendulous ovula in each cell; style short; stigma fleshy, oblong, acute. Berri&s oval, dark blue, with a beautiful bloom on them, rather smaller than those of the common Privet; pulp brown. Seeds one or two; cotyledons broad-ovate. In other respects like those of Ligustrum. Gtert. Carp. ii. 72. tab. 92.

Obs. This species differs from L. japonicum₉ Thunb. and lucidum, Ait. in the figiire and villosity of its leaves and the contracted shape of its panicle. It may perhaps be found the same as L. sinense₉ Lour, especially if the racemes, which in the flora Cochin-chinensis are attributed to that tree, are considered as panicles, which indeed has been done by the illustrious author of that article in Rees's New Cyclopaedia.

VERBENA, See Didgnamia Angiospermia.



DIANDRIA TRIGYNIA.

PIPER. Schreb. gen. N. 59.

Ament filiform, imbricated with peltate scales. Corol none. Germ one-celledf with a single, erect ovulum. Berry one-seeded. Embryo inverse, and furnished with an ample perisperm.

1. P. nigrum. Linn, sp.pl. ed. Willd. 1. 159.

Leaves bifarious, obliquely ovate-cordate, acuminate, polished, from five to seven-nerved.

Pepper-vine. Marsden's History of Sumatra 9p. 105.

Molago-codi. Rheed. Mai. 7. 23. t. 12.

Sans. Vellojicng, Mureechmig, Mttrichwng, Kohckitng, Kr/shmtmooshwiiKiig, **Dhurmuputtunung**.

Hind, and Beng. M?/rich, or Gol-mufich.

Tarn. Mol'oovoo-kodi,

Pers. Pilpil..

Arab. Filfil.

Malay. Ladda.

Cultivated in various parts of India, and its Islands.

2. P. trioicum. R.

Tricecous, shrubby, rooting. *Leaves* bifarious, obliquely-ovate, acuminate, from five to seven-nerved, glaucous. *Aments* • leaf-opposed, cylindric, pendulous.

Telinff. Marial-tiga.

Roots long, striking deep into the earth. Stem jointed, winding, when old woody, and scabrous, running along the ground to a great extent, or up treesj &c. when trained to them; from each joint issue roots which take firm hold of whatever they meet with. Branches numerous, alternate; the young ones smooth, the old ones woody, and scabrous l'ike the stem. Leaves alternate, petioled, cordate, broadova' ovate, or oblong, pointed, from five to seven-nerved, (generally five,) above, smooth and glossy, below, lighter coloured, often somewhat bubbled, from four to six inches long, and from two to four broad. Petioles channelled, smooth, an inch or an inch and a half long. Stipules solitary, spathiform, falling off when the leaf begins to be unfolded.

MALE PLANT. Calyx an ament 9 leaf-opposed, peduncled, filifopn, pendulous, closely imbricated with five spiral rows, of fleshy, oval, one-flowered scales. Scales oblong, peltate, sessile, one-flowered. Corol none. Filaments three, very thick, and very short, scarcely elevating the anthers above the margins of the scales of the ament. Anthers four-lobed. Pistil9 iu some, a minute cylindric gland in tile centre, in others, not the smallest rudiment of one.

FEMALE PLANT. Calyx an ament, leaf-opposed, shorter, thickert and more rigid than in the male, imbricated with threar otral rows of scales. Scales as in the male, Corol none.

Stamens none. Ger& sessile, globose, immersed in the substance of the ament. Style none. Stigma three-lobed, white, glalidular. Pericarp, a small, round, red, somewhat fleshy berry. Seed one, globose.

Obs. When I described the three vines included in this one species, I had not seen *Piper nigrum*, and took it for granted • that this was it; but as soon as I had an opportunity of seeing* that famous plant, I was immediately convinced that they were distinct species. In *trioicum*, the leaves have a glaucous appearance, which readily distinguishes it from P. *nigrum*, which has shining* dark green leaves.

This vine I have found wild amongst the chain of mountains directly north from .Coringii, in die Raja-mundri Circar.. It delights in a moist, rich soil, well shaded with trees; to them it adheres most firmly, by means of the roots which issue from the joints. Flowering time, in their wild state, during the latter part of the wet season, September and October. The peppev ripens in March. With me, in a cultivated state, they flower almost all the year round, but chiefly during the, fore mentioned period.

1 have not mot with any author, or any sort of information, that could lend me to think black pepper was the produce of a ilia COUK plant, (male and female on distinct vines,) till upon examination, I found it was so. Attention to this circumstance will, I think, render the culture of pepper much more certain, and successful, viz. by planting to each prop tree a male and female plant, the male on the sides from whence the most prevailing wind blows; and the female on the other.

system of the inimortal Linnaeus is founded on the soundest principles; and not a single plant have I ever /bund in India, that does not corroborate this fact. The Arabians from time immemorial knew, that to render the *female* date-tree prolific, it was necessary to bring it in contact wi'*i the *male*; which they do by making a slit in the spathe ('the

female flower, just before it is ready to<burst and thrusting therein a branch of the male spadix. I have therefore the utmost reason to conclude the pepper vine will be much more productive, if the above-mentioned circumstance be attended to, by the cultivators. • I think, if the Malays in Sumatra had known it, the accurate Mr. Marsden would not have neglected mentioning so material a circumstance, when describing this plant, and the method of cultivating it there.

Soon after the above description was made, I found a third vine bearing aments with hermaphrodite flowers; or hermaphrodite and Jėmale flowers mixed on the same aments. At the same time I found that the pepper of the female vine did not ripen properly, but dKxpped while green, and immature from the plant, and that when dried it had not so much pungency as common pepper, whereas the pepper of this third sort ripens perfectly, when dry is exceedingly pungent; and has been, by pepper merchants at Madras, reckoned equal, if not superior to the best pepper of the*Malabar coast, or Ceylon; consequently this must be the sort that is found cultivated; the other two being, I conjecture, entirely neglected.

This hermaphrodite plant grows wild, with the male and female, in the moist, uncultivated, over-run shady vallies, up amongst the mountains; and also upon the mountains, where springs keep them moist. Such places are common in the cliffs of the rocks, and there the vines thrive with the greatest luxuriance. In its stem, branches, leaves, and stipules, it agrees perfectly with the other two. The aments are also the same in every respect, except that here are four spiral rows of flowers; the scales of the ament are as in the other two, viz. the male and female plants. Stamens, generHly two, fleshy, clubbed filaments, shorter than the germ And placed laterally, so as to press upon it. It frequently happens that they are entirely wanting, or only one is present. Anthers two oval pits in the apex of each filament. Germ globular, immersed in the substance of the ament. Style none. *Stigmas* three, spreading. *Berry* globulàr, size of a small pea, red, smooth, one-celled. *Seeds* solitary.

3. P. longum. Willd. 1. 161.

Dioecous, shrubby, creeping.' *Jjower* leaves petioled, broad-cordate, floral leaves sessile, stem-clasping, oblong-cordate; all are from five to nine-nerved.

Cutta-tirpali. Rheed. Mai. 7.p. 27. t. 14.

Sans. Krishna, Oopukoolya, Videhee, Magttdhee, Chwpwla, Ktrna, Ooshwna, Pippwlee, Shoundee, Kola.

Seng. Pippul, the root Pipptda-moola.

English. Long pepper.

Pippul-chittoo is the Teliugpa name of the plant, and P*p-pidoo the pepper.

The plant I have found wild amongst bushes, on the banks of water courses, up towards the Circar mountains. It flowers and bears fruit during the wet and cold seasons.

Root woody, perennial. Stems many, creeping, jointed, round; joints swelled; yoking shoots downy. Branchlets bearing the fruit are erect, with the leaves sessile, or nearly so. Leaves on the creeping branches largest, petioled, broadcordate, seven-nerved; on the erect, fruit-bearing branchlets (floral leaves) stem-clasping, oblong-cordate, five-nerved; all are smooth, somewhat wrinkled; below pale green; size various. Stipules of the petioled leaves two, joining lengthways to the petioles, lanceolate; of the sessile leaves within the leaf, single, spathiform.

FEMALE FLOWERS. Amentsessile, leaf-opposed, peduncled, erect, cylindric, imbricated with five, or more, spiral rows of small, orbicular, permanent, peltated, one-flowered scales. , C<*lyx none. Corol none. Stamens none. Germs numerous, agj>'^gate, sessile, sub-orbicular. Style none or exceedingly '-short.* Stigmas three or four-lobed. Pericarp aggregate, sub-cyiVindrical, composed of firmly united, one-seeded drupes. Seed lovate, smooth.

Obs.\ It is in Bengal only, so far as I have been able to

learn, that this plant is cultivated for its pepper. When the pepper (ament) is full grown, it is gathered and daily exposed to the sun, till perfectly dry; after which it's packed up in bags for sale.

The roots, and thickest parts of the creeping stems, when cut into small pieces and dried, form a considerable article of commerce all over India, under the name of *Pippula moola*; for which purpose it is particularly cultivated in many of the vallies amongst the Circar mountains. This sort is more esteemed, and bears a higher price than that of Bengal; where by far the largest proportion is cultivated. It is, as well as the *pepper*, chiefly employed medicinally, and the consumption of both these drugs is very great.

The long pepper is not pro-CULTIVATION IN BENGAL. pagated by seed, but by suckers, and requires to be cultivated upon a rich, high, and dry soil. The suckers are transplanted soon after the setting in of the periodical rains, and the pepper (which is preserved merely by drying it in the sun), is gathered in the month of January, after which the stalk, and branches of the plant wither, and the roots only re-A bigha of land (the third of an English acre) main alive. will yield in the first year about a maund (eighty-four pounds) of the pepper, in the second year four maunds; and in the third, six; after which, as the plant becomes annually less and less productive, the roots are grubbed up, dried, and sold; and fresh roots, or young shoots are set in their stead, tlie earth requiring merely a slight covering of manure. plants are never to be watered, and at the commencement of the hot season the roots are to be carefully covered with straw to preserve them against the heat of the sun. The plants should be set about five feet asunder. Large quantities of this pepper and also of the roots are exported to Bombay, and Surat; where both are in great demand, the first for culinary, the latter for medicinal purposes. The ryots in this part of the country, usually sow radishes, or barley, or

plant brinjals (Solanum melofigend), in the intermediate space between the plants.

4. P, Chaba. W. Hunter in Asiat. Res. ix. 391.

Shrubby, creeping. *Leaves* short-petioled, ovate-lanceolate, base unequal, scarcely triple-nerved *yaments* leaf-opposed, erect, cylindrico-conical, firm and fleshy.

Sans. Chwywng, Chwvika, Chuvee, Chtmkitng.

Seng. Choee.

Piper longum. Rumph. Arab. 5. p. 333. t. 116.y. 1.

Obs. Cattu-tirpali. Rheed. Mai. 7. p. 27. t. 14. represents a very different species, the fruit of which is also used over the continent of India, and particularly in the western part thereof, as long pepper, and is much cultivated in Bengal, chiefly for its root, which the natives call P/ppttla. Woodville's figure, in his Medical Botany, is very bad, for it answers neither to this, nor P. longum^ Linn. sp. pi. ed. Willd. 161. which may be called the long pepper of the continent of India. Blackwell's figure is still worse.

5. P. sylvaticum. R.

Leaves all petioled, broad-cordate, from five to se ven-nerred, obtuse; lobes of the base large, equal, circular. Amenta erect, short-peduncled, columnar; male flowers tetrandrous.

A native of the mountains on the north-west border of Bengal, where the natives call it Pahari peepul, or *mountain* long pepper, and use it, both green and ripe, in their dishes. In the Botanic garden it blossoms, and the berries ripen durinsr the rains.

Root perennial. Stem or rather branches creeping on the ground, or rooting on trees like Ivy, and most of the East India species of pepper; all the young parts polished. Leaves alternate, petioled, equally-cordate, obtuse, from five to seven-nerved, smooth, from three to five inches long, by from two to four broad. Petioles from one to two inches long grooved. Stipules interfoliaceous, &c. as in the genus. Male aments leaf-

opposed, short-peduncled, or columnar, slender. *Scales* one-flowered. *Corol* none. *Filaments* generally four, oval, fleshy, very short. *Anthers* one-celled. *Germ* none. *Female aments* on a different plant, leaf-opposed, short, peduncled, cylindric. *Germ* oval, one-celled, ovula single, erect, that is, attached directly to the bottom of the cell.

6. P. peepuloides. R.

Leaves equally-ovate, and ovate-lanceolate, short-petioled, from three to five-nerved, smooth, acuminate. Aments subsessile, cylindric.

Pippul the vernacular name in Silhet, and on the adjacent range of mountains where it is indigenous, and considered the Pippul, or long pepper of that country, and as such is used in medicine, &c. It differs specifically, no doubt, from the long pepper plant of lower Bengal, as well as from that of Rumphius, called P. Chaba by Dr. W. Hunter, who found it common on the Island of Pulo-Pinang. It is immediately known from P. longum by the shape of the leaves, as well by their being all equally petioled; and from P. Chaba, by both sides of the base being equal, or nearly 90; whereas in Chaba the lower side is much larger and longer.

Root perennial. Stems and alternate branches creeping, young shoots smooth. Leaves alternate, short-petioled, from ovate-oblong to lanceolate, entire, acuminate; generally five-nerved, of which the exterior two are minute, and when absent the leaf is perfectly three-nerved, from three to five inches long, by from one to three broad. Stipules stem-clasping and petiolary. The female aments have only been found, which induces me to think this species is dioecous, as most of them are; they are short-peduncled, solitary, and directly opposite to the leaves. Berries smaller than in common black pepper (P. nig rum) obliquely oval; pulp in small quantity, one-celled. Seeds solitary, conform to the berry. Perisperm conform to the seed. Embryo minute, lodged in a little hollow in the apex of the perispenn.

"7. P. Betle. Linn. sp. pi. ed. Willd. 159.

Perennial, dioecous, creeping; *Leaves* alternate, bifarious, cordate, from'five.to seven-nerved, smooth, entire. *Female aments* sub-cylindric, drooping*.

P. qui saururus, &c. Burm. Zeyl. p. 193. t. 83. f. 2.

Beetla-codi. Rheed. Mai. 7. 29. t. 1118.

'Sans. Tamboolwvwllee, Tamboolee, Nagwvwllec.

Hind, and Beng. Pan.

I have never met with this plant in its wild state. It is much cultivated over India and the Malay countries.

Root woody, ramous. Stems woody, creeping on the earth, or rising up trees, poles, &c. when carefully trained to them; smooth in every part; innumerable roots issue from the joints, by which the plant is well supported after they have taken hold. Leaves alternate, petiried, bifarious, from broadcordate to obliquely ovate-oblong, somewhat pointed, from five to seven-nerved, entire, smooth; from four to six inches long, and from two to four broad. Petioles of various lengths, and channelled. Stipules as in P. nigtum. Female aments leaf-opposed, peduncled, filiform, sub-pendulous, closely imbricated with several spiral rows of scales, and corollets,, exactly as in P. trioicum. The male flowers I have never found.

Obs. The plants are constantly raised from the slips, and cuttings, these are carefully planted in a rich moist soil, well inclosed, and shaded, so that they are in great measure, protected from both sun and wind. In seme places, small plantations of JEschynomene grandiflora, are made to train them to, and to keep off the sun; in others, poles are employed for the first, and a thin shed of mats over them for the latter purpose, they require to be frequently watered during the dry weather. Every history of India describes, and every body knows, the use the Hindoos of all ranks make of the leaves of this plant.

8. P. Cubeba. Geert. Carp. ii. 67. Linn. sp. pL ed. Willd. 159.

Shrubby, creeping-. *ILeaves* petioled, ovate-lanceolate, scarcely triple-nerved. *Aments* leaf-opposed, on peduncles longer than the petioles. *Berries* pedicelled.

Piper canninum. Rumph. Amb. 5. t. 28. f. 2.

A native of Prince of Wales' Island and the countries to the eastward of the Bay of Bengal.

9. P. lanatum. R.

Creeping, every part very woolly. *Leaves* petioled, ovatelanceolate, scarcely three-nerved. *Aments* leaf-opposed, one-peduncled, as long as the petioles. *Berries* pedicelled, clavate.

A native of the Malay Archipelago.

10. P. methysticum. Linn. sp. pi. ed. Willd. 161.

'Leaves short-petioled, from salient to obliquely re-enter* ing, cordate, from seven to nine-nerved, entire, smooth.

A native of the Malay Archipelago. There is no doubt but this is the Sirium decumanun. Rumph. Amb. 5. t. 27. but whether it be the South Sea Island intoxicating species, I cannot take upon me to say. The leaves are often a foot long, by six or eight inches broad, on sheathing petioles not more than an inch long. I have not seen the fruit.

11. P. arborescens. R.

Arboreous, creeping. *Leaves* petioled, ovate-elliptic, acute, five-nerved. *Aments* leaf-opposed, long, slender, cylindric, on peduncles about as long as the petioles.

Sirium arborescens tertium. *Rumph. Amb.* 5. *t.* 28../*. 1. A native of the Molucca Islands.

12. P. lanceolatum. R.

Shrubby, creeping. Leaves short-petioled, broad-lanceo-

late, prominently five-nerved, smooth. *Amenta* leaf-opposed, long-peduncled, filiform.

A native of the Molucca Islands.*

· 13. P. Malamiris. Linn, sp.pl. ed. Willd. 160.

Shrubby, creeping. *Leaves* rather long-petioled, from salient to re-entering, cordate, five or seven-nerved. *Aments* leaf-opposed, filiform, on peduncles that are generally shorter then the petioles.

Amalago. Rheed. Mai. 7. 1.16.

Sirium. Rvmph. Amb. 5. t. 116./I 2. is no doubt P. Betle, consequently must be excluded from the list of synonyms belonging to this species.

14. P. rostratnm. R. m

Creeping, tender parts hairy. *Leaves* short-petioled,obo^vate, cuneate, obtuse-pointed, villous, five or seven-nerved,
downy, meeting above the base. *Aments* leaf-opposed, shortpeduncled. *Berries* beaked.

A native of the Moluccas.

15. P. dtffusus. VahLenum.pl. 1. 333.

Leaves long-petioled, round-cordate, sharp-pointed, five or seven-nerved, smooth. Aments cylindric, short-peduncled.

Sirium Jrigidum. Humph. Amb. 5. 345. t. 119.y. 2.

A uative of the Moluccas.

16. P. sarmento&um. R.

Erect, ramous at the top, sarmentose. *Leaves* from broadcordate to oblong, smooth, five-nerved, the superior ones «ubsesfeile. *Aments* leaf opposed, short-peduncled.

P. latifolium. Hunter in Asiat. Res. ix. 392.

Gadu. Cando, or Gudukh, of the Malays.

A native of the Malay Islands, and brought by Mr. Smith into the Botanic garden, where it thrive* luxuriantly, and is in fruit most part of the year.

Stems erect, from six to eighteen inches high, ramous at top, jointed, and smooth. Sarmentose shoots of a great length, issuing in abundance from the top of the root, and the lower part of the stem, by which the plant is quickly propagated to any extent. Leaves alternate, the lower ones petioled, broad, re-entering-, cordate; the upper ones sub-sessile, obliquely-oblong; all are smooth on both sides, and shining on the upper one. Aments solitary, opposite to the leaves, short-peduncled, oblong, very small, being rarely more than a quarter of an inch long. Germs oval, one-celled; ovulum one attached by the base to the bottom of the cell. Fruit compound, sub-cylindric, about the size of an infant's finger, when ripe softish, and of a dark green or livid colour. Berries numerous, most of the germs prove abortive, one-celled. Seed solitary, oval, attached to the bottom of the cell. Integuments single, thin, light brown. Perisperm conform to the seed, friable. bryo shape of a small broad inverted cone lodged in the apex Radicle superior. of the perisperm.

17. P. angustifolium. /?.

Scandent, or creeping, smooth. *Leaves* sessile, obliquely-lanceolate, very smooth. *Aments* leaf-opposed, short-peduncled.

A native of the Malay Archipelago.

18. P. saxatile. Wall.

Stems furrowed, creeping, with villous joints and fascicled sub-erect branches. Leaves sub-sessile quatern, obovate^ cuneate, fleshy, convex and villous beneath, with three coloured nerves, veinless. Spike terminal, filiform, elongated, peduncled.

A native of the neighbourhood of Katmandu in Napala, where it grows on rocks and blossoms during the first, four months of the year. A small succulent, probably annual species, which creeps to a considerable extent, sending forth fascicled, sometimes single, opposite or alternate branches

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from each joint, which scarcely rise four inches above the surface on which the plant grows. Stems thread-like, pubescent, with four or five furrows; branches once or twice sub-divided into small opposite branchlets. Leaves generally quatern, rarely tern, four or five lines in length, obtuse, cuneate at the base, shining and somewhat concave above, with copious short hairs below, slightly ciliated, without veins or ribs, and losing even the three pale-coloured nerves when dry; the lowest verticils many times, the others two or three times, shorter than the interstices between the joints. Leaves of the young shoots linear-oblong, measuring some-Petioles very short, villous, erect, times an inch in length. with a gland-like body in their axills, villous. Spike terminal, very slender, from an inch toan inch and a half long, round, villous, excavated on its surface with innumerable small pores in which the flowers are lodged, on a peduncle about half its length.

Obs. All the parts of this elegant little species have a faint pungent taste. I have not been able hitherto to examine its organs of fructification in a satisfactory manner.

CLASS III.

TRIANDRIA MONOGYNIA.

VALERIANA. Schreb. gen. N. 60.

Calyx none. Corol superior, one-petalled, gibbous on one aide of the base. Seed one.

1. V. Jatamansi. Sir W. Jones in A slat. Res. vol. ii. p_9 405, and vol. iv. p. 109. Roxb. ibid. 433.

Flowers triandrous. Leaves entire, four-fold, the inner radical pair petioled, and cordate; cauline sessile, lanceolate. Seeds crowned with a papus.

Y. spica. Vahl. en. pi. 2. 13.

OLAX. Schreb. gen. N. 61.

Calyx entire. Corol three-petalled. Nectary of a few abortive filaments inserted on the petals. Germ one-celled; ovulum one, erect. ,J)rupe half hid in the enlarged calyx, one-seeded. Embryo inverse, and amply furnished with a perisperm.

1. O. scandens. Corom.pl. 3. N. 102.

Shrubby, scandent. *Leaves* ovate-oblong. *Petals* and nectarial filament bifid.

Fissilia psittacorum. Linn. sp. pi. ed. WMd. 1. 194.

Roxburgia baccata. Konig's Mss.

Teling. Turka-vepa.

A large, woody% climbing shrub, a native of forests. Flowers all the year round,

Trunk leaning, often as thick as a man's thigh. Branches numerous, climbing. Thorns one here and there over the old woody parts only, very large and strong, shaped like the horn of a Rhinoceros. Leaves alternate, bifarious, petioled, oval, entire, smooth, about two inches long, and one broad. Racemes axillary, solitary, half the length of the leaves, few-Calyx cup-form, entire, flowered. Flowers small, white. permanent, and enlarging with the fruit. Petals three; one, two, or all three half two-cleft; divisions linear, spreading. Nectary, a bifid, filiform, yellow body, rising from the inside of the base of each division of the petals. **Filaments** three, short, standing between the nectaries, inserted into the petals below their fissures. Anthers oblong. Germ superior, ovate, one-celled, containing one ovulum attached to the bot-Style length of the corol. tom of the cell. Stigma simple. Drupe or berry globular, three-fourths covered with the enlarged calyx, yellow, pulpy, one-celled. Birds are fond of them. Seed single, globular. Integuments two; exterior nu,ciform; inner one white and spongy. Pertsperm conform to the seed, amygdaline. m Embryo inverse, minute^ lodged in the apex of the perisperm. Cotyledons two, equal, minute, semi-linear. " Radicle larger than the cotyledons, oval, superior.

2. O. imbricata. R.

Shrubby, scandent. *Leaves* bifarious, from ovate-lanceolate to oblong, entire, glossy. *Racemes* axillary, before the flower expands bifariously imbricated, (like the spiculse in *Briza*.) *Drupes* ovate.

A very large climbing shrub, or tree, if any scandant plant can be so called; a native of Chittagong, where it flowers in he hot season.

LOEFLINGIA. Schreb. gen. N. 71.

Calyx five-leaved. Corol five-petalled.. Capsules superior, one-celled, three-valved.

1. L. indica. Linn. sp. pi. ed. Willd. 1.191. Hetz. Obs. 48. Annual, diffuse, branchy. Leaves sub-vertical led, cuneiform/ Flowers terminal. Style three-cleft. Calyx fleshy.

Pharnaceum depressum. Mant. 564.

A small, diffuse, annual plant; appearing and flowering in the cold season.

Stems many, pressing on the ground, branchy. Leaves opposite sessile, with many smaller ones from their axills, which makes them appear vertic'lled, oval, smooth, from a quarter to half an inch long. Stipules four-fold, membranaceous, with many small similar scales about the flowers. Flowers sessile in the divisions of the branches, and terminal. Petals linear, with three or four-toothed apices.

HIPPOCRATEA. Schreb. gen. N. 73.

Calyx five-parted. Petals five. Germ three-celled •, ovula a few, attached to the axis. Capsules three, one-celled, two-valved. Seeds membrane-winged. Embryo erect, without perisperm.

1. H. indica. Linn. sp. pi. ed. Willd. 1. 193. Corom.pl. 2. N. 130.

Shrubby, climbing by tendrils. *Leaves* oblong, ventricose, serrate. *Corymbs* axillary. *Capsules* oblong, two-seeded.

A large, twining shrub, a native of forests, hills, and wild uninhabited places, over various parts of India. Flowers about the beginning of the hot season.

Tendrils simple, woody. Leaves opposite, short-pet ioled, oval, pointed, serrate, smooth, shining, about two inches long. Panicles (Umbells J axillary, opposite, peduncled, about as long as the leaves, dichotomous, expanding. Flowers numerous, very small, of a rusty yellow colour. Bractes minute. Petals linear-oblong. Germ superior, three-lobed, three-celled, with two ovula in each, attached to the axis. Style shorter than the stamens. Capsules from one to three, oblong,

one-celled, one-valved. Seeds two, broad-winged, affixed to the bottom of the capsules by the apex of the wing.

2. H. obtusifolia. R.

Shrubby, climbing by the help of cirrhose branchlets. *Leaves* elliptically-oblong-, entire, obtuse. *Corymbs* terminal and axillary. *Capsules* obovate, four-seeded.

A native of the coast of Coromandel. Flowering: time in the Botanic garden, March and April; the seeds take one year to ripen.

Stems and larger branches ligneous, and covered with cracked, spongy grey bark, climbing to a great extent by the help of the smaller, round, smooth, diverging, opposite branchlets, which take a turn or two round their supporters. Leaves opposite, short-petioled, oblong, entire, (large luxuriant leaves are sometimes obscurely serrate,) obtuse, firm, polished, length from three to four inches. Stipules of the leaves four-fold, minute, subulate; those of the branchlets Corymbs terminal, or from the exterior axills, often compoundly dichotomous, and shorter than the leaves. Bractes minute, ovate. Flowers small, pale greenish yellow. Calyx five-leaved. Petals five, ovate-lanceolate. Nectary, a large, fleshy receptacle receiving the base of the germ; its margin becomes thin, and is divided into three, tapering, antheriferous segments, which are at first erect, but soon become revolute. Filaments no other than the three segments of the nectary* >; Anthers two, round, one-celled lobes. Germ three-lobed, immersed in the thick, fleshy nectary, threecelled, each cell containing several seeds, attached to the axis. Style the length of the filaments; stiyma three-toothed. Capsules three, obovate, thin, smooth, slightly veined, about two inches long, by one and a half broad, one-celled, two-Seeds generally four in each capsule, two on each valved. side, lodged about its middle, of a narrow-oblong shape, with a large, oblong, membranaceous wing proceeding from the base, and attached by its extremity to the very base of the capsule. *Integuments* two; *exterior* a very thin, smooth membrane; *interior* rather thick and somewhat spongy. *Perisperm* none. *Embryo* erect. *Cotyledons* oblong, pale green while recent. *Plumula* two-leaved. *Radicle* short, inferior.

Obs. In the following species there are only two seeds in the capsule, in every other respect it resembles exactly this species.

3. H. arborea. R.

Sjnb-arboreous, with climbing branches. *Leaves* opposite, oblong, serrulate, cuspidate. *Corymbs* axillary. *Capsules* linear-oblong, two-seeded.

B. Katha-paharia. -

A native of the interior parts of India: It blossoms in July, and the seeds ripen in March.

. Trunk tolerably straight, but short, about as thick as a man's thigh, covered with smooth, dark brownish ash-coloured bark. Branches and branchlets spreading and climbing to a great extent, young shoots round and smooth, indeed highly polished; many of them form the claspers. Leaves opposite, short-petioled, drooping, oblong, taper-pointed, serrate, very smooth on both sides; from six to seven inches long, and about three broad. Stipules none, but two or three small, dark brown, scaly gems are found in each ax ill. Corymbs axillary, dichotomous, with a pedicelled flower in Bractes opposite, small, permanent, flowers the divisions. very numerous and small, pale greenish yellow. beneath, generally four, though sometimes five or even sixparted; divisions rounded, and only about half the length of the corol. Corol four, five, or six-petalled, (six is the most common, and I suppose the natural number,) in a double series, equal, ovate-oblong, smooth. Nectary a three-sided, fleshy cup surrounding the insertion of the stamens and Filaments three, membranaceous, shorter than the corol. Anthers four-lobed. Germ ovate. Style short. Stigma

simple. Capsules three, cuneiform, striated, three inches long¹, and about one and a half broad, one-celled, two-valved; valves exactly boat-shaped. Seeds two, ovate, compressed, enlarged with an oblong, soft, thin, spongy wing, the attachment is between its apex and the base of the capsules. Integument single, ochraceous. Perisperm none. Embryo oblique, compressed. Cotyledons conform to the seed, yellow. Plumnla two-lobed. Radicle oval, sub-inferior.

JOHNIA. R.

Calyx inferior, five-leaved, or five-parted. Corol five-pet ailed. Nectary or receptacle of the stamina and pistil-him sub-globular. Germ three-celled; ovula one or two in each cell, peltate. Berry one or more-seeded. Embryo without perisperm, direction various.

In honour of the Rev. Dr. John of Tranquebar. It is nearly allied to *Salacia*. *Gen. pi. ed. Schreb*. 1380. Its proper place is probably the third order of this class.

1. J. salacioides. /?.

Leaves opposite, broad-lanceolate, entire, firm and polished. Calyx five-leaved. Petals sessile. Anthers sessile on the three divisions of the nectary.

A native of Tipperab, Chittagong, and other parts of the eastern frontier of Bengal. It flowers in the Botanic garden during the hot season, and the fruit ripens about the close of the rains.

A large, very ramous shrub, with its *branches* spreading¹ much, and often drooping elegantly. *Bark* of the ligneous parts brownish and somewhat scabrous, that of the young twigs smooth.

Leaves opposite, short-petioled, recurved, broad-lanceolate, entire, firm, polished, obtuse-pointed; about four inches long, and half as much broad. Stipules minute, caducous. Peduncles axillary, several, longer than the petioles, cue-

flowered. Flowers small, deep greenish orange colour. Qalyx of five round, villous margined, minute leaflets. Petals round, sessile, with the margins recurved. Filaments no other than the three, short, triangular segments of the fleshy urceolate nectary, elevating the three, large, twin anther even with the stigma. Germ above, conical 5 three-celled, with two ovula in each, attached to the axis. Style scarcely any; stig-Berry size of a crab apple, round, smooth, dullma acute. Pvlp in considerable quantity, white, of a soft, tough, gelatinous consistence, and eaten by the natives. Seeds two, or three, separated by a thick partition of pulp; transversely oblong; flat on the inside, convex on the exterior. Integuments single, spongy, brown. Perisperm none. Embryo consisting of two equal cotyledons, fpnform to the seed, and until vegetation begins, so firmly, and closely united, that they seem to be of one entire piece. Radicle small, lodged at the umbilicus, relative, centripetal.

2. J. coromandeOana. R.

Leaves opposite, serrulate, polished. Calyx fiv^-toothed. Petals unguiculate.

A small, straggling tree, or rather a large climbing shrub, a native of forests and mountains of Coromandel.

Leaves opposite, short-petioled, oval, smooth, shining, sometimes most slightly serrulate; about three inches long, and one and a half broad. Peduncles axillary, several, bowing, one-flowered. Calyx inferior, one-leaved, five-cleft. Petals five, clawed, round, or oval, spreading. Nectary a large globular, fleshy receptacle, elevating the stamens and pistil. Filaments three, spreading, shorter than the petals, inserted into the top of the nectary round the germ. Anthers small, twin. Germ half immersed in the nectary, three-celled, with one or two ovula in each, attached to the axis. Style very short. Stigma simple. Berry superior, globular, upon the remaining nectary, or receptacle, size and colour of a small red cherry; one-celled, one-seeded.

IRIS. Schreb. gen. N. 97-

Corol six-petalled, petals unequal, alternate, jointed and spreading. Stigmas (petals,) from cowled to bilabiate.

1.1. chinensis. Curtis⁹s Bot. Mag. N. 373,

Root creeping. Leaves ensiform, drooping; scape ramous, many-flowered.

This elegant species has been introduced from China into the Botanic garden, where it thrives best in cool, moist, shady situations. Flowering time the beginning of the hot season, viz. March and April.

MORE A. Schreb. gen. N. 80.

Corol six-petalled; the three inner spreading and narrower. Stigma three-cleft.

1. M. chinensis. Linn. sp. pi. ed. Willd. 245. Thunb. Diss. JV.19.

Herbaceous, stems compressed. *Leaves* bifarious, ensiform. *Umbels* terminal, proliferous, all six-petals expanding.

Belameanda-shular mini. Rheed. Mai. 11. t. 37.

Ixia chinensis. Curt. Magaz. 171.

Pardanthus chinensis. Annals of Bot. 1. 416.

Beng. Dwsbaha, or Dmhichundi.

A native of India, China, &c. Fbwers in the rainy season in the Botanic garden near Calcutta.

Is common in gardens over India, where it blossoms during the rains, and ripens its seeds in the cold season.

COMMELINA. Schreb. gen. N. 86.

^i/Qalyx inferior, three-leaved. Corol three-petalled, ofteu dissimilar. Nectaries or sterile filaments three, with a cruci-

form head. Capsules two or three-celled. Seeds one or more. Embryo simple, and furnished with a perisperm.

1. C. communis. Linn, pp.pl. ed. Willd. 1. 249.

Polygamous, creeping. *Leaves* ovate-lanceolate, smooth; *spathes* many-flowered. *Petals* unequal. *Anthers* dissimilar. *Capsules* tricoccous.

Seng. Jwta-kanslwra.

Ephemerum dipetalum. Kempf. amcen. p. 888. t. 889.

This species is common over the low moist parts of India; flowering time the rainy season chiefly.

Root fibrous. Stems numerous, creeping, dichotomous, jointed, round, smooth; length very wious. Leaves alternate, sessile oq^ubular, vaginated sheaths, ovate-lanceolate, acute; margins waved; smooth on both sides, with delicate, parallel veins running lengthways on*tbe under side; from two to four inches long; mouths of the sheathing petioles a little ciliate. Spathes terminal, or sub-fasicled, semi-cordate.

2. C. bengalensis. sp. pi. ed. Willd. 1. 250.

Polygamous, creeping. Leaves cordate. Spathes three-flowered. Petals unequal. Anthers dissimilar. Capsules three-celled, six-seeded.

Ephemerum bengalense, &c. Pluck. 1. 27./". 3.

Beng. Kanshira, also Kanuraka.

Like the last described, this species is a native of wet places over Bengal, but much scarcer and smaller; flowering time the same.

Stems creeping, dichotomous, jointed, hairy. Leaves alternate, petioled, cordate, nervous, a little hairy, about an inch long and three-fourths of an inch broad. Petioles sheathing, hairy, and ciliate. Spathes terminal, and axillary, of a shape between that of a short, inverted cone and falcate; open on the upper side only; each containing a common peduncle of two hermaphrodite flowers, and a long pedunded male one. Flowers small, bright blue colour. Calyx

as in the former. *Corol* three-petalled; two of them larger, and long-clawed, as in the former species, the third small, and sessile, but coloured. *Nectary, stamens* and *pistil* as in C. *communis*, only the style is here beautifully spiral. *Pericarp* three-celled, three-valved, with generally two seeds in each cell.

3. C. moluccana. R.

Annual, creeping. Leaves sessile, oblong, about fivenerved. Flowers terminal, solitary, sub-sessile. Petals equal.

A native of the Moluccas. Compare with Vahl's C. attenuata.

4. C. salicifolia. R.

Polygamous, creeping. Leaves narrow-lanceolnte. Petals three, equal. Spathes from four to six-flowered. Anthers dissimilar. Capsules pointed, three-celled, six-seeded.

Sans. Langtclee.

Beng. Panee-kansh?ra.

Found with the former in wet places near Calcutta, it is also a native of the Coromandel coast; flowerino* time the wet season.

Stems creeping to a great extent, ramous, round, smooth, jointed, very succulent. Leaves alternate, sessile on their cylindric sheaths, narrow-lanceolar, a little hispid on the upper side and margins, when the finger drawn backward; from four to six inches long, and not quffione inch broad. Sheaths cylindric, striated; mouth ciliate. Spathes leaf-opposed, long-peduncled, semi-cordate, long-pointed. Flowers hermaphrodite, and male; large, of a beautiful deep azure colour, disposed as in the former species, only there are fewer to the common shorter peduncle, and often two on the longer one. Calyx as in the former. Petals three, equal, except that the lower one having a shorter claw is nearly jsessile. Nectaries, stamens, and pistilum, as in the former. Capsules oblong,

pointed, three-celled, three-vaTved, with two seeds in each. Cattle are fond of this species.

5. C. nana. R.

Creeping. *Leaves* cordate-lanceolate, stem-clasping. *Flowers* terminal, sub-panicled. *Petals* equal. *Capsules* three-celled, many-seeded.

A native of wet places over India; it appears during the rainy and cold season.

Root annual. Stems or branches creeping, enveloped in the sheaths of the leaves; from three to six inches long. -Leaves stem-clasping, sheathing, linear-cordate, somewhat ciliate, and waved; sheaths a little downy. Flowers terminal, sub-panicled, small, bright blue. Calyx equal, permanent. Corol of three, roundish, equal petals. Nectarial filaments as in the other Indian species, but naked. Filaments three, from the middle downwards clothed with hairs, converging over the stigma. Anthers blue. Style shorter than the stamens, straight and tapering. Capsules three-celled, with from three to six seeds in each.

Obs. Were the style longer, or even spirally bent, I should have concluded this plant to be Commelina spirata. ISlant. 2. p. 176. Bunnan's figure of his C. diffusa. Flor. Ind. $tab*7.j\$ 2. is obad that no comparison can be made; they may be the same.

6. C. nudiflora. Linn, sp.pl. ed. Willd. 1. 252.

Frequently creeping. A Leaves linear, sessile, sheathing. Flowers terminal, racemed, diandrous. Petals equal. Capsules three-celled; cells two-seeded.

Beng. Kanduli.

Tali-pulli/. Rheed. Mai. 9. p. 123. t. &3.

Tradescantia malabarica. sp. pi. 412.

A native of most of the warmer humid parts of India. Flowering time the rainy season.

Stems none, but it has many short, creeping, smooth, joint-

ed branches, with their flower-bearing extremities sub-erect* Zeave#»alternate, sessile, linear, sheathing¹, smooth, excepting a few fine hairs about the' mouths of the sheath. Racemes terminal, long-peduncled, corymbed, bearing on their upper side many small blue flowers in succession. Bractes solitary, one-flowered, concave, caducous. Calyx three-leaved, equal. Corol of three, obovate, equal, blue petals.* JVectarial filaments with a very few, moniliform, blue hairs; corpuscles two, clavate. Filaments three, two of them ascending, larger, and thicker, well clothed with beautiful jointed blue hairs. Anthers blue, oval, the third filament sterile. Style short, ascending. Capsules three-celled, with two scabrous seeds in each.

7. C cespitosa. R.

Polygamous, creeping. *Leaves* lanceolate. *Spathe* cordate, peduncled, few-flowered; *petals* nearly equal. *Capsules* three-celled, with one or two seeds in each.

A native of Chittagong, from thence the plants were sent 'to the Botanic garden by Mr. W. Roxburgh. It is in blossom most part of the year.

Stems and branches numerous,*slender, smooth, jointed, creeping close over a space of some feet and striking deep root at the joints. Leaves alternate; sessile on their smooth cylindric sheaths, ovate-lanceolate, the upper ones narrower and longer; all are entire, and smooth on both sides. Sheaths 9 besides the usual leaf-bearing one, there is a second or inner annular one wherever there is a peduncle. cles solitary, leaf-opposed, about an inch long, round, and Spathe cordate, or rather semi-cordate, in their nasmooth. tural folded state, each embracing two common pedicels; the superior one bearing two, three, or four, pedicelled male flowers; and the lower about as many hermaphrodite ones; all blossoming in succession. Calyx of three, equal, obovate, concave, pale blue, pellucid leaflets. Petals three; the upper two renifonn and pedicelled; the lower one cordate, anu

sub-sessile, all of a most beautiful light blue colour. *Nectaries* three, erect, on the upper side opposite to the sjpmens. *Filaments* three, equal, ascending. *Anthers** the middle one larger and sagittate. *Germ* ovate, (in the male flowers wanting.) *Style* ascending, as long as the stamens. *Stigma* incurved, simple. *Capsules* oblong, three-celled, with one or two seeds in each.

8. C. scapiflora. R*

Hoot perennial. Racemes radical, erect, with alternate, many-flowered spathes. Petals equal. Leaves in a tuft, ensiform. Beng. Kttrell?.

A native of Hindoostan and introduced into the Botanic garden by Colonel Hardwicke, where it blossoms in March and April, at which time the plant is destitute of leaves, nothing being seen but the racemes ornamented with large lively blue flowers round the apex.

Root perennial, composed of several, smooth, elongated tubers, with a few filiform radicles. Stems none, except the sheathing bases of the leaves which appear a month or two after the flowers; these are ensiform, waved, acute, smooth, and marked with several straight veins; length from four to eight inches, breadth one. Racemes radical, erect, straight, smooth, invested at each of the remote two or three joints, with a small, solitary sheath; these sheaths towards the top are more approximated, each of them there embracing the insertion of a branchlet which bears several pedicelled flowers. Calyx the three leaflets thereof broad-lanceolate, and considerably shorter than the corol. Petals equal, round, concave* Nectaries alternate with the stamens, hairy. Filaments three, alternate with the petals, longer than the filaments of thenectaries, and like them hairy about the middle. Anthers blue. Stigma minutely three-toothed. *Pistil* declining.

9. C. herbacea. R.

Herbaceous. Stems join led9 ascending. Leaves lanceolate.

Panicles terminal. Petals equal. Capsules three-celled, many-seeded.

A native of Sumatra, from thence introduced into the Botanic garden by Mr. Charles Campbell, where it blossoms and ripens its seeds'during the whole year.

Root perennial, consisting of long, firm, thick fleshy fibres. Stems several from the same root, herbaceous, jointed, ascending, round, smooth, much swelled at the joints, from two to three feet in height, nearly the whole enveloped in the sheath of the leaves. Leaves alternate, sessile on their sheaths, lanceolate, smooth, slightly marked with five parallel nerves, margins entire, waved, somewhat menibranaceous, and coloured. Sheaths shorter than the joints, striated, and smooth, except a few white hairs round their mouths. Panicles terminal; there are also smaller ones from the superior axtlls, which are sub-globular, and smaller. Ramifications alternate, at first divaricate, afterwards recurved. Flowers numerous, small, short-pedicelled. JBractes triangular, acute. leaflets three, equal, oblong, concave, spreading, fleshy, furrowed on the outside. Petals three, equal, oval, much larger than the calyx, concave, entire, spreading and of a delicatetranslucent^pale bluish white. JVectarial filaments alternate with the longer stamina, bearded (like the latter) towards the base, with delicate, slight blue hairs, and crowned with large incumbent, three-lobed, yellow glands. somewhat three-sided. Style oblique, length of the filaments. Stigma small, crowned with a tuft of hairs. Capsules threecelled, three-valved, with generally from four to six, or seven, angular, rough seeds in each cell. Embryo lodged iu a deep pit, in the back of the seed, small, oval.

SONERILA. R.

Calyx superior, three-toothed. Petals three on the mouth of the calyx, alternate with the stamina. Germ three-celled, cells many-seeded, attachment central. Capsule three-celled. Seeds numerous, minute. %.

1. S. maculata, Roxb.

Leaves opposite, unequally-cordate, bristle-spotted, serrulate, ciliate.

Soneri-ila. Rheed. Mai. 9. p. 127. t. 65.

Sootli, the vernacular name in the Khassee language.

It is indigenous amongst the mountains on the north-east border of Bengal, and used by the natives as a potherb. Flowering time the beginning of the rains. In its natural character it agrees very exactly with *Burmannia*.

Root fibrous. Stem short, being only a few inches high, and when old leaning much; branches opposite, Igpger than the stem, the lower reclinate, with their apices resting on the ground and striking root, all are nearly round and bristly: height of the whole plant from six to twelve inches. Leaves opposite, long-petioled, more or less unequally broad ovatecordate, nerved, bristle-serrulate, pointed, surface bullate, and marked with numerous small white specks, from the centre of each rises a slender, subulate, bristle; veins and nerves bristly, from two to six inches long, by from one to three broad. Racemes axillary, spiral, their peduncles as long as the petioles, deeply coloured and hairy. springing from the upper convex side of the raceme, shortpedirelled, red, bristly. Bractes subulate, minute. * Calvx superior, three-sided, and tubular; mouth three-toothed, permanent. Petals three, lanceolar, inserted into the mouth of the calvx, alternate with its segments, smooth on the inside, on the outside are frequently found some slender bristles. Nectary of three, laciniated scales round the base of the style. JFilaments three, alternate with the petals, and about their length. Anthers sagittate, one-third as long as the filaments, until the flower has been expanded some time they are inverted within the tube of the calyx, afterwards Germ clavate, three-sided, three-celled; ovula numerous, attached to their respective receptacles, rising from the axis, exactly as in Osbeckia cUinensis. Gcert. Carp. 2. Style length of the stamens. Stigma simple. Capt. 126.

sules erect, three-sided, clavate; pedicel included, about half an inch long", three-celled, opening- at the apex. Seeds very numerous, and too minute to admit of my ascertaining their internal structure.

2. S. emaculatcu Roxb.

Leaves opposite, unequally narrow-cordate, acute, bristly, but void of spots, serrulate, ciliate.

A native of the KhasSee- mountains on the north-east border of Bengal, where it flowers in July, and differs from the preceding species, in the leaves being destitute of the little round white spots, into which the bristles are inserted, (viz. one in the centre of each spot.) It is also less'robust than that plant, with longer peduncles to the racemes, which are sometimes leaflet-bracted at the middle.

- . The flowers and seed vessels are alike.

A native of the mountains on the north-east border of Bengal, and like the two fonner species in habit, but the shape of the leaves widely different, and only a little hairy.

4. S. molvccana. R.

Sub-caulescent. *Leaves* in pairs, entire, hairy, one minute and nearly round, the other unequally cordate. *Racemes* umbelled.

A native of the Molucca Islands.

XYRIS. Schrcb. gen. N. 89.

Head with roundish one-flowered scales. Perianth beneath, ftree-leaved. Carol three-petalled, equal, waved. Nectaries three, bifid. Capsule one-ceiled, three-valved. Seeds numerous, on parietal receptacles.

1. X. indica. Linn. sp. pi. ed. Willd. 1. 254. Leaves ensiform. Heads globular; scales round. Kotsjiletti-pullu. Rheed. Mai. 9. p. 139. t. 71.

Beng. Cheena ghauza. Dabi dooba.

Grows on a low clayey soil, OVCT nutfiy parts of Corbmandel, and Bengal. Flowering time Noyember and December. Seeds ripen in January and February.

Root fibrous, annual. Leaves, radical, bifarious, straight, sword-shaped, on one edge slit into a sheath for the scape, pointed, smooth; from six to twelve inches long. naked, round, striated, erect, length of the leaves, each supporting a round, flower-bearing head. Flowers a beautiful bright yellow. Bractes, or scales one-flowered, orbicular, concave, ha'd, smooth. Calyx three-leaved, hid within the scale, membranous. Petals three, each supported on an unguis just long enough to raise their expanding, oval, crenate borders above the scales. *Nectary*, three filamentinserted, alternately with the petals, round the base of germ; apex two-cleft, each division ending in a pencil ol Te(j yellow hairs; adhering firmly at the cleft to the edges of petals, near the apex of the claws. Filaments three, sho broad, erect, inserted on the inside of the apex of the claws the petals. *Ilnthers* twin, erect, united by a continuation, the filament. Germ superior, three-sided. Style length the claws of the petals, from thence threfe-cleft. Stigma $U_{ ext{\'ept}}$ Capsule three-valved, one-celled. Seeds numerous, attacines to a heel down the inside of each valve.

Obs. The following account of the virtues of this plaikes, have been favoured with, by the Honourable Johu Hyne # who informs me that "the natives of Bengal esteem it a j than of great value, because they think it an easy, speedy^^j, certain cure for the troublesome irruption called ring won This accords with what Van Rheede says of it, at pagejn& ft of the 9th volume of the Hortus JWalabaricus, viz. Folio<tyle, huccus cum aceto mixtus impetigini rests tit. Folia cum lants dice oleo incocta contra lepram sumuntur.

FUIRENA. JSchrcb. gen. N. 90.

Ament imbricated on all sides with tailed scales. Corol tliree-petulled. Seed naked.

]. F. ciliarw. R.

Culms erect, about twelve inches, columnar, jointed, leafy. Leaves hairy. Heads axillary and terminal. Scales very hairy. Stigmas three. Seeds three-sided.

Scirpus ciliaris. Linn. sp. pi. erf. Willd. 1. 309. Rotth. gram. 5. t. V7.f. 1.

Teling. Elagabora gadd?.

A native of moist places on the coast of Coromandel, with the Scirpi₉ &c.

Root fibrous. Culms nearly erect, about a foot high, round, striated, leafy, jointed, but not piped. Leaves sheathing, short
*** *** than the culms, hairy, ciliated on the margin, concave on inside insid

Si

and

KYLLINGIA. Schreb. gen. N. 9.

** Imbricated. Flowers with calyx and corol of two ffy valves each. Seerf one.

K. monocephala. Linn. sp. pL erf. Willd. 1. 256. VahL I. 2. 379.

Ilecottb». gram. 13. t. 4.J'. 4.

three-bulms six to eighteen inches high, triangular; headtermithree, single; involucres three or four. Seeds obcordate, withmerou angles.

Pee-Mottenga. Rheed. Mai. 12. p. 99. t. 53.

Gramen capita turn. Rumph. Amb. 6. p. 8. t. 8.J*. 2.

 $Beng_m$ Sweta gothoobi; Nirbishee, its fragrant aromatic root being accounted an antidote to poisons.

Common ovw India on low shady ffesture ground, when totally shaded the heads are generally more green, which is rather uncommon.

Root fibrous, and stoloniferous. Culms erect, from six to eighteen inches high, generally -about eight; three-sided, smooth, naked except near the base; angles sharp, and sides hollowed. Leaves sheathing, as long as the culm, smooth, sharp keeled. Head terminal, sessile oval, generally white. Involucre three-leaved, unequal, the largest leaf as long as the culm. Back of the glumes of the corol hispid. Stamens three. Stigma three-cleft. Seed obliquely obcordate, much compressed, smooth, light brown.

2. K. triceps. Linn. sp. pi. ed. Willd. 1. 256.

Culms from six to twelve inches high, three-cornered. Heads terminal, sessile, from three to six; involucres three or four i florets diandrous. Seed oblong, without angles.

Mottenga. Rheed. Hort. Mai. 12. p. 97. t. 52.

A native of low shady pasture ground.

Root somewhat tuberous, with capillary fibres. Cvlms straight, from six to twelve inches high, smooth, naked, except at the base, obtusely three-sided; angles rounded. Leaves sheathing, nearly as long as the culm, smooth. Head terminal, composed of from three to six sessile, oval, white spikes, the largest one is in the centre, the rest in the circumference. Involucre as in K. monocephala. Stamens seldom more than two. Stigma two-cleft. Seed oblong, much compressed, white, no anisic*.

Obs. It differs from K. monocephala not only in having a compound head but in being diandrous, with a bifid style, and oblong lanceolate seed. I have found luxuriant plants with more than one flower in the calyx.

3. K. umbellata. Linn. sp. pi. ed. Willd. 1. 257. Rottb. gram. 15. t. 4.y. 2.

Culms from one to two feet high, three-sided, umbel of sessile and peel uncled, cylindrical, ragged spikes, involucres many; involucels non#. Seeds three-sided, linear-oblong.

Kolpullu. Rheed. Hort. Mai. 12. t. 63.

Mariscus umbellatus. Valid. Enum. pi. 2. 376.

Beng. jBwra-gpthoob?.

A native of wet or marshy places.

Root tuberous, rust-coloured, with rust-coloured, fibres. Culms erect, from one to two feet high, three-fourths naked, three-sided, smooth. Leaves sheathing, nearly as long as the culm. Umbel terminal, sessile, composed of sessile, and peduncled, cylindrical spikes of numerous diverging flowers. Involucre; universal, many leaved, unequal; the fargest leaf often as long as the culm; partial, none. Calyx and corof, &c. as in the genus. Seeds three-sided.

Obs. As this plant wants the partial involucre it may be K. sumatrensis of Retzius.

4. K. cyperoides. R.

•ні •

Culms from six to eight inches high, three-sided. *Umbel* compound, consisting of globular heads of numerous spikelets, *involucre* three-leaved. *Seeds* oblong, three-sided.

An elegant cyperus-looking small species, a native of moist pasture ground.

Root fibrous. Culms erect, two-thirds naked, from six to eight inches high, three-sided, smooth. Leaves sheathing, as long as the culm. Involucre; universal, three-leaved, very unequal, the largest leaf being as long as the culm, and the smallest one inch; partial, minute. Calyx, carol, &c. as in the genus, excepting that there are sometimes two flowers in the same calyx.

TUNGA. R.

Ament ovate, imbricated on all sides. Calyx one-valved, one-flowered. Carol twq-valved. Seed naked.

The plants which come under definition I cannot by any means reconcile to the character of *Sckoenus*, nor indeed to any genus known to me. I have therefore constituted a new one of them, under the Telinganame *Tunga*, which is applied to the whole family of *Calamarice*. linn. *Cyperoidea*. Juss. This genus is probably the same as Vahl's *Hypaelyptum*.

1. T. triceps. /?.

Culms from four to eight inches high, a little compressed; spikes two or three, terminal; involucre two-leaved.

A native*of Coromandel, growing with other cyperi.

Root fibrous. Culms erect, mostly naked, from four to eight inches high, a little compressed, smooth... Leaves sheathing, broad, nearly as long as the culm. It fte&terminal generally three, sessile, oval, imbricated with innumerable small rust-coloured flowers. Involucre two-leaved, the largest is often erect, and looks like a continuation of the culm, it is from two to three inches long; besides these there are two or more oval, lateral, scales. Calyx, a scale, single, nearly as in the scirpio one-flowered, wedge-shaped, striated. Corol two-valved, membranaceous, shorter than the scale. Stamens three. Stigma three-cleft. Seed oblong, three-sided without bristles.

2. T. favigata. R.

Culms from one to two feet high, three-sided. Spikes several, terminal. Involucre three-leaved.

A native of moist vallies.

Root fibrous. Culms erect, from one to two feet high, nearly naked, three-sided, smooth. Leaves numerous, sheathing half as long as the culm. Head terminal, generally composed of about seven oval, sessile, closely imbricated spikes.

Involucre two or three-leaved, very unequal, the largest from five to eight inches, the shortest one, or one and a half. *Calyx* as in T. *triceps*, only sometimes three-lobed at the apex. JThe rest as in T. *triceps*.

3. T. diandra, R.

Culms leafy, two or more feet high, three-sided; corymbs terminal; involucres alternate. Flowers diandrous. Style two-cleft.

A stout, erect, smooth, long-leaved species; a native of Amboyna.

Culm jointed, three-sided, smooth. Leaves one at each joint, sheathing, rising much higher than the culm, linear, smooth, acute, three-nerved, about three feet long. Corymbs terminal, decompound or more. Involucres several, the largest at the first division of the corymbs, and like the leaves of the culm, but smaller; spikelets oval, minute, composed of many smal I brown imbricated flowers as in the script. Calysr, a glume, roundish, smooth. Corol; the two valves, small, placed transversely with respect to the calyx, and smaller than it. Filaments two, one rising laterally from the bosom of each valve of the corol; anthers linear. Germ oblong; style deeply two-cleft. Seed oval, rather longer than the calyx.

SCHtENUS. Schreb. gen. N. 92.

Calyx, or Corol₉ glumes several; seed one, naked.

1. S. articulatus. R.

Culms three-sided, erect, from four to five feet high, jointed, leafy. ^Corymbs terminal and axillary, compound and decompound. Style undivided. Seed obovate, beset with bristles, and crowned with the conic base of the style.

Teling. Konda-Uengff.

A native of marshy places up amongst the Circar moun-

tains. It may be referred to Vahl's Rynchospora enum. pi. 2^229.

Culms erect, three-sided, leafy, jointed, smooth, from four to five feet high, angles sharp, between the joints fistulous. Leaves of the root as long as the culm, smooth, except that the margins are a little hispid, slender considering their great length, those of the culm from five to eight, sheathing, shorter than those of the root. *Umbels* the terminal one decompound, those only from the exterior axills compound. Involucre of the terminal umbel, from three to four-leaved, about as long as the umbel, leaf-like; the axillary umbels have no involucre, or, at most, a very trifling one. Flowers sub-solitary, chesuut-coloured. Calyx none. Corol; petals four. Style^lundivided, with a permanent conical base. Stigma entire, acute. Bristles, six permanent ones surrounding the germ. Seed a little compressed, crowned with a large brown, spongy, conical body, the base of the style.

Obs. There is frequently a very slender male flower within the large or inner glume of the corol; it consists of one glume or scale, and three stamens. The plant is so very coarse that cattle will not eat it.

CYPERUS.

Glumes chaffy, bifariously imbricated. Corol none. Seed one, naked.

SECT. I. with culumnar Culms.

1. C. setaceous. Linn. sp. pi. ed. Willd. 1. 269. Retz, Obs. 6. p. 10. Culms setaceous, from two to three inches high; spike terminal, solitary, naked.

A native of Coromaudel, appears and flowers during the rainy season chiefly.

2. C. mucronatus. Linn. sp. pi. ed. Willd. 1. 273. Retz. Obs. 6. 10.

• Culms from six to eight inches high, round, incurved, halfnaked. Spikes lateral, sessile. Involucre one-leaved, besides the continuation of the culm. Seed oval, rounded.

A native of moist sandy places, over various parts of India.

Root creeping, invested in brown sheaths. Culms half naked, issuing singly from the root at some distance from each other, nearly round, ascending, from six to eight inches long; the lower half is involved in the sheath of a single, short leaf. Leaf sheathing, generally one to each culm, which is only about half its length. Head about an inch and a half below the extremity of the culm, it consists of five or six small, oval, ten or twelve-flowered spikes. Involucre one-leaved, about as long as the spikes; besides these there are some small, chaffy, calyx-like scales. Seed naked, oval, compressed, white.

3. Cm lateralis. Forst. descript. 13. N. 28.

Culms erect, columnar, from eight to twelve inches long, naked; head of five or six sessile spikes beneath the straight apex of the culm; stigma bifid; seed oval, compressed.

A native of Coromandel.

Root creeping, dark rusty brown. Culms straight and perfectly erect, from eight to twelve inches high, round and naked. Leaves no other than a short sheath or two, embracing the base of each culm. Spikes sessile, five or six, forming a small head on one side of the culm about an inch and a half below its apex. Involucre^ a minute, subulate leaflet immediately under the spikes, and of the same length with them. Scales of the spikes numerous, ovate-oblong', white, smooth and rather obtuse. Stamina three. Stigma bifid. Seed oval, flat on the inside, and convex on the exterior, lead-colour or grey, and smooth.

Obs. This differs from the plant which I consider to be Cmucronatus of Retz*fasc. 5. p. 10. in being perfectly erect and destitute of foliage; whereas that species has leaves,

is smaller, and always ascends in a curved direction; in that the .scales of the spike are acute, in this obtuse, in other respects they are very much alike. At present I am inclined to think C. *mucronatus* of Vahl and Rottboel may be referred to this, consequently Willdenow's C. *mucronatus*. *sp. pL* 1. 273. includes these two species.

4. C. nudus. R.

Culm from three to four feet high, round, naked, inwardly intercepted. Leaves none; umbel compound; involucre chaffy. Stigma three-cleft. Seed three-sided.

A native of stagnating", or slowly running¹ sweet water over India.

Root perennial, fibrous. Culms erect, round, naked, articulated, smooth, from three to four feet high, above as thick as a common large quill. Leaves no other than a rusty coloured sheath or two embracing the base of each culm. Umbel terminal, generally compound, though sometimes decompounds Involucre several small, chaffy scales. Umbellets long, slender, peduncled, bowing, composed of from eight to twelve linear, sessile, rust-coloured spikes. Involucels like the involucres. Seed sub-linear, three-sided, smooth, light brown.

5. C. semi-nudus. /?.

Culms from two to six feet high, round, tending to be angular at the top, naked. Leaves none. Umbels decompound, with an involucre half its height. Stigma three-cleft; seed three-sided.

Seng. Gola-methee.

Teling. Godoo tunga koocfa.

This species is with the former a native of wet places.

Root perennial, creeping, fibrous. Culms erect, from two to six feet high, round, smooth, naked, except at the base, which is embraced by three or four sheaths. Leaves no other than the sheaths just mentioned. Umbels generally decompound, erect. Involucre three-leaved, equal, shorter than

the umbel, sides and keel hispid. *Umbellets* and partial *umbellets* peduncled, composed of linear-lanceolate, yellowish spikes. *Seed* three-sided, smooth.

Obs. Cattle are not fond of it, and it is only eaten occasionally by buffaloes.

SECT. II. with a three-sided Culm.

6. C. dubius. Rottb. gram. 20. t. ±.f. 5. Linn. sp. pL ed. Willd. 1. 273.

Culm from six to twelve inches high. Head terminal, roundish, sessile. Involucre of four or five long leaves, some of them longer than the culm.

Cyperus long us. Rumph. Amb. 6. p. 5. t. 2.f. 1.

C. kyllingceoides. Vahl. enum.pl. 2. 312.

Teling. Tagada tilnga.

Beng. Chhota-gothoob?.

This species in much like *Kyllingia monocephala*, and is with it, a native of shady, moist pasture lands.

Root, a somewhat tuberous head, with many rust-coloured capillary fibres. Culms erect, from six to twelve inches high, three-sided, smooth, the lower third or fourth part involved in the sheaths of the leaves. Leaves sheathing, radical, embracing the base of the culm, very smooth, many of them longer than the culm. Head globular, size of a large cherry, composed of numerous, lanceolate, sessile, white-pointed spikes. Involucre four or live-leaved, unequal, some of them longer than the culm. Seed three-sided, pointed, dark rust-coloured, smooth.

Obs. Cattle eat it.

7. C. monocephalus. R.

Culms from twelve to eighteen inches high, straight; head terminal, ovate, compound; involucre, from three to four-leaved, spikelets ovate. Style undivided. Seed three-sided, elevated on a spongy receptacle.

Beng. Gothoob?.

A native of low wet places over Bengal.

Root fibrous. Culms straight, three-sided, smooth, general height from twelve to eighteen inches. Leaves three, four, or five, investing with their sheaths, the lower parts of the culms straight and smooth, length various, the longest about as long as the culm. Involucre, leaves several, diverging, of very unequal lengths, the longest as long as the culm, and Heads terminal, composed of a the shortest about an inch. larger one in the centre, and four or five smaller ones in the circumference, all rigidly sessile. Spikelets ovate, incurved, ten or twelve scaled, each spikelet embraced on the under side by an ovate-cordate, smooth, dark brown, bracte. Scales boat-shaped, pointed • keel greenish; sides deep, polished, chesnut colour. Stamens three. Style simple and undivided to the extremity. Seed three sided, elevated on a spongy whitish receptacle.

Obs. The undivided style and spongy receptacle of the seed distinguish this from all the other species I have yet found in India.

8. C. dffiisns. JR.

Diffuse, from two to four inches high. *Heads* terminal, glomerate, sessile; *spikelets* incurved. *Scales* daggered. *Involucre* many-leaved.

Mulen-puliu. Rheed. Hort. Mai. 12. p. 101. t. 54.

A native of moist pasture ground.

Root fibrous. Culms three-sided, several, diffuse, from two to four inches long, smooth, towards the base leafy, and of a dark chesnut colour. Leaves sheathing, two or threfe embracing the base of each culm and about the same length. Head terminal, sessile, composed generally of one large capitultim in the centre, and four or five in the circumference; thoNe are again composed of small, incurved, from eight to twelve-flowered spikes. Involucre many-leaved; the exte-

rior three larger, being as long as the culm or longer. *Stigmas* two, revolute. *Seed* three-sided.

9. C. squarrosus. Linn. sp. pl_m ed. Willd. 1. 274.

Culms erect, from four to six inches high, leaves as long as the culms. Head terminal, glomerate, round. Involucre many-leaved. Scales with acute, recurved points*

C. pygm&us. Rottb. gram. 20. t. 14. /. 4.

A native of Coromandel.

10. C. cistatus. Linn. sp. pi. ed. Willd. 1. 275. Rottb. gram. 23. /. $6_{\#t}/l$ 1.

Culm from three to six inches high, with sharp angles. Heads generally single, and sessile; scales with a long recurved point. Involucre three-leaved.

Scirpus intricatus. JSflant. 182.

. A native of moist pasture ground. It is in general from three to six inches high, though sometimes I have met with luxuriant specimens ten inches in height.

Root fibrous. Culms erect, from three to six inches high, three-sided, two-thirds naked, smooth; sharp. Leaves sheathing, erect, short, sheaths purple. Head generally simple, and sessile, though sometimes, there is a second, which is peduncled; and in the larger plant above-mentioned there are two or three sessile, and two or three peduncled, they are composed of small, sessile, ragged, from six to eight-flowered spikelets. Involucre three or four-leaved, broad, unequal, the largest being about the length of the culm. Calyx; scales tapering to a long, fine recurved point, which gives the spikes the ragged appearance they have. Seed three-sided.

11. "C. pectinatus. R.

Culms three-sided, leafy, from eight to twelve inches high, straight. Umbel terminal, sessile. Involucre length of the umbel. Spikes all sessile, linear, pectinate, scales mucronate. Seeds three-sided.

A native of Coromandel.

Culms erect, straight, three-sided, leafy toward the base; from eight to twelve inches high. Umbel terminal, simple, sessile, globular, cofiiposed of about twelve sessile, linear, diverging spikes. Involucre from two to three-leaved, the longest leaflet about as long as the umbel. Scales with long, acute, recurved apices. Stamina three. Style with a three-cleft apex. Seed obovate, three-sided, smooth, dark ash-co-loured.

12. C. niveus. Linn. sp.pl. ed. Willd. 1. 273. Retz. Obs. 5. p. 12.

Culms from five to eighteen inches high. Umbels or rather heads, sessile. Involucre two-leaved. Style tliree-cleft. Seed three-sided.

A native of shady moist pasture land.

Root creeping, fibrous. Culms erect, from five to ten inches high, mostly naked, three-sided, smooth. Leaves surrounding the base of the culm, sheathing, those that are nearest the root are little more than sheaths, those within are nearly as long as the culm, and waved. Umbel terminal, simple, sessile, about an inch each way, composed of linear, many flowered, sessile spikes. Involucre two-leaved, length of the spikes. Seed three-sided.

13. C.jemenicus. Linn. sp. pi. ed. Willd. 1. 281.

Culms from two to four inches high, obscurely three-cornered; base bulbiferous. Umbels simple. Involucres and spikelets alternate. Scales acute. Seed roundish, three-sided.

Puri-gaddi is the Telinga name of the plant,' and Puri-duihpa that of the roots.

A native of dry sandy pasture ground near the sea.

Root bulbiferous, stoloniferous. When the small oval bulbs are taken up entire they appear covered and entirely surrounded with two, three, or four black and brown, longi-

tudinally striated sheaths, which burst and fall off in succes-There are many capillary fibres issuing from the base of the culm. The stolones generally push their way up through the sheaths, and out at their mouths, run horizontally, producing from their extremities the new plant. moving the sheath a small truncated, pointed ball is observed, resting in the upper side of the base of the culm, which (onionlike) is formed by the united sheaths of the leaves. This little bulb, which is slightly connected to the base of the culm on which it rests, is the eatable part; it is composed of two or three coats, and about the size of a pea; when its proper exterior brown membranous sheath is removed, it is very white¹, inviting to the eye, and pleasant to the taste. Culm erect, two-thirds naked, between round, and three-sided, two, three, or four inches Ion.". Leaves a few, filiform on the upper side, grooved, four or five inches long, below the surface of the earth, their sheaths form the little firm culm above-mentioned; from its head the capillary roots and stolones issue. Umtel simple, composed of from six to ten sessile, linear, diverg-Involucre generally three-leaved, unequal, the largest twice as long as the spikes; they issue not as usual from the same point, but alternately one above another. Scales oblong, striated. - Stigma two-cleft. Seed roundish, three-sided, grey.

Obs. The little bulbs are gently roasted or boiled, then rubbed between the hands or the folds of a cloth, to take off the eheatbs, which is all the preparation the natives give them, to make them a pleasant wholesome part of their diet, which they have frequent resource to, particularly in times of scarcity. Some dry them in the sun, grind them into meal, and make bread of them, while others stew them in their curries and other dishes; they are palatable, tasting like a roasted potatoe. I wish they could be enlarged by culture, when they might soon prove a valuable acquisition, for on account of their smallness, it is troublesome and tedious gathering and cleaning any quantity of them.

14. C. polystachyos. Linn. sp. pi. ed. Willd. 1.275. Rottb. gram. 39. t. 1 \.f. 1. Vahl. enum.pl. 2. 315.

Culm twelve inches long; leaves short; umbel compound, sessile, crowded. Involucre many-leaved. Style two-cleft. Seeds linear, obcordate, without angles.

Gramen cyperoides, &c. *Pluck, mant.* 97. *tab.* 416. *fig.* 6. is not unlike this plant.

A native of moist pasture land, of ditches, &c.

Root fibrous. Culms erect, about a foot high, simple, three-sided, smooth, lower part involved in the sheaths of the leaves. Leaves shorter than the culm, smooth. Umbel terminal, compound, crowded, sessile, about an inch each way. Umbellets sub-sessile, crowded, composed of numerous, sessile, linear-lanceolate spikes. Involucre from four to six-leaved, unequal, the longest being from six to eight inches long, and the shortest, only one. Stigma two-cleft. Seed compressed, oblong-obcordate.

15. C. punctatus. R. <

Culms from two to six inches high, shorter than the le^es. Umbel compound. Involucres longer than the leaves. Seeds oval, compressed, dotted.

Gramen cyperoides elegans, &c. Pluck, t. 192. f. 3.

A small elegant species; a native of moist pasture ground. Root fibrous. Culms erect, from two to six inches high, half naked, three-sided, smooth. Leaves sheathing, the lower ones little more than the sheaths, the superior ones longer than the culm. Umbel terminal, compound, about an inch each way. Umbellets some sessile, some peduncled, composed of linear, many-flowered spikes. Involucre from three to four-leaved, unequal, longer than the culm; scales daggered. Seed compressed, obbvate, beautifully marked with white dots, on a dark-coloured ground, hence the specific name.

Obs. In König's catalogue he called this C. pygm<eus.

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Receipt,

No....Date

JP. C. tapillaris. Kėn. Mss.

Cv in filiform, from one to two feet high. Umbel of one sessile, and two pedioelled 'umbellets. 'Involucre three-leaved, filiform, florets diandrous. Style two-cleft. Seed obovate, without angles. '

A native of moist pasture ground.

Root fibrous. Culms erect, from twelve to eighteen inches high, three-sided, filiform, three-fourths or more naked, Leaves sheathing, generally two to each culm; the lower one short, superior one as long, as the culm, very slender and smooth. Umbel small, compound, generally composed of one sessile, and two peduncled Vunbellets, these are again composed of linear, many-flowered spikes. Involucre three-leaved* filiform, the largest is longer than the culm; the shortest about an inch long, and die other between the two. Scales membranaceous, obtuse. Stamens two. Style two-cleft. Seed obovatd, compressed, brown, pretty smooth, half hid intherachis.

17. C. compressus. Linn, sp.pl. ed. Willd. 1. 282. Vahl. enu*. pi. 2. 324.

Cunts from six to ten inches high, shorter than the leaves, angles blunt. Umbel simple or compound. Involucre three-leaved. Scales daggered. Seed obcordate, triangular.

Gmuen cyperoides rarius, &c. Pluck, t. 192. $J \setminus 1$.

Teng. Chooncha.

Teling. Salm/ugff.

Delights in a moist soil.

I-cot fibi OUP. (ihns erect, from six to ten inches high, two-thirds naked, ihree-sided, smooth; angles blunt. Leaves numerous, sheathing, many of them longer than the culms, smooth and glossy. Umbel terminal, simple, or compound; when compound the umbel lets are peduuclerf, from one to three, and consist of from three to six, green, linear, sessile, many-flowered spikes, Involtcre three-leaved, smooth, the largest of them is nearly as long as the culm. Scales acute. Seed tmhinate, thiee-bided, smooth, dark-brown colour*

Obs. The tipper flowers of the spike are incomplete.

18. C. castaneus. Linn. sp. pi. ed. Willd. 1. 278.

Culms from two to six inches high, length of the leaves* Umbels getierally compound; length of the involucre. Scales with long recurved points, monandrous. Seed rugose, obtusely triangular.

A most beautiful delicate, small species; delights in moist, sandy, pasture land.

Root fibrous. Culms erect, from two to six inches high, naked, three-sided, smooth. Leaves sheathing, filiform, scarcely so long as the culm. Umbel terminal, one or one and a half inch, simple, or .compound, but in general composed of from one to five small ped uncled umbel lets, and one or two sessile ones. Spikelets linear, many-flowered* Scales three-keeled, with a recurved point, green keel and chesnut-eoloured sides. Stan\en single, (at least I have not found more.) Style two-cleft. Seed obtusely three-sided, oblong, rugose.

19. C. difformis. Linn. sp. pi. ed. Willd. 1. 280. Vahl. enum. 2. 337.

Culm from nine to eighteen inches high^>angles sharp. Umbels; compound umbellets globular; spikelets crowded* Involucre from two to three-leaved. Scales imbricated. Seed obovate, three-sided.

Gramen cyperoides, &c. Pluck, aim. 192. f. 3.

Seng. Behooa.

Grows equally in either a dry, or wet sandy soil.

Root fibrous* Culms two-thirds naked, erect, from nine to eighteen inches high, three-sided, smooth, angles sharp. Leaves sheathing, as long as the culm, keeled, smooth. Umbel compound, small, being only an inch and a half each way. Umbellets from two to four, sub-sessile, and from two to four longer or shorter peduncled, globular, composed of innumerable, very small, oval spikes. Involucre from two to

three-leaved, very unequal, the longer being balf as long as the culm; and the third (when present) less than an inch. *Scales* imbricated, margins membranaceous. *Seed* three-sided.

- 20. C. pumilus. Linn. sp. pi. ed. Willd. 1. 282. Rottb. gram. 29. t. 9.f. 4. Vahl. enum. pi. 2. 330.
- . Culms about six inches high, angles blunt. Umbels compound; umbellets sub-globular. Spikelets; scales daggered. Delights in a moist soil.

Root fibrous. Culms erect, six inches high, half naked, obsoletely three-sided,' smooth, angles rounded. Leaves sheathing, shorter than the culm. Umbel compound ; umbellets from three to six, shorter or longer peduncled, globular, composed often or twelve linear, many-flowered spikes. Involucre three or four-leaved, unequal, the largest as Jong as the culm. Scales acute.

- 21. C. cruentus. Linn. sp. pi. ed. Willd. 1. 275. Rottb. gram. 21. t. 5./*. 1. .
- Culms three-sided, from six to twelve inches long. Leaves sub-radical; umbel compound; involucre three or four-leaved. Scales obtuse. Flowers diandrous. Style two-cleft. Seed roimd and smooth.

A native of low pasture land all over Bengal, &c. where it is found growing in tufts during the rainy season, like most of this natural order.

Obs. Cattle rarely eat it except when pressed by hunger.

22. C. incurvatus. R.

Culms triangular, base leafy, incurvate. Umbel compound. Involucres two or three, incurvate. Spikes needle-shaped, incurved. Scales oblong, obtuse. Stigma three-cleft.

A native of the moist banks of the Ganges. Flowers during the cool season.

Roots creeping, stoloniferous, with dark-coloured fibres.

Leaves ensifoiyn, polished, shorter than the culms. Culms slightly incurved, leafy round the base, triangular, with sharp. angles, concave sides, and from one to twor feet high. Involucre two, or three-leaved, incurved, one of them two or three times longer than the umbel. Umbel cdmpound. Spikes needle-shaped, incurved. Scales oblong, obtuse, with a green rib. Stamina three. Germ oblong. Stigma three-cleft. Seed linear, oblong, three-sided, smooth, brown.

23. C. tortuosus. Kön. JUss.

Culms obtusely three-sided, from six to eight inches high. Umbel compound, length of the involucre. Spikelet linear, incurved, flowers diandrous. Seed obovate, compressed, without angles.

A native of moist pasture ground.

Root somewhat tuberous, with filiform fibres. Culms erec from six to eight inches high, naked, three-sided, smooth. Leaves radical, shorter than the culm. Umbel compound. Umbellets from four to eight, shorter and longer peduncled, composed of large, linear, many-flowered, chesnut-coloured, curved spikes. Involucre three-leaved, longer than the umbel. Stamina two. Style two-cleft. Seed obcordate, compressed, smooth.

24. C. rotundus. Linn. sp. pi. ed. Willd. 1. 283. Vahl. enum. pi. 343.

Hoot tuberous. Culms from one to two feet high, obtusely three-sided. Umbel compound; spikelets alternate; involucre three-leaved, length of the umbel. Seed angled.

C. rotundus. Rumph.Amb. 6. p. 1. t. I. jig. 1. 2.

C. hexastachyos. liottb. 28. t. 14. f. 2.

Sans. Moosta^loostuka.

Beng. Mootha.

Teling. Shaka-tttnga.

This is by far the most common species we have in India;

it delights in a moist sandy soil, though it grows abundantly every where.

Root tuberous, with filiform fibres; tubers about the size of filberts or acorns, of irregular form, outwardly a dark brownish rust colour; inwardly firm, tender, white, and very fragrant. Cvlms erect, from one to two feet high, naked, three-sided, smooth, with the angles rounded. Leaves radical, or only investing the base of the culm, sheathing¹, shorter than the culm,* smooth, glossy. Umbels terminal, compound in very luxuriant plants, sometimes decompound, from two to three inches each^way. Umbellets from two to eight, all having peduncles of from one-fourth of an inch to two inches long. Involucre generally three-leaved, unequal, smooth, the largest is only a little longer than the umbel. Spikes linear, subsessile. Seed obsoletely three-sided, brown, a little rugose,

Obs, Cattle eat it. Hogs are remarkably fond of the roots. Dried and powdered they are used as a perfume at the weddings of the natives. It is by far the most troublesome weed we have in our gardens, there is no extirpating it, as every little bit of the root grows readily.

25. C. pertenuis. R.

Culms from three to four feet high, sub-rotund at the base, three-cornered above. Leaves few. Umbel compound and decompound. Spihelets filiform, many-flowered. Seeds three-sided."

Seng. Nagur-Mootha.

This most delicate, tall, slender species, I have only found in low wet places, in the vicinity of Calcutta.

Root somewhat tuberous, with many dark-coloured villous fibres. Culms naked, except at the base, straight, generally three or four feet high, slender, tapering much, toward the base nearly round, becoming more and more three-sided, till they are acutely so at the umbel. Leaves one or tyvo at the base of each culm, slender, about one-third the length of the culm. Ijmbel compound and decompound, very small for

the height of the plant, generally composed of one sub-sessile umbellet, and three or four, on naked, smooth, filiform peduncles, of different Jength, and these again composed of from four to twelve, most slender, long, filiform, many flowered spikelets. *Involucre* three-leaved, the longest about the length of the umbel, the other two shorter, all slender, and tapering to most acute points. *Scales* membranaceoas. *Stamens* three. *Style*' three-cleft. *Seed* three-sided.

Obs. Its naked delicate form, small and compound umbel, short slender leaves, and scanty involucre, immediately distinguish it from all the other Indian species 1 have yet met with.

26. C.tuberosus. Linn.sp.pL ed.Willd. 1. 2S1. Rottb. gram. 28. t. 7.J\ 1. Void, enum.pl. 2. 340.

Root tuberous. Leaves linear, length of the culm*. Umbels compound, or decompound. Involuçre three-leaved, longer than the umbel. Style three-cleft. Seed oblong, three-sided.

This seems to me to be only a luxuriant variety, if so much, of C. *rotundity*. It grows in the same places, the roots are tuberous, &c. in short, I can scarcely perceive aijy difference.

27. C. tenuiflorvs. Linn. sp. pi. ed. Willd. 1. 284. Rottb. gram. 30. f. 14. y. 1. Vahl. enum. pi. 2. 374.

Culm from two to four feet high, sharp angled. Involucre three or four-leaved, much longer than the decompound umbel. Spikelets alternate. Scales obtuse. Seeds obcordate, three-sided.

Teling. Gelleba-tanga.

Grows in standing sweet water.

Root creeping; with ramous fibres. Culm erect, from four to six feet high, naked, three-sided, smooth; angles sharp. Leaves mostly radical, shorter than the culm, deeply channelled, smooth. Umbel terminal, deconipound, from fount to *ight inches each way. All the umbellets peduncled, oblong*,

spreading, composed of alternate, sessile, lanceolate, from twenty to thirty-ffowered spikes. *Involucre* three or four-leaved^ very unequal, the largest being from one to two feet long, and the shortest about one or two inches. *Scales* obtuse, apex often emarginate and membranaceous. *Seeds* three-sided, obovate.

28. C. strictus. R.

Vu/ms about twelve inches high, stiff and straight, shorter than the leaves; angles sharp. Umbel decompound, straight; flowers diandrous. Seeds obovate, compressed, without angles *

Delights in a moist uncultivated soil.

Root fibrous. Culm straight, rigid, about a foot high, obtusely three-angled, three-fourths naked, smooth. Leaves mostly radical, sheathing, many of them longer than the culm, erect, rigid, much keeled, smooth. Umbel erect, linear, thin, sometimes decompound, though in general only compound. Umbellets, one or two sessile; and from three to eight with peduncles of unequal lengths*; the largest peduncles are compound. Involucre from three to five-leaved, very unequal; the largest nearly as long as the culm, the smallest not rilore than an inch long. Spikes sessile, lanceolate in small plants, in large ones linear. Stamens two. Style two-cleft. Seed compressed, obcordate.

29. C.flavidus. Linn. sp. pi. ed. Willd. 1. 279. Retz. Obs. 5. 13. Vahl. enum. pi. 2.334.

Culms from six to eight inches high, generally shorter than the leaves. Umbel decompound, longer than the involucre; umbellets globular; spikelets crowded; flowers monandrou£. Seeds obcordate, three-sided.

This is a small delicate species, a native of moist places on the coast of Coromandel.

Root fibrous, dark purple. Culm erect, from six to eight inches long, naked, three-sided, smooth. Leaves sheathing,

very short, embracing' the base of the culm. *Umbel* compound, or decompound, from one to two inches high; *umhellets* one or two sessile, and from two to Vjgbt on peduncles of various lengths; the highest sometimes bears a small partial umbellet. *Involucre* two-leaved^shorter than the umbel. *Spikes* lanceolate, chesnut-coloured. *Flowers* monandrous. Seeds white, short, three-sided, a little rough.

30. C. Iria. Linn. sp. pL ed. Willd. 1. 286. Vahl. emim. 2. 360.

Culms from one to two feet high; angles sharp; umbels decompound, shorter than the involucres; spikelets alternate; flowers rather distinct; scales imbricated. Seeds obovate, angular.

Ira. Rfceed. MaL 12. p. 105. U 50. does not very well agree with my plant.

Gramen cyperoides, &c. *Pluck* Almag. t.* 191. *f.* 7. is much more like this plant than the above-quoted plant of Van Itheede.

Beng. Bura-choocha.

Is a native of moist, cultivated lands.

Hoot fibrous. Culms erect, from one to two feet high, four-fifths naked, three-sided, sharp-angled. Leaves sheathing, nearly the length of the culm, keeled, smooth. Umbel decompound, from two to four inches high; umbellets from four to eight, one or two sessile, the rest unequally peduncled; partial umbellets lanceolate, raceme-like, being composed of alternate, linear, from six to twelve-flowered spikes. Involuçre from three to four-leaved, the largest two or three times as long as he umbel. Scales imbricated, with membranaceous sides. Style two-cleft. Seeds three-sided, length of the scales.

31. C. inundatus. JR.

Culms from two to four feet high, exactly triangular, Leaves as long as the culms. Involucre from four to five-

leaved, one very Jong. *Umbel* decompound. *Spikelets* lanceolate. *Stamens* two. *Style* two-cleft; *Seed* obcordate, a little compressed.

Being. and Hind. Patefe.

Found in great abundance on the low batiks of the Ganges and rivulets near Calcutta; where the tide rises hiffh over it, it thrives most luxuriantly, and helps much to bind, and protect the banks from the rapidity of the water.

Root jointed, creeping, stoloniferous, perennial. Culms erect, from three to four feet high, exactly three-sided, about as thick a\$ the little finger, heaves numerous, radical, or surrounding the base of the culms, smooth, deeply chinnelled on the inside, and keeled on the back. Universal involucre composed of four or five leaves of very unequal lengths, the largest being two feet or more long, and the shortest as many inches; partial involucre subulate. Umbel decompound, erect, about a span long. Spikelets sessile, diverging, lanceolate, rigid, obtuse. Style two-cleft. Seeds obcordate, a little compressed, smooth.

32. C. Pangorei. Rottb. gram. 31. t. l.f. 3. Linn. sp. pl_m ed. Willd.1.284.

Culms from three to four feet high, naked. Leaves scarcely any. Umbels decompound; involucre three or four-leaved; involucels setaceous. Spikelets filiform. Seeds oblong, compressed.

Seng. Chtonati Patee.

Tt is common on the banks of the Ganges, and serves, with C. *inundatus*, the same useful purposes, though in an inferior degree.

Root jointed, creeping, stoloniferous, perennial. Culms erect, naked, smooth, three-sided towards the apex, side9 concave, from two to four feet high, and about as thick as a goose-quill. Leaves one or two, sword-shaped, very short, involving with their sheaths the base of the culm. Universal involucre three or four-leaved, very smooth, the longest twice

the length of the umbel; partial minute, setaceous. Umbel decompound, composed of one sessile umbellet in the centre, and from four to eight spreading, compound ones in the circumference, supported on fine, compressed peduncles of unequal lengths. Spikelets filiform, from ten to twenty-flowered. Scales obtuse. Stamens three. Seed oblong, compressed.

Obs. Its naked, exactly three-sided culms, and scarcity of short leaves readily distinguish it from all the other species I have yet described. C. tegetum has the angles rounded, and no leaves.*

33. C. procerus. Rottb. gram. 29. U h.f. 3.

Culms from three to six feet high, angles Sharp. Umbel decompound. Involucres none; spikelets alternate, linear; flowers diandrous. Seeds obcordate, compressed, without angles.

Pota-pullu. Rheed. Mal. 12.p. 93. t. 50.

Is a native of moist vallies, rivulets, &c. amongst the mountains.

Obs. In Bengal this plant, or one exceedingly like it, (for it differs from it only in having three stamens, the culm, leaves, umbels, scales, and seeds being the same) grows on the banks of the Ganges and so low as frequently to be entirely underwater during the high tides; yet it thrives and helps to bind the banks of the rivers where it grows, and is one of those plants that prevent their giving way so much to the rapidity of the stream as they otherwise would do.

34. C. spinulosus. R.

Culms from three to five feet high, rigid. Umbel scarcely decompound; spikes long and short peduncled, globular; •pikelets rigid, from three to four-flowered; involucre and involucels many-leaved.

Teling. Kurra-ttcnga.

A large strong coarse species, grows iu ditches an J water courses.

Root fibrous. Culms erect, from two to five feet high, very rigid, obsoletely three-sided, smooth, four-fifths naked. Leaves sheathing, length of the culm, rigid, striated, margins hispid. Umbel terminal* decompound, from six to eight inches each way. Umbellets with peduncles of various lengths, composed of peduncled, globular heads, and these again of numerous small, sessile, linear, lanceolate, rigid,, spinulous-pointed, from three to four-flowered spikelets. /»-volucre from four to six-leaved, unequal, the largest being from two to three feet long, and the shortest about the same number of inches, margins hispid, like those* of the leaves. Involucel from three to six-leaved, length of the umbellets. Scales lincur.

Obs. I have not seen the pistil nor seed. It is a remarkably coarse species; no animal eats it.

35. C. elatus. Linn, sp.pl. ed. Willd. 1. 287. Vahl. enum. 2, 363.

Culms from six to twenty feet long, sharp-angled. Umbel scarcely decompound. Spikes all sub-sessile, linear, erect. Spikelets most numerous, alternate, from six to eighteenflowered, anthers ending in a thread. Seeds oblong, three-sided.

JReny. Gol-nrnlttnga.

Teling. Rakisha.

*This is by far the largest species on the coast of Coromandel. It grows in sweet standing water.

Root fibrous. Culms erect, from six to twenty feet high, and thick in proportion, naked, except near the base, three-sided, angles sharp, rigid and scabrous, so as to cut the hand readily, other parts pretty smooth. Leaves sheathing, in small plants, as long as the culm, about an inch in diameter at the broadest part, triangularly concave, with the keel and margins sharply serrate. Umbel terminal, decompound, erect, small for the size of the plant, being only about a foot high in middle-sized plants. Umbellets one, or two, sub-

sessile and from eight to ten peduncled, composed of erect, linear, short-pedicelled, compound spikes, of simple, sessile, lanceolate, from six to ten-flowered spikelets which surround every part of the compound spikes.* *Involucre* three-leaved, with some smaller within these three, margins and keel as in the leaves. *Involucels* small, one-third the length of the umbellets. *Scales* Membrane-bordered, acute. *Filament*''* three, membranaceous. *Anthers* ending in a thread. *Seeds* three-sided.

36. C. nmb'ellatvs. Vahl. enum. pi. 2. 362.

Culms from four to six feet, blunt-angled. Umbel decompound; spikes all sub-sessile, linear, spreading; spikelets numerous, alternate, from three to four-flowered. Seed elliptic, three-sided.

Teling. Pedda shaka.

A large species, growing in standing fresh water.

Root fibrous. Culms erect, from four to six feet high, pretty smooth, naked, except at the base, obsoletely three-sided, angles rounded, sides hollowed. Leaves mostly radical, sheathing, the longest of them about as long as the culm* Umbel decompound, spreading, about six inches each way. Umbellets^ two or three sub-sessile, and from five to ten on pretty long peduncles of unequal lengths; they are composed of small partial, short-pedicelled umbellets of three to six linear compound spikes, composed of numerous, small, sessile, from three to four-flowered, simple spikelets. Involucel from three to four-leaved, of the length of the umbellets. •involucre from three to six-leaved, vinequal; the longest from two to ttiree feet, the shortest as many inches. Seeds three-sided, smooth.

37. C. digitatus. H_m

Cuhns from one to six feet high. Umbel decompound, fastig a 4. Involucre and involucels many-leaved; spikes digitate, linear ;'spikelets diverging-, many-flowered; scales with long- recurved points.

A middle sized species; grows in marshy places, ditches, &c.

Root, a somewhat tuberous head with many fibres. Culm erect, from one to six feet high, mostly naked, smooth, three'* sided. Leaves sheathing as in the other species, their margins slightly armed with minute prickles. Umbel compound or decompound, from two to four inches high. Vmbellets sessile, and peduncled, composed of erect, compound spikes, of small diverging, linear, acute, from four to six-flowered spikelets. Involucre many-leaved, unequal, most of them longer by far than the umbel, margins armed like the leaves. Involucel many-leaved, length of the umbellets. Seed three-sided, oblong, with grooved sides.

Obs. In Bengal I have met with this species six feet high, with a decompound umbel, a foot or more every way, and with from twelve to twenty-four flowers to the spikelets, the culm between round and three-sided, and in the largest almost entirely round.

38. C. verticillatus. R.

Culms four feet high, three- cornered, leafy at the base, Urnbel decompound; involucre many -leaved; involucels filiform, spikes of the umbellets verticelled; spikelets lanceolate. Scales with a blurt point. Seed linear, oblong, three-sided*

Seng. Buretbi.

Found during the rains, in wet low places, in the vicinity of Calcutta.

Root perennial, somewhat tuberous, with numerous dark-coloured, thick, spongy fibres. Culms naked, except just at the base, from two to six feet high, and about as thick as a stout quill, absolutely three-sided, smooth, shining, deep green. Leaves, one, two, or three at the base of each culm, and about the same length, keeled, somewhat spongy, very deep green, whitish underneath, margins armed with minute*

short, sharp, aciculte, pointing forwards. {7*ttfte/\x>mpound and decompound. *Umbellets* many on smooth somewhat angular peduncles of various lengths, composed of from five to eight ojlindric, spreading spikes in a verticel, with an erect, sessile, simple or pcdicelled compound one in the centre. *Spikelets* most numerous, imbricated, lanceolate, from eight to twelve. flowered. *Involucre* many-leaved, some of them* nearly as long as the culip, and like the radical leaves keeled and armed on the margins* *Involucels* scarcely so long as their respective umbellets. *Scales* of the spikelets boat-shaped, with membranaceous margins, and sharp thickened points. *Stanums* three. *Seed* oblong, obsoletely three-sided.

Ob*. This species comes near RottboeFs Cypemts alope-curoides.

39. C. distans. Linn. sp. pi. erf. Willd. 1. 288. VahL enurn. pi. 2. 362.

Cnfms about three feet high, three-cornered. Umbel deconipound, with the involucre and involwcels many-leaved; spikelets linear, alternate \$ flowers distant, with obtuse scales. Seeds oblong, three-sided.

C. flatus, liottb. gram. 37. t. 10.

Jfeng. Pa nee m?f 1 i∢ii<m.

It is a native of wet places around Samulcota.

More linked, three-*ided, smooth; angles blunt. Leaves from two to four, embracing the base of the culm, and nearly as long, thtafhing, deeply grooved above, and keeled below, *niooth. Umbel decompound, from four to six inched high. Uthbf!tets: some sessile, and from four to eight, with erect peduncles of unequal lengths. Partial umbellets oblong, raceme like, being composed of alternate, needle-like, diverging spikes. Involucre from three to six-leaved, unequal; the liping three-leaved, length of the umbellets. Flowers *enuote, scales obtuse. Seed three-sided.

40. C. tegetum. R.

Leafless, culms from three to sjx feet high, angles rounded, umbel decompound. *Involucre* as long-, and longer than the umbel; *involucels* chaffy. *Spikelets* linear-lanced, alternate. *Seed* clavate, three-sided.

Bind, and Beng. Madoor-katt.

Is common in ditches, borders of lakes, &c. in the vicinity of £alcutta during the rains.

Root creeping under ground, perennial. Culms naked, generally from three to six feet high, obsoletely three-sided, smooth. Leaves no other than two or three sheaths embracing the base of the culms. Umbel decompound; umbellets sub-sessife, and on peduncles of various lengths, sub-erect. Involucre about four-leaved, one or two of them longer than the umbel. Involucels minute. Spikelets alternate, linear-lanceolate, many-flowered. Seeds eliptically triangular.

Obs. Those elegant, useful, durable, large mats so common on the floors of rooms in and about Calcutta, are made of the culm of this plant. When green they are split into three or four pieces, which in drying contract so much as to bring the margins in contact, or to overlap each other; in this state they are woven.

41. C. alopecuroidus. Rottb. gram. 38. t. 8. f. 2. VahL enum. pi. 2.>368.

Culms from four to five feet high. Umbel decompound; involucre three-leaved; spikes nodding; spikelets alternate, many-flowered.

Wara-pulla. *Rlieed. Mai.* 12. p. 77. t. 42.

Cyperus glomeratus. Linn, sp.pl. ed. Willd. 12. 277.

This is also a large species, and a native of the same places.

Root fibrous. Culms erect, from four to five feet high, except at the bases threp. $f< e^t$ smooth. Leaves as in the other species. f' = t where f' = t is most. Leaves as in the other species. Umb \(f' = t \) is most. Umbellets one or two sub-sessile, and from four to $f(e^t)$ where f' = t is most. Par-

tial umbellets peduncled and composed of beautiful, linear, bowing, compound racemes of lanceolate, many-flowered, chesnut-coloured spikelets. *Involucre* three-leaved, unequal. *Involucels* small, frequently only chaffy scales. *Seed* three-sided, smooth.

· Obs. I have seen small plants with the umbellets small, dense and globular.

42. C. nudus. R.

Leafless. *Culms* from four to six feet high, three-cornered. *Umbels* super-decompound, naked. *Involuci&s*, and *involu-*: *eels* chaffy; *spikelets* subulate, alternate. *Seed* oblong*, compressed without angles.

Beng. Goola-Methhi.

A native of low wet places over Bengal. Flowers during the rains.

Root perennial, somewhat tuberous. Leaves no other than a short sheath or two, which envelope the base of the culm, the uppermost one sometimes ends in a short ensifonn leaflet. Culm about five feet high, naked, smooth, bright-green, three-cornered, with the angles rounded. Involucres three or four, sub-lanceolate, erect, about one-fourth the length of the umbel. Umbels decompound and super-decompound, with the sijb-divisions^ and slender, smooth, compressed peduncles of various length. Spikelets alternate, subulate, of a bright brown colour, each bearing from twenty to thirty flowers. Stamens three. Style three-cleft. Seed oblong, compressed, without angles.

Obs. This species is very like C. *tegetum*⁹ and about the same size, though I am informed, never used for mats, as that is. To know it from C. *tegetum* attend to the involucre, which in this is only about one-fourth the length of the urn-k¶, but in that as long or longer.

N

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43. C. Haspan. Linn, sp.pl. ed. Willd. 1. 287.

Culms from four to sixteen inches high. Umbel super-decompound, involucre two-leaved. Seeds globular, white.

Gramen cyperoides inadasarpatanum, &c. *Pluck, aim.* 192./. 2.

leling. Poo-cushalic.

An elegant small species, a native of cultivated moist placts.

Root fibrous. Culms erect, from four to twelve inches high, three-fourths naked, obsoletely three-sided, smooth. Leaves sheathing, ofteo as long as the culm, very slender. Umbel super-decompound, in small plants as long as the culm. UrnbelliU one or two sessile, and from four to six-peduncled. Partial umbellets of the first and second degrees pedicelled. Involucre generally two-leaved, unequal, the longest rather longer than the culm; involvcel a few chaffy scales only. Stamens two or three. Seed sub-globular, pure white, smooth.

SCIRPUS.

Glumes chaffy, imbricated on all sides. Corol none. Seed one.

SECT. I. Without Leaves.

1 • S. tuberosus, R.

Root tuberous. Culms culumnar, jointed, leafless. Spikes terminal, cylindric, naked. Scales oblong. Base of the style cordate. Seed obcordate, beset with glochidate bristles.

Pitsi, Maa-tai, Pu-tsai, or Pe-tsi, or water chesnut of the Chinese.

It is mentioned by Abbe Grosier under the first name, and under the other appellations was transmitted from Canton, by Mr. Duncan, at the desire of the Governor General, for the Company's Botanic garden, where it blossoms about the close of the rains, in September.

Root fibrous, with stoloniferous shoots and round turnip-

shaped tubers.- *Culms* erect, naked, slightly-twisted to the right, inwardly intercepted by slender membranes, distant a. line, or a line and a half from each other, every eighth or tenth of these partitions, is of a firmer texture than the others and visible on the outside, even when the plant is *growing*. *Leaves* none except a slender short sheath or two at the base of each culm. *Spike* terminal, solitary, cylindric, naked. *Scales*' oblong, membranaceous margined. *Stamens* three. *'Style* two or three-cleft, at the base swelled out into an ovate-cordate, compressed shape. *Seed* obcordate, surrounded with glochidate bristles.

Obs. For the 'economical uses of the tuberous roots of this plant, I beg leave to refer to Abbe Grosier, and other historians who have had opportunities of observing in what manner they are employed by the Chinese*, and to the .following extract from Mr. Duncan's letter which accompanied the plants,

"The JMaa-tai9 Pee-tai or PUtse of Abbe Grosier, the water-chesnut9 grows in ponds, which are manured for its reception about the end of March. A pond being drained of its water, small pits are dug in its bottom, these are filled with human manure, and exposed to the sun for a fortnight; their contents are then intimately blended with the slimy bottom of the pond, and the slips or roots of the plant deposited therein; the water is now returned to the pond, and the new crop of tubers conies to pei'fection by the beginning of September.

#This nut is in high estimation amongall ranks of Chinese, not only as a pot root, but also a medicine. It is eaten either boiled or raw. I will not vouch for the truth of the singular virtues ascribed to the Maa-tai, but just relate one of the most plausible. The children here often play with cash in their mouths, which sometimes slip down into the stomach, and bring on alarming symptoms. The nut is immediately given in quantities, either raw or boiled, and they say it never fails to give relief, being considered a specific which has the effect of decomposing the metal."

2. S. plantaginus. Linn, sp* pL erf. Willd. 1.291. Rottb. gram. 45.1.15. /. 2. VahL enum.pl. 2.251. Retz. Obs. 5.14.

CWff# culumnar, from two to four feet high, intercepted. Spike terminal, naked, sub-cylindric; scales oblong, obtuse. Seeds beset with bristles.

A leafless, rush-like species; it grows in shallow standing sweet water.

fyJbt stoloniferous, with thick, spongy, and capillary fibres. Culm erect, round,, smooth, naked, except the lower part, which is covered with a niernbranaceous sheath or two; inwardly intercepted with transverse, rigid scptums, at every inch and quarter, besides numberless, irregular, smaller ones between. Spike terminal, cylindric, two inches long, naked* Scales obovate, smooth, a little keeled, margins membranaceous. Stamens three, with bristles intermixed round the base of the germ.

3. S. tumidus. R.

Culms from two to three feet high, round, regularly intercepted. Spike terminal, cylindric. Scales broad-lanceolate. Seeds beset with simple bristles.

This species is very much like the last described, and a native of similar places, but much rarer.

Root, the same. Culm erect, three feet high, round, smooth, naked, seemingly swelled, intercepted with a conspicuous transverse partition every sixth of an inch. Leaves none, but sheaths as in the former. Spike single, terminal, ereciffaylindric, an inch long. Scales broad-lanceolate, acute, a little keeled, otherwise smooth. Stamens, bristles, &c. as in the other species.

. 4. S. spiralis. Linn. sp. pi. ed. Willd. 1.290. Rottb.gram. 45.1.15./. 1. Void. 2. 252.

Culms from two to three feet high, three-sided. Spike terminal, naked, cylindric, obtuse. Scales lapped. Seeds beset with bristles

This is a native of the same places with the last described. Root stoloniferous, &c. as in S. plantations. Culm erect, from two to three feet high, naked, three-sided, angles sharp, smooth, not articulated, nor interrupted inwardly. Leaves none, but a sheath or two embracing the base of the culm. Spike as in S. plantaginus, but the flowers are more numerous. Scales imbricated seemingly without order, smooth, lapped, margins broad, and membranaceous. Stamens, bristles, &c. as in the two preceding species.

5. S. acutangulus. R_m

Culms from two to three feet high, triangular. Spike terminal, tapering, acute; scales somewhat acute; seeds bristly.

Grows in similar places to those which produce the two last species.

Root as in the last species. Culm three-sided, from two to three feet high, naked, smooth; angles very sharp, even almost winged. Leaves no other than a sheath or two involving the base of each culm. Spike terminal, &c. as in the two former. Scales disposed spirally, oval, somewhat acute, striated, margins membranaceous. Filaments membranaceous. Jiristles, &r. as in the former two.

Obs. It differs from S. spiralis in having the angles of the culm sharp. In having the flowers few and disposed spirally. In having the scales striated, oblong and somewhat pointed.

6. S. medius. R.

Culms from one to two feet high, three-cornered. Spike terminal, sub-cylindric. Scales obtuse. Seeds bristly.

A species resembling the last, and growing in similar places. •

Root as in the species already mentioned. Culm erect, one or two feet high, smooth, three-sided, angles rounded;

Spike as in the former. Scales smooth, obovate. Stamens, bristles and pistil as in the last four species.

7« S. incurvatus. R.

Culms in tufts, culumnar, from six to nine inches high, incurved, leafless, intercepted. Spikes in a globular, naked verticil near the base of the culm. Stigma trifid. Seed three-sided.

A native of moist places near Calcutta. Flowers during the cool season.

Root of rust-coloured, capillary fibres. Culms numerous, from their incurved shape forming nearly a globe, leafless, round, smooth, intercepted at every half inch or less; general leugth from six to eight inches, and thicker than a crowquill. Sheaths a few between the spikes and root. Spikes numerous, sessile, ovate-oblong, forming a round verticil about ian inch and a half above the root. Scales round, ovate-obluse. Seed ovate, triangular.

8. S. articulatus. Linn. sp. pi. erf. Willd. i. 290. VahL ennm. ii. 358.

Culms from two to four feet high, culumnar, intercepted with conspicuous partitions. Spikes pointed, crowded into a head near the base. Seed naked, three-sided.

Tsjeili. Rheed. Mai. 12. p. 135. t. 71.

Hind, and Ben.g. Pittptttz-chechka.

Teling. Lutti-pitta-allie.

This is also a native of standing sweet water.

Root stoloniferous, and fibrous as in the former. Culm erect, from two to four feet high, round, smooth, naked, intercepted inwardly by transverse septums at every inch, or half inch; they are conspicuous on the outside, eveg while the plant is growing. Leaves no other than a short sheath or two, involving the base of the culm. Head lateral, near the base of the culm sessile, sub-globular, composed of many, (fifty to sixty) oblong-pointed, sessile, many-flowered spikes.

Scales broad-cordate, a little pointed. Stamens three; the bristles of the foregoing five species are here wanting. Style slightly two-cleft. Seed three-sided, smooth, white.

9. S. subarticulatus. R.

Culms from two to three feet high; culuinnar, intercepted with iiicouspicuous partitions. Spikes obtuse, crowded into a head near the base. Seed three sided, pointed.

A native of the same places with the former.

Root resembling that of the preceding species. Culm erect, from two to three feet high, round, smooth, naked, intercepted every quarter of an inch by a slight membrane; their places do not appear externally even when the plant is dry. Leaves no other than a sheath or two. Head lateral, near the base of the culm, sessile, globular, composed of many (about one hundred) small, oval, obtuse^ sessile, many-flowered spikes. Scales oval, membranaceous. Seed three-sided, white, smooth.

10. S. dubius. R.

Root tuberous. *Cubits* naked, culumnar; intercepted with numerous partitions.

Teling. Alh'ke.

Roots tuberous, with stolones and numerous fibres issuing from them, outwardly of a dark dusky colour, inwardly white. Leaves erect, cylindric, smooth, about a foot long.

Obs. I have never met with flowers of this plant which is a native of wet sandy pasture ground, and was formerly considered as a species of *Isoetes*. The natives boil and eat the roots which they say are as good as yams.

11. S. capitatus. Linn. sp. pi. ed. Willd. i. 294. Vahhi*. 250.

Culms naked, from four to eight inches high, culumnar. Spikes terminal, globular. Seed black, roundish, bristle-beset.

S. cariboeus. Rottb. gram. 46. t. 15.y. 3.

A native of barren, sandy, moist places.

Root fibrous. Culms erect, from four to eight inches high, round, smooth, naked. Leaves no other than a sheath or two. Spike terminal, naked, sub-globular; permanent bristles surround the germ in this species, as in those with single terminal, cylindric spikes. Style two-cleft. Seed obcordate, compressed, smooth, shining black.

· 12. S.juncoides. R.

Culms from one to three feet high, culumnar. Spikes oval, from three to five in a sessile head, far below the apex. Seed roundish, beset with bristles.

A n'ive of wet and marshy places.

Root fibrous. Culms erect, from one to three feet high, naked, round, and slender in proportion to the height, striated, otherwise smooth. Leaves none, except two sheaths embracing the base of each culm. Spikes from three to five, lateral, sessile, oval, naked, from four to six inches, below the apex of the culm, which is erect, and like that below the spikes. Involucre none. Stamens three, intermixed with bristles. Stigma two-cleft. Seed obcordate, compressed, smooth, white.

13. S. mucronatns. Linn. sp. pi. ed. Willd. i. 303. Vahh enum. ii. 256.

Culms from six to twelve inches high, three-cornered. Spikes pedunclecl and sessile'below the apex. Seed black, scabrous, sub-triangular.

A native of sandy ground.

Root fibrous. Culms erect, from six to twelve inches high, firm, naked, three-sided, striated, with rounded angles, above the spikes half round, with a groove on the flat side. Spikes lateral, sessile and peduncled, naked, from six to twelve, oblong, many-flowered. JSTectarial bristles of the germ wanting. Seed somewhat three-sided, black, with scabrous spots.

14. S. triangulatus. R.

Culms in tufts, erect, two feet high, naked, acutely three-angled. Spikes from eight to twelve, sessile just under the straight three-winged apex. Germ embraced by six long*, slender bristles, besides the three-broad filaments.

Native of Chittagong, where like .most of the order, it delights in low wet ground.

15. S. supinus. Vahl. enum. sp. ii. 257.

Culms in tufts, curved, three-cornered, generally naked. Spikes several, under the grooved apex, sessile and peduncled. Involucre one-leaved, besides the apex of the culm. Seed three-sided, transversely rugose on the back, black.

S. lateralis. Linn, sp.pl. ed. Willd. i. 302. Retz. Obs+iv. 12. Found growing- in tufts, in wet places, in the vicinity of Calcutta, during the cool season.

Root of brown capillary fibres. Culms numerous, about a foot hig-h, curved, three-cornered, angles rounded, above the spikes incurved, and deeply channelled. Leaves rarely any other than a few short sheaths, investing the base of the culms, and they generally end in an ensiform point, when present solitary and like the culm above the spikes. Spikes many, peduncled and sessile, considerably under the apex, oblong. Scales ovate, mucronate, with brown chaffy margins. Seed three-sided, black, transversely rugose.

16; S. globulosus. Linn. sp. pi. ed. Willd. i. 301.

Culms from one to two feet high, nearly culumnar. Umbel compound; involucre shorter than the umbel. Seed long, obovate, smooth.

Teling. Billapa.

A native of wet sandy places.

Root fibrous. Culms erect, from one to two feet high, as thick as a crow-quill, a little compressed, smooth, except near the base which is involved in, from three to five, large, pointed sheaths. Umbel terminal, small, compound. Spikes oval.

Involvere two-leaved, unequal, erect, shorter than ttfe umbel. Filaments three, broad, and membranaceous. Style broad, margins fringed. Stigma two-cleft. Seed obcordate, compressed, smooth, light brown.

17. (X pectinatus. R^{\wedge}

Culms from three to four feet high, culumnar. Panicle lateral, just below the straight subulate apex of the culm. £cales daggered. Stigma two-cleft. Seed roundish, beset with four pinnate bristles.

Grows chiefly in marshy places, where the soil is sandy.

Root fibrous. Culms erect, from three to four feet high, as thick as a quill, naked, round, smooth. Leaves no other than a sheath or two round the base of each culm. Umbel lateral, about its own length below the apex of the culm, compound, rarely decompound, bowing. Spikes oblong. Involucre no other than the termination of the culm, which is erect and about as long as the umbel. Scales chaffy, daggered. Stigma two-cleft. Nectarial bristles two on each side of the germ they are beautifully pinnate, and permanent. Seed obovate, compressed, smooth, brown, embraced by the nectarial bristles.

18. S. pentagorms. R.

Culms, from six to nine inches high, somewhat five-sided. Umbel terminal, compound; involucre chaffy; flowers monandrous. Seed obovate, triangular.

A native of pasture ground.

Root fibrous. Culms erect, from six to nine inches high, naked, somewhat five-sided, slightly striated, otherwise smooth. Leaves no other than a sheath or two. Umbel terminal, compound, small, erect. Involucre, a few small chaffy scales, with loug tapering points. Stamens single. Stigma three-cleft. Seed somewhat three-sided, white, scabrous.

SECT. II. With Leaves.

19. S. atropurpureus. Linn. sp. pi. ed. Willd. i. 294.

Grows in small tufts. *Culms* from three to four inches high, setaceous, erect, culumnar, longer the* leaves. *Spikes* terminal, naked, solitary, oval.

A native of poor, wet sandy, pasture land.

20. S. minimus. /?.

Grows in tufts. *Culms* from one to *two* inches long, sefaceous, curved, shorter than the leaves. *Involucre* three leaved. *Spikes* terminal, globular, squarrose, about as long as the involucre.

Found with S. atropurpureus on poor, wet sandy lands.

21 • S. monostachyos. Kön.

Culms straight, from six to twelve inches long, culumnar. Spike terminal, solitary, naked, scales roundish. Seed obcordate, smooth.

Delights in barren, sandy pasture lands.

Root fibrous, purple-coloured. Culms erect, from six to twelve inches high, round, smooth, three-fourths or more naked. Leaves sheathing, nearly as long as the culm, filiform. Spikes terminal, single, naked, oval; flowers few. Scales suborbicular. Style broad, with downy margins. Stigma two-cleft. Seed obcordate, compressed, smooth, light brown.

22. S. strobilinns. /?.

Culms two feet high, three-sided, base leafy. Leaves triangular. Spikes lateral, solitary. Scales cordate, cuspidate, Stigmas two-cleft. Seed roundish, beset with bristles.

A native of the soft, wet banks of the Ganges. Flowering time the cool season.

Root stoloniferous with pale-coloured fibres. Culms simple, straight, about two feet high, three-sided. Leaves two or three, of different sizes, embracing the base of each culin,

the longest nearly the length of the culm, keeled and deeply channelled, smooth. *Spike* solitary, lateral, one-third part of the culm below its apex, ovate-oblong, about one inch in length. *Involucre* one-leaved, besides the continuation of the culm, length of the spikes. *Scales* cordate, cuspidate, smooth. *Stàmina* three, with about double the number of bristles between them. *Jlnthers* linear, when old spiral. *Germ* obovate. *Stigma* two-cleft. *Seed* flat, particularly on the inside, roundish, obcordate, crowned with a minute portion of the remaining style, and embraced by about six slender, soft, permanent bristles which are about the same length.

23. S. scaber. R.

Culms erect, from four to eight inches high, angular. Spikes terminal. Scales oblong, diandrous. Stigma bifid. Seed obcordate, scabrous.

Campare with S. potytrichoides. Retz. Obs. iv.p. 11.

A native of dry, sandy pasture ground on the coast of. Co* romandel.

Root composed of dark purple capillary fibres. Culms erect, from four to eight inches high, four-fifths naked, angular, smooth. Leaves sheathing, mostly radical, filiform, half the length of the culm. Spike single, erect, oblong, many-flowered. Involucre two or three-caducous scales, shorter than the spike. Scales oblong, apex rounded, falling as the seeds ripen. Stamens generally two. Stigma two-cleft. Seed obcordate, compressed, lead-coloured, rugose.

24. S. bispicatus. Kim.

Culms erect, from six to twenty-four'inches high, filiform. Spikes from two to three, terminal, sessile, and peduncled, involucred; scales roundish. Seed obcordate, with a callous margin.

Teling. Khooshi-ti/ngff.

Bang. Kesoori-niwlwnga.

Delights in a moist rich soil, grows in large distinct tufts.



Root fibrous. Culms sub-erect, four-fifths naked, very slender, filiform, somewhat five-sided, smooth. Leaves sheathing, in large plants long, slender, and often twisted a little, in small.plants more rigid. Spikes two or three terminal, ovate; one is always sessile, the other one or two peduncled. Involucre one or two-leaved, about as long as the peduncled spikes. Scales nearly orbicular. Stamens and style as in S. monostachyos. Seed obcordate, compressed, white, with a thick callous margin.

25. S. schcenoides. Kön. Retsr: Obs. v. 14.

Culms erect, from six to twelve inches long*. Spikes one or two, terminal, naked, acute. Scales pointed. Seed obcordate, angular, dotted.

£e»ff. Moormoori.

A native of dry pasture ground, generally amongst bushes. *Root* fibrous. *Culms* sub-erect, from six to twelve inches high, three-fourths naked, filiform, a little compressed, particularly towards the tops, and striated. *Leaves* as in the former. *Spike* generally single, though there are sometimes two, in which case 6ne is peduncled, few-flowered. *Involucre* entirely wanting. *Scales* large, with a large keel and sharp point. *Style* enlarged at the base. *Stif/ma* three-cleft. *Seed* three-sided, very scabrous, pearl-coloured.

26. S. tristachyos. Vahl. enum. ii. 254.

Culms from six to eight inches long, slender, curved, striated. Leaves shorter then the culms. Spikes from two to four, oblong. Involucre two-leaved, one longer than the spikes, apparently a continuation of the culms. Style two-cleft, villous. Seed obcordate.

A native of Bengal, appears during the cool season in low moist places.

Root fibrous, brown. Culms numerous, in tufts, slender, variously bent, though nearly erect, slender, grooved, particularly deep on the opposite sides, from six to eight inches

high. Leaves few, subulate, hard, half the length of the culms. Spikes g-enerally three, varying however from one to five, sometimes short-peduncled, oblong. Involucre two-leaved; one erect, longer than the spikes, seems a continuation of the culm. Scales oval, somewhat mucronate. Germ cordate. Style villous. Stigma two-cleft.

Obs. It differs from Rottboel's plant in having the scales mucronate, and the stigma two-cleft; yet I think they must be the same.

27. S. squarrosus. Linn; sp.pl. ed. Willd. i. 308. Rottb._m gram. 49. /. 17. $J \setminus 5$.

Culms from three to six inches long. Spikes three; involucre two-leaved. Scales ending in a long recurved hairy horn. Seeds angular.

Motta-pullu. Rheed. Mai. 12. p. 72. t. 38. Seng. Goori.

 $_{i}$ A small delicate species, growing in distinct tufts on dry sandy pasture ground.

Root fibrous. Culms numerous, bent in various directions, from three to six inches long, four-fifths naked, round, smooth, filiform. Leaves a few only, sheathing, shorter considerably than the culm. Spikes terminal, generally three, sessile, oval. Involucre two-leaved, the largest about an inch lon<?; being¹ nearly erect, it appeal's a continuation of the culm. Scales numerous, terminating in a long, hairy, recurved point. Seed three-sided, oblong, smooth.

28. S. monander. Linn, sp.pl. ed. Wffid. i.3 $\$ l. Rottb. gram. 50. /. 14. 1 3.

Culms erect, from three to six inches high, angular. Head terminal, of three to five spikdetH; involucre from two to three-leaved; scales acute, inonandrous. Seed roundish, angular.

A native of sandy pasture ground.

Root consisting of capillary fibres. Culms naked, straight,

from three to six inches high, angular, smooth. *Leaves* filiform, as long as the culm, woolly near the mouth of the sheaths. *Head* terminal, sessile, composed of from three to five small, sessile, few-flowered spikes. *Involucre* from two to three-leaved. *Scales* pointed. *Stamen* single. *Stigma* three-cleft. *Seed* three-sided, short, thick, smooth, white.

29. S. antarcticus. ^ Linn. sp. pi. ed. Willd. i. 310. Vahl. enum. if. 261.

Culms erect, from three to six inches high, round. Head terminal, of many spikelets. Involucres from two to three-pointed. Seed three-sided.

Grows on sandy pasture ground.

Hoot fibrous. Culms erect, from three to six inches high, round, smooth. Leaves radical, embracing the base of the culms, sheathing, half the length of the culm. Head or timbeltet terminal, globular, composed of numerous small, sessile, few-flowered, conical, pointed spikes. Involucre from two to three-leaved, scarcely the length of the head. Scales pointed. Seed three-sided, smooth.

30. arypntens. Kon. Rottb. gram. 51. t. 17.,/*. 6. Linn. sp. pl.ed. Willd. i.311.

Culms sub-erect, from four to eight inches high, semi-cu-lumnar. Head terminal, of many sub-sessile spikelets. //*-volucres from two to three; scales obtuse, monandrous. Seed roundish, compressed.

Fimbristylis argentea. Vahl. enum. ii. 294.

Found on sandy pasture ground, growing in large tufts, With the exterior culms of the tuft curved.

Root fibrous. Culms erect, or ascending¹, mostly naked, from four to eight inches high, round on one side, and flattened on the other, sometimes with a groove on the flat side. Leaves as in the former species. Head or umbellet terminal, composed of from fifteen to twenty cylindrical, obtuse, sessile, silver-coloured, many-flowered spikes. Involucre two, three,

or four-leaved, unequal. *Scales* oblong, obtuse; *keel* green, the rest silver-coloured. *Stamen* single. *Stiff ma* two-cleft. *Seed* obcordate, compressed, smooth, pearl-coloured.

31. glomeratus. Linn. sp. pL ed. Willd. i. 296.

Calms six inches high, semi-culumnar. Leaves numerous, from one to two inches long. Umbel composed of from six to twelve ovate spikelets. Involucres and involucels the length of the spikelets.

Hind. Bttra N?rb?shee.

Native of Coromandel and Bengal.

32. S. arvensis. Retz. Obs. iv.p. 11.

Culms from six to twenty-four inches high, compressed, furrowed. Leaves tortuose. Umbel simple. Involucre one or two-leaved, shorter than the umbel. Scales obtuse, diandrous. Seed obcordate, striated and dotted.

A native of various parts of India, appearing in low moist places during the rainy season.

Culms about six inches high, compressed, and furrowed. Leaves radical, or surrounding the lower portion of the culins, narrow, a little twisted, and nearly as long as the culms. Umbel generally simple, of from four to six sessile, or pedicelled, ovate-oblong brown spikes; sometimes one of the pedicels supports two spikes. Involucre one or two-leaved, small and shorter than the umbel. Scales of die spikes ovate, chaffy. Stamens two. Style thick at the base; apex two-cleft, and villous. Seed obcordate, furrowed Jouo-itudinally, and dotted with white on a brownish ground.

33. S. tenellus. R:

Culms twelve inches high, leafy, sub-cylindric. Umbels thin, scarcely compound. Involucres minute. Style with enlarged base. Stigma three-cleft. Seed obovate, dotted, pearl-coloured.

A native of Coromandel.

Culms many, uncommonly slender, erect, about a foBt high, toward the base invested with the sheaths of a few slender leaves. Umbel very thin, composed of one sessile, oblong spike, and of from six to twelve or about half the number of pedicells of various lengths. Involucres-minute, the longest scarcely exceeding the sessile spike. Scales boatshaped, scariose, with a short point. Style swelled at the base to the full size of the germ; this swelled part, however, is not more permanent than the rest of the style. Stigma trifid. Seed obovate, obscurely three-sided, much dotted, pearl-coloured.

34. S. tridentatus. R.

Culms straight, from two to five feet high, angular. Xlmbel compound; involucres from two to three; spikelets pointed; scales lapped, jagged and daggered. Seed roundish, three-angled, and bristly.

Compare with S. maritimus.

Teling. Goorapa-shaka-fwngtf.

Grows in* water courses, ditches, &c. where the water is fresh; never in salt, or brackish water.

Root stoloniferous with some small tubers, and many fibres* Culms erect, rigid, leafy, jointed, from two to five feet high, three-sided, smooth, angles sharp. Leaves numerous, sheathing, sub-erect, rigid, keeled, smooth. Umbel compound, small for the size of the plant. Involucre from two to three-leaved, erect, unequal, the longest being three times the length of the umbel, and the shortest equalling the latter. Spikes lanceolate or cylindric, large; some sessile, some peduncled. Scales three-toothed, the lateral ones torn, the middle long and subulate, keel green, the rest rust-coloujecL Seed three-sided, short, thick, smooth, with bristles round the base.

Obs. I believe Keinig called it S. maritimus indicus, but the form of the seeds and jointed culm, will, I think, render it a very well marked and distinct species.

35. S. strictus. R.

Culms straight, from twelve to eighteen inches high, cuhimnar. Umbel compound. Involucres chaffy; scales obtuse, diandrous and roundish, compressed.

Grows on a moderately dry, hard, barren, sandy soil.

Root fibrous. Culms straight, naked, rigid, from twelve to eighteen inches high, round, very smooth. Leaves radical; short, rigid, but smooth. Umbel terminal, sometimes decompound, contracted, seldom more than two inches long, and one broad. Involucre from two to four, small, chaffy, tapering sheaths. Spikes ovate, small, many-flowered. Scales with a broad, white, membranaceous border. Stamens two. Stigma two-cleft. Seed much compressed, obcordate, dotted with brown.

36. S. breoifolius.

Culms erect, from six to eight inches high, semi-culumriar* Umbel decompound; involucels chaffy; scales cuspidate^ inonandrous. Stigma bifid. Seeds obcordate, striated.

Is found generally on low sandy pasture ground.

Root fibrous. Culms erect, mostly naked, from six to eight inches high, flat on one side and rounded on the other.*

Leaves sheathing, short. Umbel terminal, decompound. Involucre from two to three-leaved, shorter than the umbel. Spikes small, oblong; while young sessile, but when old appearing peduncled, the scales and seeds gradually dropping off and leaving the rachis naked. Scales keeled and pointed. Stamen single. Style broad, enlarged at the base; above, the margins are hairy. Stigma two-cleft. Seeds obcordate, convex on the outside, flat on the inner, white, striated.

Obs. The single sttmen and striated seed are the best specific marks. It much resembles Rottboel's figure of S. dichoiomus, but that species is described by Vahl as having three stamina: (see Fimbristylis dichotoma, enum. ii. p. 227.) consequently they must be different.

• 37. S. aestivalis. Retz. Obs. iv. 12.

Spikes rounded, sub-squarrose; involucre six-leaved, longer than the compound umbel; scales monandrous. VahL ennm. ii. 288. (under Fimbristylis.J

I received this elegant little grass from Nepala where it grows in low fields during the rainy season.

38. S. diphyllus. Linn. sp. pi. erf. Willd. i. 301.

Culms erect, from one to two feet high, semi-culumnar. Umbel decompound; scales obtuse, diandrous. Seeds roundish, obcordate, smooth.

Fiinbristylis diphylla. VahL enum. ii. 249.

Delights in a rich wet soil.

Root fibrous. Culms erect, seven-eighths naked, from one to two feet high, sometimes a little compressed. Leaves chiefly radical, half the length of the culm, rigid. Umbel terminal, decompound. Involucre two or four-leaved, the larger about the length of the umbel; partial involucres small, spikes numerous, oblong, some sessile, some peduncled, exclusive of the naked rachis of those that are old, dark brown. Scales oblong, obtuse, dark brown. Stamens two. Stigmas two-cleft. Seed obcordate, much compressed, smooth, brown.

39. S. miliaceus. Linn. sp. pi. ed. Willd. i. 305. Rottb. gram. 57. /• 5.y. 2. Retz. Obs. 5. 16.

Culms erect, from one to **two** feet high, semi-culumnar. Umbel decompound. Involuces and involuceh shorter than the umbels and umbellets. Seed obcordate, striated.

Fiinbristylis miliacea. Vahl. enum. ii. 287.

This species delights in wet pasture ground.

Root fibrous. Culms erect, from one to two feet high, seven-eighths naked, generally round, though sometimes a little compressed, and chiefly near the apex striated, otherwise smooth. Umbel decompound, very thin. Involucre three or five-leaved, unequal, but the largest is seldom so long as the umbel. Involuceh like the involucre, but much smaller.

Spikes sessile, or peduncled, oval, rust-coloured, many-flowered. Scales broad, a little pointed, very concave. Stamens two or three. Style enlarged at the base, broad, with hairy margins. Stigma two-cleft. Seed obcordate, compressed, pearl-coloured, striated, without bristles.

40. S, complandtus. VahU enum. ii. 279. Retz. Obs. 5.14* Culms sub-erect, from one to two feet high, ed<red. Umbel from compound to super-decompound. Involucre two-leaved, erect; scales lanceolate. Seed obcordate, dotted.

Hind. Kurfitiya-juvam.

A native of moist or wet places*

Root fibrous. Culms nearly erect, but waving a little, from one to two feet high, naked except at the base, compressed, two-edged; edges sharp, and turned different ways, striated, smooth, often a little twisted. Leaves radical, or embracing* the base of the culm, nearly as long' as the culm, linear, waved, often a little twisted, apex abrupt. Umbel superdecompound, dense. Involucre two-leaved, opposite, erect, unequal, the longest abput the length of the umbel. Inuolucels chaffy, ending like bristles. Spikes sessile, or short* pedicelled, oblong, few-flowered. Scales rust-coloured, acute. Seeds obcordate, rugose, white.

41. S. tetragonus. R.

Culms from one to two feet high, four-angled. Umbel decompound and super-decompound. Involucre and involucels bristly; scales roundish, diandrous. Seed round.

Hind. Bura-jwvam.

Teling. Murcushalee.

Grows with the other species on moist pasture ground.

Root fibrous. Culms nearly erect, from one to two feet high, naked, except at the base, four-sided, smooth. Leaves radical, and about the base of the culm, bifarious, tapering, nearly as long as the culm. Umbel super-decompound, rather thin, and of an irregular form. Involucre and involu-

eels small, bristle-like. Spikes minute, globular, many-flowered. Stamens, from one to two, rarely three. Stigma two or three-cleft. Seed nearpglobular, compressed on the inside, scabrous, white.

42. S. quinquangularis. VahL enum. ii. 279.

Culms from one to two feet high, five-angled. Umbel super-decompound; involucre much shorter than th£ umbel; scales oval, monandrous. Seed three-sided, rugose.

A native of similar places with the last spgeies.

Root fibrous. Culms as in complanatus, and tetragonus, and of the same height, but in this species always five-sided. The angles sharp and the sides concave. Leaves as in S. complanatus. Umbel super-decompound, rather thin, and unequal as in. So. tetragonus. Involucre three-leaved, the largest about the length of the umbel. Spikes mostly pedicelled, oval, very small, few, from six to eight-flowered. Scales oval. Stamen one. Stigma three-cleft. Seed oblong, three-sided, rugose.

43. S. pdllescens. R_m

<u>Culms</u> from six to ten inches high, culumnar. <u>Umbel</u> super-decompound, rather shorter than the involucre, monandrous. <u>Scales</u> obtuse. <u>Seed</u> obcordate, without angles, streaked, and wrinkled.

A native of low pasture ground.

Root fibrous. Culms nearly erect, from six to ten inches high, mostly naked, nearly round and striated. Leaves sheathing, as long as the culm, concave; edges slightly serrulate, somewhat woolly. Umbel terminal, super-decompound, large in proportion to the rest of the plant. Involucre two-leaved, nearly erect, opposite margins slightly serrulate, longer than the umbel, a few small scales intermixed. Spikes very minute. Scales oval, concave. Stamens solitary. Style two-cleft. Seed obcordate, a little compressed, striated longitudinally, and iflKukled transversely.



44. Sc. anceps. /?.

CWro erect, twelve inches high, two-edged. *Involucre* two-leaved, shorter than the Wper-decoinpound, four or five times-divided umbel.

Beng. Joopi.

A native of Bengal.

46* Sc! Kysoor. R.

Culms from five to six feet high, triangular, and hispid. Umbel super-decompound. Spikes ovate. Seed oblong, three-sided, crowned, and beset with five villous bristles.

Beng. Kesoor or Kesooree.

Common in Bengal, growing on the borders of lakes, ponds, &c. of fresh water, in flower during the latter part of the rains*

Root tuberous, with numerous ferruginous fibres. Culms straight, from four to six feet high, three-angled, the sides deeply grooved and the angles very sharp, and backwardly Leaves several to each culm, and about their length, sheathing at the base, above that part deeply channelled, with the margins and keel while young, somewhat hispid, and the points long and subulate* Umbel terminal, super-de-Involucre about three, very unequal, the largcompound. est from one to two feet long, and the shortest as many inches; resembling the leaves in form. Spikes ovate, brown* Scales roundish oval, concave, chaffy, brown, smooth; the rib or nerve ending in a subulate point beyond the rounded Stamens three on the exterior side of the germ, onebearded bristle between each filament, and three on the back, making in all five. Germ ovate. Style with swelled, permanent, cordate base. Stigma three-cleft. Seed oblong, three-sided, surrounded by the five-bearded bristles. . .

Obs. It approaches Sc. grossus. Vahl. enum. ii. 270; the best marks to distinguish them by, are the bristles which embrace the germ, and continue with the seed; here they are five in number and villous, there six, and ibrbed, or armed

on the margin, with sharp bristles pointing¹ backward. My Sc. *maximus* is a much larger species, and the germ destitute of bristles.

46. Sc. grossus. VahL enum. ii. 270.

Culms erect, from six to ten feet high, triangular. Umbel super-decompound. Seed three-sided, beset with six backwardly hispid bristles.

Exclude Sc. grossus. Retz. Obs. v. 15, which I presume is my Sc. maximus; the germ and seed being there destitute of the bristly involucre. To which of these Sc. grossus, Linn. Suppl. ought to be referred, I cannot say.

This, next to Sc. *niaximns*, is by far the largest species I have ever met with. It grows in standing sweet water.

Culm erect, mostly naked, from six to ten feet high, three-sided; angles sharp, sides concave. Leaves radical, and round the base of the culms sheathing, much keeled, almost as long as the culms; edges slightly scabrous. Umbel super-decompound, five or eight inches each way. Involucre three-leaved, the largest about two feet, the shortest six inches, they taper to a long, acute point; margins pretty smooth./w-volucels chaffy. Spikes oblong, dark-brown, many-flowered. Stamens three, with two bristles between each pair: Style three-cleft. Seed three-sided, embraced by the six enlarged bristles, which are armed on the edges with stiff, bent back, short hairs.

47. Sc. maximus. R.

Culms straight, from six to fifteen feet high, triangular. Umbel decompound; spikelets roundish. Seed obcordate, three-sided, without bristles.

Sc. grossus. Retz. Obs. v. 15. and probably Linn. Sttppl. p. 104.

Teling. Booda-tt/nga.

Is found only in pretty deep, standing, sweet water.

Root fibrous, and stoloniferous. Culms erect, most rigid,

naked, except at the base, from six to fifteen feet high, and from one to two inches in diameter, three-sided; angles very sharp; sides somewhat concave. Leaves mostly radical, almost as long as the culm, much keeled, (a transverse section appears like the letter V,) smooth, inside only a little striated. Umbel superdecompound, generally about a foot long. Involuce from three to foar-leaved, the largest from three to four feet long, the smallest from three to four inches, smooth. Involucel chaffy. Spikes minute, ovate, few-flowered. Scales broad, and short. Stamens three. Stigma three-cleft. Seed three-sided, without bristles, which easily distinguishes it from the last Sc. grossus.

Obs. I have not in any of the foregoing genera of Cyperoidea taken notice of the sheaths which embrace the base of the peduncles and pedicels of the umbels, and their sub-envisions; because they are common to all, and so much alike, that I do not think they can convey any information. Nor have I attended to the form of those peduncles and pedicels; because 1 have not found it uniform. The culm, inflorescence, involucre, and seed, are 1 think, the best marks to discriminate the species by, particularly the culm and seed. The number of stamens and divisions of stigma, sometimes vary even in the same plant, much more in different plants of the same species.

Nearly the whole of the plapts belonging to the six foregoing *genera* (called *Calamarice* by Linnaeus, and *Cyperoide*<*B* by Jussieu) are natives of low, barren, moist places, and borders of rice fields on the coast of Coromandel. They appear,, blossom, and ripen their seed during the rains, and the beginning of the cool season. They are in general rejected by cattle.

TRIANDRIA DIGYNIA.

PfROTIS. Schreh. gen. N. 1714.

Calyx none. Corol two-valued ; valve's equal, and awned.

1. P. lat [folia. Linn, sp.pl. ed. Willd. i. 324.

'Culms piped, from nine to eighteen inches high. Xeaves short, waved, and ciliate. Raceme cylindrical.

Tsjeria-kuren-pulla. Rheed. Mai. 12. 117. t. 62.

`Anthoxanthvm indicvm. Linn. sp. pi. ed. Willd. i. 157. Saccharum spicatum. Linn. sp. pi. 79.

Is a native of high, dry, sandy, barren ground, over the coast of Coromandel.

Rapt fibrous. Culms at the base resting on the ground, and there branchy, above erect, leafy, jointed, from nine to eighteen inches high, smooth. Leaves sheathing, short, broad at the base, margins waved and hispid; sheaths about half the length of the joints. Racemes (not spikes) terminal, erect, cylindrical, lead-coloured. Flowers^rmmerous, diverging. Calyx two-valved, both awncd, and are totally destitute of hairs round their base, or any where else. Corol two-valved, very minute: Seed. •,, .___

Obs. Cattle are not fond of this gTass.

CENCHRUS. Schreb. gen. N. 1574.

Involucre echinate, and four-flowered. Calyx from two to three-valved, one or two-flowefed.

1. C. biflorus. R.

Spikes simple, cylindric. Involucres two-flowered; segments subulate, hooked and hairy within.

A native of the interior, elevated, dry parts of the Coromandel coast.

Culms straight, from six to twenty-four inches high, smooth. leaves long, slender, somewhat scabrous; mouths of their

sheaths a little hairy. Spikes terminal, solitary, simple, cylindric, from three to four inches long. Rachis flexuose, three-sided. Flowers numerous, solitary, alternate. Involucre two, rarely one-flowered, multifid, divisions longer than the flowers, subulate, grooved on the back, inside hairy, apex slightly hooked. Both flowers hermaphrodite. Calyx three-vaived, one-flowered, the exterior one smaller, all are thin, smooth, nerved. Corol two-valved, valves hard, acute, but not awned, in length nearly equal, and scarcely longer than the calyx. Stamina three. Styles two, plumose.

SACCHARVM. Sckreh. gen. N. 104.

Calyx \me-flowered, two-valved, girt at the base with wool; corol uncertain.

1. S. cylindricum. Unn. sp. pi. ed. Willd. i. 323.

Culms from one to two feet high, shorter than the leaves. Panicles linear, white with the wool of the calyx. Corol and calyx two-valved and diandrous.

Lagurus cylindrica. sp. pL 120.

S. Thunbergi. Linn. sp. pi. ed. Willd. i.323. Retz. Obs. v. p. 17.

Gramen caricosum. Rumph. Amb. 6. 17. t. l.f. 2. Seng. OoXoo.

Teling. Baroombiss.

Is a native of moist, stiff, pasture ground, and particularly common over Bengal, where the fields are white with it when ie flower, after the first rains in April and May.

Root creeping at some depth under the surface. Culms erect, simple, from one to two feet high, leafy, jointed, joints bearded. Leaves, those of the root or lower part of the culm are much longer than the culm, tapering equal towards each end, smooth, those of ihe culm are little else than sheaths. Panicles terminal, cylindric, from three to four inches long, composed of small, erect branchlets, of a bright cotton-like

whiteness, from the quantity of wool that surrounds the insertion of the flowers. *Flowers* pedicelled, generally simple. *Calyx* two-valved, with here and there a long* white hair. *Carol* two-valve<f, minute. *Stamens* two.

Obs. Cattle are not fond of it, particularly when old. It is used in the marriage ceremonies of the Telingas. In Bengal it is much used for thatch.

2. S. spontaneum. Linn. sp. pi. ed. Willd. i. 321.

Culms from five to fifteen feet high. Leaves involute when dry. Panicle linear, spreading, verticelled; ramification simple; calyx ciliate. Corol one-valved.

Sans. Kasha.

Hind. Kagara.

Telmg. Relloo-gaddy.

Grows on the banks of rivers, in hedges, and on moist, uncultivated land; in a good soil, it is frequently from ten to fifteen feet high, in a poorer soil, from five to ten.

Root perennial, creeping very deep in the ground. Culms annual, erect, leafy, round, lower parts perennial, and as thick as the finger, annual shoots about as thick as a common quill, solid, height various as above observed. Leaves sheathing, remarkably long and narrow, but firm; margins hispid; a transverse section appears crescent; sheaths with their mouths woolly. Panicles terminal, spreading, erect, oblong, from one to two feet long, composed of verticelled, filiform, simple, (except the lower verticil or two,) spiked racemes; spiked, because half the flowers are sessile, and half pedicelled. The immense quantity of long, bright, silver-coloured wool, which surrounds the base of the flowers gives this species a most conspicuous, gaudy appearance. Flowers paired, one-pedicelled, the other sessile. Calyx two leaved; margins ciliate, acute, surrrounded with many soft, very long, silver-coloured Corol one-valved, ciliate, acute, membranaceous. hairs. Stigma feathery, purple.

Obs. I have not seen the ripe seed. It is so very coarse

that cattle do not eat it, except while very young. It makes good mats for various purposes, and is used to thatch houses..

3. S.fuscum. R.

Erect, five to eight feet high. *Leaves* sub-lanceolate, smooth. *Panicle* spreading, verticelled; *ramifications* compound. *Flowers* paired, both pedicelled, wool of the calyx short and scanty. *Corols* three-valved.

Beng. Khteree or Pata-Khttree.

A native of damp places over Bengal. Flowering time the rainy season.

Culms erect, from five to eight feet high, as thick as the little finger, hairy near the top. Leaves sheathing, linear-lanceolate, smooth in every part, except the margins of the sheaths, which are fringed with much soft hair; length about three or four feet, breadth about, or under two inches. Pănicles from one to two feet long, erect, linear, verticelled, except toward the apex; ramifications compound; ramule nodding. Flowers paired, one short-pedicelled, the other longer, both hermaphrodite; wool of the pedicels, &c. short and in small quantity. Calyx with ciliate margins, otherwise smooth and shining. Corol three-valved, of which two are equal and nearly as long as the calyx, the third minute, all much ciliated. Seed long, obovate, brown, smooth.

Obs. The natives make their pens of the culms of this and tjie following species, and use it for screens and light fenced.

4. S. setnidecumbens.

Lower portion of the culms procumbent, and perennial. *Jjeq&es* narrow, channelled. *Panicle* oblong, lax, with compound verticelled ramifications; *corol* one-valved.

Beng. Khuree.

A native of Bengal, where it delights in low wet places, blossoms about the close of the rains, and the beginning of the cold season.

r.

Root perennial. Culms of great length, i. e. from eight to

sixteen or more feet long, one half or more, generally resting on the ground, and striking roots at the joints; this portion is often as thick as the little finger, and perennial; the extreme portion erect, straight, and taper to the thickness of a crow-quill at the panicle; filled with pith in every part. Leaves from one to six feet long, very slender, pointed, channelled, bottom of the channel white, margins most acutely hispid, mouths of the sheaths and for some way above them bearded with much soft white hair. Panicles ovate, or oval, erect, large. Ramifications coloured, verticelled, compound. Flowers approximate, paired; one sessile, the other pedi* celled, both girt with much, pure white, soft hair. Calyx two-valved; inner valve ciliate. Corol one-valved, ciliate.

5. S. Officinarum. Linn. sp. pi. ed. Willd. i. 321.

Cuhns from six to twelve feet high. Leaves flat. Paniefepvate, spreading; branches alternate, decompound. Corol one-valved.

Sans. Ikshoo, Rttsala, the light-coloured varieties; Peon* dra, and Kangarteka, the red,

*** Beng. Ik, Ook, Ak, Kooshiar, also Voovi and Kwllooa the two pale varieties, and Kajooli the red.

Teling. Cherukoo-bodi, or Cherukoo-duboo.

Where wild, I do not know* *Panicles* terminal, spread* ing, erect, oblong, from one to three feet long, of a gray colour, from the large quantity of long soft hair that surrounds the flower. *Ramifications* alternate, very ramous, expanding. *Rachis* striated, *Flowers* hermaphrodite, in pairs; one sessile, the other pcdicellcd. *Calyx* two-leaved, smooth. *Cortol* one-valved, smooth, membranaceous, rose-coloured. *Stamens* and *pistil* as in the genus. I have not seen the seed*

Obs. It is much cultivated in the Rajamnndr* Circar, where they only make a coarse sort of brown raw sugar, which is sold on the spot for about three half-pence per pound. The cane is cultivated on their best lands, which

can be easily watered; but, unless the farmer pleases, not easily flooded during violent rains*

The land is first well ploughed during the month of April and beginning of May. The field is then flooded from the river, if there is not sufficient rain; the upper part of the cane is then cut into two lengths of one or two joints each, (the lower part of the same canes are employed to make sugar from) these are placed over the wet field, at about fifteen -- or eighteen inches asunder, in rows, the rows about four feet from one another, and trode under the soft wet surface with the foot; in six days after the planting, the field is again flooded, if there has not been rain. In about eight d^ys more the shoots appear; the land is soon after slightly hoed and weeded. A month after the planting some rotten chaff, or other such manure, is scattered about the young plants., Every ten or fifteen days, if there be not sufficient rain, the field is watered; two months from the planting, some stronger manure is strewed about the plants; and every fifteen or twenty days the field is slightly hoed, and the weeds rooted out.

During the wet season, drains must be made, to carry off the superabundant water. By August or September, the cane will be from three to five feet hijrh • in each shoot, the produce of every cutting, which may contain from three to six canes, a straight bamboo is stuck into the earth, in the centre; to this the canes are tied by their leaves. In this country the leaves Jire never stript from the cane, but as they wither are tied round them. This must impede the free circulation of air, which may be conceived hurtful. ry, viz. between nine and ten months from the time they were planted, the cane, when stript of its leaves, and the useless top cut off, will be about as thick as a good stout walking cane, and from four to six feet long; they then begin to cut the cane, express the juice, and boil the sugar, which is with the natives here, a very simple process; a small mill turned by cattle squeezes the cane, aud one boiler boils it.

In Bengal there are three varieties cultivated, viz. The above described or common yellow cane, called by the Bengalees *Poori*. Secondly, the purple cane called by them *Kajooli*, which is said to yield juice one-eighth part richer than the yellow cane; but the sugar thereof is always of a dark colour. The third and last, is a very large, light-colour* ed cane, called *Kullooa*, which grows in a low swampy soil, where neither of the other two will succeed; its juice is still weaker than that of the yellow cane; but it has these^advantagefl£ that it grows to a much larger size, and where neither of the other two will thrive. It is therefore much cultivated, because the other sorts planted on higher situations are apt to suffer from drought*

6. S. sinensis. R.

Culms from six to ten feet high. Leaves flat, with mar* gins hispid, panicles ovate, with simple and compound verticelled branches. Corol of two valves on the same side.

Stem erect, jointed, whole height from ten to fifteen feet; the greatest part covered with the sheaths of the leaves; joints from four to eight inches long, and from two to three inches in circumference, colour pale brownish yellow. Leaves sub-bifarious, tapering from the base, to a long, fine, point; plain, smooth on both sides; margins armed with numerous, small, very acute spines pointing forward, length from two to three feet, and about an inch and a half broad at* the base. Sheaths smooth, with a small ligula, or stipulary ring round the inside of the mouth. Panicle ovate, erect; branches, simple and compound, sub-verticelled, reclinate, long and slender. In S. officinarum the branches of the panicle are scattered over the common rachis and are decompound, and super-decompound; on this I rest the most obvious specific deference, independent of the additional small inner scale, or valve of the corol. Calyx, and its surrounding wool, as in. the genus. *Corol* of the two valves on the same (anterior) side, the inner one very sum]]. Nectary of two, large, broad, cuneate, crenulate, fleshy scales, which occupy the two posterior sides of the germ, opposite to the two valves of the corol.

Obs. This new species, for such it appears to me, was introduced from China into the Botanic garden, at the close of the year 1796, in hope of finding it in some respects better than the common cane cultivated over India. It promises considerable advantage; particularly from its being so solid, and h^fd, as to resist the forceps of the white ants, and the teeth of the jackal, two great enemies to our East Indian sugar plantations. At the same time it bears drought much better than the sorts in general cultivation. It produces a {profitable crop even to the third year; while the common cane of India must be renewed every year. It is also said to yield juice of a richer quality.

This seems to be the sort employed over China for making their sugars, as appears from the following extract of a letter from Mr. A. Duncan, surgeon to the factory at Cantoń, to Richard Hall, Esq. President, &c. of the Select Committee, dated Canton 26th October* 1796, which accompanied plants if this cane from China; explaining the mode of cultivation and manufacturing the sugar in the province of Canton.

"Sugar canes. A first and second sort are cultivated in the province of Canton; the former being small, CODIpact and highly saccharine, is manufactured into sugar, whereas the latter, being of a larger size, and looser texture, is generally cut into joints, and eat by the natives, either raw, or gently heated.

"The culture of sugar canes commences about the middle of March or beginning of April, in proportion to the temperature of the weather, when a good, light, sandy soil is thrown up into beds of about four feet diameter leaving intermediate spaces of one and a half, which serve as drains and passes for the husbandmen.. A composition of human manure and water is thrown over the beds; after which the tops of sugar canes, fifteen inches long, (the Chinese are here

economical) are planted in a slanting¹ position, and occasion* ally watered at sun-set, till, the young shoots rise a cubit high; when the husk and refuse of the ground nut, or of sonic oleaginous seeds after the oil is extracted, are well beaten into a kind of powder and put round the root of the plants, in small quantities, and afterwards covered over with earth. The canes are now left to the fertility of the soil till they arrive at maturity, except when it proves'such a dry season, that watering becomes requisite, and are cut do>yi about the 1st of November. The first sort planted in the foregoing¹ manner, generally yields three crops while the second requires fresh planting.

"The sugar canes are now removed from the ground to t^e mill for expression. The juice, being extracted, is carefully strained, mixed with a small quantity of lime water, then poured into large warm iron pans, placed on a platform of brick work, with fire places below; it is now boiled for a length of time, and being removed from the fire, and allowed to cool, it is a second time strained, and being again returned to the pans the boiling is repeated for once, or twice, till it acquires a saccharine consistence. The sugar, still very moist, is no\$v put into cylindrical jars, which have a small hole in each of their bottoms, for the purpose of draining; and their tops being covered over with from half an inch to an inch of clayey moist earth, these are placed on stands, and remain for three or four days; when the old earthen covering is removed, and a fresh one put on. They continue in that situation for three or four days more, the covering is then taken of, and the sugar being sufficiently clarified is removed from the jars, and spread out on flat baskets, exposed to the sun till dry, when it is fit for use.

"The mill for expressing the juice, of which I have sent a very exact miniature model, appears so far as I recollect, pre-« ferable to those used in India. The machine is wrought by a buffalo yoked to the small end of the crooked beam, while its thick end is fastened to the long axle of one of the cylia-

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ders. The canes having¹ undergone one expression, and being consequently in a split state, are not thrust a second time through till all the irons are greased. The cylinders are not always of the same dimensions; those I examined were two cubits high, and one and two-thirds in diameter, these are the common size; I am however told they are sometimes much 'larger.''

To point out the benefit that may accrue to the cultivators of this* sugar cane, I need only add the following copy of a letter from Mr. Richard Garden, superintendent of the Honourable Company^ rum and sugar works at Mirzapofe Culna in Bengal, to me, dated 13th August, 1801, soonafieV tits introduction of the cane.

"With respect to the produce of the common Bengal sugar canes, I have never been able to collect an account that can be depended upon; the natives generally manufacture the juice into Jaggery in my neighbourhood, which yields them nearly 14 cutcha maunds, of 60 sicca weight, per b?gha on an average; and a profit of about 11 or 12 rupees per b?gha. Neither the white ants nor jackals have committed any depredations on the China canes that 1 have planted, although the latter have often been seen among them,, which certainly gives these canes a decided preference to* the Bengal sugar canes. I do not think the China ones degenerate in the least, nor do they improve; they appear to me to remain nearly in the same state. If planted at the same time the natives put their canes into the ground, they will not .make such good returns as the Bengal sort, but planted in the West India mode, in the month of September or October, and suffered to remain on the ground till the December or January twelve months, they will then yield double the returns of what the -Bengal canes do, which is owing in part to the length of time they are in the ground, and principally to the ants and jackals not destroying them, whereas if the Bengal cane was to remain so long on the ground, the natives would have great difficulty to prevent the greatest part of them from being destroyed, and the young shoots would suffer very much from the hot winds, and ants* which 1 witnessed the second year I came to Mirzapore; but the shoots from the China canes I cut last January, stood the last hot season uncommonly well, and will next January, I have reason to believe, from the present appearance, make half, or nearly three-fourths the quantity of sugar they did last January; and that with the trifling expense of clearing the ground twice; cutting, and manufacturing the juice. I should be extremely I}appy to have sent you a more particular account, but that is not in my power, as the native statement is not to be depended upon. I did purchase twelve cottas of the best Bengal canes last January, merely as an experiment, which yielded jjjst half the quantity of sugar my China canes did.'*

7. S. procerum, R.

Perennial, from ten to twenty feet high, erect. *Leaves* ensiform, with a white rib, and hispid margins. *Panicle* diffuse, with verticelled, compound and decompound branches. *Corot* of the perdicelled flower two, and of the sessile three-valved, with the inner one retuse.

Beng. Teng.

A native of Bengal, and by far the most beautiful of the genus I have yet met with. If comes nearest in appearance to S. *Offidnarum*, but is a taller and much more elegant plant*

Culms perennial, straight, simple till the second or third year, then branchy, about as thick as a slender walking cane; joints from six to twelve inches long, and filled with insipid pith; height of the whole plant, when in flower from ten to twenty feet. Leaves from three to five feet long, tapering to a long and very fine point, the greatest breadth is at one or two feet above the sheath, and is there from one to two inches; ne^ve white, margins hispid. Sheaths bearded round the mouth, and at their insertion on the outside. Panicles large, from one to two feet long, ovate, erect, composed of

numerous expanding, sub-verticelled, compound, woolly branches, when in blossom much expanded, afterwards they become erect, and pressed in on the common rachis, forming a dense cylindrical panicle, and I have repeatedly observed this variation in the form of the panicle at different periods, to run through the whole genus. *Flowers* in parts, one sessile, the other pediceiled. *Calyx* purple, woolly. *Corol* of the sessile flower three, of the pediceiled two-valved, all are exceedingly delicate, and the third valve of the sessile flower is retuse.

Obs. The seeds or culms are long, strong and straight, and employed by the natives for skreens, and various other economical purposes.

8. S. Sara. R.

Erect, from eight to twelve feet high. Leaves flat with prickly margins. Panicles dense, sub-verticelled; ramifications decompound. Flowers paired, one of the pair sessile. Corol three-valved. ..

Sans. Goondra, Tejunuka, Shura.

Beng. Shur.

Sara. Asiat. Res. iv. 247.

S. spontaneum (which Sir William Jones mistook for Sard) is very common every where. It is readily distinguished by being a stronger reed, the leaves much larger, with very hispid margins, the ramifications of the panicle decompound, and a corol of three valves. Culms perennial, erect, from six to sixteen feet high, often near the base as thick as the little finger, smooth, remarkably strong. Leaves, the lower ones from four to eight feet long, and narrow; the superior ones shorter, broader, tapering from the base to a most fine point, strong, and rigid; concave above, margins hispid. & heat Its from twelve to eighteen inches long, with a tuft of hair above their mouths on the inside. Panicle dense, when in flower open, when in seed condensed and of a lanceolate shape, from

one to three feet long; branches decompound, or more; the* inferior alternate, the superior sub-verticelled with generally three sharp angles armed with small stiff bristles besides long* white silky hairs. Flowers paired, one sessile, the other pedicelled. Calyx two-valved, clothed with long, soft, white, silky hairs. Corol three-valved, fringed.

9. S. exaltatum, R.

Culm* from ten to sixteen feet high* Leaves flat with prickly margins. Panicles linear, crowded. Calyces woolly. Corol two and three-valved.

Kerpa. *Hort. Mai.* 12. *t.* 46. seems to be this, rather than S. *spontarieum*.

Teling. Konda-Kanamoo.

A very high beautiful species, a native of vallies. Compare with S. Arundinacenm.

Root creeping. Culms many, erect, from ten to sixteen feethigh, towards, the base perennial, ligneous, inwardly spongy, (not piped,) smooth, round, without any groove, or hollow any where, about an inch in circumference at the thickest part which is near the middle. Leaves alternate, sheathing, remote, remarkably long and narrow, but firm, tapering from the middle towards each end; margins armed with very sharp spines, mouth of the sheaths woolly. Panicles terminal, crowded, when the flowers are on the decay, linear, oblong, erect, eighteen inches long, three in diameter, and composed of beautiful cream-coloured, downy, short, sub-erect, ramous, sub-verticelled spiked racemes. Rachis round, striated. Flowers in pairs, one sessile, the other pedicelled, both hermaphrodite. Calyx one-flowered, twovalved, both valves pointed, and covered with much long, cream-coloured soft hair as well as their pedicels, and particularly round their insertion. Corol of the sessile flower three-valved, of the pedicelled flower two-valved, membranaceous, white, I could not observe any nectary. Stamens.

#&c. as in the genus. Seed clavate, smooth, clear whitish yellow.

Obs. Cattle do not eat it.

· 10, S. Munja. R.

Straight, from eight to ten feet high, every part smooth, except the inside of the base of the hispid, long, margined, linear, white nerved, channelled leaves. *Panicles* large, oblong, spreading; *branches* thereof verticelled, and super-decompound, *flowers* all hermaphrodite. *Corols* two-valved.

Hind. Munja. See Jlsiat. Res. iv. 248.

A native of the countries about Benares where the natives make ropes of it. In the Botanic garden it blossoms in No* vember. I never saw. it, nor, so far as J can find, is it known so low down as Bengal, otherwise I might have thought it Kotiig's S, bengalense.

11 $i S_9$ canaliculatum. R.

Perennial, erect, (from eight to twelve feet high.) Leaves subulate, deeply channelled, very long. Panicles linear-ob-long; ramifications simple, and verticelled; calycine valves with thick callous base and fringed margins; corol one-valued.

A most beautiful stately species, a native of Bengal, in most thickets, &c. where the soil is rich, flowering in August and September,

Culms about as thick as a common ratan, incrusted with a white substance under the sheaths; filled with pith. Leaves from five to seven feet long, semi-cylindric, no where thicker than a pack thread, the whole being only a perfect channel; their sheaths simply bearded at the mouth. Panicle subcylindric, about two feet long, waving with its immense quantity of silver-coloured, long, soft hair, to every breeze. flowers paired, one sessile, the other pedicelled. Calydne valves are remarkable on account of their large thick smooth callous base.

ANTRISTIRIA. Schreb. gen. N. 1567-

Polygamous. *Involucre* one-valved, seven-flowered. *Hermaphrodite flower* solitary, with a two-valved, one-flowered calyx, and corol of one valve and an awn. *Accessary florets* male or neuter, six; four sessile, resembling a calyx, and two pedicelled, their structure various. •

1. A. ciliata. Linn. sp. pi. ed. Willd. iv. 899.

Erect. Leaves taper from the ciliate base. Accessary florets two or three-valved, neuter, exterior valve of the sessile flower papillose, ciliate near the apex.

A. ciliata* Geert. Carp. ii. p. 465. t. 75.

An erect annual species, a native of various parts of India, appears about the close of the rains, in October and November, and continues during the cool season.

Culms erect, about two feet high, in our rich soil of Bengal, more slender than a crow-quill, smooth, and often coloured. Leaves few, ensiform; broadest at the base and there more ciliate, particularly the small floral leaves. Sheaths much shorter than the joints, smooth, and carinated on the back. Ligula short and chaffy. Panicles sometimes drooping, though in general erect and composed of a few, rather remote, axillary branches. Involucres longer than the flowers, smooth, cuspidate.

HERMAPHRODITE FLOWERS bearded at the base. *Calyx* two-valved; valves hard, obtuse, and somewhat hairy, by age changing from straw colour to dark brown. *Corol* one small, pellucid valve, and a very strong, long, thick, brown, hairy awn on the opposite side. *Stigma* three. *Styles* two, with ochraceous plumose stigmas, which become brown by age. *JVectarial* scales large, with cvenate, truncate apices.

ACCESSARY FLORETS six, all neuter. *Calyces* two-valved, those of the sessile four, papillose, ciliate near the apex; those of the upper pedicelled two, smaller and smooth. *Corols* none, or of one, small, hyaline valve. *Stamina* none.

2, A. polystachya. R.

Culms numerous, sub-erect. Leaves taper from their subciliate base. Accessary florets three-valved, male, exterior valves of the sessile four, papillose, ciliate near the apex.

A native of Bengal, and with the other species which are natives of the same country, appears at the close of the rains, in October and November.

Culms many, annual, erect, or ascending, smooth, from one to two feet high. Leaves about the length of the joints of the Culm, taper from the base, and there sometimes sub-ciliate. Panicles slender, erect, or nearly so, composed of a few alternate, axillary branches. Involucres longer than the flowers, smooth, sub-aristate.

HERMAPHRODITE .FLOWERS breaded at the base. *Calyx* two-valved, both hard, a little hairy awn on the opposite side. *Cdrol* one-valved, with a long, strong, hairy awn on the opposite side.

ACCESSARY FLÓRETS six, all male. Calyces two-valved, the exterior one of the four sessile florets papillose, ciliate near the apex. Corol of one transparent valve. Stamens three. Pistil none*

3. A. scandens. R.

Perennial, ramous, scandent, geniculate, emitting roots from the joints. Floral leaves with the base ciliate. Panicles Copious, shaggy. Involucres smooth. Accessary florets two-valved, neuter; exterior valve of the sessile four, papillose, ciliate near the apex.

A native of Bengal s flowers during the cool season.

Root perennial. Culms scandent, running to an extent of many feet, smooth, ramous, jointed, and coloured; from the joints numerous roots issue, and enter the ground if not too far removed from it. Leaves ensiform, the floral ones much shorter, and ciliate at the base. Panicle terminal, composed of erect ramifications of numerous, rather remote fascicles of axillary, short-pedicelled umbellets, each of which is furnisli-

ed with a boat-shaped spathe-or bracte, and consists of four, sessile, neuter, two-valved florets in a verticil; above these are two more, but much smaller, on short pedicels, with one sessile, awned, hermaphrodite one in the centre, on a short scaly receptacle. *Calyx* two-valved, the exterior valves of the lower four neuter florets bearded, of the hermaphrodite ones boat-shaped, and very obtuse. *Corol* of the hermaphrodite flower two-valved, with a long, ferruginous, straight arista.

Obs. It differs from A. ciliata in being an extensively%candent, perennial plant.

4. A. lieteroclita. JR.

Culms leaning, geniculate. Leaves ciliate. Involucres five-flowered, two awned hermaphrodite ones, and three ciliate male ones.

This is one of the smallest of the genus, a native of newly made pasture land in the vicinity of Calcutta, where it appears about the close of the rains, and during the cool season.

Culms annual, erect, or leaning, geniculate, smooth, and coloured; from twelve to twenty-four inches high. Leaves ensiform, soft and hairy. Sheaths much shorter than the joints. JPanicles copious, hirsute, composed of numerous small umbells and these in general of five or more umbellets, the former with a common cymbiform, bristly involucre, and the latter with a small, proper characteristic involucre, equally bristly; all the bristles have a round bulbous base. Umbellets five-flowered; the two hermaphrodite ones awned, and the three male ones pedicelled, and awnless; one of the former is sessile below, with a pedicelled male one by it; the other elevated on a common peduncle, embraced by the other two male ones on their proper pedicels, in all of them the calyx is two-valved, no corol, the arista in the hermaphrodite flowers excepted.

• Obs. This species may be immediately distinguished by its umbellets being composed of two hermaphrodite awned

florets, and three male ones.- In all the rest, which I have met with there is one awned hermaphrodite, aud six*male, or neuter florets in the umbellet,

5. A. proslrata. Linn. sp. pi. ed. WilhL iv. 901.

Creeping-. Leaves scarcely longer than their sheaths. /?*-volumes smooth. Accessary florets male, with a two-valved hairy calyx and one-valved awnless corol.

A common grass, delighting in rich pasture ground.

% Oklms creeping, or leaning on other plants, filiform, ramous, winding from joint to joint, round, smooth, from one to three feet long. Leaves below, and on leafy shoots bifarious, small, particularly the floral ones, smooth. Slieaths short, compressed. Panicles thin, leafy. Flowers numerous, collected in little pedicelled, involucred fascicles from the axills of the exterior leaves. Fascicles 9 or umbellets, their peduncles are jointed near the apex, and from thence upwards embraced by a long, boat-shaped sheath or involucre. Flowers of the umbellet seven; one hermaphrodite or female, and six male; four of the male florets on their proper short pedicels surround a common pedicel which elevates the hermaphrodite or female one, and the other two male florets; these last two have also their proper pedicels; all their insertions are surrounded with hair.

HERMAPHRODITE TWO, OR FEMALE THREE FLOWERS. Calyx two-valved, pointed. Corol one-valved, a pretty long twisted awn occupying the place of the other. Stamens three, or none. Male flowers, four at the base, and two embracing laterally the hermaphrodite, or female flowers, each of these two has its proper pedicel. Calyx two-valved, lanceolate, hairy. Corol one-valved. Stamens three.

Obs. It often happens that there are two hermaphrodite, and seven male flowers in the fascicle; in that case one of the usual lateral pedicels supports the additional two flowers.

61 A. cymbaria. R.

Erect, ramous. Leaves many times longer than their sheaths. Involucres smooth. Accessary florets male, with a two-valved, ciliate calyx, and a one-valved, awnless corol.

Andropogon cymbarius. Linn. want. 303, sp.pLed. Willd. iv. 909.

Teling. Pedda Ghella.

This is a large species. I have generally found it amongst bushes on mountains.

Culms many, erect, from three to six feet high, very r%-mous, smooth, solid, ligneous, joints smooth. Leaves large in proportion to the size of the plant. Panicles linear, leafy, erect, composed of innumerable bracted fascicles like those of the last described. Bractes boat-shaped, ending in a Very long, subulate point, sometimes coloured, and in luxuriant plants fringed with many long rigid hairs. Flowers seven in each fascicle or umbellet as in the last, and disposed exactly in the same manner, only here the four male flowers that surround the base of the common pedicel are sessile.

HERMAPHRODITE FLOWERS. Calyx two-valved. Valvelets nearly equal, obtuse, smooth, of a firm texture. Corol one-valved, the place of the second is occupied by a long twisted awn. Stamens three, &c. as in the genus.

MALE FLOWERS. *Calyx* two-valved, the exterior valve fringed with many strong hairs about the apex. *Corol* one*.valved. *Stamens* three.

7. A. arundinacea. R.

Perennial, straight, from six to twelve feet high; *leaves* from four to eight feet lonpr. *accessary florets* male, with both *calyces* and *cor oh* two-valved; the exterior valvelet of the former shaggy.

A native of-Bengal. Flowering time the beginning of the cool season.

Root perennial. Cu/m* straight, jointed, glaucous, between

the joints much contracte round and very smooth, the lower part fil, spon fypitfcjh eight of the wi,,,!,|,h,,,, Pi, nts are Ml sixteen leet high. Leaves from six to eight feet long, slender, 11,,11 radical ones are bifarious " * * n * A K,,,, hs '••''•'•''--.h,.j......•,,,...,,,,,,, . . . i i i retitiary, very ramous branches, bending elegantly to one in the median it a breeze of wi boat-shaped. clavate • <| "«.r. M.n,,,,,!!,,,, ,,,,,|i₁₁,,,,,,,|... flower, and two party, 1,2, 1,3, will, 288 ones. MALE x, glume, two-valved, the exterior of two contracts of two cated scales. Stamens three. istil IIIItMU>1,,t(miTR FWWBM. Cahfd |,,v.,l oblong; styles two, UM.M,s.

ANDROPOGON. Schreb. gen. N. 1566.

C«/^lU,,uh,,l, .,,... fower,(f (, W) nr(tu, in(K)

1-1. 'all' a'-in Hi.' li.Ti,,,ip|,r.Mli,,i Cbi of for !!,, m(()(part

SECT. I. With terminal Spikes.

1. A. terrains. Rets. Obs. v. 21. Linn, sp.pl. ed. Wilhl. iv. 9(M.

Spikes solitary, or paired, imbricated with sessile*, hernia* phrodite, awned Howers on the outside, and two rows of awnless pc>dicelled male ones on the inside.

Sans. Wnee, KJi?/ra, Cr/rec, t/gnree, Khicnigtcrec, Gumgunco/ Devictara, Jecmoota.

Beng. Detara, or Detta.

A native of pasture ground. Flowers during the cold sonson.

Culms at and near the ham creeping, branchy, with only ;ibout a loot oi' their flow<*r-boaring extreinitiOM en*ct, and an thick Q* a «parrow*N quill, round, HIIIOOIII, JOJIIIN NIi^*lilly vil-IOUH. Lrtivrx MIISIII, insidf* a litllt* hairy, mouth of flu* sheaths hairy. Spike terminal, generally solitary, though Noiiictiinei there are two or even three; when Kinglc, loug-pcdtuu'ltHl, when two, each has a very short, erect pedicel; the spike or apikes ure about an inch and a half long. Flowers in pairs, tiumerouN, imbricated, oil one side ajre two rows of Hesmilo, heriiiaproditeoneM, and in the other two rows of pedicelled ours; vmli* ravins waved, jointel and hairy. Hermaphrodite flowt.rs KCHMIC. Calyce* tW4»-valved₉ tho exterior one broad, roinprettbed, Ktriated, a little hairy, rounded at the apex; margins fringed with hairs; involucre smooth, glossy, keeled, Carol of the hermaphrodite flower om»-valved; the pointed. arista which it* pretty long and twisted, occupies the place of a second; that of the male two-valved, the inner one slender sind bifid.

Obs m Cattle will eat it but not errorlilv.

'J. A. coniorln*. Linn. *//. pi. prf. Willd. iv. 904.

xMonoicous. Spikes Military; inferior flowers male or neuter and uwnlesK; superior Jluwers one Ibmale and uiviied, the other male and awulew.

ITeling. Yeddi.

Grows in tufts on rich pasture ground.

Culms near the base spreading a little, there compressed and ramous, the rest from one to two feet high, erect, round, and smooth; joints smooth. Leaven below bifarious, middle-sized, upper side scattered with a few hairs, margins and mouths of the sheaths hairy. Spikes always single, terminal, bowing, cylindric; rachis jointed, waved, round, below where it is occupied by the male and neuter flowers smooth; above where the female flowers are, it is covered with much short, brown hair. Flowers numerous, imbricated in pairs; on the lower half of the spike they are all neuter, or male, and awnless, one sessile, one pedicelled; on the upper half the sessile flower is female, and the pedicelled one male.

MALE or neuter FLOWERS. *Calyx* two-valved, one-floweY-ed; exterior valvelet green, and covered with stiff white hair; inner valve inembranaceous, and smooth, except the margins, which are slightly ciliate. *Corol* two-valved, membranaceous, margins slightly ciliate. *Stamens* three or none.

FEMALE FLOWERS. *Calyx* one-valved, one-flowered, rigid, embracing the corol on all-sides, brown, a little hairy. *Corol* one-valved, small, the place of the other is supplied by a very long, twisted arista.

3. A. tenellus. R.

Filiform, *spikes* paired. *Flowers* paired, the sessile ones hermaphrodite, and awned; the pedicelled ones neuter, and awnless; exterior valves of both calyces oblong', striate, hairy, and three-toothed; neuter corol of one minute valve.

A most delicate tall grass, a native of Bengal, where it appears in hedges, &c. during the cool season.

Culms from two to three feet long; at the base resting on the ground, ramous, scarcely so thick as a pack thread; joints villous. Leaves slender, a few hairs toward the base. Spikes paired, erect, short-pedicelled; outsiVe imbricated with two rows of sessile, awned, hermaphrodite flowers; inside with

rows of pedicelled, awnless, neuter ones. *Rachis* jointed and hairy. *Calyces* two-valved; *exterior* oblong, three-toothed, striated, hairy; *interior* acute, three-nerved, that of the neuter flower shorter. *Corol* of the hermaphrodite flower one-valved, with a long brown awn on the opposite, or inner side, that of the neuter flower single, and very minute.

4; A. binatus. Linn. sp. pi. ed. Willd. iv. 918. Retz. Obs. v. 24.

Slender, towards the base creeping; *spikes* paired, incurred *'flowers* paired; the sessile ones hermaphrodite, and awned; the pedicelled'ones male, with an awnless, two-valved corol.

A native of Bengal, appears during the cool season.

^Culms very slender, toward the base ramous, and creeping *ioints* with a scanty short beard. Leaves slender, somewhat hairy toward the base. Spikes paired, on a long filiform peduncle, short-pedicelled, somewhat incurvate; outside imbricated with two rows of sessile, awned, hermaphrodite flowers; inside with two very distinct (for they are separated by a deep groove) rows of pedicelled, awnless, male Rachis jointed, and hairv. Calvees of both twovalved; exterior oblong, hairy, ciliate, five to seven-nerved, edges thin, apex of the male tridentate, of the hermaphrodite Inner valves acute, three-nerved. Corol of the obtuse. hermaphrodite flower of one hyaline valve on the outside and an arista for the other; of the male one of two very unequal Styles two; stigma purple, villous. hvaline valves. Seed oblong, smooth.

5. A. conjugates. R.

Straight, very rarnous, filiform. "Spikes conjugate, both flowers hermaphrodite, and both awned; exterior valves of the calyces lanceolar, and copiously ciliate.

A native of Bengal, and the smallest of the genus I bar* yet met with. Flowers during the cool season.

Root a few very slender, brown fibres. Culms in tufts, and very ramous, filiform, erect, smooth, even the joints; from six to twelve inches high* Leaves minute, a few hairs near the base. Spikes always exactly paired as in most species of Ischermun, erect, flat on the inside, where they touch each other. Rachis winding, and clothed with long, silver-coloured hairs, length about an inch. Flowers in pairs, one sessile, one pedicelled, both hermaphrodite, and both awned. Calyces two-valved, one-flowered; exterior valve in both lanceolate, with the margins copiously ciliate. Corol two-valved; valves transparent, and brown; that (the inner) which gives support to the arista, bifid. Stamens three. Styles two. Stigmas long and plumose.

6. A.Jiliformis. R.

Filiform, annual, erect. *Spikes* paired. *JFlowers* all sessile, solitary; hermaphrodite, diandrous, with a corol of one valve, which ends in a long awn.

This is the most delicate species I have yet met with; appears in small tufts, on pasture land near Calcutta, in the months of October, November, and December.

Culms numerous, filiform, smooth, erect, from nine to twelve inches high. Leaves small, slender, and smooth. Spikes two, terminal, filiform, scarcely two inches long. Flotoers all hermaphrodite, solitary, sessile, no pedicelled flower being found, no pubescence about the calyx, or rachis. Calyx two-valved, one-flowered. Corol of one large, awned valve. Stantina two, one of the anthers larger. Germ ovate. Styles two.

7. A. tristachyos. R.

Spikes three, both flowers hermaphrodite, and both awned. Calyces lanceolate, and ciliate.

A delicate, beautiful species found on newly laid down pasture ground in the vicinity of Calcutta, and in flower in October, November, and December. Annual, with numerous, nearly straight, erect, smooth, slender, pithy culms, of from one to two feet in height. Leaves taper from the base, most acute, about as long as the joints of the culms; a few long soft hairs on the inside near the base. Sheaths smooth, shorter than the joints. Spikes two, rarely three, and I have not seen four, one sessile the other two a little more elevated on a common pedicel, expanding; from, two to three inches long*. Rachis jointed, winding*, and hairy. Flowers in pairs, one sessile, the other pedicelled, both hermaphrodite, and both awned. Calyces two-valved; valvelets lanceolate, ciliate; backs smooth, and brown. Carol of two, small, pellucid, brownish valves, the inner of each, ends in a long, brown, arista, proceeding from the bifid apex of the valvelet.

8. A. tridentatus. R.

Spikes paired, hirsute, both flowers hermaphrodite, and awned. Calyces shaggy, exterior valves cuneate, truncate, tridentate. Corols four-valved.

A delicate, rather tall species; a native of Coromandel. *Culms* straight. *Leaves* small. *Spikes* terminal, paired, sessile, lanceolate, shaggy. *Flowers* in pairs; oiu^ ses-ile, the other short-pedicelled, both hermaphrodite, and both awned. *Calyx*, exterior valves in both flowers cuneiform, with apices truncate, tridentate, back striated; middle part, as well as the margins, from thence down, and the base bearded with fulvous hairs; inner valve longer than the exterior, ending in a pretty long arista; margins amply fringed with long fulvous hairs. *Corol* in both Howers four-valved; the exterior one on the inside bifid, and awued.

9. A. lanceolatus. R.

Leaves lanceolate, with cordate stem-clasping base, bristle-ciliate. Spikes tern, peduncled. Sessile or hermaphrodite flower awned, with the margin of the exterior valve of the calyx acutely pectinate, serrate.

A native of Coromandel, and very much like *Panicum* 'setigerum.

Qulms scandent, or creeping*, emitting roots from the joints, seems operenni^l. Leaves lanceolate, base cordate, and stemclasping, apex acute, smooth on both sides, but the edges, from the middle down, bristle-ciliate. Spikes terminal, two, three, or four, peduncled. Rachis and pedicel of the male flower somewhat woolly. Calyces lanceolate; exterior valve, and chiefly that of the hermaphrodite sessile flower with the margins minutely and acutely pectinate-serrate. Corol iu both two-valved, with an arista in the hermaphrodite one.

10. A. scandens. R.

Climbing; *spikes* from three to six, digitate; *calyx* lanceolate; *male corols* one-valved, and awnless; *hermaphrodite* ones with a one-vatved corol and an awn.

Grows commonly in hedges, and on that account scandent; appears and flowers during the rains.

Culms long, rauous, creeping, or climbing over bushes, &c. emitting long roots from the joints; smooth and deeply grooved on one side; flower-bearing extremities erect* and •about o»e or two feet long; joints woolly. Leaves sometimes a little hairy on the upper side, mouths of the sheaths membrane-stipuled, and hairy. · Spikes generally from three to six, terminal, short pedicelled, sub-panicled flowers in approximate pairs; one hermaphrodite, and sessile, the other male, and pedicelled. In both the calyx is of two lanceolate, somewhat hairy valves. In the hermaphrodite one the corol is of one valve, and the place of the second valve is occupied by a long twisted arista. In the male one it is two-valved.

Obs. It is a coarse grass. Cattle are not fond of it.

11. A. pertusus. Linn. sp. pi. ed. Willd. iv. 922.

Near the root creeping. Spikes from four to eight, digitate, pedicelled, exterior valve of the sessile, awned, hermaphro-

dite calyx with a pit on the back; male or neuter corol oneyalved.

Holcus pertusus. Kön. Linn. Mant. 301.

Is found on old pasture ground, which is generally shaded by trees.

Culms creeping near the base, &c. as in the last two species; joints bearded. Leaves small, ciliate; mouths of the sheaths bearded. Spikes from four to eight, in other respects exactly as in the last species. Flowers, the specific mark is to be found in the pit of the exterior valves of the calyx of the hermaphrodite flowers, as in A. strict us, and A. punctatus, to be described; an arista occupies the place of the second valve of the corol; the valvelets of the calyx are both awnless.

Obs. I should doubt this being König's Holcus pertusus, if he had not pointed it out to me himself.

12. A. Bladhii. Linn. sp. pi. ed. Willd. iv. 930.

Sub-scandent; joints pubescent. *Spikes* from three to six, sub-panicled. *Calyces* lanceolate; *male corals* two-valved; *hermaphrodite* ones one-valved with an arista *% flowers* paired.

Seng. Loari.

A native of hedges and road sides, but chiefly of old pasture ground.

Culms as in the last described species; joints much bearded. Leaves the same. Spikes from four to eight, short-pedicelled, inserted round the last half in each of the culms; in other respects they are as in the last describe species. The flowers resemble those of that species, but are a little more remote. Calyx and corol the same as in A. scandens.

13. A. Ischcemum. Linn, sp.pl. ed. Willd. iv. 921.

Spikes from six to eight, fascicled, peduncled; rachis hairy. Flowers lanceolate; hermaphrodite, sessile, and awued; male pedicelled and awnless; calyces acute; exterior valve hairy.

A native of Goromandel, a stout, erect species, with a branch from the axill of each of the superior smooth short leaves, having* much the appearance and habit of *Bladhii* and *pertvsus*; from the former it differs most conspicuously in the valves of the calyces being acute, whereas in *Bladhii* they are broad and rounded; and from *pertusus* in the want of the pit on the back of the exterior valve of the hermaphrodite flower.

SECT. II. With long peduncled, axillary Spikes.

14. A. monandrus. R.

Erect, filiform, with erect, filiform, branches at the top, *Spikes* solitary, flowers hermaphrodite, and female; *exterior* valvelet of the calyces and corols of both awned • hermaphròdite, monandrou?.

A native of mountainous countries.

Culms many, ramous, filiform, straight; about a foot high, round and smooth. Leaves small, base anil mouths of the sheaths hairy. Spikes generally solitary, terminal, and from the exterior axills, long-pedtincled, straight, about an inch long. Peduncles filiform, jointed, and spathed at the middle. Rachis jointed, winding, hairy. Flowers numerous, imbricated in pairs; one, the hermaphrodite, sessile, and the other, female, pedicelled.

HERMAPHRODITE FLOWERS sessile. *Calyx* two-valved, nearly equal, exterior valvelet ending in a long slender arista, the inner one with its apex obtuse, and bearded. *Corol*₉ exterior valve ending in a long slender awn. *Stamen* one. *Styles* two, &c. as in the genus.

FEMALE-FLOWERS pedicelled. *Calyx* and *corol* as in the hermaphrodite ones; only the inner valve of the calyx is pointed, and bearded.

15. A. strictus. R.

Straight, rainous at the top; base of the leaves ciliate.

Spikes fascicled on their own proper pedicels; exterior .valvelets of both calyces pitted; inner glume of the heirnaphjro-" dite corol awned.

A native of mountains, and their* vicinity.

Culms straight, ramous, about two feet high, and as thick as a sparrow's quill, round and smooth; joints bearded. Leaves slender, a little hairy, and ciliate near the base; mouths of the sheaths stipuled. Spikes from three to six, Iong-pedicelled, and collected on a common peduncle, one of which is terminal, and one or two more from the next one or two exterior axills; very slender, perfectly erect, and about an inch long*. Rachis as in the former species. Pedicels most fine, straight, two inches long, jointed near the base, where a tine slender spathe begins. Flowers fa pairs; one herniaphrodke and sessile, the other small and pedicelled.

HERMAPHRODITE FLOWERS sessile. Calyx as in the genus, except that the exterior large valvelet has a large pit in it, as in A. perlusus. Corol, inner valve slender, ending in a long twisted awn.

MALE FLOWER pedicelled. *Calyx* one-valved, and pitted as in the hermaphrodite flower. *Corol* two-valved, awnless.

16, A. polystachyos. R.

Straight; *spikes* numerous, axillary, simple, each elevated on a long-jointed, sheathed peduncle. *Flowers*, inferior pairs male and awnless; one of the superior ones is female and amply awned, the other male and awnless.

A native of the Peniiisula of India. The flowers greatly resemble these of A. *contortus*, but the habit of the grasses is very different.

Culms straight, ramoup. Leaves ensifoim, straight, acute, ciliate at the base. Spikes simple, many together on the axill of the leaves each elevated high on its long", filiform, jointed, sheathed peduncle, lergth from one to two inches. Flowers paired, thoe on the lower two-thirds of the spike are all male, 'and awuless, and, as usual, one of them sessile, the other

short-pedicelled; *superior'pairs*, the sessile one of each of these is a slender female, amply bearded at the base with much dark brown hair, which is the more conspicuous as every other part of the spike is (smooth; the other short-pedicelled, male, and awnless, like the inferior pairs.

MALE FLOWERS. *Calyx* two-valved. *Corol* two-valved. *Stamina* three.

FEMALE FLOWERS. *Calyx* of one linear, striated, hard, dark brown valve, *Corol* one- valved, with a very long, twisted awn on the other side. *Stamina* none. *Styles* two.

SECT. III. Panicles naked, and terminal.

17. A. acidulatns. Linn. sp.pL ed. Willd. iv. 906.

Creeping. *Leaves* shorter than their sheaths. *Panicle* linearoblong, erect; *ramifications* three-flowered, one hermaphrodite, sessile, and two male, peduncled.

Gramen aciculatum. Rumph. Amb. 6. t. h.f* 1. good.

Raphis trivalvis. Lour. Cochin Ch. 676.

Kudira-pullu. Rheed. Mai. 12. p. 97. £:43.

Sans. Slronkhinee, Choro-pooshpee, Keshince.

Seng. Chora-kanta.

Grows on barren, moist, pasture ground; its seeds are exceedingly troublesome to those who walk where it grows, as they stick in the stockings, and produce a disagreeable itching, g

Culms straight, simple, from one to two feet high, round and smooth. Leaves small, waved, with the margins prickle-ciliate. Panicle terminal, erect, linear-oblong, from two to three inches long. Ramifications (or rather peduncles) verticelled, simple, three-flowered, nearly erect; apex armed with short stiff hairs. JFlowers, one sessile, hermaphrodite, and two pedicelled male ones on each peduncle.

HERMAPHRODITE FLOWER. Calyx two-valved, nearly equal; the inner one ends in a short arista, and has the keel scabrous; base involved in brown short hair. Corol two-

valved, the inner one ending in a short rigid arista* Stamens three, &c. as in the genus.

MALE FLOWERS. *Calyx* and *corol* as in the male, except that there is no *arista* to the corol. .

. Obs. It is of a very coarse nature. I never found it touched by cattle.

18. A. verticillatus. R+

Erect. Leaves long, and very hairy; panicle conical; rartnifications verticelled, three-flowered; one hermaphrodite, sessile, with two awns; and two-pedicelled, male, with one awn each.

A native of mountains, flowering about the end of the wet season.

Root woody, perennial. Culms erect, simple, very leafy, smooth, round, towards the base soiled, as thick as a small goose-quill; from four to six feet high. Leaves approximated, eighteen inches long, and three quarters of an inch broad; margins set with minute spines, and particularly hairy on the inside near the base. Panicles erect, conical, lax, from eight to ten inches long, composed of many verticelled, most simple filiform, waved, bowing, three-flowered branches, as in A. adculatus.

HERMAPHRODITE FLOWERS sessile. Calyx ^ glume one-flowered, two-valved, inner valve awned, both hairy, having the base surrounded with much brown hair. Corol one-valved, a long twisted awn occupying the place of the other. Stamens three. Style yellow.

MALE FLOWERS pedicelled, one on each side the hermaphrodite one; pedicels covered with brown hairs. *Calyx*, exterior valve a little hairy, and awned, base involved in short brown hair. *Corol* two-valved. *Stamens* three.

IS. A. saccliaroides* Linn. sp. pi. ed. Willd. iv. 912. Sub-erect, leaves remarkably long. Panicle oblong,

composed of simple, alternate, filiform, short-pedicelled, erect, patent branches; neuter florets two-valved and pedicelled.

A large, leafy, sub-erect species; a native of the mountainous parts of the Northern Circars.

I am not possessed of any other description of Swartz's A. saccharoides than the specific character, as it stands in Willdenow's edition of the species, which agrees with my plant; I therefore conclude they are they same.

20. Ischamum. Linn. sp. pi. ed. Willd. iv. 921.

Spikes from six to eight, fascicled, peduncled; rachis hairy. Flowers lanceolate, hermaphrodite, sessile and awned; male pedicelled and awnless; calyces acute, exterior valve hairy.

A native of Coromandel. It is a stout erect species, with a branch from the axill of each of the superior smooth short leaves; it has much the appearance and habit of *Bladhi\'>* and *pertusus*; from the former it differs most conspicuously in the valves of the calyces being acute, whereas in *Bladltii* they are broad and rounded; and from *pertusus* in the want of the pit on the back of the exterior valve of the hermaphrodite flowers.

21* A. punctatus. R*

Erect, simple. *Leaves* large, long, and numerous. *Panicle* of numerous, simple, second ramifications. *Exterior* valves of the calyces of both hermaphrodite and neuter flowers pitted.

This is a mountain grass.

Culms from two to four feet high, without branches, below bent towards the earth for half a foot, often erect, entirely surrounded with the sheaths of the leaves; not piped, but replete with spongy pith. Leaves numerous, large, with some long white hairs scattered over them near the base; moutlis of the sheaths stipuled, bearded, and woolly. Panicle erect, oblong, from four to five inches high, composed of many, erect, short-peduncled, filiform, secund, spiked racemes; ra-

chis and flowers exactly as in A. fascicnlaris; except that here the outer valve of the calyx of both flowers has a pit Jh. the middle. The corol of the hermaphrodite flower wants the inner valve; in its place is a pretty long twisted awn.

22. A.jascicularis. JR.

Erect, raiiiotis. *Panicle* composed of fascicled, simple, or divided branches. *Flowers* paired; hermaphrodite ones awned; neuter ones awnless and without a corol.

Teling. Kimda-jeri.

A native of mountains.

Culms erect, jointed, smooth, rather thicker than a crow's quill, from three to five feet high, sulcated, mostly naked, rush-like, not piped, leaves from three to four, small, remote, retrorso-scabrous; mouths of the sheath hairy; from each sheath springs a short panicle-bearing branch. Panicle terminal, six inches long, erect, fascicled; fascicles remote, alternate, composed of several erect, filiform, often ramous, secund spikes, or spiked-racemes. Flowers in pairs; the helmaphrodite ones sessile; the neuter peduncled.* Common rachis round, smooth; partial owe undulated, jointed, compressed, woolly.

HERMAPHRODITE FLOWER. *Calyx*, glume one-flowered, two-valved, smooth, awnless, base surrounded with wool. *Corol, exterior valve* the length of the calyx; *inner* short, bifid, with a long twisted awn from the fissure. *Neuter^floret* small, its pedicel woolly, length of the hermaphrodite flower. *Calyx* two-valved. *Corol* none.

23. A. muricatus. Retz. Obs. iii. Ar. 95. and v. 20.

Erect in all situations. *Leaves* aub-bifarious, long, narrow, and rigid. *Panicle* verticelled; *ramifications* simple, expanding, hermaphrodite and male flowers awnless, with ttiuricate calyces, and corols of three valves.

Sans. Veerwnwng, VecrMtwrang.

Beng. JBena, the name of the plant, and Khus/chus the root.

Tarn. Woetiwear.

Vfrana. Asiat. Res. vol. iv. p. 306.

It is very common in every part of the coast and Bengal, where it meets with a low, moist, rich soil, especially on the banks of water courses, &c.

Root of many perennial, long, spongy, brown fibres. Culms many, smooth, simple, rigidly erect, a little compressed at the base, jointed, smooth, inwardly spongy; from four to six feet high and as thick as a goose-quill. Leaves near the base bifarious, narrow, erect, from two to three feet long, pretty smooth, rigid. Panicle from six to twelve inches lonn\ conical, composed of numerous spreading, short-peduncled, simple, linear, verticelled spiked-racemes. Rachis of the spiked-racepies jointed, winding, naked. Flowers paired, awniess; one hermaphrodite, sessile; the other male, and pedicelled; insertions nearly naked.

HERMAPHRODITE FLOWER. Calyx two-valved, nearly equal, imiricated. Corol three-valved, membranaceous. Nectary, two obcordate scales embracing the germ and insertions of the filaments. Stamens three. Stigmas feathery.

MALE FLOWER. Calyx as in the hermaphrodite. Corol two-valved. Nectary as above. Stamens three.

Obs. The roots, when dry, and then gently moistened, emit a pleasant kind of fragrance; they are employed to make large fans, commonly called *Vissaries*; and also screens which- are placed before windows and doors, which being kept moist during the hot winds render the air that passes through them, both cool and fragrant. See Observation on *Aristida setacea*. The grass is often employed for thatch.

Dr. König was too accurate a Botanist to describe this very conspicuous plant under two names, viz. A. squarrosus. Linn. sp. pi. Willd. iv. 908, and A. muricatus; the former is evidently a very different species, and found by him in Ceylon, floating on pools of water; whereas A. muricatns (which I formerly called aromaticus) is always rigidly erect, whether growing in water, or on dry land. Its root is delightful-

ly aromatic, as mentioned by König himself, and by Sir William Jones, particularly when moistened with watci^

I am inclined to think König's A. squarrosus is my Panl-cum påludosum; a species with thick spongy culms, which is generally found swimming on pools of sweet water.

24. A. glaber'. R.

Erect, ramous, smooth. *Panicle* ovate, verticelled; *ramification* simple, two or three-cleft. *Flowers* paired, the hermaphrodite ones awned, with the calyx pitted; the male ones neither pitted nor awned, with a two-valved corol.

Beng. Gimdho-goorana.

Found thinly scattered on rather elevated spots over Bengal.

Root perennial. Culms sub-erect, very ramous, smooth, from three to four feet high. Leaves glossy, smooth in every part. Panicles ovate, verticelled; ramifications simple, and two-cleft, or even three-cleft sometimes. Flowers paired; the hermaphrodite ones sessile and awned; the male ones pedicelled, and awnless.

HERMAPHRODITE FLOWERS. *Calyx* two-valved, smooth, purple-coloured; exterior valve pitted on the back. *Corol* one-valved, a long awn occupying- the place of the second.

MALE FLOWERS nearly as large as the female. *Calyx* not pitted. *Corol* two-valved.

25. A. montanus, R.

Shrubby near the base, creeping. Leaves long and slender. Panicle sub-verticelled; ramifications ramou\$; fiowers paired; the hermaphrodite ones awned; the neuter awnless, with a corol of one valve.

Teling. Auroots hangah'.

A native of mountainous countries.

Culms many, below resting on the ground and rooting, round, smooth, from three to four feet high, and as thick as ft large crow's quill. Leaves long.and narrow, a little hairy

on the upper side near the base only; mouths of the sheaths beaded. *Panicle* terminal, conical, from four to eight inches long, composed of many, ramous, sub-verticelled spikes, or rather spiked-racemes; *rachis* winding, jointed, a little hairy. *Flowers* as usual, in pairs, an hermaphrodite one sessile; and a neuter one pedicelled.

HERMAPHRODITE FLOWERS. Calyx two-valved, the exterior one a little hairy. Corol one-valved, a twisted awn two or three times the length of the corol supplies the place of the other. Neuter flowers like the hermaphrodite ones* but without arista.

26. A. bicolor. R.

Erect. Panicle diifuse, with expanding, decompound and super-decompound branches; hermaphrodite calyces with signooth backs, rnd fringed margins; corol three-valued, and awned; calyx of the neuter flower hairy, with a two-valved corol.

Holcus bicolor. Linn. sp. pL ed. Willd. iv. 929.

JBeng_m Kala-deodhan.

Hind. Kalo-jooar.

Teling. M/ika-janoo, and Maka-janoolar the grain.

I have only found it in a cultivated state.

Culms generally single, straight, round, smooth, from four to ten feet high, and as thick as the finger or thumb, mostly covered by the sheath of the leaves, leaves from one to three feet long, and from one to three inches broad, smooth; mouths of the sheaths bearded. Panicle erect, oval, dense, composed of many ramous, expanding, sub-verticelled branches, ihe various ramifications angular and very hispid when the finger is drawn backwards over them, their flower-bearing extremities hairy. Flowers paired, and, as in the genus, the sessile one is hermaphrodite and the pedicelled one neuter.

HERMAPHRODITE FLOWERS sessile. *Calyx; valvelets* nearly equal, with the back smooth, and as they ripen becoming*

of a shining* black, with many white hairs round the margins (ciliated.) *Carol* three-valved, fringed, the second or solitary valve ending in a short twisted arista. *Seeds* oval, brown, smooth, free, with an impression on the back near the base.

NEUTER FLOWERS pedicelled. *Calyx* striated, hairy. *Corol* two-valved, awnless. *Stamens* none.

Obs. This and the following species A. Sorghvm seem to me to possess more of the character of Andropogon than of Rolcus. I have therefore changed their places from the latter to the former.

27. A.. Sorghum. /?.

Erect. *Panicle* contracted, dense; hermaphrodite calyces hairy. *Corols* three-valved, awned.

Holcus Sorghum. Linn. sp. pL ed. Willd. iv. 929.

Seng, and Hind. Jooar.

Teling. Telia, or Konda (white) janoo the name of the plant, and Tella-janoolar the grain.

Obs. This also I have only found in a cultivated state. It differs from the former.

1st. In having the panicle contracted, very dense, and less regularly verticelled.

2rf. In having the glumes of the calyx of a whitish green colour and very woolly.

3d. In having three valves to the neuter flowers.

There are two other sorts, which I take to be only varieties of the last; their names in Teliuga are *Pacha* (green) *Janoo* and *Yerra* (red) *Janoo*.

These last two with their varieties are much cultivated on a rather elevated, good soil. Seed time October; and harvest time, January. The produce in good soil is often upwards of an hundred-fold. The »Tain is much used for food.

is probable that through the whole of Southern Asia as of the inhabitants live on the various kinds of dry or grain, as upon rice, and they are reckoned fully as wholesome as that is.

All kinds of cattle are remarkably fond of the straw notwithstanding its. thickness, and solidity.

28. A. cemuus. R.

Erect, from five to fifteen feet high; lower half with verticils of roots from the joints. *Panicles* oval, with numerous, long, compound, cernuous branches; *glumes* villousand fringed. *Corol* three-valved and fringed, the inner scarce awned.

Holcus cemuus. Linn. sp. pi. ed. Willd. iv. 930.

This species, (or variety of Sorghum[^] is the kind cultivated by the inhabitants of the Munipoora, Kocmkce, and other mountainous districts immediately east of Bengal. The grain is milk white; some of it was sown in the Botanic garden, during the early part of the rainy season of 1812, and in November the plants were from ten to fifteen feet high, several ramous steins arising from the same root, or grain of seed; all the joints of the lower half of the original stems which are as thick as a slender walking cane, throw out copiously verticils of roots from all the joints, the lower ones near the soil enter it, and give additional support and nourishment to the plants, which are of two, or more years' duration, if suffered to remain; the leaves are from twenty to forty inches long, by two or three broad, soft and smooth, the rib white on both sides. Panicles large, oval on the more slender branches. and in those, while in flower erect; but in such as terminate the primary stems, the form is obscure, fiftm the drooping habit of their branches. The flowers agree with those of Shorghum, except that the awn is so small and short as to be hid within the glume of the calvx; the neuter flowers are very minute, and consist of only one or two slender, villous, calv¹cine glumesi The grain of this plant is the staff of life of those wild savage mountaineers, who inhabit the above-mentioned countries, where it is one of the few articles cultivated by them. Cattle are fond of the .straw, or rather canes.

29. A. saccharatus, R.

Erect. *Panicles* verticelled, with ramifications drooping. *Calyx* hairy; *corols* awnless; hermaphrodite three-valved, neuter one-vavied.

Holcus saccharatus. Lbm. sp. pi. ed. Willd. iv. 930.

Hind, and Beng. Deo-dhan.

Is much cultivated over various parts of India during the rainy and cold seasons upon land which is too high for rice.

Root ramous. Culms erect, round, jointed, sometimes B&mous, lower joints radicating from eight to twelve feet high, three or four inches in circumference near the base. Leaves bifarious, sheathing, swoitf-shaped, margins hispid, the rest smooth, with a white nerve on the upper side, three feet long, and three or four inches broad. Sheath as long as the panicle is when young, afterwards the whole is completely bent down from the weight of the seed. Flowers paired, one hermaphrodite, sessile; the other neuter, and pedicel led.

HERMAPHRODITE FLOWERS sessile. *Calyx* one-flowered, two-valved, both valves hairy. *Corol* three-valved, the solitary valve daggered; dagger, shorter than the calyx. *Seed* oval, white.

NEUTER FLOWERS pedicelled. *Calyx* two-valved, hairy. *Corol* one-valved, awnless. *Stamens* none.

Ohs. The only circumstance that renders me uncertain whether this is *Holcus saccharatus* of Linnaeus is the total want of the arista in the hermaphrodite flowers; in other respects they agree.

30. A. laxus. Linn. sp. pi. ed. Willd. iv. 997.

Erect, from one to fifteen feet high. *Panicle* ovate, lax; *ramifications* sub-verticelled, compound and decompound. *Calyx* hairy; *corols* fringed, those of the hermaphrodite three-v^lved, and awned.

Beng. Kula-moocha.

Teling. Gaddi-janoo.

Grows in hedges, on banks of water courses, and on land that has lately been in cultivation.

Root somewhat woody, perennial. Culm near the base bending to the earth, and there rooting at the joints, the rest erect; the whole is of a firm ligneous texture, inwardly spongy, jointed, round and smooth; below naked, above covered by the sheaths of the leaves. In hedges on the banks of the rivers, &c where the soil is good, it is often from ten to fifteen feet high; while on a barren dry soil, not more than one or two. Leaves long, smooth, except the margins, which are scabrous. Panicle very large, oval, often bowing, rather thin, composed of sub-verticelled, ranftms, spreading branches, with woolly insertions; the branchlets of the branches are composed of four or six pedicelled, spiked racemes. Rachis of the spikes jointed, &c. Flowei's paired, &c. as in the other species.

HERMAPHRODITE FLOWERS sessile. Calyx two-valved; valvelets equal, hairy. Corol three valved, membranaceoup, margins fringed with hairs; the second one retuse, with a pretty long twisted arista; the inner one very small. Nectary as in the last species. MALE FLOWERS pedicelled. Calyx as in the hermaphrodite. Corol two-valved.

31. A. miliaceus. R.

Erect, from six to ten feet high. *Panicle* ample, lax; *ramifications* verticelled, expanding, or drooping. *Corol* three-valved, in both hermaphrodite and male flowers.

The seeds of this most beautiful stately grass were sent me from Lucknow, by the late Gen. Claude Martin, under the name of hill grass. It being a native of the mountains north of Oude. ft blossoms in this garden during the latter part of the rains.

Culms erect, ramous, smooth, the largest of them nearly as thick as the little fiuger, general height (in the rich soil of the Botanic garden) about ten feet. Leaves ensiform-lanceolate, soft, and smooth, except the margins, which are armed with

minute sharp bristles, pointing forward, general length from two to three feet, and from one to two' inches broad near* the base, where broadest. Sheaths smooth, except at the mouths, and there bearded^m both sides. Panicle very large,%rect, with long, slender, smooth, elegantly drooping, verticelled, compound and decompound ramification. Flowers in pairs, as.iu the genus; one hermaphrodite, and sessile; the other inale, and pedicelled. Calyx two-valved, one-flowered, oval, rather obtuse, and hairy, but without the characteristic woolly, or hairy involucre round the base of the flowers. Corol in both sorts three-valved, membranaceous, and fringed, sometimes the hermaphrodite flower is awned. Nectary two, fleshy, broad, truncated, fringed scales.

Obs. In habit this beautiful species comes near my Andropogon tumbackianus,' from the Cape of Good Hope, but is more elegant in the panicle.

SECT, IV. Panicles foliaceous.

32. A. pumilus. R_m

Erect, twelve inches high; *panicles* composed of numerous axillary, and terminal, conjugate spikes, on long, jointed sheathed peduncles. *Calyx* of the sessile hermaphrodite, flower awned, cuspidate.

A native of Coromandel, and one of the smallest of the genus.

Culms ramous, erect, smooth. Leaves rather small, particularly the floral ones, which are little more than large sheaths. Panicle composed of numerous, axillary, and terminal, conjugate, hirsute, secund spikes, elevated on slender, jointed peduncles, embraced by many delicate, chaffy bractes at the base, ami by a sheath from the joint upwards. 'Flowers in pairs on the joints of the hairy rachis, one sessile and hernia' plirodite, the other peduncled and male. Calyx two-halved, that of the hermaphrodite flower cuspidate. Corol ouevalved, an arista occupies the place of a second in the hermaphrodite flower.

33. A. parvijlorus. R.

Ascending*. Leaves linear. Panicle leafy, thin; spikelets solitary, with proper, jointed, leafy spathes; both flowers awnefl, the pedicelled one a rudiment onj[y...

A very beautiful most delicate species, a native, of pasture land up amongst the Circar mountains and \$lso of the mountains themselves.

Culms very branchy, ascending, filiform, about a foot, or a foot and a half high. Legves numerous, small, linear, rather obtuse, mouths of the sheaths stipuled. Spikes axillary, minute, peduncled, generally one or two, rarely three. Rachis jointed and waved as in the other species, but here it is smooth, except*at the insertions of the flowers. Peduncles most slender, jointed at the middle, from whence a small spathe ascends, which generally hides a part of its spike. Flowers in pairs; one hermaphrodite and sessile, the other merely the rudiment of a floret on a long clubbed pedicel.

34. A. Schcenanthus. Linn. sp.pLed. Willd. iv. 915.

Perennial, erect. *Panicle* sub-secund, linear, leafy; *spikelets* thereof paired, on a common, spathed pedicel, with proper pedicels and spathes; *flowers* of both sorts awnless, the male corol one-valved.

Sans. Malatrimtkimg, Bhoostraiung.

Seng, Gttndha-bena.

Ramacciam. Rlieed. Hort. Mai. 12. p. 137. t. 72.

Schoenanthum amboinicum. Rumph. Arab. 5. p. 181. t. 72. f. 2.

Schcenanthus, or Juncus odoratus of the *JUhteria Medica*, On the coast I have only found this elegant valuable species in a state of cultivation, few gardens being without it; I have byt twice found it in flower and both times during the rainy season.

Root perennial, young propagating-shoots issue from the axil Is of the leaves that surround a short, sub-ligneous leaf-bearing culm. Culms from five to seven feet high, erect, sim-

pie, smooth, about as thick as a goose-quill. Leave | many, near the root bifarious, few on the upper part of the culm, of a soft texture, pale, green colour, slightly scabrous on the margins when drawn backward against the fingers, otherwise smooth; from three to four feet long including their sheaths, and about three-quarters of an inch broad. Floral leaves small. Panicle linear, a little bent to one side, composed of many fascicles of spikes that are both terminal, and from tlie exterior axills. Spikes generally paired on a common peduncle, with a common boat-like spathe, or involucre at the division; each has also its proper pedicel, and both spathe-Rackis articulated, much waved, hairy. 1968rs in pairs, one hermaphrodite and sessile, the other male a^d pedicelled; the last hermaphrodite flower of each spike has two males; below, only one male, as the rachis occupies the place of the other; this is the case with* most of the species of the genus.

HERMAPHRODITE FLOWERS sessile. (r/?/me girt at the* base with wool, &c. Us in the family. *Corol* two-valved, awnless. *Nectary*, two, broad, short, wedge-formed, obliquely lobed, crenulated bodies embrace the insertions of the filaments and the forepart of the germ.

MALE FLOWERS pedicelled. Calyx* glumes as in the hermaphrodite ones. Corol one-ralved, awnless. Nectary as in the hermaphrodite. Stamens three.

Obs. The fresh leaves are much used as a substitute for tea. The white succulent centre of the leaf-bearing culms is often put into curries, to give them an agreeable flavour.

35. A. Iwarancusa. Philosophy Transact, vol. 80.284.t.16. Perennial, erect. Leaves long, and very slender. Panicles linear; spikelets paired, five jointed, with common spathes; hermaphrodite flowers awned; male one-valved and awnless.

Benty. and Hind. Ibharankwsha*, Iwarankwsha, Kwrankwsha.

Iwarancussa. Asiat. Res. iv. 109.

A native of the skirts of the northern mountains of India. Dr.* Blanc found it between the river Raptee and the mountains, and Dr. Boyd about Hurdwar; it is therefore probably a native of a very extensive tract along the skirts of that range of mountains which bounds the plains of Bengal, Bahar, Oude, &c. Flowering time the rainy season.

It grows in large tufts, each tuft composed of a number of plants adhering together by their roots.

Root perennial, the principal parts thereof are thicker than a crow's quill, and marked with circular cicatrices, from these issue many small, firm, aromatic fibres. Culms erect. generally simple; from three to six feet high, smooth in every part, not hollow, but filled with a light spongy substance. leaves, those near the root longer than the joints of the culm, margins, hispid when the finger is drawn backwards over them, otherwise smooth in every part. Panicle axillary, and terminal, or the whole may be reckoned a long linear, erect, or drooping, intercepted panicle, composed of numerous, (many of them proliferous,) fascicles of slender^pedicelled, thin spikes of five joints; each fascicle is furnished with its own proper boat-shaped spatbe, 'besides many chaffy bractes within it among the insertions of the pedicels; and a proper spathe to each pair of spikes. JFlowers on the body of the rachis paired; one awned, hermaphrodite, and sessile; the other awnless, male, and pedicelled, the terminal florets are three, one hermaphrodite, sessile, and awned; the other two male, pedicelled, and awnless.

HERMAPHRODITE. Calyx* one-flowered, two-valved, base girt with wool, as is also the rachis, and proper pedicels. Corol two-valved, and fringed; inner valvelets two-parted, with a short arista in the fissure. Nectary two, minute, leaflets embracing the germ laterally. Stamens, pistil, and seed, as in the genus.

MALE. Calyx as in the hermaphrodite. Corol one-valved; nectary and stamens as in the hermaphrodite, no pistil.

Obs. This species comes remarkably near to A. Schomanthtfs both in habit and taste.

For the virtues of the roots of this plant, see Dr. Blane's account there'of in the second part of the 80th volume of the Philosophical Transactions of the Royal Society of London; aiso Asiatic Researches, iv. p. 109. The virtues seem to reside almost entirely in the larger parts of the root, marked with annular cicatrices, the taste is agreeably aromatic, with some degree of bitterness.

36. A. Martini. R.

Perennial, erectl *Panicles* linear, sub-secund; *spzkeWts* paired, three-jointed, with common spathes only; hermaphrodite corolsof one valve, and an awn; maleawnless.

A native of the high lands of Balla-ghat. General Martin collected the seeds while there with the army, during the last war with Tippoo Sultan, and has reared abundance of it at liiicknow.

It is also now plentiful in the Compayy's Botanic garden, raised from seed sent from thence by that gentleman, whose name I have applied as a specific oue for this elegant plant.

Root perennial, with long wiry fibres. Culms erect, from three to six feet high, often ramous, smooth, filled with a spongy pith. Leaves very long, tapering to a very fine point, smooth in every part and of a soft delicate fexture. Sheaths shorter than the joints on full grown plants, with a membranaceous stipulary process at the mouth. Panicles as in A. Twarancusa; spikelets paired, but with only three joints. flowers also paired, &c. as in the former species, only there the lowermost pair on the most sessile of the two spikelets are both male, and one ot them rests upon a smooth, convex, callous receptacle instead of a pedicel. Rachis jointed, and Calyx as in A. Iwarancusa. Oro/one-valved, a long black awn occupies the place, of the other vhich has too small filaments near its base. Nectary, &c. as in the foregoing species.

*

Obs. General Martin, who sent me this grass from Lucknow, writes to the following effect:—

" I took particular notice of a sort of long grass which the cattle were voraciously fond of, which is of so strong an aromatic and pungent taste, that the flesh of the animals, as also the milk and butter, have a very strong scent of it. Of thi* grass I send you a small stalk, some roots, and seed; if you taste the latter, though old, you-will find it of a very pungent aromatic taste."

PASPALUM. Schreb. gen. N: 81.

* "Calyx one-flowered, two-valved, valvelets rounded, equal. Corol of two valves, and like the calyx. Seed adhering to the corol.

I. P. scrobiculatvm. Linn. sp.pL ed. Willd. i. 330.

Spikes axillary and terminal, sessile, alternate, erect. Flowers alternate, in two rows, or crowded, smooth. Calyces from three to five-nerved. Culms erect, two feet high, smooth. Seed round, smooth.

Sans. Korodoosha, Kodreva.

Beny. Koda.

Hind. Koda-ka-choul.

Teling. Aruga.*

This is cultivated by the natives over many parts of India. It delight* in a light, dry, loose soil, but will grow in a very barren one. Time of cultivation the rainy season.

Root fibrous. Culms erect, ramous, jointed, smooth; about two feet high, involved in the sheaths of the leaves. Leaves sheathing, bifarious, longer than the culm; every part smooth. Sheaths longer than the joints, often embracing the spikes like a 'spathe. Spikes axillary and terminal, from two to four alternate, sessile, erect, secund. Rachis broad, inembranaceous, with a waved keel on the inside. Flowers ova), alternate, in two rows; in luxuriant plants the flowers

are crowded without order. *Calyx*; *exterior* valve three-nerved; *interior* valve five-nerved. *Seeds* brown, smooth, size of those of hemp.

Obs. The seed is an article of diet with the Hindoos, particularly with those who inhabit the mountains and most barren parts of the country, for it is in such countries only where it is cultivated, it being an unprofitable crop, and not sown where others more beneficial will thrive. I have eaten of the boiled grain, and think it as palatable as rice.

2. P. Kora. Linn. sp. pi. ed. Willd. i. 332.

Spikes terminal, alternate; flowers alternate, in two rofrs, smooth. Calyces from three to five-nerved. Culms below procumbent, from one to eight feet high.

P. orbiculare. I?orst. prodr. JV*. 35.

Hind. Kodu.

Teling. Neer (i. e. water) Aruga..

A native of the borders of water courses.

Root fibrous, annual. Culms resting on the ground near the base, above ascending, branchy, jointed, smooth; from one to three feet long. Leaves as in P. scrobiculatum, but shorter. Spikes generally two, or three, though in very luxuriant plants I have seen seven or eigfet, terminal, sessilfe, horizontal, and erect, the rest as in the last described species.

Obs. Cattle are very fond of these two species, whether green or dry.

3. P. longiflorum. Linn. sp. pi. ed. Willd. i. 332. Retz. Obs.iv.lb.

Spikes paired, terminal, horizontal. Calyces oblong, obtuse, smooth. Culms creeping.

Teretu-pullu. Rlieed. Mai. 12. p. 81. t. 44.

Paspalum longiflorum. Retz. Obs. iv.p. 15.'

A native of low pasture ground. Compare it with P, *distichum*. *Linn*. *sp.pL ed* Willd*. i. 322.

Hoot creeping- Culms creeping, with their extremities

ascending six or eight inches high, jointed, smooth. *Leaves* sheathing, alternate, bifarious, short; mouths of the sheaths bearded. *Spikes* paired, terminal, sessile, spreading, secund. *Flowers* in two rows, alternate, oblong, somewhat paired, smooth* *Calyx* and *corol* without nerves.

4. P. longifolium. R.

Erect, simple. *Leaves* as lqpg as thfrculms. *Panicle* of many simple, alternate, diverging spikes scattered round a three-sided rachis. *Valvelets* of the calyx three-nerved. *Seed* oval, lucid, and marked with minute pits.

Of what country this is a native is uncertain. It appeared in the Botanic garden in 1807, in a place where plants from Sumatra had been planted, it is therefore more than probable that the seeds were in the earth.

Culms several from one root, simple, straight, jointed, nearly erect, round and smooth, height of the whole plant when in flower above three feet. Leaves long, viz. froiu one to three feet, sheaths included, slender, acute, smooth, except the edges when rubbed backward. Shmaths longer than the joints of the culm, and smooth, except at the top, where there are a few, long, soft hairs near the short scariose lio-ula. Panicle composed of rom twelve to twenty-four, simple, diverging spikes, scattered alternately round a three-sided rachis, nearly a foot in length. Spikes sessile, with a few, long, straight, white hairs round their insertions, about three inches long. Machis flat, with a waved keel on the underside, and coloured, waved margins. Flowers in numerous, alternate, imbricated pairs on the underside of the flat rachis, on unequal, short pedicek. Calyx of two, very equal, oval leaflets with a nerve or rib round the margins, and one down the middle. Seeds oval, dotted with innumerable, small pits, shining.

LAPPAGO. Schreb.gen. N. 13JL

Calyx from two to three-valved. Corol two-valved, resupine.

L. bi/lora. /?.

Culms creeping. Pedicels two-flowered; inner valvelets of the calyx armed Vith hooked bristles.

Pkalaris muricata. JForsk. descript. 202.

It is a small, prostrate grass, a native of the dryest pasture ground on the Coromandel coast.

Culms pressing on the earth, and striking root from the joints, from six to twelve inches long, ramous. JLeaves short, margins ciliate, and waved; mouths of the sheaths bearded. Racemes terminal, simple, from one to two inches long. Pedicels short, diverging, two-flowered. Flowers lanceolate, echinated on the back, or outside, diverging* on all sides round the rachis, which is waved, angulaF, striated, and downy. Calyx one-flowered, two-valved; the exterior valve very minute, second or inner valve, (for there is no other,) lanceolate and completely embracing the corol on all sides, on the back and sides covered with many, strong, hooked bristles. Corol two-valved, membranaceous. Nectarial scales large. Stamens, pistil, &c. as in the genus.

PANICUM. Schreb. gen. N. 107.

Calyx, glume one or two-flowered, tbree-valved; exterior valvelets minute; seed adhering to the corol.

SECT. I. Spikes simple.

1. P. indicum. JUant. 184. Retz. Obs. 11.p. 9.

Culms from Tour to eight inches, ascending from a repent base. Spikes sub-cylindric, naked. Calyx smooth, no involucres.

P. conglomeration. Linn. sp. pi. ed. Willd. i. 341. does not agree with our plant in having cylindrical spikes with flowers equally disposed on all sides. This is a very small species, a native of Coromandel.

2. P. barbatum. R.

Culms from three to five feet high; very ramous at top. Leaves lanceolate. Spikes simple, cylindric. Involucrets simple, and bearded, surrounding on every side a single flower; seed smooth.

This species sprung up in beds, in the Botanic garden where earth had been thrown that came from Sumatra, or Amboyna. Compare with P. polyslachyon. Linn. sp. pi. ed. Willd. i. 335.

Root annual in Bengal. *Culms* erect, about five feet high, simple, till near the top, there very ramous. Leaves lanceolate, often a foot and a half long, hispid on the margins, otherwise smooth; the sheaths about half the length of the joints, with a few single hairs at the mouth. Spikes terminal, and solitary (though from the numerous ramification of the top of the culms the whole may be called a large leafy panicle) subcylindric, about three or four inches long. Involucrets of two sorts, the longest about twice the length of the flowers with their lower half bearded, hence the specific name, which for the same reason is also applicable to my Panicum holcoides,) the innermost one is in this species about double the •length of the other five, six, or sev^n; all are of a reddish brown colour from the bearded part to the point. The other sort of inirolucrets are simple and about the length of die flowers. The two sorts surround on all sides a single flower. Calyxone-flowered, exterior valve very minute. Seeds smooth, slender and pointed.

Obs. It differs from my P. holcoides in the culms being very ramous at the top only, and in the leaves being lanceolate; from polystachyon it differs, I think, in having two

sorts of involucrets equally disposed round the flower, and iu the leaves being- lanceolate and smooth.

3. P. spicalum. R.

Erect. Spikes cylindric." Involucres hairy, surrounding from one to three awnless polygamous flowers. Calyces two-valved, both shorter than the corol, the inner longer and retuse.

Holcus spicatus. Linn. sp. pi. ed. Willd. iv. 928.

Gramen paniceum. Pluck. &c« aim. t. 32. f. 4. good.

Hind. Bttjera, or Bt/jra.

Pedda-Gantee is the Telinga name of the plant, and Gantz-Ioo, the grain.

I have only found this in a cultivated state. It is sown about the beginning of the rains, viz. the end of June, and the beginning of July, and is ripe iu September.,

Culms several, if the soil is good, from the same grain of seed, erect, with roots from the lowermost joint or two, round, smooth, from three to six feet high, and nearly as thick as the little finger. Leaves alternate, sheathing, broad and long; mouths of the sheaths bearded. Spikes or rather racemes, terminal, cylindric, erect, as thick as a man's thumb, or more, and from six to nine inches long. Pedicels generally two-flowered, though sometimes only one and sometimes as many as four. Flowers surrounded with many, woolly, hispid purple bristles or involucres, about the length of the flower. Calyx two-flowered, one hermaphrodite the other male, two-valved; exterior valvelet minute, interior nearly as long as the corol, ret use, both awnless. Corol of the hermaphrodite flower two-valved, of the male one-valved. Style Stigma two-cleft, feathery. Seed obovate, pearl-cosingle. loured, smooth.

Obs. It agrees perfectly well with our Indian species of *Pameuniy* on that account tyave transferred it to that genus.

- *This* spectes is much cultivated over the higher lands oa the coast of Coromandel. The soil it likes it one that is loose and rich; in such it yields upwards of an hundred-fold, the same ground will yield a second crop of this or some other sort of dry grain during October, November, December, and January.

JThe Hindoo fanner knows four other varieties of this species, all of which he cultivates. Their Telinga names are 1st. Pitta (birds) Gantee; 2d. Munda-boda-Gantee; 3d. Pallaboda-Gantee; and 4th. Yerra-Gantee.

Cattle are fond of the straw, and the grain is a very essential article of diet amongst the natives of these parts.

4. P. involucratum. R.

TRIANDRIA

Erect. Spikes cylindric, numerous, scattered, two-flowered, alternately longer and ciliate; shorter and smooth. Calyces two-valved, the exterior one minute, the inner one shorter than the corol, and emarginate.

A native of mountains chiefly, where it grows wild.

Culms as in the last species, from two to four feet high; joints woolly. Leaves, mouths of their sheaths bearded. Spikes us in P. spicatum, but the pedicels smaller, two-flowered. Involucre, many bristles surrounding on all sides the flowers; they are of two sorts, simple ones awled, the longer ones with fringed margins. Calyx one or two-flowered; valvelets as in the last species. Corol when there is only one to the calyx it is hermaphrodite, when two, one hermaphrodite, the other male, as in the last species. Styles two.

Obs. I know of no use this is put to at present; it may be Panicum spicatum in its wild state, though it is more like my Panicnm li§lcoides in its present wild state.

5. P. glaucum. Linn. sp. pi. ed. Willd. i. 335.

Culms erect, from one to three feet high; involucel one bundle of hairy bristles, one-flowered. Flowers generally Seed transversely fpgose. polygamous.

Beng. Pingi-natchi.

Teling. Naka-lera.

This species is generally found on cultivated lands, growing amongst the different sorts of small or (Jry gr^in.

Root fibrous. Culms sometimes near the base resting on the ground, and striking root; the rest erect; ramous, smooth, a little compressed; from one to three feet high. Leaves sheathing, nearly bifarious, smooth; mouths of the sheaths hairy. Spikes terminal, columnar, from two to six inches long. Flowers solitary, or joined to the rudiments of one or two more, short-pedicelled, numerous. Involucels longer than the flowers, consisting of one bundle of hairy bristles which issue from the middle of the underside of the pedicel. Calyx generally two flowers, in which case one is male, the other hermaphrodite, with its corol, as in the family. The male corol consist of one membranaceous glume between the inner valve of the corol and inner glume of the calyx, it has three stamens only.

Obs. It may probably be P. helvolum of the Supplement tupi Plant arum, 197.

In India we have two or three varieties of this coarse grass. Can any of them be *Alopecurtis indicus*? The small reddish one comes very near it.

6. P. holcoides. R.

Erect. *Involucels* numerous, scattered, one-flowered, alternately one longer and woolly, and another shorter and smooth; *flowers* sometimes polygamous. *Seed* oblong, smooth, resembling a small grain of common oats.

Seng. Swat?.

Grows, with the former, on cultivated lands, but chiefly up amongst the mountains.

Root fibrous. Culms erect, ramous, from two to four feet high, round, smooth. Leaves sheathing; sheaths half the length of the joints; mouths bearded. Spikes as in P. glaucum₉ but larger. Flowers solitary, short-pedicelled, without order. Involucels numerous, bristles entirely surrounding the flower; of two sorts, the largest twice the kngth of the flow-

er, and woolly from the middle down, the other sort are smaller, and without wool or hair. *Calyx* one or two-flowered, as in the last; exterior valve minute, the other two as long asthe corol, of which the apex of the exterior one is somewhat tHtee-toolhed. *Seed* smooth, very like common oats, but smaller.

Obs. It differs from P. Polystachyon in having the involucels scattered round the pedicels and flower. It may therefore be Rumph's gramen caricosum, vol. vi. t. l.f. 2. A.

7. P. interryptum. Linn, sp. pi. ed. Willd. i. 341.

Culms above water erect. Spikes simple, cylindric; flowers crowded, smooth, polygamous; seed smooth.

Beng. Nardwla.

Teling. Wolam.

A very large species, grows in deep standing water.

Culms ramoiis, those parts under the water swelled, as thick as the little finger, with many fibres from the joints; the parts above the water erect, about as thick as a common quill, from two to four feet .high, smooth, involved in the sheaths of the leaves. Leaves, sheaths longer than the joints, smooth. Racemes or spikes simple, erect, columnar, from four to six inches high. Flowers small, oval, pedicelled, numerous, generally many, from nearly the same place. Involucre entirely wanting. Calyx two, inner glumes striated, from six to seven-nerved. Carol, the small flower is present here. Seed oblong, smooth, shining, white.

8. P. cnrvatum. Linn, sp.pl. ed. Willd. i. 352.

Culms erect. Spikes curved ; flowers crowded, smooth, hermaphrodite; seed smooth.

Grows about the borders of lakes.

Culms numerous, ramous, erect, as thick as a crow's quill; from two to three feet high, smooth. Leaves numerous, very long, slender, and smooth. Racemes, or spikes columnar j lower part somewhat ramous; branchlets ad pressed. J?lowers

numerous, covering most completely every part of the racemes, pedicelled, oval. *Calyx*, two inner glumes striated. *Carol* no neuter, only one hermaphrodite. *Seed* smooth, shining, white.

Obs. This may be only a variety of P. interruptum.

9. P. dimifliatum. Linn. sp. pL ed. Willd. i. 339.

Spikes secund, jointed; joints excavated, daggered on alternate sides of the apex, from one to five-flowered. Calyx two-flowered, one hermaphrodite, the other male.

A native of the Peninsula of India, scarce.

Culms short, oblique, smooth; whole height from six to twelve inches. Leaves slender, smooth, obtuse, rather broad Spikes solitary, secund, jointed, smooth, toward the apex. from three to five inches long. Joints of the rachis from eight to twelve, rigid, excavated for the reception of the flower, except the lower one or two, which are longer; in all except these a long sharp point or dagger proceeds from the apex, on the alternate sides of the articulation. Floivers lodged in the concave joints of the rachis, on very unequal pedicels, the lowermost having each three or more, while those about the middle of the spikes have uniformly two, and the last two or three only one. Calyx two-flowered, two-valved : flowers both sessile, one hermaphrodite, the other male; valves unequal, the exterior one smaller; the inner one about as long as the valve of the corol, or it may be described with three valves as in the genus; but then the male flower will have but one glume. Corols two-val ved; valves nearly equal, those of the male flower much firmer, the sides of the exterior Ol*e (which may be called the inner valve of the calyx, if it he allowed, to have three), with the sides bent in at right an-Stamina three. Germ in the hermaphrodite flower obgles. long. Style undivided for a short distance. Stigma plumose. Seed oblong, dark brown, dotted; on the anterior side near the base is an oblong elevated mark.

Obs. Dj. Rottler, of Madras, an excellent Botanist, obliged

me with the only specimens of this rare grass which I have yet met with, and had he not informed that this was considered to be P. dimidiatum I should have been inclined to have taken it for an Ischaemum.

SECT. II. Spikes paired.

10. P. conjugatum. R.

Spike* conjugate, secund. Flowers solitary, sessile, awnless. Corol, with an accessary neuter valve.

A slender, soft, villous, half creeping species; a native of Coromandel. It differs from P. *dislachyon* in the number of the spikes being constantly two, and the flowers always solitary and sessile. To these marks of distinction may be added that the valves of the calyx are three-nerved, and the accessary one particularly large.

11. P.- squarrosum. Linn. sp. pi. ed. Willd. i. 345. Retz. Obs. iv. 15. and v. /. 1.

Culms creeping, from ten to twenty inches long'. Spikes paired, horizontal, rachis articulate; flowers in a fascicle on the upper end of each joint of the rachis.

Cenchrus muricatus. Mant. 302.

P. dimidiatum. Bvrm. Ind. 25. t. 8.y. 2.

A native of dry sandy ground near the sea.

Culms branchy, creeping, with their flower-bearing extremities sub-erect; from ten to twenty inches long. Leaves short, but rather broad, and covered with soft hair; sheath large, downy, involving most of the culm*. Spikes two, terminal, spreading, horizontal, or ascending like a pair of horns, secund. Rachis composed of from fourtoeight, oblong joint*, divided by a waved ridge; on each side of the ridge membranaceous. Flotcers collected in sessile bundles of from four to eight, alternately disposed on the upper end of each joint. Calyx, the exterior one minute, and lanceolate; the second WgB, embracing loosely the corol, pointed, and striated; the inner one nearly as small as the exterior^tapering

from the base to a fine point, three-nerved; margins fringed, of a chaffy texture. *Corol* as* in the genus, and rather longer than the inner glume of the calyx, here is a third neutral nieinbranaceous valve, as in many species of this genus.

SECT. III. Spikes fascicled.

12. P. Dactylon. Linn. sp. pi. ed. Willd. i. 342.

Smooth, creeping. *Spikes* digitate, secund, corol gibbous on one side, and twice as long as the calyces.

Agrostis linearis. Linn. sp. pi. ed. Willd. i. 375. Retz. Obs. iv. JV. 51. Sir W. Jones. Asial. Res. iv. p. 248.

Sans. Doorva, Shutttpurvika, Stebttsrnveerya, Bharguve£, Ourooha, Ununta.

JBeng. Doorba.

Teling. Gherfcha.

Tarn. Arugam-pilla.

This is by far the most common and useful grass in India. It grows every where abundantly, and flowers all the year.

Root creeping. Culms creeping, with their flower-bearing branchiets erect, from six to twelve inches high, smooth. Leaves small, and smooth.' Spikes from three to five, terminal, sessile, filiform, expanding, secund, from one to two inches long. Rachis waved. Flowers alternate, single, disposed in two rows on the underside. Calyx much smaller than the corol. Corol₉ the large or exterior valve boat-shaped, keel slightly ciliate. Stigmas villous, purple.

Obs. This most valuable grass forms three-fourths of the food of our horses and cows in India. It is by the brahmim* of the coasts held sacred to Gunesha, (the Janus of. the ancients,) under the mime of DoorwalL •

13. P. aegyptiacum. Linn. sp. pi. ed. Willd. i. 343.

Creeping at the base. Spikes from four to eight; corymbed, smooth. Flowers paired on unequal pedicel*; accessary

valve of the calyx minute or wanting, the other two very unequal, nerved, and ciliate on the margins only.

Obs. is rather a scarce grass in India, and grows in tufts. Cattle do not seem fond of it, whereas all are fond of Dactylon.

14. P. ciliare. Linn. sp_m pi. ed. Willd. i. 344.

Culms creeping at the base. Spikes sub-digitate. Flowers paired, one sessile, the other pedicelled; inner two valves of the calyces equally long, and bearded with four woolly ridges; third minute.

Hind. Makwr-jalee.

Teling. ShangaK-gaddi.

It delights most in newly laid down pasture ground.

Culms creeping, with one or two feet of the extremities erect, these ramous, round and smooth. Leaves sheathing, short for the size of the grass; margins ciliate near the base; sheaths sometimes a little hairy, sliorter than the joints of the culm, their mouths rise above the insertion of the leaf, stipule-like, as in Dr. Smith's Erharta calycina, but here it is entire. Spikes or rather spiked-racemes, from four to ten, digitate, expanding, secund. Flowers paired, one sessile, one peduncled. Rachis three-sided, waved. Calyx, exterior valve most minute. Interior two, many-nerved, four of the nerves are clothed with very long, white, soft hairs.

Obs. Small plants on a poor soil, have much the appearance of Agrostis radiata. Cattle are very fond of this grass.

Yb. 'V.filiforme. Linn. sp. pi. ed. Willd. i. 343.

Creeping, filiform, smooth. *Spikes*, from two to four, subdigitate, filiform, secund; *flowers* paired, one sessile, the other pedicelled. *Calyx* with the accessary valve, minute; inner one half the length of the corol or middle one; these last two are three-nerved, and villous on the margin.

From Chi»a it was brought to the Botanic garden, where

it thrives well, and blossoms the whole year, but chiefly during the rains.

Culms ramous, creeping', very delicate, and smooth, a large portion next the spikes erect, naked, coloured and filiform.

-Leaves soft and small, ciliate, with a few long hairs at the base. Spikes generally from two to four issuing from the same point, very slender, secund. Rachis flexuose. Flowers

*n a pair, one sessile. Calyx one-flowered, flower hermaphrodite; accessary valve exceedingly minute, but by careful observations may always be found; second valve as long- as the corol, the inner one only half their length, which is one of the best specific marks; these two have three smooth nerves on the back, and their margins are slightly bearded. Corol two-valved.

16. P. lineare. Linn* sp. ph ed+ Willd. i. 344.

Sub-erect, smooth. *Spikes* from two *to* six, digitate, filiform. *Flowers* all hermaphrodifg, awnless, and pedicelled. *Calycine* valves, the accessary one minute; the inner two. Equalling the corol, and three-nerved.

t\ lineare+ Bnrm. Ind. p. 25. t. 10../I 3, is a tolerable representation of this pretty delicate ^rass.

A native of China, accidentally introduced from thence into the Botanic garden, where it is in flower the whole year; but like most other grasses most luxuriant during the rains. It has a great resemblance to P. dactylon₉ ciliare₉JHifbrme₉ and ae9ypticum₉ but does not creep like them. The flowers are less regularly paired, more minute, smooth, and obtuse, the two inner valves of the calyx equal and as long as the corol, and the accessary one very minute, or not to be found.

17. P. cimicinum. Linn. sp. pi. ed. Willd* i. 344.

Culms erect, hairy, from one to two feet high. Racemes P'Auheled, corymbed of flowers polygamous, in pairs; exterior valvelets of the calyces fringred: corol awned.

Milium cimicinum. Mant. 184.

A rare plant, native of ground that has been lately in cultifeation.

Corol, the arista is sometimes wanting, and its valves-three-nerved; in mine there is a se-4E-nd, or male floret, as in many species of Panicum.

18. P. corymbosum. R.

Sheaths of the leaves bristly. Spikes numerous, corymbed. Calyces two-valved. Seeds oblong, smooth.

Teling. Cheepa-bora-gaddi.

This species I have found only in the vallies amongst the Circar mountains; it grows to a great size in standing sweet water.

Culms of great extent, creeping, or floating, with their extremities erected above thp water; on dry ground I have also found it, where it is in general from one to four feet high. Leaves as in other grasses; sheaths covered with stiff white hairs. Spikes corymbed, numerous; from four to eight inches long, filiform, sub-erect, secund, level-topped. Rachis, common striated; partial three-sided. Flowers oblong, in two rows, paired; one very short pedicelled, the other longer. Calyx two-valved; the exterior valve small, the other as large as the corol, and striated, but no third or inner valve. Corol as in the family. Seed oblong, smooth, white.

SECT. IV. Spikes alternate on eke side only of a common rachis.

19. P. brizoides. Linn. sp. pi. ed. Willd. i. 338. Culms sub-erect. Leaves short. Spikelets remote, ad press-

cd. Flowers oval, solitary, polygamous; inner two valves of the calyx equal; nectarial petals long; seed ovate, pointed, rugose.

P. flavidum. Linn. sp. pi. ed. Willd. i. 339. Retz. Obs. >v. 15. appears to be the same plant growing on a barren soil; this was the opinion of König. "P.Jlacidum of the Banksian Herbarium seems the same, or a variety only.

Teling. Oda, or Woodoo-gadd?.

It is common in every soil and situation, even in deep water; in one that is rich and moist, it is often two to four feet long, and again on one that is dry and barren only as many inches. It grows in tufts, various parts of it are often tinged purple.

Culms near the base resting on, the ground, and rooting above, regularly ascending, compressed, smooth. Leaves bifarious, smooth, their length differs much; mouths of the sheaths bearded. Spikes compound, secund, their length various according to the size of the plant. Spikelets secund, number very various, alternate, erect, pressing on the common rachis; below they ju*e often two or three times their length from each other; above less remote. Rachis common, somewhat three-sided, and a groove on the outside where the spikelets rest. Flowers always disposed in two rows, sub-globular. Calyx two-flowered. Inner valve the size of the corol, middle valve rather shorter;"all are striated with green nerves. Corol, one hermaphrodite, and one male, as in some of the species already described, always present, except in very minute plants, and even then the stamens of the second floret are only sometimes wanting. Nectaryv in each two dbovate scales. Seed short, oval, pointed, slightly rugose.

20. V.Jlnitans. Linn. sp. pi. ed. Willd. i. £38.

Culms from two to three feet high, creeping at the base. **Leaves** long? Spikelets numerous, approximate, longer than the interstices. Flowers hermaphrodite, oblong, two exterior ralvelets of the calyces minute; seed oblong.

Beng. Peti-nar.

Teling. Doosa.

Delights in a moist rich soil, such as the banks of water* courses, borders of rice fields, &c.

Culms at the base creeping, above nearly erect, round, smooth, from one to four feet long, including the part that rests on the ground. Leaves smooth, except about the mouths of the sheaths where they are bearded, and sub-ciliate. Spike compound, secund, exceedingly like that of P. brizoides, only here it is generally longer, with often as many as twenty-five or thirty spikelets; their distance from one another is not so regular and is generally less than their own length. Flowers disposed in two rows on the outside of the spikelets, which are oblong. Calyx one-flowered, the two exterior valves very small. Seed oblong, pointed, rugose.

21. P. lanceolatum. Linn. sp. pi. ed. Willd. i, 337.

Culms creeping. Leaves lanceolate, mouths of their sheaths elevated and bearded. Flowers hermaphrodite; valvelets of the calyces equal, the exterior one awned. Seed smooth, oblong.

P. aristatum, of the same author, seems the same grass.

Compare with P. compositum. Linn, sp.pl. ed. Willd. ii 346. In the Banksian Herbarium the same species is labelled P. unguinosum. Grows under the shade of trees.

Culms creeping, ramous, with their extremities, from one to two feet high, sub-erect. Leaves lanceolate, waved, often tinged with purple; sheaths shorter than the joints, hairy; mouths elevated, stipula-like, and hairy. Spikes composed, secund; from six to twelve inches long. Spikelets alternate, somewhat remote, secund, direction between expanding and adpressed. Rachis, common and partial three-sided. Flowers generally paired, one sessile, the other short-pedicelled; insertions often surrounded with hairs, when single there is an awn, or the rudiments of a second floret accompanying it.

Calyx, the exterior glume as large as the next within it,

and ending in a long waved, purple awn; exterior glume rather longer. *Coroi* no *neuter*, nor *male* floret. *Seed* oblong', smooth, slightly three-nerved.

Obs. Cattle are not fond of it.

22. P. Burmanni. Linn. sp. pi. fid. Willd. i. 339. Retz. Obs. iii. JV. 16.

Culms creeping. Leaves lanceolate, hairy; flotoers hermaphrodite; all the valvelets of the calyces hairy, and awned. Seed slender, smooth, pointed.

P. hirtellum. Burm. Jnd. 24. U VZ.f. 1.

Hippogrostis amboinica. Humph. j3mb. iv. p. 14. t. 5.y. 3.

This species is always found on pasture ground, under the shade of large* trees.

Culms creeping, branchy, with their extremities erect. Leaves sheathing, lanceolate* waved, hairy; sheaths half the length of the joints; very hairy. Spikes compound, secund, erect. Spihelets from four to eight, alternate, secund, adpressed. Rachis, common and partial, three-sided. Flowers generally paired; one sessile, the other pedicelled. Calyx, the two exterior glumes are hairy, and have long awns, that of the inner is shorter and smoother.

23. J*.stagnimum. Linn, sp.pl. ed. Willd. i. 337.

Culms from one to four feet high. Leaves smooth. Flowers polygamous, three-fold, sub-sessile. Calyces hairy, and hispid; inner valvelets awned.

Beng. Dul.

Teling. Pedda-woondoo.

Delights in wet, cultivated, paddy lands.

Culms, towards the base resting on the ground, and striking root; above erect, which part is from one to four feet high. Leaves smooth, soft, with only the mouth of the sheaths ciliate. Spikes compound, secund, erect. Spikelets alternate, sessile, secund, expanding a little. Rachis, both <*>inmon and partial three-sided. Flowers, very numerous;

three-fold below, above in pairs, all sessile, or nearly so; their insertion surrounded with small bristles, involucre-like. *Colyx*₉ only the inner valve awned, all striated, hairy and hispid. *Coral* complete; *male* florets, besides the usual hermaphrodite one.

Obs. This is a coarse species. Cattle are not fond of it.

24. P. crus corvL Linn. sp. pi. erf. Willd. i. 337.

Culms creeping at the base. Leaves downy. Spikes from six to ten, three times longer than their interstices. Calyces downy. Carol three-valved. Seed oblong, obtuse, smooth.

A middle-sized, delicate, rare species, found on pasture ground. Culms*filiform, creeping at the base* above nearly erect. Leaves soft, downy; sheath hairy. Spikes compound, secund, from one to three inches long. Spikelets from four to twelve, alternate, ad pressed, secund, about three-fourths of an inch long; sometimes there is a very small ramification at the lower part of one or two. Rachis common, two-furrowed; partial, three-sided, downy. JFlotoers paired or single, in two rows; both pedicelled; pedicels hairy, of unequal length, but both short. Calyx striated, very downy, Corolo the neuter valve is here present. Seed oblong, smooth, Shining white.

25. P. cohmum. Linn. sp. pL erf. Willd. i. 338.

Culms creeping at the base. Spikes from six to ten, short. Flowers three-fold, sub-sessile. Glumes of the calyces three-nerved. Corol three-valved. Seed roundish, smooth, three-nerved.

Beng. Shaina. There is a reddish variety, called Lat-shama.

Teling. Woondoo-gaddi.

Delights in rich pasture ground.

Culms, below resting on the ground, and rooting; above sub-erect, that part is from one to two feet high, branchy, 9

little compressed, smooth. Leaves tending to be bifarious, short, smooth, tapering from the base to a sharp point. Spikes compound, secund. Spikelets, from six to twelve, alternate, somewhat remote, secund. Rachis both common and partial three-sided; the two sides from "whence the spikelets issue concave. Flowers two or three from the same point, generally three; all sessile, or very nearly so; sometimes a few small bristles mixed with them. Calyx as in the genus, all the glumes three-nerved, a little hairy, and scabrous. Corol, the neuter valve is here present, but no stamens. Seed broad* oval, smooth, a little pointed, three-nerved.

Obs. Cattle are very fond of it, yet it is not cultivated in these parts.

26. P. grossarium. Linn. sp. $pL ed_m$ Willd. i. 349.

Culms creeping. Leaves soft and downy. Spikes from sik to ten ;jl<ncers solitary, sub-sessile. Corol three-valved. Seed oblong, acute, transversely rugose.

Loves fresh pasture ground.

Culms, in a good soil creeping to a great length, in a poor soil nearly erect. Leaves, tapering from the base to a fine point, someMhat downy, and very soft. Spikes compound, secund. Spikelets from four to twelve, alternate, secund, expanding on one side, most simple, in two rows. Calyx' pretty smooth. Corol, the neuter valve is always present. Nectary a rugose gland between the germ and exterior valve of the corol. Seed oblong, white, slightly rugose in a transverse direction.

Obs. The form and rugosity of the seed distinguish it from the colonum, the flowers also are here single, there two or three from the same point.

27. P. umbrosum. Linn. sp. pi. ed. Willd. i. 343.

Culms, at the base creeping. Leaves soft. Spikes, from to ten | flowers paired on a common pedicel. Corol three-

valved. *Seed* ovate, longitudinally streaked, and transversely rugose.

This is also a native of pasture ground, but chiefly that which is shaded. It is exceedingly like the last described species.

Culms creeping, &c. as in the last. Leaves also the same. Spikes, the same as in P. grossariunu Spikelets or rather racemes, the lower one or two sometimes branchy in luxuriant plants. Rachis, common, striated; partial three-sided, and downy. Flowers, the inferior ones in pairs, upon a short, common pedicel; besides, having their partial pedicels, one of which is nearly as long as its flowers; above they are often single, and somewhat remote; hairs surround the insertion of all. Calyx hairy. Corol, the neuter valve is here present. Seed ovate, a little pointed, rugose, like that of the last species.

Obs. The chief character consists in the lower flowers of the racemes being paired on a common peduncle, with pedicels of very unequal lengths and hairy involucres.

28. P. cvspidatum. JR.

Creeping near the base, wholly smooth. *Leaves* linear, without ligula. *Spikes* compound, secund; *spikelets* adpressed, secund. *Flowers* from one to three, equally sub-sessile, all hermaphrodite; *valves* of the calyx three-nerved, and cuspidate. *Seed* cuspidate.

A native of Bengal. Found in a rich moist soil, in flower and seed in April.

Culms, numerous in luxuriant tufts, creeping near the original root, then ascending to about two feet in height, ramous, smooth. Leaves ensifbrm, smooth, with coloured margins. Sheaths shorter than the joints, smooth, and completely destitute of ligula. Spikes compound, secund, slightly recurvate, with the secund spikelets on the convex side pressing, on the common, three-sided, hispid rachis; often of a dull purple colour. Flowers, from one to three together, and equally sub-sessile. Calyx, all the glumes three-nerved, and

cuspidate, and generally armed with a few minute bristles. *Corol* three-valved; the third or accessary one membranaceous, and neuter. *Seeds* ovate, smooth, cuspidate.

SECT. V. Spikes alternate on all sides of a common rachis.

29. P. setigerum. Linn. sp. pi. ed. Willd. i. 3J38.

Culms, below creeping, sub-ligneous. Leaves with cordate base and ciliate margins. Insertions of the spikelets fxwdjlowers bristly. Corol three-valved. Seed oval, transversely rugose.

Beng, Bwra-jal-gant/,

P. setigerum. Retz. Obs. iv. 15.

Grows amongst bushes or under the shade of trees.

Culms long, straggling*, rooting when they rest on the ground, firm, almost woody towards the base, but small, and 'ery smooth; joints downy. Leaves sheathing, broad-cordate at the base, tapering from thence to the point; margins cili-3te, and waved; mouths of the sheaths bearded. Spikes compound. Spikelets from four to twenty, secund, spreading, disposed equally on all sides. Racing common four, five, or six-sided, partial three-sic^pd. Flowers paired; pairs alternate, in two rows, one sessile, one pedicelled, intermixed with many long strong hairs, like an involucre. Cah/ar, the two intier glumes downy and striated lengthways with many green Serves. Carol, the neuter membranaceous, valve always pre-tot, but no stamens. Seed oval, transversely rugose.

Obs. When exposed to the weather, the leaves are of a staooth shining deep green, when under trees, of 3 pale colour, soft, and somewhat downy, which made me long think they were different species. Cattle are fond of it.

30. P. repens. Linn., sp. pi. ed. Willd. i. 347.

'Creeping. Leaves broad, waved, base cordate, stem-clasp- ln \S > and ciliate. Spikes from four to ten, equally disposed en

all sides. Flowers awnless; involucre hairy. Corol three-valued.

P. repens. Burm. Ind. /. 11-^/1 1. is like this, only the partial spikes are rather too long-, and the leaves too narrow.

Common about the beginning- of the rains on cultivated lands, in gardens, &c. near Calcutta. It is a pretty, cespitose species which cattle are fond of.

Culms, creeping to the extent of from one to two feet, geniculate, smooth, often coloured. Leaves lanceolate, base cordate, stein-clasping, and ciliate. Sheaths shorter than the joints, somewhat hairy. Spikes from four to ten, small, short, sessile, secund, equally inserted on the four or six-sided, villous rachis. Flowers generally paired, and both unequally pedicelled, with an involucre of long soft hairs on the outside of the pedicel. Calyx; exterior valve minute, and truncate; the inner two equal, five-nerved. Corol, with neuter valve.

31. P. hirsutum. K'dn.

JLeaves broad lanceolate, with cordate, stem-clasp ing' base, waved, ciliate, and hairy. Flotcers polygamous, solitary, sessile. Seed ovate, transversely rugose.

Hind. Jal-gant?.

Teling. Salla-woodoo.

Is found on the borders of cultivated land, on pasture ground, &c.

Culms, spreading at the base; resting on the ground and rooting; above ascending *, joints downy. Leaves broad, base cordate and ^embracing the culms, much waved, hairy, with the edges ciliate; sheaths also hairy with a thick beard round the mouths. Spikes composed of six or twelve, simple, alternate, secund, expanding spikelets, surrounding a common, four or five-sided, hairy rachis. Partial, rachis three-sided, hairy. Flowers in two rows, single, alternate, sessile, often intermixed with bristles. Calyx, all the valves hairy and striated. Corol, a complete, one-valved -male floret in the same

calyx with the hermaphrodite. *Seeds* ovate, transversely rugose, white, daggered.

Obs. Cattle are very fond of it.

32. P. tomentosum. /?.

Culms sub-erect. Leaves hairy; spikes from ten to twelve, oblong, from six to eight-flowered, intermixed with hispid bristly involucels. Seed ovate, transversely.wrinkled.

This is a delicate, rare species, found growing in tufts, or dry pasture ground over various parts of India.

*rom twelve to eighteen inches high. Leaves soft, covered "th much, long, soft hair; sheaths half the length of the joints; mouth bearded. Spikes compound, terminal, consist-fog of ten or twelve (generally alternate, though sometimes in pairs) spikelets of six or eight flowers, intermixed with hispid bristles, they are not placed on one side, but round the common rachis, which is g-enerally three-sided. Calyx, the ^vo interior valves fivcf-nerved; the second, half the length of the corol, as in P. glaucum. Carol has a third neuter valve. Seed transversely wrinkled, as in P. glaucum.

33. P. verticillatum. Linn. sp. pi. ed. Willd. i. 334.

Spikes cylindric. Spikelets quatern, sub-verticelled. Involucels, backwardly hispid bristles. Seeds oblong, three-Served, and rugose.

Hind. Dora-byara.

Teling. Chicklenta.

Delights in a rich soil in out of the way corners, where there is rubbish, &c.

We weak, often leaning over to one side, smooth, length of the creeping part, from onetO two feet, and that of the more erect culms from one to two feet. Leaves sheathing, linear-lance olate, a little downy; margins hispid when felt back- a fde, mouths of the sheaths hairy. Spikes columnar, con-

pound, from three to four inches long, generally matted together by means of the bristly involucels. Spikelets or rather racemeletSy tending to be verticelled, generally four in the verticel, composed of three or four short pedicels, each bearing a few flowers; all intermixed with very stiff bristles (involnceh) armed with short, stiff, recurved points, by which they adhere firmly to every thing that touches them. Calyx as in the family. Corol, a third neuter valve, but no stamens to it. Seed three-nerved, and slightly waved across.

Obs. Cuttle will not eat it, so that it is reckoned a troublesome weed wherever it is found.

Plants reared from English seed, were not near so luxuriant as those of India, but evidently the same species. Thunberg's large cultivated variety is certainly *Panicum italiaim*. Curtis's figure in his *Flora Londinensis* is represented with the leaves broader at the base than our Indian plant, or even than in plants reared in India from English seed.

34. P. italicnm. Linn, sp. ph ed. Willd. i. 336.

Culms erect. Spikes nodding; spikelets scattered, ovate; pedicels from two to three or four-flowered, with smooth bristles intermixed. Seed ovate, three-nerved.

Panicnm. Rumph. Amb. v. jp. 202. t. 175.yi 2.

Sans. Kirngoo, Priywngoo.

Beng. Kungoo, and Kungnee.

Hind. Kora.

Teling* Kbra; Koraloo, the grain.

This is one of the plants called dry or small grain. It is cultivated in many parts of India, and requires an elevated, light soil. I never saw it wild.

Culms several from one grain of seed, erect, from three to five feet high, round, smooth; roots issuing from the lower joints. Leaves, margins bacfewardly hispid; mouths of the sheaths bearded. Spikes compound, &c. There is more or less of a third, or neuter valve on the corol.

Obs. Small plants have the spike more erect, and uniform, without vacancies between the the racemelets.

The seed is an article of diet with the natives. It delights in a light, elevated, tolerably dry soil. Seed lime for the first crop, about the months of June and July; harvest time in September; produce about fifty-fold in a favourable season.

•A second crop may be had from the same ground, between September and the end of January.

35. P. strictum. R_m

Culms straight, from two to three feet high. Spikes compound, cylindric, straight, with numerous expanding spike* lets. Glumes of the calyx hairy, and acute. Carol three-valved, the innermost one awned.

Seng. Gang-bena.

A native of Bengal, where it is found, though rarely, on dry barren spots.

Culms straight, from one to three feet high, slender as a crow's quilJ, hairy, particularly at and near the joints. Leaves short, straight, broadest at the base, and from thence taper-U)g to a fine point; a little hairy, particularly underneath. Sheaths more hairy, their mouths bearded with much long, **oft, white hair. Spikes, (panicles) cylindric, straight, composed of numerous, one-ranked, expanding, short spikelets. ^lowers paired, on shorter and longer pedicels which unite before their insertions into the rachis of the spikelets. Calyx, valvelets acute; two exterior with a few straight hahrs, inner one smooth; corol-like. Corol three-valved, the inner and smaller one awned.

36. P. hispidulum. Retz. Obs. v. p. 18. Linn. sp. pL ed. ^Hld. i. 346.

Culms erect, from three to four feet hfgh. Spikes panicled, erect, lanceolate; spikelets secund; flowers two-fold, both *ub-sessile; valvelets of the calyx bristly, the middle one

daggered, the inner one awned. Corol three-val Fed, Seed • ovate, pointed, polished.

Seng. Bwra-Shama.

Grows on the larders of rice lands, and rich moist places. Is never cultivated nor made any use of.

Culms erect with a few erect branches. Leaves long, narrow, fine-pointed, smooth. Spikes straight, panicled, composed of numerous, secund, erect spikelets, surrounding the common four, five, or six-sided rachis. Flowers numerous, almost always two together and equally sub-sessile. Calyx, all the three valves harsh with numerous sharp bristles issuing from the nerves of the glumes. The two exterior ones with sharp subulate 'points; the inner one ends in a pretty long, strong, hispid arista. Carol, with a third, membranaceous, neuter valve. Seed ovate, pointed, polished.

Obs. It comes near my P. *Jrumentaceum* $_9$ and may probably be the same in its wild state.

37. P.Jritmentacettm. /?.

Culms erect, from two to four feet high.' Panicle erect; spikes secund, incurved; flowers three-fold, unequally pedicel led. Valvelets of the calyces daggered, or awned; seed ovate, smooth.

Sans. Shyamaka.

Tfenr/. Slitimo.

Teliny. Bontti-slmiUH; NIKIIIUIIOO, ilit; guun.

This | have only found in a state of cultivation, it delights in alight, tolerably dry, rich soil; the same ground yields two crops hrtmrii I he first of Ilir rains in June, July, anil the* end of January.

Culms erect, ramous, a little compressed, smooth, from two to four feet high. leaves large, margins hispid. Panicle erect, oblong, rigid, composed of numerous, secund, condensed, incurved spikes; they entirely surround the common rachis and sometimes tend to be verticelled. Rachis, common five or six-sided, a little hairy; partial three-sided, wav-

^d. Flowers almost always three from the 'same point, one sessile, the second short pedicelled, and the third a little long-* er pedicelled. Calyx, with all the glumes three-nerved; the two large daggered. Corol₉ with a third neuter valve. Seed ovate, pointed, smooth.

Obs. There are several varieties of it known to the Hindoo farmers. The seed is wholesome and nourishing, it is an article of diet, particularly amongst the lower classes of the natives. It yields about fifty-fold in a good soil. Cattle are fond of it.

SECT. VI. Panicled.

38. P. trigonnm. Linn, sp. pi. ed. Willd. i. 352.

Culms creeping. Panicle halved. Leaves stipuled. Pedicels two-flowered. Inner valve of the calyces vaulted. Carol three-valved. Seed, half round, smooth.

Grows on pasture ground, under the shade of trees, &c.

Culms creeping, filiform, from one to two feet long, with a few inches of the extremities erect, heaves lanceolate, soft, a little downy; sheaths ciliate, with a stipule-like process. Panicle halved, oblong, smooth, composed of from three to 'on ramous branchlets, rising on one side only when the plant is Miiall; pedicefs two-floworo<]. T*a.rtiat jjediwiM uii<>c|tifil. CWr/.-r, iimc*r valve c-iifiilluf«», obtuse; nil Ilie vulvcx striated and hsiiry. Corol, with a neuter, but small valve. Seed smooth, obtusely and obliquely three-sided.

89. P. patens. Linn. sp. pi. ed. Willd. i. 352.

Culms creeping. Leaves with a cordate base. Panicle °blong. Pedicels one-flowered. The three valvelets at the c»lyoes equal. jFlotcers polygamous. Seed, flat on one bide, smooth.

A small, *delicixte*₉ creeping species; it delights in shady pasture ground.

Culms like those of P. trigonum. Leaves broad, with a vol. i.

cordate base, from thence tapering to a fine point, downy.; sheaths hairy, their mouths want the stipule-like process. Panicle small, about one and a half or two iuches long*, oval, ramous; ramifications smooth. Flowers oval, solitary. Calyx, two-flowered, the three valves are nearly equal, all smooth but striated; the inner one appearing- more like a second valve to the male floret than one of the calyx, and the more so as it drops off with the seed, leaving the two exterior ones behind. Corol, one male, or sometimes one neuter, and one hermaphrodite* Seed oval, smooth.

40. P. hrevifolium. Linn. sp. pi. ed. Willd. i. 35-3.

Culms creeping". Leaves lanceolate, cordate. Panicle ovate, very ramous, partly hid in the sheath of the exterior leaf, second 'yalvelet of the calyces bearded; corol three-valved. Seed ovate, smooth.

Grows, with the two preceding species on shaded pasture ground, and is very much like them.

Culms creeping, as in the two last described species, but rather more robust. Leaves broad, and somewhat cordate at the base, waved; margins of the sheaths ciliate. Panicle, the lower part always confined within the sheaths of the extreme leaf, oval, from three to five inches long, composed of numerous very fine capillary ramifications, the common rachis and larger branches very woolly. Flowers obliquely-oval, numerous, on very fine, long pedicels. Calyx; the exterior valv<e lanceolate, the second boat-shaped, with the outside covered with very* long soft wool, the third oval. Corol, with a neuter valve, but no stamen. Seed oval, smooth, white.

41. P. tenellunu R.

Culms ascending. Leaves long. Panicles oblong, very ramous. Flowers solitary, remote; second valvelets of the calyces recurved, and pointed. Corol, three-valved. Seed oval, smooth, five-nerved.

Grows on pasture ground, borders of cultivated lands, &c.

Culms many, branchy, near the ground prostrate, rooting at the joints, the rest ascending; from one to two feet high, and as thick as a sparrow's quill. Leaves soft with white hairs. Panicles oblong, generally as long as the rest of the plant, thin, composed of expanding, capillary, rainous branches. Flowers remote, oval, small. Calyx, the glumes striated, otherwise smooth. Corol, with a third neuter valve. Seed oblong, smooth, light-brown, five-streaked.

42. P. serrulatum. R_m

Culms erect, from two to four feet high. Leaves sword-shaped, with serrulate margins. Panicle, spiked valveletw of the calyces sharp-pointed. Seed smooth, oblong.

A large erect, coarse species; a native of moist vallies.

Culms erect, ramous, from two to four feet high. Leaves somewhat cordate at the base, from thence tapering to a point, margins ciliate; sheaths as long or longer than the joints, smooth. Panicle erect, linear, composed of erect, linear, famous ramifications, which stand somewhat remote, particularly below, so that the panicle appears to be a compound interrupted spike. Flowers lanceolate. Calyx, glumes lanceolate, very acute, the two inner ones somewhat hispid on the back. Corol single, hermaphrodite. Seed oblong, smooth, white.

43. P. paludosnm. /?.

Culms erect, from two to three feet high. Panicle erect, °vate, thin; ramifications few, three-sided, with sharp hispid angles; pedicel two-flowered; valvelets of the calyces cuspidate, Corol three-valved. Seed oblong, smooth.

Beng. Borut/, and Kttl#?s-nar.

Teling. Soda.

It grows generally in sweet water amongst the Circar fountains.

Culms erect, from two to three feet high, swelled under the water, and there emitting roots from the joints. Leaves

erect, acute, retrorso-hispid; *sheaths* longer than the joints, with a thick bearded mouth. *Panicle* oval, diffuse, thin, composed of scattered, sub-alternate, famous branches; all nearly triangular, the angles sharp, and armed with fine points. *Flowers* oblong, pointed, in pairs on a common pedicel with unequal partial pedicels. *Calyx*, exterior valve short, broad, involving the bottoms of the others. *Corol*, with a small neuter glume, always without stamens. *Seed* oblong, smooth, brown.

Obs. This grass is of a coarse nature; rattle are not therefore fond of it. When it grows on dry ground, the grass is much smaller, but the panicle larger.

44. P. uliginosum. R.

• Culms erect, from two to four feet high. Panicle thin; ramifications four-sided, smooth; flowers polygamous, solitary. Seed oblong, smooth.

JBeng. Hurunda.

Teling. Gwndrw.

A native of the moist borders of rice fields, in wet ground. *Root* fibrous, white. *Culms* many, ramous; below resting on the ground and rooting; above erect, a little compressed, smooth; from two to four feet high. *Leaves* short and sharp, inside a little downy; *sheaths* shorter than the joints; mouths bearded. In *palndosum* they are surrounded on the inside with hair. Here the ramifications are compressed, and somewhat four-sided, there triangular, and hispid. *Panicle* more contracted than in *pahidosum*. *Calyx* the same. *Corol*, with a complete male floret. *Seed* oblong, smooth.

Obs. To distinguish it from P. paludosum₉ attention must be paid to the leaves, ramificatiotis of the panicle, and male florets.

45. P. sarmentosum. R.

^' 'Perennial, inane, hairy, sarmentose, with sub-ercet, floriferous shoots from the joints. *Panicle* patent. *Flowers* solita-

*y; calyces smooth and obtuse, containing- one hermaphrodite and one neuter floret.

A native of Sumatra; and from thence introduced by Dr. Charles Campbell into the Botanic garden in 1804, where it grows luxuriantly, and blossoms throughout the year.

Culms round, sarmentose, and of great length, inane, with Nearly erect, frequently ramous, floriferous shoots of about two or three feet in height rising from the joiuts; every part clothed with much soft hairy pubescence, particularly the "unners. Leaves ensiform, soon becoming reflex, margins hispid, length from six to twelve inches, from half to three quarters of an inch in breadth at the broadest part. Sheat/is rather longer than the joints. Panicle terminal, ovate; composed of many, single, alternate, patent, compound, smooth branches. Flowers very numerous, awnless, smooth, solitary, pedicelled. Valves of the calyx three, obtuse, slightly 'narked with green nerves, the exterior one long, containing a two-valved hermaphrodite flower, and a small neuter one.

46. B. miliare. Lamarck.

Culms erect, ramous, from two to three feet high, smooth. $\bar{P}anicle$ thin; flowers paired on a common pedicel, with unequal partial pedicels; corol three-valved; seed ovate, smooth, five-streaked.

Teling. Nella-shama. Nella-shamaloo, the grain.

This species I have found only in a cultivated state, it is °&e of the sorts of dry or small grain which is generally cultivated on an elevated, light, rich soil.

Culms, many from the same seed, erect, branchy, round, ***u>oth, from two to three feet high. Leaves smooth. Pani
cfc oblong, beautifully bowing with the weight of the grain; branches alternate, ramous; capillary, angular, hispid. Flowers oval, paired upon a confmon pedicel, with unequal partial pedicels. Calyces, glumes smooth, striated lengthways with nerves. Corol, accompanied by a neuter valve. Seed val, striated, smooth, shining brown.

• • • *

Obs. The seed is an article of diet with those Hindoos who inhabit they higher lands. Cattle are fond of the straw.

47. P. miliaceum. Linn. sp. pi. ed. Willd. i. 348.

Culms erect, ramous, from two to four *i'eet* high; the whole plant very hairy. Panicle oblong, glumes of the calyces cuspidate. Carol three-val ved; adventitious valve two-toothed. Seed oval, smooth, five-streaked.

Sans. Vreehib-heda, Uaoo.

Hind, and Beng. Cheena.

Teling. Worga; Worglo, the grain.

This is another of the cultivated *cerealia*; the same soil suits it as is proper for the last described species. Time of culture immediately after the rains.

Culms many from the same seed, erect, ramous, very hairy; from two to four feet high. Leaves large, with long sheaths, which involve most part of the culms, every part covered with much white hair. Panicle as in the former, only here and there a few hairy. Calyx all the three glumes are much pointed. Corol the neuter valve is here emarginate. * Nectary two, triangular, emarginate bodies embrace the germ laterally. Seed oval, mouth brownish, with smooth, coloured streaks lengthways, as in the last.

48. P. tenue. R.

Culms erect, ramous; from one to six feet high. Panicle thin, flowers paired on a common hairy pedicel, with unequal partial pedicels. Corol three-valved. Seed ovate, transversely waved.

This is a wild species, which grows amongst the Circar mountains.

Culms erect, sometimes resting on the ground, and striking root there, ramous, smooth, from*one to six feet high. Leaves large; upper-side hairy; edges armed with very sharp points. Sheaths shorter than the joints, hairy, with their mouths bearded. Panicle erect, till the seeds are ripe, then, as in the culti-

vated sorts last described, bowing from the weight of the grain, it is composed of alternate, compound, nearly secund racemes. Rachis; common from four to five-sided; partial three-sided, winding, and hairy. Calyx, glumes many nerved, otherwise smooth. Corol, the neuter valve is here present, and in luxuriant plants, the stamens also.* Seed oval, transversely wrinkled, which distinguishes it from all the other panicled species.

49. P. plicatum. R.

Erect, herbaceous, harsh with stiff hairs. *Leaves* lanceolate, plicate. *Panicle* lanceolate, ramifications compound, flowers paired, polygamous.

Introduced into the Botanic garden, from the Island of Sumatra. Flowering time the beginning of the cold season.

Root perennial. Culms erect, or ascending, below as thick as a goose-quill, and then somewhat compressed; every part filled with pith. Leaves sub-bifarious, expanding, lanceolate, plicate, a little hairy; from six to twelve inches long, and from one to two broad. Sheaths about the length of the joints of the culms, armed with sharp, rigid hairs; mouth ciliate. Panicle oblong, lax; lower ramifications rather remote, above approximate, and composed of unilateral short spikelets. Flowers solitary, paired, or threefold, when more than one they are on pedicels of unequal lengths; sometimes there is a single coloured bristle from the pedicels of the exterior flowers. Calyx three-valved, two-flowered, one of the flowers male, with a cdrol of one membranaceous glume; the, other hermaphrodite, and having the usual two-valved cdrol. Seed oblong, rugose on the convex side.

Obs. It is of too coarse a nature for cattle, but its foliage make it ornamental in the shrubbery, or flower-border.

50. P. nervosum. /?.

Erect, from three to four feet high. *Leaves* lanceolate, plaited. *Sheaths* longer than the joints, with the mouths bearded.

Panicle very thin, composed of long-, simple, filiform, remote branches. Flwicers generally single, with a neuter valve to the corolr

From Nopal Dr. Buchanan sent, the seed to the Botanic garden, w4iere the plants blossomed in October, ju^t one year from the time the seed was sown.

Root perennial. Culms erect, slender, completely invested in the Jieaths of the leaves, except from six to twelve inches btlow the panicle; height three or four feet. Leaves lanceolate, plaited, a little hairy, particularly near the base, from six to twel veinches long, and one and a half broad. Sheaths longer than the joints, a little hairy; mouths bearded. Panicle very thin, and composed of long, simple, filiform, drooping branches. Spikelets remote near the base, secund, bearing a fe/wilternate, generally single flowers. Calyx three-valved, smooth, from three to seven-nerved. Corol, with a third neuter valve, but no stamens.

Obs. In foliage this agrees very exactly with my Panicum plica turn, but differs widely in the panicle.

51. P. *costatum. R.*

Culms creeping. Leaves lanceolate, plaited, very hairy, as also their sheaths, which are shorter than the joints. Panicle composed of short expanding, secund, spiked-racemes. Flowers polygamous.

Introduced into the Botanic garden from the Mauritius, by Captain Tennant, in 1802.

Culms creeping, throwing out numerous strong roots from the joints; from three to six feet long. Leaves lanceolate, plaited, hairy; about six inches long, by one broad. Sheaths shorter than the joints, very hairy. Panicle oblong, smooth, composed of somewhat compound, secund, spiked-racemes, with here and there an arista-like coloured bristle. Calyx three-valved, smooth, from three to five-nerved. Corol three-valved, two-flowered; the exterior floret one-valved and male. Seed transversely rugose.

Obs. In the foliage this is perfectly like my P. nervosum and plicalum.

52. P. montanum. R.

Culms erect, smooth, from three to four feet high Leave9 lanceolate, unequally divided by the nerve. Panicle oblong; ramifications capillary, straight. Corol two-valved. Seed smooth, oval, three-nerved on the back.

A native of the Circar mountains.

Root fibrous, from a ligneous perennial head. Culms erect, smooth, of a firm woody texture, as thick as a crow's quill, and three to four feet high. Leaves lanceolate, large, beautifully striated lengthways, somewhat hairy, Tower margins next the mouths of the sheath ciliate; the nerve divides the leaf unequally, which is an uncommon circumstance in grasses. Panicle linear, oblong, from twelve to eighteen inches long, composed of straight, sub-erect, capillary ramifications. Fiowers small, oval, remote. Calyx as in the genus. Corol as in the family; this is one of the few instances of the want of a male or neuter floret. Seed smooth, brown, with three stripes.

PHLEUM. Schreb. gen. 1ST. 123.

Calyx two-valved, seVsile, linear, truncated, with a bicuspid tip. Corol inclosed.

1. P. crinitum.

Grows in tufts. *Culms* ascending. *Panicle* linear, crowded with innumerable soft, bearded ramifications; both glumes of the *calyx* awned and ciliate, and Ae large glume of the corol awned.

A native of Nepal, and of the northern part of India.

From the former country it was introduced into the Botanic garden by Dr. Buchanan; and from the latter by Col. Hardwicke.

Culms numerous from a single root, ascending, length from six to twelve inches, round, smooth, and involved in the sheaths of the leaves, which are longer than its joints. Leaves ensiform, from three to six inches long, smooth. Panicle linear, obldhg, dense, exceedingly soft from the immense number of most delicate, pale-coloured awns. Flowers minute and numerous. Calyx*, glume one-flowered, two-valved; valves nearly equal, with a most delicate, long, soft arista from the apex; hairy, chiefly on the back, and membranaceous ciliate margins. Corol two-valved; valves obtuse, much shorter than the calyx, as in general a very minute awn issues from the apex of the larger valve. Seed smooth, oblong, but obtuse.

Obs. In the cold season of 1802-3,1 reared the same grass from seed sent from England by A. B. Lambert, Esq.

MILIUM. Schreb. gen. N. 10.

Calyx, glume one-flowered, two-valved. *Corol* two-valved, less than the calyx.

 $J_m M.JH iforme. /?.$

Creeping, smooth. *Leaves* short, with a stipulary"process at the mouth of the sheath. *Racemes* two or three, terminal, erect. *Flowers* alternate, solitary, awnless.

Hind. Kanka juriya.

Grows on pasture ground, is a small, delicate species, has much the appearance of *Ac/rostis linearis*.

Culms creeping, except a small flower-bearing portion, which is erect, round, smooth; and from six to twelve inches high. Leaves small, Smooth; mouths of the sheaths stipuled. Racemes two or three, terminal, sessile, erect, secund. Rachis membranaceous, a little waved. Flowers single, alternate, imbricated in two rows, awnless.. Calyx, glumes nearly equal, membranaceous, a, little hairy. Corol, valves rigid, smooth.

2. M. sanguinale. R.

Culms sub-erect, smooth. Racemes sub-digitate; flowers three-fold, pn unequal pedicels.

Panicum sanguinale. Burm. Flor. Ind. t. 10.,/*. t. Beng. Chiri-chira.

A native of pasture ground.

Culms sometimes creeping near the base, the rest erect, smooth, and about a foot and a half high. Leaves long," narrow, smooth in every part. Panicle racemed, sub-erect. Racemes from four to eight, secund, erect, rachis three-sided. Floicers generally in threes, though sometimes in pairs or in fours, all have pedicels of unequal length. Calyx and corol as in the last species.

3. M. ramosum. Linn. sp_m pi. ed. Willd. i. 361.

Smooth; culms sub-erect, from two to four feet high. Panicle six or eight, remote, with somewhat ramous branches. flowers paired on common pedicels. * Calyces pointed, and very hairy.

Found growing in large tufts, on moist, rich pasture ground.

Root creeping. Culms from one to four feet long, spreading netR* the base, and striking root at the joints that rest on the ground. Leaves smooth. Panicle oval, very thin, composed of a few, from four to eight-compound, spreading, secund, racemes. Rachis of the racemes three-sided. Flowers below, on a common pedicel, besides which each has its proper pedicel, but of unequal length; above single. Calyx, valves equal, pointed, and very hairy. Corol, the exterior •alve ends in an awled point.

AGROSTIS. Schreb. gen. N. 111.

Calyx, glume one-flowered, two-valved. Corol two-valved, larger than the calyx.

1. A. coromandeliana. Linn, sp.pl. ed. Willd.\.SS7A. Retz. Obs. iv. N. 52.

Culms from four to eight inches high. Panicle verticelled; ramification simple, secund; inner valve of the calyx as long as thic corol; exterior valve minute. Seed naked, obovate, rugose.

Teling. Yellika-twngoo-gadi.

A native of pasture ground.

Culms spreading near the base, then ascending, from four bo eight inches long, mostly involved in the sheaths of the leaves. Leaves rather broad, waved and slightly ciliated; nouths of the sheath bearded. Panicle oblong; large for the size of the grass, composed of expanding, simple, verticelled, secund racemes. Flowers awnless, generally in pairs, inequally pedicelled. Calyx, exterior valve small, like that the accessory valve in Panicum. Inner as large as the corol, and gaping with it when the seed ripens. 'Seed, it Jrops uncovered by the corol, leaving .it. and the calyx in their places; it is of an oblique oval form, brown, and transversely rugose.

2. A. tenacissima. Linn. sp. pi. ed. Willd,i. 374.

Smooth, creeping. *Leaves* minute. *Panicle* filiforfh; ex* terior valvelet of the calyx shorter than the corol.

Teling. Toema-gerika.

A small, rigid species; growing on old, poor, stiff, pasture rround, where it forms extensive plants of tenacious turf.

Culms ramous, creeping to a great extent, with from four to eight inches high of their flower-bearing extremities, erect, smooth, filiform, and very firm. Leaves very small, and smooth. Panicle erect, linear; ramifications and flowers adpressed, from one to two inches long. Calyx, exterior yalve smaller than the interior. Corol as large and long as the inner valvelet of the calyx.

3. A. Matrella. Linn. sp. pi. ed. Willd. i. 366.

Creeping. *Leaves* pungent. *Spikes* terminal, solitary, few-flowered.

A native of the barren sandy lands, near the sea on the coast of Coromandel.

4. A. diandra. Linn, sp.pl. ed. Willd. i. 371. Retz. Obs. v. AT. 37.

Smooth. *Culms* erect, from one to three feet high. *Panicle* linear, branchlets short, expanding; *flowers* paired, diandrous. *Calyx* scarcely half the length of the corol. *Seed* naked, obovate, rugose.

Beng_% Beua-joni.

A native of moist pasture ground, in the vicinity of Calcutta.

Culms nearly erect, from one to three feet high, almost covered with the sheaths of the leaves. Leaves narrow, tapering to a fine point, smooth; mouths of the sheaths slightly bearded. Panicle linear-oblong, bowing a little, often a foot long, composed of expanding, alternate, compound, seemingly simple racemes, flowers in pairs on a common peduncle, but unequally pedicel led. Calyx, valves equal, scarcely half the length'of the corol, smooth, membranaceous. Stamens two. Seed narrow-obcordate, dropping from the calyx and corol, hrown, obtusely rugose.

5. A. maxima. R.

Culms erect, from four to twelve feet high. Panicle ovate, expanding. Calyces minute, exterior valvelets of the corol fringed with long hairs. Stamens two.

This is the largest species 1 know; it is a native of hedges, amongst the mountains.

Root ligneous, perennial. Culms erect, from four to twelve feet high, often as thick as the little finger, round, and smooth, inside replete with a fibrous spongy substance, l smooth, from one to two feet long; and from one to

two inches broad at the base, tapering from thence to a fine point. *Panicles* erect, oval, or oblong, from one to two feet long", composed of alternate, ramous, filiform, expanding or bowing branches. *Cafyx*, valves equal, four times shorter than the fcorol. *Copfol*, exterior valve fringed round the margins, with lqpg, soft, white hairs. *Stamens* two.

Obs. The leaves of this plant are much more like those Employed by the Chinese to pack up various articles with, than any other I have yet seen.

HOLCUS. Schreb. gen. JV. 1565.

Polygamous. Calyx 9 glume two-valved, one to three-flowered. Corol, glume two-valved, the hermaphrodite awned. Stamina three. Styles two.

1. H. nervosus. R.

Erect, hairy. *Panicle* oblong. *Glumes* three, and fivenerved, cuspidate, two-flowered. *Flowers* both sessile, one hermaphrodite and awned; the other male and awnless.

A native of Coromandei.

Culms erect, ramous; long, wiry roots issuing from the lower joints. Leaves and their sheaths papillose, hairy. Panicles oblong, smooth. Ramifications alternate, simple. Flowers paired; one sessile, the other pedicelled. Calyces two-flowered, three to five-nerved, smooth, straight, cuspidate, longer than the flowers. Corol in both two-valved, the exterior floret male, large, and awnless, the inner minute, hermaphrodite, and awned. Stamens three. Styles (wo, in the hermaphrodite.

2. H. d Hat us. R.

Erect, hairy, panicle linear, hirsute. *Glumes* papillose, ciliate, two-flowered, both flowers sessile, one hermaphrodite and awned, the other male and awnless.

A native of Coromandel.

Whole plant about a foot high* erect. The culms with bearded joints. Leaves rather large, hirsutely papillose, as are also their sheaths. Panicles linear, shaggy with the numerous hairs of the calyces. Calyx two-valved, two flowered; valves nearly equal, considerably longer than the flower, backs covered with little warts, from each qf which arises a very conspicuous hair; apices cuspidate, and recurvate. Co-rol two-valved in both. Exterior floret rather larger, male 01* male hermaphrodite, and awnless; inner hermaphrodite and awned. Stamina three. Styles two in the hermaphrodite, in the male hermaphrodite the rudiments of two, but no germ.

. ISCHJEMUM. Schreb. gen. N. 1569.

Polygamous. Calyx two-valved, two-flowered. Corols two-

1. I. art's tat am. Linn. sp. pi. erf. Willd. iv. 939.

Annual. Leaves sword-shaped, ciliate and hairy, with roloured margins. Spikes paired, secund. AH the calyces two-flowered; valves striated; exterior of the sessile flower with a bifid membranaceous border round the anterior mar* gin; an awned hermaphrodite floret in each flower.

A j&ative of newly formed pasture land, in various parts of \mathbf{I}_{ud} ia, appearing about the close of the rains. It is a scarce $\mathbf{\&}^{T}$ ass, and does not appear to be fit for cattle.

Culms at the base resting on the ground and there rooting, ramous; erect portions from one to two feet long, slender, with woolly joints. Leaves length of the spikes, ensiform, broadest at the base and there cordate, hairy, ciliate, with hispid, coloured margins. Spikes two, terminal, secund, from one to two inches long. Rachis flexuose, jointed, three-sided, with the angles very hairy. Flowers in pairs, one sessile, the other.pedicelled. Pedicel three-sided, and ciliate. Calyx of the sessile flowers two-valved, two-flowered; one floret hermaphrodite, the other male. Exterior valves striated, with .

its anterior margins and apex enlarged with a broad, membranaceous, bifid-border; *inner valve* boat-shaped, keeled, ciliate, and sub-aristate, one floret male, the other hermaphrodite.* *Cdrol, glumes* of each floret two-valved; the exterior one of the hermaphrodite floret bifid, with a long arista in the fork. *Calyx* ofcthe pedicel led flower two-valved, two-flowered; *valvelets* equal, boàt-shaped, keeled, ciliate, and sub-#aristate; one floret male, the other hermaphrodite. *Corol*, as in the sessile flowers, and also awned in the same manner.

Obs. I am not certain that this is the original I. aristatum of Linnaeus jind Retzius.

2.1. rugosnm. Linn. sp. pi. ed. Willd. iv. 940.

Erect, ramous. *Leaves* lanceolate; *spikes* paired, both flowers awned; *calyces* oblique, obtuse, hard, and transversely rugose.

Is 'generally found growing* among rice, and is so much like it, the inflorescence excepted, that they are not, till in flower, to be distinguished. *Leaves* large, smooth; »mouths of the sheaths crowned with a long, two-parted ligula. *Spikes* terminal, and from the exterior p.xills paired, erect; from two to three inches long. *Rachis* jointed. *Flowers* in pairs; one sessile, the other on a short, thick, angular, clubbed pedicel.

SESSILE FLOWER. Calyx two-valved; valvelets in size nearly equal, the exterior one rugose, and very hard; one of the florets hermaphrodite, the other male, each with two membranaceous valves; the inner valve of the hermaphrodite flower has a long twisted awn issuing from the middle of its back.

PEDICELLED FLOWER smaller. Calyx as in the other, but containing two male flowers, one of which is also awned.

3. I. seinisagittatum. R.

Annual. Leaves ovate-lanceolate, semisagittate. Spikes paired, secund, all the calyces two-flowered, exterior valvelets

transversely rugose; hermaphrodite floref of the*sessile flower awned.

A native of newly formed pasture land in Bengal. It is a rare grass, appearing- about the close of the rains.

Culms rarnous, resting* on the ground near the base, and there striking: root at the joints, the sub-eftect portion from .twelve to eighteen inches, very delicate, firm, and smjpth. Leaves short, broad-ensiform, or rather ovate-lanceolate, with a cordate base, and one of the lobes generally projecting considerably beyond the culrn; margins slightly hispid, length one and a half or two inches. Spikes two, terminal sub-secund, an inch and a half long. Rachis jointed, scarcely flexuose, three-sided; angles hairy. Flowers in pairs, one sessile, the other sub-sessile, both with their base bearded. Oalyces of both flowers almost alike, two-flowered, two-valved; exterior valvelets obliquely-lanceolate and rather obtuse, the lower gibbous half transversely rugose, as in I. rugosum, upper portions striated lengthways; margins of the lower rugose portion notched; of the upper striated part ciliate; inner boatshaped in both, one floret is male, the other hermaphrodite. Corol; glumes of each floret two-valved; the exterior val velet of the hermaphrodite floret bifid, with a long arista in the fork.

Obs. It ought to be compared with T. barbatum.

4. I. conjngatum. R.

Partly creeping. *Leaves* short, acute, with broad cordate base. *Spikes* conjugate, seemingly united. *Flowers* paired, with the exterior valves of both calyces even, and very woolby; the sessile one hermaphrodite, awned.

A native of pasture land in the vicinity of Calcutta, appearing in the cool season.

Culms very ramous, creeping near the base, filifonn, smooth, length from six to eighteen inches, generally purplish. Leaves "ith broad cordate base, from thence tapering to a fine point, "heaths smooth. Spikes conjugate on a slender, clavate, pur-

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pie peduncle; united at the base, at all times continuing close asif one. RaJfhis v£ry hairy, and jointed. Flowers from four to eight pairs on each spike, one sessile, the other subr sessile. Cdlyces nearly alike, two-valved, two-flowered; the exterior valves even, acute, and uncommonly woolly on the back; the inner boat-shaped, acute, and smooth. In each, one of th£ florets is hermaphrodite, the other male. Corols all two-valved, hyaline; the inner valve of the hermaphrodite floret in the sessile flower bifid and awned. Stamina three. Styles two.

5. I. geniculatum. R.

Stems geniculate, creeping, smooth. Leaves ensiform. Spikes conjugate, apparently only one. Calyces two-flowered, smooth, and crested; with the hermaphrodite flowers awned.

A small species, a native of Bengal. Flowering time the cool season.

Culms polished, from one to two feet long, very ramous, diffuse, geniculate * joints large, emitting smooth, very brown roots. Leaves small, ensiform, smooth; sheath smooth, and shorter than the polished joints of the culm. Spikes terminal, conjugate, generally so close as to seem only one, smooth, about an inch long. RachiSjointed, flexuose; angles sharp, and sometimes hairy. Flowers paired, one sessile, one peduncled. Calyces, both two-flowered; one hermaphrodite and awned, the other male and awnless. Exterior valve of the sessile flower enlarged with two, hard, serrulate crests, one on each side of the apex; inner mucronate, with a similar crest on the back, under the apex; of the pedicelled flower both are boatshaped, mucronate, or sub-aristatc, and the exterior one crested on the back under the apex; all are smooth and marked with green, longitudinal veins. Corols two-valved; the exterior valve of the hermaphrodite flowers bifid and awned.

6. I. tenellum. R.

Creeping near the base. *Leaves* linear. *Spikes* paired. *Exterior* valve of the sessile flower truncate, the rest cuspidate, hermaphrodite flower alone awned.

A weak straggling species.

Culms weak, creeping and ramous towards the base; towards the heads erect; the thickness of a pigeon's quill; Joints bearded. Leaves a little hairy near the base, mouths of the sheaths ligulate, and hairy. Spikes paired, &c. as in the last species. Flowers paired, &c. Calyx of the sessile flowers two-valved, two-flowered; exterior valve retudfe and bordered; inner valve ending in an awled point. Flowers two, one hermaphrodite with a two-valved corol, the exterior of which ends in an arista, the other is male with an awnless two-valved corol. Calyx, of the pedicel led flower both valves alike, and ending in an awled point; it contains a single flower, which is sometimes hermaphrodite, and sometimes male, with the rudiment only of the second flower.

7. T. repens. R.

Creeping. Leaves short and acute. Spikes paired. Flowers all polygamous and awnless; glumes of the calyces smooth and cuspidate. Rachis smooth.

A native of Pulo Pinang.

Culms creeping, flexuose, smooth, from one to two feet long. Leaves bifarious, sword-shaped, short, rigid. Sheaths as long as the joints, a little hairy, with a stipulary process at the mouth. Spikes terminal, paired, uniting a little above what seems to be their base. *Rachis jointed, three-sided, smooth. Flowers about six pair, one of each pair sessile, th*. other peduncled, both the pedicelled and sessile one consisting of a two-flowered, two-valved, rigid, acute, smooth calyx. Flowers polygamous, one hermaphrodite, the other male, both awnless, eacji floret having a corol of two acute valves.

*8.1. cuspidatum. R.,

Floating* on sweet water with a portion of the tops of the plant emerging. *Leaves* linear, smooth. *Spikes* three-fold. *Exterior* valve of the calyces with a long-, waved, ensiform point; all the corolletstwo-valved, and awnless.

A native of Bengal, where it is found floating on pools of sweet«water, and blossoming about the close of the rains in October.

Culms appear to be perennial, a fathom or two long, jointed, as thick as the little finger, floating. Leaves linear, acute, from one to two feet long, margins backwardly hispid, in other respects smooth. Spikes terminal, three in the only plant that has yet blossomed in this garden, each about six or eight inches long*, a little compressed; when the flowers expand about noon they appear like Chevaux de frise, at other times they appear smooth. Flowers in pairs, oue sessile, containing one hermaphrodite, and one male floret, the other pedicel, led and neuter, or with two male florets. Calyx two-valved; exterior valve rigid, with hispid margins and long, flat, waved, hispid-margined, ensiform points; inner valve boat-shaped with a flat hispid keel. Corols of each floret two-valved.

APLUDA.

Polygamous. *Involucre* one-valved, two-flowered[^] one sessile, the other pedicelled with a pedicelled neuter rudiment. *Calyces* two-flowered, the sessile one polygamous, the pedicelled one the same, or with male only. *Coro/s* two-valvfid.

I. A. aristata. Linn. sp. pi. cd. Willd. iv. i)38.

Perennial, creeping, or scandent. *Leaves* lanceolate. Hermaphrodite flower awned.

Beng. Goroma.

Teling. Pwtstrangal*.

Is commonly found in hedges, under the shade of trees and such like places.

Culms creeping*, or climbing", as thick as a crow's quill, jointed, coloured, the lower part naked, inwardly spongy; from the joints spring erect, ramous, flower-bearing- branches of from one to seven feet high. Leaves very elegant, somewhat bifarious, sheathing, petioled, linear-lanceolate, backwardly hispid; from six to eighteen inches long; sheaths smooth, mouths short-stipuled. Panicles terminal, and from the exterior axills, or, the whole may be considered, as one linear leafy panicle. Bractes three-flow eredf boat-shaped, with an awned point. Flowers, one of the three sessile, or rather sitting on a globular receptacle, consisting of a common, two-flowered calyx, one of which is sessile, awned, and hermaphrodite; thdtether sessile, male and awnless; j ust without the calyx on each side, there is a bent, compressed pedicel, one of these supports a common calyx, with two male, twovalved, awnless flowers, the other only the rudiments of one or more florets.

2. A. geniculata, R.

Perennial, creeping, or scandent, intricately geniculate. *Leaves* lanceolar. In each calyx one hermaphrodite, and one male flower, all awnless. '

Found on the banks of the Ganges in flower during the latter part of the rains and the cool season.

Culms creeping, or climbing amongst bushes, reeds, &c. o an extent of many feet, smooth, and slender, bent at angles about a span distance at the swelled joints, emitting numerous wiry roots, filled with spongy pith, the thickest about the size of a crow's quill, heaves linear lanceolate, and smooth, but much smaller than in A. aristata. Sheaths shorter than the joints. Lignla lacerate. Panicles terminal, composed of Numerous slender branchlets of distinct fascicles of flowers, ach fascicle containing many short-pedicelled, three-flowered, boat-shaped, cuspidate, smooth, bractes or involucres. The one of the three sessile, containing one hermaphrodite, and one male floret; the other two elevated or broad

Silicate; proper pedicels, one minute and abortive, the other polygamous as in the sessile flower. *Calyces* of both the sessile and pedicelled flowers two-valved, two-flowered. *Corol* in all of them two-valved; *valves* unequal, exterior one thin and transparent.

Obs. The accurate Gaertner, *Carp. vol.* ii. *p.* 466. *t.* 175. gives to the sessile flower of A. *mutica*, one hermaphrodite, and one female floret, and to the pedicelled one two male ones, consequently* this must be different, and a second awnless species.

AIR A. Schreb. gen. N. 11%

Calyx two-valved, two-flowered, without the rudiment of a third.

A. filiformis. Kon. Jtfss.

Smooth, erect, one foot high. *Leaves* ensiform. *Panicles* oblong, compound, of simple, linear, secund racemes.

A native of pasture ground.

Culms erect, mostly naked, round, smooth, about a foot high. Leaves small, smooth; months of the sheaths enlarged by a membranaceous, torn process. Panicle erect, thin, oblong, composed of alternate, simple, one-ranked, filiform, expanding racemes. Flowers in two rows. Calyx two-flowered, large.

MELICA. Schreb. gen. N. 113.

Calyx two-valved, two-flowered, with the rudiment of a third.

1. M. digitata. R.

Culms from four to five feet high. Spikes terminal, expanding, mostly five-fold. Calyx one-flowered; outer valvelets of the corol and rudiment awned.

A large beautiful species, a.native of hedge?, thickets, &c. Culms near the base procumbent, but when supported by bushes erect and often from four to five feet high. Leaves upperside somewhat hairy; nwuths of the sheaths bearded. Spikes four to five, digitate, secund, spreading, 'filiform, from six to nine inches* long, hairy at the base. liachis three-sided. Flowers in two rows, sessile, awned. Calyx one-flowered; glumes unequal, the interior being three or four times longer than the exterior, and short-awned. Corel, valves unequal, the largest has a long awn issuing just below its apex on the outside. Corpuscle, or neuter floret pedicelled, and awned.

2. M. refracta. R.

Perennial, ascending. *Leaves* lanceolate. *Panicle* ovate, with the ramifications refracted. *Petals* bearded, with stiff refracted bristles.

A native of the Moluccas, and from thence introduced amongst other plants, into the Botanic garden, "where it blossoms during the cold season.

Hoot, perennial. Culms ascending, from one to three feet long, round and smooth. Leaves lanceolate, smooth; sheaths smooth, scarcely bearded at the mouths. Panicle terminal, ovate; ramifications somewhat compound, and refracted like the drooping branches of some species of Pinus. Calyx smooth, two-valved, two-flowered, with an abortive third, or the rudiment of one. Corol, exterior glumes, chiefly of the second flower, bearded with refracted, sharp, stiff bristles which fix to every thing that touches them.

3. M. diandra. R.

Smooth. *Culms* from two to four feet high. *Leaves* lancee 'ate. *Panicle* of long¹, simple, expanding racemes; *flowers* awnless, diandrous.

Poa malabarica. Linn. *p. pL ed. Willa i. 394.

* Culms asceflding, from two to four feet high, firm, smooth, abotit as thick as a fine quill. Leaves bifarious, lanceolate, striated, smooth; margins waved, unequally divided by the nerves, about an inch and a half broad, and six inches long; mouth ef the sheaths projecting above in a membranaceous process. Panicles Jafrge, thin, oblong, bowing a little, composed of sub-alternate, simple, spreading racemes. Flowers awnless. Calyx two-flowered, with the characteristic corpuscle, which is also here pedicelled, but awnless. Corol, exterior valve of the inner one has its margins and keel ciliate. Stamens two.

4. M. laţifolia. R.

Perennial; *culms* erect, simple, from four to eight feet high. *Leaves* lanceolate. *Panicles* large and open, with alternate, compound drooping branches.

A native of the Garrow hills, from thence it was brought to the Botanic garden, by Mr. Robert Kyd, where it blossoms in March, at which period and indeed at all times it is one of the most elegant plants *in* the whole order.

Stems very numerous from the same root, erect, straight, and always- without branches, more or less invested in the sheaths of the leaves; very smooth, texture remarkably hard, and filled with firm pith, generally about as thick as a goosequill, and when in flower from six to eight feet high. Leaves sessile on their sheaths, lanceolate, smooth; from six to twenty inches long, and from one to four broad. They are much like the leaves employed by the Chinese to put between the boxes and lead canisters in which their teas are packed. Seed ventricose-oval, smooth, both ends rather pointed.

CHLORIS.

Polygamous. Calyx two-valved, from two to six-flowered; hermaphrodite flowers sessile; male, or neuter ones pe-

dicelled. *Corol* of the hermaphrodite dower two-valved; of *the* male, or neuter one-valved, all of them awned.

1. C. tenella. R_m

Spikes solitary; spikelets with three or four hermaphrodite awned florets, and a neuter rudiineflt.

A native of the Peninsula of India.

Culms delicate, erect, smooth, about a foot high. Leaves rather large in proportion to the rest of the plant, smooth, and soft. Spikes solitary, secund, scarcely two inches long. Spikelets alternate, and alternately pointing two ways. Flow calcapted a spikelets, or to each calcapted three, four, or five, all hermaphrodite, (at least in the rather imperfect state in which I have found this rare species) except the innermost one which is a one-valved corpuscle or rudiment, as in JHelica. Calcapted from three to five-flowered, two-valved; valvelets unequal, broad lanceolate, smooth, acute, permanent. Corol of the hermaphrodite two-valved; exterior valvelets obcordate, cucullate, awned; margins smooth, but with three hairy Serves on the back and sides; interior oblong, with edges ciliate and always awnless.

2. C. montema. R.

Spikes digitate, secund, united at the base; hermaphrodite flower ciliate, and awned; neuter of three awnless valves.

This is a native of mountainous tracts only. It differs from C. *barbata* only in the following respects. *Yst.* The spikes ^{ar}e in number from four to six, and united into a common flower-bearing rachis near the base. 2rf. The neuter floret has ⁵¹ third awned valve and the awns are all straw-coloured.

3. C. barbata. Linn. sp. ph ed. Willd. iv. 926.

Spikes digitate, secund; hermaphrodite corol ciliate, and neuter of two awned valves.

Andropogon barbatum. Linn. Mant. 302. 588. Konda-pulla. Rheēd. Mai. 12. p. 95. t. 51.

Grows in large tufts on pasture ground, &c. very common ev^rv where.

Culms, below creeping, and ramous, the joints perfectly smooth. Leaves near the base bifarious; margins near the base and mouths of the sheaths ciliate. Spikes terminal, from six to twelve, sessile, secund, expanding, from one to two inches long. Rachis striated, not hairy, nor jointed. Flowers pedicelled, alternate, in two rows on the outside of the spikes. Calyx two-flowered, two-valved, membranaceous and awnless. The lower flower is sessile and hermaphrodite, its co~rol consists of two unequal ciliate valves, the base of which is surrounded with hairs, the exterior one ending in a long* coloured awn. The other floret I have always found neuter; it stands on a short pedicel and consists of two obcordate, awned valvelets; awn and margin of the valvelets coloured*

Obs. Cattle eat it till in flower; after which I never sa*r any animal touch it.

4. C. polystuchya. JR.

Spikes from ten to twenty, fascicled. Exterior glume of the hermaphrodite flower with ciliate margins; neuter florets two, with single smooth valves.

A native of the Peninsula of India.

Culms below procumbent for a little way, then erect, and about two feet high. Leaves as in other grasses, and smooth* Spikes about sixteen, in a terminal, sub-fastigiate umbell* form fascicle, secund with the alternate spikelets, or flowers pointing to opposite sides, from two to three inches long* Calyx of two, unequal, lanceolate, boat-shaped, smooth, pef" mauent awnless valves, which contain one two-valved, her* maphrodite, awned flower; and two peduncled, one-valvedf awned, neuter florets. The exterior valvelet of the hermaphrodite flower has its margins ciliate.

POMMEREULLA. Schreb. gen. N. 97-

Calyx, glumes two-valved, from three to four-flowered; valvelets four-cleft, awned on the back.

P. Corucopiae. Linn. sp. pi. ed. Willd. i. 314. Vahl. ėn. Pi* ii. 393. R. Corom.pl. ii. JV. 131.

A very singular, small, rare grass; growing under bushes on dry uncultivated ground.

Root, culms, and leaves, as described by König, but mine has the spike compound and secund, the rest as he says, albabase abvolluta folia sub-spatheformi. Spicvlis distichus, each having an involucre of two, lanceolate, acute, membra-**aceous valves. Within these two valves, is a short, clubbed, downy pedicel supporting the partial spikelets of four flowers, with their common calyx, it is joined to the involucre by an articulation and drops off most readily, particularly when dry, leaving the involucre attached to the rachis Calyx, corol, and stamens, are as König describes them; but the Serm is ob cordate, and there are always two styles with feathery recurved stigmas. Seed as lie describes it.

POA. Schreb. gen. iV. 114.

Calyx two-valved, containing many flowers of two unequal valvelets disposed alternately on distichous spikelets.

1- P. bifaria. Vahl. symbol, ii. 19. Linn, sp.pl. ed_m Willd. *401.

Siqpoth. *Culms* straight, from one to two feet high. *Spikes* **erminal, straight, secund. *Spikelets* sessile, alternate, bifarious i the inferior from four to six-flowered, above many-flowered.

Teling. Wooda-tallum.

believe König called it Poa malabarica.

Grows on mountains and other dry#situations.

Culms straight, simple, from twelve to twenty-four inches high, a little compressed, smooth. Leaves small, smooth. Spikes straight, secund, from four to eight inches long. Spikelets alternate, sessile, lanceolate, in two spreading rows, though issuing from one side of the common rachis. Calyx below, from four to six-flowered; above many-flowered.

2. P. chinensis. Linn. sp. pi. ed. Willd. i. 3i)5.

Smooth, from two to four feet high. *Panicle* of many alternate, simple, expanding, secund ramifications. *Spikelets* alternate, short-pedicelled, from four to six-flowered. .

JSeng. Bwra-pim-nwto''.

A large, beautiful species, growing on the borders of water courses, and places where there is much moisture.

Culms ramous, creeping near the base, above expanding, from two to four feet high, every part smooth, and a little compressed. Leaves as in other grasses, smooth; mouths of the sheaths bearded. Panicle large, oval, composed of long, alternate) filiform, simple, expanding, secunU branches. Spikelets alternate, from four to six-flowered, short-pedicelled, expanding in two rows from one side of the simple brunches.

3. P. procera. R.

Smooth, erect, from three to five feet high. *Lirfula* large; *ramifications* of the panicle simple; *spikelets* pedicelled, rather remote, linear, many-flowered.

Teling. Rewa.

Delights in a moist rich soil.

Culms nearly erect, branchy, from three to five feet high, round, smooth, much covered by the sheaths of the leaves. Leaves long, slender and smooth. Sheaths longer than the joints, with their mouths crowned with a long ragged niein-branaceous process. Panicle large, from nine to eighfr^n inches long, oblong, bowing a little, composed of numerous, long, filiform, expanding racemes, scattered round the com-

mon rachfe; which is filiform, waved, three-sided, and hispid. Spikelets alternate, pedicel led, linear, remote, many-flowered.

4. P. cynosuroides. Linn. sp. pi. ed. Willd. i. 393.

Smooth, straight, from one to three feet high. *Leaves* long attd acute. *Panicle* straight, sub-cylindrical; *ramifications* horizontal; *spikelets* depending, from six to twelve-flowered.

Uniola bipinnata. Linn. sp. pi. 104.

Sans. Koosha, Koolha, Dterbha, Vuvitvnng.

Cusa or Cusha. Asiat. Res. iii. 255. and 490. and iv. 249. Heng. Koosha.

Teling. Dwrbha, Dubha, or Durpa.

A strong coarse species, a native of dry barren ground.

Root creeping, perennial. Culms straight, rigid, round, s*nootb, from one to three feet high. Leaves numerous, very longhiefly about the base of the culms, rigid margins hispid. Panicle erect, linear-oblong, often tending to a conical form, composed of many somewhat three-fold, verticelled, horizontal, short, rigid, secund ramifications. Spikelets manyflowered, depending, in two rows, from the under side of the ramifications. Corol, valves pointed, the inner one rather the largest.

Obs. It is employed by the brahmwns in their religious ^{Ce}retnonie«. Cattle do not eat it. Can this be Gramen cá-Pillaceum? &c. Pluck. J3lm. p. 176. t. 34. Fig. 2. Cusa, or [^]9*line Sanscrit name of this much venerated grass, was given to it at a very early period, by the Hindoo Philosophers, and believed, by Sir William Jones, to have been con-^{8e}crated to the memory of Cush, one of the sons of Ram. See Asiatic Researches, vol. iii. p. 490. If so, we have here a very ancient precedent for the present very convenient practice of giving such arbitrary names to plants, and to their families.

⁵- P. ciliaris. Linn. sp. pi. ed. Willd. i. 402. Smooth, sub-erect, from one to two feet high. Panicle

contracted, linear, with the lower ramifications remote. *Spikelets* from six to twelve-flowered; *inner* valvelets of the corol ciliate.

Delights in the same soil and situation with the last described species.

Culms near the base procumbent, above erect for one or two feet. Leaves as in the last. Panicle linear, from three to six inches long*, the ramifications short, those of the lower part stand at some small distance, their insertions are not hairy. Calyx from six to twelve-flowered, not ciliate. Corol, only the inner valve ciliate. Seed as in the last.

6. P. cylindrica. R.

Erect, slender, from twelve to eighteen inches high. Leaves slender. Panicle cylindric, crowded with short, adpressed, ramous, alternate branches. Spikelets from six to twelve-flowered. Flowers diandrous, inner valve of the corol ciliate.

From Canton in China the seed was received into the Botanic garden, where the plants grow freely and blossom during the rains and the cool season.

7. P. ciliata. R.

Smooth, sub-erect, from one to two feet high. *Panicle CO'* lumnar; *spikelets* from six to twelve-flowered; *margins'* of all the valvelets of the calyces and corols ciliate. *Seed* globular.

¹ Is generally found on a poor dry soil.

Root perennial. Culms erect, rigid, smooth; from one to three feet high. Leaves smooth; mouth of the sheaths doWny. Panicle columnar, from two to four inches long, branches thereof crowded, insertions hairy; spikelets from six to twelve-flowered. Calyx, margins ciliate. Corol, the margins of bdtb valves much ciliate, the exterior one has three nerves and is pointed, the inner one two-nerved. Seed obovate, smooth? brown, dropping" from the corol when ripe.

8, P. inlerrupta. Kön. Mss.

Erect, smooth, from one to three feet high; *ramifications* of the linear panicle short, and collected into remote fascicles. *Spikelets* from six to twelve-flowered. *Seed* obcordate.

Teling. Nakurnaral.

Grows about at the borders of rice fields.

Culms generally erect, from one and a half to three feet high, round, smooth. Leaves narrow, long, sharp, and smooth. •Panicles erect, from six to twelve inches long, linear; ramifica>tions sessile, nearly erect, remote, particularly those of the lower part, where they are often twice their length asunder; olimeter, etwo, or more from the same point, which makes it appear verticelled. Spikelets minute, pedicelled, from six to twelve-flowered. Corol, valves smooth. Seed as in the last ftvo species.

9. P. nutans. Linn. sp. pi. ed. Willd. i. 395. Retz. Obs. Jv. 19.

•Erect, smooth, from three to five feet high, panicles contracted; ramifications adpressed, fascicled, and approximate ^{e(}I. Spikelets from eight to fourteen-flowered. Seed oblong. Teling. Urenka.

Delights, in a rich, moist soil, such as the banks of watercurses, borders of rice fields, &c.

Culms etect, from three to five feet high, generally simple, ^{ro}Und, smooth. Leaves narrow, long-, sharp, and smooth. **onicle linear, from one to two feet long; ramifications filiform, peduncled, adpressed, one, two, or more from nearly the* ^{Sao}te place, but seldom so far asunder as their own length. ^Pikelets pedicelled, from eight to fourteen-flowered. Calyx ^{a*}ul corol smooth. Seed oblong, smooth, brown.

Obs. The best mark to distinguish it from the last species the form of the seed which in that is obovate, in this oblong, better not fond of any of these tall, erect, coarse species.

10. P. *diandra.* **R**.

Erect, smooth. Leaves lotig, fine-pointed; panicle linear, half the length of the whole plant; ram ifications scattered, compound, expanding, smooth. Spikelets from four to eight-flowered. Flowers diaidrous.

A native of Bengal, where it blossoms during the cold season.

Culms erect, growing in tufts, with few branches, smooth; height of the whole plant in a good soil, from three to six feet. Leaves froth one to two feet long, smooth in every part, tapering to a long fiAe point. Panicle linear, half the length of the whole plant; ramifications thereof scattered, expanding, smooth, compound, from two to three inches long. Spikelets lanceolate, small, smooth, from four to eight-flowered. Corol with both valves smooth* and rather ^obtuse. Stamens two, •Anthers purple.

11. P. viscosa. Linn, sp.pl. ed. Willd. i, 398. Retz. Obs. iv, p. 20.

Culm ascending, from nine to eighteen inches high, clammy. Panicle linear-oblong; ramifications verticelled, short, spreading; spikelets from three to twelve-flowered; inner glumes of the corol ciliate.

This species grows in tufts on dry pasture ground.

Culms numerous, spreading, with their extremities ascending, ramous, from nine to eighteen inches long. Leaves small, margins involute; sheaths shorter than the joints, with their mouth surrounded with long, slender, white hair. Panicles linear-oblong, from two to four inches long, composed of short, sub-Verticelled, sessile, expanding ramifications. Calyx from three to four-flowered. Corol, inner valve ciliate.

06*. Every part of the plant is covered with tenacious gluten.

12. P. tenella. Linn. sp. pi. ed. Willd. i. 395.

Erect, smooth, from one to two feet high. *Panicle* linearoblong, verticelled. *Spikelets* pedicelled, from four to sixflowered, smooth.

A native of pasture ground.

Culms erect, round, smooth, from one to .two feet high. Leaves smooth, mouth of the sheaths much bearded. Panicles linear-oblong, composed of verticelled, filiform, expanding, Famous branches, having always at their insertions and subdivisions a few fine, long hairs. Spikelets pedicelled, from four to six-flowered. Calyx and carol smooth. Seed oval, brown, smooth, falling from the corol when ripe, as do all the other species of this genus that I have yet seen.

Obs. The anthers shine through the valves, as in P. punctuta, and indeed in most, if not all the Poqs.

13. P. plumosa. Linn. sp. pi. ed. Willd. i. 403. Retz. Obs. iv. 20.

Sub-erect, smooth. *Panicle* ovate-oblong; *ramifications* scattered, horizontal; *insertions* hairy; ramuli depending. *Spikelets* pedicelled, from four to six-flowered; *inner* valvelets of the corols ciliate.

Tsjama-pullu. Rheed. JMaL xii. p. 75. t. 41.

Gramen fumi. Rumph. Amb. vi. p. 10. t. 4.f. 3.

Is found growing in tufts on pasture ground.

Culms filiform, niany,ramous, spreading a little at the base, above erect, from one to two feet high, round, smooth. Leaves mouths and margins of the sheaths fringed, with long delicate white hairs. Panicle oblong, composed of many capillary, alternate, horizontal, ramous branches, their insertions and bub-divisions are fringed with a few fine, white hairs. Spike-felominute, pedicelled, depending, from four to six-flowered, Calyx smooth. Corolg inner valve fringed with hairs in the back. Seed oblong, brown, smooth.

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14. P. punctata. Linn. sp. pi. ed. Willd. i. 395.

"Erect, smooth, from six to eighteen inches high. *Panicle* oblpng; *ramifications* simple, expanding-, lower ones verticelled. *Spikelets* from, twelve to.fourteen-flowered, smooth. *Seed* obliquely oblong.

This species grows in tufts on pasture ground.

Culms erect, generally simple, round, smooth; from RIX to eighteen inches high. "Leaves small, smooth; mouths of th6 sheaths bearded. Panicle oblong; ramifications simple, expanding, the lower ones collected into one verticel; above alternate. Spikelets* pedicelled, rather remote, linear, from twelve to fourteen-flowered. Calyx and corol smooth, thin, showing the unexpended anthers and stigmas through them. Heed oblong;, smooth, brown.

15. P. elegans. R.

S;ib erect, smooth, from one to three feet high. *Panicle* oblong, nodding ramifications solitary, ramous adpressed. *Spikelets* fioni eight to twelve-flowered. *Seed* globular.

A very elegant, tall, delicate species, a native of moist pr.s-ture ground.*

Culms simple, at the bnse spreading for a few inches, the remaining part Lserect, found, smooth; from one to three feet high. Leaves few and very small, smooth in every pffig except the mouth of the tiheatufe, which are bearded. Panicles linear-oblong, nodding, com posed of erect, ad pressed, distinct, soraewha^ remote ramification, each of which forms a small, but similar panicle. Tartial rachis with the angles hispid, Spikefets pedicelled, linear, from eight to twelve-flowered, purplish. Corolg outer valve three-nerved. Seed globular, smooth, arid brown.

16. P. nuillijlora. R.

Sub-erect, smooth, from six to eighteen inches high. *Panicle* longer than the rest of the plant, nodding." *Spikelet** crowded, from fifty to seventy-flowered. *Seed* globular.

Is found on dry elevated places.

Culms nearly erect, naked, except at the base^from six to twelve inches high, round, and smooth. Leaves one or yvo near the base of each culm, shout; mpiUhs of the sheaths' a little hairy. Panicle oblong-, bowing; ramifications sub-sessile, short, filiform, simple, the lower collected into one or two remote branches; the upper ones alternate. Spikelets pedicelled, very long-, linear, from fifty to seventy-flowferefl. Calyx smooth, obtuse. Carol smooth, outer valve three-nerved. Seed round, smooth, brown.

17. P. unioloides. linn. sp. pi. erf. $Willd_m$ i. 393. 'Retz. Obs. v. 19.

Erect, smooth, from one to two feet hig-h. *Panicle* ovate; ramijications short, simple, below fascicled above solitary, horizontal; spikelets long-pedicelled, from sixteen to twenty-flowered. *Seed* oblong.

Beng. Konee.

A most elegant species, a native of dry elevated situations. *Culms*, below rainous, with a small portion resting on the ground, the rest erect, and from one to two feet high, round and smooth. *-Leaves* few, small, and smooth; *mouths* of the sheaths bearded. *Panicles* half as long as the whole plant, erect, oblong, thin; *ramijications* peduncled, filiform, disposed as in *multiflora*. *Spikelets* ovate, from sixteen to twenty-flowered, generally of a bluish purple colour. *Corol*, outer valve three-nerved, as in P. *multijlora*. *Seed* oblong, smooth, brown.

18. P. Jlexuosa. JR.

Sub-erect, flexuose, nodding, smooth, from eighteen to twenty-four inches high. *Panicle* ovate, crowded; *ramiJU Nations* solitary, ramous, expanding, insertions hairy; *spike-kts* twenty-flowered. *Seed* globular.

A pretty •large species, growing in tufts on old walls, &•

exactly resembling P. unioloides as to be easily mistaken for it. It has much the habit of Briza Eragrostw.

- Culms sub-erect, winding, round, smooth; from one and an aif to two feet high* Leaves much larger than in the last species, and the mouths of the sheaths more hairy. Panicle oval, very large, generally more than half the length of the whole plant, branches alternate, nearly horizontal, ramous, with a brown, hairy gland in the axill of each division of the panicle. Spikelets white, or pale green, lanceolate, large, about twenty-flowered. Seed globular, brown, and smooth.

19. P. paniculata. R.

Erect, smooth, from two to four feet high. Leaves long; mouths of their sheaths bearded. Panicle oblong; ramifications most numerous, filiform; insertions hairy. Spikelets from four to sixteen-flowered; valvelets of the calyces ciliate* Seed globular.

Culms sub-erect, round, and smooth; length from one to two feet high to the panicle, which is about the same length, making the whole height from three to four feet. Leaves large, mouths of the sheaths very hairy. Panicle oblong, very large, composed of numerous, ramous, filiform, expanding branches, their insertions and sub-divisions involved in fine, long, white hairs. Spikelets long-pedicelled, linear* from four to sixteen-flowered. Corol, outer valve round at the apex, and three-nerved; inner one slightly ciliate on the back.

20. P. gangetica. R.

Grows in very dense tufts. *Panicle* thin. *Spikelets* linear, from thirty to forty-flowered.

A native of the banks of the Ganges, but scarce.

Culms numerous, and ramous, growing in crowded tuft⁸* smooth in every part, general length about a foot. Leave* few, small, and smooth. Panicle ovate, composed of a fe^> remote, alternate, sub-diverging branchlets, each supportinS

a number of heaped, linear, acuminate, smooth spikelets, of from twenty to fifty flowers each; as they advance from the apex the lower florets drop, leaving the zigzag rachis naked ^s they ripen. *Calyx*, both valves smooth and obtuse. *Seed* °val, smooth, brown.

DACTYLIS. Schreb. gen. N. 117.

Calyx two-valved, compressed, one valvelet larger, keeled. Seed fews.

1. D. lagopoides. Linn. sp. pi. ed. Willd. i. 410. Burnt. Ind. 28. t. 12. f. 2. TV* :^ <w

Creeping. *Leaves* rigid, with spinescent points. *Heads* globular. *Calyces* from six to eight-flowered, hairy, as are also the corols; *anthers* blue..

It is generally found growing on a salt sandy soil near the sea.

Aches of the flower-bearing portions, erect, they are of a firm, ligneous texture, round and smooth, every part of the Greet portions covered by the sheaths of the leaves. Leaves Numerous, small, approximate, firm, acute, resembling thorns. ttead_i or spike terminal, short-pedicelled, globular, composed of many, closely crowded, sessile, roundish spikelets. Valyx from six to eight-flowered; glumes equal, shorter than the flowers, obtuse and hairy. Carol two-valved, exterior striated, hairy, and obtuse; inner membranaceous, involving the stamens and pistillum. Stamens three. Anthers blue.

2. D. brevifolia. Linn. sp. pi. ed. Willd. i. 410.

Creeping, ramous. *Leaves* short. *Heads* sub-globular, ^{co}*nposed of three, secund spikes. *Calyces* acute, from six to twelve-flowered. *Corols* hairy, acute.

It is found on dry sandy ground at a small distance from the sea.

Culms spreading, ramous, creeping, with their flower-bearing extremities ascending, from sife to twelve inches long. Branches generally opposite. Leaves short, with their margins difate. ^Head. or spike terminal, long-peduncled, globular, composed of two or three, sessile, secund, short spikes, which aft again comp'osed of two rows of alternate, from six to twelve-flowered, sessile, ovate-oblong spikelets. Calyx, from six to twelve-flowered, equal, acute, striated. Corol, outer valve keeled, acute, three-nerved, very hairy near the base, inner valve as in Poa9 with its back ciliate. Seed oval, compressed, smooth, and brown; dropping from the corol when ripe.

Obs. Both these species are of a coarse nature.

The Linnsean definition of the genus does not accord well with the only two species I have met with in India. That of *Poa* agrees better with their essential character; and had not *Burman*, in his *Flora Indica*, made them both belong to this genus, I should certainly have considered them as species of *Poa*, though in their general habit they by no meang agree with the elegant plants of that genus. When I had an opportunity I forgot to examine the seeds in a sufficiently exact manner. I suspect they have the aril of the following genus, because they have much of its general habit.

o... ^ %... ^fLEUSINE. Gcert. Carp. i. p. 7.*

Calyx two-valved, containing many flowers of two equal valvelets. Seed with a complete membranaceous aril.

1. E. Coracana. GtBrt. Carp. i. 8. /. 1.

Culms erect, from two to four feet high, compressed. Leaves bifarious. Spikes digitate, incurved. Calyces from three to six-flowered. Heed round.

* I adopt Gartner's name on account of the aril, which envelopes tlie seed, and the total want of the involucre of Cynosurus in aH² the Indian species that I have yet met with. - Cynosurus Coracanus. Linn. sp. pi. ed. Willd. i. 415.

Tsjetti-pullu. Rheed. Hort. Mai. xii./>. 149. t. 78.

Pauicum graiuineum seu Naatsjoni. Rumph. Arab* v. p_m 203. t. 7(>.j: 2.

It is called Nutchanee by Europeans on the Coromandel coast.

Ponassa, or early Soloo, is the Telinga name of the grain* atul Sodee the name of the plant.

JBeng. Murooa.

R^ggee of the Coast Mahomedans.

This species is cultivated during the rainp. I never saw pe wild.

Culms erect, generally several from the same grain of seed; from two to four feett high, a little compressed, smooth. Leaves hilarious, large, smooth; mouths of the sheaths bearded. Spikes, from four to six, digitate, jncurvate, secund, from one to three inches long, composed of two rows of sessile, from three to six-flowered spikelets. Rachis. compressed, a little 'vaved. Calyx from three to six-flowered, exterior gluims twice, as long as the interior; both are keeled, obtase, and taerabranaceous. margined. Corol, valves nearly equal. Seed globular, dark brown, a little wrinkled, covered with a thin, pellucid, membranaceous aril.

2. E. stricta. It.

Culms erect, fronitwalo five feet high, compressed. Leaves Warious. Spikes digitate, straight. Calyces from three to six-lowered. Seed round.

TeUng. Pedda, viz. great Soloo.

Hind. Raggee.

*t only in having the spikes straight, being generally of a larger size, and more productive, the great weight of the seed, ^hen full grown bends the spikes down into a horizontal di-Action.

There is a variety of this straight-spiked sort, which ike

Telinga farmers called *maddee rooba soloo*; it grows to a still larger size, with a greater number of straight spikes.

They all require a light rich soil, on which the water does not remain after heavy rains. The first or early sort does not require so rich a soil as the other two, it is sown earlier by which means the same ground yields two crops. From July to January inclusive they reckon on an increase of about one hundred and twenty fold if the soil and season are favourable.

The second sort requires a richer soil; it is sown later in the season; its increase is greater.

The third sort, *maddi tuba soloo*, requires a still richer soil; land fit for it is scarce, and the rent high. I am informed that it is nearly twice as much as that of land fit for the first sort, the increase of this kind is prodigious, five hundred fold; the farmers say, if the season and soil are favourable.

About twenty years ago, there came up accidentally amongst some rubbish in my garden at Samulcotah, two tufts of this plant, each, upon examination, I found to be the produce of one seed, each had twenty-five culms, and each of these culms had on an average two lateral branches, making in all seventy-five culms and branches, each produced upon an average six spikes, (for they had from four to eight) in all four hundred and fifty spikes, each of these bad at a medium sixty spikelets, and each spikelet ripened on an average three or four seeds, total produce eighty-one thousand. I was myself particularly attentive in counting the above produce because it was so astonishingly great.

In the Rajamundry Circar, where these observations were made, the soil is in general rich, and the season favourable.

3. £• agyptica. R.

Culms with a creeping base, from one to two feet high. Spikes four-fold, cruciate. Calyces daggered, from three to {bur-flowered. Seed oval, somewhat three-sided, and transversely rugose.

Cynosurus cegypticus. *Lhm. sp. pi. ed. Willd.* i. 416, Gramen vacciuum. *Rumpk. Amb. viup.* 10. t. 4*J\ 1. Cavara-pullu. *Rkeed. Mai.* xii. *p.* 131. *t.* 69. *Hind.* Makura-jal?.

Grows in pasture ground, and by road sides, &c.

Culms, creeping¹ neftr the base; the remaining part nearly erect for a foot, or a foot and a half, ramous, a little compressed* and smooth. Leaves fringed with hairs. Spikes terminal, from three to five, horizontal, secund, &c. as in E. Cara* <*ma. Calyx from three to four-flowered; glumes acute, parti* cularly the exterior one which ends in a short awn. Corol, outer valve very acute. Seed oval, somewhat three-sided, wrinkled, arilled, but in this species the aril is so thin and delicate, as to be often removed by the time the seed is full grown.

Obs. Cattle are fond of it.

4. £. indica. Gcert. Carp. i.p. 8.f. 1.

Erect, smooth, from one to two feet high. *Leaves* bifarious. *Spikes* from five to seven, digitate. *Calyces* from three to five-flowered; *seed* oblong, three-sided, rugose.

Cynosurus indicus. JLinn. sp.pl. ed. Willd. i. 417.

Hind. Mal-ank«r?.

Teling. Kuror, viz. wild soloo.

A common coarse species, found growing in large tufts on pasture ground, road sides, &c.

Culms ascending at the base, ramous, a little compressed, smooth, from one to two feet high. Leaves bifarious, large, ^ith a few long white hairs scattered over the insides and sheaths. Spikes terminal, from three to six, expanding; one* generally standing single a little below the rest, linear, secund, from two to four inches long; insertions glandular and hairy, *Pikelets in two rows on the underside. Calyx from three to five-flowered; glumes equal, as long as the flowers, smooth, and rather obtuse. Corol, valves smooth, obtuse. Seed obtusely three-sided, rugose, arilled.

Obs. Cattle are not fond of it.

•6. E. verticillata* R.

Erect, smooth, from one to four feet high. Leaves bifarious. Spikelets numerous, panicled. Calyces from eight to twelve-flowered; glumes daggered; Smed oblong, wrinkled.

It is a native of moist pasture ground.

Culms erect, round, smooth, from one to four feet high. Leaves as in the last described. Panicle erect, oblong, composed of many verticelled, expanding, round, sessile, linear spikes, much resembling those of E. indica; spikeleis imbricated in two rows on the underside of the spikes.. Calyx from eight to twelve-flowered, corol-like. Corol; exterior valve ending in a long dagger; inner valve membranaceous. Seed oblong, wrinkled, aril led; in this species the aril is fully as delicate as in E. agyptica, and is nearly found whole on the full grown or ripe seed.

6. E. calycina. R.

Erect, from two to three feet high. *Panicle* linear. *Spikes* numerous, alternate; *glumes* of the calyces equal, many times larger than those of the corol, daggered, three-flowered. *Seed* three-sided, wrinkled.

Teling. Wadata-toka-gwddee.

Grows in small tufts OH dry pasture ground, but generally amongst bushes.

Culms erect, generally about two feet high, much covered by the leaves. Leaves very thinly scattered with hairs. Panicle linear, erect, from eight to twelve inches long, composed of many sessile, expanding, alternate, secund spikes. Spikelets occupying, as in the other species, the underside of the spike. Calyx generally three-flowered, glumes equal, twice as long as the three flowers they embrace, each ending in a long* sharp dagger. Corol, valves .obtuse. Seed three-sided, wrinkled. I cannot say that 1 have seen the aril in this species,

though I have often looked for it; it may therefore be a species of *Dactylis*.

ARUNDO. Sckreb. gen. N. 124.

Calyx two-valved, containing one or more two-valved flower, surrounded with long hairs.

1. A. bifaria. Retz. Obs. iv.21. Linn. sp. pi. ed. Willd. i. 455.

Erect, smooth, leafy, from twelve to eighteen feet high. **Pa- nicle** erect, linear, oblong, dense. Calyces three-flowered, **much** longer than the florets; alumes of the corol woolly.

Teling. Patoo-ederoo.

Is found chiefly among* bushes on the banks of rivulets, lakes, &c. on the Circar mountains.

Culms sword-shaped, smooth, about ten to fifteen inches long, and from one to two broad. Panicle erect, oblong, very Much crowded with innumerable ramifications, which stand erect and press close on one another while in seed. Flowers e*ect, on a common woolly pedicel within the calyx. Calyx three-flowered; glumes equal, pointed, larger than those of the flowers. Corol, exterior valve twice the size of the inner "He, it is pointed and woolly on the outside.

Obs. The leaves seem to be one of those sorts with which the Chinese line the inside of their sugar-candy tubs and other Packages.

2. A. Karha. Linn. sp. pi. ed. Willd. i. 456. Retz. Obs. iv. 21.

Erect, smooth, leafy, from eight to twelve feet high. $Pa^{n}*cle$ loose, verticelled. Calyces, from three to four-flowered $*tcrior\ glvme$ of the corols three-nerved, and daggered.

Sans. Nttda, Nwla, Dhumuna, Potwgwla.

Beng. Nal, Nur.

Teling % Nagu-sara maitantos.

Is a native of similar places with the last described.

Culms erect, rainous, .from eight to twelve feet high, and as* thick as the last, round, smooth, entirely covered with the sheaths of the leaves. Leaves approximate, sword-shaped, smooth, from twelve to twenty-four inches long, and one or one and a half broad; mouths of the sheaths bearded. Panicle bowing with the wind, but if not disturbed erect, oblong, composed of many filiform, erect, (in luxuriant plants droopsub-verticelled, rainous branches. Rachis of the branches angular and hispid. Florets alternate, on a longer common woolly pedicel than in A. bifaria, within the calyx. Calyx from three to five-flowered; glumes unequal, the largest shorter than the exterior valve of the corol. Corol₉ exterior valve three-nerved, tapering into long fine subulate points, inner valve scarcely half so long. Stamens often only two, and the pistil is frequently wanting.

Obs. It does not agree with Retzius's description of A. Karka in the number of flowers in the calyx. Pipes are made of the culms, particularly those used by the people who carry about the dancing snakes.

In Bengal it is more luxuriant than on the coast. The common Durma mats of that place are made of the stalks split open. Vessels from the port of Calcutta are generally dunnaged with them.

3. A. bengalensis. Linn, sp. pU ed. Willd. i; 455. Retz. Obs. v. 20.

Culms, from six to ten feet high, fistulous. Leaves bifarious, sword-shaped, drooping. Panicle lax; valvelets of the calyx equal, from two to three-flowered; exterior valve of the corol woolly, daggered, and three-nerved.

-' Beng. Gaba-nul.

^This elegant species is found growing in ditches, and lo^ places in the vicinity of Calcutta, where it blossoms during the months of October and November.

Culms erect, from six to ten feet high, fistulous. Leaves

shaped, from one to two inches broad at the base, from thence taper to a fine point; smooth on both sides, and in the margins. Sheaths also smooth, with a long membranaceous Margin round the mouth. Panicle oval, lax, from one to two feet long, erect; ramifications alternate, ramous, drooping a little. Flowers pedicelled, scattered. Calyx two or three-flowered; valves nearly equal, and of the length of the flowers. Corol exterior valve three-nerved, and woolly on the back, with a very fine, long, taper point. Inner valve 6mall and smooth. Nectary two, cuneiform scales embrace tlie germ on the two sides.

Obs. The wool which girds the base of the corol, in most of **the** species, is in this species found growing on the back of its exterior valve.

ARISTIDA. Schreb. gen. N. 125.

Calyx two-valved, one-flowered. Corol one-valved, with three awns at the top.

1. A. aetacea. Retz. Obs. iv. 22. Linn. sp. pi. ed. Willd. i. 460.

Erect, smooth, from two to four feet high. *Panicle* liuearblong, composed of fifteen to twenty sub-alternate, erectish mifications.

Teling. Shiptcr-gadi.

Crows in a dry, barren, binding soil.

ftoot perennial. Culms straight, generally simple, from two to four feet high, and about as thick as a crow's quill at the base, solid, and of a very firm ligneous texture, round and smooth. Leaves few, narrow, margins involute, nerveless, smooth. Panicle bowing with the wind, linear, from to twelve inches long, composed of sub-sessile, remote, adpressed ramifications. Calyx, corol, &c. as in the family, except that the three awns are erect.

Obs. Cattle do not eat it, yet it is very useful. The Telinga paper-makers construct their frames of the culms; it also serves-to make brooms and tooth-picks. It is employed in preference to other grasses for making the screens called Tatties, for this purpose it is spread thin on "bamboo Jrame. % and tied down; these placed on the weather side of the house, during the hot land winds and kept constantly watered during the heat of the day, renders the temperature of the air in the house exceeding pleasant, compared to what it is without. The thermometer in the outside exposed to the wind, but not to the sun, will then be at one hundred, or one hundred and fifteen degrees, or even more; and within if the Tatties · are properly disposed and well watered, they will keep it down to from eighty-five to ninety, with two or even three rows of Tatties, made very thin, and all kept well watered, the thermometer, when it blows hard, may be brought down. to eighty, but then it is absolutely chilling, and disagreeably cold. The difference between the open air and this refreshed air, is to the feeling inconceivably great. The thermometer in the sun, at this season rises to from one hundred and thirty to one hundred and forty. This contrivance we received from Bengal, and by it the hot Reason which used to be so much dreaded, is now rendered to those who can keep within doors tolerable. I have never observed any had effects from this cool moist air; however the hot season is the most healthy of the whole year.

2. A. Hystrix. Linn. sp. pi. ed. Willd. i. 459.

Culms diffuse, about two feet long. Panicle oval, large, thin; ramifications spreading, two-forked.

Teling. Shilp?jro0-kall?.

This species is a native of the same soil with the last described.

Culms depressed, straggling, crooked, rigid, somewhat branchy, about two feet long* Leaves as in the last species. Panicle large, oval, thin; direction various, composed of di-

Vergitiff, generally two-cleft peduncles and pedicels. *Calyx*, *corol*, &c. as in the genus.

Obs. This species is of no use that I know of.

3. A. depressa. Retz. Obs. iv. 22. Linn. sp. pi. ed. Willd. ù 461.

Ascending", ramous, from twelve to eighteen inches long. *Panicle* linear, of six to eight alternate ramifications; *glumes* 9f the calyces keeled.

Teling. Nalls-poot/kt.

Is found upon the same kind of land with the two last species.

Culms below depressed, ramous; above ascending, filiform, round, smooth, solid, rigid; from twelve to eighteen inches high. Leaves as in the former. Panicle smaller, and with fewer ramifications than in A. setacea. . Calyx, the glumes have a large green keel. Corol, &c. as in the genus.

Obs. This is also so far as I know, perfectly useless.

MANISURIS. Schreb. gen. N. 1570.

Polygamous. Rachis jointed. Hermaphrodite calyx two-valved, one flowered.* Corol two-valved, less than the Cf*lyx. JUale, or neuter calyx two-valved, one or two-flowered. Corol two-valved.

1- M. Mynrns. Linn. sp. pL ed. Willd. iv. 945. Corom. pL ²- V. 117.

Culms creeping, from nine to eighteen inches high. Spikes solitary; extefior valve of the hermaphrodite calyx panduriforni and emarginate; male calyx two-flowered.

Teling. Nallrc punookoo.

^{3/8} a native of dry elevated sandy ground.

Colms several, ramous, diffuse near the base, rooting at the Joints, extremities ascending, from nine to eighteen inches longs as thick as a crow's quill, compressed, smooth, not piped« Leaves small, and smooth; mouths pf the sheaths increase

ed by a lacerated membranaceous border or stipule. *Spikes* solitary, terminal, and from the exterior arils peduncled, secund, jointed, smooth, a little compressed, from onc^to two Inches long. *Peduncles* articulated, and bracted at the middle. *Flowers*, the hermaphrodite ones occupy a wSved row of pits on the four sides of the spike, while the male ones possess two sides, the back is naked.

HERMAPHRODITE FLOWERS. Calyx two-valved, one-flowered; the exterior valvelet has a broad coloured margin, which is emarginate, and deeply indented at the sides, like a fiddle; inner valvelet oblong, lodged in a pit of the rachis. Corol two-valved, membranaceous. Nectary two obcordate, crenulated scales embrace the germ. Stamens three. Styles two.

MALE FLOWERS. *Calyx* two-flowered, two-valved, valvelets nearly equal, boat-shaped. *Corol* with two membranaceous valves* *Stamens* three. *Pistil* none.

2. M. granularis. Linn. sp. pi. ed. Willd. iv. 945. Corom* pl.2.JV. 118.

Ramous, sub-erect, hairy, from one to two feet high; *spikes* fascicled. *Hermaphrodite* calyx oval, and rugose; *male* or *neuter* one-flowered.

Grows among bushes.

Culms very ramous, nearly erect, filiform, hairy, from one to two feet high. Leaves numerous, very hairy, stiff and sharp* Spikes terminal, and axillary, peduncled, several together, small, compressed, from half an inch to an inch long. Pant'' cles as in the former. Rachis jointed, much waved and eX* cavated as in Rottboellia. Flowers from four to ten of each sort, their situation exactly as in the last species, viz. the hermaphrodite occupy the forepart, while the male, or neuter are placed on the sides, the former are globular, and the latter lanceolate*

HERMAPHRODITE FLOWERS. Calyx one-flowered, two* valved, exterior valve round or rigid; and very rugose; inner

valve less rigid: *Carol* two-valved, membranaceous. *Stamens* three. *Styles* two.

MALE or NEUTER FLOWERS. *Calyx* two-valved, one-flow-e*-ec.J. *Corol* two-valved. *Stamens* three or none.

ROTTBCELLIA. Sckreb. gen. N. 1572.

Rachis (generally) jointed, variously excavated for the reception of one, or two flowers in a two-valved calyx, in **each** excavation.

1. R. glabra. R.

Near the base creeping, with extremities erect, smooth. *Leaves* bifarious, all hermaphrodite. *Calyx* one-flowered; *cofol* three-valved.

Deny. Btfksha.

A native of Bengal, where *it* grows on pasture lands, the borders of rice fields, and other moist places. Cattle are fond of it.

Culms jointed, smooth, compressed, filled with pith, creep** ing near the principal root for a foot or more, the remaining part from one tp two, or even three feet, erect, ternate, bifarious, approximate, short, spreading, ensiform, smooth. Sheaths shorter than the joints of the culm, smooth. Spikes axillary, solitary, or in pairs, with a solitary terminal one, subulate, three-sided, smooth, short-peduncled, the peduncles with generally a part of the spikes hid in the sheaths of the leaves; general length from two to three inches. Flowers opposite, in general all, or the greatest part hermaphrodite, and as long asjthe joints of the rachis. Calyx one-flowered, two-valved, smooth, cartilaginous. The exterior valve of oue of the pair obliquely emarginate, the other acute. Corol₉,the hermaphrodite and male three-valved, one valve on the inside, and two on the outside; all tinged with deep red at the base.

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2. R. compressa: Linn. sp. pi. ed. Willd. 465. Corom. pi. ii. N. 156. Retz. Obs. iii. 12.

Culms climbing, from five to twenty feet high, smooth, compressed; spikes axillary and terminal; rachisjointed; flowers opposite, hermaphrodite calyces, one-flowered. Corol tbree-valved.

JBeng. Pansheroo.

Teling. Shervoo, ?. e. lake panookoo.

It is found on the borders of lakes, amongst other roots of long grass, and brushwood.

Culms several, creeping or climbing, ramous, compressed, from five to twenty feet long, piped, smooth, about as thick as a common quill, and very hard. Leaves numerous, bifarious, small for the size of the plant, smooth and soft; sheaths short, compressed, and smooth. Spikes peduncled, terminal, and from the exterior axil Is, generally from two to five together, compressed, a little smooth, from two to four inches long. Peduncles articulated at the middle and there bracted, lanceolate, chaffy, bractes also surround their insertion. Flowers all hermaphrodite, opposite, decussated, lodged in the excavations of the jointed rachis. Calyx one-flowered, two-valved, valves nearly equal; the flowers have alternately their valves pointed and somewhat longer than the excavation in the rachis, both cartilaginous; and obtuse, equal to the pits in the rachis, with the exterior oue only cartilaginous. Corol three-valved, valves membranaceous. Nectary, two triangular bodies embracing the base of the stamens and germ. Stamens three. Styles two; stigmas plumose.

3. R. exaltata. Linn. sp. pi. ed. Willd^. 466. Corom. pi. 2. jr. 157.

Polygamous. *Culms* erect, hirsute, from six to ten feet high. *Spikes* solitary, secund. Polygamous flowers on the front with neuter ones on the sides.

Beng. Bwra-swooate.

Teling. Konda panookoo.

A native of mountains.

Root consisting of strong¹ woody fibres. Culms erect, ramous, a little compressed, inwardly of a spongy nature, from six to ten feet high, and as thick as the little finger near the base, where they are armed with strong and short, white hairs. •Leaves large and numerous, smooth on the outside, "and hairy on the inside; margins hispid; sheaths very hairy; hairs elevated on glandular points, very stiff and sharp. Spikes terminal, and from the exterior ax ills, generally solitary, cylindric, &c. Flowers of three sorts, hermaphrodite, male, and neuter, the first and second occupy alternate pits or one side of the spike, while the neuter stand on each side of them, so that the spike may be called secund. Calyx of the hermaphrodite and male floret two-valved. Corol as in the last Stamens &c. as in the genus. Calyx of the neuter flower twovalved, valvelets oblong. Corof, glumes two, membranaceons.

4. K. corymbosa. Linn. sp. pi. ed. Willd. i. 443. Corompi. ii. JV. 181.

Polygamous, erect, smooth, from three to five feet high. *Spikes* fascicled, terminal and axillary; *rachis* jointed; *flowers* alternate, on opposite sides of the spike. *Calyces* generally two-flowered.

Teling. Pedda-panookoo.

R. punctata. Retz. Obs. iii. 12.

Aegilops eraltata. Retz. Obs. ii. 27.

A native of low rich pasture ground, grows in erect tufts.

Culms many, straight, mostly naked, the sheaths of the leaves being short and covering but a small part of them; round and smooth, from three to five feet high, and like those of the last species, very firm, and not piped, leaves a few, from the to twelve inches long; margins sometimes fringed with a few hairs; sheaths short and smooth. Spikes terminal and from the exterior axills several, peduncled. Peduncles

filiform, curved, jointed near the base and there bracted, be-

sides there are chaffy, filiform bractes at their insertions. *JFlowers* alternate in two rows; one row on each side of the spike. *Calyx* two-flowered, two-valved. *Corol*, one hermaphrodite within, and one male without, each has two valves, sometimes there is only one hermaphrodite floret, in which case it has three valves.

5. R. perforate*. Corom. pi. ii. N. 182.

Culms erect, smooth, from three to five feet high. Spikes solitary, below the flowers are opposite, and the rachis perforated. Calyx generally two-flowered; one flower male, the other hermaphrodite.

Iieng. Kurk?.

Teling. Panookoo.

This species is rather scarce, it grows on low rich pasture ground. $,i,,^{\wedge}$.

Culms many, erect, simple, round, smooth, jointed, but not piped; from three to five feet high, and about as thick as a crow's quill. Leaves small for the size of the grass, slender and smooth; margins hispid; mouths of the sheaths and a little way up the base of the leaves woolly. Spikes terminal, and from the exterior arils, solitary, peduncled, round, smooth, as thick as a crow's quill, and from three to six inches long; where the flowers are opposite, there is an oblong perforation of the rachis, so that the backs of the inner glumes of the calyx touch one another. *JFlowers* in pairs, nearly opposite on the lower half or more of the spike; above alternate, sometimes all hermaphrodite, sometimes hermaphrodite and male Calyx one or two-flowered, two*valved; valvelets simple; the exterior one rigid, the interior one firm and white, both obliquely linear-oblong. Corol₉ when single, hermaphrodite, and three-valved; when double the exterior one is male, in which case the two have four valves, viz. two valves each; all membranaceous, in shape conforming to that of the calyx, but smaller.

6. R. setacea. Corom. pi. ii. N. 132.

Erect, setaceous, smooth, from two to six inches high? Spikes solitary, terminal, unilateral; rachis not joined. Calyces one-flowered. Corols two-valved, hermaphrodite.

Grows on old walls.

Culms many, erect, ramous, filiform, smooth, from two to six inches high. Leaves, inside a little hairy, in size proportioned to the plant. Spikes terminal, solitary, awled, secund, about an inch, or an inch and a half Ions:. Rachis excavated on one side, but not joined. JFlowers, they are all hermaphrodite, imbricated transversely on the excavated side of the rachis. Calyx one-flowered, two-valved; valvelets equal, membranaceous margined. Corol two-valved, membranaceous, hairy. Stamens three. Styles two.

7. R. Thomcea. Linn. sp. pi. ed. Willd. i. 464. Corom. pi. ii. N. 132.

Erect, compressed, about two inches high. *Spikes* solitary, terminal, two ranked. *Rachis* not jointed. *Calyces* one-flowered. *Corol* two-valved.

R. Thomeea and pilosa. Linn. sp. pi. ed. Willd. i. 464.5. are, I suspect this very species.

Grows, with the last species, on old walls.

Culms minute, erect, compressed, about an inch high, exclusive of the spike, and two with it. Leaves bifarious, numerous. Spikes terminal, solitary, subulate, distichous, compressed. Rachis waved, excavated on the opposite side, not articulated, /^lowers all hermaphrodite, disposed alternately *u the excavations of the rachis. Calyx one-flowered, two-valved; exterior valvelet rigid, linear; interior boat-shaped, *nd less rigid. Corol two-valved, membranaceous, hairy. Stamens three. Styles two.

K R. Bijfora. R.

Setaceous. Spikes simple, subidate; rachis not articulate,

but bifariously excavated for the reception of the two-flowered spikelets.

A native of the Peninsula of India; and in size and appearance very like R. *Thomcea* and *setacea*; and were they not two-flowered in the same calyx I should no doubt have taken it for R. *incurvata*. *Linn*.

Culms scarcely more than may be called the scapes of the spikes, the whole plants being but two or three inches high. Leaves many, filiform; rachis rigid, and with the sheaths somewhat pilose Spikes terminal, solitary, subulate, about two inches long. Rachis not jointed, but alternately excavated on the opposite sides for the reception of the flowers. Calyx two-valved, two-flowered; valves very unequal, the exterior being many times larger than the inner one, which is a minute scale in the bottom of the excavations of the rachis, and not readily detected. Florets two in each calyx, both hermaphrodite, one sessile and the other short pedicelled, each with a corol of two equal membranaceous, smooth valves.

HORDEUM. Sckreb. gen. N. 129.

Calyx lateral, two-valved; valves narrow, acuminate, distant, altogether forming a six-leaved involucre, one-flowered, by threes at each toothlet of the rachis.

. 1. H. hexastichon. Linn* sp* pi. ed. Willd* i. 473.

All the flowers hermaphrodite and awned, placed regularly in six rows.

Sans. Yuva Sttwshooka.

Beng. Juha.

Arab. She-eer.

This species is much cultivated in most of the temperate parts of Hindoostan during the cool season.

TRITICUM. Schreb. gen. N. 130.

Calyx two-valved, solitary, generally three-flowered.

1. T. astivum. Linn. sp. pi. ed. Willd. i. 4*366.

Calyces four-floweret^entricose, smooth, imbricate, awned.

Sans. Godhooma, Soomwna.

Seng. Gom.

Hind. Gioon.

Pers. Gundum.

Arab. Burr.

Two varieties are very generally cultivated in the interior and northern parts of Hindoostan during- the cool season.

2. T. hybernym. Linn. sp. pi. ed. Willd. 7. 477.

Calyces four-flowered, ventricose, even, imbricated, with little or no awn.

Two varieties of this species are also cultivated in the northern parts of Hindoostan during the cool season.

TRIANDRIA TRIGYNIA.

MOLLUGO. Schreb. gen. N. 139.

Calyx five-leaved. Corol none. Capsule superior, three-celled, three-valved, many-seeded. Embryo annular, and furnished with a perisperm.

1. M. pentaphylla. Linn. sp. pi. ed. Willd. i. 492.

Annual, diffuse. Leaves verticilled, cuneate-lanceolar. -Flowers panicled.

•Hind, and Beng. Khet-papara.

Teling. Yeri Shadrasi.

A common weed in gardens throughout India.

*2. M. trip hy Ha. Lour. CochxnJCh. 79.

Annual, diffuse; branches angular, smooth. Leaves subverticelled, lanceolate, unequal. Panicles of long dickotomous racemes of alternate flowers. Seeds dotted.

Beng. J?/I-p%para.

Alsine multiflora. Pluck. Phyt. 21. t. 259. f. 2. good.

Mullugo stricta. Linn. Syst. 12?. is probably the same plant, if so, the specific name is a very improper one. It is also a weed in gardens all over India.

3. M. vertidMata. Linn. sp. pi. ed. Willd. i. 492.

Annual, diffuse, dichotomous, smooth. *Leaves* sub-verticelled, sessile, cuneiform peduncles inserted amongst the leaves, one-flowefed. *Seed* furrowed along the back.

Obs. Found over most parts of India, and a common weed in our gardens during the dry season chiefly.

CLASS IV.

TETRANDRIA MONOGYNIA.

RHOPALA. Sckreb. gen. N. 144.

Calyx none. Corol four-petalled, bearing the stamina above the middle. Nectary four-scaled. Germ one-celled; ovula two, attached to one side of the cell.

1. R. moluccana. Brown. Linn. Trans, x. p. 191.

Leaves alternate, sub-sessile, oblong, entire, racemes axillary, and from the branchlets, longer than the leaves. Nectarial scales naked.

A native of Pulo Pinang.

As my description is taken from dry specimens I cannot 'y whether it be a tree or shrub, but the large woody specimens evidently show it to be perennial. Leaves short-petioled, alternate, obovate, oblong-, obtuse-pointed, entire and Smooth on both sides, He or more inches long and less than Stipules none. Racemes generally solitary, three broad. from the naked woody branchlets below the leaves, very long and completely clothed to the base with numerous beautiful, diverging, pretty large, delicate flowers. Bractes Calyx none. Petals four, very long and slender, *ear the apex they expand into a concave lanceolate shape for the reception of the stamens; they first open in the middle *len at the apex, and soon after become revolute. *Nectary*, four scales embracing the lower part of the germ. Filaments four, short, inserted into the petals above the middle. An-*ners linear, curved in an opposite direction to the petals, above, ovate, style long and slender. Stigma clubbed.

2. R. serrata. Brown. Linn. Trans, x. p. 192.

Leaves alternate, sub-sessile, oblong, serrate. Racemes axillary; pedicels two-flowered. Nectarial scales ciliate.

A native of the Malay Archipelago. •

My description and drawing being from dry specimens, 1 cannot say whether it is a tree or shrub. Young shoots clothed with ferruginous down. Leaves alternate, short-petioled, oblong, acute, tapering at the base, serrate, firm and smooth on both sides; from four to six inches long, and from one to Racemes axillary, solitary, three broad. Spikelets none. shorter than the leaves, clothed with ferruginous down. Pedicels two-flowered. Bractes minute, cordate, one at the base of each common pedicel. Calyx none. Petals few, long, slender, clavate; from the middle downwards, their sides touch, and form a slender tube. Nectarial scales four between the base of the petals and germ, obcordate, ciliate. Filaments four, inserted on the petals, about one-third below their apices. Anthers ovate. Germ superior, very hairy. Style as long as the corol. Stigma clavate. Seed vessel not seen.

3. R. excelsa. R.

J'eavm alternate, short-petioledj'uneate-oblong, obtuse, pointed, smooth, with a few largenmunt serratures near the apex. Racemes axillary and terminal, as long as the leaves, downy. Nectarial scales four, distinct, and naked.

A large timber tree, a native of the forests of Cbittagongv where it flowers in March and April.

Trunk of the full-grown trees about four feet in circumference, covered with dark-coloured, scabrous bark; branches numerous, spreading far, and dividing much; young shoots clothed with ferruginous down. *Leaves* alternate, short-pd* tioled, cuneate-oblong, obtuse-pointed; interior margins generally with one, two, or three large, blmit serratures on each side, texture firm and polished; length from four to six inches, by two or three broad. *Racemes* axillary, and terminal*

but chiefly the former, one, two, or three together, nearly as the leaves, straight and simple, densely clothed with ferruginous down. *Pedicels* short, two-flowered. *JBractes*, a small °valoneat the base of each common peduncle, and one about the middle of each pedicel. *Flowers* numerous, crowded, small, yellowish green. *Calyx* none. *Petals* four, linearly spatulate, revolute. *Nectarial* scales four, rounded, smooth and distinct. *Filament* short, inserted on the petals. *Anthers* linear. *Germ* oblong, very completely covered with long, reddish brown hairs, one-celled, and containing two ovula attached a little to one side of the bottom of the cell. *Style* fi-Worm. *Stigma* clavate, entire.

4. R. robusta, R.

Leaves alternate, sessile, cuneate-oblong-, smooth, remotely serrulate. Racemes axillary, and below the leaves, smooth. **Nect**ary a smooth four-toothed cup.

Joweea, the vernacular name in Silhet where it is indigenous, and grows to be a large, stout timber tree. Flowering in June.

Young shoots smooth. Leaves alternate, sub-sessile, cuneateblong, obtuse-pointed, remotely and acutely serrulate, stiooth on both sides, about twelve inches long, by five or six broad. Racemes axillary, and below the leaves, one, two, or three together, about hSlf the length of the leaves, smooth. Pedicels short, two-flowered. JBractes smooth, one at the base of each common pedicel, and one about the middle of each of the proper ones. Flowers numerous, pale, greenish yellow, and fragrant. Calyx none. Petals four, linearly spatulate, ooth, revolute. Nectary one-leaved, cup-shaped, obtusely ur-toothed, with the margins somewhat ciliate. Germ supeshors oblong, smooth, one-celled; ovula two, attached to one for the cell. Style filiform. Stigma clavate, entire.

HEDYOTIS. Schreb. gen. N. 153.

Calyx four-parted. Corol one-petalled, funnel-shaped.

Cfipsule inferior, two-celled, many-seeded. Receptacles adhering* to the partition their whole length. Embryo centripetal, and furnished with a perisperm.

1. H. hispida. Retz. Obs. Bot. iv. p. 23. Linn. sp.pL ed. i. 565.

Diffuse, four-sided, rooting- at the joints. Leaves sessile, lanceolate, with hispid margins. Flowers axillary, crowded.

It sprung up and blossomed in December in the Botanic garden, amongst plants introduced from the Moluccas, in 1798-9.

Stem none, but several square, creeping branches, with their floriferous extremities ascending. Leaves opposite, sub-sessile, lanceolate; margins hispid, and entire, smooth, from two to three inches long; the connecting membrane divided into many subulate portions. Flowers axillary, sessile, small, white. Capsule roundish, two-celled. Seeds numerous.

2. H. geniculata. R_m

Weak, straggling, jointed, round, smooth. *Leaves* subsessile, lanceolate, smooth. *Flowers* sub-verticelled, short-peduncled.

A native of the Malay Islands.

3. H. scandens. R.

Perennial, scandent, round, smooth. *Leaves* broad-lanceolate. *Panicles* corymbifonn, terminal; mouth of the tube of the corol and apex of the style bearded.

Gujee, the vernacular name in Silhet, where it is indigenous; flowers and ripens its seed during the hot aud rainy seasons.

Stems and branches perennial, round, scandent. Leaves smooth, short-petioled, broad-lanceolat^ smooth, entire. Stipules cup-shaped, connecting the leaves, with a short process on each side between the leaves. Panicle cory uibiforui, term*-

hal, sub-globular, throughout trichotomous, all the ramifications a little villous. *Bractes* linear, spreading. *Calyx* fourtoothed. *Carol* with the tube longer than the calyx, its mouth and the base of the four linear segments of the borders of the corol very woolly. *Germ* oval, two-celled; *ovula* numerous, attached to the sub-globular receptacles, rising from the middle of the partition. *Style* longer than the corol; *apex* · Coolly; *stigma* two-cleft. *Capsule* ovate, two-celled, many-seeded.

4. H. lineata. /?.

Annual, diffuse, hairy. *Leaves* sessile, ventricose lanceolar, longitudinally marked with simple, parallel veins. *Peduncles* axillary, two or three together, pretty long, many-flowered. *Capsula* round, hairy.

Native of Chittagong, where it blossoms during the rains.

5. H. Auricularia. Linn.

Sub-dichotomous, diffuse, adscending, villous. *Leaves* lanceolate, sub-sessile, smooth above, many-nerved below. *flowers* sub-sessile, densely whorled. *Capsules* villous.

JUariguti. Rheed. Hort. JHaL x. pi. 63. t. 32.

A native of Silhet and Nepal, where the plant blossoms during the hot and rainy seasons. From the former place the plant was introduced in 1815 in the Botanic garden near Calcutta, by Mr. Smith.

lieng. Muttia-Iata.

Root fibrous. Stem short, woody, divided into many slender generally once or twice dichotomous roundish or slightly four-sided branches, measuring a foot in length, densely vil-Ws, sometimes rooting at the base. Leaves lanceolate, taperig* and acute at both ends, an inch or an inch and a half long, even above, with several oblique villous nerves underneath, margins scabrous; pairs approximate and exceeding tength their interstices. Petioles very short, the uppermost somewhat longer, hispid, uniting into a membranaceous, vil-

lous, stipulary membrane, which is terminated by long hispid cilice. Flowers small, crowded into sessile, globose, axillary, copious villous, verticils, concealing, but scarcely longer than the petioles and rendering their stipules reflexed. Ladnia> of the calyx linear. Tube of the corolla scarcely longer than the calyx. Lacinice lanceolar, acute. Throat pubescent. Stamina exserted, erect, shorter than the limb of the corolla, with pubescent Jilaments. Style barbate. Stigma oblong. Capsule small, round, slightly furrowed.

SPERMACOCE. Schrcb. gen. N. 155.

Calyx four-leaved. Corol funnel-shaped. Capsule inferior, crowned, two-celled, two-valved. Seed solitary, longitudinally furrowed on the inside. Embryo erect, and furnished with a perisperni.

1, S. sumatrensis. Linn, sp.pl. ed. Willd. 571. Retz. Obs. iv. 23.

Shrubby, erect, four-sided. *Leaves* lanceolate, remote, sbort-petioled. *Corymbs* terminal, -decompound. *Capsule* opening from the base?.

A native of moist places amongst the Circar mountains. Flowers during the rainy season.

Stem erect, woolly, obsolefely four-sided. Branches opposite, four-&ided. Leaves opposite, spreading, short-petioled, lanceolate, downy; size very various. Stipules connecting, membranous, two or three-toothed. Umbel compound, terminal. Flowers white, very small. Calyx four-leaved. Corol with short, gibbous tube. Capsule oblong, two-celled, two-valved, two-partible from the base. Seed solitary.

Obs. This species ought to be carefully compared with Hedyoti* frnlicosa, Rezt. Obs. ii. 8; and the capsule of the same species in Linn. Flor. ZeyL JV. 63. should be well examined. The stipules seem the chief difference. In my plant they are always a lacerated connecting membrane.

Knoxia corymbosa. Linn. */*. pL ed. Wi/ld. up. 582, which he considers as Gartner's K. stricta, appears to me to be. this plant. Indeed the two genera Spermacoce and Knovia differ so little from one another as to induce me to think one of them inii»ht IK? spared.

2. S. teres. R.

* Shrubby, erect, round, villous. *Leaves* opposite, remote, lanceolate, entire, villous. *Corymbs* terminal, decompound, alternate; divisions becoming* *spikes* when in seed. *Stamens* ei'ect, but hid-in hairs. *Style* twice the length of the corol.

Knoxia umbellata, Bank's. Herb.

Found by Dr. Buchanan in the woods of Koorg, from whence be seut the seed to the Botanic garden, where thr plants thrive well, and blossom during the rainy season.

Stem erect, perennial, round, while young villous. Branches opposite, a little inflected, round and villous, height of the ^iiole plant about three feet. Leaves opposite, short-petiol-<*1, lanceolate, downy, entire; length from two to four inches high. Connecting membrane with several erect, filiform divisions; when they accompany the divisions of the inflorescence, they are more numerous, and may be called an involute. Corymbs terminal, bracbiate, with the ultimate divisions lengthened into short spikes by the time the seeds are ripe. Corolo mouth of the tube shut with much long white hair, which entirely conceals the large, erect anthers lodged amongst it. Style erect. Stigma two-cleft with divisions involute.

Obs. This has much the habit of *lledyotijruticosa*, but differs widely in the stipules, (even if the pericarp of that plant should be that of a Spermacoce,) and in the form of the *stem and branches. It is also very like S. *snmatrensis*. but there the branches are four-sided, here perfectly round • there the tube of the corol is smooth, short and gibbous, here cylin-^ic, and shut with hairs; finally the capsule is there bipartible, opening from the base, with oblong brown seed, in reali-

ty it is that of a *Knoxia*; here it does not open spontaneously, and has black round seed.

3. S. exserta. R.

Shrubby, straight, tender parts villous. *Leaves* remote, opposite, petioled, lanceolate. *Corymbs* terminal, decompound. *Stamina* and the bifid *stigma* exsert. *Capsule* oval.

A native of the Circars, where it blossoms in October and November.

Obs. Is nearly allied to S. *teres*; farther examination may prove them the same.

4. S. glabra. /?.

Shrubby, round, smooth, erect, *heaves* linear-lanceolate,' smooth. *Corymbs* axillary, compound; *styles* hairy. *Stigma* clavate. *Capsules* globular, smooth.

A native of Pulo Pinang, has much the habit of a strong grass or slender bamboo, the situation of the leaves excepted.

Branches round, smooth, straight, jointed, in the dry specimens fistulous". Leaves opposite, sub-sessile, linear-Ianceolate, smooth, entire, length from four to six inches; connecting* membrane with unequal awned processes from its mouth. Peduncles axillary, bearing several cross-armed, minute umbellets or headlets of small cream-coloured flowers-Bractes minute. Corol bell-shaped, mouth of the tube hairy-Style longer than the corol, hairy. Stigma clavate, grooved-Capsule globular, smooth, size of a large pin's head.

5. S. I avis. R.

Biennial, straight, round, smooth. *Leaves* sub-sessile, la*¹⁰ ceolar. *Corymbs* terminal. *Anthers* hid in the bearded mou^ of the infundibuliform corol.

A native of the interior of Bengal; in the Botanic garden it blossoms and ripens its seed from September till February* and is by far the prettiest Spermacoce I have yet met with*

Stems erect, perfectly straight, round, smooth. Branch**

opposite, and like the stems, whole height about three feet., Leaves opposite, sub-sessile, lanceolate, smooth, entire; jfrom one to three inches long. Connecting membrane divided into several subulate segments. Corymbs terminal, compound and decompound. Flowers numerous, large, pale pink. Bractes small, and at the divisions' of the corymbs chiefly. Calvx one of the four segments large, all the segments per-Corol funnel-shaped, before expansion the apex is large, with four horns; after expansion these projections form a conical knob under the apex of each segment. Mouth of the tube bearded. Filaments short; anthers linear, just Germ two-celled, with one seed in each, within the tube. attached to the top of the partition. Style longer than the tube of the corol. Stigma bifid. Segments revolute. Capsule oblong, crowned, two-celled, two-valved; valves keeled on the Seed solitary, longitudinally grooved ou the middle back. of the inside.

Obs. It may be readily distinguished from S. teres (the only species known to me that it can be mistaken for) by its smoothness, greater size of the flowers, and the segments of their borders being enlarged with a conic knob on the outside of their points.

6. S. lineata. R.

Erect, ramous, hairy. *Leaves* short-petioled, lanceolate, acuminate, linear. *Stipules* triangular and shaggy. *Heads* axillary on trichotomous short peduncles *Stamina* protruded.

A native of the Moluccas. The lineate, hairy, very acute, tapering leaves, long shaggy triaugular stipulae, and small peduncled heads of axillary flowers, readily distinguish this species from all the other East Indian species known to me.

7. S. nan a. /?.

Erect, simple, nearly round and smooth; *leaves* petioled, **VOL. I.** 3L

Janceolate, entire, smooth. *Flowers* axillary and terminal, sessile, crowded.

A very small species, less than six inches high, a native of the Island of Honimoa.

8. S. stricta. Linn. sp. pi. ed. Willd. i. 573.

Annual, erect, four-sided. *Leaves* sessile, linear-lanceolate. *Flowers* in dense, globular, axillary verticils. *Capsules* scabrous, gaping at the apex.

Teling. Sookttkada.

An annual, a native of wet rice fields, appears and flowers during the rainy season.

Stem erect, branchy, four-sided, about a foot high, angles acute and scabrous. Branches decussated, stem-like, but slenderer; Leaves opposite, sessile, lanceolate, entire, a little scabrous. Stipule, a connecting membrane, ciliate. Verticils globular. Involucres leaf-like. Flowers most numerous, minute, white. Tube cylindric. Stigma globular. Capsule two-celled, opening at the apex. Seed solitary.

9. S. costala. R.

Diffuse, very downy. *Leaves* broad-lanceolate, or oblong, ribbed. *Flowers* crowded on little axillary, proliferous umbellets. *Stamina* protruded.

Hedyotis Jluritmlaria. Linn.

Supposed to be a native of the Moluccas, as the plant sprung up in the Botanic garden, from some earth brought with the spice plants from those Islands in 1800. It blossoms and ripens its seed during the greatest part of the year.

Root biennial, if not perennial. Stems or rather branches many, diffuse, round, from one to three feet long, clothed with long, soft diverging hairs. Leaves opposite, sub-sessile, broad-lanceolate, entire, ribbed with numerous large, simple, parallel veins; downy on both sides, from two to three inches long, and about one broad; connecting membrane with generally three, unequal, slender, subulate divisions. Flowers axil'

lary, numerous pale pink, very small, crowded together intp small round heads, on short peduncles, and pedicels, the whole forming little, proliferous, villous junbels. *Involucre* and *involucels* annular, villous, from three to six-parted. *Calyjr*, divisions equal, acute, hairy,. *Corol* funnel-shaped, hairy on the outside, and in the throat of the tube; divisions of the border recurved. *Stamens* protruded beyond the mouth of the corol. *Germ* beneath, broad-turbinate. *Style* about as long as the tube of the corol. *Stigma* two-cleft, villous. *Pericarp* with two seeds.

10. S. semirrecta. JR.

Stem variously bent, but ascending, square. Branches brachiate, alternately smaller. Leaves ovate. Flowers in small, compact verticils. Stamens and style inclosed. Capsule turbinate, hairy.

A native, 1 suppose, of Sumatra, as the plant from which this description is taken, sprung up in a bed, where earth from that Island had been thrown, and in one year was about a foot and a half high.

The *lower branches* brachiate; the *superior* often solitary, they are all very exactly four-sided with angles sharp and somewhat hispid; in other respects they are very smooth. *Leaves* opposite, with smaller ones in their axills, short-petioled, acuminate, entire, very slightly scabrous, particularly thei\wrgin\$, with nerves and veins on the underside. *Connecting* membrane divided into several filiform portions. *Flowers* numerous, very small, white, sessile, collected into small compact, round verticils. *Corol*₉ divisions of the border bearded in the centre. *Anthers* within the tube.

U.S. scabra* linn- sp. pi. ed. Willd. i. 572.

Annual, diffuse, round, hairy. *Leaves* opposite, sessile, round, obovate, the hairy margins much curved, and somewhat curled. *Flowers* axillary, sessile. *Stamens* and *style* erect.

 $_m$ Tardavel. *Rheed. Hort. Mai.* 9. p. 149. /. 76. The leaves however are a little too sharp for our Coroinandel plant.

Stem short and generally annual. Lower branches opposite, superior alternate, round, coloured, very hairy, somewhat scabrous, weak, spreading and variously curved. Leaves opposite, sessile, round, obovate, or nearly oval, somewhat acute; hairy on both sides, edges recurved and more or less curled. Connecting stipule with three, four, or five filiform processes. Flowers axillary, generally in pairs, though often several together, but expanding in succession, sessile, small, purple. Calyx, the four divisions or in this species rather leaflets, lanceolate, nearly as long as the tube of the corol. Corol sub-cam panulate, half ftyir-cleft. Stamens as long as the segments of the corol. Style as long as the stamens. Stigmas two, two-Iobed, segments re volute. Capsule oval, two-celled. Partition membranaceous. Seed solitary, oval, equally obtuse at each end.

12. S. articularis. Linn. sp. pL ed. Willd. i. 572.

Annual, diffuse, four-sided. *Leaves* opposite, sessile, broadlanceolate; connecting stipules from three to five-bristled. *Flowers* verticelled. *Corol* infundibuliform, four times longer than the calyx. *Stamens* and *style* erect.

A native of the sandy soil on the coast of Coronrandel near the sea, and in flower the greatest part of the year.

Root generally annual. Stem scarcely any, but many diffuse straggling, four-sided, alternate, hispid branches from one to two feet in length. Leaves opposite, sessile, lanceolate, a little hairy; veins simple, from one to two inches long, and half an inch broad. Connecting stipules cup-shaped, with from three to six bristles from each side. Flowers axillary, sessile, two, three, or four, expanding in succession from the same axill. Calyx with slender, linear divisions. Corol infundibuliform. Tube slender, three or four times longer than the caylx. Stamens erect. Stigma erect, bifid; lobes

broad, and revolute. *Capsule* two-celled, partition membrar naceous. *Seed* solitary, oval, furrowed on the flat side.

13. S. hispida. Linn. Mant. 558. sp. pi. ed. Willd. i. 572. Annual, with diffuse, obsoletely four-sided, hairy branches. Leaves obovate, cuneate, waved, scabrous. Flowers verticelled, two, three, or four in each axill. Tube of the corol twice the length of the calyx. Stamens and style erect.

Teling. Madana-bunta-kada.

Galeopsis zeylanica. Burm. Zeyl. 20. f. 3. agrees pretty well with my plant except in the numerous pedicelled flowers.

Common on the sandy lands near the sea on the coast of Coromandel.

HYDROPHYLJX. Schreb. gen. N. 159.

· Calyx four-parted; •corol campanulate. Germ two-celled, one-seded, inferior. Capsule inferior, angular, two-celled. Seed solitary; embryo erect, and furnished with a perisperm.

1. H. maritima. Linn, sp.pl. ed. Willd. i. 581. Sarissus anceps. Geert. carp. i. p_m 118. t. 25.^/1 4. Diodia orientalis. Kon. Mss.

A native of the sand hills along the shores of Coromandel and Malabar, where it is in blossom most part of the year.

Root perennial. Stem none, but many long, slender, variously bent, striking, round, coloured branches running over the sand and often striking root from the joints. Leaves opposite, approximate, short-petioled, from a deep, stem-claspfog, dentate cup. Flowers axillary, sub-sessile, one or two together, of a pale pink colour. Calyx above, four-parted; divisions ensifbrin, permanent. Corol campanulate, tube hairy on the inside near the bottom, the four divisions of the border ovate, spreading, with their apices somewhat revolute* Filaments four, erect, shorter than the corol, and inserted on

the mouth of its tube, opposite to its fissures. Anthers pur* pie. perm oblong. Style length of the corol. Stigma of two round lobes. Pericarp when ripe a dry berry, of a lanceolate shape, crowned with the remaining calyx, two-celled, with a single linear oblong- seed in each, as detailed and figured by that very eminent and most accurate botanist Geertner.

RUBIA. Schreb. gen. N. 164.

Calyx scarcely any. Corol one-petal led, from four to five-parted. Berries inferior, twin. Seeds solitary. Embryo erect, and furnished with a perisperm.

1. R. JUunipsta. R.

Perennial, scandent. *Leaves* four-fold, long-petioied, cordate, acute, from five to seven-nerved, hispid. Coro/flat, five-parted, pentandrous. Fleming in *Asiat. Res.* xi. 177.

* Sans. Munjtstha, Vtkusa, Jing-ee, Stnnr/nja, Katomeṣh/ka, Mundookie urnee, Bhtcndeeree or Bhzmdtree, Bhundee, Yozunwullee.

Beng* Mtinjft or Mtcnjistha^

A native of Nepal, and other mountainous countries, north and north-east of Bengal. It grows in the Botanic garden at Calcutta, but requires uncommon care to keep it alive during the rainy season, and has never blossomed there.

Root perennial. Stems woody, scandent, climbing- over trees and bushes. Branches cross-armed, from the axill of the large pair of leaves, jointed, swelling at the joints, hairy for'a little distance below them, four-sided, angles sharp and armed with small, recurved prickles; the exterior cortex, which forms these angles, drops off by age, leaving the longer branches and stems round, and covered with a soft reddish somewhat downy bark. Leaves four-fold, petioled, one of the pairs always much larger, viz. about double the size of the other, and with longer petioles, all are beautifully cordate.

entire, acute, pointed, generally five or seven-nerved, though in the largest there are sometimes nine, and in the smallest three, or even sometimes obliterated; these nerves are armed with small recurved prickles, like those on the angles of the branchlets; both sides channelled. *Panicles* terminal, oblong, composed of numerous, opposite, small, sub-globular, trichotomous panicles from the axill of the floral leaves. *Peduncles* and pedicels four-sided, smooth. JBractes opposite, sessile, Flowers numerous, minute. Calvx, if any, long, cordate. so minute as not to be visible. Corol flat, five-parted; divisions lanceolate, acute, with points inflected. Stamens five, shorter than the corol. Germ beneath, twin. Style scarcely any, stigrna large, two-cleft. Berries two, or one; the second not always coming to maturity, globular, size of a small grain of pepper, smooth. Seed single, round) smooth, with a deep pit on one side.

Obs. It differs from R. cordifolia in being pentandrous. The roots, stems, and larger branches are used to dye red with.

IXORA*. Sckreh. gen. N. 167.

Calyx four-toothed. Corol one-petalled, funnel-shaped. Tube long, with the stamina in its mouth. Germ two-celled, one-seeded, lateral. Mtry inferior, two-seeded. Embryo erect, curved, and furnished with a perisperm.

1. I. cocdnea. Linn. sp. pi. ed. Willd. i. 609.

Shrubby. *Leaves* oblong, cordate, sessile, acute, smooth, entire. *Segments* of the corol ovate-lanceolate, acute. *Berry* crowned wilh the shut segments of the calvx.

Schetti. Rheed. Mai. ii. p. 17. /. 12. is a pretty good figure

* Sir William Jones observes (*Asiat. Res.* iv. 251j, that no Wian god was ever named IXORA; he adds at the same time that ¹⁸WARA, which is indeed a title *of Shiva*, would be a very improper appellation of a plant which has already a classical name.

of it, but the description of the colour oF the flowers does not so M^II agree*

Jasminutn flore tetrapetalo. Burnt. ZeyL 125. t. 57, good.

In the Tanjore country and in China I have found this most beautiful shrub in great abundance in its wild state. In a cultivated state it flowers all the year round. I have had it eight years in my garden, and it is not more than three or four feet high, with many erect branches, but scarcely any thing like a trunk.

Leaves opposite, sessile, approximated, decussate, oblong, pointed, entire, smooth, shining, from three to four inches long, and one and a half broad. Stipules within the leaves with an aw led process on each side. Corymb terminal, three-forked. Bractes small, rigid. Peduncles and pedicels short, coloured. Flowers numerous, pretty large, bright scarlet, inodorous. Calyx four-toothed; divisions acute. Coroi, stamens and pistil as in the genus. Berry size of a small cherry, red, juicy, two-celled. Seed solitary, convex on one side, and flat on the other.

Obs. Flamma sylvarum. Rumph. Jlmb. $iv_m p$. 105. t. 46. is a very bad representation of this species, and much more like my Ixorajulgens. I have therefore doubtfully quoted it for that plant.

2. I. Bandhuca. R.

Shrubby, spreading. Leaves oval, stem-clasping. Corymbs crowded. Segments of the corol ovate, obtuse. Berries crowned with the open calyx.

Asiat. Res. iv. p. 250.

Sans. Ruktuka, Btmdhooka, or Bundhooka, Bicndhoojeevtcka.

Beng. Rftngtcn, R?/j«na.

A very elegant, uncommonly ramous, bushy shrub, » native of Hindoostan. Sir William Jones observes that the flower is often mentioned by the best Indian Poets. It is to



flower the whole year but chiefly during¹ the rains, when it is highly ornamental.

Stem none, but branches innumerable, which divide much and spread close on the ground, forming a large hemispherical bush: Bark of the large branches dark brown, and rather scabrous; that of the young shoots, smooth, and green. leaves opposite, stem-clasping, oblong, obtuse, with a small point, entire, firm, smooth on both sides. Stipules interfoliaceous, annular, with a subulate process on ^ach side. Corymbs terminal, crowded, divisions many, but short. Flowers Numerous, when they first open scarlet, changing afterwards to crimson. Bractes opposite, conic, acute. Calyx superior, four-toothed, coloured, permanent. Corol with a very long slender tube; segments of the border four, ovate, rather obtuse, spreading, filaments four, short, inserted without the mouth of the tube, spreading, anthers linear, spreading. Germ two-celled, with one seed in each, attached to the mid-Style length of the tube of the corol. dle of the partition. Berry spherical, size of a large pea, smooth, Stigma bifid. fleshy, when ripe purple, two-celled. Seed solitary, oval, convex on the outside flat, with a deep pit on the inside. Integuments two; exterior nuciform; ittner membranaceous. •Perisperm conform to the seed, cartilaginous. Embryo erect, curved, nearly as long las the perisperm. Cotyledons reniform, cordate. Radicle cylindric, longer than the cotyledons, ^{ll}*ferior.

Obs. This species is nearly allied to I. coccined, but differs 'U the following respects:

- 1st. This is a very ramous spreading bush, that much less *** and nearly erect.
- 2d. In this the leaves are stem-clasping, and obtuse; in that sessile and acute.
- 3d. In this the segments of the border of the corol are ovate, and rather obtuse; in that ovate-lanceolate, and acute; and lastly,

4th. The calyx on the fruit is open in this species, in that shut into a conical point.

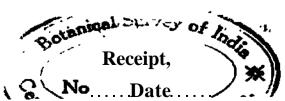
3. *fvlgens. R.

Shrubby. Leaves sub-sessile, lanceolate, acute. Corymbs terminal, highly coloured* Segments of the calyx cordate. Tube of the corol long¹ and filiform, with smooth contracted mouth; segments lanceolate, and larger than the erect stamens. JJet ries two-lobed.

Flamma sylvarum. Humph. Amb $_{\%}$ iv. 105. U 46? pretty good.

This elegant, highly ornamental shrub is a native of the Moluccas, and from thence was introduced iuto the Botanic garden, where it blossoms most part of the year.

Trunk short, soon dividing into many straggling weak branches, covered with smooth dark-brown bark. opposite, short-petioled, lanceolate, entire, acute, smooth on both sides; from six to eight inches long, and from one to three broad. Stipules connecting, with an acute point on each side. Corymbs terminal, composed of short, decussate, highly coloured branches, and branchlets, supporting numerous, short-peduncled, long-tubed, pretty large, scarlet flowers, with the four segments of their border acute, and broad-lanceolate, stamens erect. JJerry two-lobed, size of a marrowfat pea, smooth, when ripe of a deep purple, two-celled* Seeds solitary, nearly round, convex on the back, with a deep cavity on the inside, and from thence attached by a thick short cord to the centre of the partition. Integuments two,# the exterior corresponding with what Gaertner calls the arillus in Coffea, ash-coloured, and firm like parchment; the inner membranaceous, and darker coloured. Perisperm conform to the seed, pale blue, and of a soft cartilaginous consistence. Embryo erect, one-third shorter than the perisperno* Cotyledons two, cordate. Radicle sub-clavate, incurved. ferior.



4. I. slricta. R.

Shrubby, straight. *Leaves* sub-sessile, oblong. *Corymbs* dense, compound, hemispheric. *Lacinia** of the corol rounfl, spreading. *Anthers* bristle-pointed.

Ixora coccinea. Lourier, Cochin Ch. 95. Curtis's Botanical Magazine, No. 169.

Flammasylvarum peregrina. *Rumpk. Arab.* iv. 107. *t.* 47. This beautiful plant was brought to the Botanic garden ^{2r}om the Moluccas in 1795\$, where it is in constant blossom the whole year round; but rarely ripens its fruits. The plant, when in flower is highly ornamental, though by no means so S^udy as I. *coccinea* and *Bandhuca*₉ which are certainly two °f bur most showy Indian shrubs.

Trunk scarcely any, but a few perfectly straight branches, covered with dark-brown smooth bark; height from three to four feet. Leaves opposite, sub-sessile, oblong, entire, smooth Stipules interfoliaceous, long, taper, acute-°i both sides. Corymbs terminal, very dense, sub-hemispheric, Primary divisions brachiate, and short, extreme divisions trichotomous; all smooth and of a bright, deep red colour. Flowers numerous, colour at first a lively orange approaching to scarlet, becoming deeper and deeper from the time of expansion. Calyx bright red, fleshy; divisions short and ob-^se. Corol₂ tube, cylindric. Border of four round, spreading ** ginents. filaments without the tube, short, spreading, flat, ^ith their linear acute anthers over the divisions of the border Stigma two-cleft, elevated a little above the °f the corol. ^outh of the tube. Berry spherical, smooth, succulent, red, ^{tXv}o-celled, with a single rugose seed in each.

Obs_m In the Botanic garden at Calcutta there is a more ramous variety of this charming-plant introduced from China, where it is called Hong-mou-tang, with pale pink flowers which it bears in abundance all the year.

⁶- I. alba. Linn. sp. pL ed. i. 906. Leaves sessile, broad-lanceolar. Corymbs decompound,



dense, sub-hemispheric; *lacinice* of the corol obovate and reflexed.

* Until I came to Bengal I had not an opportunity of seeing this elegant plant. I have found it only in gardens. Flowering time the hot and rainy seasons. The shrub itself is much like *Ixora coccinea*.

Ramous, erect, and smooth in every part. .Leaves opposite, sessile, broad-lanceolar, smooth, a little waved, from three to six inches long. Stipules within the leaves. Corymbs terminal, compound, or decompound, dense, often hemispheric; divisions or sub-divisions by threes. Floioers every numerous, inodorous, white, with a straight, rather longer and more slender tube than in Ixora coccinea; divisions the border reflexed, obovate.

Obs. This is probably nothing more than a variety of I* *stricta*, or that of this. It was originally brought from China, where it is called Ta-mou-tang.

6. I. cuneifolia. JR.

Shrubby. Leaves broad-cuneate, lanceolate, pointed. Corymbs terminal, long-peduncled. Flowers crowded; segments of the calyx oblong, conic.

A native of the country about Dacca, from thence the late Colonel Peter Murray sent seeds to the Botanic garden, where the plants grow freely, blossom in March, and ripen their seed in August and September.

Trunk short. Branches opposite, nearly erect, round and covered with smooth brown bark; young shoots smooth, and green. Leaves opposite, short-petioled, broad, cuneate, lanceolate, recurved, entire, taper, obtuse-pointed, firm and polished, somewhat bullate; length from four to six inches, by one and a half or two broad. Stipules tapering, subulate? pointed. Corymbs terminal, long-peduncled, trichotonious alternate divisions ending in fascicles of sub-sessile, crowded? pure white flowers, with a slight tinge of pink on the outside. Bractes in opposite pairs, at the various divisions of the

rvnib and under the calyx subulate. Flowers very numerous, pure white, fragrant. Calvx four-cleft to the base, divisions *ong, narrow and acute. Tube of the corol cylindric, very slender, three quarters of an inch long¹; the four segments of the border oblong and obtuse. Filaments from the inner e «ges of the fissures of the border of the corol. Anthers narro*v, sagittate. Germ oval, two-celled, with one seed in each, attached to the middle of the partition. Stigma of two linear lobes, elevated considerably above the mouth of the tube. Berry round, turbinate, size of a small cherry, when ripe bright red, and smooth, two-celled. Seed solitary, round, oval, convex on the outside, with a large deep pit on the inner. ^teguments two; exterior nuciform; inner membranaceous, and greenish. Perisperm conform to the seed. Embryo erect, Ourved like the convex seed. Cotyledons reniform. Radicle cylindric, length of the cotyledons, inferior.

Obs. VahPs figure of I. parviflora, Symbol. Bot. iii. t. 52, much like this plant; his description however agrees better with what I have always considered to be his parviflor a, and which is so labelled in Sir Joseph Banks's herbarium. They differ in the following respects. That (I. parviflora) is a tree, thism shrub; in that the leaves are linear oblong with * Cordate base, of a much firmer texture, and more polished; it this they taper for two-thirds of their length to the base, (hence the specific name cuneifolia.) In that the segments of the calyx are short and obtuse, in this long and acute. In that the berries are round and black; in this short, turbinate and red. The corymbs also differ somewhat. In both species time flowers are white, but in this much larger.

^- I. brachiata. R.

Shrubby. Leaves short-petioled, lanceolar. Panicles brate, with remote, diverging branches.

A stout shrub, a native of the forests of Bengal. In the tanic g-arden it flowers in March, and the seeds ripen in ay.

Trunk erect. Branches opposite, spreading much, but they are not so numerous as in I. parvi flora. Bark brown, and pretty smooth. Leaves opposite, short-petioled, lanceolar, obtuse, smooth, of a hard texture, from foui to six inches long, by less than two broad. Stipules triangular, acute. Panicles terminal, brachiate; ramifications few, remote on long, round, sinooth peduncles. Flowers numerous, minute, much smaller than in I. parviflora. Calyx small, deeply four-toothed, coloured. Corol with a filiform tube; segments of the border obovate, einarginate. Filaments none. Anthers linear, attached by their backs to the bottom of the fissures of the border of the corol. Germ turbinate* two-celled, with one seed in each, attached to the partition. Style scarcely longer than the tube. Stigma large, two-Iobed. Berry the size of a large pea, smooth, succulent, dark brown purple, two-celled. Seeds solitary, round, convex, on the outside concave, with a pit on Integuments two, exterior white, hard, thin, and the inner. elastic; inner tender and thin. Perisperm acetabuliform, amygdaline. Embryo erect, curved. Cotyledons cordate. Radicle cylindric, curved, inferior.

- Obs. A handsome shrub, and nearly allied to VahPs I. parviflora, though very different from the plantoso labelled in the Banksian herbarium, which grows in abundance in this garden.
- * 1st. In the shape of the leaves, which in that species are sub sessile, and generally have a broad stem-clasping base; in this the petiole is about half an inch long, and the leaves taper more towards the base than at the exterior end.
- 2d. In the thinness of the pani&le, (though of the same conformation), and the size of the flowers, which in this species are much smaller, and every way more delicate, and also in their shape, which in that species, is oblong before expansion, but in this round.
- 3d. In this the anthers are sessile, in that they have short filaments.

8. I. villosa. /?.

Shrubby. *Leaves* broad-cuneate, lanceolar, villous underneath. *Corymbs* super-decompound to the sixth or seventh degree, divisions trichotomous, villous. *Calycine* segments oblong and ciliate.

 $B^{**}ng$. Choonaree.

This .species is a native of Silbet, where it grows to be an eregant middling sized shrub with large crowded corymb sof fragrant white flowers which appear in May and June.

Young shoots straight and villous. Leaves opposite, short-petioled, broad-cuneate, lanceolar, entire, acuminate, underneath soft with very short down; from six to ten inches long, by from two to four broad. Stipules downy, with the ends tubulate. Corymbs terminal, from four to eight times trichotomous, all the divisions downy, and the last three-flowered. Bractes opposite, downy; two slender small ones pressjpg the base of each calyx. Calyx four-parted, segments oblong, ciliate. Corol with a very long, smooth, filiform tube; segments of the border four, oblong, spreading; in the oblong obtuse bud they are imbricated.

9. I. acuminata. R.

Shrubby. Leaves petioled, lanceolar, acuminate, smooth; *fl*ral pair stem-clasping, and broader. Corymbs super-de-co'npound, much crowded, and smooth. Calycine segments ensiform.

A very charming shrubby species, a native of the forests **hear** Silhet, where it blossoms during the hot season, and perfl*mes the air with the fragrance of its flowers.

10. I. parviflora. Vahl. Symbol, iii. p. J1. *. 52. Linn. sp. *'• ed. Willd. i. 609.

Arboreous. Leaves sub-sessile, oblong, smooth. Panicles ovate oblong-, decussated. Lacinice of the corol ovate. Style v. Berries round.

Beng. Gundhul-rungun.

jTeling. Tadda-pullu.

Among the mountains of the coast of Coromandel this species grows to be a pretty l&rge tree; in the low lands it is much smaller, seldom exceeding fifteen or twenty feet in height. Flowering time February and March.

Bark dark-coloured, scabrous. Reaves opposite, short* petiolcd, linear-oblong, pointed at the base, often cprdate; smooth, shining, firm, entire, from three to four inches long, and from one and a half to two broad. Stipules as iu I. coccinea. Panicles ovate, terminal, erect, cross-armed; divisions always three-forked. Bractes at the principal divisions stipulaceous, with four subulate processes; the rest are small, one below each ramification. Flowers small, white, fragrant. The style is hairy. Berry generally two-seeded, somewhat two-lobed, size of a pea, black.

11. I. *barhata*. *R*.

Tube of the corol long; mouth bearded. Leaves opposite, short-petioled, oblong, entire, smooth, shining; floral leaves, round cordate, sessile. Panicles open.

This elegant, densely ramous, large shrub, or small tree, 1 have found only in the Botanic garden. Flowering time the hot season.

Trunk scarcely any, branches numerous, opposite. Leaves opposite, short-petioled, oblong', entire, smooth, and shining' on both sides, from six to nine inches long. Stipules with the leaves as in the other species. Corymbs, or rather panicles terminal decompound, large, diffuse, always tricbotomous, smootos Pfevery part. Bractes, the lowermost pair embracino the base of the common peduncle, large, and cordate, (they may be called floral leaves;) the rest gradually decrease in size till they become veiy minute at the ultimate divisions. Calyx as in the genus, with acute divisions. T*** of the corol long and slender, its mouths crowned with long white hairs. Style the length of the corol. Stigma clubbed*

just without the mouth of the tube, apex slightly 'bjfid. Berry red, smooth, size of a pea, two-seeded.

Obs. Bern-Schetti, *Rheed. Mai.* ii. p. 19. t. 13, is a tolerable representation of this plant, but a bad one of what I cob* sider to be *lxora alba*..

12. I. undulata. Rl

Leaves opposite, broad-lanceolar, acute, much waved. Panicles terminal, open; divisions of the calyx acute. Filanients as long as the anthers. Stigma two-cleft; Berries transversely oval.

Beng. Palieka-Joot.

A ramous shrub, a native of forests in Bengal, flowering time the hot season.

Leaves opposite, sub-sessile, spreading, broad-lanceolar or oblong, pointed, margins much waved, smooth on both sides but not shining. Stipules within the leaves, with a long awled process on each side. Corymbs or rather panicles terminal, decompound, &c. as in I. barbata, but much smaller. Bractes as in the other species. Flowers numerous, small, white. Calyx, divisions acute. Carol, divisions on the border reflexed, rather shorter than the tube. Filaments from the fissures of the corol, pretty long, spreading and variously bent. Anthers as in the genus. Style rather longer than the tube. Stiff ma two-cleft; divisions recurved.

13. I. *Pavetta*. *R*.

Shrubby. Leaves short-petioled, smooth, entire. Panicles fastigiate, axillary, and terminal. StyldQfice the length of the corol. Stigma entire. Berries globular.

Pavetta indica. Linn. sp. pi. ed. Willd. i. 610.

Pavetta, s. Mallearaothe. *Rheed. HorU Mai.* v.19. t. 10, is ^cWainly this plant.

•Beng. Kookoora-choora.

Teling. Noohi-papoote*.

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A middle sized shrub, common on road sides, hedges, uncultivated lands, &c. where there is a good soil.

Branches cross-armed, ascending. Bark mash-coloured. Lfaves opposite, petioled, oblong, entire, pointed, always smooth or both sides; which forms the chief difference between (his and the next species; from four to six inches long, and two, on two and a half broad. Stipules as in the former species. Corymbs compound, terminal, large, nearly level-topped, cross armed. Peduncles and pedicels round, and smooth. Bractes as in the former species. Flowers white, somewhat fragrant. Calyx, divisions obtuse. Style twice the length of the tube.' Stigma clubbed. Berry globular, size of a pea, one or two-seeded.

14. I. tomentosa. R.

Shrubby. Leaves oblong, ventricose, entire, tomentose. Panicles lax, sub-globular, tomentose; style twice the length* ofihecorol. Sliyma entire. Berries globular.

Beng. AooL

Teting. Nain-papoota.

A large shrub, native of the same places, butnot so common as the last described. Flowers the beginning of the hot season.

lirancltes cro>s-anned, ascending. Bark ash-coloured. Leaves opposite, petioled, ovate, pointed, entire, both sides very downy, front four ,to eight inches long, and from three to five broad. Stipules as in the former species. Panicles terminal, globular, cross-armed, divisions always three-forked. Peduncles and pedicels round, downy. Bractes as in the former species, /^/ot^r* numerous, white, faintly fragrant. Style twice the length of the tube. Stigma clubbed, berry generally two seeded.

Obs. In all the foregoing species the berries are two-seeded, though it often happens that but one comes to perfection,. I never met with any that hud three or fpur. I do not find, that the inhabitants of these parts make use of the trees,, except for luel.

15. tenuiflora. R.

Leaves short-petioled, oblong, obtuse, smooth. Panicfes terminal, coryinbifonn, contracted. Segments of the calyx cordate, and obtuse, tube of the corol long-, and most slender. Segments of its border oblong, obtuse, and longer'than the erect style,, or stamina.

A native of the Moluccas, and with flowers infinitely more delicate than I. Jülgens which it most resembles.

16. I. congest a. JR.

Shrubby. *Leaves* short-petiolcd, oblong', strongly veined. *Corymbs* terminal, short, dense. *Flowers* sub-sessile. *Segments* of the calyx obscurely reniform; those of the border of the corol oblong, and obtuse.

A native of the Moluccas, and differs from *I. Julgens* in the firm somewhat coriaceous leaves, with stronger parallel veins.

17.1. lanceolaria. Colebr.

Shrubby, smooth; branches slender, pendulous, sub-dichotomous. Leaves in approximate pairs, very long, linearlanceolate, acuminate, short-petioled. Con/mo terminal, subsesfcile, small, with coloured scaly, crowded peduncles. Tube
cf the corol filiform; lacinice linear-oblong*. Anther's linear,
with deeply bifid base.

A native of Tra van core. Introduced into the Botanic garden by Dr. A. Berry in 1803. Time of blossoming the hot season; the fruit ripens towards the close of the rains.

An erect shrub, five, six, or even more feet high, with dichotomous, vtery little spreading", ash-coto&red branches. ^ranchlets very slender ond twiggy, hanging, green, with Numerous compressed widened joints, like all the other parts ®f the plant smooth. Leaves spreading, from five to seven it *ches long and almost asr many times exceeding their interstices, an inch or less broad a little above their acute base, fron thence tapering into a sharp acumen, opaque and somewhat glaucous above, pale beneath, with a slender white rib

and very fine sub-opposite nearly transversal nerves which comnftnicate with each other in sub-marginal arches. tiqles about two lines long, channelled. Stipules adpressed. lanceolate, as broad as the interstices between the insertion ofc the two opposite leaves, tapering into a subulate point which generally exceeds the petioles in length. Corymb small, supported by a pair of very short leaves, consisting of twice or thrice trichotomous, reddish, pubescent peduncle*, with opposite linear, subulate bractes under each division, having a stipuliform, fimbriated process' between their bases. Pedicels ternate or fascicled, two or three lines Ion''*, with three pairs of reddish fleshy subulate scales, the upper-Calyx very small, oblong, most adpressed to the calyx. reddish, with erect subulate teeth; at the bottom, within, there is a series of fleshy, subulate, withering and sphacelated cilice as in the family of Asclepiadece and Jlpocyyiece. Corolla white; tube slender, half an inch long; limb spreading, equalling the tube, with linear oblong-falcate, slightly pubescent lacinice. Anthers linear and long, the base bifid and ending in two whitish processes. Filaments short, exsert-Style clavate. Stigma two-lobed, subulate, spreading, elevated above the mouth of the corolla. Berry as large as a marrow-fat pea, red, smooth, crowned with the four subulate, erect teeth of the calyx. Seeds cup-shaped, hemispherical.

PYROSTRIA. Juss. gen. ed. UsL 229.

Calyx four-toothed. Corol with cylindric tube, and four-deft border. Drupe inferior, with as far as eight, one-seeded nuts.

1. P. hexasperma. /?.

Leaves opposite, short-petioled, oblong, acute, entire. Corymbs axillary, and also within the cuspidate, hairy, stipules, dichotomous. Drupe six-seeded.

•« A native of the Island of Honimoa.

Tender shoots clothed with brown hairs. Leaves opposite, approximate, short-petioled, oblong*, acute, entire, a little hairy: from three to four inches long. Stipules within the leaves cuspidate, hairy. Peduncles opposite; with the stipules many time? longer than the petioles, each ending* in a small twice dichotomous, corymbiform, panicle of recurved secund spikes. Bractes subulate, one-flowered. rather small, hairy. Calyx four-toothed. Corol with a slender, cylindric, villous tube, and contracted, four-parted Filaments uone. Anthers linear in the mouth of *hc tube of the corol, and affixed to it by their backs. Germ Style shorter than the corol. Stigma simple. Drupe round, sijffbbed; size of a pea. Seeds or nuts regularly six, sub-cylindric.

SALVABORA. Schreb. gen. N. 220.

Calyx four-toothed. Corol one-petioled, four-cleft. Style none or short. Berry inferior, one-seeded.

1. S. persica. Linn. $sp.pl.ed_m$ Willd. i. 695. R. Corom. pl.i.N.26.

Rivina paniculata. Syst. nat. x. p. 899.

Teling. Pedda-warago-wenki.

A middle sized tree, a native of most parts of the Circars, though by no means common; it seems to grow equally well ia every soil. Produces flowers and ripe fruit all the year round.

Trunk generally crooked, from eight to ten feet high to the branches, and one in diameter. Bark very scabrous, and deeply cracked. Branches exceedingly numerous, spreading, *** their extremities perfectly pendulous, like the weeping *rillowaves* opposite, petioled, oval or joblong, entire, *very* smooth, and shining on both sides, without veins; from o*ie to two inches long, and about one broad. Stipules none.

and very fine sub-opposite nearly transversal nerves which communicate with each other in sub-marginal arches. tiques about two lines long, channelled. Stipules adpressed. lanceolate, as broad as the interstices between the insertion o& the two opposite leaves, tapering- into a subulate point which generally exceeds the petioles in length. Corymb small, supported by a pair of very short leaves, consisting of twice or thrice trichotomous, reddish, pubescent peduncle*, with opposite linear, subulate bractes under each division, having a stipuliform, fimbriated process between their Pedicels ternate or fascicled, two or three lines long, with three pairs of reddish fleshy subulate scales, the uppermost adpressed to the calyx. Calyx very small, oblong, reddish, with erect subulate teeth; at the bottom, within, there is a seriefe of fleshy, subulate, withering and sphacelated cilice as in the family of Asclepiadece and Jlpocynece. Corolla white; tube slender, half an inch long; limb spreading, equalling the tube, with linear oblong-falcate, slightly Anthers linear and long, the base bifid pubescent *lacinice*. and ending in two whitish processes. Filaments short, exsert-Style clavate. Stigma two-lobed, subulate, spreading, elevated above the mouth of the corolla. Berry as large as a marrow-fat pea, red, smooth, crowned with the four subulate, erect teeth of the calyx* Seeds cup-shaped, hemispherical.

PYROSTRIA. Juss. gen. ed. Usi. 229.

Calyx four-toothed. Corol with cylindric tube, and fourcleft border. Drupe inferior, with as far as eight, one-seed* ed nuts.

1. P. hexasperma. R.

Leaves opposite, short-petioled, oblong, acute, entire. Corymbs axillary, and also within the cuspidate, hairy, stipules, dichotomous. Drupe six-seeded.

-» A; native of the Island of Honimoa.

Tender shoots clothed with brown hairs. Leaves opposite, approximate, short-petioled, oblong, acute, entire, a little hairy from three to four inches long. Stipules within tHe leaves cuspidate, hairy. *Peduncles* opposite; with the stipules many times longer than the petioles, each ending* in a small twice dichotomous, corymbiform, panicle of recurved Bractes subulate, one-flowered. secund spikes. rather small, hairy. Calyx four-toothed. Corol with a slender, cylindric, villous tube, and contracted, four-parted Filaments none. Anthers linear in the mouth of the tube of the corol, and affixed to it by their backs. Germ Style shorter than the corol. Stigma simple. Drupe round, surobbed size of a pea. Seeds or nuts regularly six, sub-cylindric.

SALFADORA. Schreb. gen. N. 220.

Calyx four-toothed. Corol one-petioled, four-cleft. Style none or short. Berry inferior, one-seeded.

1. S. persica. Linn, sp.pl.ed. Willd. i. 695. R. Corom. pl. i. N.26.

Rivina paniculata. Syst. nat. x. p. 899.

Teling. Pedda-warago-wenkt.

A middle sized tree, a native of most parts of the Circars, though by no means common; it seems to grow equally well . iu every soil. Produces flowers and ripe fruit all the year round.

Trunk generally crooked, from eight to ten feet high to the branches, and one in diameter. Bark very scabrous, and deeply cracked. Branches exceedingly numerous, spreading, **** their extremities perfectly pendulous, like the weeping ^illou?. Leaves opposite, petioled, oval or oblong, entire, '£i*y smooth, and shining on both sides, without veins; from one to two inches long, and about one broad. Stipules none.

Panicles terminal, and from the exterior axills. Flowers minute, very numerous, greenish-yellow. Bractes minute. Calyx inferior, four toothed, permanent. Corol one-petalled. Tube short, border four-cleft; segments oblong, revolute. Filaments four, inserted into the tube of the corol under its fissures, and rather shorter than the border. Anthers $o \mid a \mid$. Germ globular, style none. Stiyma scabrous. Berry very minute, much smaller than a grain of black pepper, smooth, red, j u icy. Seed one.

 Obs_m The berries have a strong aromatic smell, and taste much like garden cresses. The bark of the root is remarkably acrid, bruised and applied to the skin, soon raises blisters, for which purpose the natives often use it. As a stimulant it promises to be a medicine possessecm very considerable powers.

CALLICARPA. Schreb. gen. N. 17B.

Calyx four-toothed. Corol onc-petalled, tubular, four-parted. Germ four-celled, cells one-seeded; ovula attached to the middle of the axis. Berry four-seeded. Embryo erect, and furnished with a perisperm.

1. C. arborea.R.

Arboreous. Leaves long-petioled, oblong, ventricose, tapering much toward both ends, entire, hairy underneath. Panicles axillary, sub-globular, throughout dichotomous.

A stout tall tree; a native of Chittagong. Flowers at various times through the year*

Trunk nearly erect, and hi trees nine years old, thirty-thre« iuches in circumference four feet above the surface of theil-Branches spreading. Bracelets obtusely four-cornered, and mealy. Leaves opposite, long-petioled, oblong, ventricoee* tapering equally at each end, entire, smooth above, hairy underneath, while* youngand unexpanded very mealy on both sides; length from six to twelve inches, petiole included*

which may be reckoned one-fourth of the whole. **Panicles** axillary, solitary, or paired, the largest on a jieduncleaslong as the petioles, sub-rotund, from six or eight times dichotomous, all the ramifications somewhat four-corneYed and mealy. Flowers small, very numerous, lively purple, or lilac, Bractes minute. Calyx campantismall, rather offensive. late, obscurely four-toothed, mealy on the outside. with the tube much longer than the calvx, one of the segments of its border smaller. Filaments twice the length of the corol. Anthers brown. Germ superior, round, four-celled, with one ovulum in each, attached to the middle of the Style as long as the stamens, and bent in an opposite Stigma headed. Berry superior, round, polished, lively purple, succulent, size of a small.grain of black pepper; one-celled. Seeds four, convex on the outside, with two flat faces on the inner, rough; interior integument hard like the shell of a nut. *Perisperm* oval, soft, amygdaiiue. 2?/itbryo straight, erect, nearly ad long as the perisperm. Cotvledons oblong. Radicle oblong, the length of the cotyledons, inferior.

"2. C. lanata. Linn, sp.pl. ed. Wittd. i. 630.

Arboreous, all the young parts mealy. *Leaves* opposite, oval, entire, downy. *Corymbs* axillary, dichotomous throughout. *Corots* oblique.

Tomex tomentosa. Flor. Zeyl. N. 59.

A pretty large tree, a native of the Circar mountains, and of the vallies between them.

Trunk perfectly straight, and of a considerable height. Bark smooth, ash-coloured. Branches few, and near the ^{to}P, forming but a small head for so large a trunk. Young *hoots somewhat four-sided, and covered with gray farina. Leaves opposite, petioled, ovate, tapering to a point, entire, down; from nine to ten inches long, and five or six broad. Petioles round, two or three iuches long, covered with down. Corymbs axillary,

erect, two-forked throughout; every part covered with gray farina. 'Brades small. Flowers very numerous, small, purple. Calyx short; border four-sulcated, permanent. Corot, tube bent to one side. The other parts as in the genus. Style descending.

Ohs. The wood of this tree is white, spongy, and of course not fit for much use.

3. C. cana. Linn. sp. pi. ed. Willd. i. 620.

Shrubby, downy. Leaves ovate, glandular-dentate-senate, downy underneath. Panicles axillary, sub-globular. Stigma bifid. Berries purple.

Callicarpa americana. Lonriero. Cochin Ch. ed. Willd. i. p. 88.

This shrub was introduced into the Botanic garden from the Moluccas in 1798, and in three years had attained to the height of from four to eight feet high, considerably ramous, with the young parts downy, and the ligneous ones covered with smooth, pale ash-coloured bark. They are in blossom in March and April chiefly, though more or less the whole year.

Leaves opposite, short-petioled, from broad cordate to oblong, reticulated with margins glandular-dentate-serrate; upper side soft and of a deep green colour, but very downy, and pale underneath. Cymes axillary, dichotomous, scarcely longer than the petioles, villous. Flowers numerous, small, pale red colour. Bractes subulate, caducous. Calyx woolly, four-toothed. Corol campanulate; divisions sub-cordate. Filaments longer than the corols, and inserted into the base of its tube, ascending. Style declined, length of the filaments. Stigma two-cleft. Berry small, round, smooth, deep purple. Seeds four.

Obs. It differs from C. americana, Willd. in having a woolly, toothed calyx, two-lobed stigma and in the form of the leaves.

4. C. ineana. R.

Shrubby, young*shoots hoary* Leaves lanceolate, obtusely serrulate, fine and entire-pointed, hoary underneath.

Mashandari. Asiat. Res. iv. 233.

Beng. Muttura, Muttrunja.

A stout shrub, with all the tender parts*and the under surface of the leaves densely clothed with long, soft, white, stellate pubescence; common in the vicinity of Calcutta, where is in flower and seed nearly the whole year.

I long considered this to be Vahl's macrophylla, but on fearing what I also took for the same species from Silhet and Cluttagong, in the Botanic garden, I could plainly observe a striking difference when growing near each other, and as the Chittagong and Silhet sort agrees much better with Vahl's figure and description, I must consider it to be his macrophyl'«. In the Calcutta plant, which I now call ineana the leaves fe never so broad in proportion to their length, more round at the base; much more pointed, with the long taper points entire; all the rest of the margin, except what may be allied the base, obtusely serrulate. In macrophylla, the leaves are Senate, more obtuse, and the margins cut to the very apex; the two are however very nearly allied, though I think sufficiently distinct to authorize their being considered as different.

5. C. macrophylla. Vahl. Symbol, iii. 13. t. 53.

Shrubby, downy. Leaves opposite, ovate lanceolate, seriate, reticulafe, hoary underneath. Corymbs axillary, dichotomoas, rather longer than the petioles. Berry minute, white.

A native of Silhet and Chittagong.

-A shrub, from four to eight feet in length. *Trunk* scarce-ly any, but several, round, erect branches, covered with hite down. *Leaves* opposite, petioled, lanceolate, or oblong lai*ceolate, fine-pointed, finely serrate, wrinkled, above soft, ^^ a little downy, below covered with much whitish soft

down, from six to nine inches long, and two or three broad. Stipules none. Petioles about an inch long, downy, many times shorter than the leaves. Peduncles as long as the petioles, round, downy. Bractes lanceolate, one under each division of the corymb. Flowers' very numerous, small, rose-coloured. Calyx woolly, the four divisions distinct and acute.

6. C. acuminata. JK.

Shrubby, tender parts hoary with a stellate pubescence. *Leaves* broad-lanceolar, acuminate, remotely repand, denticulate. *Panicles* axillary, long-peduncled, dichotomous, shorter than the leaves.

A native of Silhet, flowers in May. In this species the panicles are elevated on longer peduncles than in the other species, the leaves and young parts hairy, except the upper surface of the former when fully expanded, which is then naked and reticulate; from four to five inches long by nearly two broad.

7. C. longifolia. Linn. sp. pL ed. Willd. ù 621.

Shrubby, with erect weak branches. *Leaves* rather long-petioled, broad-lanceolate, serrulate, smooth above, downy underneath. *Panicles* axillary, dichotomous, length of the petioles. *Berries* white.

*^ A native of Prince of Wales' Island, where it blossoms in June, July, and August.

8. C. cuspidata. H.

Shrubby, all the tender parts, and the imder surface of the short-petioled, elliptic, dentate, cuspidate *leaves* woolly. *Corymbs* axillary, their division and die calyces clothed with minute grains under the wool.

A native of the Moluccas; the leaves are always acutely dentate, and end in a long taper, acute point. The berries are very small, smooth, and purple.

"8.i€.fajw>eo/aria. R.

"Shrubby hairy. Leaves lanceolar, serrulate, acuminate. Panicles axillary, sbort-peduncled, sub-globular. Berries white.

H. Koamoora*

A pretty, shrubby species, with narrower leaves than any of the other species I have yet met with in India, they taper most toward the base, are nearly smooth on the upper surface, but very hoary underneath; as are all the other tender parts. *Flowers* numerous, minute, purple.

A native of the forests of Silhet, where it is in flower most part of the year.

10. C. pentandra. R.

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Shrubby, tender parts mealy. *Leaves* opposite, with an alternate one between, oblong, entire, cuspidate. *Corymbs* axillary. *Flowers* pentandrous. *Stigma* from three to fourlobed.

A native of the Moluccas.

11. C. purpurea. Juss.

Shrubby; branchlets and younger parts slightly scaly. Leaves sub-sessile, lanceolate, acuminate, serrate, with sub-entire cuneate base, smooth above, glandular-dotted below. Corymbs axillary, very small, dichotomous. Flowers glandular. «-H-J • cw

Porphyra dichotoma. Lour. Cochin Ch. ed. Willd. i. 87.

A native of China. Introduced in 1812, into the Botanic garden, at Calcutta, where it thrives extremely well, has attained a height of from four to six feet, and blossoms from April to September. The berries ripen at the close of the *aiwy season.

Shrubby, spreading, with roundish branches, covered with scabrous gray bark. *Bmnchlets* very slender, slightly scabrous, and beset with ferruginous stellate and somewhat scaly pubescence; new shoots almost mealy. *Leaves* from

lanceolate to oval, two inches long, tapering at both ends, but more so at the base, and only there entire: the rest of the margin serrulate; without any hair or down, but scabrous belo.w, from a great number of minute brown shining glandular dots which impart on being rubbed, a faintly aromatic smell; nerves and ribs elevated and slightly scaly. Petioles very short. Corymbs axillary or rather supra-axillary, small, round, two or three times dichotomous, many times shorter than the leaves; peduncles short, divaricate, beset with mealy pubescence, with minute lanceolate scales under each sub-Flowers fragrant, purple, marked with glandular division. Calyx turbinate with very small obtuse teeth. Corol dots. about three times longer than the calyx, infundibuliforin; lacinice oval, obtuse. Filaments almost twice as long as the corolla, purple; anthers large, orange-coloured, covered with, many glandular dots. Stigma sub-capitate, elevated about the anthers. Berry very small, purple, at last red, with one or two fertile seeds.

BUDDLEIA. Schreb. gen. N. 184.

Calyx four-cleft. Corol four-cleft. Capsule superior, bisulcate, bilocular. Seeds numerous.

1. B. Neemda, Buchanan.

Arborescent. Leaves lanceolate, sub-serrate, hoary underneath. Spikes terminal, lengthening, with flowers three-fold.

Nimda the vernacular name at Cbittagong, where the plant is indigenous, and from thence introduced iuto the Botanic gardeu by Dr. Buchanan, where it begins to blossom about the close of the cold season. Seeds ripen in March and May*

Trunk erect; branches numerous, opposite. Bark of the longer woolly parts ash coloured; young shoots covered with white down. Height of the tree, in two years, about fifteen feet. Leaves opposite, short-petioled, lanceolate, slightly hairy; from four to eight inches long. Petioles short, their

bases joined by a connecting membrane. Spikes terminal; generally three-fold, there being a larger, and longer hi the centre, with a smaller on each side; long, slender, hairy^ lengthening, and blossoming for three months. Flowers generally three-fold, sub-opposite, sessile, very numerous, small, pure white, and of a pleasant smell. Bractes lanceolate, one under each flower. Calyx inferior, four, rarely five-toothed, Corol one-petalled, hypocraterifonn. villous. Tube the length of the calyx; mouth villous, border of four, rarely Ave, rounded, equal segments. Filaments short, inserted near the base of the tube of the corol. Anthers broad, sagittate, hid in the tube. Germ conical. Style short. Stigma large, oblong, bisulcate, even with the tops of the anthers. Capsule ovate-oblong, two-celled, two-valved. Seeds minute, numerous, imbricated, compressed.

Obs. The whiteness of the leaves, and young shoots of this plant, independently of its numerous, beautiful, small, fragrant, pure white flowers, makes it highly ornamental, particularly amongst plants with darker foliage.

EXACUM. Schreb. gen. N. 185.

Calyx four-leaved. Corol salver-shaped. Capsule superior, two-celled, two-valved. Seeds many.

1. £. bicolor. R.

Annual, erect, four-sided. *Leaves* sessile, ovate, five-nerv
ed. *Flowers* axillary; *apices of the segments* of the corol

hue, the rest white. *Anthers* erect.

A native of Cuttack, where it appears during the cool season.

Root almost simple. *Stem* erect, branchy, four-sided; angles somewhat winged, from one to two feet high. *Leaves* snb-sessile, opposite, oval, five-nerved, smooth, size very various. *Floral leaves* small and narrow. *Flowers* axillary, so*

litary, short-peduncled, large, of a beautiful white arid blie colour.

2. E. tetragonum. /?.

Annual, simple, erect, four-sided. *Leaves* sessile, lanceolate, fire-nerved. *Flowers* numerous, terminal. *Stamens* and *style* decimate.

Beng. Koochuri.

A native of Bengal, where it grows among long grass •, and flowers during the rains.

Stem erect, simple, exactly four-sided, smooth; from two to three or even four feet high. Leaves opposite, decussate, sessile, lanceolate, five-nerved, smooth and shining, from two to four inches long. Flowers terminal, numerous, large, of a most beautiful blue colour, inodorous. Calyx divided nearly to the base into four, daggered segments. Corol, segments oblong, acute, spreading, fiilaments on the tube of the corol, short. Anthers linear, bending to one side, with two pores at the top, for the discharge of the pollen, as in Cassia. Germ oval. Style projecting obliquely witli the stamina; stigma enlarged. Capsule two-celled, two-valved. Seeds numerous.

Obs. This is one of the most elegant plants I have met with, the flowers being not only numerous, large, and beautiful, but retaining their beauty and expansion for many days, which is a rare circumstance in an Indian plant.

3. E. zeylanicvm. 7?.

Annual, pnitandrous. *Leaves* opposite, sub-sessile, lanceolate, three-nerved. *Flowers* five-cleft. *Calyx* yrith five, broad membranaceous wings with subulate points.

Chironia trinervia. Linn. sp. pi. ed. Willd. i. 1065.

Lysimachia folio sinuato, acuminato trinervio, flore cceruleo, amplo calyce carinato, alato. Burnt. ZeyL p. 145. t. 67.

A native of Ceylon.

Stem erect, somewhat four-sided, smooth, annual. Leaves opposite, short-petioled, lanceolate, entire, smooth on the

sides, three-nerved, from one to three inches long. Racemes terminal, and opposite from the exterior axills, the whole forming an expanded corymbiform panicle. Peduncles and pedicels four-sided, smooth. Flowers nuineroA, large, of a violet colour. Calyx five-cleft; divisions with a broad membranaceous wing, on the back, and a-long subulate point. Corol; tube gibbous, length of the calyx, sQme short filaments amongst the insertions of the stamina crown the mouth of the tube. Border of five, obovate, beautiful, violet-coloured divisions. Filaments on the mouth of the tube, erect. Anthers linear, with two pores at the top, and also opening on the sides. Style declining, rather longer than the filaments. Stigiba heafled. Capsule oblong, two-celled.

Ohs. The anthers remain straight, and hard, with two pores at the top, and also bursting by two longitudinal openings on the sides, I have for that reason removed this plant from the genus *Chironia*, the essential mark of which consists h* its spiral anthers.

4. E. carinatum. R.

•Annual, erect. *Leaves* sub-sessile, lanceolate, three-nerved. •oroh four-cleft. *Calyces* broad, mejnbranaceo-carinated. *Stamens* protruded. *Style* declined.

A native of Ceylon.

Hoot ramous, annual. Stem erect, with one or two oppose pairs of branches about the middle; above these dichoto
Aga, somewhat four-sided, smooth, from six to twelve inches high. Leaves opposite, short-petioled, lanceolate, entire, three
nerved. Flowers terminal, numerous, pretty large, yellow, co Hected ftn dichotomous corymbs, with a long peduncled on the each of the divisions. Calyx four-parted, each division augumented by a broad membranceous keel on the back. Filaments short, inserted on a membrane ous rim round the inside of the mouth of the tube. An
neous rim round the inside of the mouth of the tube. An
neous rim round the inside of the sides. Style longer than the stamens, declined, Stiynta ascending, simple.

5. \pounds • sulcalum. R.

Annual, erect, ramous, sulcated on the opposite sides of the stem and branches, <u>heaves</u> sub-sessile, lanceolate, fleshy, three-nerved. *Calyx* ^th four ridges. *Stamens* erect. *Capsules* globular.

A native of Bengal; blossoms during the cool season *, the* seeds ripen in March.

Root fibrous, annual. Stem erect, from six to twelve inches high, smooth, sulcated on opposite sides. Branches opposite, their flower-bearing extremities two, and three times two-cleft. Leaves opposite, sub-sessile, lanceolate, fleshy, entire, three-nerved; from one to two inches long. Flowers terminal, numerous, of a bright blue colour, those in the divisions of the branchlets long-peduncled. Peduncles four-sided. Brontes ovate, recurved. Calyx deeply four-parted; divisions with an ample keel. Filaments short, inserted in the mouth of the tube of the corol. Anthers ovate, oblong, touching at the sides, apices perforated. Style longer than the stamens, dadined; stigma two-lobed. Capsule globular, two-celled, two-valved. Seeds numerous.

Obs. This is a very beautiful small plant.

PLADERA. Solander's Mss.

Calyx cylindric, four-toothed. Corol funnel-shaped, border irregular. One of the stamina larger. Stigmti two-lobed. Capsule superior, one-celled, two-valved. Seeds numerous*

1. P. sessiliflora. R.

Annual, erect, four-sided; angles winged. Leaves opposite, sessile, ovate, entire. Flowers sessile.

Exacum heteroclitum. *Linn sp. ph ed. Willd.* i. p. 639* Gentiana heteroclita. *Mant.* 560.

A native of Coromaudel and Bengal, appears on moist p**~ ture ground during the rains and first part of the cool season* *Stem* erect, with two or three pairs of opposite branches,

which are again once or oftener dichotomous, all are foarsuled, with a thin wing; to each angle; height of the whole plant about a span. Leaves opposite, sessile, ovate, entije, three-nerved; differing* much in size, the largest rarely an inch JFloioprs solitary, in the divisions of the plant, sessile, Calvx sub-cylindric, four-toothed; teeth Corol with the tube as long- as the calvx. three-cleft, two of the divisions equal, oblong, ant' crowded ut the apex, the third divided half way down. four; three longer, and inserted in the mouth of the tube; the fourth just below the fissure of the bifid segments of the corol. -Anthers equal, oblong*. Germ lineaf-oblong. Style as long as Stigma two-lobed • lobes large, obovate, thin. the stamina. Capsule sub-cylindric, nearly as long as the permanent calyx, 'ud hid in it, one-celled, two-valved. Receptacles consist in the incurved margins of the valves, (parietal, and two-lobed.) Seeu's numerous, angular, very small.

2. P. virgata. Ro

•Annual, erect, four-sided, branches opposite, alternate. *Leaves* sessile, lanceolar, three-nerved. *Flowers* terminal, subpanicled.

Exacuin diffusum. Linn,, sp. pi. erf. Willd. i. 637. Gentiana diffu^a. Vahl. Symbol, iii. 47.

A beautiful erect, ramous annual; growing on the banks of water courses, and on low fallow lands. Flowering time the wet season.

Stem about a foot, or sometimes two feet high, erect, four-sided, ramous, smooth; inferior branches opposite, above alternate, very slender and twiggy. Leaves opposite, sessile, the lower lanceolate, the upper broader, all are pointed, and three-nerved, entire, smooth; size various. Flotoers numerous, terminal, peduncled, small, rose-coloured. Calyx four-toolhemarks permanent. Coro? funnel-shaped. Border irregular, three-parted; the two upper segments equal, and orbicular, the lower one two-parted; with a deep groove; in the groove i*

z

lodged the fourth or large stamen. Filaments tour, inserted into the mouth of the tube, the lowermost longer than the other three, and bearing an orange-coloured, and longer anther, which when shedding its pollen, is bent over the fissure of the stigma; anthers of the oth\$r three filaments equal, pale yellow. Style single, length of the short filaments. Stigma two-cleft, segments recurved. Capsule one-celled, many-seeded.

3. P. decussala. R_m

Annual, erect, four-winged, branches cross-armed. *Leaves* ovate lanceolate, three-nerved. *Flowers* terminal, three-fold, peduncled.

Beng. Diuikon*.

This species resembles P. virgata, but is a little more robust, and seldom so high. It is a native of the same places* Flowering time the same.

Stem about a foot high, perfectly erect, four-sided; angles very sharp, or rather membrane-winged, smooth, ramous, branches always opposite, cross-armed, in other respects like the stem. Leaves opposite, spreading, sessile, lanceolate, sharp-pointed, entire, smooth, three-nerved, size various. Flower* terminal, and axillary, peduncled, the terminal flowers three-fold; the axillary single, larger than those of the last species, and white. Peduncles four-sided, like the stem and branches* Calyx large, four-toothed, four-sided, four-winged. Corolp* stamens 9 &c. exactly as in the last species.

4. P. perfoliata. JR.

Annual, erect, four-winged. *Canline* leaves lanceolate, three-nerved; *floral* leaves (or bractes) perfoliate.

Canscora. Lamarck's Enryrfop. Bot. i. 601.

Cansjan-Cora. Rheed. MaL x. p. 103. t. 52.

A native of India, where it delights in a low moist soil. Flowering time the rainy season.

Root ramous, annual. Stem erect,* somewhat four-sided,

^vith four broad membranaceous wings. Branches bppdfeite, and like the stem; all are smooth. Height of the whole plant about eighteen inches. /Leaves of the stem opposite, sessile, lanceolate, three-nerved. Floral leaves perfoliate, all smooth and entire. Flowers terminal, ped uncled, numerous, pretty large, pale rose colour. Calyx four-toothed, striated, permanent. Corol irregular, somewhat two-lipped; the upper one larger and deeply two-parted, the lower one consisting also of two lobes, but smaller. Filaments four, three of them rather shorter, and inserted on the upper side of the tube; the third larger, and inserted below the fissure of the lower lip. •Anthers oblong. Style as long as the stamens. Stigma two-parted. Segments recurved. Capsule oblong, one-celled, two-valved.

5. P. pusilla. R.

Annual, from one to two inches high. *Leaves* sessile, subcordate. *Flowers* terminal, sessile, three-fold, monandrous. *Corol* hid in the calyx. *Capsule* globular.

Compare with Hopea dichotoma. Vahl. enumer. i. p. 3; also with Exacnm sessile. Willd. i. 635.

A beautiful minute plant, a native of Coromandel.

Stem erect, four-sided, branchy; from one and a half to two inches high. Branches cross-armed. Leaves opposite, sessile, cordate, minute, smooth. Floicers terminal, sessile, three-fold, small, yellow. Calyx one-leaved, sub-cylindric, *s long as the corol, four-toothed, permanent. Corol one-petelled. Tvbe a little gibbous, mouth four-toothed. Filaments four within the tube of the corol, and inserted into it near the *>ase. Anthers, three minute, and abortive; one large and fertile. Germ globular. Style short. Stigmas two, globular. Capsule oval, covered by the calyx, one-celled, two-valved. Seeds numerous, black.

PLANTAGO. Sohreb. gen. ST. 186.

Calyx four-cleft. Corol four-cleft, with border reflexed. Stamina very long. Capsule superior, two-celled, cut transversely.

1. P. 1 spaffhula. /?. Fleming in Asiat. Res. xu 174.

Annual, caulescent. *Leaves* linear-lanceolar, three-nerved, slightly woolly. *Peduncles* axillary, naked, simple, length of the leaves; heads cylindric. *Capsules* two-celled.

Ispagool, the Hindee and Persian name, and that by which it is most generally known in Bengal and on the coast of Coromandel.

Native place uncertain, but it is cultivated during the cool season.

Root ramous, annual. Stem, if any, very short, soon dividing into three or four ascending, round, villous branches, which are a few inches in length. Leaves alternate, linear-Ianceolate, three-nerved, luxuriant in young plants remotely denticulate, somewhat woolly, towards the base channelled, and stem-clasping; length from six to eight inches by a quarter or half an inch broad. *Peduncles* axillary, solitary, naked, erect, round, a litlle villous, the length of the leaves. Spikes solitary, terminal, before the flowers expand ovate, afterwards cyliudi'ic; when in seed about an inch or an inch and a half long and erect. Flowers numerous, imbricated, small, dull, white, withering. *Bractes* one-flowered, ovate, concave, with the keel green, and the sides membranaceous. Calyx fourleaved. Leaflets oblong, ovate, with broad membranaceous margin?. Corol; tube gibbous. Segments ovate, acute. Fil&vients oblong, two-celled, four, much larger than the seg1-Germ oblong, two-celled, with one seed jnents of the corol. in each, attached to the middle of the partition.. Style rather longer than the corol. Stigma subulate, villous. Capsule circumscissa, ovate, two-celled. Seeds solitary, ovate-el I iptic, convex on the outside; concave on the inner, integument single,

father thick, smooth, tough, and brown. Perisperm conform to the seed. Embryo sub-cylindric, erect. Cotyledon long*, linear. Radicle inferior, one-fourth the length of the cotyledon.

Obs. From the seeds a* mucilaginous drink is prepared, a*id often prescribed by our medical gentlemen in India, where emollients are wanted. They are also used by the dative practitioners in medicine, and are to be met with for sale in the bazars of India under-the Persian name UspagooL

CISSUS. Schreb. gen. N. 192.

Valyx four-toothed. Corol fbur-petalled. Germ two-celled; ovula two, erect. Berry superior, from one to four-seeded*
Embryo erect, in the base of an ample perisperm.

1. C. adnata. R.

.Leaves round-cordate, bristle serrate, acuminate. Stipules orbicular, adnate, with gibbous centre, and scariose margins. Cymes flat, flowers drooping.

A native of the country about Dacca, from thence the late Colonel Peter Murray sent it to the Botanic garden, where it thrives well, blossoms in May and June, and ripens *its'* fruit in September.

Stem and large branches ligneous, climbing over trees to fe considerable extent, young shoots round, a little downy and slightly furrowed. Leaves alternate, round-cordate, and often obliquely so, acuminate, bristle-serrate, the largest sometimes slightly repand; pretty smooth above, but downy underneath, particularly the veins, from two to six incites long, <*ie-fourtli less in breadth. Peduncles half the length of the leaves, downy. Stipules nearly oval, adnate, elevated, a^d of a deeper green in the middle; margins scariose, and brown. Tendrils opposite to the leaves where there is no cyme, Cymes opposite to the leaves, on villous peduncles, as long the petioles, very ramous, flat. Flowers numerous, small,

drooping. The germ has two cells, in each of which are two seeds attached from their lower end to the partition at the bottom of the cell. Berry succulent, size of a pea, when ripe black, and smooth, generally one-celled. Seed for the most part solitary, obovate, lower end pointed. Integuments two, exterior nuciform, and rugose; inner a very thin, white membrane, which adheres firmly to the perisperm. Perisperm conform to the seed, dull white, cartilaginous, divided by two fissures into three, nearly equal parts. Embryo scarcely half the length of the perisperm. Cotyledons reniform. Radicle oblong, inferior.

2. C. vitiginea. Linn. sp. pi. ed. Willd. i. 655..

Leaves cordate-serrate. Cymes decompound. Berries one or two-seeded.

Hind, and Beng. Guali-lata.

Teling. Maratta-tiga.

This species is a native of forests, mountains, and way sides in uncultivated places.

Trunk woolly, branchy, climbing over trees and shrubs to a great extent. Tendril opposite to the leaves, two-cleft. Leaves alternate, petioled, cordate, serrate, or dentate, pretty smooth on both sides, from four to six inches long, and from three to four broad. Stipules cordate. Cymes peduncled, leaf-opposed, more than compound. Flowers small, red. Germ superior, half immersed in the four-sided, fleshy nectary. Berry small, black, one or two-seeded.

3. C. glaujca. It.

Leaves cordate, bristle-serrate, smooth. Stipules broadsulcate. Cymes decompound. Berries one-seeded.

Schunambu Valli. Rheed. Mai. vii. p. 21. t. 11.

This species is still larger than the last, and a native of the same or similar places; the shoots, the tendrils, petioles and peduncles are all quite smooth and somewhat glaucous, which does not admit of my considering it to be either repanda, or latifolia.

Tendrils leaf-opposed, undivided. Leaves alternate, petioied, broad-cordate, more or less acuminate, sometimes when large slightly lobed, bristle-serrate, smooth, from four to eight nches each way. Stipules broad-fulcate, apex rounded, caducous. Cymes with from three to five primary branches; ultimate divisions umbelliferous. Berry nearly round, size a pea, smooth, succulent, purple, rarely more than one-seeded. Seed oboyate. Integument a double membrane, "tth a spongy silver-coloured substance between. Perisperm and embryo as in the genus.

4. C. cordata. R.

Shrubby, scandent, smooth. *Leaves* cordate, slightly and Remotely bristle-serrulate. *Cymes* compound, leaf-opposed. Meriam-Pulli. *Rheed. Mai.* vii. p. 91. t. 48.

Funis crepitans major. Humph. Amb. v.p. 446. t. 464. J*. 1.

A native of Amboyna, from thence introduced into the Botanic garden, in 1796-7. Flowering time in Bengal, the rainy season.

Stem and branches long, slender, climbing* over bushes to a considerable extent. Bark smooth; on the young parts polished and purplish. Leaves.alternate, petioled, cordate, ^motely and slightly serrulate, serratures acute, both sides smooth, length from four "to six inches. Tendrils leaf-opposed, simple, coloured. Stipules adjoined, oval, coloured, Bymes leaf-opposed, first divisions trichotomous. Flowers small, dull purple. Taste of the leaves very acrid, and continuing long.

5* C. qnadrangularis. Wi/ld. spec. i. p. 657.

Perennial, scandent, jointed, four-winged. *Leaves* reniform-cordate, serrate. *Berries* spherical, one-seeded.

&eng. Harjora.

Funis quadrangularis. Humph. Amb. v. p. 83. t. 44. f. 2.

This plant is one of the most common over every part of India; blossoms during the rains; and ripens its seed in the cool season.

Root fibrous. *Stem* and branches perennial, scandent, and often of very great length, smooth, succulent, jointed, con* tracted at the joints, four-winged, wings large, and sharp, young parts succulent, tender, and very smooth. very generally eaten by the natives in their curries. Leaves alternate, one at each joint, short-petioled, re inform, cordate, serrulate-dentate, smooth on both sicfcs, an inch or an inch and a half each way. Stipules lunulate, entire. Tendrils solitary, simple, leaf-opposed. *Umbels* solitary, opposite to the leaves, occupying the place on which the tendril would otherwise grow, compound. Umbellets generally three or four, sub-globular. Involucre and involucels scarcely any. Germ ovate, immersed in the nectary, two-celled, with two ovula in each, attached to the bottom of the partition; style short. Stigma ymple. 'Berry round, size of a small pea, smooth, red, succulent, one-celled. Seed solitary, obovate, covered with a double, dark brown, spongy integument. Perispertn conform to the seed, a double, dark-coloured fissure rune down the middle. Embryo small, erect, lodged on one side of the bottom of the double fissure just mentioned. Cotvledons with minute points. Radicle oblong, inferior.

6. C. pentagona. R.

Young shoots lucid, with five rounded angles and grooved sides. *Leaves* cordate, rarely sub-lobate, serrulate, acuminate, smooth.

An extensive perennial climber, a native of the forests of Chittagoug.

7. C. angustijolia. /?.

Dioicous. Leaves teruate; leaflets lanceolate, serrate, smooth. Stipules ovate, acute. Cymes shorter than the petioles. Berries spherical, one or two-seeded.

A delicate, scandent, perennial species, a native of Sumatra. Flowers in February; seeds ripen in November.

Stem scandent, slender, flat like a piece of tape. Tendrils siniple. Leaves ternate. Leaflets petiolate, lanceolate, remotely serrate, acuminate, smooth on both sides, from three to six inches long*, and from one to one and a half broad. Petioles shorter than the leaflets, channelled, smooth. Stipules triangularly ovate, acute, smooth. Cymes axillary, solitary, nearly round, small, and shorter thin the petioles. flowers small, greenish yellow, male on one plant and female another.

MALE. *Calyx, corol* and *stamina* as in the genus. *Pistil* Ko other than a small abortive roundish body on the centre of ft four-lobed gland.

FEMALE. Calyx and corol as in the male. Germ round,

two-celled, with two seeds in each. Style none. Stigma large, obscurely four-lobed, and somewhat lacerated. Berries spherical, smooth, size of a pea, white, one or two-seeded, when cut or bruised very fetid. Perisperm conform to the seed. Embryo lodged in the lower half of the perisperm. Cotyledons nearly round. Radicle cylindric, inferior.

8. C. carnosa. Linn. up. pi. erf. Willd. i. 658.

Stem flattened, perennial. Leaves petioled, ternate^/eq/1 fets oval, serrate. Berries four-seeded.

Tsjori-Valli. Rheed. Mai. vii./>. 17. t. 9.

Folium Causonis. Rumph. Amb. v. p. 45Q.J*. t. 166. f. 2. Teimg. Kanapa-tig<%»

Is common in hedges and forests. Flowering time the rainy season.

Stem perennial, flat like a piece of tape, climbing to an extent of many fathoms; young shoots villous. Tendrils leafPosed, from two to three-cleft. Leaves alternate, petioled, ternate. Leaflets oval, grossly serrate, downy, from two to three inches long. Petioles round, downy. Stipules oblong.

caducous. *Cymes* as in the former species. *Flowers* small, white. *Berry* black, four-seeded.

9. C. setosa. /J.

Herbaceous, scandent, bristly. *Leaves* sessile, ternate; *leaflets* grossly bristle-serrate. *Berries* one-seeded.

Teling. Bartcbutsali.

A native of forests and hedges in the Rajamundree Circar* • Flowering time the rainy season.

Root fusiform, perennial. Stems herbaceous, succulent, round, striated, and covered with distinct, grandular, round-headed, white bristles, as is every part of the plant,' even to the fruit. Tendrils leaf-opposed, generally two-cleft. Leaves alternate, sessile, ternate, rai'ely quiuate. Leaflets, lateral two (or four, when there are five) are sessile, the middle on is short-petioled; all are oval, waved, fleshy, irregularly and grossly bristle-serrate, both sides armejil with the fore-mentioned bustles,' size various, from one to five inches long* Stipules cordate. Cymes as in the former species, Petals revolute.

Obs. Every part of the plant is exceeding acrid. I unfof* tunately tasted both the roots and berries.

The leaves toasted and oiled, are applied to indolent tumours to bring them to suppuration.

10. Cfeminea, R.

Leaves digitate; leaflets petioled, broad-lanceolar, entire-Style none. Stigma from four to five-lobed.

A large scandent woody species, a native of woody mountains. Flowers during the wet and cold seasons.

Stem woody, climbing over trees. Branches flexuose from leaf to leaf. Tendrils simple, opposite to the leaves. Leaves alternate, petioled, digitate. Leaflets oblong, and lanceolar, a little crenulate, pointed, smooth, shining, from four to six inches long, and one or two inches broad-Petioles round, smooth, from one to two inches long. Cymes

short-peduncled, axillary. Bractes small, falling. Flowers small, green. Calyx small. Corol four or five-petal led, generally four. Nectary scarcely any. Stamens none, or at stamens as small seemingly sterile one. Germ superior, globose. Style none. Stigma four, or five-lobed, according to the Petals in the corol. I have not seen the ripe fruit.

*! • C. elongata. R.

render shoots succulen^-polished. Leaves digitate; leaflets P^tiolate, oblong, acute, remotely serrate, smooth.

**eng_m Dhemna₉ which is also the name of a long serpent.

**ound amongst the mountains of the coast of Coromandel,

as Well as in the forests of Bengal. Flowering time the hot

season.

Stem very long, running up and over the highest trees, n ittle compressed, and until many years old smooth, polished, succulent, deep green. Branches few or none, until the plant arrives at a great height, and is several years of age.* Leaves *'ternate, petioled, digitate. Leaflets five, petioled, oblong, the lower pair obliquely so, serrate, smooth on both sides, from ^t^o to six inches long, and from one to three broad. Petioles round, smooth, from four to five inches long*. Petiolets chan-Stipule cordate, small, sub-adjoined. Tendrils leaf-Posed, simple. Cymes trichotomous, and dichotomous; the divisions short, and ending in small umbellets. cordate, permanent. Calyx four-toothed. Corol, petals four, inserted in a belt which surrounds the body of the germ, Nectary a four-lobed, coloured elevation between the stamina and the insertion of the style. Filaments four, inserted oppohlte to, and just within the petals. Anthers incumbent. Germ ^{OVa}*- Style short. Stigma simple. Berry the size of a cherry, Found^turbinate, smooth, when ripe black. Seed single, large, *°*nehat rugose.

12. C. auriculata. R.

Scandent, perennial. Leaves quinate; leaflets oblong,

acute, obtusely serrate, smooth above, villous underneath. *Stipules* ear-shaped. *Berries* round, smooth, one-seeded.

A native of Mysore, from thence sent to the Botanic garden in 1802, by Mr! 6. Heyne, where it flowers and ripens its fruit through the whole year.

Stem, in five years old plants, as thick as a man's wrist, and of great length, even up to the tops of high trees. spongy, and deeply cracked; young shoots succulent, round, and villous. Leaves alternate, reryote, long-petioled, quinate. Leaflets petioled, oblong-obovate, or rhombic, acute, serrate, smooth and shining above, vilkms underneath; the superior from two to three inches long, two-thirds of that in breadth, the exterior much larger. Petioles nearly as long as the leaflets, round, and villous. Stipules ear-shaped, recurved. Tendrils leaf-opposed, two or three-cleft. Cymes axillary, or terminal; dichotomous or trichotomous, these again several Germ conical, containing four seeds in one times divided. cell, attached to its bottom. Berry, the size, shape, and appearance of a red cherry, one-seeded. Seed obliquely obovate, a little compressed, somewhat pointed at the base, and there attached to the bottom of the cell. Integument single* nuciform, rugose, covered with the green pulp of the beery» which adheres to it, and may, when dry, be considered a second integument. Perisperm conform to the seed, cartilaginous, gray; from the inner edge two fissures penetrate deep ly, and divide it nearly into three portions. Embryo erectf white, lodged in the base of the perisperm. Cotyledofis twos pedicelled, reniform. *Plumula* minute. *Radicle* oblong, *\(^n\)~ ferior, a little curved, with the apex to the umbilicus.

13. C. lanceolaria. R.

Dioicous. Leaves pedate quinate; feq/fetelanceolar, smootD> remotely serrulate. Stipules conically lanceolate. $Cy^{*\wedge^3}$ the length of the petioles.

VaHia-Tsjori-Valli. *Rheed. Mai.* vii. p. 15. *• 8. A native of the mountains along: the eastern frontier of

Bengal. In (he Botanic garden it blossoms in February and March.

Irunk scandent, stout, ligneous, in six years old plants as thick as a man's wrist, flattened, and grooved on the two flat Sldes. Bark dark brown, rough or deeply cracked. Branches ai*d hranchlets climbing, or pendulous when not supported; young* parts round, green and generally smooth; extent of the whole plant several fathoms. 'lendrils leaf-opposed, generally undivided. Leaves alternate, petioled, pedate. Leaffete generally five, lanceolar, recurvate, most remotely and sharply serrulate, long-, taper, acute-pointed, both sides polished, texture rather fleshy, length from three to six inches, ^a**d from one to two broad. Petioles and peiiolets clothed Stipules large, of a narrow conic with short, reddish hairs. Cymes sub-axillary, or close by the side of the base shape. of the petioles, shorter than the petioles, or when most luxuriant much shorter than the leaves, the ultimate divisions each supporting a small globular umbel let, of small pale yellow Bvactes round the base of the peduncles, cordate.

MALE. Calyx scarcely any. Corol and stamina as in the genus. Pistil none, an umbilicate, yellow, round, convex £land occupyingfls place.

14. C. peddta. Linn. sp. pi. ed. Willd. i. 659.

Perennial, scandent. *Tendrils* simple, or two-cleft. *Leaves*Pedate; *leaflets* broad-lanceolate,*serrate. *Berries* four-seed-•>
ed

Belutta-Tsjori-Valli. Rheed. Mai. vii. p. 19. t. 10.

C. heptaphylla. Retz. Obs. v. 22.

Beng. Gwalia.

This is another very extensively climbing species, as indeed they all are; a native of forests, hedges, &c. Flower-ing time the rainy season.

Stems woody, climbing over trees, &c. young parts cov^red with soft down. Tendrils leaf-opposed, simple or two-cleft. Leaves alternate, petioled, pedate. Leaflets oblong*,

irregularly serrate, downy, size various, the intermediate one is from four to six inches long, and the lowermost of the lateral ones from two to three inches long, the rest between these sizes. *Petioles* common, round, downy, from three to five inches long. *Stipules cordate** pointed, falling. *Cymes* leafopposed, or axillary. *Pedjincles* half the length of the petioles, jointed, and b'racted a little above the middle. *Berries* white, four-lobed, depressed, four-seeded.

15. C. serrulata. R_m

Perennial, scandent, smooth. *Leaves* pedate-quinate; *leaf-lets* oblong, serrate.

A native of Chittagong, where it blossoms in April and May.

SAMARA. Sckreb. gen. N. 195.

Calyx four-parted. Corol four-petal led. Stamina inserted opposite to the centre of the insertions of the petals. Drupe superior, one-seeded.

1. S. paniculata. R.

Arboreous. Leaves opposite, entire, broad-lanceolate. Panicles axillary. Stigma tw.o-lobed.

A tree, a native of the Circar mountains.

heaves opposite, petioled, broad-lanceolate, tapering to a sharp narrow point, entire, smooth, from three to five inches long, and one and a half or two broad.* Corymbs axillary, small, peduncled, shorter than the leaves, divided by three-forked divisions. Drupe dry, oblong. Nut one-celled.

2. S. polygama. Rm

Leaves opposite, short-petioled, broad-lanceolate, firm and polished. Panic 'es axillary and terminal. Filaments shorty and inserted in a notch near the edge of the b^se of the petals*

A native of the Moluccas.

BLACKBURNIA. Schreb. gen. N. 199.

Calyx four-toothed. Corol four-petalled. Nectary a stanniferous ring surrounding the base of the germ. Berry superior, one-seeded. Seed aril led.

1. B. monodelpha. R.

Arboreous. *Leaves* alternate, lanceolate. *Filaments* united ^{at} the base.

A large erect timber tree, a native of the mountainous Parts of .the Circars. Flowering time the beginning of the state season.

Trunk erect. Bark thin, firm, yellowish green on the outside: on the inside deep red, tinging the spittle with that co-'our. It is a strong astringent. Branches numerous, forming ^a large shady head. Leaves alternate, short-petioled, linearoblong, smooth, below a little whitish, entire, waved, pointed; five or six inches long, and one and a half or two broad. Stipules none. Racemes axillary; small, erect, frequently, compound. Bractes small, subulate. Flowers small, yellow. Calyx four-toothed. Petals four, oblong, expanding, apices revolute. Nectary, a ring surrounding the base of the germ. seminiferous. Filaments four, shorter than the petals, hairy, 'serted into the margins of the nectary. Anthers oval. Germ Superior, globular. Style short, stigma headed. Berry vertically compressed, succulent, the size of a large cherry, when ripe it has a deep purple bloom, which makes it very invit-'arilled, seemingly two-lobed, of a live Phiple throughout.

Oos. The wood of this tree is white, close-grained, and durable, the natives employ it for a variety of purposes.

FAGARA. Schreb. gen. N. 190.

Calyx four-parted, or four-leaved. Corol four-petalled.

Germ superior. *Capsvle superior, two-valved, one-seeded. Embryo inverse, with but little perisperm.

1. F. triphylla. Linn, sp.pl. ed. Willd. i. 66G.

Leaves opposite, ternate; leaflets oblong, entire. Panicles atfillary, brachiate.

Ampacus angustifolia. Rttmph. Amb. ii. p. 188. t. 62*

Found indigenous, by Mr. W. Roxburgh, on the Island of Pulo Pinang, and from thence sent to the Botanic garden, where in several years it has only reached the height of four feet, and for these last three years has blossomed regularly during the dry season.

Stem erect, ligneous, as thick as a walking cane, smooth* ash-coloured. Branches opposite; the tender parts round and slightly villous. Leaves opposite, long-petioled, ternate. Leaflets lanceolar or oblong, entire, smooth on both sides, length from two to ten inches, and from one to four broad. Panicles axillary, and in our single young individual, shorter than the petioles, brachiate, villous. Flowers numerous, minute, white, inodorous. Bractes triangular, solitary below the divisions of the panicle. Calyx small, one-leaved, fourtoothed. Petals four, oblong, white, smooth, spreading", length of the pistil, and four times longer than the calyx. Filaments four, length of the 'petals. Anthers oblong, incumbent. Germ superior, roundish, woolly, four-grooved for the (filaments to rest in, four-celled, with two ovula in each cell, attached to the middle of the thickened axis. Style as long as the germ. Stigma large, four-Iobed. Capsule fromtmu* to four, distinct, obovate, smooth, size of a field bean, pne-# celled, two-valved, opening along the upper and inner margin, and round the apex; a portion on the back does not separate spontaneously. Seeds generally two, roundish, size of a grain of black pepper, shifting, blackish-chesnut colour as in the allied Xanthoxylum alatum.

2. F. Budrunga. li.

Arboreous, armed with small incurved aculei. *Leaves* pinnate; *leaflets* five or six pair, unequally ovate, lanceolate, entoe, acuminate. *Panicles* crowded.

Biediv/ng- the vernacular name in Silhet, where it grows to be a large tree. Blossoms in Mwch and April, and the seeds pen in July and August; they*are used medicinally by the Natives, being of a warm spicy nature with the fragrance of tanon peel.

Trunk straight, while young armed, but by age the aculei Branches aud branchlets armed with innumerable, small, white, *harp, incurved prickles. Leaves crowded, from six to ten inches long. Leaflets five or six pair, opposite or Nearly so, unequally ovate-lanceolate, entire, finely acuminate, smooth, from three to four inches long, by one and a half Panicles terminal, much crowded, long-peduncled, broad. ti'irhotomous, the whole forming one large, very ramous globular panicle, which is shorter than the leaves. Calvx four-Petals four, elliptic, spreading. Stamina four, much longer than the petals. Germ ovate. Style short. Cap**sule the** size of a pea, drupaceous, one-eel led, two-valved; the exterior tunic is marked with cells filled with a fragrant bal-Seed solitary, attached to the apex of the suture of the Valves, round, smooth, polished, shining black. *Integuments* three; the exterior one thin and brittle, between it and the second is spread a quantity of dark orange-coloured pulpy mat* ter, the second thick and hard, a perfect nut, and of a dull black colour, the third or innermost membranaceous. Perisperm in small quantity. Embryo inverse. Cotyledons obo-Radicle ovate, pointing to the umbilicus.

3. F. Rhetsa. R_m

Arboreous, round. Lea/lrtsHfrom eight to sixteen pair, lanceolate, falcate, smooth, entire. Panicle terminal.

Teling. Rhetsa-maun.

Rhetsa means a committee, or select number of men asvol. 1.

sembled to settle disputes, &c. and maun, means trees of the largest size. Under the shade of this tree the Hill people assemble to examine, agitate, and determine their matters of public concern, deliver discourses, &c.

' It is a very large tree,- a native of the mountainous parts of the coast. *I eaves* dtcidiMtos during-thé cold season; they couie, out again, with the flowers about the beginning of the hot season.

Trunk straight. Bark corky, deeply cracked, slight gray-Branches numerous, spreading to a great extent **Prickles** very numerous, scattered over every part of the tree, small, very sharp, incurved; on ihe old wood they acquire a coni-Leaves about the extremities of the branchcal solid base. lets, abruptly pinnite, from twelve to twenty inches long. Leaflets opposite, from eight to sixteen pairs, short-petioled, oblong or lanceolate, waved, attenuated to a harrow point, entire, smooth, about five or six inches long, and two broad, all nearly equal in size, with nerves which divide them unequally, the exterior division being twice as broad as the in-Petioles round, smooth, a little channelled. Stipules terior. Panicles terminal, and from the exterior arils, frequently cross-armed, particularly the extreme ramifications. Peduncles and pedicels smooth, sometimes compressed. Bractes miuute, fulling. Flowers very minute, yellow. \(\frac{\pmathbf{Y}^*''}{2} \) lyx four-leaved. Fit intents shorter than the petals. Style thick, length of the filaments. Stigma tapering. round, size of a .pea, dry, one-celled, two-valved; seed one, round, glossy black.

Obs. The unripe capsules are like small berries, they are gratefully aromatic, and taste like the skin of afresh orange. The ripe seeds taste exactly like black pepper, but weaker; from this circumstance I conceive this may be F. Piperita9 yet I have always found the leaflets entire. The bark, I mean the inner lamina, is also acrid, with a mixture of bitter.

4. F. nilida. Roxb.

Shrubby. Branchlets, petioles and ribs, armed. Leaflets two or throe pairs, with a terminal odd one, oblong¹, lucid, remotely ginnd-crenate, apex' rather long¹ and emarginate. Racemes axillary.

Tcheum-tsew of the Chinese.*

Introduced from Canton into the Botnnic garden by Mr. W. Kerr in 1812, and in January of the following year one of the plants blossomed abundantly.

The flowers as in the other species, but the pistillum is three or four-lobed, each appearing to end in a recurved style with a two-lobed stigma. The fehrub, therefore, approaches nearer than any of the preceding species to Zan« thoxylon.

LUDWIGIA. Schreb. gen. N. 204.

Calyx four-parted.. Corol four-petalled. Capsule inferior, four-sided, four-celled. Seeds numerous.

1. L. parviflora. /?.

Annual, branches diffuse. Leaver alternate, lanceolate, sliort-petioled, smooth. Flowers axil Jary, sessile. Capsule linear, obsoletely four-sided.

A small, rainous plant, a native of Bengal; flowering time die rainy season; seed ripe about October.

Root ratnous, annual. Stem short, roun in young plants erect. Blanches many, diffuse, (slightly striated; the whole plant of a dark ferruginous colour. Leaves alternate, short-petioled, lanceolate, entire, smooth, length from one to three inches. Flowers axillary, small, sessile. The leaves about he ends of the branches are so small and crowded, as to make the extremities of the branchlgts appear like leafy spikes. Bractes, a most minute one on each side of the insertion of each flower. Calyx, the divisions taper to most acute points, and equal the oblong petals. Capsule beneath, linear, obso-

letely four-sided, smooth, four-valved. Seeds coloured, numerous, very small.

2. L. prostrata. R.

Lower branches creeping. *Leaves* alternate, petioled, lanceolar. *flowers* axillary, sedKle. *Capsule* filiform, with one row of seeds in each cell, attached immediately to the axis.

A native of Pegu, from thence introduced iqto this garden, where it blossoms and ripens its seed during the rainy season.

Root annual. *Stem* leaning much to one side, from one to two feet long. Branches numerous, the lower ones longer than the stem, spreading flat on the ground and striking root, smooth, striated, generally coloured with red. alternate, short-petioled, lanceolar, entire, smooth, size various, the largest from three to five inches long. Flowers axillary, sessile, from one to several on the same axil I, very small, much elevated on the four-sided peduncle-like germ. Petals lanceolar, longer than the calyx, yellow. Filaments four, length of the style. Anthers roundish, two-lobed, always after expansion found adhering to the large clammy stigma. Capsules slender, sub-filiform, more or less curved, smooth, fourcornered; angles rounded, sides grooved; four-celled. Seeds oval, minute, pink coloured, disposed in one vertical row and attached immediately to the axis, without the intervention of any thing like a receptacle.

Obs. This sp&ies is so much like my L. parviflora as not to be distinguished, except by attending to the germ, or capsule. In that plant it is shorter, thicker, always straight, and with numerous crowded seeds in each cell, attached to a projecting receptacle,, as in L. alternifolia, Gart. Carp, it 158. t. 31. In this there is only one vertical row in each cell attached to the axis.

OLDENLANDIA. Schreb. gen. itf, 205.

Calyx four parted, permanent. Corol oae-petalled, four-parted. Capsule inferior, two-celled, many-seeded. Receptacle free, fastened to the partition by the base only.

Obs. Would it not be better to omit this Gaertnerian part of the generic character, and unite our Indian species of Hf-dyoth to Oldenlandia? For except the attachment of their respective receptacles I can find no other mark by which the two genera are to be di-tinguished, and surely this is too tunute and inconspicuous for the travelling Botanist to be able at all times to discover.

1. O.umhellatcu Linn, sp.pl. eeL Willd. i. 676. Roxb. Coron. ph i. N. 3.

Erect. Leaves opposed, tern, and quatem, linear, scabious. Umbels terminal, iuside of the corol hairy*

Teling. Chen-Velloo.

Tarn. Saya-wer, or ImbureL

Much cultivated on the light sandy lands near the shores of Coromandel; where the root is employed to dye the best, and most durable red on cotton cloth.

2. O. alata, Känig's Mss.

Erect, four-sided. *Leaves* opposite, sub-sessile, elliptic, smooth. *Panicles* terminal. *Corol* rainpanulate; *mouth* shut with hairs. *Capsules* turbinate.

Seng. G?«ndha-baduli.

Hedyotis racemosa. Linn. sp. pi. ed. Willd* i. 565.

Annual, a native of the borders of rice lands and moist places; appears and flowers during the rainy season.

Stem several, erect, with few branches, four sided, smooth, about a foot or eighteen inches high. Leaves opposite, subsessile, oblong, smooth, entire, succulent, about two inches loug. Stipules, connecting membrane broad, toothed. Umbels terminal, few-flowered, flowers white, small Pedi-

eels four-sided. Capsules turbinate, smooth; receptacle clubbed^ free, affixed by the small end into the partition near its base.

3. O. pomicnlata. Burm. FL Ind. 38. *. 15.y. 1.

Biennial, creeping. Leaves ovate-lanceolate. Peduncles three-flowered, or three times that number.

Introduced into the Botanic garden from the Moluccas, in 1798, where it blossoms the greatest part of the year.

Stems none; but numerous, diffuse, four-sided, smooth, ramous branches, spread close on the ground in every direction, and strike root from their joints, their general length about twelve inches. Leaves opposite, sessile, ovate-lanceolate, smooth, and of a firm thick texture, the largest about an inch long. Connecting membrane with subulate divisions. Peduncles axillary, and terminal, longer than the leaves, smooth, four-sided, with generally three, small, white flowers, ou pedicels of unequal length. Corol; tube gibbous, mouth shut with fine while hairs. Stamens, in the belly of the tube below the hairs which shut, its mouth. Stamina entire.

4.4). crystallina. i?.

Annual, very rainous. *Pedicels* solitary, shorter than the leaves, generally two-flowered, *leaves* sessile, lanceolate, oblong, underneath marked with crystalline dote*

Beng. Punk?.

Hedyolis pumilą. Linn. sp. pi. ed. Willd. i. 566.

A femall, very ramous, diffuse, annual plant, a native of Bengal; appearing in the rainy season.

Stem none. Branches numerous, diffuse, about six inches long, somewhat four-sided. Leaves opposite, approximate, sessile, oblong, and lanceolate-oblong, smooth and marked with beautiful crystalline specks underneath, length about half or three quarters of an inch. Peduncles, from withiu the stipulary sheaths, about half the length of the leaves, generally bearing two, minute white flowers on their proper pedi-

cels. Corol, mouth of the tube hairy. Capsules much compressed laterally.

Obs_m It is readily distinguished from O. biffora by the gotoeral habit of the plant, this being-short, diffuse, very ranious, with oblong or teuiceolate-oblong leaves, while the 'ther ig slender with long straggling branches, and linear-lanceolate' leaves. I place less confidence in the crystalline appearance of the underside of the leaves, as soil, &c. may remove it.

5. difftisa. R.

Annual, round, flaccid. *Leaves* sessile, linear-lanceolate, ^{ac}ute. *Peduncles* axillary, solitary, one-flowered; *capsules* ^sub-globular, smooth.

Hedyotis diffu&a. Linn. sp. pK ed_m Willd. i. 566.

Found, growing in boxes, which were sent with Nutmeg plants to the Botanic garden at Calcutta from Banda.

Root ramous, annual. Stems short, flacpid, spreading, round, most slightly scabrous, from six to twelve inches long.

•Leaves opposite, sessile, linear-lanceolate, acute, smooth on both side*. Connecting membrane, from entire to many-cleft.

-Peduncles axillary, solitary, four times shorter than the leaves, one-flowered. Flowers pretty large, pure white, smooth. Stiyina deeply two-cleft. Capsule roundish, smooth.

Obs. The Linneean definition of O.capensis would lead one to imagine ihU to be that plant; but the observation srmUlima O. repentig at capsvla glabrrt, in the Plant..p. 127, convinces Uie it cannot be so; as this plant has not the smallest resemblance to Oldenlendia repensg now Deniella.

6. O. bijlora. Linn. sp. pi. ed. Willd. i. 676.

Peduncles solitury **two-Howered, shorter than the narrow lanceolar sessile leaves.

Sans. K>hetra-pz/rp?/tee.

Bern/. Khet-pap?/ra.

Antirrhinum huinile, Sec. Burnt. Zeyl. 22. £.11. good.



Annual; native of most parts of India. A small weak straggling delicate plant, appearing in the rainy season.

7. O. herbacea. R.

Erect, four-sided, dichotomous. 'Leaves linear-lanceolate. Peduncles' in pairs from alternate axills, one-flowered.

Hedyotis herbacea. JLinn. sp. pL ed. Willd. i. 566.

Teling. Veri nella-vemoo.

A native of road sides under thin bushes, &c. Flowering time the rainy season.

Stem erect, four-sided, smooth, short, ramous. Branches always two-cleft; from six to twenty four inches higii. Leaves opposite, sessile, linear-lanceolate, spreading-, smooth. Stipules, connecting¹ membrane finely-toothed. Peduncles axillary, always two from the small axil Is, with a branchlet, or the rudiments of one between them, round, nearly as long as the leaves, one-flowered. Capsule smooth.

8. O. ramosa. R. •

Diffuse, ramous. Leaves narrow-lanceolate. Peduncles axillary, with from one to several flowers.

A-native of Pegu, from thence introduced into this garden by Mr. F. Carey, where it blossoms and ripens its seed during the rains, and the early part of the cool season.

Root annual. The stems and numerous branches diffuse, somewhat four-sided, pretty smooth, spreading to the extent of one or two feet.* Leaves opposite, narrow-lanceolate, smooth, entire, whiter underneath; length about an inch. Connecting membrane many-toothed. Peduncles axillary, from one to many-flowered. Flowers small, white. Calyx, the divisions conical. Corel with gibbous tube, mouth bearded. Filaments short. Anthers within the tubes blue. Germ, &c. as in the genus.

AMMANNIA. Schreb. gen. N. 206.

Corol four-petalled, or none; when present inserted in the plaited mouth of the calyx which is from four to eight-tooth
""
« Capsule superior, from one lo four-celled. Seeds numerous.

1. A. rotundrfolia. Bitch.

Diffuse. Leaves opposite, round, entire. Flowers spiked, petals oval. Capsule four-Iobed.

Plants sent from L?/kshmee-poora and Maida, where they ar indigenous, flowered in the Botanic garden during the cold season of 1797.

Stems several, creeping¹, with ascending¹ apices, round, ^niootb, and succulent; whole plant spreading from sfx to e[†]ght inches. Leaves opposite, sub-sessile, orbicular, entire, smooth, and succulent. Spikes terminal and axillary, the terminal often compound. Bractes opposite; exterior cordate; interior lanceolate, and often very small, one-flow-e[†]ed. Flowers numerous, small, pink-coloured. Calyx four-parted, divisions obtuse. Corol of four, large, oval, sessile, pink-coloured withering* petals. Capsule hid in the bottom of the remaining calyx, and corol, four-lobed. Seeds numerous.

2. A. octandra. Linn, sp.pl. ed. Willd. 679. Roxb. Coroni. Pi 2. JV. 133.

-Annual, erect, brachiote, four-sided. *Leaves* sessile, nar-roW-sagittate; *peduncles* from two to three-flowered; *flowers* octandrous. *Capsule* four-celled.

Animannia octandra. Suppl. Plant, p. 127.

Annual, a native of moist places; appearing in the rainy and cold seasons.

Jioot fibrous. Stem straight, four-sided, smooth; from one ** three feet high. Branches numerous, cross-armed, and like the stem. Leaves opposite, sessile, linearly-sagittate,

smooth, margins a little revolute, from one to two inches long*, and about a quarter of an inch broad. *Peduncles* axillary* very short, from two to three-flowered. *Flowers* mnoll> colour a beautiful bright red. *Bractes* minute. *Calyx* and *corol* as in the genus. *Filaments* as Ions: as the corol. *Jl*^{nr} tliers incumbent.

3. A. mnltiflora.

Erect, four-sided, ramous branches simple. *Leaves* subsagittate, stem-clasping. *Peduncles* from three to «even-flowered. *Petals* large. *Capsule* one-celled.

A native of open lands about Calcutta, annual, from si* to twelve inches in height, appearing in the wet and cold seasons.

fftem straight, four-sided; angles sharp; sides convex. Branches cross-armed. Leaves opposite, decussate, horizontal! sessile, linear with enlarged cordate, stem-clasping* base, MZe very various. Peduncles axillary, almost always solitary* about as long as the smaller leaves, generally three-flowered* though in the luxuriant pi tuts there are often two or three, with one between, the lateral llowers have pretty larg-e long pedicels. Calyx as in the family. Petals large, roundisb, red. Cap* sule one-vaived, receptacle globular, affixed at the base only*

4. A. vescicatoria. R_m

Erect, ramous:, branches undivided. *Leaves* opposite, sessile, lanceolar. *Flowers* axillary. *Corol* none. *Capsule* one*' celled.

Beng. Daud-maree.

Teling. Aghundra-pakoo.

An annual species; found in wet cultivated ground during the rainy and cold seasons.

Stem erect, from six to thirty-six inches high, obsoletely four-sided, very branchy. Branc/irs, below opposite, decussated; above frequently alternate. Leaves opposite, s^8" sile, lanced, smooth; floral leaves many times smaller thai*

those below, *Corol* one. *Pericarp* one-celled, one-valved, half covered with the calyx.

Obs. It differs from A. bciccifera in having a capsule of one cell, in being evalvular, and in the leaves being lanced, ** that species they are liuear-cordate at the base, and em* brace the stalk.

This plant has a strong muriatic, but not disagreeable **nell. Its leaves are exceedingly acrid; they are used universally by the natives to raise blisters in rheumatic pains, levers, &c. The fresh leaves bruised and applied to the part totetjded to be blistered perform their office in the course of half an hour or a little more, and most effectually.

5. A. pentandra. R.

In the lower part of the plant creeping and simple, érect Portion ramous; four-sided. *Branches* simple. *Leaves* sessile, lanceolate. *Flowers* axillary, solitary, sessile, pentandrous. ****Opsule* one-celled.

A native of moist places; flowering in the rainy and cold seasons.

Stems creeping near the base, above erect; the erect part is branchy, four-sided, smooth, and coloured; from six to eight it ches high. *JLeaves* opposite, sessile, lanceolate, smooth, entire. *Flowers* axillary, solitary, sessile. *Bractes* two, Ianceolute, pressing the calyx laterally. *Calyx* ten-toothed, alternately smaller and inflected. *Corol*, petals five, very minute. *Stamens* five.

6. A. nana. /?.

Base creeping, erect portion ramous. Branches compound, Laures wedge-shaped, sessile. Flowers solitary. Capsule one-celled.

A native of such places as the last described, it is considerably smaller than that species, but more branchy.

Stems as in A. pentandra. Leaves opposite, sessile, wedgeformed, ismootb, entire. Flowers axillary, solitary, sessile.

TRAP A. Schreb. gen. N. 208.

Calyx four-parted, or four-leaved. Corol four-petalled-Germ inferior, two-celled; cells from one to two-seeded; oir tachment of the ovulum superior. JSTut turbinate, armed with two, or four horns, (which were the leaflets of the calyx.) Embryo simple, lodged in the apex of the ample perisperm*

"1. T. bicornis.

Nuts with two, opposite, recurved, very obtuse horns.

Chin. Lin ho.

A native of China, where it is carefully cultivated in lakes* ponds and other receptacles of water.

2. T. bispinosa. R.

Nut with two opposite, straight, barbed, spinous horns* *Nectary* cup-shaped, curled.

Shrinyata. AsiaU Res. vol. iii. p. 253.

Sans. Sr?ngata, Julukuntuka.

Beng. Panee-phui. Singhara.

Panover-tsjerana, *Rheed. Hort. MaL vol.* xu p. 64. f. 33? (evidently intended for this plant, and not T. natans^) Found floating on sweet, standing water in Bengal and many other parts of India. Flowering time the rainy season.

Root consisting of numerous, simple, capillary fibres which issue from the under margins of the cicatrices of the fallen leaves. Stems stoloniferous, often several feet long-, floating-. Leaves petioled, alternate, approximate round the apex of the shoots, of a rhomboidal-retiiform shape; with the posterior margins entire, and the anterior ones serrate dentate^ smooth above, of a deep green, villous and purple underneath; from three to four inches broad, and nearly as long*-Petioles villous, lengthening with the age of the leaves, towards the apex much smaller; this paft contains many inflated vescicles, which render the whole plant very buoya 11-** Stipules two pair, the superior ones simple, semi-lanceolate

and caducous, the inferior pair at first simple and filiform; bjtt becoming ramous by age, permanent.

Peduncles axillary, solitary, shorter than the petioles, oneflowered, incurved until the blossoms begin to decay, after wich they bend down under the surface of the water, where the fruit grows, and comes to maturity. Flowers pure white, expanding above the surface of the water late in the afternoon. four-leaved, in opposite pairs, leaflets lanceolate, villous, one of the pairs permanent. Corol contracted. Petals four, contracted into a tube at the base by the firmness of the calvx, above much broader, and expanding; margins much curl-Nectary cup-&baped, on the top of the germ, round the Celled base of the style, eight-grooved, with the margins minutely lacerate, and curled. Filaments four, incurved. Anthers oval, incumbent. Germ inferior, obconical, twocelled, with one ovulum in each attached to the top of the Partition. Nut inferior, of a turbinate triangular shape, a W d ligneous texture, and a blackish brown colour, armed with two, strong, straight, conic, barbed spines, from theup-P^erangles; elegantly embossed, one-celled, not opening, but having a perforation in the top for the embryo to pass, which guarded with a circle of stiff converging bristles from its Margin, forming a conical roof over the aperture. Seed single, conform to the nut. Integument single, of a slightly brown colour, thin, but rather tough, and adhering firmly to the Perisperm. Perisperm conform to the seed, white and of a filmartilaginous texture. Embryo in the apex of the perisperin.

06*. This is evidently a species perfectly distinct from notions, and bicornis. From the former it differs in having only two horns, and from the latter in the horns being straight, vei ty sharp, and barbed.

The nuts are sold in the markets when in season, their ker-ⁿels being much esteemed by the Hindoos.

3. T. qvadrispinosa. R.

•TVwf with two opposite pairs of straight, acute, spinous horn*.

A native of Silhet, where it is found floating: on lakes, and pools of fresh water; its kernels are also esculent.

POTHOS. Schreb. gen. N. 210.

Spalhe sub-rylindric. Spadix covered with florets. Caly* none, or four-pctalled. Corol none. Stamina indefinite. GerM one-celled, from one to three-seeded; attachment of theovula inferior (in heteropln/lla superior.) Berry one-celled, rarely many-seeded. Embryo uncinate, without perisperm.

1. P. scandens. Linn. sp. pi. ed. Willd. i. 684.

Parasitic, rooting¹. *Petioles* as broad as the Ianceolar leaves* *Flowers* axillary. *Fpadix* gobufar, reflex.

Ana Parua. Rheed. Hort. Mai. vii. p. 75. t. 40.

Adpendix duplo folio. Rnmph. A nib. v. 490. *. \9A.f. 2.

A native of Chittng'cmir, Malabar, and of Amboyua, and other eastern Islands. Flowering¹ time in the former country* the month of April.

Stems as thick as a slender ratan, often ramous, rooting upon trees in the most slndy forests, round, smooth, and less succulent than any other species which I have yet met with, except P. gracilis. Leaves alternate, petioled, lanceolate, entire, smooth; length from two to four inches, breadth about a° inch. Petioles most amply winged, so as to be nearly as broad as the leaves themselves, almost as loug, equally entire's smooth, and marked with similar veins. Peduncles axillary, solitary* clothed with many small, ovate, bractiform scales up to the spathe, where they are completely recurved. Spathe boat-Spadix globular, reflex. Calvx, or coroh shaped, erecf. some roundish scales mixed amongst the germs, and of nearly the same length, the exact number to each germ not ascer-Stamina, about four obovate scales to each germ* tained.

**erms many, oblong, one-celled, with one, two, or three ovuta attached to the bottom of the cell, and immersed in a clear & latinous liquid. Style none. Stigma, an uinblicated election on the ape* of each germ. Berries oblong, size of a "ench bean, red, pulpy, one-seeded. Seed solitary, or two, final arm to the berry.

2. P. officinalis. R.

Perennial; parasitic. Stems rooting. Leaves oblong, cordate, em ire. flowers terminal; florets naked, octandrous. berries one-seeded.

Sans. Gwjrt-p?ppwlee, Kwri-pVppwlec, Kizpi-vwllee, KOIK-Vt*Hee, Shrey wsee, Vwshira.

Beng. G«fj-p*?pp"I.

A native of.Bengal, and common in some parts of the Mid**apore district, where it is cultivated for its fruit, which, cut
^to transverse pieces and dried, is an article of some importance in the Hindoo materla medica, called G.rj-p?ppwl, and
sold by the druggists under that name. Flowering* time the
rainy season; seed ripe in January.

*ke the *Iuy*₉ taking firm hold with its innumerable roots; *bout as thick as the little finger, smooth, except the cicatrices of the fallen leaves, and the roots from the side next the tree which supports it. *Leaves* alternate, sub-bifarious, Pooled, oblong-cordate, entire, filiform, pointed, smooth on the sides; from six to ten inches long, and from three to six broad. *Petioles* bheathiig, channelled, smooth, shorter than the leaves. *Peduncles* terminal, solitary, round, smooth, scarcely half the length of the petioles; when in flower erect, but often drooping, from the increasing weight of the fruit. Pathe sub-cylindric, opening a little on one side; when in lower, smooth on both sides; greenish without, and of a pale yellow colour within, apex filiform, and a little twisted the leistles about six inches. *Spadix* sub-cylindric, obtuse, equal-

ing the spathe; colour a pale greenish yellow, dotted with the dark-coloured stigmas of the numerous fructification wlych every where covered it. Perianth none. Corol nom*. Filaments*; I conclude there are about eight to each germ* two' on each face; but the want of both perianth and corol, renders it difficult to assign the exact number of stamens to ea^h floret, they are very short, and seem inserted on the base of the germ. Anthers sub-sagittate, four-lobed. Germ numerous, parallelopiped, truncate, vertically attached to, and completely covering every part of the common cylindric receptacle, one-celled, with one seed attached in an oblique manner to the bottom of the cell. The substance of the germ is replete with rigid, sharp, vertical bristles, which are readily detached, and stick in the skin, causing pain and itching-The virtue of the drug may reside in these, as it does in the short stiff hairs of the legumes of Carpopogon pruriens. Style none. 'Stigma, a channel filled with gelatinous matter, running from the cell of the germ to the centre of the truncate apex, where it ends in a small slit, embraced by two darkercoloured, some what callous lips. Pericarps ('capsules circutiiscissaj, as numerous as the germs, and of the same form? only larger; a few only are fertile, of a soft fleshy texture, one-celled, one-valved; when the fruit is ripe they detacb themselves from the receptacle, and drop off, leaving the seed behind still attached to it. Seed single, ovate-cordate, somewhat two-lobed, covered at the base with a thin, red, succulent aril. *Integuments* two, exclusive of the aril; exterior pa'e yellow, polished, thin, hard, and elastic; inner meinbranace* ous. Perisperm none. Embryo uncinate, white, very succulent. Radicle inferior, thickened, and in other respects $e\%^m$ actly as in Gaertner's figures of Potamageton natans, vol. ! p. 23. t. 84.

Obs. The plant described by Sir William Jones by the name of Guj-pcepul, (See J/siatic Researches, vol. iv. p. 303.) is niy Tetrantkera apetala. He however observes, that it was from a native gardener he obtained the Sanscrit name of his

plant, but as be mentions that Valli means a creeper, be suspects fn some degree, the accuracy of his information.

Chavica, or Chavya mentioned under the same head is * new species of Piper.

3. P. Peepla. R.

Perennial, sub-parasitic, rooting on trees. *Leaves* long-petiol, oblong, acuminate. *JFiowers* sub-terminal; *florets* ape-Wous, tetraudrous.

Peeplee of the Hindoos of the SiJhet district, where the plant grows. Flowering time, April and May.

Stem rooting on trees, like the common Ivy of Europe, scarcely so thick as the little finger, round and smooth, some* what contracted between the leaves. Leaves petioled, alterhate, oblong, entire, smooth ou both sides, dagger-pointed; length from four to twelve inches. Petioles as long as the leaves, channelled, smooth. ^Peduncles sub-terminal, round, smooth, the base inserted in sheaths from three to four inches Spathe sub-cyliuilric, opening on one side, smooth, acute; length of the spadix. Spadix cylindric, obtuse, length of the inside of the spathe; colour prde yellow, every part completely covered with the fructification, without any proper perianth, or corolla. Filaments about four to each germ, aud about half its length. Anthers linear. Germs numerous, of a square, wedge shape, truncate, the whole of their substance replete with small pellucid, sharp bristles, which readily enter the skin, and produce pa hi and itching. Style none, Stigma sub-rotund.

4. P. gracilis. R_m

Scandent. *Leaves* lanceolate, entire, on short, round petioles above their sheaths. · *Spadix* peduncled, cyliudric, scarcely equalling its linguifbrm spathe.

A native of Ainboyna; it has a great resemblance to fiumphius's Adpendix arborum, Hoit. Amb. vol. v. /. 181. V. 2.

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5. P. gigantea. R.

Perennial. Stems rooting. Leaves oblong¹, entire. FloiQ-ers axillary; florets naked, heptandrous.

. This is the stoutest of these parasitic *Aroidecc* that I have met with. It is a native of Prince of Wales' Island; from thence introduced into the Botanic garden by Mr. W. Roxburgh. Flowering time in Bengal the close of the rains id October. It has not yet produced ripe seed there.

Stems perennial, creeping on the ground, or upon treft and plants; in a very thriving state, of six years' growth, not inore than three and four feet long, and about four inches 10 circumference, round, and strongly marked with the circular scars of the fallen leaves. Leaver alternate, sub-hifariou\$ petioled, approximate, oblong, cordate, entire, smooth; length from one to two feet high, and about two-thirds thereof M Petioles as long as the leaves, channelled, smooth, breadth. much enlarged at the base, and stem-clasping. **Peduncles** axillary, solitary, very short. Style sub-cylindric, shortpointed, opening a little on one side about the time that the anthers discharge their pollen, smooth On both sides, of a div ly dull purple colour, length about six inches. lindric, length of the spathe, obtuse, every part most closely* covered with the sessile fructifications; colour a pale lively yellow, beautifully dotted with the dark linear stigmas. Filaments about seven to each germ, short, broad, and thin* Germs very numerous, parallelopiped, Anthers two-lobed. truncate, much flattened, vertically one-celled, with generally two ovuln, obliquely attached to the bottom of the cell* Style none. Stigma a vertical, linear, grooved, dark-coloured projection on the middle of the truncate germ, as in the last species; the substance of the germ and spathe also abound in short stiff bristles, which readily enter the skin, causing pain and Itching. Calyx and corol none.

6. P. pertusa. R.

Scandent, sub-parasitic, rooting on trees. Leaves cordate,

perforated on one side, and pinnatifid on the other, 'Corollets apetalous, tetrandrous. Anthers two-lobed.

Elettadi-Maravara. Rlteed. Hort. Hal. xii. p. 41. t. 20 and 21.

A very, large perennial, sub-parasitical species, so much like Dracontium pertusum, that they may be readily taken for the same plant. It is a native of the mountainous parts of the coast of Coromandel, running up, and over the highest frees, to which it adheres like Ivy by roots issuing from the joints.

Leaves alternate, petioled, cordate, smooth, generally per* forated with linear oblong holes on one side, and on the other Passing through the margins as in the pinnatifid leaves; their *e>h from twelve to eighteen inches long. Petioles nearly ^ long as the leaves, deeply channelled, wanting the stipule-like processes at the apex, which Miller's figure represents, *a which particular this plant differs from that in the first instance. Scape short. Spathe gibbous, pointed, little longer than the spadix, cylindric, obtuse, every where covered with the fructifications. Carol none. Filaments intermixed amongst the germs, (the number to each germ cannot be determined, *But I tljink about four,) compressed; apex bifid. Jlothers* oval, two to each filament. Pistils mixed with the membrataceous filaments, four-sided, lobed *Style* none. Stigma, a knob on the centre of the lobed germ.

7. P. pinnata. Linn. \$p. pi. ed. Willd. i. 686.

'Sub-parasitic, rooting on trees, the apices of the shoot* clothed with fibres. Leaves pinnatifid. Flowers terminal.

Adpendix laciniata. Rumph. Hart. Amb. v. 489. t. 183.

Pound in forests in the Malay countries, rooting up and running over trees of great size. It is readily distinguished from my *decursiva*, by the abundance of brown fibres which are found on the young shoots, and the lower part of the Petioles.

8. P. caudata. R.

Perenniatl, goring. Extreme shoots leafless, flagelliform> gnd pendulous. *Leaves* ovate-cordate, from entire to pinna* tifid; *segments* sub-en si form, one-nerved.

From Prince of Wales* Island slips were brought to the Botanic garden at Calcutta, in 17.07; and now, 1812, ft*8 one of the most common and most extensive climbers; but has not as yet blossomed in the garden. The long' flagellifom pendulous extremities of its shoots readily distinguish it from every other species I have seen; the leaves also are oftenef undivided than otherwise.

9. P. deevrsiua. R.

Perennial, rooting¹ on trees, smooth. *Leaves* sub-dectursively pinnate; *segments* falcate, cuspidate. *Flowers* lateral* or axillary, long-peduncled.

Guj-p?ppwl is the vernacular name of this very large* powerful species, in the Silhet district, where it is indigenous, and blossoms during the hot season.

Stems as thick as a &tout cane, roofing* on, and ascending' trees like the common Ivy; round, smooth, and rather cou-Leaves approximate, alternate* *tracted between the leaves. petiolcd, pinnatifid, or completely pinnate; from two to 63% or seven feet long, including the petioles; segments, or leaflets, linear-falcate, cuspidate, entire, smooth, sometimes from three to four-nerved or triple-nerved; length from six tq, eighteen inches, and two broad. Petioles from six inches* to three feet long, round, smooth, stem-clasping, and the lo*r~ er portion more deeply channelled. Peduncles solitary, axillary or lateral, about six inches long, substantially thick' round, smooth, and replete with the same white bristly sp^H cula that are found in the germ and seed vessels. Spathe&vh* cylindric, length of the peduncle. Spadix cylindric, leng* of the Fpathe, completely covered with the innumerable Calyx none. Corol none, nor any thing 1^{*e} fructifications. either, filaments about four to each germ, and nearly of their

*ewgth. Anthers cordate, appearing beyond the germ. txertns numerous, the most general form a four-sided wedge, apex truncate. Style, scarcely any. Stigma, an elevated vertically oblong opening.

10. P. pinnatiifida. R.

Perennial, rooting on trees. Leaves pinnatifid; segments falcate, one-nerved.

A native of Sumatra; from thence brought into the Botauic garden at Calcutta, where it grows freely on the trunks 'strees, to which its lateral roots adhere most firmly, the orisium one being still in the ground, where first planted. Although some of the plants are six or seven years old and 'bout twenty feet high, they have not yet blossomed.

11. P. heteropiiylla. R.

Caulescent, creeping, armed. Leaves from cordafe-sagittate to pinnatifid. Spat/ie erect, spiral, many times longer tan the short cylindric spadix. Florets tetrupetaluus, teandrons.

Can it be Dracontium spinosum, Flor. ZeyL 328 %

. A native of Bengal, delighting in a rich, moist soil; it flowers, though rarely, during- the cool season*

Root fibrous. Stems and branches creeping, armed with short, sharp prickle.*. Leaves until the plants are old, and begin to flower, simple-sngittate, and cordate sagittate, afterwards pinnatifid, with long lanceolar, acuminate segments, sluooth above, nerve and targer veins armed on*the under side; from six to fourteen or sfxteen inches long. Petioles coinpletely armed; base sheathing; above round, generally shorter than the leaves. Scapes axillary, solitary, one-floweretU length of the petioles, and armed like them. Spathe fcub-eylindric, acute, spirally twisted above the spadix; colour a dark dull reddish wrple; length from eight to twelve inches long, and as thick as the little finger, opening at the base only where the spadix is lodged while the pollen is dis-

charging, after which it shuts, as before that period. Spadix cylindric, obtuse, completely covered with hermaphrodite florets; length little more than one inch. Calyx none. Petals four, obovate, concave. Filaments four, broad, length of the petals. Anthers two-lobed. Germ oblong, one-celled, containing one ovula attached to the top of the cell. Style none. Stigma glandular, flat.

12. P. Lasia. R.

Anned. Leaves radical, pinnatifid. Spathe very long, and twisted above the spadix. Berries one-seeded, jnuricate.

Lasia aculeata. Lourier. Cochin Ch. ed. Willd. i. 103.

Teling. Moola-sari.

Seng. Kanta-ktttchoo.

A native of boggy, or wet places among the Circar mountains.

Leaves radical, petioied, pinnatifid; segments lanceolate, smooth, shining, the nerves on the under side armed with prickles; length, about two feet, breadth about a foot and half. Petioles erect, from two to four feet long, round, every where thickly armed with sharp prickles. Scape the length of the petioles, round, and equally covered with prickles. Spathe very long, erect, below gaping; above the spadix twisted, leathery, dull red colour. Spadix about one-sixth of the length of the spathe, cylindric, every where covered with the fructification?. Carol, stamens, and pistil as in the genus. Berries^ (or rather capsules,) wedge-formed, somewhat four-sided, murexed, one-seeded. Seed two-lobed.

CHLORANTHVS. JSchreb. gen. N. 1730.

Colyx none. Coro/9 a three-lobed, unilateral antherifei' **ous** petal on theotfteideof the pistillum. Germ semi superun* one-seeded'; attachment of the ovtfum superior. Drupe one-seeded.

C. inconspicuus. Linn. spec, plant, ed. Willd. u 688.

TcJteu-fan, of the Chinese.

FVom Cantou it has been received into the Botanic garden at Calcutta, where it grows freely to be a small upright shrub, Ahh many straight sub-simple smooth branches, of about, two feet in height, with oblong opposite serrulate smooth leaves. Flowering time in Bengal the rainy season. It has in the period its seeds there.

ELJEAGNUS. Schreb. gen. N. 213.

Corol none. Calyx gibbous, border fqur-parted. Germ one-celled, one-seeded; attachment of the ovulum inferior. Qrupe inferior, one-seeded. Embryo erect, without perisperm.

1. E. triflora. R.

Shrubby, scandent, armed. *Leaves* oblong, obtus\$> scaly. *Flowers* axillary, three-fold, peduncled.

Elaeagnus foliis oblongis acuminatis maculatis. Burnu $^{Z}*yl.p.$ 92. t. 29. f. 1.

A native of Sumatra, from thence introduced into the Botanic garden in 1804, where it blossoms in December. Seeds ripen three or four months afterwards.

Stems and branches of considerable size, and great extent, climbing. Bark of the ligneous parts a beautiful dark purplish colour, and smooth. The short lateral branchlets which tesue from the young climbing shoots are more or less recurvite and answer the end of tendrils; when old, they become stout thorns. Bark of the tender part most beautifully clothed with numerous ferruginous, stellate scales. * Leaves alernate, short-petioled, oblong, entire, obtuse, above smooth; underneath ornamental with numerous stellate, ferruginous and silver-coloured scales; from two to three inches long, and from one ^o two broac). Stipules none, flowers axillary, three-fold, small, white. Peduncles longer than the corols, Queflowered. Calyx with a shore, four-bided tube; and border

of four cordate segments, on the outside a little scaly; on the Filaments none. Anthers four, sessile in the inside smooth. mouth of the tube of the calyx. Germ superior, 6blong₉ embraced by the contracted bottom of the calyx, one-celled, one-seeded. Style as long as the calyx. Stigma oblong* glandular, oblique. Berry oblong, succulent, when ripe pale orange colour, pulp soft, of rather a pleasant astringent ta^te, and not acid like E. conferta; one-seeded. Seed sub* Integuments two, exterior eight-ribbed, soft, and clavate. lined wilh much wool; inner membranaceous. Perisperffl none. Embryo erect. Cotyledons conform to the seed, amyg-Plumula two-lobed. Radicle oval, inferior. daline.

2. E. conferta. R.

Shrubby, scandent. *Leaves* alternate, oblong-pointed, covered with silver-coloured scales underneath. *Flowers* axil* lary, crowded, short-peduncled.

Seng. Guara.

• i • .'

"li This is a very large and ramous, scandent shrub; a native of the mountains near Silhet, in Bengal. Flowering time,-the cold season. Seed ripe in March.

Young shoots covered with innumerable rust-coloured scale*
Leaves alternate, short-petioled, generally erect, oblongpointed, entire, with innumerable small silver coloured scales,
particularly underneath, which gives them a bright colour;
from three to four inches long, and from one and half to W*
broad. Petioles short, scaly. Peduncles axillary, crowded,
short. Flowers small, straw-coloured. Calyx; tube somewhat gibbous, four-sided; outside scaly; border of four cordate segments • its mouth marked on the inside with foil
curved lines, on their pointed junctures the filaments «*
Style hairy. Drupes oblong, succulent, when ripe red.

Obs. The calyx of my plant cannot be said to be placed on the germ; it has, as it were a lower tube which envelopes the germ only, this part grows with the fruit, and finally become* the pulpy part thereof as in the *Nyctagineae* of Jussieu.

3. E. arbor pa. R.

Arboreous. *Branchlels* often spinous, pointed. *Leaves* oblong an(j broad-lanceolate, entire, silvery underneath. *Flow-*?** in axillary fascicles. *Fruit* cylindrically oblong*.

A large free, native of the Garrow Hills, and there called *heu-Shong*. Flowering time December. The fruit shaped 'ike an olive, but much larger; it is eaten by the natives **when** ripe, which it is generally in March and April.

CANSJERA. Juss. gen. ed. Ust. 85.

Calyx large, gibbous, four-toothed. (Jorol none. Nectary four-petalled, embracing the germ, and of the same length. teerrguperior, one-deeded.

1. C. scandens. Roxb. Corom. ii. JV*. 103.

Shrubby, scandent. *Leaves* alternate. *Spikes* axillary. Scheru-valli caniram. *Rheed. Mai.* vii. p. 7. t. 4.

Tsjeru caniram. *ibid. p.* 3. t. 2. appears to be the same Plant.

A large woody climbing shrub; a native of the Circar fountains.

Leaves alternate, two-faced, short-petioled, broad-lanceo'ate, smooth, entire, about three inches long, and one broad.

Spikes axillary, generally single, short, every where covered
with flowers. Jiractes solitary, small, oval, one-flowered,
Flowers small, sessile, yellow. Calyx inferior, oue-leaved,
gibbous; mouth four-toothed. Corol none, except the calyx,
o* nectary be accounted one. Nectary four-leaved; leaflet*

Cordate, acute, half the length, of the calyx, inserted round
he base of die germ and embracing iU Filaments four, inserted into the base of the calyx, and rather shorter than it.

Anthers, ovula within the calyx. Berry oblong, smooth, red,
juicy, size of a pea, one-celled. Seed single, bbaped like the
berry.

SANT ALUM. Schreb. gen. N. 215.

Calyx semi-supera, campanulate, four-cleft. Corol none. Nectarial scales four, alternate with the stamina. Germ one, celled, one-seeded, attachment inferior. Berry one-seeded. Embryo inverse, and furnished with a perisperm.

1. 8. album. Linn. sp, pi. ed. Willd. i. 691.

Leaves oblong*.

Sandal um album. Rumph. Amb. ii. 42. t. 11.

Chandana. Asiatic Researches, vol. iv. p. 253.

Santa him verum. Li nit. Mat. Med. 102.

Sans. G'/ndhasarzi, Muluyuju, Bh^div/shree, Chunduna.

Benff. Chundun.

Pers. Suudul-sufed.

Sandal-wood. *Buchanan's Journey*, i. 186, and 202. ii. Il7i 132, and 536. iii. 192.

'A native of the mountainous parts, of the coast of Malabar* That of Timor, and the neighbouring Lslands is most probably the same species. In the Botanic garden near Calcutta, the trees reared from seeds brought from the former country, thrive Juxuriantly, and produce flowers and ripe seed nearly the whole year round.

Trunk iu trees of twelve years* growth in the Botanic garden, only a few feet high, when they divide into branches; and there from two and a half to three feet in circumference^ Bark brownish, and scabrous, with longitudinal fissures* Branches numerous, dividing much, spreading, and rising io every direction, forming nearly a spherical head.. YoiPty* shoots round and smooth; extreme height ofourlargerf. twelve or thirteen years old trees, about twenty-five ie*** Leaves opposite, petioled, oblong, generally obtuse, smooth* entire, glaucous underneath; length from one and a half*0 Petioles scarcely one-fourth the length of tJ*e ^{*} three inches. Thyrsi axillary and termileaves, smooth. Stipules none. nal, much shorter than the leaves. Pedicels opposite, the

lower pair of each thyrsus generally three-flowered. er* numerous, small, when they first expand straw-coloured, ellan,?ing to a deep ferruginous purple, inodorous, as are all exterior parts of the gtowing plant, even when bruised. A grant one-leaved, catnpnnulate, border four-parted; segments ovate, smooth, base of the bell only permanent. Corol none, except the calyx, or nectarial glands are so called. Wec; «r?/ of four, roundish, sessile, thick, fleshy glands, on time mouth of the bell of the calyx, alternate with the segments ox its border, and when the flower first expands, the most °°loured part, entire. In Sirinm (now Santalum) myrtifbli-Uni 9 they are lobate. Filaments four, alternate with the nec-^rial scales, and of the same length, smooth, but behind each there rises a tuft of white hairs from the disk of the segments o' thetcalvx, perfectly distinct from the stamina, but of the ^tae length, the ends of these long, white, woolly hairs adhere to the back of the small, two-lobed anthers. Ge/msemi^ fuperum, one-celled, containing one conical seed, attached to the bottom of the cell. Style, length of the tube of the ca-Stigma three-nerved, four-lobed. Berry pyrenous, rouud, smooth, when ripe black, and succulent, size of acherry» and crowned with the remaining calyx, one-celled., Nut Solitary, spherical; three small, equi-distant elevations from *he apex run a little way down the sides. Seed conform to he nut. *Integument* single, soft, while, spongy, lining- the Out, and adhering to it and the seed also. Perisperm conform to the seed, white, ainvgdaline. *Embryo* inverse, subula*e, nearly as long as the vertical diameter of the perisperm. Cotyledons two, unequal, linear-lanceolate. Plumula minute, semilunate. Radicle tapering¹, superior,

*Pecies, Sirinm myrtifblium, Corom. Plants, vol. i. /. 2. were *ken from the plants which grow wild, on the mountains tfo the Rajamundrz Circar, on the coast of Coromandel, * *e*e the trees are but of a small size, scarcely more than a large shrub, or bush, with lanceolate leaves; and the wood

of little value. It is now nearly twenty years since that description, and the drawings were made, and I have reason to think the tree which produces the sandal wood of Malabar,* and Timor, to be different, and having: had an opportunity of cultivating¹ the former, viz. that of the Malabar mountains, in the Botanic garden for these thirteen years past, I do not he* sitate to say, that the Circar tree is at least a strongly marked variety of the Malabar sort. For that reason 1 have thought it advisable to give the foregoing full description, of the true sandal wood, which I hope will tend to clear up the botanical history of this celebrated tree, and its associate JSiriftm myrtijblium. They evidently belong to one genus, to which I have thought it necessary to assign a new essential character, and whether I consider them to be distinct species of that genus, or varieties of one species, must be of verj^little consequence. For my own part I think it nearer the truth to Consider them distinct specie?. 1 therefore call the narroWleaved one Santa him myrtijblium.

The nature and history of the wood, white and yellow Savnders or Sandal, are now too well known to require any thing; iii addition from me.

2. S. myrtifolium. /?.

Leaves opposite, lanceolate.

Siriuin myrtifolium. Roxh. Corom. pL i. JV*. 2. Willd.

A native of the Circar mountains, where it is but of a small' size, and the wood of little or no value.

Leaves opposite, short-petioled, spreading, lanceolate, en* tire, waved, smooth, shining; about two inches long, aik three-fourths of an inch broad. Stipules none. Racemes thy*'' siform, terminal, compound, small, erect. Flowers small, red*'dish. Calyx superior. Tube short, a little gibbous. Border

* I include however the other Islands thereabout, because the leaves of our tree agree particularly well with Rumphius's figures above quoted.

four-cleft, divisions ovate, expanding, coloured. Corol no ther than the above, except the nectary be such. Nectary four-leaved, obcordate, notched, inserted into the mouth of the calyx. Filaments four, short, hairy, inserted into the calyx, alternate with the leaflets of the nectary. Germ globular. Style length of the tube. Stigma four-lobed. Berry globular, size of a large pea, smooth, juicy, black, when ripe one-deeded.

Obs. Birds greedily eat the berries, by which means it is propagated extensively. I do not know that the wood of this ⁸ That tree is ever used as a perfume.

GYROCARPUS. Jacq. Gcerl.

Calyx superior, four-leaved, unequal. Corol none. Ncctary of four clavate glands, alternate with the stamina. Berry dry, one-seeded, ending in two long wings. Embryo erect; spirally rolled up; no perisperm.

1. G. Jacquini. Roxb. Corom. pi. ü JV*. 1.

Polygamous. Panicles dichotomous.

Gyrocarpus asiaticus. Linn. sp. pL ed. WilUf. iv. p. 982, Teling. Tanukoo.

Grows to be a very large tree, is chiefly a native of the Mountainous parts of the coast of Coromandel. *Leaves* deciduous about the end of the wet season. Flowers during thee old season when the trees are naked; the leaves come out soon after.

Trunk generally erect. Bark smooth, greenish, ash-co-**loured.** Branches thin, irregularly spreading in every ditection« Leaves approximated, about the extremities of the
h-anchlets petioled, broad-cordate, three-nerved, often slightb' lobed, above smooth, below downy, with two pits on the
h-per side of the base; length and breadth various, but in
general about five or six inches each way. Petioles round,

downy, three inches long". *Panicles* terminal, umbel-like; divisions two-forked. *Flowers* very small, yellow.

HERMAPHRODITE FLOWERS solitary, sessile in the divi* sions of the panicle. Calyx superior, four-leaved; leaflets unequal; exterior pair small, oval, bractiform, caducous; t** terror pnir large, wedge-shaped, three-toothed, permanent, increasing in size with the pericarp into two long, menibranaceous wings. Corol none. Nectary consisting of four clavate* yellow glands. Filaments four, longer than the calyx, inserted alternately with the nectarial glands into a perforated receptacle. Anthers quadrangular, opening on each side with an oval lid. Germ inferior, ovate. Style none. Stigma small? immersed in the perforation of the receptacle of the filament and nectarial glands. Capsule globular, wrinkled, one-celled* one-valved, not opening spontaneously, size of a cherry, ending* in two long*, obtuse, lanceolate, membrariaceous wing* ••'»' Seed one.

 Obs_m The wood of this tree which is white and very ligbk is employed to make *Catamarans* (floats), when to be had* in preference to any other. •

TETRANDRIA DIGYNIA.

CUSCUTA. Schreb. gen. N. 227-

4 Calyx four or five-leaved or parted. Corol one-petalled« Germ two-celled, one or two-seeded, attachment inferjQfV, Capsules superior, two-celled, circumcised. Embryo spiral* rolled round the perisperm, with an inferior radicle.

1. C. reflexa. Roxb. Corom.pl. ii. N. 104.

Parasitical; *flowers* racemed, pentandrous. *Scales* of th* nectary bearded. *JJapsules* four-seeded.

Beng. Hwldi-algwsi-lwta.

 $Teling_m$ Sitama^poergonooloo.

This plant is parasitical, appearing on any bush in the coU^{\dagger}

Season. Stems or branches filiform, succulent, twining-, very famous, leafless, smooth, yellow. Racemes numerous. Flow*** white, short-pedicellecL Calyx five-leaved; leaflets cordate, permanent. Carol; tube cylindric; mouth five-parted; division re flexed. Nectary of five scales, which surround
the germ, and are inserted into the bottom of the tube. T?i*****ie*** five, very short. Anthers oval, appearing half above
he mouth of the tube. Style scarcely any. Stigma two,
*****large*** fleshy, expanding, pointed.

2. C. aggregata. R.

Head round, sessile, composed of ten or twelve perfectly aggregate, pentandrous flowers.

Accidentally introduced into the Botanic garden amongst flax seed* from Bagdad. When the flax plants were a few k**cbes high, this little delicate, leafless, filiform, round, yel'w parasite began to make its appearance, adhering in such Quantities to their stems and leaves, as to destroy whole beds in a very short space of time.

3. C. sulcata. R_m

Peduncles in fascicles, each bearing a few pentandrous, sessile flowers, with a fleshy furrowed calyx. Capsule two-seeded, surrounded by the deeply grooved calyx.

A native of Bengal, appears adhering to *Amaranthus ole-***ceus, and some other plants, during; the cool season. Is a

P'ant of small size, of a pale yellow colour, throughout per
fec*ly smooth.

Peduncles generally collected in small, remote fascicles of the three, four, or more, each supporting from two to four, to the flowers. Bractes ovate. Calyx five-to otheil, permanent, becoming fleshy, and deeply ribbed, the from six to ten ribs, length of the tube of the corol. Vorol, tube short. Border five-cleft; divisions oval, obtuse, reflexed. Nectarial scales five, below the insertion of the flaments, divided nearly to the base, into many, fine, filiform

segments. Filaments five, inserted n little below the fissures of the corol. Germ round. Styles two. Stigma headed* Capsules two-celled. Seeds solitary.

4. C. capitata. R.

Heads round, sessile, bracted, with frotp ten to twenty pen* tandrous flowers. *Calyx* and *corol* papillose, pellucid and white.

Hind, and Beng. Algusi.

A ftiost beautiful, small parasite, found in great abundance growing on the lower part of the stems of *Crotolaria Juncedt* during- the month of February and March.

Stems numerous, filiform, smooth, except at the parts where it grows to the stalks of its supporter, there tuberculate; extent from one to two feet high; colour pale yellow.' Leave* none. Flowers from ten to twenty, forming- most beautiful* round, sessile, white, pellucid heads. Bractes a single one unr der each head, which is white, membranaceous, and oblong* Calyx and corol five- cleft, swelled with pellucid cells, like the 'Ice-plant. Nectarial scales reniform, ciliate. Stamens five* 'Germ two celled, with two seeds in each, attached to the bottom of the cells. Styles two. Stigma simple.

COLDENIA. Schreb. gen. N. 233.

Calyx four-leaved. Corol infundibuliform. Germ superior, four-celled, one-seeded, attachment superior. Nuts four* Embryo inverse, and furnished with a perisperm.

J. C. procumbens. Linn. sp. pi. ed. Willd. i. 712.

A small annual, spreading (lat on the ground, and in general very commorfon dry rice-fields during the cold season; but never to be seen from the beginning of the periodical raius till they are completely over.

TETRANDRIA TETRAGYNIA.

BRUCE A. Schreb. gen. N. 4508.

Calyx four-parted. Petals four. Germs four, one-seeded, attachment inferior. Berries four, superior, one-seeded. Embryo inverse, with scarcely any perisperm. Sometimes a fifth part is added.

1. B. sumatrana. R.

Shrubby. *Leaflets* serrate. *Racemes* axillary, generally compound.

Lussa-Radja. Rumpfi. Amb. Auctuar. 27. t. 15.

Mai. Ampadoo-Barrowing.

A native of Sumatra. From thence Mr. Ewer sent the seeds to the Botanic garden, where in one year the plants were about four feet High with a straight ligneous stem; and few branches. They then began to flower in May, and continued to blossom and ripen their seed all the year.

Leaves scattered, unequally-pinnate, from-twelve to eighteen inches long. Leaflets from ibur to six pair, opposite, short-petioled, obliquely ovate-lanceolate, grossly and obtusely serrate, pointed, villous underneath, from thVee to six inches long, very bitter, and somewhat foetid. Petioles common, round, and villous. Stipules none. Racemes axillary, solitary; from one to six, or eight inches long, somewhat compound^ dark purple, and clothed with a few white hairs. -Flowers numerous, very minute, dark purple, and in all the* Sumatra plants completely hermaphrodite. Bractes subulate, hairy, very small, and caducous. Calyx four-leaved, deeply four-parted. Segments small, ovate-lanceolate, deep purple, hairy on the outside am'with the corols becoming reflexed. Petals four, longer than the calyx, lanceolate, dark purple, and hairy on the outside. Nectary a dark purple, four-lobed, fleshy cup surrounding the insertion of the germs. Filaments four, short, purple, inserted un-

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der th£ margin of the nectary. Anthers oval, large, and deep purple till they discharge their pollen. Germs four, superior, one-celled, .with one ovulum in each attached to the upper arid inner side of the cell. Styles single, bhort, recurred, one to each germ. Stigmas simple. Drupes four, when all come's to maturity, size of a small graip of black pepper, smooth, dark purple, one-celled. Nut conform to the drupe, rugose, one-celtad, inner edge thinner, and the upper half of it marked wijih a white line, (the umbilicus). Seed conform to the nut. Integuments single, adhering to the perispenn, thin and white. *Perisperm* in very small quantity, indeed it may be called a fleshy inner integument. Embryo as long as the perisperm, straight, inverse. Cotyledons oval, fleshy* Radicle roundish, superior. Plumula two-lobed.

Obs. Since I first described this tree, and only from plants that were completely hermaphrodite I have found some plants perfectly male, and others as completely female. In this plant, therefore, we have another instance of Trioicous Polygamy.

From the sensible qualities of the green parts of this plant, being somewhat foetid, and simply, though intensely bitter, it promises to be as good an antedystenerical medicine as Bruce⁹s Abyssinian Wooginos itself. As soon as the plants arrive at greater maturity the bark shall be tried, and compared with Angustura bark which has by some been thought thattf Brucea antedysenterica of Bruce⁹s 7*ravels₉ &c. vol. v. p. 69. also of /. F. Miller, Tab. 25. and still better described and figured by X. Heritier under the name Bruteafetruginea₉ Stirp. Nov. 19. t. 10. See also Linn. sp. pL ed. Willd. iv. 742.

MYRIOPjjYLLUM. Schreb. gen. N. 1440.

Calyx; four-parted. Corol four-petalled. Style none*

Stigmas four. Heeds four, naked. Embryo inverse.

1. M. tetrandrnm. R.

Leaves vert ice lied, all filiform-pmnatifid. Flowers axillary, verticelled, tetrandrous. Calyx four-leaved.

Compare with Hottonia sessiliflora. Linn, sp.pl. ed. Willd. i. 813.

Teling. Neerla-pamarum.

It grows in street w&ter; appearing during the rains.

Stems round, articulate, spongy below'the water, length various, above the water from four to six inches, about the thickness of a crow's quill. Leaves verticelled, pinn&tifid, below the water they are much larger, with capillary segments; above the water they are small. Flmoers very /small, white, verticelled, i. e. one in the axill of each leaf. Calyx above, four-leaved; leaflets permanent. Petals four, oblong. Filaments shorter than the petals.

2. M. tubercnlaifm. ft.

Leaves verticelled, pinnatifid. Flokvers axillary, verticelled, tetrandrous; fruit tetrafceous, tubercled.

A native of* borders of lakes, and other moist places near Calcutta, in blossom most part of the year, and very much 'ike M. *tetrandrum*.

Stems creeping, round, jointed, length various, the erect extremities about five or six inches. Leaves verticelled, pinnatifid, or acutely serrate. Flowers verticelled, sessile, one in the axill of each leaf, small, pink-coloured. Calyx none. Corol; petals oblong, expanding, pink-coloured. Filament short. Anthers linear. Seeds united in the form of a four-* bed, tubercled pericarp.

POTAMOGETON. Schreb. &n. N. 234.

Calyx none. Carol four-petalled. Germs four. Style*

none. Seeds four. Embryo looked, without perispenn. «

1. P. indicum. R.

Creeping. Leaves alternate, from narrow-lanceolate to elliptically oval, opaque, glossy,- many-nerved. Anthers four pair, attached to the claws of the round concave petals.

A native of the borders of fresh water lakes and ditches in the vicinity of Calcutta. Flowers in February and March.

The small simple foots which issue from Stems creeping. the joints are all I can discover, for while the plant advances from the apex, it decays at the opposite end, so that I do not think any part of them exists for one year. Brandies few, and like what I call the stems; they are all round, smooth, and jointed at various distances. Leaves alternate, except next to the flowers, and there often opposite, petioled, from narrow-lanceolate to ellipticaJly oval, opaque, even, and very smooth, or rather glossy, entire, obtuse, obscurely manynerved; size very various. Those that remain immersed are narrower, longer, more strongly marked*with nerves, and sub-transparent. Petidtes simple, not sheathing, length various, in plants left by the water miich shorter than the leaves. Stipules solitary, axillary, sheathing, length of the petioles, slit halfway or more on the inside. Peduncles solitary, axillary, or opposite to a leaf, round, rather thicker, smooth, and nearly as long as the cylindric spike, which each supports. Flowers small, numerous, green. Calyx none. Petals longclawed, nearly round, incurved, fleshy; concave within, convex on the back, permanent. Filaments none. •Anthers, four pairs attached to the claws of the petals on the inside. Germs four, ovate-oblong, one-celled, with one ovulujn in each. Styles short, and thick. Stigmas a dark speck on the apex of the styles. Drupes obovate, smooth. Nut conform to the drupe, one-celled. Embryo curved, as represented by Gartner in P. natOHs, vol. ii. t. 84.

2. P, tuberosiim. R.

Leaves alternate, and only opposite at the floriferous forks,

sessile, linear, much waved, entire, clear, when dry membranaceous.

Found immersed in extensive masses, in ponds, lakes, and receptacles of fresh water in Bengal, during the dry season, chiefly when in flower in February, it rises so near to the surface as to allow the little spikes of flowers to emerge completely.

Root of long simple fibres, brown, &c. according to the colour of the rnud they enter; on the creeping joints are generally found small roundish-lobate, viviparous tubers. Sterks and branches of various lengths, according to the depth of the water, &c. a groove on each side gives them the appearance of being compressed, thick as a pack-thread, smooth, at -the bottom of the water creeping, towards the extremities when in flower dichotomous; previously to that period the branches are alternate and axillary. Leaves sessile, alternate, except at the floriferous fork of the branches, where they are opposite, linear, rather obtuse, much wcised, finely and acutely serrulate, with two slender nerves near the margin, pellucid, from two to three inches long, by little more than a quarter of an inch broad. Stipules sheathing, short, smooth, greenish like the other parts of the plant, and scarcely to be distin-Spikes solitary in the fork of the guished from them. branches, rather long-peduncled, from four to eight-flowered, when in blossom emerged, afterwards immerged. stamina, and germ as in the genus, but here there certainly is a style with four large, obliquely truncated stigmas. Seed as in P. natans, Gaert. senu ii. 23. tab. 84.

CLASS V.

PENTANDRIA MONOGYNIA.

HELIOTROPIUM. Schreb. gen. AT. 239.

Corol salver-shaped; throat contracted with vaults. Seeds four, naked, or each covered with its proper bark.

1. H. indidum. Willd. sp. i. 740*

Annual, diffuse, ramous. Leaves petioled, cordate. Spikes leaf-opposed, peduncled, solitary. Fruit two-cleft.

Bena patsja. Rheed. ^IaL x. p. 95. t. 48.

Sans. Slireehttstinee, Bhooroondee.

Beng. Hatti-soora.

This is one of the most common plants in India, it is in flower at all seasons, and delights in out-of-the-way corners, rubbish, &c. where the soil is rich and dry.

Stems and branches diffuse, dichotomous, hairy, general height one, or two feet, but spreading to an extent greater than its height. Leaves for the most part alternate, petioled, cordate, wrinkled, margins curled. Spikes leaf-opposed, generally solitary, peduncled, longer than the leaves. Flowers rigidly sessile, minute, in two rows on the upper side of the spikes. Corol longer than the calyx. Tube gibbous; border five-lobed, pale rose colour. Seeds united towards the base, two-cleft, smooth.

2. H. coromqpdelianum. Willd. sp. i. 742.

Annual, ascending, pubescent. *Leaves* petioled, obovate, entire. *Spikes* paired, and solitary.

Beng. Naga-phoollee,

A native of Coromandel, Bengal, &c. Flowering time the **hot** and rainy seasons.*

Root simple, annual. *Stems* several, near the base spreading on the ground, afterwards ascending; clothed with white, soft hair. *Leaves* scattered, petioled, obovate, entire, hairy like the stems and branches. *Spikes* terminal, and interspersed among the leaves, generally paired. *Flowers* numerous, stall, white, placed in a waved row on the upper sfde of the spikes. *Calyx* half the length of the corol, the exterior Hiferior, divisions longer.

3. H. puniculatuyi. R.

Erect, ramous, hairy. *Leaves* petioled, ovate-oblong. *Spikes* terminal, panicled, secund. *Tube* of the corol long *uul gibbous.

A native of Chittagong, flowers, during the hot season.

LITHOSPERMUM. Schreb. gen. N. 241.

Corol funnel-shaped, throat perforated, and naked. Calyx five-parted. Germ four-celled, with one pendulous ovulum in each.

1, L. mHdiflorum. R*

Shrubby, erect. *Leaves* ovate-lanceolate, rugose, entire. *Spikes* peduncled, twice or thrice dichotomous, recurved*

A native of Chittagong, where it blossoms during the rains, and cool season.

Stems erect, ligneous, soon throwing out many, patent%l~ terriate, round, hairy branches; whole height from three to five feeU Leaves alternate, petioled, ovate-lanceolate, acute, tugose, entire, a little hairy underneath; length from four to ^x inches, and from two to three broad. Peduncles at first terminal, but becoming lateral; as vegetation advances, twice, irice, or even oftener bifid} each division ending in a

somewhat long, recurved, secund spike, with two rows of small, exquisitely beautiful, green flowers on its convex side. Bractes none. Calyx five-leaved. 4hrol with the tube enlarged towards the base, twice the length of the calyx; border slightly five-notched; throat open.* Anthers linear, subsessile, near the base of the tube of the corol. Germ ovate, four-celled, with one ovulum in each, attached to the top of the axis. Seeds ovate-cordate, smooth.

CYNOGLOSSUM. Sckreb. gen. N. 243.

Corol funnel-shaped; the throat contracted with vaults* Seeds four, depressed, affixed to the style.

1. C. racemosum. JR.

Annual, erect, ramous. Leaves lanceolate, sessile, hairy. Spikes paired and solitary, lateral, and twining. Flowers pedicelled. Seeds echinate, distinct.

Found growing on rubbish in the vicinity of Calcutta; flowering time the rainy season.

Stem erect, with many alternate, erect Root annual. branches from every part; all covered with short, stiff, depressed hairs; the whole height about a foot and half;' Leaves alternate, sessile, lanceolate, hairy, veined, a little wrinkled, margins minutely curled, and ciliate; from two to three inches long. Spikes terminal, and axillary, peduncled, generally paired, though sometimes single; when at their full length much longer than the leaves, with the apices incurved. Flowers alternate* on the upper side of the spikes pecftcelled, while expanded erect, afterwards ternuous, Tery small, white, with a purple throat which is somewhat contracted by five two-lobed glands. Calyx longer than the corol; leaflets oval, hairy. Stamens just within the mouth of the tube of the corol. Seeds distinct, of a roundish conical shape, armed with many short, thick, stiff, glutinous, headed brisand affixed to a conical receptacle, which has four corresponding concavities to receive the four seeds.

2- C. diffusum. R.

Annual, diffuse, hairy. Leaves oblong¹, soft, hairy. Flow* solitary. Stamens hid in the gibbous tube. Seeds scabrous.

A native of Bengal; appearing in gardens, and on cultiva*ed land in the cold season.

Stems diffuse, slender, clothed with stiff hairs; length from SIX to eighteen inches. Leaves alternate, the inferior ones petioled; the superior ones sub-sesile, all entire, oblong, soft, ai*d hairy. Flowers solitary, between the leaves, short-pedunded, small* white, with a tinge in the throat. Calyx longer than the tube, hairy. Corol with the tube gibbous, Us mouth contracted with five brSad, emarginate scales. Stamens hid in the belly of the tube. Seeds, or arils obovate, scabrous, affixed by the base, and on the inside to the stigma.

3. C. marijblium. JR.

Annual, diffuse. *Leaves* bifarious, oblong, hairy. *Flowers* ^{so}Htary between the leaves; *coròl* half the length of the ^{Of}*Iyx; *seeds* round, rough.

A native of the eastern parts of Bengal; flowering time the ^cold season; soon after which the seed ripens, and the plants Perish.

Hoot annual. Stem none, but several, ramous, slender, round, hairy branches spread on the ground. Leaves alternate, bifarious, sub-sessile, elliptic, hairy underneath: half ai* inch in length, and about half that in breadth. Flowers Axillary, or between the leaves, short-peduncled, solitary, Ve*y small, of a pale whitish blue. Calyx five-leaved; leaflets lanceolate, hairy on the outside, nearly twice as large Qs the corol. Corol, the tube very short, the throat contracter, by five emarginate scales alternate with the stamens, Filaments short; anthers large, half hid in the mouth of the

tube of the corol. *Style* short, clavate. *Stigma* emarginate. *Seeds* rough, round, almost hid in the calyx, affixed to a very short columnar receptacle.

BO J} AGO. Schreb. gen. ^ 248.

Corol rotate. Throat closed with rays.

1. B. indica. R. Willd. sp_m i. 770.

Annual, diffuse. Leaves sub-sagittate, stem-clasping, the lower ones opposite. Flowers solitary, drooping. Caly* conical, with five hornlets behind.

JBenff. Chhota kwlpa.

Common over most parts of India, producing flowers and ripe seed the greatest part of the year.

Root fibrous, annual. "Stem scarcely any, but many <i-chotomous, hairy, spreading branches of about a. foot i& length. The lower leaves opposite; the upper ones alternate, all sessile, stem-clasping, sub-sagittate, entire, hairy. Pi' duncles opposite to, or between the leaves, drooping, hairy, one-flowered. FUncers pale blue. Calyx five-parted, with the fissures extended into five recurved hornlets; division* adhering by their margins, giving to the whole a conical shape. Corol a little longer than the calyx; divisions cordate with filiform apices. Anthers united into a firm, taper cone over the mouth of the tube of the corol.

2. B. zeylanica. Willd. sp. i. 777.

Annual, erect, ramous, strigose. *Cauline* leaves opposite sub-sessile, lanceolate | *floral* ones alternate with the solitary, one-flowered, drooping peduncles.

A native of various parts of India. Flowering¹ time the cold season.

Hoot animal* Stem erect, branches opposite, round, jointed, hispid with numerous sharp, stiff bristles of two sizes; the larger inserted on coloured glandular elevations; the height

of the :whole plant in a good* soil from four to six, or even Bigbt feet. Leaves opposite, sub-sessile, lanceolate, entire, harsh, with a few stiff, scattered hairs. Floral leaves'termi-** alternate, small, sessile, cordate-lanceolate. **Peduncles** ^sub-solitary, one-flowered, drooping*, sub-alternate, lojpger than the floral leaves, round, hairy. Bractes no other than the floral leaves. Flowers cernuous, pale blue. Calyx fiveleaved: leaflets adhering slightly near the base, and at their adhesions forming five sharp ridges, but without the posterior "oms of *Borago indica*; nor, like that plant, does it shut over the seed, but becomes expanded. Corol; divisions of the border broad-cordate, with their apices sub-filiform. Filaments *\delta tt, and thick, inserted on* the mouth of the tube of the cor<)l. Jlnthers sagittate, woolly, each ending in a large twistel thread; sides firmly united into a conical dome over the ⁸%ma. Seeds four, ovate, smooth on the outside, rough on tbe inside, where lodged'in the receptacle.

3. B. spinulosa. R.

Annual, diffuse, dicbotomous, armed with depressed bris-U.S. All the *leaves* alternate, sessile, oblong, scabrous. *Peduncles* leaf-opposed, one-flowered.

A native of Bengal, appearing in the cold season.

MENYANTHES. Schreb. gen. N. 263.

Calyx five-parted. Corol monopetalous, five-parted. Cap
**le superior, one-celled. Seeds many, inserted on parietal

receptacles.

1. M. cristata. R. Corom. 2. JV'. 105.

Petioles viviparous. Leaves round-cordate, repand. JVcclary ti-iple; stigma two-cleft.

Cumuda. Asia** Res. iv. 254.

&ans. Koonwodwutee, Koomood/uee.

Tsjeroea-citambeK Rheed. MaL 11. p. 57. t. 21).

Beng. Chooli.

Teling. Antara Tamara.

A native of pools of sweet water, where it floats, often not reaching the bottom with its roots. Flowering time the we* andicold seasons. •

Root annual, fibrous. Leaves radical, petioled, cordate, lobes overlapping a little, margins somewhat scolloped, smooth, on the upper side purplish green; size various, the larger from four to six inches long. Petioles round, length various, on the upper side about two inches below the leaf there is a viviparous tuberosity, which produces the flowers as well as other leaves and roots, the old leaf and the parent petiole decaying, leave this a new plant, each petiole in succession doing the same. Peduncles many, frotf* the above-mentioned tuberosity of the petiole, one-flowered, sufficiently long to raise the flower above the water while expanded, afterwards they drop into the water, and there ripen their seeds. - Flowers pure white, about an inch in dia-Calyx five-leaved; leaflets broad-lanceolate, perma-Corol of one petal; divisions of the border oblong' expanding with broad, membranaceous, waved, curled, rugged margins; down the middle of each of them runs a ridge? exactly similar to one half of the divisions themselves, no half on the flowers. Nectary triple; the exterior one consisting ox white, ramous filaments crowning the mouth of the tube of the corol, as in Nerium; the middle one of five beautiful vellow, glandular bodies, which nearly fill the mouth of the tube, standing alternate with the filaments; and the interior one of five haify, yellow bodies surrounding the base of the germ. Filaments inserted into the tube of the corol near its base. Style short. Stigma two-cleft; segments large, thers oval. and lobate. Seeds a little compressed, scabrous. Receptacle*, parietal, opposite, running down the sides of the capsules*

2. M.indica. Willd. spec. i. 811. Petioles viviparous; leaves round-cordate. Upper side o^* the C•TOI hairy; nectaries none. Stigma three-Iobed. Seeds °Wate.

Hind and Beng. Bura-chooli.

Teling. Antara-tamara.

Nedel-Ambel. Rheed. Hort. Mai. 11. p. 55. t. 28.

Cuinud. Asiat. Res. vol. iv. p. 254. N. 30.

Like M. cristata it\s found floating¹ on sweet water lakes, &c. in Bengal. I never met with it on the coast. Flowering time the cold season.

leaves petioled, round-cordate; margins slightly waved, all Jaewhat fleshy, smooth, when full grown about a foot or hore each way. Petioles round, length various; from a tune Fosity near the apex, there issue flowers, other leaves, and ots; each leaf therefrom becoming a new plant, as in M. and the short, yellow; from five to six-parted. Corol expanding; the short, yellow; border from five to six-parted, divisions lanceolate, the upper side thickly clothed with lorts white filaments. Nectaries wanting, or minute. Filaments as many the divisions of the calyx and corol, ascending. Anthers erect. Stigma three-Iobed, curled. Capsule one-celled. Receptacles three, running down the inside of the capsules, seeds numerous, obovate.

FAGRJEA. Schreb. gen. N. 276.

Calyx five-leaved, imbricated. Corol infundibuliform, with imbricated five-cleft border. Berry oval, two-celled. Seeds many.

1. F.Jragra\$is. R.

Arboreous. *Leaves* opposite, lanceolate. *Corymbs* axilla
y> stamina ascending.

A tree of a moderate size, found by Dr. William Hunter in one garden only oh the Island of Pulo Pinang; to which it was originally brought from China. It blossoms in May and Jul*e, and ripens its fruit in September and October.

Branches numerous, spreading in every direction. Leaves opposite, decussate, patent, short-petioled, broad-lanceolate* taper, obtuse-pointed, entire, nerveless and smooth on both sides; from four to five inches long, and about one and aha^{\forall f} broad. Petioles short, smooth, enlarged at the base into a stem-clasping ring, which in the dried specimens are encrusted with a clear vellow resin. Corymb's peduncled, axillary* nearly as long as the leaves, decompound, decussate, smooth* Flowers numerous, large, whitish yellow, fragrant. Bractes small, permanent. Calyx beneath, deeply five-parted, or rather five-leaved; permanent. Leaflets sub-rotund, imbricated, smooth, many times shorter than the tube of the corol* Carol one-petalled. Tube between campgtnulate and inftindibuliform. Border contorted, five-parted; divisions ovate* oblong, expanding. Filaments five, ascending, inserted in the mouth of the tube, and much longer than the corol. A^* thers incumbent. Germ above, ovate. Style, the length o* the stamens. ' Stigma enlarged, entire. Berry oval, a little pointed, size of a currant, smooth, red, pulpy, two-celled' Seed several in each cell, angular, and scabrous.

2. F. elliptica. R.

Leaves opposite, short-petioled, broad-elliptic, smooth, and firm. Corymbs terminal, more than super-decompound Tube of the corol cylindric.

A native of the Moluccas.

PLUMBAGO. Schreb. gefi. N. 281.

Calyx gibbous, five-toothed. Corol funnel-shaped. Stamina inserted into the tops of the five nectarial scales which embrace the germ. Stigma fiv\$-deft. Seed one, oblong* coated.

1. P. zeylanica. Willd. sp. i. 837.

Shrubby. Leaves ovate-oblong, smooth. Racemes be⁸Prinkled with glutinous hair. Bractes three, unequal.

Tomba-codivelli#/?Aeerf. Mai. 10. 15. *. 8.

Chitraca. A slat. Res. iv. 255.

Sans. Pathin, Chitrwka; also Ywhm, and all the other aamesoffire.

Beng. Chitra, Chita.

A perennial shrubby plant, a native of India.

Stems many, jointed, smooth, somewhat declining, ramous, flexuous, from two to four feet long, aiyl about the thickness ** a large quill. Branches nearly bifarious. Leaves .al terete, short-petioled, ovate, waved, smooth, entire, from two ** three inches long, and one and a half, or two broad. JPetioles short, stem-clasping, channelled, or sub-winged. Stimules none. Racemes axillary, and also terminal, covered with much short glutinous hair. Flowers pure white. Bractes three-fold, one-flowered, the outer one is ten times larger than the lateral one*; they are covered with the same gluten as the Peduncle of the raceme, sometimes there is a fourth linear blace pressing the calyx.

2. P. rosea. Willd. sp. i. 838. Asxat. Res. xi. 175.

Shrubby. Leaves ovate-oblong, smooth. Racemes smooth; ractes three, smooth.

Radix vesicatoria. Rumph. Amb. v. 453. t. 168.

Schetti codiveli. Rheed. Mai. xii. 17. t. 9.

&eng. Rukta-chitra, Lall-chita,

Native of CoromancTel, and other parts of India.

Perennial, shrubby; stems, brandies, leaves, and petioles a* in the preceding. Racemes axillary, and also terminal, smooth. -^lotoers large, of a bright% beautiful red. Bractes three-fbldf ^e-flowered, equal, smooth; the inner or upper two united between the flowqg and rachis.

® be The specific distinguishing marks between these two

species, according to my observation, depend on the racemes and bractes, colour not being a specific mark.

PORANA. Schreb. gen. N. 286.

Calyx five-leaved, growing in the pericarp into scariose wings. Carol cam panu late. Germ one-celled, from two 4° four-seeded. Uticulus one-seeded. Embryo erect, curved? and corrugated.

1. V.paniculata. R.

Shrubby, twining. Leaves exactly cordate, entire, hoary-Panicles terminal, and axillary. Corol sub-entire. Styte short, simple.

A native of the interior parts of Bengal, and particularly plentiful upon the ruins of Gowr, and the Rajamahl hills* Flowering time the cold season; seeds ripe in March.

Stem woody, divided into numerous, very long, scanden*, and twining, stout, woody branches, which extend over the largest trees, or whatever else they meet with, their extrein*'' ties drooping beautifully. Bark of the woody parts ash-coloufed, and uneven; that of the young shoots clothed with whitish soft down. Leaves cordate, entire, fine-pointed, vil* lous on both sides, but particularly so underneath, where they are also hoary, from one to four inches each way. $PanicU^*$ terminal, and from the exterior axills, pendulous or drooping" Flowers v*v numerous, small, pure white. Calyx five-leaved, downy; leaflets unequal, but all much shorter than tbe corol. Corol one-petal led, campanula te, margins slightly five-lobed. Filaments five, inserted into the bottom of tbe tube of the corol. Anthers linear, half hid. Germ ovate, onecelled, ovula four, attached to the bottom of the cell. $Stvl^e$ shoot, and simple. Stigma of two, large, round, lobes. $C^{\wedge}V$ sule (iitriculus^) ovate; one-celled, evalvulaL meinbranaceous, brittle, villous, size of a small pea, surrounded by the f* maining calvx, three of the five leaflets thereof becoming scanose are enlarged into as many oblong-, lanceolate wings many times longer than the capsule itself; the other 4wo cohtinue of their original length, but so contracted in breadth as to be filiform. Seed solitary, affixed to the base of the capsule. Pefisperm and embryo as in the Convolvulacece, to which order to belongs.

Obs. A large plant, from thirty to forty feet long, covering 3 mango tree, is now in full blossom before me, and is certainty a most lovely sight; the long pendulous extremities of the branches, with their numerous panicles of small, white flowes, and hoary leaves, render it a very pleasing object.

2. P. volubilis. Burin. Ind. 51. t. 21. f. 1. Wiltd.sp.i. 843. Shrubby, twining. Leaves cordate, entire, smooth. Panicles axillary, and terminal. Corol five-cleft. Style bifid.

A native of various parts of India, but scarce in Bengal; flowers during the cold season in the Botanic garden, and when in that state is uncommnly beautiful.

Trunk and branches ligneous, twining, to a very considerable extent, over trees, &c. Leaves alternate, petioled, cordate, entire, smooth, pointed, from two to three inches long, and from one to two broad. Panicles axillary, and terminal, drooping; ramifications thereof alternate, and downy. JFlow-*rs numerous, small, white* inodorous, pedicelled. Bractes small, villous, several on the base of the pedicels, and one longer than the others under its insertion. Calvx of five, °blong, scariose leaflets, which are nearly as long as the corol. Corol campanulate; border five-cleft; divisions oblong, and °btuse. Filaments five, inserted near the bottom of the tube of the corol, and nearly as long as the corol. Germ ovate, °&e-celled, containing four ovula. attached to the bottom of Style half two*cleft, one of the divisions shorter. Stiffma headed, somewhat two-lobed. Utriculvs surroiiMded with five, scariose, equally enlarged, permanent leafulfs of the calvx; roufid, size of a small pea, smooth,-brown. rest as in the former species.

3. P. racemosa. R.

Annual, twining", filiform. *Leaves* cordate, the cauline ones petioled, the floral ones stem-clasping. *Racemes* axillary and terminal. *Corol* five-cleft.

A native of Nepal, from thence introduced by Dr. F. Buchanan, into the Botanic garden, where it blossoms during the dry season.

Stems annual, twining, slender, pretty smooth. cordate, entire, obtuse-pointed, soft, and smooth, the cauline ones are petioled; the floral ones sessile, indeed stem-clasp* ing. Racemes axillary, and terminal, long-peduncled, fewlowered. Bractes, the lower ones like the floral leaves, but smaller, those of the superior flowers very small. JFloioers alternate, pedicelled, small, white. Calyx five-leaved; leaflets sub-lanceolate, growing with the pericarp into five scariose wings. Corol sub-campanulate; tube short, and rather gibbous; border five^parted; segments oblong*. Filaments fehort, unequal, inserted into the tube of the corol near its bottmu. Anthers ovate, within the tube. Germ ovate, one-celled, containing two seeds, attached to its bottom. Style length of the stamens. Stigma Qval, apex two-lobed. Utriculus oval, smooth, of a very delicate, entire, membranaceous texture, surrounded by the five leaflets of the calyx, now enlarged into five scariose, cuneiform wings. Seed as in the preceding species.

CONVOLVULUS Schreb. gen. N. 287-

Calyx fiverleaved. Corol campanulas*. Germ two, rarely three-celled. Stigma from two to three-lobed. Capsule, two or three-celled; cells two-seeded. Embryo erect, curved; cotyledons corrugated.

*]£. B. Iu far the greater number of our East Indian *ConvolviM*, and *Ipomoea*, the stigma consists of two globular heads; each globe an aggregate of minute, roundish, pellucid, glutiiy>us tubercles. Iu the specific character, therefore

J take no notice of the stigma when so formed; it will consequently be understood to consist of two round lobes, when lot mentioned. In this genus there is but one species (C.flagelliformis,) that can be said to have any thing like an entire stigma and in Ipomoea only one, viz. I pfioenicea. I do not therefore think it would answer any valuable purpose to make ft double stigma the essential, generic mark of Convolvulus, and a single capitate one, that of Ipomoea. But those with the netire seed vessel, may be advantageously formed into a distinct family, which I have done in the next genus, Lett-somia.

SECT. I. Twining with undivided Leaves.

It C. gangeticus. R.

Perennial, twining, extensive. Leaves round-cordate, enlire, obtuse. Peduncles solitary, from one to four-flowered. Leaflets of the calyx renifonn, increasing in size with the capsule, and hiding it. Corol with nearly entire margins.

' A native of the banks of the Ganges, where it blossoms during- the cool season; when its extended branches, and nuinorous, very large, bright, pink-coloured flowers are highly ornamental; seeds ripe in March.

Stems shrubby, twining up and over trees to a great extent; young shoots round, pale green, and a little hairy. Leaves petioled, re-entering, round-cordate, entire, often emarginate, nearly smooth above; villous, and dotted underneath, mid there strongly marked with many, nearly simple, parallel veins: length and breadth about three or four inches. Petioles channelled, nearly as long as the leaves. Peduncles axillary, solitary, shorter than the petioles, from one to three-flowered. Bractes oblong,-opposite, caducous at a very early period. Leaflets of the calyx obvolute, renifonn, emar-S'inate, with thin, membranaceous edges, increasing in size with the fruit, and covering it completely at all times. Germ four-celled, with one ovuluin in each cell, attached to the

bottom, *stigma* of two round lobes. *Capsules* entirely hid in the calyx, which together with them is the size of a large nutmeg. *Seeds* covered with a dense coat of fine brown down, and hairy round the umbilicus.

2. C. semidigynus. R.

Perennial, twining, heaves cordate, villous. * Peduncles three or more-flowered. Style half two-cleft. Stigmas globular.''

A native of the *Shree-nugur* mountains, from thence Captain Hardwicke sent seeds to the Botanic gard A, where the plants, three years old when this description was taken, are very extensive and in full blossom in December.

Stems woody, twining; young' parts villous.-Leaves alternate, petioled, cordate, and ovate-cordate, entire, pointed, of a very soft, villous texture, particularly underneath; three or four inches long¹, and about two broad. Petioles half as long as the leaves, villous. Peduncles axillary, solitary, shorter than the petioles, round, downy, each bearing three or more large, pure white, inodorous flowers. Bractes ovate, caducous. Calyx downy. Corol villous on the outside*

Anthers with their points bent back towards the bottom of the corol, and their sagittate bases pointing to its mouth*

Germ bearded. Style two-cleft. Stigma globular.

3. CJhstigiatns. /?.

Twining, perennial, smooth. *Leaves* cordate, smooth* *Cymes* long; *peduncles* many-flowered.

A native of the interior parts of Bengal; in flower, and full foliage most part of the year.

Root perennial. Stems and branches numerous, twining; all the sub-ligneous parts scabrous; young shoots running over bushes to an extent of mnny fatlioms, generally ting*® with purple. Long runners issue from the top of the root, and spread along the surface of line earth. Leaves cordate, in the young luxuriant shoots and runners they are often ***

riously lobate, or have their posterior lobes angular; all are smooth on both sides from two to four inches each way, and like the tender branchlets often tinged with purple, parties larly the margins, veins and nerves; there are two round, smooth, rust-coloured glands on the sides of the base of the nerve, where it joins the *petioles*, which are from one to six inches lon«#. *Peduncles* small, deciduous. *Calyx* smooth, leaflets obovate, acuminate, and very small in proportion to the size of the corol. *Stamina* within the tube. *Stiff ma* of two round lobes. *Capsules* smooth, membranaceous, from two fb fotir-fobed, with a single, dark brown or black, smooth seed in each.

4. C. maximus. Willd. sp. pi. i- 853.

Perennial, twining. Leaves ovate, entire. Peduncles many-fldtvered, longer than the leaves. Seeds woolly.

A native of Coromandel.

5. C. malabaricus. Willd. sp. pi. i. 857.

Perennial, twining, every part spiooth. Leaves cordate, entire. Peduncles many-flowered.

Kattu-Kelengu. Rheed. Mai. xi. 105. t. 51.

A very extensive, perennial species, found in Mysore by* Dr. B. Heyne. In the Botanic garden it began to blossom in February, when the plants were four years old.

Stem and larger branches ligneous? "d clothed with spongy, uneven, ash-coloured bark; twining over trees &c. to the extent of several fathoms; young shoots smooth, deep green; every part, on betas? wounded, discharges a large quantity of dull-coloured, clammy juice, which instantly becomes of a deep brown colour. Leaves long-petioled, cordate, entire, smooth on both sides, from three to six inches long, and nearly as broad. Peduncles axillary, smooth, many-flowered; sometimes terminal and panicled; pedicels clavate. Flowers rather small; the bottom of the bell deep purple; throat pink with the margins paler, almost white, and slightly ten-

iobcd. Calyx consisting¹ of five, smooth, obtuse, oval leaflets. Filaments smooth. Style longer than the stamina. Stigma of two round lobes.

6. C. blandtiSj, R. Herb. Banks.

Perennial, twining*, smooth. *Leaves* oblong-cordate, smooth* *Stipules* recurved. *Peduncles* as long as the pet Ales, manyflowered. *Lobes* of the corol obcordate. *Stigma* of two round lobes.

A native of the mountainous parts of the Circars.

Stem twining, running to a great extent, round, smooth. £eaves alternate, petioled, oblong-cordate, pointed, entire, sAooth, from three to four inches long. Petioles short, channelled, smooth. Stipules small. Peduncles axillary, as long as the petioles, erect, rigid, round, smooth, many-flowered; umbellike. Flowers large, pure white; lobes rounded, and emarginate. Stigma two-lobed; lobes globular.

Obs. There is a variety of this, if not a distinct species, which differs from it in no other respect, than in being wholly covered with soft hairy down.

7. C. lanrifolivs. /?.

Perennial, twining. Leaves from ovate to elliptic, with simple and parallel veins. Peduncles axillary, many-flowrred. Capsules fleshy?

A native of Mysore, and from thence introduced into the Botanic garden at Calcutta by Dr. B. Heyne, where it flowers in November. The seeds are ripe in March.

Stems woody towards the base, twining to a very consul erable extent. Bark of the ligneous parts smooth; that of the young shoots armed with small, stiff, adpressed hairs. Leaves alternate, petioled, from ovate to elliptic, with a few adpressed hairs scattered over both surfaces; veins simple and parallel, length from two to six inches. Pe/iofesscarcely half the length of the leaves; t^rodark glands at the apex, and hairy like th* other tender parts. Stipules none. Peduncles axillary, shorter

than the leaves, round, hairy, many-flowered, the divisions often accompanied with a leaf or two. JBractes small, hairy, caducous. Flowers of a moderate size, rosy. Calyx with equal, °vate, rounded, smooth, segments; their margins coloured. Corol; tube or bell sub-cylindric; the inside deep purple; the outside and border pink; lobes emarginate, and slightly separated. Nectary a yellow, fleshy ring, surround ing the base of the germ. Filaments inserted on the bottom of the bell of the ^corol, there of a purple colour and bearded. Anthers ovate-Germ sub-obovate. Stigma of two globular lobes. Capsule nearly round, size of a large pea, fleshy, two-celled, with two smooth seeds in each.

8. C. parvifiorus. Willd. sp. pi. i. 856.

Annual, twining. Leaves cordate, smooth. Peduncles ax one as the petioles, many-flowered; lobes of the corol pointed. Stigma two-cleft, lobes revolute.

Ipomoea paniculata. Burnt. Fl. Ind. p. 50. t. 21.yi 1. (bad.)

A native of hedges, &c. Flowering time the cool season. Stems twining, annual, round, sometimes slightly hairy. Leaves alternate, petioled, exactly cordate, entire, fine-poiuted, sometimes very slightly hairy, from one to four inches long. Peduncles axillary, rather longer than the petioles, erect, many-flowered, umbel-bearing. Flowers pure white, lobes Stigma two, clubbed, revolute. acute.

9. C. calycinus. R.

Perennial, twining, hairy. Leaves cordate, acute. Peduncles from two to three-flowered. Exterior three leaflets of the calvx sagittate, ciliate, as long as the gibbous tube of the ^corol. Fruit drooping.

A native of the interior parts of India; I nun Cawnpore Captain Ilardwicke sent plants to the Botanic garden, where they blossom about the beginning of the cool season.

Stem twining, perennial; tender shoots very hairy. Leave*

cordate; entire, acute; lobes large, and rounded, a few distinct hairs on the nerves and veins; from throe to six inches long, and from two to four broad. *Petioles* hairy, slightly channelled, shorter than the leaves. *Peduncles* axillary, solitary, about *as* long as the petioles, bearing two, or three alternate, pedicelled, rather small, pure white flowers; after the 'flowers drop, the pedicels become drooping. *Bractes* cordate, a few scattered over the peduncles, and pedicels. *Calyx** leaflets as long as the tube, ciliate; the exterior sagittate. *Filaments* smooth. *Germ* on a nectarial pedicel. *Stigma* of two round lobes.

10. C, obscurus. Willd. sp. pi. i. 852.

Annual, filiform, sometimes villous. *Leaves* exactly cordate, entire. *Peduncles* jointed, clavate beyond the joint, after the flower decays this part droops; one-flowered, lobes of the corol emargin: ite. *Seeds* downy.

A native of various parts of India, blossoming in Bengal during the rainy and cool seasons.

Obs. In Dillenius's figure of C. *obscurus*, which is the only species I can compare this plant to, the lobes of the corol are acute; here they are emarginate, hence I conclude they are different. In the *Banksian herbarium* either this or one much like it is named *C.fttnicularis*.

11. C. spcehorocephalus. /?.

Annual, twining, villous. *Leaves* cordate-sagittate; lobes rounded. *Flowers* numerous, sessile, on sub-sessile, round* axillary head*?.

A n rtive of the interior parts of Bengal. Flowering time from the close of the rains in October till January.

Hoot swnual. Stem and branches twining, found; young shoots clothed with short soft hairs. Leaves sagittate-cordate, posterior lobes large, and rounded, both the sides and margins somewhat hairy; length from one to four inches. $P\&^*$ tioles hairy, channelled, about half as long as the leaves* $P^{e'}$

duncles axillary, solitary, very short, or almost wanting, bearing many small, rose-coloured, sessile flowers, forming- globular heads. Bractes or involuçres many, linear, recurved. Ca/ya'', leaflets as long- as the corol, hairy, tapering to a rather long^ recurved point. Corol having the border slightly marked with ten indentures. Anthers half hid in the tube of the corol. Stigma of two round lobes. Capsule globular, villous, steeds in each.

^ O6«. There is a variety of the above, if not a distinct species, with white flowers, in round sessile heads, and having Narrower leaves; in other respects they exactly agree; both are natives of Bengal and both are now growing luxuriantly in use Botanic garden. Compare them with fpomoea tamnijblia.

12. C. pilosus. R.

Ann ual, twining, every part very hairy. *Leaves* broad-cordate, entire, or slightly three-lobed, hoary underneath. *Sti-Pules* ear-shaped. *Cymes* long-peduncled. *Calycine leaflets* and bractes ensiform and ciliate.

A native of Mysore; the seeds were sent from thence by \mathbf{p}_r . Heyne, to the Botanic garden, where the plants spring \mathbf{p}_r during the rains; blossoming and ripening their seeds \mathbf{q}_r ing the cold season.

Annual. Stem and branches twining, extensive, round, Very hairy, every part replete with a clammy white juice. ^aves broad-cordate, sometimes a little three-lobed, on the "Pper side a little hairy and deep green, underneath clothed ^«h soft white wool; length from two to six inches, breadth "«*rly the same. Petioles about as long as the leaves, chan-*eUed, and hairy. Stipules reniform, with callous, ciliate ^argins; they are always present where there is a peduncle. ***eduncles axillary, about as long as the petioles, bearing from to ten or twelve, small, rose-coloured, pedicelled flowers. Bractes opposite, with a cordate, peduncle-clasp-ill S base; long, taper, recurved points; and ciliate, callous

margins. Flowers numerous, of a lively pink colour, expanding about an inch. Calyx; leaflets linear, acute, longer than the tube of the corol, on the outside glandular, and very hairy. Stamens equalling the tube. Stigma of two round lobes. Capsules globular, half the length of the calyx. Seeds four, woolly.

13. C. JWalcolmi. R.

Root perennial. Stems twining, furrowed. Leaven sagittate, with large, angular barbs. Peduncles two-flowered. Bractes lanceolate. Stigma of two linear lobes.

The seeds of this plant were brought from Persia by Major Malcolm, in 1801. The plants raised from them in the Botanic garden, blossomed during the hot season of 1802, when they were about one year old.

Stems and branchlets twining to an ex-Root perennial. tent of six or eight feet, somewhat furrowed, twisted, and villous, herbaceous. Leaves petioled, sagittate; margins a little hairy; smooth on both sides, from one to three inches long. Barbs or posterior lobes dilated, spreading, somewhat acute, often dentate, and always angular. Petioles scarcely half the length of the leaves, channelled. Peduncles axillary, two-flowered, three times longer than the petioles, round. Pedicels clavate, as long as the petioles, villous. Bractes two, opposite, at the base of the pedicels, lanceolate. Calycine leaflets ovate. Corol large, of a beautiful lively pink colour, margins almost entire. Filaments not half the length of the corol, villous at the base* Jlnlhers purple. Germ with a yellow ring round the base. Style longer than -the stamina. *Stigma* of two linear, spreading lobes.

Obs. I must leave the European Botanist to determine how nearly this is allied to arvensis9 a plant I have never seen in India if this be not it.

14. C. Medium. Willd. sp. pi j. 848.

Biennial. Leaves linear-lanceolate, stem-clasping, b\$*s*

Peduncles axillary, from one to twodilated and dentate. flowered. Leaflets of the calyx lanceolate, cuspidate.

Tala-Neli. Rheed. Mai. xi. 113./. 55.

Found in various parts of India, in flower during the rainy and cool seasons.

15. tridentatus. Willd. sp_m pi. i. 848.

Annual, leaves short-petioled, sub-cuneate, with sagittate, acutely dentate, posterior lobes, and a somewhat refuse, or rounded tridentate apex. *Peduncles* filiform, one, rarely two-flowered.

E volvulus trident us. Bnrm. Ind. 77. t. 16../1 3.

Sendera-clandi. *Ilheed. Mai.* xi. 133. t. 65.

Found common on the coast of Coromandel, Malabar, &c. flowers during the rainy season in Bengal.

16. C. hicolor. Wtlld. sp. pi. i. 850.

Perennial, twining, hairy. *Leaves* cordate, and generally somewhat angular, downy. Peduncles longer than the leaves, from one to four-flowered. Bractes lanceolar. Calycine leaflets acute and very unequal.

Hind. Jurud-kulmi.

Is a species common in hedges, &c. over the coast of Coro-Flowers during the rains. mandel.

Stems twining, herbaceous, round, covered with soft hair, or down, from one to two fathoms long. Leaves alternate, petioled, broad-cordate, sometimes slightly and irregularly lobate, downy, from one to four inches long. Peduncles axillary, twice as long as the leaves, slender, erect, downy, ending in a small head of from two to four sessile flowers. Bractes lanceolate, one or two pressing on each of the calyces. Flowers middle-sized, yellow, bottom of the bell, deep purple. Stigma of two globular heads. Capsules hairy, four-celled. black, one in each cell.

Obs. Since writing the above description I have often uiet with plants, having one, and two-flowered peduncles. It i* therefore very likely that those varieties include both *C.sub-lobatuSy* and *bicolor*.

17. C. Turpethum. Willd. sp. pi. i. 859.

Perennial. Leaves from broad-cordate, to arrow-shaped, angular. Stems three or four-angled. Peduncles many-flowered. Stipma of two round lobes. Capsules inflated, transparent, four-celled, one-valved.

Satis. Synonyma.

JBenf/. Teoree, Dood kulmi.

Teling. Telia-tag-ad a.

Common in hedges, .&c. Flowering time the rainy season.

Root perennial. Stems twining, several fathoms long, from three to four-sided, angles membrane-winged, a little downy, perennial. Leaves alternate, petioled, form various, from cordate to linear, all are pointed, and lobate, or angular; behind a little downy. Stipules none, but instead thereof glands. Peduncles axillary, many-flowered, Flowers large, white. Bractes oval, concave, falling. Germ elevated on a large glandular body. Stigma two-lobed. Capsules involved in the dcy calyx, absolutely four-sided, four-celled, one-valved; apex transparent. Seeds round, black, one in each cell, free.

Obs. The bark of the roots is by the natives employed as a purgative, which they use fresh, rubbed up with milk. About six inches in length of a root as thick as the little finger, they reckon a common dose. Cattle do not eat the plant.

SECT. II. Twining with divided or compound Leaves,

18. C. vitifolius. Willd. sp. pi. i. 864.

Perennial, twining, hairy. Leaves cordate, five-lobed, serrulate-dentate. Peduncles as long as the leaves, from three to six-flowered. Leaflets of the calyx obovate.

A native of hedges and forests; flowering in the cold seafon.

Stem twining, perennial, round, very hairy, two or three

fathoms long-, the extremities of the branches are often highly coloured, and less hairy than the other parts. Leaves alternate, petioled, broad-cordate, frequently five-fobed, remotely serrate-dentate, a little doWiy; size very various, being from one to six inches long. Petioles of the longer inferior leaves equalling these in length; those of the floral leaves short. Peduncles axillary, about as long as the floral leaves, from three to six-flowered. Flowers large, bell-shaped, very beautiful, of a bright lively yellow. Calyx hairy. An* thers becoming spiral after opening the extremities. Stigma of two round lobes.

19. C. dentatus. Willd. sp.pl. i. 849.

Twining, and creeping, muricated. *heaves* cordate, three-lobed, dentate. *Peduncles* from two *to* three-flowered. *Leaf-lets* of the calyx obovate.

In Bengal it is more luxuriant than on the coast, leaves generally entire, stems, 8cc. generally smooth, and with longer, many-flowered peduncles.

Teling. Talla-antootiga.

A native of hedges, thickets, &c. Flowering time the rainy season.

Stems and branches twining, or creeping, filiform, often perennial, coloured, armed with small inoffensive prickles, otherwise smooth, one or two fathoms long. Leaves alternate, petioled, cordate, three-lobed, toothed, smooth, from one to two inches long. Petioles prickly, branch-like. Peduncles axillary, as long as the petioles, and like them, from two to three-flowered. -F/otcers sbort-pedicelled, small, yellow. Filament* woolly at the base. Stigma single, large, globular.

20. C. copticus. Willd. up. pi. i. &(«.

Herbaceous, procumbent, angled. *Leaves* palmate. *Lobes* lanceolate, serrate. *Flowers* terminal, on minute branchlets* *Calyces* murexed.

A native of pasture ground, flowering in the rains.

Stems procumbent, rarely twining-, herbaceous, angled from the insertion of the leaves, from one to two feet long¹. Leaves alternate, short-petioled, palmate, scarcely an inch long-, lobes from five to imen, divided to near the base, lanceolate, serrate, smooth, the inner ones smallest. Stipules like the leaves, but small, and sessile. Flowers terminal, small, white. Calyx murexed. Lobes of the corol semi-orbicular with a point.

21. C. pahienlatus. Willd. sp. pi. i. 865.

Root tuberous, perennial, twining, smooth. *Leaves* palmate. *Cymes* long-peduncled, capsules four-celled. *Seeds* woolly.

Pal-modecca. Rheed. Mai. xi. 101. t. 49. (Exclude Modrcca. Rheed. Mai. viii. 39. t. 20.)

Ipomoea manritiana. Jacq. Collect, iv. 206/

Seng. Bhoomi-koomra.

Teling. Matta-pal-tiga.

A native of hedges, thickens, &c. Flowering time the wet jseason.

Root perennial, tuberous. Stems and branches perennial; young shoots round and smooth. Leaves alternate, petioled; palmate, from three to six inches each way. Lobes generally five, divided little more than halfway down, broad-lanceolate, entire, smooth. Peduncles axillary, erect, as long as the petioles, sub-umbel-bearing. Flowers numerous, large, of a beautiful dark reddish purple. Capsules four-celled. Seeds woolly, all round.

Obs. Cattle eat it. The root is cathartic, and as such used by the natives where is grows.

22. pedal us. /?.

Perennial, twining, smooth. *Leaves* pedate-triternate, leaflets lanceolate, entire. *Stipules* filiform-pedate. *Peduncles* one-flowered; and with the calyx warted.

Native place uncertain, as it has accidently sprung up i»

the Botanic garden amongst plants received from friends in the vicinity of Calcutta. The flowers appear in profusion during the cool season; they are pretty large, of a bright sulphur colour and the stigma is#f two round lobes.

23. C. digitatus. R.

Perennial, twining, spinulous. Leaves digitate. Peduncles from three to four-flowered. Corols almost funnel-shaped. Stigmas of two round lobes. Seeds woolly on the con* vex side.

A native of hedges, &c. Flowering time the cold season. Stems and branches twining, perennial, round, with here and there a few small inoffensive prickles. Leaves alternate, petioled, digitate, leaflets generally five, broad-lanceolate, entire, smooth, the inferior ones smallest. Petioles channelled, armed as the branches, as long as the leaflets. Peduncles axillary, about as long as the petioles, from three to four-flowered. Flowers pretty large, between campanulate and funnel-formed, a pule bluish purple. Stigma two-lobed. Seeds woolly on their outer angles.

Ohs. This is one of the most beautiful Convolvuli in India.

24. hirsutus. R_m

Annual, twining, extremely hirsute. *Leaces* digitate; *leaf-lets* five,- sessile, broad-lanceolate, entire. *Peduncles* from one to three-flowered. *Calyx* very hairy, entirely hiding, until ripe, the cordate, smooth, four-celled capsule.

A native of the interior parts of Hindoosthan; flowering time the close of the rains, and cold season.

Stem and branches annual, twining, very hirsute; hairs somewhat bristly, issuing from little brown glands; general extent of the plant from six to twelve feet. Leaves petioled, digitate. Leaflets five, sessile, lanceolar, acute, entire, hairy, about three inches long by one broad. Petioles round, as lgn as the leaflets, hirsute. Peduncles axillary, sometimes long as the petioles, hirsute, bearing from one to three,

rarely more, middle sized, pure white flowers, on long hirsute, proper pedicels. *Bractes* at the base of the pedicels only, sub-lanceolate, recurved, hairy. *Leaflets* of the *calyx* oblong, permanent; the exterior Aree large, and extremely hirsute. *Corol* campanulate, white; *tube* as long as the calyx. *Stamens* smooth. *Stigma* of two round lobes. *Capsule* broadcordate; *valves* thin, and smooth on both sides. *Seeds* three or four, smooth.

25. C. heptaphyllus* R.

Perennial, twining, smooth. *Leaves* digitate; *leaflets* seven, lanceolar, entire. *Peduncles* filiform, spiral, pendulous, one, rarely three-flowered.

Of what part of India this is a native I cannot certainly say. It has appeared in one of the nurseries in the Botanic garden at Calcutta. The seed was most likely received accidentally with some other sorts. Here it flowers during the latter part of the rains, and cold season.

Stems and branches twining, perennial, long, slender, round and smooth. Leaves petioled, digitate; leaflets generally seven, sessile, lanceolar, entire, smooth; from one to two inches long. Petioles .slightly channelled, length of the leaflets. Peduncles axillary, solitary, very slender (filiform), twisted, pendulous, longer than the petioles, generally one-flowered, rarely two or three, though three seems the natural number, and the two lateral ones for die most part prove abortive. Bractes few, and minute. Calyx; leaflets ovate, rugose on the outsides. Corol small, pale pink, with the bottom of the bell deeper coloured. Stit/ma of two round lobes.

Obs. A beautiful, delicate, though extensive plant, ami uncommonly interesting on account of its slender, pendulous, spiral peduncles, uith its pretty, small pink flowers, standing **erect** on its thickened, curved apex.

SECT. III. Prostrate, or creeping; not twining.

2i. C, rettijonnis. R.

Perennial, very raniouB, and creeping close on the ground. *Leaves* reniform, rumrgitmte, long--petio led. *Peduncles* mauy-flown-td. *Inner three* leaflet** of the calyx two-lobed, :»ini ciliatc. *Lohcs* of tin eorol bifid.

A ^native **of** Bengal. Flowerini'* time tlit* cool
Uunnnn\s figure of *E volvulus emurr/inatus*, *Flora I adieu*, 77
/. -iO.J'. 1. is very much like this*; if **the** Io* **fie** more numerous, and their petioles longer, I should consider **the** the same; they ought to be **compwqd**, **when ati** op port unit ofti

Stem* and branches numerous, aim set of the points, and striking innumerable roots from the joints, tooth, and slender as a pack thread* Leavm long-petioled, nniform, emar and often slight! lep-toothed, smooth; size very various; often of a dark I lep-toothed, smooth; size very various; often of a dark I lep-toothed, smooth; size very various; often of a dark I lep-toothed, smooth; size very various; often of a dark I lep-toothed, smooth; size very various; often of a dark I lep-toothed, smooth; size very various; often of a dark I ling. Calva ling.

Qiven ling* Detiolet*, nany-flovered*, Flowers* a ling* ling* ling*. Calva* the two ling* ling*. Calva* the two ling* ling* ling*. Calva* the two lined; strike iontr three broad, wedge-fihaped, with a ciliatr, two-laments whooth. Stigma* two-lobed; lobes* ruuudi>]i. I lift* iff* round, aiw of a ttnall pea, rather longer than die calva*, tomeotoae, ling* ling*

In son soils it is found entirely of a dark purple or ferragiuou> colour.

27. C. flagelliformis. R.

Perennial, * 5, Leaves renifonn, cuspidate, smooth, with two glauds at the base. PtduHci I «!•«• to tive-flowered. Calyx tmn y rug<Me. Stigma ov. \\ Uat tw o-lubed.

Bel-Adamboe. *Rheed. MaL* xi. p. 119. /. 58. may be this plant though in some respects they Mill be found to differ a little.

Ipomoea repens. Lamarck Must. i. 497.

A native of the Mysore country, from thence the seeds were sent by Dr. B» Heyne to the Botanic g-arden, where the plants thrive luxuriantly, and are in blossom most part of the year.

Stem and branches creeping, perennial, long*, Minplt*, slruder, and smooth. Leaves renifonn, or-cordate-renifbrin, with a small terminal bristle for a point, smooth on both sides, and as in C. brasiliensis, haying two glands on the under side of the ba>e; breadth from two to three inches, and the length considerably less. Petioles as long as the leaves, channelled, swelled at the insertion, and there marked with some glandular knobs. Peduncles axillary, solitary, larger than the petioles, round, smooth, bearing from three to six, large, pure white (lowers. Leaflets of the calyx ovate, fleshy; outside transversely rugose. Stigma of one, transversely oval, large lobe. Capsule with generally four, light brown, smooth seeds*

28. C. repens. Willd. sp. pi. i. 874.

Annual, creeping, or floating, piped, smooth. *Leaves* oblong-cordate, posterior lobes, angular. *Peduncles* shorter than the petioles, from three to six-flowered. *Corol* sub-iufundibuliform.

Ballel. Hheed. Mtl. xi.p. 107. t. 52.

Olus-vagum. Rumph. Amb. v. 419. t. 155.f. 1.

C. reptans. Willd. \dot{sp} . \dot{pi} . i. 875. is probably this plant, or a variety of it.

Berifj. Kuliui-shak.

Teling. Tootie-kura.

A native of standing sweet water, or places where water lately stood, very common.

Steais creeping, or floating on the water, annual, or biennial; round, piped, jointed, smooth, many fathoms *long*.

Leaves alternate, luun'-pctinled. (lUonsf-eordare, pointed, entire, siuooih, from lour to six inches long¹. Peduncles axill et, round, smooth, from three to six-flowered. Flowers Iwg ufiful rose colour. Lobes triangular. Tube of the oorul b&twwn beH and tunnel font, Base of the filaments wool I v. i two-headed.

Ob*, Tli ender tops and less es are eaten in stews by all ranks of the **natives**, ami nnuh **esteemed**.

2ft G. hat at as. WilhL sp. pi \. N53.

R&tt'tikttatovn. Stems ereq ink twining-. **Leaves** ooidati lobed, *Peduncle* many-lion -eivd. Segments • it ilie eal» v oblong¹, Mimoth, acute.

Bmg. L,d->liHkwr-k»ndrt-aI<M), the red variety; and S«f. li//k'/>k»nd«-idon, (lie white.

A'ttppa-kfh'itf/tt. It heal. Jin!. \\\. ▷'>. /. 50.

The ied sort is in very general cultivation all OV!T the warmer parts of AM and very detervedDy esteemed one of their mast palatable ami nutritious roots. 1 suspect G; edalis, Thunh, jajtau. ^4, i> ihe tajne or a variety.

30. C. 28 1/O.-7/S. /£.

Annual, or biennial, creeping. *faaee*§ Imenr-lanceolate, smooth. *Peduwhs* longer than ihe petioles, from one to iuur-flouereil. (*'alyx* smooth. **Cywfa** uiie-ceiled, **fear.** seeded.

A native of the dry I amis ot **DbagepOM** and Rungpor^{*}_t from tli. nrr **the** seeds were sent. In Dr. Carey, u> **the Solame garden** at Calcutia, **where** they blossom during the cold

Root generally annual, **though** sometimes biennial. Stem; I ran not way it $_{t}$, $^{\wedge}$; $_{t}$, $^{\wedge}$ inverthing like one, but mtmeiooal ouni{,eespituN«..., bat villmis, tody which will will will early beaocfaet, the laiger bead of the laiger bead of the laiger bead of the laiger bead by, entire, fruit to be the laiger bead of the laiger bead of

three inches long, and less than half an inch broad. *Peti-oles* clothed with long, soft, brown hairs. *Peduncle* axillary, longer than the petioles, hairy near the base, bearing from one to four, small, very pale-yellow flowers, but when one or two, these are accompanied with the rudiment of one or two more, and some small, cordate smooth bractes. *Calyx; leaflets* oval, equal, smooth, concave, with callous, smooth, dark green margins. *Stigma* of two round lobes. *Capsules* globular, smooth, size of a pea, one-celled, four-seeded. *Seed* smooth, deep brown.

*31. C. slipulacens. R.

Creeping, smooth, with apices twining¹. Leaves cordate-sagittate, with lobes repand. Stipules recurved. Peduncles many-flowered. Calyx smooth. Lobes of the corol obcordate. ^Seed woolly.

A native of Chittagong, sent from thence by Mr. W. Roxburgh to the Botanic garden at Calcutta, where it flowers about the beginning of the hot season.

Stem and branches creeping, round, *Root* perennial. smooth, extremities twining; length from one to two fathoms, or even more. Leaves petioled, cordate-sagitate, with posterior lobes (tyarbs) often repand, smooth on both sides, point rather obtuse, with a minute bristle; length from two to three inches. Petioles channelled, from one to two inches long. Stipules two, stout, inoffensive, recurved, acute, at the base of the petiole. Peduncles/ axillary, solitary, about as long as the petioles, round, smooth, sdmewhat clavate, bearing from three to six or even more, large, pure white flowers. Pedicels clavate, shorter than the peduncles, round, smooth. Calyx; leaflets ovate, equal, concave, smooth, and somewhat Corol; lobes of the border large, obcordate. transparent. Nectary a pentagonal cup surrounding the base of the germ. Style much longer than the stamens. Stigma of two round Capsule ovate, smooth. Seed covered with much lobes. soft, deep olive-coloured wool.

32. C. pentagonus. R.

Perennial, angular, creeping". Leaves cordate-sagittate, with the posterior lobes rounded, but somewhat angular. Peduncles rigid, umbelliferous. Calyx smooth. Lobes of the corol circular. Seeds hairy.

A native of the Moluccas; and from thence introduced into the Botanic garden at Calcutta in 1800; where it blossoms during the cold and hot seasons.

Root perennial. Stems and branches creeping, pentangular; young parts villous, and sometimes twining, though not readily; length of the whole plant from two to three fathoms. Leaves petioled, the lower ones broad-cordate-sagittate; the superior ones narrow-sagittate; in all the posterior lobes are large, and rounded, though frequently a little angular; margins generally entire; both sides very villous; length from one to four inches. Petioles scarcely half the length of the leaves, channelled, villous, at the base swelled on each side into two glandular, stipulary knobs. Peduncles axillary, solitary, erect, rigid, clavate, villous, about as long as the petioles, supporting a trichotomous, corymbiform umbel, of many, pretty large, pure white, inodorous flowers. Pedicels shorter than the peduncles, but like them clavate, and JBractes many, caducous, and of various sizes. villous. Calyx; leaflets oval, concave, slightly villous, much shorter than the tube of the corol. Corol perfectly campanulate. Border divided into five semi-circular lobes. Stamina hid in the tube. Style about as long as the stamens, of two round lobes. Seed dark-brownish black, and covered with much soft hair, of the same colour.

33. C bilobatus. ft.

Perennial, creeping. *Leaves* two-lobed, smooth. *Peduncles* from three to six-flowered. *Lobes* of the stigma round. *Seed* woolly.

Convolvulus marinus. *Rumph. Amb.* v. 433. /. 159. $f_{\%}$ 1. A native of the Moluccas, from whence the roots were

brought to the Botanic garden at Calcutta, amongst the earth in which some spice plants caifte. They blossom during the hot season.

Stems and branches creeping, perennial, striking root at the joints chiefly; young shoots smooth, polished, pale greeu; length from one to three fathoms. Leaves, petioles erect, twolobed, or of a deeply emarginate, round, obcordate shape, margins entire, and very smooth on both sides, about three inches long, by two and a half broad. Petioles round, slightly channelled, smooth, with two very • conspicuous reddish glands at the apex. Peduncles axillary, erect, slender and longer than the petioles; bearing from one to seven, or even nine, large, purple flowers on their proper, clavate striated, pedicels. Calyx; leaflets ovate, somewhat three-ribbed, and transversely rugose. Nectary, a glandular ring round the Filaments enlarged, woolly at the base. base of the germ. Stigma of two round lobes. Capsules vertically compressed, smooth, lined with a tough pellicle. Seed clothed with much soft, short, dark brown hair.

Obs. A variety, if not a distinct species has been reared in this garden, from seed received from China. It flowers in April and May; the peduncles one-flowered^-the leaflets of the calyx scarcely rugose, with subulate points; when wounded milky. In size, colour of the flowers, leaves, &c. they are the same.

34. C. Pes-capras. Willd. sp. pi. i. 876.

Perennial, creeping to a great extent. *Leaves* long-petioled, two-lobed, smooth, at the base two glands. *Peduncles* axillary, solitary, one or two-flowered.

Beng. Chhagwl-khooree.-

Hind. Dopati-lwta.

Schovanna-Adamboe. Rheed.MaL xi. 117. t. 57.

A native of the sandy shores of India; where it blossoms and ripens its seed most part of the year.

Stems perennial, columnar, and smooth, never twiuing, but

creeping* to a very great extent over the sandy shores of the sea coasts, where the plant is chiefly found. Leaves long-petioled, deeply two-lobed, smooth, with two large coloured glands at the base. Peduncles axillary, solitary, length of the leaves, generally one or two-flowered. Flowers large, red-purple. Calyx; leaflets oblong, acute, transversely rugose on the outside toward the base. Stigma of two round lobeS. Seeds densely clothed with a dark brown, plush-like pubescence.

Obs. This plant is very useful where it naturally grows, helping to bind the loose sands, and in time render it sufficiently stable to bear grass. Goats, horses, and rabbits eat it.

LETTSOMIA. R.

Calyx five-leaved. Corol from campanulate to iufundibuliform. Germ two-celled. Stigma two-lobed. Berry dry or succulent, two-celled; cells one or two-seeded. Embryo erect, curved; cotyledons corrugated.

In honour of John Coakley Lettsom, M. D. F. S. A. author of numerous valuable works, which more than prove him fully entitled to this mark of respect.

The genus is composed of very powerful, extensive, twining, perennial, lactescent plants; with simple leaves and axillary inflorescence.

SECT. I. Corols campanulate.

- 1. L. splendens. R.

Perennial, twining. *Leaves* cordate-oblong, parallel, veined, sericeous underneath. *Corymbs* axillary. *Berry* highly coloured and embraced by the permanent crimson *calyx*.

A most beautiful plant, Far exceeding every other species I have yet met with; a native of Chittagong, where it blossoms and ripens its seeds at various times of the year.

2. L. aggregata. /?•

Perennial, twining. Leaves cordate, woolly underneath. Peduncles axillary, supporting four sessile beads of involucred flowers. Stigma and style much longer than the corol. Berry four-seeded.

Teling. Yerra-kw^Aa.

A native of various parts of the coast of Coromandel. Flowering time the cool season; *seed* ripe in Marclf and April.

Stems ligneous, twining to a great extent; young shoots round, clothed with soft, white pubescence; and discharging a milky juice when wounded. Leaves petioled, roundcordate, entire, smooth above, woolly underneath; from three to six inches long, and from two to five broad. axillary, generally solitary, longer than the petioles, round, woolly; each supporting an umbeilet of four, cruciform, sessile heads of small, pink-coloured, sessile flowers with a single sessile one in the centre; surrounded with several, roundish woolly bractes, (involucres,) with incurved margins. Calyx; leaflets unequal, cuneiform, woolly on the outside. Corol campanulate. Border deeply cut into five, emarginate lobes. Stamina much longer than the corol, and of the* same colour. Germ surrounded with a particularly large, yellow, nectarial ring. Style as long as the stamina. ma of two, large, round lobes. Berry round, covered with a soft, tough, smooth, fleshy, bright red envelope, about the size of a marrow-fat pea, two-celled, with two seeds in each, when all come to maturity. The remaining calyx is now enlarged, and clothed on the outside with sericeous down, while the smooth bright red, inner surface thereof adds much to the beauty of this elegant species when in Seeds smooth, pale ash-coloured. Embryo as in the fruit. genus.

3. L. nervosa. /?•

Shrubby, twining to a great extent. Leaves broad-cor-

date, sericeous underneath, veins parallel. *Peduncles* longer than the petioles, umbelliferous. *Stigma* round, of two lobes. *Capsules* one-valved, one-celled.

Convolvulus nervus. Burnt, hid. 48. £. 20. f. 1.

Samudra-stjogram. Rheed. MaL xi. 125. tab. 61.

Beng. B**s-tarztka.

Teling. Kokayti.

A native of forests, hedges, &c. it is one of the largest species of the *Convolvulacea* I know. Flowering time the wet and cold seasons.

Stems twining, woody, of a very great length, running over the highest trees; roung parts covered with white silky down. Leaves petioled, broad-cordate, entire; many large, distinct, opposite nerves running parallel; the tipper side pretty smooth, the under side covered with much, soft, white silky hair; from four to twelve inches each way. Petioles shorter than the leaves, tapering, round, at the apex on each side is a large, flat, scabrous, dark-coloured gland. Peduncles axillary, like the petioles, but longer, bearing an erect umbel, of many flowers. Flowers large, of a deep rose-colour. Bractes many, large, oval, white, waved, pointed, caducous. Stigma two, globular. Berry globular, smooth, entire, not opening in a regular manner, but crumbling to pieces.

Obs. Seeds received from England, sent to me by the late Honourable Charles Greville, under the name Convolvulus ipedosus, produced this identical plant. Stigma, &c. &c. perfectly the same as in the original Bengal plant.

4. JL. argentea. R.

Perennial, twining. *Leaves* cordate, parallel-veined, sericeous underneath. *Pedunclės*, as long as the petioles, leafy; *bractes* lanceolate, sericeous.

Found in forests about Calcutta. I neversaw it on the coast of Coromandel.

Beng. Sunioodra-shoka, cbhota Bistavuku.

Stems twining¹, perennial. Leaves petioled, broad-cordate, entire, with, many parallel vefts, as in C. nervosa; the upper side pale green, with depressed hairs, the under side covered with much bright, silver-coloured, silky down; about four inches long each way. Petioles erect, round, hairy, length of the leaves; at the apex on each side is a green gland, as in C. nervosus. Peduncles axillary, erect, round, hairy, umbel-bearing. Bractes lanceolate, silky. Flmoers many, large, of a beautiful rich pink colour. Nectary, a fleshy ring round the base of the germ. Stamens, base of the filaments woolly. Berry soft, and pulpy, four-seeded.

Obs. The following marks distinguish this species from nervosa, to which it is nearly allied:

1st. The leaf-bearing umbel.

2r/. The bractes. Jn this species they are lanceolate, and not waved, in that oval and much waved.

3d. The flowers of this species are-larger, and the leaves much smaller than in that.

4f A. Here the veins are few, and alternate; there many, large and opposite.

5th. This produces a soft berry; that a perfectly dry cap* fiule.

5. L. setosa. /?.

Perennial, twining, tender parts armed with ad pressed bristles. Leaves roun*1 -cordate, acuminate, parallel-veined, scaly underneath. Peduncles panicled. Corols exactly campanulate, with a small, sub-entire border. Berry hid in the large, fleshy calyx.

A native of the northern Circars. Flowering time the cool dry months of December and January.

Stems ligneous, twining. Branches numerous; young shoots cfbthed with stiff, short, silvery, adpressed bristles. •Leaves petioled, round cordate, entire, acuminate; veins parallel, el^ated, and simple; the upper surface smooth, deep green, the under one whitish, with numerous minute, peltu~

cid scales and a few remote, adpressed, stiff hairs; from two to eight inches long, and nearljOhe same in breadth. oles considerably shorter than the leaves, bristly. axillary, solitary, long-peduncled, corymbiform. Peduncles and ramifications whitish, with numerous, adpressed, whitish bristles. Flowers numerous, pretty large, sessile on the ramifications of the panicle, pink-coloured. Bractes several round the base of each calyx, like a calycle, oval, concave, rigid, bristly. Calyx; leaflets oval, obtuse, nearly equal, permanent; the outside bristly. Tube of the corol exactly campanulate, the outside somewhat bristly. Border almost entire, spreading. Gerin, the lower half invested in a large Style about as long as the stamina. vellow ring. of two round lobes. Berry ovate, smooth, shining red, hid within the leaflets of the permanent calvx.

fi. L. striyosa. /?.

Perennial, twining, every part covered with harsh brown hairs. Leaves cordate, entire, with many parallel nerves. Peduncles elongated. Flowers aggregate.

A native of the eastern part of Bengal, and from thence sent to the Botanic garden at Calcutta, by Dr. Buchanan. Blossoms about the close of the rains.

Stem woody, twining up, and over high trees. Bark rough. Young shoots very hairy. Leaves alternate, petioled, cor* date, entire, nerves many, and parallel, very hairy on both sides; from four to six inches long, and three or four broad. Peduncles axillary, round, hairy, longer than the petioles, each supporting a few large, sessile, rose-coloured, campanu~late flowers, surrounded witty many broad-lanceolate, hairy bractes. Stigma of two, large, globular lobes*

7. L. cuneata. R.

Perennial, twining. *Leaves* cuneate-emarginate; villous underneath. *Peduncles* three-flowered, much shorter than the leaves.

Convolvulus cnneatus. Willd. spec. i. 873.

Some plants of this uflemmonly elegant species, were brought from the Mysore country, by General Martin in 1792. He gave one of them to the Botanic garden at Calcutta, which has been multiplied by layers, and blossoms about the Hose of the rains in September, and October.

Stems woody, twining, of very considerable extent.. Bark smooth, dark grey. Young shoots covered with short depressed hairs. Leaves alternate, short-petioled, cuneate, emarginate, entire, smooth above, a little hairy underneath; general length about two inches. *Peduncles* axillary, solitary, threefiowered, round, villous, about three quarters of an inch long. Pedicels shorter than the peduncles, always consisting of an opposite incurved pair, with a solitary shorter one in the cen-Bractes linear. Calyx, leaflets ovate, a little villou& Corol large, of a beautiful deep bright purple colour. Tube ample; the five lobes of the border einarginate, which makes the, whole appear ten-lobed. Nectary, a fleshy Jbg round the base of the germ. Filaments broad, and hairy, at the base. -Stigma of two, round heads. Berry oblong, dry, onecelled. Seeds from one to four, immersed in a little dry farinaceous matter.

Obs. This when in blossom, is one of the most beautiful of the whole order; the large, very bright, deep purple flowers make it particularly conspicuous amongst its own deep green leaves, and this is much augmented by making it run over any other stout plant with dense deep green foliage. "

8. L. cymosa. R.

Perennial, twining. Leave* round, reniform-cordate. Peduncles larger than the leaves. JFlowers many, in an involu* cred, dense cyme. Berry globular.

An extensive, stout, perennial, twining plant, a native of the Malabar mountains; from Wynaad the seeds were sent, **by** Captain Dickenson, to the Botanic garden at Calcutta, where the plant flowers during the cold season. The *seeds* ripen four or five months afterwards.

Stem and large branches woody, twining; young shoots villous. Leaves round, reniform-cordate, villous; from three to four inches long, and from three to five broad. Peduncles axillary, solitary, generally longer than the leaves, each supporting a yellowish, dense cyme of many sub-sessile, large, pale pink flowers; embraced by one or more unequal small leaves, the largest of which are shaped like the other leaves, and peduncled; the smaller ones nearly round, and sessile. Calyx, the exterior leaflets nearly round; the inner ones ovate* oblong; all are more or less recurved, and villous. Corolsuhinfundibuliform, the outside villous. Style much longer than the stamens. Stiff ma of two round, bright purple lobes. Berry smooth, yellow, soft, pulpy, round, size of a small cherry; with from one to four, smooth, white seeds. Seeds and embryo as in other convolyulacea, viz. a descending radicle with the globes irregularly folded, and invested while fresh, in something like a thin perisperm.

9. L. pomacea. R+

Perennial, twining. Leaves round-cordate, emarginate. Peduncles dichotomous, from three to five,or seven-flowered. Bractes cuneate. 'Berry succulent, four-seeded.

lpomoea zeylanica. Gcert. carp. ii. 482. t. 178,

A native of Mysore, from thence the seeds were sent by Dr. Buchanan to the Botanic garden, where the plants thrive well, and blossom during the hot and rainy seasons; the seeds ripen about eight months afterwards.

Stems twining, ligneous, as thick as a man's arm; young parts covered with tolerably smooth, ash-coloured bark. Branches numerous, twining, very extensive; young shoots clothed with short, white depressed hairs. Leaves petioled, round-cordate, with the margin waved, emarginate, both sides clothed with short hair; veins almost simple and parallel % length from two to four inches, fbe breadth nearly equal to

the length. *Petioles* round, shorter than the leaves, hairy; an obscure green gland on each side of the apex* *Pedunctes* axillary, solitary, longer than the petioles, round, hairy, dichotomous; each division bearing one, two, or three large rose-coloured flowers, with one in the fork. *Bractes* several, cuneate, hairy. '-i Calyx; leaflets oval, obtuse. *Corol*, tube somewhat gibbous, a little hairy on the outside. *Stigma* of two round lobes. *Berry* spherical, smooth, size of a cherry, when ripe yellow, consisting of soft yellow pulp, contain* ing four large, roundish, smooth, white seeds.

SECT. II. Corol infundibuliform.

10. L. bona-nox. /?.

Perennial, twining. *Leaves* round-cordate. *Peduncles* three-flowered; *stigma* of two cylindric lobes. *Berry* dry, ovate-oblong, one-celled, from one to four-seeded.

Betty. K/tlmi-lttta.

Clove-scented creeper. Asiat* Res. iv. 257.

Midnapore creeper, its common English name.

Ipomoea bona-nox. *Gt*<*sert*, *carp*. ii. 247. *t*. 134. agrees better with the seed vessel of *convolvulus nervosus*, *Barm*, than of this species.

A native of the forests of Midnapore in Bengal; flowers during the rains. Seed ripe in November, December, and January.

Stem stout, in old plants as thick as a man's arm, covered with spongy, cracked, dull ash-coloured bark. Branches and branchlets twining up and over large trees, to a great extent; tender shoots somewhat hairy. Leaves long'-petioled, round, and round-cordate, entire, bristle-pointed, though obtuse, or even emarginate; somewhat tillous, particularly underneath, and there, while young, hoary; length from three to six inches; breadth nearly the same. Petioles of various length, round, villous, with a dark-coloured glaad on each side of the apex. Peduncles axillary, solitary, gener-

ally shorter than the petioles, three-flowered; though frequently one of the three, or even two of them, are abortive. Flowers short-pedicelled, large, pure white, expanding at sun-set, and perfuming the air to a considerable distance with a fragrance resembling* that of the finest cloves. In fact it is the Prince of the Convolvulacea. Bractes sub-lanceolate, three to each of the lataral^flowers. Calycine leaflets ovatecordate, obtuse, a little hairy. Corol; tube cylindric; border ample and nearly entire. Filaments woolly at the base. Germ surrounded with a yellow nectarial ring, ovate, fourcelled, with one ovulum in each cell, attached to its lower, Stigma composed of two distinct, cylindric, inner, angle. Berry dry, smoothj shining brown, ovateglandular lobes. oblong in our cultivated plants; somewhat pointed, size of a Seeds from one to four; in our gardens filbert, one-celled. one is by far the most common number; enveloped in a soft, white, spongy substance, which in drying separates from the inside of the pericarpium and adheres to the seed, which is of an oval shape, and about the size of a small pea. Integuments two, besides the exterior spongy lamina; the exterior one hard • and tough ; the interior one membranaceous, and entering the folds of the cotyledons. Embryo as in the other convolvulacecp.

Obs. The trivial nmncbona-nox is well applied here on account of the charming' appearance, and delightful fragrance of its flowers from the time they first expand, about sun-set, * until sun-rise, when they wither. But I doubt if it is the species to which Linnseus gave this name; I rather think it was that which I now call Ipomoea grandiflora, (Munda valli of Van Rheede..I

11. L. nniflora. R.

Perennial, twining, hoary. Leaves reniform-cordate, acute. Peduncles one-flowered. Berry dry, spherical.

Ipomoea caudicans. Rottler. Ms8.

Teling. Hoordi-tign.

This species is very common in forests over the southern parts of the Caruatic, and Tanjore country. Flowering time the cold season.

Stem twining, woody, running over high tr^es, &c. Young shoots hoary. Leaves petioled, broad-cordate, or reniform, entire, with the underside downy, particularly while young; from one to two incbes each way. Petioles the length of the leaves, having two glands laterally at the extremity. Peduncles axillary, solitary, length of the petioles, one-flowered. Flowers large, pure white, opening at sun-set, and drooping at sun-rise. Bractes two, near the top of the peduncles. Tube long-, slender, cylindric. Nectary a yellow, fleshy ring surrounding the base of the germ. Stigma two-lobed. Lobes linear-oblong-, erect. Berry spherical, dry, smooth, shining, brown, one-celled. Seeds; from one to four is the natural number, immersed in a brownish farinaceous pulp.

12. L. ornata. R.

Shrubby, erect, ultimately twining. *Leaves* nearly round, entire, with large round lobes, sericeous underneath. *Peduncles* many-flowered. *Stigma* with two lanceolate lobes. *Berry* dry, oblong, beaked, shorter than the calyx.

A native of the interior parts of India; from Cawnpoie Colonel Ilardwicke sent the plants to the Botanic garden at Calcutta, where they blossom during the rains.

Stems sub-herbaceous, flaccid[^] scarcely ever twining, sometimes sericeous. Branches few, and like the stems. Leaves nearly round, posterior lobes rounded; margins entire; apex rather emarginate; smooth above, of a dull livid colour underneath, and somewhat sericeous; general size from three to six inches each way. Petioles round, sericeous, shorter than the leaves, with a greenish gland on each side near the apex as in all the other species of this family. Peduncles axillary, *as long as the petioles, and like them bearing from about six to twelve, very large, pure white flowers, nearly resembling those of Ipomoea grandiflora and

Lettsomia bona-nox. Bractes lanceolate. Calyx, leaflets linear-oblong-. Corol with a cylindric tube, from two to three inches long, border about four inches in diameter. Flowers hairy at the base. Anthers within. Germ four-celled, four-seeded. Stigma of two linear-oblong lobes. Berry oblong*, shorter than the calyx, smooth, pointed, one-celled. Seeds from one to four, (one is most common,) enveloped in a little mealy pulp. Perisperm and embryo as in the order.

IPOMOEA.

Calyx five-leaved, (or five parted). Corol funnel-shaped. Stigma two-lobed. Capsules two-celled; cells two-seeded.

1. I. grandijlora. R.

Perennial, twining, sometimes murexed. *Leaves* cordate, rarely lobate, acute, smooth. *Peduncles* length of the petioles, three-flowered. *Stigma* of two round lobes. *Capsules* two-celled.

Munda-Valli. Rheed. Mai. xi. 103. t. 50.

Convolvulus grandiflorus. Linn, suppl. plant. 136.

Munda-valli. Asiat. Res. iv. 257.

Beng. Doodlya-Kulmi.

Ipomoea bona-nox. Jacq. Hort. Schoenb.

Convolvulus inaximus. *Sloan. Jam. 96. J*\ 1. is most likely this plant, for I have reaffed it in Bengal from seed received from the West Indies with that name. The only difference is that the leaves of the West Indian plant are rather more angular, and like Sloane's figure, than those of the East Indian one.

A large, twining species, common in hedges near Samulcota, and in Bengal, and on the banks of water courses amongst bushes. Flowers during the cold season in the Circars, and in Bengal during the hot and rainy seasons.

Stem twining, running to the height of from ten to. twenty feet, smooth, except that it is sometimes armed with small in-

offensive prickles. Leaves scattered, petioled, cordate, pointed, generally entire, though sometimes a little lobed, or angular, smooth, about three or four inches long and three broad. Petioles round, smooth, length of the leaves. Peduncles axillary, smooth, clubbed, length of the petioles or more, from two to four-flowered. Flowers remarkably large, the border being from four to six inches in diameter, pure white, delightfully but faintly fragrant, opening at sun-set, and drooping at day-light. Tube very long, cylindric. Stigma double. ttapsules ovate, smooth, two-celled, four-valved. Seeds four, viz. two in each cell, smooth, black.

Obs. Till I observed Gaertner's figures of the capsule and seeds of *Ipomoea bona-nox* I considered this to be that plant. Dr. König: also thought it was *bona-nox* and I think he said Linnaeus the son had committed a mistake when (in the *Sup-plementum Planlarurri*) he called this plant *Convolvulus grandijlorus*, instead of *Ipomoea grandijlora*.

2. I. salicifolia. 72.

Leaves linear-lanceolate, acuminate. Peduncles one to three-flowered, length of the petioles.

Found by Dr. Buchanan in the district of Rungpore in Bengal. In the Botanic garden at Calcutta it is biennial, flowering in the rainy season.

Stem and branches twining to a moderate extent, round, and smooth. Leaves short-pet iol?d, linear-lanceolate, tapering from the rounded base into a long, slender, acute point, entire, smooth on both sides, from three to eight inches long, and scarcely one broad at the broadest part. Peduncles axillary, solitary, half an inch long, bearing one, two, or three large, pure white flowers. Calyx; leaflets five, ovate, smooth. Corol with & cylindric tube of about an inch and a half in length, border flat, obscurely divided. Stamina hid in the tube of the corol. Stigma of two round lobes. Capsules two-celled, with three seeds in each.

3. I. muricata. R_m

Annual, twining, muricate. *Leaves* cordate. *Peduncles* few-flowered; inside of the tube of the corols hairy.

Convolvulus muricatus. Linn. Mant. 44.

I have only met with this in my own garden; it was raised from seeds sent from Persia and proves annual.

Stem as in I. grand\flora> but much more murexed, and not so long, the leaves also the same, but much larger. Peduncles axillary, half the length of the petioles, from two to six-flowered. Flowers large, pale bluish-purple. Tube wittering a little towards the mouth; inside hairy, by which mark it is instantly distinguished from I. grandijlora.

4. I. multiflora. /?.

Stems woody, twining. Leaves broad-cordate, downy. Peduncles as long as the leaves, umbelliferous.

A common species, native of hedges, forests. &c. Flowering time the cold season.

Stem perennial, woody, twining up, and over trees and bushes. Leaves scattered, petioled, broad-cordate, entire, a little bent downwards, bristle-like pointed, both sides a little downy, particularly the under one, from three to four inches each way. Petioles round, downy, from two to three inches long. Umbels three or five-parted, many-flowered. Peduncles round, nearly erect, longer than the leaves. Flowers numerous, very large, rose-lcoloured; inside of the tube a bright red. Leaflets of the calyx unequal. Stigma two-lobed; lobes globular.

Obs. This species while in flower is one of the greatest beauties of our forests. Whether this is what König called *Ipomoea Burmanni* or not I cannot say.

5.1. sepiaria. $K6n_m$ Mss.

Perennial, twining, hairy. Leaves cordate. Peduncles many-flowered, and with the pedicels clavate; capsule four-celled.

Tiru-tali. *Rheed. MaL* xi. p. 109. t. 53. is certainly this plant, though quoted for *Convolvulus maximus*. Can they be the same? Probably they are, as Vabl's description agrees tolerably well with my plant.

Telhtg. Metta-tootia.

This is one of the most common species on the coast, it grows plentifully in every hedge, thicket, &c. Flowers during the rainy and cold season.

Stem twining, perennial; young shoots round, filiform, hairy. Leaves alternate, petioled, cordate, pointed, somewhat sagittate, or angular behind, otherwise entire; 'smooth, often clouded with brownish spots in the centre; from two to three inches long. Peduncles axillary, as long as the leaves, round, smooth, clubbed, many-flowered. Flowers large, of a beautiful pale rose-colour. Stigma two-lobed; lobes globular. Capsule smooth.

6. I. ccerulescens. R.

Perennial, twining, all the tender parts hairy. *Leaves* round cordate, acute. *Peduncles* erect, length of the petioles, from one to three-flowered. *Stigma* of three round lobes. *Capsules* smooth, three-celled.

Native place uncertain, nor can any Asiatic names be procured for this beautiful, distinct species.

Stems perennial, twining to a great extent; young shoots round, hairy, and twining; hair reflexed. Leaves round-cordate, long-petioled, posterior lobes large and rounded, apex acute, surface less hairy than the petioles and shoots, size three or four inches each way. Peduncles axillary, length of the petioles, hairy, at all times erect, from one to three-flowered. Flowers pretty large; their colour when they first expand early in the morning, is a beautiful lively pale blue, or azure, gradually growing darker. Bractes lanceolate, hairy. Calyx five-cleft; segments ensiform, hairy, about half the length of the tube of the corol. Corol; tube widening a little from the base, paler than the undivided border. Germ three-celled*

Stigma three-lobed; lobes round. Capsules smooth, three-celled, with two, smooth, black seeds in each.

Obs. This, and I. ccerulea (probably I. hederacea of Jacquin,) are exactly the same in the inflorescence, germ, stigma and capsules; but they differ specifically. This being perennial, and having the leaves constantly without any tendency to be lobate, whereas that is annual, with three-lobed leaves. I may farther add, that plants raised from seed received from the Honourable Charles Greville, in London, under the name Convolvulus hederaceus, differ only in the colour of the flowers from my I. ccerulea, in which it is blue, and in this, hederacea, white.

7. I. ccerulea. Kb'n. JUss.

Annual, twining, hairy. *Leaves* cordate, three-lobed, downy. *Peduncles* from *two to* three-flowered, margins of the corol sub-entire. *Stigmas* three-lobed. *Capsules* three-celled.

Seng. Neel-kidimi.

It is common during* the rains inmost parts of India.

Stems and branches twining, annual, round, hairy, from six to twelve feet long, as thick as a crow's quill. Leaves alternate, petioled, broad-cordate, three-lobed, downy; from two to four inches long, acute, &c. almost as in Dillenius sfigures of Convolvulus JVil., Peduncles axillary, length of the petioles, round, hairy, from two to three-flowered. Sractes and leaflets of the calyx linear. Flowers large, of a beautiful light, but bright blue. Stigma sub-globular, large, glandular, three-lobed. Capsule much shorter than the calyx, smooth, three-celled, with two seeds in each.

I have often reared this species in my garden, on account of the great beauty of its large flowers, and do not find it to vary.

The seeds of this plant are sold in the native apothecaries* sho/ps in Calcutta, under the name *Kala dana9* and used as a Purgative. I have heard them much praised as an effectual, quick-operating, safe cathartic. The dose is from thirty to

forty grains of the seeds in substance, when administered they ^re gently roasted like coffee, then powdered, and given in any convenient vehicle.

It scarcely differs sufficiently from *Convolvulus Nil to* warrant its being considered more than a variety of that, or that of this. In that, the leaves of plants growing in the same situation are less divided and the lobes shorter and less pointed. The rim of the corol five-angled, and the angles pointed as in Dillenius's figure, whereas in I. *caerulea* it is nearly circular.

8.1. phoenicea. R.

Annual, twining. Leaves broad-cordate; posterior edges often variously lobate. Racemes dichotomous, many-flowered. Leaflets of the calyx end subulately. Stamina erect. Stigma globular.

A native of the southern parts of the Coromandel coast, the seeds were received into this garden from Dr. Berry, who procured them from Dindigul. In Bengal it thrives luxuriantly, and is in blossom most part of the year, but chiefly during the cool season. This plant has also been reared from seeds received from the island of Trinidad; there is therefore the more reason to compare it with I. *cocdnea*.

Stem and branches twining, young parts somewhat angular, and twisted. Leaves alternate, petioled, cordate, acuminate, sometimes three-lobed; sides and posterior edges variously dentate, sinuate, or lobate; smooth on both sides, from two to six inches each way. Petioles nearly as long as the leaves, channelled. *Racemes* axillary, solitary, generally two cleft, much longer than the leaves. Flowers remote, large, of a most beautiful bright crimson colour. smooth, the leaflets subulate at the end. Corol; tube nearly two inches long, contracting- towards the base, slightly curved; border at first expanded, afterwards a little revolute. Stamina projecting* considerably beyond the mouth of the tube of the corol. Stigma sub globular. Capsules smooth, four-celled, with a single seed in each.

Obs. This is by far the most gaudy plant of the kind I Jiave yet met with; no painter can do justice to the brightness of its flowers.

9. I. Pes-tigridis. Willd. spec. i. 886.

Annual, diffuse, or twining', hairy. Leaves palmate, Pe. duncles longer than the petioles. Flowers several in a soli* tary^ aggregate, involucred head.

Beng. LangtfH-tata.

Pulli-schovadi. liheed. Mai. xi. 121. U 59.

Volubilis zeylanica. Dill. Elth. tab. 318.,/: 411.

This is one of the most common, and g-eneally diffused plants we have in India. Flowering time the rainy season chiefly.

Stems diffuse, or twining when supported, round, and very hairy; hairs fulvous, and diverging. Leaves alternate, longpetioled, palmate, hairy; lobes from five to nine, lanceolate, entire. Peduncles long, or longer than the petioles, hairy, each supporting a single head of sessile, white, or pink flowers; the latter variety is smaller than the white one. Involucre from eight to twelve-leaved; leaflets unequal, recurved, lanceolate, obtuse, hairy. Calyx of five lanceolate, acute, unequal, leaflets. Carol, with its five lobes deeply emarginate. Stigma of two round lobes. Capsules two-celled. Seeds two in each cell.

10. I. Quamoclit. Willd. spec. i. 879.

Annual, twining. *Leaves* pinnate, leaflets filiform. *Pe* duncles* one or two-flowered.

Tsjuria-cranti. Rheed. Mai. xi. 123. /. 60.

Flos cardinalis. Rumph. Amb. v. 155, '. 2.

Camalata. Asiat. Res. iv. 256.

Sans. Kainaluta, Turooluta.

Beng. Lai kainlwta or lal turoolttta, the red variety; sweta kamlfita or sweta ttiroolttta, the white-flowered variety. .

A native of various parts of India. Flowers during the 'rain/season in Bengal.

11.1. pileata. /?.

^Perennial, twining*. *Leaves* profoundly round-cordate, villous. ^.*jf*^*loyoer*^*a*. few, sessile in a peltate, four-cornered, ped uncled, axillary *bonnet*.

This rather small, villous species has been introduced from China into the Botanic garden at Calcutta, where it blossoms and ripens its seeds during the cool dry months from November to February. It is particularly remarkable on account of its*entire, rhombiform concave bonnet or involucre^ in the bottom or centre of which, from three to six middle sized, rosy, funnel-shaped flowers sit; it is hairy round the flowers, as are also the unequal leaflets of the calyx.

CAMPANULA. Schreb. gen. N. 290.

Calyx five-parted. ZJorol campanulate. Filaments with their lobes dilated, and arched. Stigma from three to five-cleft. Capsule inferior, from three to five-celled, opening by pores on the sides.

1. C. dehiscens. R.

Annual, ascending, round, a little hairy. *Leaves*, sessile, linear-lanceolate, remotely toothed. *Flowers* from five to six, terminal. *Capsules* without lateral pores and opening at the apex.

A native of Bengal. Flowering time the cold, and beginning of the hot season.

Root nearly simple, white, annual. Stems and branches ascending, about a foot high, round, hairy. Leaves alternate, sessile, linear-lanceolate, remotely, and lightly toothed; from one to two inches long. Flowers terminal, coryinbiform, white, pretty large, bell-shaped. Calyx, corol, stamens and pistil as the genus. Capsule obovate, without lateral pores,

opening at the apex. Seeds numerous, minute. Receptacle reniforn), in the angle of each cell.

2. C. lancijblia. R_m

Ramous, smooth. *Leaves* sub-opposite and alternate, short-petioled, lanceolate, serrate, acuminate. *Floweri* terminal. *Cahjcine leaflets* lanceolate and laciniate. *Capsules* obovate, five-celled.

A native of the moist vallies of Chittagong, where it flowers in October.

PHYTEUMA. Schreb. gen. N. 292.

Calyx semi-superus, fire-parted. Corol rotate, inserted on the calyx. Germ inferior, three-celled, ovula numerous, on a pendulous receptacle from the top of each cell. Stigma three-lobed. Capsule three-celled. Seeds numerous.

1. P. begonifolium. Roxb. Hort. Beng. 85.

Creeping, woolly. *Leaves* alternate, semicordate, serrate. *Racemes* axillary, secund, recurvate. *Bractes* cuneate.

A native of Pulo Pinang, where Mr. W. Roxburgh found it in forests shaded by trees and shrubs, and with flowers and ripe seeds in June and July.

Stems somewhat dichotomous, round, fleshy, spreading on the ffround, and rooting at the insertion of the leaves, the younger parts as well as the petioles and racemes clothed with a harsh, ferruginous, woolly pubescence. Leaves alternate, petioled, semicordate, (as in some species of Begonirt serrate, acute, pretty smooth; length six or eight inches, breadth about half the length. Petiole* from one to two inches long. Stipules none. Racemes axillary, solitary, secund, re volute, twice the length of the petioles. Flowers short-pedicel led, alternately arranged in two rows on the anterior ide of the raceme; while two rows of alternate, cuneate, woolly bractes occupy the posterior side. Calyx oue-lobed;

tube gibbous, and growing to the lower half of the germ. Border of five sub-orbicular, woolly, permanent segments. Corol one-petalled, rotate, tube very short, and united with the calyx into one envelope which closely embraces the upper part of the germ; border of five, oblong segments, alternate with those of the calyx, and double their length, withering. Filaments five, short, inserted partly on the tube and top of the germ. Anthers oblong. Germ inferior, oblong, threecelled, each cell containing numerous ovula attached to a long, free, linear receptacle, which is united, by a slender pedicel, to the top of the cell. Style very short and thick. Stigma concave, with a thick fleshy three-lobed margin. sule oblong, clothed with the woolly tube of the calyx, and crowned with the segments of its border, as well as the withered corol, three-celled, (in what manner they open I have not been able to ascertain.) Seeds very numerous, adhering to the long, filiform, free receptacles, which are attached to the apex of the capsules as already mentioned.

LOBELIA. Schreb. gen. N. 1363.

Calyx five-cleft. Corol one-petalled, irregular. Anthers united. Capsule inferior, two or three-celled.

1. L. nicotianifblia. Hey tie's Jtfss.

Erect. Leaves sub-sessile, lauceolar, acute, entire. Raceme terminal.

A stout, tall species, first described by Mr. Heyne, who found it indigenous in the vicinity of Bangalore.

2. L. trigona. R.

Annual, base creeping, erect parts three-sided. *Leaves* sessile, cordate, serrate. *Peduncles* axillary, longer than the eaves, one-flowered.

A small, annual, ramous plant which delights in wet pasture ground, and appears during* the wet and cold seasons.

Stems near the root creeping, above erect, ramous, three-sided, smooth, the whole plant is from six to twelve inches high. Leaves sub-sessile, cordate, grossly serrate, smooth. Peduncles axillary, solitary, erect, length of the leaves or longer, two-bracted at the base. Flowers small, blue. Cor'ol inserted in the mouth of the calyx.

3. L. radicans. Willd. spec. i. 948.

Annual, creeping, smooth. *Leaves* sessile, lanceolate, remotely serrulate. *Peduncles* axillary, solitary, twice the length of the leaves, one-flowered.

Accidentally introduced from China, into the Botanic garden at Calcutta, where it blossoms freely during the rains. Our plants are but small, very ramous, spreading over the soil, and striking root at every branch let. The flowers are large for the size of the plant, pink-coloured; segments of the corolla equal, unilateral, and narrow-lanceolate, with two green glands under the two middle sinuses, opposite to the long, green, two-lobed stigma.

SPHENOCLEA. Gcert. carp. i. 113. tab. 24.

Calyx five-parted. Corol one-petalled. Capsule inferior, two-celled. Seeds numerous.

1. S. zeylanica. Willd. spec. i. 927.

Ponffati. Rheed. Mai. ii. 47. t. 24.

Sphenoclea Pongatinm. Lamarck.

Gaertnera Pangati. Retz. Obs. vi.p. 24.

Beng. Jeel-mitreech.

Teling. Neeroo-p?pH.

An erect annual; a native of watery places. Flowers durthe wet season.

Root fibrous, annual. *Stem* erect, round, ramous, smooth, glossy, piped. *Branches* alternate, ascending. *Leaves* alternate, short-petioled, lauceolar, entire, tender, smooth, from

two to three inches long, and half an inch broad. Stipules none. Spikes terminal, or leaf-opposed, peduncled, cylindric, middle-sized, closely surrounded with the fructifications. Bractessmall,three-fold, one-flowered; one below, and one on each side, pressing the calyx. Flowers small, white. Calyx superior, one-leaved, five-cleft; divisions obtuse, spreading when the flower is open, afterwards converging over the capsule, permanent. Corol one-petalled. Tube short; throat gibbous; mouth five-cleft, inflexed. Filaments five, short, inserted into the mouth of the tube. Anthers two-lobed, in the gibbous throat of the corol. Germ inferior, angular. Style short. Stiff, ma headed. Capsule turbinate, angular, (from being pressed one against another,) two-celled, circumcised. Seeds minute, very numerous, oblong.

NAUCLEA. Schreb. gen. N. 295.

^- Flowers aggregate, on a globular receptacle. Corollets funnel-shaped. Germs inferior, two-celled; cells many-seeded; attachment interior. Capsules two-celled. Seeds many, imbricated, and winged. Embryo inverse, and furnished with a perispenn.

1. N. undulata. R.

Arboreous, branches brachiate. *Leaves* petioled, ovate-oblong, waved. *Stipules* elliptic, length of the petioles. *Flowers* terminal, solitary. *Capsules* united.

A native of the Moluccas, from thence introduced into ilie Botanic garden at Calcutta in 1789, where the trees blossom in May and June; the seeds take above a year to ripen.

Trunk perfectly straight tg the top of the tree. Branches brachiate. Bark smooth, that of the ligneous parts brown, that of the tender parts green. Height of ten year old trees, from fifteen to twenty-five feet. Leaves opposite, petioled, ovate-oblong* and oblong, waved, entire, polished on both sides; from six to twelve inches long by from three to six

Petioles coloured, slightly channelled, about two inches long. Stipules elliptic, length of the petioles, smooth. Peduncles terminal, solitary, drooping, each bearing a single, large globular, aggregate head of numerous, small, most beautiful, yellow, fragrant florets. Bracte, a small, withering-, somewhat four-toothed ring near the base of the peduncles, and hid hy the stipules. Calyx, common none, or very obscure; proper, of one fleshy cup, cut into four or five, clavate segments. Corol funnel-shaped, much longer than the perianth; yellow and fragrant; divisions of the border four, or five, oval, obtuse. Filaments scarcely any. Anthers, on the five fissures of the border of the corol. Germs inferior, grown together, two-celled, with many ovula in each, attached to their proper receptacles, projecting downwards from their attachment to the partition a little above its middle. Style much longer than the corol. Stigma large, oblong, with the apex somewhat two-lobed. Fruit the size of a small apple, rough with the remains of the segments of the calyx, now forming five conic knobs on the crown of each of the partial seed vessels, which are all firmly grown together, each Seeds rarely more than one in each of these are two-celled. cell, and fragrant, not one of the whole being abortive, they are oblong, not winged but crowded with a fleshy gland which unites them to the receptacles on the partition. guments uncertain, from the small ness of seed. Perisperm conform to the seed. *Embryo* inverse, nearly as long as the perisperm. Cotyledons oblong. Radicle oval, superior.

2. N. cordata. R.

Leaves petioled, broad-ovate-cordate, obtuse, coriaceous, smooth. Stipules obovate. Flowers terminal, solitary. ('apsides united.

A native of Ceylon, reared from seed sent from thence in 1802, to the Botanic garden at Calcutta by General Hay Macdowall, where the young trees blossomed in May and J. 1808, and the seeds ripened in the cold season.

Trunk sttStght up through the branches to the very top of Bark of a light greenish ash-colour. • spreading-, horizontal, forming a broad-ovate, shady head, general height of our six years old trees from fifteen to twenty feet. Leaves opposite, short-petioled; from round-cordate to ovate-cordate, obtuse, entire, coriaceous, smooth; /barked with prominent, alternate veins; the upper surface shining dark green, the under one paler; length from three to nine inches, and from two to eight broad. Petioles roundish, smooth, about an inch or an inch and a half long. interfoliaceous, large, roundish, or obo.vate, apex rounded, marked with numerous, fine veins, caducous. Peduncles terminal, solitary, and generally in the small lateral branchlets, drooping, each supporting a large, beautiful, globular, aggregate head of very fragrant bright vellow florets. small, irregularly four-toothed, withering ring round the peduncles, near the base, within the stipules. Calyx, common none, or very obscure; proper deeply cut into four or five, fleshy, clavate, permanent segments, which thicken as the fruit advances in size. Florets funnel-shaped, four or five-parted. Divisions obovate, obtuse, filaments very short, from the mouth of the tube just under the fissures of its border. thers cordate. Germ inferior, completely united to each other, their whole length two-celled, each containing many imbricated seeds attached to a receptacle rising* from the partition a little above its middle. Style much longer than the coroL Stigma oblong¹, apex obscurely two-lobed, of a beautiful pearl colour. Fruit aggregate, size of a small apple, round, rough, with the obtuse, fleshy permanent portions of the divisions of the calyces; the partial seed vessels thereof are firmly united, angular, inversely conical, two-celled, with a few oblong, imbricated seeds in each, besides a number of small, brown scales, which are the abortive ovula, as may be seen by the structure of the germ as well as by their being* attached to the same central receptacle; the full grown seeds are crowned with a greenish, fleshy gland, to which the um*

bilical cord is fixed. *Albumen* conform td^pMHlfed. *Embryo* inverse, straight. *Cotyledons* oval. *Plumula* minute. *Radicle* cylindric, superior.

3. N. macrophylla. R.

Lectves stem-clasping', narrow-oval, obtuse, villous underneath. Stipules lanceolate. Peduncles terminal, solitary, one-flowered.

From Amboyna this magnificent tree was introduced into the Botanic garden at Calcutta, in 1797. In 1810, they began to blossom in June, the trees were then fifty feet high, and the trunk of the largest rather above three feet in circumference, four feet above ground, while young their growth was not rapid.

Trunk perfectly straight, like the pines, to the very top of the tree. Bark smooth, dark brown. Branches decussate. Branchlets round and smooth. Leaves opposite, stern-clasping, broadoblong, entire, obtuse, and though they completely embrace the branchlets, yet taper more toward the much waved base, than the apex, somewhat villous particularly underneath, veins parallel; length from eight to twenty-four inches, and broad in proportion, when the trees were young*, they were even more Stipules opposite, linear-lanceolate, conthan two feet long*. cave, smooth and veiuless, about three inches long. cles terminal, solitary, length of the stipules, recurvate, giving support to a single most beautiful flower, of full three inches in diameter, and sweet smelling, the corollets are very numerous, of a pale vellow colour; and the stigmas, which project far beyond them, are pure white. Common calyx none; proper perianth of five, long, clavate leaflets. funnel-shaped. Tube slender, widening gently to the mouth; segments five, ovate-oblong, spreading. Filaments none. Anthers attached to the mouth of the tube of the corol, under the fissures of its border, sagittate. Germ numerous, distinct, inferior, somewhat wedge-shaped, two-celled, with numerous, imbricated ovula in each, attached to every part of a free linear recepTMfc^ffFhich is united to the partition, a little above its middle, and descends deep into each cell, in fact, it is exactly that of Gaertner's *Oldenlandia corymbosa*, i. 147. t. 30. inverted. *Style* twice the length of the corol. *Stiyrna* clavate, somewhat two-lobed.

4. N. Cadamba, R.

Leaves petioled, ovate. Stipules triangular. Peduncles terminal, solitary; divisions of the calyx linear. Capsules four-celled at top and two-celled at the base. Seeds without a wing.

Sans. Neepa, Priyiika, and Ciidumba.

Seng. Kudum.

Katou-tsjaka. Rheed. Mai. 3. t. 33.

Is common about Calcutta, where it grows to be a large tree, and is not only highly ornamental, but very useful from the extensive close shade it yields. Flowering time the hot season. Seed ripe in October and November.

Trunk erect, and perfectly straight, bark smooth, dark Branches numerous, horizontal. Leaves opposite, between bifarious and decussate, spreading, petioled, oval, smooth, entire, nerves many, and simple; from five to ten inches long. Petioles smooth, about an inch and a halflong. Stipules interfoliaceous, triangular. Flowers solitary, terminal, aggregate; corollets numerous, forming a large, perfectly globular, beautiful, orange-coloured head with the large white clubbed stigmas projecting. Calyx, common none; proper,, five-parted. Corol as in the genus, only the divisions are never recurved. Capsules inferior, four-sided, tapering from the apex to the base, near The top it is composed of four, distinct, hard cells, under the common envelope; the lower two-thirds is two-celled only. Seeds numerous, very small, angular, brown colour.

5. N. ylabra. /?.

Leaves elliptic and smooth. Stipules linear. Peduncles

terminal, tern; *divisions* of the calyx triangvufav. *Stigma* globose; s <> eds three or four in each cell.

A native of the Moluccas.

6. N. parvifolia. Willd. spec. i. 929. Roxb. Corom. i. 40. tab. 52.

Branches and branchlets brachiate. Leaves ovate. Stipvles oval. Flowers terminal, one or three. Seeds imbricated, membrane-winded.

Teling. Bota kwd?/mee.

This grows to be a large tree; is a native of almost every part of the co^t of Coromaridel, but chiefly up amongst the mountains. Flowers during- the cold season.

Trunk straight. Bark brownish gray, and cracked. Branches opposite, numerous, spreading, forming a large oval, shady head. Leaves opposite, decussate, petioled, ovate, entire, smooth. Petioles channelled. Stipules large, oblong, obtuse, glutinous, caducous. Peduncles terminal, single or three, when three the middle one is shortest; near the apex jointed, and bracted, each supporting a single, globular, nak-Bractes two, opposite, near the extreed head of corollets. mity of the peduncle, oval, caducous. Corollets small, light Calyx, common none. Common receptacle chaffy, vellow. wedge form, hairy at their insertions. Proper perianth very minute, entire. Corol one-petalled, funnel-form. Tube widen-Border five-parted; divisions pointed, spreading. Filaments five, short, inserted just within the mouth of the tube. Anthers erect, oblong, pointed above. Germ beneath. Style thread-form, nearly twice the length ofthecorol. large, resting on the style (like the cap of liberty,) turbinate, covered with a scabrous crust or bark, which splits irregularly when the seeds are ripe; within are the proper two-celled capsules, each consisting of one valve, opening round the apex and down on the inside. Seeds several, very minute, oblong, tailed, inversely imbricated round the outside of their receptacle, with insertions downwards.

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Obs. The wood is of a light chesnut colour, firm and close grained, is used for various purposes where it can be kept dry, but exposed to wet it soon rots.

7. N. cordifolia. Willd. spec. i. 929. Roxb. Corom. i. 40. tub. 53.

Leaves opposite, round-cordate, downy underneath. Flowers axillary, from one to three. Segments of the calyx clavate; seeds membrane-winged, not imbricated.

Seng. Keli-kudum.

Teling. Daduga,.

This like the foregoing species, grows to be a very large tree; it is a native of the mountains of the coast of Coromandel. Flowers during the wet season. The seeds ripen about April.

Trunk tolerably straight. Bark like that of the former. Branches very numerous, horizontal, forming a very large, Leaves opposite, decussate, petioled, broadshady head. cordate, pointed, entire, above pretty smooth; downy underneath, particularly when young, beautifully reticulated with small veins; from four to twelve inches each way. Petioles round, a little downy; from two to three inches long. pules, as in the last species. Peduncles axillary, from one to four, round, downy, length of the petioles, near the apex.jointed, and bracted, each supporting a single globular head. Bractes oval, caducous. Flowers as in the former. Calyx, common none. Common receptacle as in the pre-Proper perianth above, five-parted; diviceding species. Corollets, stamens, germ, and style as in the sions clavate. Stigma clavate. Capsules wedge-form, the former species. other parts as in the foregoing species. Seeds about six-in each cell, surrounding their receptacle, oblong, not imbricate ed, membrane-winged at the extremities, the lower onespointed, the upper two-forked.

Obs. The wood of this tree is exceedingly beautiful, its colour is like that of the *box-tree*, but much lighter, and at the <

same time very close grained. It is to be had of a large size, from one to two *feet*, or more in diameter, and is used for almost every purpose where it can be kept dry. Forfurniture it answers exceedingly well, being light and dur, able.

8. N. purpurea. Willd. spec. i. 929. Roxb. Corom. i. 41. tub. 54.

heaves petioled, oblong, very smooth. Flowers terminal, from one to three, segments of the calyx clavate. Seeds very numerous, membrane-winged, imbricated.

2'elinff. Bagada.

A small tree, a native of the moist vailies up amongst the Circar mountains. Flowering time the beginning of the hot season.

Trunk irregular. Bark scabrous, ash-coloured. Branches opposite, decussated. Leaves opposite, decussated, short, petioled, oblong,* pointed, entire, very smooth and shining both above and below, from four to nine inches long, and broad in proportion. Stipules as in the two preceding species. Peduncles terminal, one or three. Flowers larger than in either of the former species, purple, Calyx, common none. Receptacle almost naked. JProper perianth as in N. cordi/bliam Corol, stamens and pistillum as in the species. Stigma globular. Capsules turbinate, (the outer covering wanting,) two-celled; the cells two-valved, opening from the base. Seeds numerous, most minute, imbricated with their insertion upwards.

9. N. sessilifolia. R.

Leaves oblong, sessile, base somewhat cordate, embracing the branchlets; apex rounded. Flowers terminal, solitary. Capsule four-valved.

A large tree, a native of the forests of Chittagong, where it blossons from January till March.

10. N. rotundifolia. R.

Leaves petioled, round-oval, obtuse. Stipules oblong, obtuse-nerved. Flowers terminal, sub-panicled. Capsules distinct.

A middling sized tree, a native of Chittagong, where it blossoms in October, and the seeds ripen in March.

11. N. ovalifolia. /?.

Leaves sessile, oval and elliptic. Flowers terminal, solitary.

A tree, a native of the forests of Silhet, where it is called *Shal* by the natives.

12. N. tetrandra, /?.

Leaves ovate-langeolate, acuminate, vilious. Flowers terminal; corollets tetrandrous, a black gland between the four segments of the calyx and corollets.

Beng. Shwet JLudum (white kudum.)

An elegant small tree, a native of Silhet. Here it grows to the height of from ten to twenty feet, with a distinct, erect trunk. Flowering time the hot season.

Branchlels straight, round, very downy. Leaves from opposite to quatern, short-petioled, ovate-lanceolate, entire, acuminate, downy underneath, from three to five inches long, and rarely so much as two broad. Stipules within the leaves, Inflorescence terminal. acuminate. Flowers peduncled, from three to a verticelled panicle. Perianth proper fourtoothed,, with a little black gland between. Corollets funnel-shaped, yellow, intermixed with filiform, clavate scales; border four-parted, with a little black gland between, as in Filaments scarcely any. Anthers four, erect, the calyx. attached to the mouth of the tube of the corollets. ferior, very minute, but clearly two-celled; only one ovulum in each could be observed. £>tyle longer than the corollets. Stiff ma headed.

UNCARIA. Sckreb. gen. ST. 311.

Flowers aggregate, on a globular receptacle. Calyx, common simple, remote; proper five-parted. Corollets funnel-shaped. Germ inferior, two-celled; cells in my-seeded; attachment interior. Capsules pedicelled, two-celled, partitions parallel. Seeds many, imbricated, membrane-winged. Embryo inverse, and furnished with a peris perm.

Our East India plants belonging to this genus are *very* permanent, ciriferous ramblers; with opposite, stipulate leaves. *Flowers* globular, terminal, or axilhry, and for the most part the capsules pedicelled, and in that state like globular umbellets which (with the habit,) separate them from *Nduclea*.

1. U. Gambier. Hunter in Linn. Transact* ix. 218. tab. 22. Fleming in A suit. Res. xi. 187.

Leaves ovate-lanceolate. Peduncles axillary, solitary. Capsules clavate, pedicelled.

Funis uncatus ang-ustifolius. *Humph. Arnb.* 5. p. 63. t. 34. f. 2 and 3.

A stout, scandent shrub, a native of Pulo Pinang, Sumatra, Malacca, &c.

Leaves opposite, short-petioied, from ovate-oblong, to ovate-lanceolate, entire, acute; smooth on both sides; about four inches long, and two broad. Stipules oblong, uniting the" upper margin of the base of the petioles, endurous. Tendrils axillary, solitary, or in opposite pifcirs, simple, recurved, hooked. Peduncles axillary, solitary, about the middle jointed and bracted, supporting a single globular head, of beautiful, green and pink, small aggregate corollets. Bracles, about the middle of the peduncle, a three or four-cleft annular perianth-like cup. Perianth; common, no other than the just mentioned bracte; proper sericeous on the outside with a five-cleft border. Corollets; tube filiform; border of five obtuse divisions, villous on the outside, and hairy in the centre of

the inside. *Filaments* short. *Anthers* large, on the mouth of the tube. *Germ* beneath, turbinate, sub-sessile, sericeous. *Style* as long as the tube of the corol. *Stigma* clavate. *Capsules* pedirelled, clavate, longitudinally grooved, crowned with the five-cleft permanent calyx, two-celled, two-valved. *Seeds* numerous, imbricated, winged.

Obs. Gamhier is the Malay name of an extract, prepared from the leaves of this plant. And I believe one of the drugs, if not the only one, formerly called *Terra Japonica* in Europe. For the following account thereof I am indebted to Dr. Charles Campbell, of Bencoolen, who says:

"This material is called by the Malays *Gam bier*. It is chewed by the natives mingled with *Betle* leaf and *areca* after the manner in which the *Cutch* is used on the continent of India.

^M With some sweetness it has a more highly concentrated astringent principle than *Terra Japonica*. J am solicitous that a trial should also be made of its power in tanning.

" In regard to the natural history of the Gambier it is procured from a climber little known to tlie Botanic garden.

⁴⁴ It is the *Founts nncatus*, or *Davn Gatta Gambier* of Rumphius. *Herb. Amboin. vol.* v. tab. 34. The variety from which it is chiefly made is that denominated by Rumphius the *Fvnis nncatus angustifblins*.

"The preparation is simple, the young shoot and leaves are shred and bruised in water for some hours, until a feculum is deposited; this, inspissated in the sun to the consistence of a paste, is thrown into Moulds of a circular form, and in this state the *Gambier* is brought to market.

"Rumphius has fallen into an error in asserting that *Gambier* is not made from this plant, for in my journey to Cochin China 1 had an opportunity of inspecting the whole process, having resided some days at a sumII village near the foot of the mountain, where the *Sultan* of *Moco* has established a colony ^ for the purpose, of carrying on the manufacture to a, considerable extent.

"The price at which it can be procured from the Northern parts on this coast, I have ascertained to be nearly ten dollars per hundred weight, it can be supplied in any quantity desired, for the plant abounds in these districts, and the mode of eliciting the astringent matter is such as requires neither much attention nor labour."

So far Dr. Campbell. . But in other parts to the eastward of the Bay of Bengal 1 learn that the process is carried on by boiling the leaves and young shoots; evaporating the decoction by fire and the heat of the sun. When sufficiently inspissated, it is spread out thin and cut into little square cakes and dried.

The same substance is mentioned by JWarsden in his History of Sumatra, at p. 242-3, who refers for a particular detail of the cultivation of the plant and manufacture of the Gambier, to the 2d volume of the Transactions, of the Batavian Society.

2. U. ovalifblia, Ii.

Leaves oval, entire, smooth. Peduncles axillary and terminal, compound. Capsules and common receptacle villous.

A native of the Island of Pulo Pinang.

Trunk and branches woody, climbing to a great extent. Leaves opposite, petioled and obovate, Bark dark-brown. pointed, smooth on both sides, entire; from three to six inches long. Petioles short, recurved, channelled. Peduncles axillary and terminal, expanding, bearing from one to three aggregate flowers. Pedicels nearly as long as the peduncles, bracted and jointed at the middle. Bractes sheathing, with Calyx, common perianth the mouth from two to six-cleft. none. Receptacle globular, villous. Proper perianth above, five-toothed. Corol₉ aggregate, equal, globular. C or o I lets numerous, funnel-shaped; tube very long and slender; bor-'der of five obovate divisions. Filaments scarcely any. Anthers affixed to the mouth of the tube. Germ beneath. Style the length of the corol. Stigma clavate. Capsules two-celled, villous. Seeds numerous, minute, imbricated from the base of the receptacle.

* 3. U. pedicellata. /?.

Leaves ovate-cordate. Peduncles axillary, solitary, undivided. Corollets long-pedicelled.

A native of the Molucca Islands.

4. U. cirrhijlora. /?.

Leaves ovate-oblong, smooth. Stipules bifid. Peduncles, a continuation of the recurved tendrils.

A native of the Malay Islands.

5. U. acida. Hunter.

Leaves ovate, smooth. Stipules deeply two-cleft. Flowers solitary on the bracted apices of the teijdrils.

Found by Dr. Hunter on Pulo Pinnng. The leaves Dr. H. observes are acid, hence the specific name.

6. U. sclerophylla. Hunter.

Branches four-sided, pubescent. Leaves elliptic, pointed, rigid. Stipules lunate, two-lobed. Peduncles axillary, solitary.

Found by Dr. Hunter on the hills of Pulo Pinang.

7. U. sessilifructus. R.

Leaves oblong, smooth above, soft underneath. Peduncles axillary, and from one to three-flowered; also terminal, and many-flowered. Capsules sessile.

A large scandent shrub, supported by strong, spiral, axillary hooks; a native of the forests of Chittagong. Flowering time the cool season.

. 8. U. pilosa. R.

All the tender parts wery hairy. Leaves ovate-oblong,

acuminate. Stipules two-parted. Peduncles axillary, one-flowered,

A stout scandent shrub; supported by strong, hairy, axillary, spiral hooks; a native of the forests of Chittagoiig, where it flowers in February and March.

RONDELETIA. Schreh. gen. N. 296.

Calyx five-toothed. Corol uifimdibuliforin. Germ inferior, two-celled; cells many-seeded; attachment interior. Stiffma frfo-cleft. Capsule two-celled, two-valved. Seeds many.

1. R. paniculata. R.

Arboreous. Leaves sub-sessile, oblong*-ventricose, tapering at both ends, smooth. Stipules round, recurvate. Panicles terminal, sub-brqf hiate.

A native of the Malay Islands. It was brought from Amboyna by Captain Anderson, to the Botanic garden at Calcutta, where it blossoms in March, April, May and June.

Trunk straight. Branches decussate. Bark smooth, brown on the older parts; on the younger green. Leaves opposite, sub-sessile, oblong-ventricose, tapering at both ends, above smooth, underneath somewhat villous, entire, from four to ten inches long, and from two to four or five broad. **Stipules** within the petioles, round-reniform, recurved, smooth. PanU cles terminal, and from the exterior ax ills; the former brachiate, the latter have the whole of their ramifications alternate; they are all round and villous. Flowers minute, pure white, very numerous, sessile, or sbort-pedicelled, on the short, alternate, ultimate, ramifications of the panicle. *Bractes* of the ramifications large, and of various forms; those of the flowers, several, minute; all are villous. Calyx villous; seg-• merits five, roundish. Corol; tube perfectly cylindric; border of five, ovate, revolute segments, which are much shorter than the tube. Filaments short, inserted into the bottom of the fissures at the border of the corol. Anthers ovate. incumbent. Germ inferior, roundish, two-celled, each containing many ovula attached to an elevated receptacle on the centre of the partition. Style rather longer than the tube of the corol. Stigma of two, large, sub-rotund, spreading lobes. Capsules minute, round, two-celled, too*valved, opening across the apex. Seeds very minute, number, shape, &c. uncertain, as they scarcely ever come to their full size.

2. R. tinctoria. R_m

Arboreous. Leaves petioled, oblong-lanceolar, smooth. Stipules triangular, cuspidate. Panicles terminal, decussate. jFloioers tern.

Beng. Toola-lodh.

A small tree, of about ten or twelve feet in height; a native of Burdwan and Midnapore, in Bengal, where it blossoms in January and February; the seods ripen in May.

Trunk straight, rather short, about as thick as a man's leg. Bark covered with a dark brown, slightly crooked, spongy lamina; inwardly fibrous, yellowish, and astringent. JBranchlets opposite; young shoots four-sided, and densely clothed with short, ferruginous hairs. Leaves opposite, rarely tern, petioled, from oblong to lanceolar, entire, smooth above, a few hairs, particularly on the nerve and veins underneath; from four to six inches long, and from one to two and half broad. Petioles short, and somewhat winged, arising from the decurrency of the leaves, hairy. Stipules triangular, with ensiform apices, hairy on both sides. Panicles terminal, large, composed of many, opposite, compound, foursided, hairy branches and branchlets. Bractes numerous, hairy; those of the ultimate divisions of the panicle ensiform, with a hastate base, and embracing three flowers; besides which each flower is furnished with a small proper bracte. flowers very numerous, small, white, sub-sessile, fascicled, and on the extremities of the ramifications, always in opposite faficicles of three. Calyx five-toothed, hairy', permanent. Corol one-petalled. Tube slender, many times longer than

the calyx. Segments ovate, spreading. Filaments veryshort, inserted immediately under the fissures of the division of the border of the corol, in the mouth of the tube. Anthers incumbent. Germ inferior, turbinate, two-celled, each containing many ovula attached to the elevated centre of the partition. Style is long as the tube. Stigma two-lobed; lobes oblong. Capsule spherical, size of a small grain of millet, dry, brown, crowned with the remaining calyx, two-celled, two-valved, opening across the apex contrary to the partition. Seeds few, very minute, and imperfect, so much so that I have not been able to ascertain their internal structure.

Obs. Its bark is employed by the natives as a mordant in some of their dyes, hence the specific name.

3. R. *exserta*. *R*. •

Arboreous. Leaves petioled, broad-Ianceolar. Stipules semi-lunar, reflexed. Panicles terminal. Corol sub-campamdate. Stamens exsert. Capsules many-seeded.

A native of the interior parts of Bengal, and particularly over the ruins of the ancient city of Gour; Mr. Henry Creighton found it there, and sent plants to the Botanic garden at Calcutta, where they thrive luxuriantly, and blossom in March, at which period they form one of its greatest ornaments.

Trunk erect. Bark ash-coloured. Branches opposite, spreading, or even drooping. Branchlets villous; height in ten years above twenty feet. Leaves opposite, petioled, broad-lanceolar, entire, soft with down on both sides; general length from four to six inches. Petioles short, flat on the upper side, downy. Stipules semi-lunar, reflexed, downy. Panicles terminal, very large, diffuse, ovate; ramifications round and downy. Bractes sub-eiisifonn, varying much in size. Flowers very numerous, small, pure white, fragraut. Calyx small, five-toothed, hoary. Corol; tube short, and contracted at the mouth by five elevations on the inside; the

five oblong segments of the border recurved. *Filaments* from the five ribs of the tube of the corol, nearly as long as the border. *Anthers* incumbent. *Germ* beneath. *Stigma* large, two-cleft. *Capsules* minute, villous, crowned with the withered *calyx*, two-celled, opening at the apex within the calyx. *Seeds* many in each cell, small, xugose, attached to an elevated receptacle, which is attached to the middle of the partition.

4. R. tetrandra. R.

Shrubby. Leaves lanceolate, sessile. Stipules pinnati« fid. Flowers axillary, glomerate, tetrandrous. Capsule many-seeded.

A shrubby species; a native of Pulo Pinang.

Stem straight; branches erect, smooth, four-sided, with the angles sharp on the young shoots. Leaves opposite, sessile, lanceolate, smooth. Stipules sub-pinnatifid, containing the inside of the base of the leaves, tapering to an awled point. Flowers numerous, short-ped uncled, crowded in the ax ills, and mixed with many, lanceolate, ciliate bractes. Calyx, corol, stamens and pistil as in the genus. Capsule small, black, angular. Seeds numerous, immersed in the receptacles, as in a nidus.

5. R. scandens. R.

Shrubby, scandent, smooth. *Leaves* opposite, petioled, oblong, entire. *Panicles* axillary, small, brachiate. *Capsules* globular. *Seeds* numerous, small.

Found indigenous on the Island of Mauritius by Colonel Hardwicke in flower and with ripe seed in June and July.

MACROCNEMUM. Schreb. gen. N. 297-

Calyx five-toothed. Corol campanulate. Capsule inferior, two-celled, two-valved. Seeds imbricated*

1. M. stipulacevm. /?.

Leaves sub-gessile, lanceolate, smooth. Stipules oval, very large. Corymbs terminal, supra-decompound.

A native of the Moluccas. The mouth of the bell of the short corol is uncommonly woolly, nearly hiding the stamina.

2. M. parviflontm. R.

Shrubby. Leaves short-petioled, lanceolate, entire, smooth. Stipules annular, truncate. Peduncles axillary, many-flowered. Corol acetabuliform.

A native of the Moluccas.

Obs* I have seen only dried specimens of these two species.

RANDIA. Sckreb. gen. N. 275.

Calyx four or five-parted. Corol one-petalled, four or five-parted. Germ inferior, two-celled; cell many-seeded, imbricated, attachment inferior. Berry two-celled. Seeds several,-sub-imbricated. Embryo inverse, furnished with a perisperm.

1. R. racemosa, R.

Shrubby, erect. *Branches* decussate. *Leaves* oblong, smooth. *Racemes* axillary. *Flowers* tetrandrous.

Beng. Peettmgtf.

This plant was first discovered by Dr. F. Buchanan, growing about Lukshmee-poora; from thence he sent the seeds to the Botanic garden at Calcutta, where the plant is now common, and blossoms about the close of the rainy season.

Stem straight. Bark smooth. Branches opposite, expanding, indeed almost horizontal. Bark of the woody parts dark-brown, of the young shoots green, and smooth. Leaves opposite, drooping, short-petioled, broad-lanceolate, entire, smooth on both sides, from three to four inches long, anil about one broad. Stipules within the leaves, large, tapering, caducous. Spikes axillary, for the most part solitary, sub-

sessile, about one-half or one-third the length of the leaves. Flowers sessiV, nunierous sninll, pale greenish white. Brades Calyx four-toothed, permanent. one-flowered. Corol funnel-shaped; border four-parted; mouth of the tube villous. .Anthers linear, half hid in the tube of the Filaments short. Germ inferior, two-celled, with sevecorol. Stigma bifid. ral ovula in each, attached to the thickened centre of the partition. Berry round, smooth, shining', straw-coloured, size of a pea, two-celled. Seeds two, three or four in each cell, attached to the upper half of the partition; shape very various. Perisperm cartilaginous. Integument fibrous. Embryo inverse,' half the length of the perisperm. Cotyledons linear. Radicle oblong, superior.

2. R. strida. /?.

Shrubby, straight. *Leaves* opposite, oblong, pointed. *Flowers* axillary, sessile.

A native of the mountains north of Bengal. In the Botanic garden its flowering time is the cold season.

Stems several, straight, ornamented with numerous, crossarmed, spreading branches, down to the root; height of the whole from five to ten feet. Leaves opposite, very shott-petioled, spreading, oblong, or broad-lanceolate, pointed, margins entire*, but waved a little; smooth on both sides. Stipules connecting the petioles, on their inside, and tapering to :i daggered point, pressing close upon the branch let. Flowers small, white, collected in dense, globular, sessile fascicles, in the axills of the leaves. Brades two or three, like the calvx, and embracing the base of the germ. Calyx five-parted; tKvisions acute, permanent. Corol contorted, inside of the short Filaments none. Anthers affixed a little below tube hairy. their apices within the tube, and in the fissures of the divisions of the border of the corol. Germ inferior, two-celled, with several seeds in each. Style short. Stigma large, oblong, hairy, two-cleft, but its lobes do not separate. Berry globular, size of a pea, smooth, two-celled. Seeds several in

each cell, imbricated in two rows, attached to the partition above its middle. *Perisperm* conform to the seed. *Embryo* inverted.

3. R. polysperma. R.

Shrubby. Leaves oblong*, entire, acuminate, smooth. Stipules subulate. Spikes panicled, axillary.

An elegant, very ramous shrub, a native of Chittagong. Flowers in May, and the seeds ripen in August and September.

SCMVOLA. Schreh. gen. N. 300.

Calyx five-cleft. Corol one-petalled; tube longitudinally cloven on the under side, with unilateral five-cleft border. Germ two-celled, one-seeded; attachment inferior. Drupe inferior. Nut two-celled. Embryo erect, and furnished with a perispenn.

1. S. Taccada, R.

Shrubby, with smooth, succulent brauches. *Leaves sessile*, obovate-cuneate, entire, shining. *Peduncles* axillary, solitary, two or three times dichotomous.

Lobelia Taccada. Gtert. Jlruci. i. 119. /. 25.

Buglossuni littoreum. Rumph. JUmb. iv. p. 116. f. 54.

Bela modagam. Rheed. Mai. iv. 121. t. 59.

A native of most of the maritime parts of the East Indies, and introduced from Pulo Pinang into the Botanic garden at Calcutta, where there is a constant succession of flowers and fruit the whole year round. I suspect the American plant, called by Willdenow and others, *Sccevola Lobelia*^ to differ specifically from ours; I have therefore preferred Guertner's specific name.

Trunk short and variously bent. Bark Aereof, and of the old brandy. «ash-cpU>ured, and somewhat scabrous, large brauches erect, the singer ones nearly verticelled, ascending, and covered with smooth, green bark; general height of the

w hole plant about five or six feet. Leaves alternate, sub-sessile, long-obovate, with margins entire, apex circular, smooth, shining* green on both sides; from three to six inches long. In the axill of each is found a little tuft of delicate white wool* Peduncles axillary, solitary, once, twice, or thrice dichotomous, the whole not above one-fourth the length of the leaves. -P< dice Is clavate, round, and smooth. Bractes opposite, small, Flowers white, slightly.fragrant* Calvx may be called five-leaved; leaflets rather remote, erect, or recurved, * subulate, gmuanent. Corol one-petalled. Tube five or six times louger than the calyx, split its whole length on the side next to the branch, villous on the inside and shaggy with filaments round the mouth. Border of five, oblong, unilateral segments:, with membranaceous, curled borders. JFilaments from the receptacle, erect till the «flowers expand, then becoming variously curled back round the base of the tube of the corol. Anthers oblong, crowned, before the expansion of the corol they adhere slightly to each other, round the mouth of the stigma. Germ inferior, obovate, torose, two-celled, with one seed in each, attached to the very bottom of the Style length of the tube, pretty thick, recurved. partition. Stigma large, funnel-shaped, very hairy on the outside, and ciliate. Drupe nearly round, size of a small gooseberry, when ripe white, and torulose. Nut two-celled, dark brown, wrinkled; between it and the white exterior pulpy covering there is a white torulose, softish cartilaginous coat. Seed one in each cell. Embryo lodged in a considerable portion of whitish albumen. Cotyledons two, oval. Radicle inferior, shorter than the lobes.

2. S. opposit[folia_m /?.

/leaves opposite, fhort-petioled, elliptic, entire, smooth. .Pe-dnncies axillary, few-flowered.

A native of the Moluccas; a slenderjjy^ijg^^ggies, very different in habit from S. JKb'nitrii

CINCHONA. Sckreb. gen. N. 301.

Calyx five-toothed. Corol funnel-shaped. Germ inferior, two-celled; attachment interior. Capsule two-celled, with the partition parallel. Seeds many, imbricated, membrane-winged. Embryo erect, and furnished with a perisperm.

Obs. That part of the above character which makes the par* titipn parallel does not agree with the only two East India species I have yet met with. In them the partition is contrary.

1. C. excelsa. Roxb. Corom. ii. 3. U 106.

Arboreous. Leaves oblong', downy. Stipules cordate, serrate. Panicles terminal and axillary. Anthers sub-sessile in the mouth of the tube. Partition of the capsule contrary.

Teling. Bicndaroo.

This species of *Cinchona* is a native of the mountainous parts of the Circars, and chiefly of the vallies, where it grows to be a very large tree. Flowers during the rainy season. *Seeds* ripe in four or five months after.

Trunk straight, of considerable thickness and height. Uranches numerous, spreading. Bark of the trunk pretty thick; the exterior lamina is gray, light, spongy; it cracks in various directions, and frequently falls oft"; the middle coat is brown, of a farinaceous nature, and is as thick as both the exterior and interior coats; the interior is white, (the fresh bark is here described.) Leaves opposite, petioled, oblong, entire, soft, downy, particularly on the under side; veins simple, and frequently opposite; from six to twelve inches long, and from three to five broad. Floral leaves, the lower pair or two of the ramifications of the panicle are ornamented each with a pair of leaves, in shape like the rest, but much smaller, coloured, more permanent, and bullate. Petioles round, downy, two or three inches long. Stipulesfjithm the leaves, ovate-cordate, acutely serrate, erect, caducous. Panicles terminal*, large, generally with the lower ramifications, cross-Flowers fascicled, small, greenish-white, exceeded armeil.

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ingly numerous, exquisitely fragrant. Calvx superior, five-Corol one-petalled, funnel-formed, downy. toothed. long*. Border five-parted; divisions oval, spreading, not half the length of the hi be. Filaments five, short, inserted into the mouth of the tube. Anthers erect, one-third within the tube.- Germ oval. Style twice the length of the tube. Stigma headed. Capsule oblong, crowned with the remains of the calyx, about as thick as a field bean, but twice as logg, four-striated, marked with small white, elevated specks, two-•celled, two-valved, opening from the top; partition contrary. Receptacle slender, angular, length of the capsule, affixed lengthways to the suture of the partition. Seeds from six to twelve in each cell; chesnut-coloured, imbricated, oblong, compressed, enlarged all round by a membranaceous jagged wing, which at the base is split up to the seed itself.

Obs. The infusion of one fresh leaf in water all night had little taste, but struck quickly a deep purplish blue with a chalybeate. The two inner coats of the bark (the outer light spongy stratum is tasteless,) possess both the bitterness and astringency of Peruvian barh₉ and I think when fresh in a stronger degree; the bitterness is not so quickly communicated to the taste on chewing the bark, as that of the former, but is much more durable, and chiefly about the upper part of the fauces.

The wood is firm, close-grained, of a pale mahogany colour, and very useful for many purposes.

2. C. thyrsiflora. R_m

Arboreous. Leaves ovate, downy; floral coloured and reticulate. Thyrses terminal and axillary, drooping. Stipules oblong, fringed with coloured glands. Border of the corol urceolate. Partition of the capsule contrary.

A native of tl^interior parts of Bengal, where it was discovered by-Dr. William Carey, and .by him sent to this garden, where the trees blossom in June, and the seeds ripen in January.

Trunk straight, covered with smooth, ash-coloured bark. Branches numerous, spreading*, so as to form a large ovate Leaves opposite, petioled, ovate, and ovate-cordate, downy; veins simple and parallel; length from two to eight or ten inches. The floral pair or two long-er-petioled, somewhat scarious, smoother, and more permanent than the others* Petioles round, villous, about a third of the length of their leaves. Stipules large, oblong, downy, and fringed with coloured glands round the margin. Thyrses terminal, and from the exterior axills, from oblong to sub-cylindric, very dense, shortpeduncled, drooping. Flowers small, greenish-vellow, very fragrant, collected in numerous small fascicles, on very short, common peduncles. Bractes /inear-fanceofate, one to each fascicle, smaller ones to the proper pedicels. Calvx about five-toothed, villous. Corol; tube cylindric, more than twice the length of the calvx. Border five-parted, pitcher-shaped, length of the tube. Filaments short, inserted into the mouth of the tube. Anthers sagittate, hid in the pitchered border. Germ two-celled. Style twice the length of the corol. Stigma globular. Capsule inferior, oblong, warty; size of a filbert, two-celled, two-valved, opening from the apex; partition con* - trary, and in this respect only does it differ from Cinchona. Is this a efficient reason to remove it from that family £ C. excelsa, the partition is also contrary, receptacle placed longitudinally along the suture of the partition. in each cell, imbricated upwards, surrounded with a broad, brown, reticulated, membranaceous wing, which is cloven below up the umbilicus, at the base of the seed. Perisperm thin, white, and fleshy. *Embryo* erect, nearly as long as the peris-Cotyledons cordate. Radicle oval, inferior. perm.

PSATHURA. Juss.

Calyx superior, from four to six-toothed. Corol one-petalled; tube short, and hairy within; border from four to six-parted. Germ five-celled; cells one-seeded; attachment infe-

rior, from four to six-celled. *Nut* solitary, one-seeded. *Embryo* erect, and furnished with an ample perisperm,

1. P. borbonica. Willd. spec. ii. 229.

Found indigenous on the Mauritius by Colonel Hard wick e, in flower and seed in the months of August and September; growing to the size of a small tree, with dichotomous branchlets; opposite, short-petioled, entire, smooth, oblong leaves; small axillary and terminal trichotomous corymbs of minute pentandrous flowers. *Germ* five-celled, with one ovulum in each, attached to the bottom of its cell. *Style* short. *Stigma* two-lobed. *Drupe*, the size of a pea, containing as far as five, miciform, rugose seeds or nuts, each in its proper cell.

DENTELLA. Schreb. gen:N. 310.

Calyx five-parted. Corol infundibuliform; segments three-toothed. Capsule inferior, two-celled, many-seeded.

1. D. repens. Willd. spec. i. 972.

Crusta ollse. Caranasci. Rumph. Amb. v. 460. t. 17O.yi 4. Oldenlandia repens. Burm. Ind. 38. t. \b.f. 2.

A native of cool moist places, such as the sha'g banks of rivers, and water-courses.

Root long, rarely perennial. Stems many, creeping, jointed. Leaves opposite, short-petioled, oval, ciliate. Flowers in the divisions of the branches, sub-sessile, small, white. Calyx five-parted; divisions lanceolate. Corol five-cleft; segments linear, three-toothed. Stamens five. Style two* cleft near the bottom. Capsule hispid; receptacles reniform, free, affixed to the middle of the partition.

Obs. Burman's figure of this plant is bad.

PSYCHOTRIA. Schreb. gen. N. 313.

Calyx five-toothed. Corol tubular. Berry inferior, two-celled. Seeds solitary, grooved 011 the interior side.

1. P. asiatica. Willd. spec. i. 931.

Shrubby. *Branches* opposite, smooth. *Leaves* ovatelanceolate, entire, acute, smooth. *Stipules* semi-lunate. *Panicles* terminal, brachiate, crowded. *Anthers* linear. *Berries* oval, ten-ribbed.

A native of the Molucca Islands.

2. P. herbacea. Willd. spec. i. 967. Jacq. Anier. 66. t. 46. Herbaceous, creeping*. Leaves round-cordate. Stipules semi-lunar. Flowers few, terminal on the little erect branchlets.

Karinta kali. R/ieed. Mai. x. 41. t. 21.

Koodi mwnkooni, the vernacular name in Silhet, where it grows in moist places under the shade of trees, &c. Flowering time the months of May and June.

CANTHIUM. Lamarck.

Calyx four or five-toothed. Corol one-petalled, tubular. Germ two-celled, one-seeded; attachment sub-superior. Drupe inferior, two-seeded. Embryo inverse, and furnished with a perisperm.

1. C. angustifolium. R.

Shrubby, armed. *Leaves* lanceolate, lucid. *Flowers* axillary, pentandrous. *Style* length of the corol.

Beng. Kota-mttll?.

A well armed, shrubby, very ramous species, a native of the hills in the vicinity of Chittagong, Silhet, and the whole eastern frontier of Bengal. Flowers from March till July, . and probably the greater part of the year.

Trunk obscure. Branches numerous; young shoots straight,

slender, firm, round and smooth. Spines axillary, expanding*. Leaves on the youngest shoots in single, opposite pairs; on the older branch lets fascicled; all are short-pelioled, lanceolate, entire, long*, taper-pointed, firm and polished, from one inch to two and a half long*, and half or three-quarters of an inch broad. Stipules interfoliaceous, ensifonn. Flowers axillary, several together, small, short-peduncled, greenish-yellow. Calyx acetabuliform, five-angled, five-toothed. Corol; tube short and gibbous; border of five lanceolate segments. JFilaments five, from the fissures of the corol, short. Anthers linear, erect, equalling the border of the corol. Germ inferior, turbinate, two-celled, with one ovulum in each, attached to the upper part of the partition. Style the length of the corol. Stigma large, with a bifid apex. Drupe inferior, "sub-rotund, apex retuse, as in Cparviflorum, smooth, size of a black currant, when ripe yellow, two-celled, though one of the cells is frequently abortive.

2. C. parvifolium. R.

Shrubby, armed, hairy. Leaves oval, entire. Flowers axillary, crowded, pentandrous; tube of the corol globular.

The shape of the leaves alone forbids the supposing of this to. be Plukenet's *Jlmaranthoides indicum*, verticillatum, Parietariee hirsutis foliis aculeatum, &c. *Aim.* 27. *t.* 133../'. 3. Consequently it is neither *JHonetia diacantha Wtlld. spec.* i. 670. nor *Jlzima diacantha*, *Lamark*, *Encyclop.* i. 343.

Is a middling-sized, very rigid, ramous shrub, the tender shoots and under side of the leaves hairy. The inside of the tube of the corol is surrounded with a circle of straight, white bristles of its own length, inserted round its mouth, and pointing to its bottom. Flowering time the rainy season.

3. C. parviflorum. Roxb. Corom. i. 3. t. 51. Gcert. sem. iii. >93. t. 196.

Shrubby, thorns opposite, horizontal. *Leaves* opposite and fascicled. *Flowers* axillary, tetrandrous.

Kanden kara. RhcecL Mai. v. 71. /. 36. Weberå tetrandrn. Wxlld. spec. i. 1224. Teling. Bnhj&oo k/sra.

This is one of the most common, scraggy, thorny bushes on the coast; every soil and situation suits it. Flowering time the hot season; the seeds ripen in September.

Trunk scarcely any, but branches innumerable, the smaller are regularly cross-armed, and spreading. Thorns simple, opposite, above the ax ills, spreading, cross-armed, very strong and very sharp; in luxuriant plants they are sometimes three-fold. Leaves on the young shoots opposite, on the older branch lets fascicled, short petioled, r&Hexed, ovate, entire, smooth; size various. Stipules connecting, subulate. Umb el let a, or rather raceme* opposite, below the thorns, small, about the length of the leaves. Peduncles and pedicels smooth, Flowers small, yellow. Calyx above, four-toothed; round. teeth acute; permanent. Corol one-petalled. Tube gibbous, short; month downy. Border four-parted; segments ovate, expanded. Filaments four, in the mouth of the corol. thers ovate. Germ inferior, globular, two-celled, with one ovuhim in each attached to the axis above its middle. Style rather longer than the tube of the corol. Stigma headed. Drupe obcordate, laterally compressed a little with a hollow on each side, size of a cherry, crowned with the remaining calyx, fleshy, smooth, yellow, two-celled. Nuts two, one in each cell, oblon«\ one-celled. Embry Oinverse, sub-cylindric, a little curved, and furnished with a soft amygdaline perisperm.

Obs. The bush makes excellent fences. The ripe fruit is eaten by the natives. The leaves are universally eaten in curries; on that account the plant Jias the additional name *kura* which means esculent.

4. C. didymvm. Gtert. carp. iii. 94. t. 196.

Sub-arboreous, unarmed. *Leaves* oblong and oval. *Cymes* axillary, sub-sessile. *Flowers* peiitardrous. *Style* longer thau the cylindric tube of the corol, with a mitre-shaped stigma.

Teling. Naum-papttla.

Webera cymosa. Willd. spec. i. 1224.

A small tree, a native of the interior mountains of the coast of Coromandel.

Bark smooth, on the young shoots shining green. Leaves opposite, short-petioled, oval, firm, smooth, of a shining deep green, about six inches long; on the under side in the axills of the principal veins are to be found the characteristic glands of the Gardenias, they are smooth and hollow; in the Gardenias they are generally surrounded with a hairy margin. Stipules within the leaves. Cymes axillary, short-peel uncled, simple, or compound, bearing many small, white, very fragrant flowers. Calyx and corol as in the family. Filaments five, short, somewhat crooked, inserted into the downy throat of the tube of the corolla. Anthers incumbent, oblong. Germ inferior, globular. Style nearly twice the length of the tube. Stigma large, mitre-shaped. Pericarp a top-shaped berry, the size of a small cherry, when ripe black and shining*, crowned with the calyx. Seeds two.

5. C. moluccanurn, /?.

Pentaudrous, unarmed. Leaves oblong. Style length of the short gibbous tube of the coroL Stigma turbinate.

A native of the Molucca Islands.

VANGUERIA. Juss.

Calyx five-toothed. Corol one-petalled; tube gibbous; mouth frbut with hairs. Germ five-celled; cells one-seeded; attachment interior. Berry oinferior, five-seeded. Embryo inverse, and furnished with a perisperaf.

1. V. spinosa. R.

Shrubby, armed with decussate spines.

JJeng. Muyna.

A small tree or large bush; a native of Bengal and also of

China, I presume, as there are some plants in the Botanic garden brought thence. Flowering time the beginning of the hot season; fruit ripe in three or four months afterwards.

Trunk irregular, which with the branches is armed with strong, straight, opposite, or three-fold thorns. Leaves opposite, and three-fold, short-petioled, ovate-oblong, entire, smooth, from three to four inches long. Stipules opposite, and three-fold, within the leaves as in Gardenia. axillary, fascicled on a common short peduncle, with proper, longer pedicels, small, of a pale greenish colour. Calyx five* toothed. Corol one-petal led. Tube sub-globular; mouth shut with much long, white hair; border generally five-part-, ed, spreading. Filaments five, very short, inserted into the mouth of the tube of the corol. *Jlnthers* small, cordate. *Germ*. inferior, turbinate, four or five-celled, with one ovulum in* each, attached to the axis a little above the middle. so long as to elevate its large glandular four or five-lobed stigma just above the anthers. Berry or rather drupe round, turbinate, size of a cherry, smooth, when ripe yellow, succulent, and edible. Seeds four or five, obliquely oblong, inner edge narrower and straight. Integuments two; exterior a hard, dark-coloured nut; interior membranaceous. Perisperm conform to the seeds, amygdaline. Embryo inverse, a little curved. Cotyledons scarcely so long as the radicle, lanceo-Radicle columnar, superior. late.

Obs. The fruit is eaten by the natives. Its flowers come exceedingly near to those of my *Canthium parviflorum*₉ an does also the ^f hole habit of the plant.

LONICERA. Schreb. gen. N. 319.

Corol one-petalled, irregular. Berry inferior, two-celled, many-seeded.

1. L. quinquelocnfaris. Hardwicke in AsiaU Res. vi. 351. Shrubby. Leaves petioled, elliptic, acute, entire, villous.

Peduncles axillary, solitary, short, two-flowered. Berries five-celled.

Found by Colonel Hardwicke,in vallies about Adwance on his tour to Shreenr/gMra, and there called *Lung-phool* by the natives.

TRIOSTEUM. Schreh. gen. N. 320.

Calyx five-parted, equalling the one-petalled corol. Corol with the border divided into five sub-equal segments. Berry inferior, one-celled. Seeds from three to five, pyrenous.

1. T. hirsntum. JR.

• Shrubby, hirsute. *Leaves* short-petioled, lanceolar, entire, acuminate, *lowers* axillary, sessile, much shorter than their numerous lanceolar bractes. *Berries* five-seeded.

A native of Chittagong, where it flowers during the hot season; seed ripe in June and July.

COFFEA. Schreb. gen. N. 314.

Corol funnel-shaped. Germ two-celled, one-seeded; attachment of the ovula interior. Berry inferior, two-celled, one-seeded. Seeds arilled. Embryo erect, and furnished with a perispenn.

1. C. tetrandra, 7?.

Shrubby. Leaves broad-lanceolar, acute, lucid. Stipules bifid. Peduncles axillary and terminal, several together, long, slender, one-flowered. FlovSers tetrandrous. Corol with long, slender tube and border.

JBeng_m Chilmaree.

An erect, slender, ranioua shrub, a native of Silhet, Chittagong, and the whole east border of Bengal, where it flowers iu May, and the seeds ripen in October and November.

Branchtlets opposite, round, smooth, and slender. Leaves opposite, short-petioled, broad-lanceolar, entire, acuminate, smooth,- and glossy on both sides; from four to five inches long-, and scarcely two broad. Stipules generally bifid. Segments subulate. Peduncles terminal and axillary, several together, long¹, slender, straight, one-flowered. Calyx four or five-toothed. Tube of the corol long*, slender, somewhat clavate, smooth; segments of the border four or five, length of the tube, ensiform, spreading¹. Filaments scarcely any. Anthers four or five, linear, inserted within the tube, their apices even with its mouth. Germ inferior, turbinate, two-celled, with one ovulum in each cell, attached to the middle of the partition. Style two-cleft. Stigmas simple. Berry inferior, round, size of a small cherry, smooth, when ripe blackish purple, and with but a small portion of pulp, one or twocelled; generally one-celled, the other cell being* abortive, and then the berry has an oblique direction. Seeds solitary, when the berry is two-celled nearly round; when one-celled, flat on one side and convex on the other, in which case there is a deep round cavity on the flat side. Perlsperm conform to the seed, horny. Embryo erect, very small, and lodged in an oblique direction in the middle of the convex side of the perisperm, with the two reniforin cotyledons pointing up and in, the oblong-radicle out and down.

2. C. arabica. Willd. spec. i. 973.

Leaves oblong, ovate, acuminate. Flowers axillary, crowded. Stamina without the tube of the quinquifid corol.

Coffee. FothergiL's Works, ii. p. 279. t. 3.

A native of Arabia, and now common in both Indies. In Bengal it blossoms in jflarch, and the berries ripen in December.

In the West Indies Coffee plants are said to produce on an average from six to sixteen ounces of clear coffee annually, fother gill's Works, ii. p. 323. At St. Domingo they calculate on one pound per plant. At Jamaica one pound and a

half, and at Terra-Firma two pounds, where the plants stand in quincunx, at from four to eight feet according* to the richness of the soil. *English Translation of Depon's Travels in South America*, i. 434. J 809-10. Two middling plants at the age of six or seven years produced in the Botanic garden in one year or crop, seven pounds of the dry berries which gave three pounds of clean coffee, equal to the Jamaica produce.

3. C. bengalensis. A.

Shrubby. Leaves opposite, oblong. Flowers axillary. Segments of the corol oblong. Filaments none. Anthers long and within the tube.

This is evidently distinct from C, arabica. It is found indigenous amongst the mountains of the north-east frontier, chiefly about Silhet, and from thence brought many years ago to Calcutta where it was for some time much cultivated under the idea of its being the real coffee of Arabia. It is now neglected, being of an inferior quality, and not productive; however the number and beauty of its flowers entitle it to a conspicuous place in the flower garden. Flowering time the beginning of the hot season.

. Root ramous. Trunk short, and clothed with innumerable, horizontal, opposite branches, and branchlets, to the surface of the earth, forming in our gardens, a pyramidical bush of from four to six feet in height. Leaves opposite, sub-sessile, from ovate to oblong; smooth on both sides, obtuse, pointed as in C. arabica (both are now before me just taken from the plants,) here are also pores in the axills of the nerves on the under side. Stipules within, subulate. Flowers in the axills of the leaves, and of the young shoots, sub-sessile, pure white, generally from one to three, though sometimes more. Margin of the calyx crowned with an undetermined number of minute points. Corol contorted; divisions of the border oblique, oval. Filaments none. Anthers long, linear, within the tube, with their incurved apices just above its mouth.

Germ turbinate. Style not quite half the length of the tube. Stigma two-cleft; divisions nearly as long as the style. Berry two-seeded, size of a small cherry, when ripe black.

4. C. pedunculata. R.

Shrubby. *Leaves* elliptic, sub-sessile, smooth, and entire. *Peduncles* terminal, and axillary, many together, long, one-flowered. *Stamina* within the slender, smooth tube of-the corol.

A native of the Moluccas.

5. C. angustifolia. R_m

Leaves lanceolate, entire, firm, and polished. Panicles axillary, mouth of the corol hairy; segments of the border linear, longer than the tube, and about as long as the filiform, exsert anthers.

A native of Pigeon Island, one of the Malay Archipelago.

MORINDA. Schreh. gen. N. 317-

Floxcers aggregate. Calyx superior, five-toothed. Corol funnel-shaped. Germ from two to four-celled; cells one or two-seeded; attachment interior. Stigma two-cleft. Berries aggregate. Embryo erect, and furnished with a peri* sperm.

1. M. citrifolia. Willd. spec. i. 992. Gasrt. carp. i. 144.

Arboreous, with a straight trunk, *leaves* oblong, lucid. *Peduncles* on the upper side of the branchlets, solitary, op* posite to every other solitary leaf, with a pair between. An^* *liters* half hid in the mouth of the tube. *Fruit* ovate, glossy, white.

Cada-pilava. *Rheed. Mai.* i. 97. t. 52. good. Banducus latifolia. *Humph. Amb.* iii. 158. f. 99,

An elegant small tree, with straight trunk, and numerous, decussated, assurgent branches, a position they generally take from the weight of the fruit, and constant exuberant foliage. From Pegu it has been introduced into the Botanic garden at Calcutta, where it is in constaut fruit, and flower the whole year. It does not appear to be a native of Bengal, nor did I ever meet with it on the coast of Coromandel; but the species which I formerly considered as cilrifolia is common in both countries, and the description and drawings thereof were sent to the Honourable the Court of Directors. That species, which however is quite distinct, I now call tincloria, as it is the sort most in use. for dying.

Bark of young trees, or their trunk, light ash-coloured and smooth; young shoots somewhat four-cornered, smooth and lucid. Leaves opposite to each other, or to a peduncle, shortpetioled, from oblong to oval, lucid, entire, rather obtuse; from five to ten inches long, and from three to five broad. Stipules large, semi-lunar, entire, smooth. Peduncles solitary, opposite to a solitary leaf on the upper side of the branchlets, erect, short, cylindric, smooth, each supporting a small aggregate head of small white flowers. Calyx au entire margin round the apex of the germ. Corol funnel-shaped: mouth of the tube hairy. Border five-parted, segments lanceolate, acute. Filaments five, woolly, inserted into the tube of the corol, a little above its middle. Anthers linear, erect, Germs firmly united, single, two-cellhalf hid in the tube. ed, each cell containing two ovula, attached to opposite ends of the wings of the large, thick, fleshy partition. Style length of the tube of the corol. Stigma two-cleft. Berries compound, size of a pullet's egg or even longer, obtuse, when ripe pale white, polished, and succulent, as described and figured by Gartner.

Obs. Its roots are employed by the natives like those of several other species to dye red.

2. M. tinctoria. R.

Leaves oblong, sub-sessile, opposite to each other, or to the solitary one-flowered peduncles. Stamina enclosed. Stiff-9 ma exsert.

Sans. Uchyoota.

Hind, and Beng. Ach. See Asiat. Res. iv. 35—44. Teling. Tagaroo.

This small tree I have found pretty common in every part of India, where I have been. It is in flower and fruit the greater part, if not the whole of the year.

Trunk seldom straight, and only a few feet in height, but supporting a pretty large, ramous, shady head. Bark covered with an ash-coloured, deeply-cracked, corky crust. Leaves opposite, except where there is a peduucle, in that case, solitary, the peduncle occupying the place of the other leaf, short-petioled, oblong, entire, smooth on both sides, but not lucid like citrifolia, pale underneath, from six to ten inches long. Stipules within the leaves, as in the other Rubiacea. Peduncles leaf-opposite, expanding, about an iuch long, supporting an oval head of aggregate, pure white, Jasmine-like, fragrant flowers. Calyx as in the genus.

The compound fruit is well described by Gaertner in his description and figures of M. citrijblia.

Obs. The bark of the roots is used to dye red, the colour is fixed with alum, but it is neither bright nor durable. In some parts of India it is cultivated for the sake of the roots; see AsAat. Res. iv. In the Circars the dyers use the bark of the fresh roots bruised and gently boiled in water for a short time, the cloth or yarn is prepared in a cold infusion of the Powdered gall of Terminalia Chebula, in milk and water; 'it 's then dried and moistened with alum water, and again dried, and receives from the above decoction, a pretty bright, but fugitive red.

The green fruits are picked by the Hindoos, and eaten with their curries. The wood is hard pud very durable, variegated with red and white, it is employed for gun-stocks iu preference to all other kinds.

3. M. bracteata, JR.

Arboreous, straight. Leaves opposite to each other or to a peduncle, oblong, polished. Anthers within the woolly mouth of the tube. Stigma exsert. Heads bracted.

Bancudus angustifolia. Humph. Amb. iii. /?. 157. t. 98. has the process of the calyx of my plant, but I cannot say they agree in other respects.

It is a native of the Ganjam district; from thence Mr. Snodgrass sent the seeds to the Botanic garden at Calcutta, where the tree thrives well, and is in blossom during the hot and rainy seasons.

Trunk straight. Branches opposite, decussate, smooth. Leaves opposite to each other or to a peduncle, short-petioled, obloug, acute, smooth, polished, deep green on both sides, margins entire, length from six to twelve inches. large, with semi-circular apices. Peduncles solitary, and always opposite to a leaf, round, smooth, from one to two inches long, supporting a single, small head, of small pure white flowers. In tinctoria and exserta the peduncle is often in the axil! of a small leaf, which stands opposed to the large one. Calyx; perianth proper 9 a tumid margin round the crown of the germ, frequently a small portion thereof grows to be a long linear-lanceolate, permanent leaflet. funnel-shaped; mouth of the tube very woolly. Filaments JInthers linear, lodged amongst the wool, but entirely within the mouth of the tube. Stigma two-cleft, and elevated about the mouth of the tube. Berry aggregate, size varying from that of a crab-apple, to that of a small nutmeg, single berries several, obovate, size of a pea with a round eye on the apex. Nut or seeds four, the shell or cover uniformly convex on the outside, and on the inside concave, with an elevated convexity near the top which covers a void cell, the fertile cell occupies the whole length, and nearly the whole

breadth of the nut, (for so I may call the hard, smooth, brown integument of which it is formed,) but is much compressed,

Obs. I have not learned that the root of this species is used in dyeing, but have no doubt of its possessing qualities similar to the roots of all the other species of the genus that [have yet met with.

4. M. exserta. R.

Arboreous. *Leaves* opposite to each other or to a peduncle, ovate, pointed. *Stamens* above the tube. *Stigma* rather within.

 $Beng_m$ Bhun-autch, or Bwn-aal.

. A tree of rather small stature; a native of Bengal. Flowering- time the hot and rainy season; seed ripe in about twelve or thirteen months afterwards.

Trunk from six to twelve feet high, often variously bent, and covered with deep cracked, spongy, ash-coloured bark. Branches spreading in every direction; branchlets opposite, smooth; young shoots somewhat four-sided, in some plants smooth, in others villous. Leaves #J>posite, short-petioled, oval, or ventricose-oval, pointed, margins entire, but waved; in some plants smooth, of a deep shining green on both sides; in others downy, from four to six inches long, and from three to four broad. Stipules interfbliaceous, entire, emarginate or bifid. Peduncles generally solitary, though sometimes there are two together, leaf-opposed, or in the axill of a small leaf, opposed to one of the usual size, round, smooth, about an inch long, each supporting a round aggregate head of many pure white, Jasmine-like flowers. In very luxuriant young plants I have found the peduncles two or even three-cleft, with a head of flowers on each division. Calyx scarcely any. Corol funnel-shaped. Border of five, equal, lanceolate, fleshy, expanding divisions. Filaments inserted on the mouth of the tube, in the division of its margin; erect. Anthers linear. Germ beneath, four-celled, with one ovule. Style length of the tube of the corol. Stigma even with its mouth and two-

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cleft. *Berry* (rather drupe) aggregate, oval. *Seeds* or *nut* regularly four and distinct to each proper berry, forming a square, inserted pyramid, each one-seeded. Here the abortive cell is scarcely visible.

Obs. This species is immediately known by its exsert stamens, half-concealed stigma, and broad-pointed leaves. In all the other species figured and described by me, viz. citri* folia, tinctoria, bracteata, multiflora, and angustiflora the stamens are enclosed, and the style exserted.

5. M. multiflora. R.

Sub-arboreous. *Leaves* opposite, oblong-ventricose, downy. *Peduncles* terminal and leaf-opposed, compound. *Anthers* within; *stigma* exert.

Aal the vernacular name at Nagpore.

A native of Berar. From Nagpore the seed was sent by Mr. Colebrooke, Resident at the Court of Rt/ghoojee Btcnsla, to the Botanic garden at Calcutta in 1801. By the close of the same year the plants were in blossom, and in one year more they have grown to large ramous shrubs, and now in eight years they are small trees and in constant flower; I may farther remark that notwithstanding all the other four species of *Morinda* already described and figured by me, grow to be small trees, they generally blossom the first year of their growth if the soil is good and the plants taken good care of.

Leaves very short-petioled, opposite, or opposite to a peduncle, oval, tapering at each end, acute, margins waved; downy on both sides, particularly underneath; from four to six inches long, and from two to three broad. Stipules interfoliaceous. Peduncles variously disposed, viz. axillary, opposite to a leaf, and terminal, one or more from the same place, and often compound; round, villous, from two to four inches long. Heads sub-globular, many-flowered. Receptacles, calyx and corol as in the genus. Filaments short. Anthers linear, their apices even with the mouth of the tube of the corol. Stigma two-cleft, and extended considerably beyond

the anthers*. "Berry; rather drupe, aggregate, ovate-oblong; surface very unequal, size of a large mulberry. Seeds or nuts regularly four to each proper berry or drupe of the com*, pound fruit, obliquely wedge-shaped; three-celled, two of them empty, the third with a single seed, as accurately described and figured by Gcertner in Morinda dtrifblia.

Obs. This plant is cultivated about Nagpore as the other species are in various other parts of India, and for the same purpose, (see *Asiat. Res.* iv. 35—44.)

6. M. angustifolia. /?.

Shrubby, erect. Leaves opposite to each other or to a peduncle, lanceolar, bullate. Heads solitary. Flowers numerous. Anthers concealed deep within the tube; stigma exsert. Berries distinct, on a glomerate receptacle, succulent, four-seeded.

An erect, thinly branched shrub, was found at Chittagong by Dr. Buchanan, and from thence sent to the Botanic garden at Calcutta in 1798, where it blossoms in March, and the seeds ripen in May.

Trunk straight, with a few erect branches. Bark light ash-coloured; height of the whole plant about four or five feet. *Leaves opposite, or single when a peduncle occupies the place of the other, sub-sessile, recurved, lanceolate, bullate, smooth, entire, about six inches long and less than two Stipules opposite, sub-cordate, interfoliaceous, united M'ide. into a ring and remaining long after their respective leaves Peduncles solitary, short, seemingly terminal when they begin to blossom, but soon after the branchlet shoots out from between each peduncle and its respective opposite leaf, which marks their proper situation to be oppositifolius. Heads solitary, globular, many, viz. from fifty to a hundredflowered. Flowers pure white, in size and shape like those of the common Jasmine. Calyx merely an almost entire, marginal ring round the base of the tube of the corol. Corol funnel-shaped. Filaments short, inserted rather below the

middle of the tube of the coroi. Anthers linear, hid in the middle of the tube. Stigma exsert, two-lobed. Berries in general distinct, but a small proportion of them only comes to perfection, sessile, the size of a large pea, succulent, deep shining black, with very dark-coloured pulp. Seeds four; each two-celled, with the inner cell large and empty.

Obs. The root of this shruh is also used in dyeing by the natives of India where the plant is in plenty.

7. M. scandens. /?.*

Shrubby, scandent; *leaves* oblong, lanceolate. *Umbels* terminal, simple, berries round, three or six-seeded.

A stout scandent shrub of several fathoms in extent, found common in the hills which form the east side of Point de Galle Bay or harbour. In flower and fruit in March, (1813.)

LORANTHUSA Schreb. gen. N. 600.

Calyx uncertain. Corol generally one-petalled, and often irregular. Germ inferior, one-celled, one-seeded; attachment superior. Berry one-seeded. Embryo inverse, and furnished with a perisperm.

1. L. bicolor. Koxb. Corom. ii. 19. tab. 139.

Leaves opposite; oblong, smooth. Racemes axillary. Corals irregular, five-cleft. Stamens five. Berry oblong.

Scms. V?mda,:j: Vrikshadwnee, Vrtkshubhttksha, and Vrikshurooha.

- * This plant was discovered by Dr. Roxburgh on his last voyage to England^ and the accompanying short description was sent to me from Ceylon.—W. C.
- t This genus is usually placed in Hexandria Monogynia, but as Dr. Roxburgh in the last copy he made of the Flora Indica, before he left this country, removed it to Pentandria, it is printed where he then placed it.—W. C.
 - t Sir William Jones thought Vtmda to be the general term for

Hind, and Beng. Bura-manda.

Yellinga-wadinika of the Telingas; (wadinika means parasitical.)

Is always found growing upon the branches of various kinds of trees, and is very rainous. *J?loicers* during the greatest part of the year, and is highly ornamental.

Trunk scarcely any. JSranches numerous, ascending, woody; bark gray. Leaves nearly opposite, sessile, or very short-petioled, from oval to linear-lanceolate, waved, entire, reclined, veins scarcely any; from three to five inches long, and from half an inch to an inch and a half broad. Racemes axillary, single, simple, sub-erect, many-flowered. in size and appearance very much like those of the honeysuckle. Bractes, a small, concave, cordate one, pressing on the base of the germs on one side. Calyx, there is no other perianth of the fruit than the above-mentioned bracte; that of the flower is cup-shaped, entire, permanent. Corol one-Tube long', a little curved, swelling from the bottom to within a third of the mouth, then contracting a little; border five-parted, upper fissures much the deepest; segments linear, reflexed towards one side. Filaments five, from the base of the segments of the corol, short. Anthers linear. Germ'inferior, naked. Style length of the corol. clubbed. Berry inferior, crowned with the remaining calyx, oblong", smooth, pulpy, one-celled. Seeds single.

Obs. This is a handsome looking parasite, bearing a great number of very beautiful flowers; its foliage also looks very well. All that part of the branch of the tree above where it grows, becomes sickly and soon perishes.

It should be compared with L. *longijlorus*. It differs from Geertner's *Lonicera zeylanica* in not having the calyx of the fruit, and in having only five parts in the corol; but in the racemes they agree. I cannot reconcile it with *h.fal*-

all *parasitic* plants. It is probable that all the names here cited are so.—W. C.

catus of Linneeus's supplementum, nor with lajloniceroides, Linn, for here the inflorescence bears no resemblance to an involucred umbel. Neither can it be L. pentandrus, as there the leaves are alternate, with petioles nearly as long as the racemes; in short I cannot well reconcile it to any of the hitherto described species. It unites the two genera of Loranthus and Lonicera. In Bengal I have found it with leaves from five to six inches long, and four or five broad.

2. L. Scurrula. Willd.spec.ii 232.—Roxb. Corom. ii. 19. tab. 140.

Leaves opposite, ovate, underneath downy. Flowers axillary, fascicled. Corol irregular, four-cleft; stamens four. Berries turbinate.

The Telingas have no other name for this than *Wadinika*. It is also a parasitical shrub, but considerably smaller than the last and much more scarce; grows upon branches of trees in the same manner. Flowers during the wet season.

Leaves opposite, petioled, cordate, scolloped, covered with soft, white down underneath; about two inches long, and one and a half broad. Peduncles numerous, collected in the axills, one or more-flowered. Flowers considerably smaller than in the last species, of a rusty gray colour, and covered with gray farinaceous dust. Bractes one, pressing on the germ as in the last. Calyx of the fruit no other than the bracte of the flower, as in the former. Corol one-petalled; tube swelled towards the base. Border four-parted, upper fissure deepest; division linear, reflexed; stamens four, the pistil as in the last species. Berry top-shaped, one-seeded.

3. L. globosus. R.

Leaves opposite, oblong, smooth; spikes axillary. Corols regular, six-cleft. Berries round, oval.

Kenneli-ittikauni. Rheed. Mai. x. 9. tab. 5.

Beng. fchhota-manda.

A ramous shrubby parasitic, like the two species already

described; 'grows common on trees throughout Bengal. Flowers all the year.

Leaves generally opposite, though sometimes alternate, and also three-fold, short-petioled, oblong, smooth, entire, of a thick leathery texture, almost veinless; from two to three inches long. Racemes, or rather spikes, axillary, or between the leaves, or from the old axills, generally solitary, though sometimes there are two or even three together, much shorter than the leaves* Flowers opposite, from three to six pairs on the spike, sessile, small, greenish orange colour. Bractes Calvx. Perianth of no other than the perianth of the fruit. the fruit inferior, two-leaved, the under and exterior cordate, the inner two-toothed; that of the flower no other than the circular margin of the pit which receives the flower. Corol one-petalled; tube gibbous, six-sided. Border six-parted, divisions alike, and cut equally deep, reflected. six, erect, inserted into the base of the divisions of the corol. Germ ovate. Style the length of the stamens. Stigma large, glandular, naveled. Berry inferior, round, oval, size of a pea, smooth, when ripe the pulp is vellow, clammy, and elastic, which makes them adhere to the branches of trees where they germinate, resting on three permanent calveiform bractes and crowned with a ring where the corol stood round the permanent base of the style, one-celled. solitary, conform to the berry. Integument single, white, touch, and clammy, marked with twelve whitish striae. Perisperm conform to the seed, six-grooved, green. Embryo central, inverse, straight, pale green, nearly as long as the perisperm. Cotyledons two, linear-oblong. Plumula minute. Radicle sub-cylindric, length of the cotyledons, superior.

4. 'L.ferrugineus. R.

Young shoots as well as the under side of the oval leaves long, slender, tetrandrous, regular; flowergfruitg and pedicels clothed with much ferruginous pubescenoe.

Found by Mr. W. Roxburgh growing on trees in the forests of Pulo Pinang.

6. L. involucratus. /?•

Leaves opposite, ovate-cordate, smooth. Umbellets axillary. Involucres four-leaved, four-flowered; flowers regular, pentandrous.

A stout parasitical shrub, found on trees in the forests on the eastern border of Bengal, where it blossoms great part of the year.

Branches while young clothed with smooth, shining, darkbrown bark. Leaves opposite, short-petioled, ovate and ovate-cordate, sides often unequal, as in most of the plants of this genus, entire, smooth on both sides; from three to four inches long. Umbellets axillary, crowded, sub-sessile, much shorter than the leaves. Involucres four-leaved, four-flowered; leaflets ovate-lanceolate, smooth, entire. Flowers sessile, pretty large, equalling the involucre. Calyx superior, short, five-toothed, villous. Corol; tube widening toward the mouth, villous. Border regular, five-parted; segments linear, revolute. Filaments equalling the segments of the corol, and inserted on them below their middle. Anthers oval. Germ oval, sericeous. Style rather longer than the corol. Stigma two-lobed.

6. L. ampullaceus. R.

Leaves opposite, oblong, polished. Racemes axillary, simple. Flowers calycled, regular, hexandrous; tube of the corol gibbous; Berries long, oval.

Found on trees in the forests of Silhet, but seems to prefer the mango tree to all others. Flowers in the dry season, probably the whole year round.

Stems as in our other Indian species, the size and shape very uncertain, but numerous, bifid, trifid, or quadrifid, smooth 5. brandies and branchlets spread in all directions. Leaves opposite, short-petioled, oblong, entire, smooth, from

three to four inches long, and generally less than two in breadth. Racemes axillary, solitary, or in pairs, much shorter than the leaves. JFlowers opposite, short-pedicelled, pretty large, greenish vellow. *Bractes* oval, one at the base of each pedicel, and two pressing the base of the germ like an inferi-Calyx superior, entire, rotate. Corol or, bilabiate, calyx. regular; tube gibbous; border six-cleft; divisions re volute, Filaments six, from the mouth of the somewhat spatulate. tube of the corol, length of its segments. Anthers ovate. Germ inferior, one-celled, and containing one ovule attached to the top of the cell. Style longer than the corol. Berry inferior, long-oval, smooth, yellow, size of a currant, one-celled. Pulp pale yellow, very clammy. Seeds solitary, ovate. Integuments two; exterior marked with six longitudinal fibres; inner membranaceous. Perisperm con* form to the seed, six-grooved, green. Embryo cylindric, inverse. Cotyledons short, semi-cylindric. Radicle cylindric, with a turbiliate apex rising above the perisperm, inverse.

7. L. clavatus. R.

Leaves opposite, broad-lanceolate. Flowers axillary, few together, tetrandrous; carols irregular, four-cleft; berries clavate.

A delicate, shrubby parasite; found in the Silhet district growing on *Averrhoa Carambola*.

8. L. pentapetalus. R.

Leaves opposite, from lanceolate to oval-cordate, and obliquely attenuate, smooth. Racemes axillary. Flowers pentandrous; petals five, with enlarged, three-sided base.

A large, very ramous, shrubby plant, found growing on various trees in the forests of Silhet. Flowers appearing about the beginning of the rains in June.

Branches and branch lets columnar and quite smooth. Leaves opposite, petioled, from lanceolate to ovate-cordate, oblique]y attenuate from the middle to the apex, entire,

smooth, from three to four inches long, and about two broad. Racemes axillary, solitary, or paired, straight, simple, often as long as the leaves, smooth. Flowers very numerous, shortpedicel led, small, scattered, red. Bractes, an oval one embraces the base of the germ on the outside. Calyx superior, rather small, sub-entire, smooth. Petals five, the base of each swelled out into a fleshy, three-sided body, giving to the bottom of the corol a globular form and meeting in the centre, leaving only a small aperture for the style; above tongueshaped, and recurved. Filaments five, inserted on the petals; anthers obovate. Germ oblong, one-celled, and containing one ovule, pendulous from the top of the cell. Style four-sided, jointed, or appearing so near the middle. Stigma a little Berries oblong, smooth, greenish-yellow, oneenlarged. seeded.

HAMILTONIA. Roxb.

Calyx five-cleft. Corol infundibuliform. Germ one-celled, five-seeded; attachment of the ovula inferior. Stigma five-cleft. Capsules inferior, one-celled, five-valved. Seeds five, lattice-arilled. Embryo erect, and furnished with a perisperm $_{\rm N}$

1. H. suaveolens. R.

Shrubby. Leaves opposite, broad-lauceolar. Flowers in terminal, umbelliform heads.

This charming, fragrant-flowered shrub was found wild on the RajmtiHU hills by Mr. William Roxburgh, jun. and by him introduced into the Botanic garden at Calcutta, where it blossoms during the cold season. It is named after Mr. William Hamilton of the Wood-lands near Philadelphia in North America, an eminent botanist, and the first who was at the expense of erecting a conservatory in that country for the preservation of the plants of a hot climate. To this gentleman the Botauic garden at Calcutta is under die greatest obligation for having enriching it witli many of the choicest plants of the New World.

Stem stout, shrubby; branches opposite, cross-armed, ascending. Bark of the ligneous parts ash-coloured, with dark purple specks; general height from six to ten feet. Leaves opposite, short-petioled, broad-lanceolate, smooth, entire, from three to six inches long. Stipules or rather connecting membranes broad, ensiform. Flower* sessile, in terminal corynibiform heads, on short, trichotomous branchiets, numerous, pure white, and delightfully fragrant. Bractes ensiform, villous; several surrounding each fascicle or head of flowers, as well as intermixed amongst them. Calyx superior, five-cleft, permanent; divisions subulate. Corol one-petalled, funnel-shaped. Tube slender, widening a little towards Border consisting of five, spreading, oblong dithe mouth. Filaments five, very short, inserted into the tube of visions. the corol a little within its mouth. Anthers half-erect, li-Germ inferior, one-celled, and containing five distinct chambers attached to the bottom of the cell, which now, thick and succulent, become the net-like aril of the ripe seed: each chamber contains one ovulum attached to its bot-Capsules the size of a pea, oblong, crowned with the calyx, one-celled, five-valved, opening from the apex. Seeds five when all come to maturity, which is very seldom the case, their shape differing according to the number attached to the Wtomof the cell, each enveloped in a beautiful, dry net-like aril, integument single, dark blackish-brown, friable. Pe-***perm in very small quantity, indeed it may be called an inner integument. Embryo conform to the seed, erect; cotyledons two, cordate, foliaceous, with a doubling down the Plumula minute. Radicle oblong, inferior, pointmiddle. ing to the umbilicus. Compare with Psathura, GarU carp* iii. 83. t. 194.

2. H. pilosa. R.

Shrubby, straight, exceedingly hairy* Leaves opposite,

short-petioled, lanceolate, entire. *Flowers* in axillary fascicles, mixed amongst many long-, very hairy bractes.

A native of the Moluccas.

MUSSAENDA. Schreb. gen. N. 326.

Calyx five-cleft. Corol funnel-shaped. Stamina within the tube. Germ inferior, two-celled; cells many-seeded; attachment of the ovula two jugiform receptacles, inserted on the partition. Stigma two-cleft. Capsules two-celled, three-valved. Seeds numerous.

1. M. corymbosa. Roxb.

Shrubby, erect. *Corymbs* terminal. *Leaves* oblong* smooth.

Native of Ceylon, Malabar, &c. In the Botanic garden at Calcutta it grows to be a stout, rigidly erect, ramous shrub, and is in blossom during the rains, at which time few plants surpass it in beauty.

Trunk straight; branches many, decussate. Bark smooth. Leaves opposite, short-petioled, oblong, pointed, entire, smooth on both sides, from six to nine inches long, and from three to four broad. Involucre or floral leaves Iong-petioled, generally one to each primary division of the corymb, of an oval form, acute, pure white, smooth on both sides, five Petioles of the floral leaves long, slender, or seven-nerved. drooping, inserted on the apex of the germ, forming one of the divisions of the calyx. Stipules within the leaves, from a broad cordate base, tapering to ati acute point. Corymbs terminal, compound and decompound, smooth. Bractes ovate-lanceolate. Flowers numerous, and uncommonly beautiful. Calyx five-parted; divisions erect, bristle-shaped, smooth. Tube slender, more than twice the length funnel-shaped. of the calyx, swelled a little about the middle, where the stamens are lodged; mouth closed with orange-coloured hair. Border of five ovate, fleshy, pointed, spreading division^

on the upper side convex, villous, of a deep but bright orange colour, and greenish underneath. *Filaments* five, short, inserted into the middle of the tube. *Anthers* linear, hid in the tube. *Germ* inferior, two-celled; *ovula* numerous, on a pedicelled jugiform receptacle, projecting above the insertion and far below it. *Style* half the length of the tube of the corol. *Stigmas* two. *Capsule* oval, two-celled, two-valved. *Seeds* numerous.

Obs. In some parts of India the white floral leaves are brought to table as an esculent herb.

2. M.jrondosa. Willd. sp. i. 997.

Shrubby, erect. Leaves oblong, acuminate, villous. Panicles terminal, dichotomous, villous.

M. Zeylanica. Burnt. Zeyl. 165. t. 76.

Belilla. Rheed. Mai. ii. 27. tab. 17.

A native of various parts of India; in the Botanic garden at Calcutta it grows to be a pretty large shrub, but with few branches, at least when compared to the preceding species, but the flowers, which appear about the end of the rains and beginning of the cool season, are larger and of a brighter colour.

BAEOBOTRYS. Schreb. gen. N. 318.

Calyx five-parted. Corol tubular. Germ semi-inferior, one-celled, many-seeded, attached to a free, inferior, central receptacle. Berry inferior, many-seeded.

1. B. indica. R.

Shrubby. *Leaves* alternate, ventricose-oblong, grossly ser-^te. *Racemes* axillary, and terminal; *the* terminal ones more generally compound.

A large shrub, a native of Chirtagong; in the Botanic garden at Calcutta it flowers in February, March and April, but rarely perfects its seeds there.

It appears to differ from VahVs B. lanceolala. Symb. i. p. 19. /• 6. in the leaves being shorter-petioled, and more grossly serrate; as well as in the inflorescence.

Trunk erect, in plants eight or ten years old as thick as a man's leg. Branches numerous, extending down to the ground, straight and nearly erect. Bark smooth, dark brown, geueral height of the whole plant from eight to twelve feat* Leaves alternate, rather short-petioled, ventricose-oblong, tapering to an acute point, remotely and deeply repand, serrate, pretty smooth on both sides, and glossy on the upper surface, veins large and parallel, from three to six inches long** and from one to two and a half broad. Stipules none. liacemes axillary, and terminal, often several together, some of them ramous, much shorter than the leaves; the terminal one generally panicled. Flowers numerous, diverging, short-pedicelled, small, pure white. Bractes one at the base of each pedicelf and two pressing on the calyx. Calyx single, semi-supera, permanent, five-parted, divisions obtuse. Corol one-petalled. Tube short, somewhat gibbous. Border of five equal, roundish, expanded segments. Filaments short, inserted into the tube of the corol, immediately below the middle of the segments of the border, incurved, smooth. Anthers cordate, converging in form of a dome over the apex of the pislillura* Germ semi-inferior, broad-ovate, one-celled, containing numerous ovula from the bottom of the cell. Style short. Stiff n^{*a} tending to be lobate. Berry inferior, crowned with the permanent calvx, round, smooth, dry, size of a grain of black pepper, one-celled, evalvular. Receptacle round-cordate, free, attached to the bottom of the cell, as in Primula, &c. Gart. sent. i. 233. t. 50. Seeds numerous, angular.

2. B. ramentacea. R_m

Shrubby. Leaves alternate, lanceolate, acuminate, entire smooth. Panicles terminal, axillary, and lateral, ramentaceous. Berries minute, white, succulent.

Mulmooriya is the vernacular name at Silhet, where it is in-

digenous. It grows to be a pretty large shrub, blossoms in March and April, and the seeds ripen in October and November.

Leave* alternate, short-petioled, lanceolate, acuminate, entire, smooth, from two to six inches long. Panicles terminal, axillary, and lateral, numerous, small, crowded with small, abortive, ferruginous, ramentaceous branchlets. small, greenish-yellow. Bractes ferruginous, small, subulate. Calyx five-parted, almost five-leaved. Corol; tube very small. Border of five orbicular, veined segments. Filaments five, short, inserted into the tube of the corol. Anthers twolobed, broad-ovate. The germ may be called superior, ovate smooth, one-celleif ovula numerous, on a sub-cylindric receptacle, rising from the base of the cell. Style short. Stigma two or three-Iobed. Berries completely inferior, size of a grain of black pepper, white, smooth, succulent, one-celled. Ce//formed by a white, pretty hard, but thin, nuciform integument. Seeds several, minute, angular, black, pitted, attached to the free, central receptacle, as in the germ. Integu*ments* uncertain, on account of the diminutive size of the seed. Perisperm soft, juicy, dark-coloured. Embryo sub-cylindric, transverse.

3. B. nemoralis. Willd. spec. i. 992,

Shrubby. *Leaves* alternate, ovate-oblong, repand-dentate, smooth. *Racemes* axillary, short, and crowded.

Mttlmooriya is the vernacular name in Silhet, where it is indigenous and grows to the size of a pretty large, very ramous, upright shrub. It flowers in March, and the seeds ripen in May.

Branches and branchlets numerous, nearly erect, round and pretty smooth. Bark of the old woody parts brown, of the young shoots green. Leaves alternate, petioled, ovateblong, margins repand, serrate-dentate, (for there is a mixture of the whole,) in some acuminate, both sides smooth, texture firm, three or four inches long, by two broad. Racemes

axillary, about twice the length of the petioles, ramous, and crowded with minute white flowers. *Bractes* subulate, one-flowered, beside one or two broader on the short petioles, or pressing the calyx. *Calyx* campanulate, five-parted. *Corol* with a very short tube, and a border of five oval segments. *Filaments* five, inserted into the tube, under the middle of the segments of the border, short, incurved. *Genn* superior, one-celled, containing numerous ovula, attached to a free receptacle, rising from the bottom of the cell. *Style* short. *Stigma* three-lobed.

🐝 4. B. glabra. R.

Arboreous. Leaves alternate, ovatmanceolate, entire, smooth. Panicles axillary, smooth.

A slender tree, with straight, smooth branches, and leavesJ a native of Chittagong, where it flowers in March.

5. B. tetrandra. R.

Leaves alternate, oblong, entire. Racemes axillary. Flowers tetrandrous.

A native of the Moluccas.

VERBASCUM. Schreb. gen. N. 331.

Corol rotate, somewhat unequal. Capsules superior, two-celled, two-valved.

1. V. Thapsus. Willd. spec. i. 1001.

Leaves decurrent, downy on both sides. Stem simple.

Found by Captain Hardwicke amongst the mountains on his tour to Shreeni/gwra. In the Botanic garden at Calcutta it grows to the height of from six to eight *feet*, the stem still perfectly straight, but often ramous; it blossoms during the cold season.

DATURA. Schreb. gen. N. 332.

Corot infundibuliform, plaited. Calyx tubular, angular, deciduous. Capsule fbur-valved.

1. D. fastuosa. Willd. spec. i. 1008. Fleming in Asiat. Res. xi.

Annual, coloured. *Leave's* with the two sides unequally ovate, margins re pa nd, lobate. *Flowers* double. $Fndtvo|xnA_g$ echinate, drooping*.

JBeng. Ka la- Dliootoora.

Stramonia indica terlia, seu Datura rubra. RumpJt.Amb. x. 243. t. 87. j: 2.

A native of various parts of India. It flowers during: the rainy and cool season. The dry root smoked is said to relieve spasmodic asthma*

2. D. Metel. Willd. spec. 1009. Fleming. Ibid. 165.

Annual. Leaves with the two sides unequally ovate, margins repand lobate. Fruit round, spiuous.

Seng. Dhootoora.

Stramonia indica prima, seu Datura alba. Rumph. Amb. v. 242. t. %l.f. 1.

Hummatu. Rheed. Mai. ii. 47. t. 28.

• \ery common every where over India; produces flowers and seed the whole year.

PHYSALIS. Schreb. gen. N. 336.

Calyx gibbous, five-toothed. Corol rotate. Berry superior, within the inflated calyx, two-celled, many-seeded.

1. V.jlexvosa. Willd. spec. i. 1020.

Shrubby; branches flexuose. Leaves oblong, often paired. Flowers axillary, crowded, sessile.

Pevetti. Rheed. Mai. iv. 119. t. 55.

VOL. I. ^ J

Beng. C/shwa-gr/ndha.

Teling. Penneroo.

This perennial species is to be found in almost every soil, and situation. Flowers all the year round.

Stems several, erect, shrubby, flexuose, two-forked, round, downy. Leaves double, short-petioled, ovate, a little scolloped, downy, from two to four inches long. Flowers axil* lary, sub-sessile, crowded, small, greenish. Corol enmpanulate**' Anthers split at the base. Berry red; smooth, size of a pea.

The Telinga physicians reckon the roots alexipharmic; indeed they are all much addicted to the belief of such powers being present in a great variety of the simples; hence the name Naga, (?. e. the hooded snake, Coluber Naga of LinncEtts) being so often annexed to that of various plants. They are as fond of the study of antidotes as the Greek or Roman physicians were, which will appear the less surprizing if we consider the great number of poisonous animals and plants which abound in the warmer part of Asia, to the dreadful effects of which they are very often eye-witnesses. It is therefore very natural for them to attend much more to this branch of medicine than is done hi cold climates, where there is scarcely an animal of which the bite or sting can be said to be mortal.

2. P. Alkekengi. Willd. spec. i. 1022.

Herbaceous; branches straggling. Leaves in pairs, entire* and somewhat angular.

A native of Persia. In the Botanic garden at Calcutta it flowers during the cool season, but does not thrive iu **Bengal**.

3. P. peruviana. Willd. spec. i. 1022.

Biennial or perennial, very ramous, diffuse, pubescent* *Leaves* double, or single, and then with a branchlet; cordate, dentate. *Flowers* solitary, drooping. *Stigma* two-cleft*

P. edulis. Sims* Bot. Mag. 1068. I concur with the author, in referring- P. pubescens to the same species.

Beng. Tepuriya*

I have only found this in a cultivated state and that on account of its large, yellowish, palatable berries; although naturally perennial yet the plants are reared annually from seed, as they are not fruitful after the first year. The same is the case with the *Capsicums* and the many varieties of *Solatium JUelongena*.

4. P. minima. Willd. spec. i. 1024.

Annual, ramous, downy. Leaves double or single, and then with a brawnilet, ovate, irregularly dentate. JFLowers solitary, erect. Stigmas entire. Fruit pendulous.

Inota-Inodien. Rheed. Mai. x. ceu Moetoe. 139. t. 70.

Beng. Bun Tepmiya.

Hind. ToolaO'-pat?.

A small ramous annual, common on cultivated ground, both in Bengal and on the coast of Coromandel.

Stem short, but distinct; branches many, two-forked, striated, a little downy. Leaves double, except at the divisions of the branchlets, where they are single, the smaller branchlets occupying the place of the other; unequal, petioled, cordate, irregularly toothed, downy on both sides; from two to four inches long. Peduncles solitary, axillary, erect, one-flowered. Flowers small, campanuiate, uniform,*pale yellow, and smooth. Filaments a little hairy, yellow.

SOLANUM. Schreb. gen. N. &37-

Calyx five-parted. Corol rotate. Anthers coalescent, gaping at the top with a double gore. Berry superior, two-celled, many-seeded.

SECT. I. Unarmed.

1. S. pubescens. Willd. spec. i. 1026.

Sub-arboreous, unarmed. *Leaves* alternate, oblong, pointed, entire, downy. *Cymes* dichotomous.

Gandira* the Sanscrit name, see Asiat. Res. iv. 258.

Seng. Uvu&a.

T<Uing. Rusa ghedx maun.

Amongst the mountains in the Telinga country this grows to be a small or middle-sized tree, with a very thick shady h\$ad. Flowers during the hot season.

Leaves alternate, &hort-petioled, oblong, entire, downy, from six to ten inches long. Cymes ternifh&l or leaf-opposed, two-cleft; ramifications recurved. jFlowers small, white, very numerous. Berry the size of a cherry.

2. S. auriculatvm. Willd. spec. i. 1025.

Sub-arboreous, every part downy. *Leaves* broad-lanceolate, entire. *Stipules* axillary, obliquely ovate-cordate. *Cymes* in the forks of the branchlets, dichotomous.

A native of Mauritius, and iutroduced by Captain Tennant, into the Botanic garden at .Calcutta; where it blossoms during the rainy and cold seasons, and continues to ripen its fruit from December till May.

Stem nearly erect, in six years as thick as a man's leg, and about eight feet high. Bark smooth, ash-coloured. Branches dichotomous, spreading much. Branchlets and all the tender parts most completely clothed with sessile and pedicel 1-ed, hoary, stellate pubescence. Leaves alternate, petiole^broad-Ianceolar, tapering to a rather obtuse point, entire; clothed underneath like the branchlets; upper surface a little hairy; from four to eight inches long, and two or three broad* Petioles channelled, down like the branchlets.. Stipules itt sessile, axillary pairs, obliquely ovate-cordate, large, and recur vate round the branchlets, looking more like small com*

^{*} This name probably belongs to some other species.—W. C

won leaves than stipules. *Cymes* in the forks of the branchlets Ion_nf-ped uncled, dichotomous. *Ramifications* recurvate,sub* secund. *Flowers* numerous, sub-sessile, small, lively blue-purple, /ferrjf'spherical, size of a small cherry, when ripe of a dull yellow.

Obs. Independently of the colour of the flowers, the stipulse or axillary leaves render this species readily known; in all other respects it almost exactly resembles the preceding; in that plant there are no stipulae, and the flowers are white.

3. S. Ly coper sicum. Willd. sp. i. 1033.

Annual. Leave* pinnate, gashed. Racemes bipartite', leaf-less. Fruit smooth, vertically compressed, torulose.

Pomum amoris. Rumph. Amb* v. t. 154.a/l 1.

Although this is now very common in India, I suspect it is as little a native as the common potutoe, which is now very, generally cultivated over India, even by the natives for their own use.

4. S. nibrum. Willd. sp. i. 1034.

Annual, erect, unarmed. *Branches* somewhat angular. *Leaves* ovate, dentate, lobate. *Umbels* short-ped uncled. *Flowers* and *berries* drooping.

Jieng. Goorkh?.

Nelen tsjunda. Rheed. Mai. x. t. 73.

A common weed in gardens all over India, with flowers and ripe seed the whole year round.

, Seeds received from the Mauritius under the name of Sotonnm nodi/forum, (Willd. sp. i. 1035,) produced this very plant. On that Ulaud it is called *Brede*, and very generally cultivated as a pot herb.

5. S. decemdentatum. R.

Annual, erecf, ramous, hairy. *Leaves* in pairs or solitary writh a branclilet, ovate. *Peduncles* axillary, from two to six together, one-flowered. *Calyx* ten-toothed.

A native of China; from thence introduced into the Botanic garden at Calcutta, where it blossoms and ripens it*berries most part of the year.

It has the habit of a robust, pubescent variety of Solanum tiigrum.

Stems amuml, nearly erect, with alternate, flextiose, pubescent, round branches and brauchlets; general height two or three feet. Leaves in pairs or single, and accompanied with a branchlet, petioled, ovate-oblong, some what acute, villous. Peduncles axillary, from two to six together, one-flowered, drooping when in blossoms. Calyx ten-toothed, pubescent. Berries the size of a pea, smooth, bright red, when ripe.

6. S. spirale. R.

Shrubby, void of pubescence. Lewes paired, linceolar, entire. Racemes lateral, the unexpanded part spirally revolute. Segments of the calyx glandular.

Bugua is the vernacular name in Silhet, where it is indigenous, and in flower and fruit at various times of the year. Though rather fetid it is an ornamental species on account of its smooth, deep green leaves; spiral racemes of pretty white flowers; and numerous small, round yellow berries.

SECT. II. Armed.

7. S. Melongena. Willd. sp. *• 1036.

Perennial. *Leaves* obliquely-ovate, downy, scollop-lobed. Fertile *flowers* solitary, Iong-ped uncled, drooping; the barren ones on small racemes. *Fruit* oval, smooth.

Being. Begoon.

Hind. Bengali.

Teling. Wangkai.

Nila-Barudena. Rheed. Mnh x. 147. t. 74.

Trongum hortense. Rtunph. Amh. v. 238. t. 85.

Of this very universally useful, esculent species, there are many varieties cultivated in India. The plants are annually renewed from seed, though all the varieties are perennial; but like the *Capsicums* not so productive after the first year. They continue to blossom and bear fruit the whole year, but chiefly during the cold season. In Bengal, in a rich soil, they have very few prickles, but in a poor one many.

8. S. longum. /?.

Perennial. Leaves irregularly ovate, scolloped. Fruit cylindrical, smooth. Calyx sometimes armed.

Sans. Koolee.

Beng. Kooli-begoon.

Neer Wanga is the Telinga name of the plant, and Neer Wansfkai the fruit.

Long Brinjal of Europeans.

I consider this to be a species clearly distinct from *melon-gena*₉ for the fruit is always cylindrical, never changing by culture into any other form. The plant is biennial, and in every respect like *Jtfelongena*, the fruit excepted. I have only met with it in gardens, where it is cultivated for the table, and have had it nine years in mine without producing any change in it. The cold season is the proper time for rearing it.

The plants will exist several years, but are either dug up or neglected after the first.

Stem short, erect, somewhat woody. Brandies numerous, spreading, two-forked, downy, sometimes prickly; the whole plant is from two to three feet high. Leaves alternate, petioled, oblong, scolloped, or sub-lobate, downy; from six to ten inches long; sometimes the principal nerve is prickly on the under side. Flowers bowing, large, of a beautiful, bright bluish-purple, they are of two kinds, abortive with a minute pistil on a small raceme or umbel let; and a single fertile one upon its own proper petiole, which generally btands immediately below or close by the peduncle of the racemes. Calyx and petioles sometimes prickly. Berry pendulous, cyliudric, generally a little curved, but never in the least club-

bed, smooth, yellow; from nine to eighteen inches long, and from one and a half to two and a half in diameter, it is generally three-celled.

9. S. insanvm. Willd. sp. i. 1007.

Perennial, (in a poor soil) armed. *Leaves* ovate, sinuate, downy. *Peduncles* from one to four-flowered. *Calyx* often armed. *Fruit* from oval to spherical, polished.

A native of Amboyna, yet I doubt whether Rumphius's *Trongnm hortensi* can be any other than the real Indian me*longen*&. From the same Island, the seeds of a variety of the above (*insanum*), were brought to the Botauic garden at Calcutta. Their plants are more spiuous, and the fruit perfectly round, white, and smooth, almost the size of a small *Crab -apple*. This I take to be Ruinphius's *Trongum agreste*, vol. v. $p_{\%}$ 240. t. 86. $J \setminus 1$. and so far as my observation extends, it is not cultivated on the continent of India.

10. S. tethiopicum. Willd. sp. i. 1036.

Annual, scarcely armed. *Leaves* oval, repand, downy. *Peduncles* one-flowered. *Berries* red, smooth, depressed, five-lobeM.

From the Mauritius, where it is said to be indigenous, it has been introduced into the Botanic garden at Calcutta* where it grows to the height of about two feet, with many spreading branches, clothed with short stellate pubescence, and here and there a Miiall straight prickle; flowers white, and appear at all seasons.

11. S. diffusion. R.

Diffuse, perennial, prickly. Leaves oval, deeply scollop. ed, downy and prickly on both sides. Peduncles and calyce* prickly. Berries round.

Solamun ineanum c-hineuse. Pluck. Aim. 62. f. 1. Sans. Suryutunoo, Kskurika, Peetwtwndoola, Pootrupru*

da, Btthoophi/la, Godhinee, Kwpwteshwwree, Kmna, Kutoovartfakee, Kdietrwjii.

Teling. 'Nella Mollunga.'

This is'by far the most common species I know; every soil and situation *seems* to suit it equally well; it is in flower all the year round, and often perennial.

Stem none, but numerous, irregular, woody, diffuse, two-forked branches spread on the ground, or near it; young shoots covered with stellate down; all the branches thickly armed with strong", sharp, compressed, somewhat recurved pricklets. Leaies alternate, petioled, oval, much scolloped, or slightly lobate; both sides covered with stellate down, and the veins armed with straight prickles. Flowers as in S. longum, except that here the raceme is sometimes wanting. Berry perfectly globular, smooth, about an inch in diameter, colour varying according as they have been exposed to the sun, or sheltered; in the former case they are yellow, in the latter white; the Telinga people give the name of nella vmU lunga to the former, and tella mollunga to the latter,

Obs. The fruits are much esteemed by the natives; all tribes eat them freely in their curries, for which reason the plant is often found cultivated in the Circars.

There is another sort, ^exceedingly like this in almost erery respect, that it was long before I discovered they were distinct: the chief distingukhing marks are, the leaves in this are longer, smoother, and deeply lobated, with the lobes sometimes scolloped, or sub-lobate, and the prickles much more numerous, longer, sharper and all perfectly straight.

12. S. Ja-qtiiui. Willd. *p. i. 1041.

Bienuial, armed, angular, creeping. *Leaves* oblong-laciniate, armed uu the sides with straight spines. *Calyx* araied. *Berries* globular, smooth, variegated.

Beng. Kanthakaree.

A native of Bengal, where it is generally found on road

sides near villages. It is in blossom, and produces ripe fruit most part of the year.

Root at least biennial. Stem none, but several, flexuose, ramous branches, spreading" close on the ground, for an extent of some feet, often striking root at the insertion of the leaves; angular, nearly void of pubescence. Leaves frequently in pairs, oblong, pinnatifid, or laciniate, smooth, but armed on both sides with long, strong, straight spines. Racemes between the leaves, and almost as long, bearing four, five, or six alternate, pedicelled, large, bright bl ue flowers. Calyx armed with straight spines. Berries spherical, size of a large gooseberry, very smooth, drooping, while immature variegated with green and white, when ripe with different shades of yellow only,

13. S. indie urn. Willd. sp. i. 1042.

Shrubby, armed, very ramous. *Leaves* ovate, lobate, downy, armed on both sides. *Racemes* leaf-opposed. *Calyx* armed. *Berries* erect, round, smooth.

Jieng. Vyakool, Vyakoc#r, Goorkama?.

Cheru-chunda. Rhecd. JMah ii. *• 36.

Solanum fructescens, &c. *Burm. ZeyL p.* 220. *t.* 102, is a pretty good representation of ^iis plant, but 1 think Dillenius's S. *indie?/m spinosnm flore boragineo, t.* 270. *f.* 349. must have been taken from a very different species, the flowers being much too large, and the leaves too deeply divided for our East Indian plant.

Trunk trifling, but the branches are numerous, ligneous, and perennial, forming a large, very ramous shrub of several feet in height, armed with numerous very acute, somewhat recurved spines; the young parts are downy. Leaves Solitary, or in pairs, petioled, ovate-lobate, downy, and armed with a few straight spines on both sides, from two to four inches long. Racemes between or opposite to the leaves, supporting several long-pedicelled, middle-sized, pale blue flowers. Calyx deeply five-cleft, armed. Berries erect, round, smooth,

size of a marrowfat pea; while immature, variegated with deeper aid lighter green, when ripe with deep orange yellow.

14. S. trilobatum. Willd. sp. i. 1049.

Shrubby, scandent, armed with recurved, acute prickles. *Leaves* ovate, three, four, or five-lobed, smooth. *Racemes* terminal, or between the leaves. *Berries* drooping, round, smooth.

Teling. Oochinta-kura; kura means esculent, the leaves being one of their favourite pot herbs.

Solanum trilobatum. Barm. Ind. 55. t. 22. f. 2.

Compare with L-imarkVi S. acetosifolium.

A native of the coast of Coromandel, particularly the Northern Circars, where it is found in abundance on the road sides, running over bushes, upon low trees, or whatever support it meets; for it is by far too long and slender to support itself. In flower and seed the whole year.

Stems and larger branches ligneous, scandent; armed with numerous, very sharp, recurved prickles, otherwise perfectly smooth; general extent from one to two fathoms, and often very ramous. Leaves scattered, remote, petioled, subovate, three, four, or five-labed, smooth, of a shining green on both sides. Petioles and veins armed. Peduncles leaf-opposite, solitary, or accompanied*ivith a single, one flowered pedicel; armed, few-flowered. Flowers large, bluish-purple. Germ two-celled. Berries of the size and appearance of a red currant, smooth, drooping.

15. S. hirsutum. R.

Annual or biennial, ramous prickly, and hairy. *Leaves* double, one of the pair smaller, ovate-cordate, augle-lobed. *Calyx* unarmed. *Berry* round, very hairy, four-celled.

Ana-Chvnda. Rheed. Mai. ii. 65. tab. 35.

Beng. Rain-begoon.

Is a scarce plant, grows in the country about Calcutta, and is found in flower and fruit in August.

Stem scarcely any, but many sub-ligne-Root perennial. ous branches covered with much down, and armed with innumerable, small, erect spines. Leuves double, as in several of the *Physali*; petioled, one of the pair always much larger than the other, but it is from the axills of the smallest that the branchlets issue; they are obcordate, irregularly angle-lobed; the upper surface is thickly covered with much erect, soft hair, on the under side it is more distinctly stellate, and whitish; nerve and larger veins armed on both sides with strong straight prickles, the largest from six to nine inches long, and from four to six broad, the smaller about half the Petioles round, hairy, prickly; those of the large leaves half their length, and coloured on the upper side; those of the smaller ones about one-fourth part of their length. Umbel generally opposite, and below 'the leaves, sim-Peduncles and pedicels short and hairy, ple, few-flowered. but not prickly. Floioers white, pretty large. Calyx hairy, Corol very hairy on the outside. otherwise unarmed. thers sessile, conical. Germ hairy. Berries the size of a nutmeg, round, very hairy, four-celled, as in Datura.

16. S. stramonrfblium. Jacqn.

Shrubby, erect. *Bratk? lies, petioles* and *leaves* sparingly beset with strong, flattened prickles. *Leaves* alternate or geminate, ovate, unequally cordate, deeply sinuate lobate, with stellate pubescence on both sides. *Corymbs* lateral, bitid, unarmed, with glandular, slightly viscous pubescence. *Corolla* flat, with undulate lacunae. *Berry* round, smooth; on thickened, clavate *peduncles*.

Beng. Gota begoon.

. This is an exceedingly common plant in Bengal, where it grows near the habitations of men; in blossom and fruit the whole year.

CAPSICUM. Schreb. gen. N. 338.

Corol wheel-shaped. Anthers converging. Berry supe* rior, juiceless, from two to three-celled.

1. C. purpureum. R.

Shrubby. *Leaves* ovate-lanceolate. *Peduncles* solitary in the divisions of the branch lets; after the blossom drops erect. *Berry* erect, ovate, durk purple.

In 179fi, I found a single plant of this species in the garden, but from whence it came I could never learn; most likely from the Molucca Islands. The seeds have for these thir* teen years continued to produce, in all situations, plants exactly the same as the original one; this circumstance, with the general colour and erect ovate fruit, leaves little room to doubt its being a distinct species.

Stem short, branches numerous, dichotomous; young shoots almost four-sided, and deeply tinged with dark purple; whole height from two to four feet. Leaves solitary at the divisions of the branches, or in pairs where the branches do not divide, petioled, ovate-lanceolate; they are also tinged with the prevailing dark purple colour of the whole plant, particularly the nerves and veins. Peduncles solitary in the divisions of the branches, as long as the petioles. Flowers a beautiful purple, drooping. Berry ovate, erect, of a dark-purple till ripe, (hen of a dull reddish colour, generally three-celled, but the partitions are often discontinued towards the apex.

The envelope of the seed is rather less acrid than that of the other sorts in use at our tables.

2. C. annuum. Willd. sp. i. 1030.

Shrubby. Leaves ovate-lanceolate. Peduncles solitary. Flowers drooping. JFruit oblong, reflex.

This does not appear to be a native of India, as the Hindoos have no name for it, nor is it even found in their gardens. In India the *Capsicums* are all shrubby, but produce so badly

after the first year, and begin to look so scraggy, that they are seldomjsuffered to remain longer than oue season.

3. C. grossum. Willd. sp. i. 1051.

Shrubby. Leaves evate-oblong. Peduncles solitary, one* flowered, drooping. Fruit reflex, swelled into various shapes. Beng. Kaffree-immich.

Caffree-chilly is the name by which this sort is generally known amongst Europeans; the plant does not appear to me to be a native of India. In thick fleshy skin of this species is but triflingly acrid, and a palatable condiment is made of them.

4. C.frutescens. Willd.-sp. i. 1051.

Shrubby. Leaves ovate-lanceolate. Peduncles solitary. Flowers drooping. Fruit tapering, curved, reflex.

Beng. Lai gachh Luuka munch, or Lai Lwnka uuai'ch.

Hind. Lai gachh in?/r?ch.

There is a pointed variety, with the fruit yellow, or of a bright orange colour when ripe, which the Hindoos call simply *gachh murich*, it is the sort most used; particularly when dried, in which state it is to be found in every market.

5. C. minimum. R.

Shrubby. Leaves ovate-cordate. Peduncles in pairs. Flowers drooping. Calyces with subulate, spreading teeth. Fruit sub-rylindric, erect.

 $Beng_m$ Dhan L?inka mwrtcb.

Ea*t Indian Bird chilly or Cayenne-pepper capsicum.

6. C. cerasiforme. Willd. spec. i. 1051.

Shrubby, fruit globular.

I doubt much whether this be a native of India, for I have only found it in the gardens of the curious.

STRYCHNOS. Schreb. gen. N. 339-

Cahfx five-parted. Corol funnel shaped. Germ two-celled; ovula many, attached to the middle of the partition. Berry superior, one-celled. Seeds nestling in soft pulp. Embryo furnished with a perisperm, and the radicle pointing to the receptacle, now obliterated (centripetal.)

1. S. JVux-vomica. Willd. sp. i. 1052. Roxb. Corom. i. 4-Leaves opposite, three and five-nerved, oval, lucid. Berries many-seeded.

Cariram. Itheed. MaL i. t. 37.

Beng. Koochila.

Telinff. Musadi.

A middling-sized tree, common on almost every part of the coast of Coromandel; in flower during the cold season.

Trunk short, often crooked, but pretty thick. Branches irregular, both are covered with smooth, ash-coloured bark; young shoots highly polished, deep green. Wood white, hard, close-Tained, and bitter. Leaves opposite, short-petioled, oval, shinm's, smooth on both sides, entire, from three to fivenerved, or rather between that and triple, tor quintuple, differing in size from one and a half to four inches long, and from one to three broad. Stipules none. Flowers small, greenishwhite, collected on small, terminal corymbs. Calyx five-tooth-Corol infundibuliform, as in the genus. Fied, permanent. laments scarcely any, or exceedingly short, inserted over the bottom of the divisions of the corol. Anthers oblong, half within the tube, and half out. Germ two-celled, with many ovula in each, attached to the thickened centre of the partition. Style the length of the tube of the corol. Stigma capitate. Berry round, smooth, size of a pretty large apple, covered with a smooth, somewhat bard shell, of a rich, beautiful orange colour when ripe; filled with a white, soft, gelatinous pulp. Seeds several, immersed in the pulp of the berry.

The wood of this tree being bard and durable is used for

many purposes by the natives. It is exceedingly bitter, particularly t]|pt of the root, which is used to cure intermitting' fevers, and the bites of venomous snakes; when that of Nnga musadi cannot be had. The seeds are employed in the distillation of country spirits, to render them more intoxicating*. The pulp of the fruit seems perfectly innocent, as it is greedily eaten by many sorts of birds,.

2. S. potatorum. Willd. sp. i. 1052. Corom. p*. 1. JV. 5. JLeaves opposite, from ovate to oval, smooth, pointed. Bark deeply cracked. JBei-ries one-seeded.

Beng. and Hind. N/rmgilee.

S. pot at or nm. AsiaU Res. xi. p. 178.

Teling. Induga.

Tarn. Tettan-kotta.

JSng. Clearing-nut.

This species grows to be a larger tree than *Nux-vomica*. It is much scarcer, being only found amongst mountains and woods of great extent. It flowers during* the hot season.

Dr. König-'s description of this tree in the *supplementum* plantarum of Linnaeus, page 148, is so perfect, as to leave me little to add, the only observation 1 have to make is, that the leaves cannot be said to be either three or tive-nerved.

Stipules entire, connecting. Corymbs from the extremities of the last year's shoots, round the base of this year's, small, bearing in ternary order, many small, erect, fragrant, greenish-yellow flowers. Filaments rather longer than in Nux-vomica. Germ and contents as in S. Nux-vomica. Berry shining, black when ripe.

The wood of thi«, like that of the former, is hard and durable, and is used for various economical purposes.

The pulp of the fruit, when ripe, is eaten by the natives; to me the taste is rather disagreeable.

The ripe seeds are dried, and sold in every market to clear muddy water. The natives never drink clear well water if they can get pond or river water, which is always more or less impure according to circumstances. One of the seeds is Well rubbed for a minute or two round the inside of the vessel containing* the water, generally an unglazed earthen one, which is then left to settle; in a very short time the impurities fall to the bottom, leaving the water clear and, so far as I have been able to learn, perfectly wholesome. These seeds are constantly carried about by the more provident part of our officers and soldiers, in time of war, to enable them to purify their water. They are easier to be obtained than alum, and are probably less hurtful to the constitution.

3. S. colubrina* Willd. sp. i. 1052.

Scandent; tendrils simple. Leaves from oval to oblong, obtusely acuminate, triple-nerved, polished. Berries many-seeded.

* The following note was written by Dr. Roxburgh several years before this species was discovered in Bengal, and attached to S. *Nux-vomica*. I have therefore thought it best to insert it Lere.—W. C.

There is a tree, but exceedingly rare on this coast, which the Telingas call Naga musadi {Naga, or Tansoopaum in the Telinea language, means the Cobra de Capella, or Coluber naga of Linnaeus, Tansoo means dancing, and pawn a serpent; this sort being famous for erecting its Lead and moving it from side to side at the sound of music.) I have only once met with this tree, and then it was pointed out to me by a Telinga Doctor. The tree had been cut down, and carried away, from the only remaining one that I could find, some shoots had sprung up. The leaves upon these were opposite, short-petioled, obtuse lanceolate, three-nerved; about two, or two and a half inches long, by three-fourths of an inch The petioles were very short, and connected at their inbroad. sertions by a membrane. I took up this root with the greatest care, cut off the upper part from whence the shoots grew, and planted it in my garden, but it soon perished. From the above circumstances I am inclined to think there is a species different from the third, or scandent species called *Colubrina*, as well as

JMWiraCaneram. Rlieed. JUal. 8. t. 24.

Beng. Koochila-luta.

Found by Mr. M. R. Smith, indigenous on the hills near Silhet, where it blossoms iu April, and the seeds ripen in September and October.

Stem of great size, often from eight to twelve inches in diameter; the wood hard, intensely bitter and of a light gray colour; this with its numerous ramifications climbs over the highest trees. Bark ash-coloured, more or less scabrous, according to the age and size of the part of the young shoots, Tendrils lateral, simple, becoming thick smooth and green. and ligneous. Leaves opposite, short-petioled, from oval to oblong, entire, obtusely acuminate, triple-nerved; nerves extending to the apex, texture rather thin; glossy; from three, to six inches long, by two or three broad. Stipules none. Corymbs terminal, small; composed of two or three pairs of opposite, few-flowered, short, villous branches. **Flowers** small, greenish vellow, in a sub-ternary order. Uractes one under each division and sub-division, of the corymb, tapering, Calyx five-parted, clammy, with glandular pubesvillous. Corol infundibuliform, smooth. Tube cyliudric. cence. Border five-parted; segments linear-oblong, spreading. Filaments five, short, inserted into the mouth of the tube of the corol under the fissures of its border. Anthers sub-sagittate. Germ superior, ovate, smooth, two-celled, with nmuy ovula in each, attached to a fleshy ridge down the middle of the partition. Style the length of the corol. Stigma capitate. Berry often as large as an orange, round, in the advanced state

from the *Nux-vomica* tree, which yields the real or at least another sort of the *Lignum colubrinum*. The wood of the root of this sort is esteemed by the Telinga Physicians an infallible remedy for the bite of the *Naya*, as well as for that of every other venomous snake. It is applied externally, and at the same time given internally. It is also given in substance for the cure of intermitting fevers.—*Roxb*. *Mss*.

one cell only can be detected. Cortex rather hard and brittle; colour from a bright vellow to a dirty looking- mixture of yellow and rough brown. Pulp gelatinous and vellow. Seeds from two to twelve, orbicular, much flattened as in the Nux-vomica, peltate, nearly an inch broad, integuments two; the exterior one thin, but tough, and most densely clothed with soft, short hairs, like the softest velvet; the interior one a very thin brown membrane. Perisperm conform to the seed, united round the margins, the middle free, resembling two cotyledons, horny. Embryo straight, much smaller than the perisperm, and lodged close to the umbilicus, which may be readily known by the hair being longer at that part, forming a tuft round it. Cotyledons cordate, threenerved. Radicle oval, pointing to the umbilicus, (centripetal.)

SERISSA. Juss.

Coro/one-petalled, funnel-shaped; throat ciliate ; segments of the border snb-tri-lobate. Berry inferior, two-seeded.

1. S.Jietida. Willd. sp. i. 1061.

Dysodafasiculata. Louriero Cochin Ch. 181.

Lycium japonicum. Thunb. Jap. 93. t. 17.

Lyciumfatidum, Linn. suppl. 150.

Lychim indicum. Retz. Obs. ii. p. 12.

Introduced into our gardens in India from China, which accounts for the natives having no name for it. In the Botanic garden at Calcutta it blossoms the whole year round, but never produces fruit; the flowers being constantly double.

ARDISIA. Schreb. gen. N. 1735.

Calyx five-leaved. Corol hypocrateriform. Germ superior, one-celled, one-seeded; attachment Inferior. Stigma subulate.- Berry superior, one-seeded. Embryo transversely serpentine in an ample perispenn.

1. A. solanacea. Willd. sp. i. 1063. Roxb. Corom. 1. 27. Shrubby. Leaves alternate, oblong, entire, glossy. Racemes axillary, corymbiforui. Segments of the corol ovate. Beng. Bun-jam.

Teling. Conda-mayoor.

A small tree, or large shrub, a native of moist places in the vallies amongst the Circar mountains. In flower and seed nearly the whole year.

Trunk one or more from the same root, erect. Bark ashcoloured. JLeaves alternate, short-petioled, oblong, and cuneate-oblong, pointed, entire, smooth, glossy, somewhat succulent: from four to six inches long, by two or three broad. Racemes corymbiform, axillary, shorter then the leaves. Peduncles round, smooth. Pedicels clubbed, round, smooth. Bractes a concave one below each pedicel. Flowers pretty Calyx five-leaved; leaflets imbricatlarge, rose-coloured. ed, concave, roundish; permanent. Corol one-petalled. Tube exceedingly short. Border five-cleft; divisions spreading, cordate. Filaments five, exceedingly short, from the bottom of the tube. JInthers oblong, acute. Germ superior, oblong. Stigma acute. Berry size of a small cherry, Style awled. round, juicy, black, one-seeded.

The juice of the berries is of a very beautiful bright red colour; upon paper it changes to a durable brown.

2. A. panicnlata. R.

Shrubby. *Leaves* cuneate-oblong, sub-sessile, entire, smooth, reflex. *Panicles* terminal, oval, composed of many alternate, compound branches.

A large shrub, or small tree, a native of .the hilly parts of Chittagong, and particularly conspicuous ou account of its large reflexed leaves, (from six to twelve inches loug;) and very large, elegant panicles of innumerable, lively rose-coloured flowers. Like most of the other species, it continues to blossom and ripen its seed most part of the year.»

Young shoots thick, somewhat succulent, with smooth,

clear, green bark. Leaves crowded about the ends of the branchlets, sub-sessile, from lanceolar to cuneate-oblong, rather obtuse, entire, smooth, from six to twelve inches long-, and from three to five broad. Panicles terminal, very large, oval; composed of numerous, patent, compound branches, all are round, smooth and green. Flowers very numerous, pretty lar<re. rose-coloured. Bractes oblong. Calyx the border divided into five broad-ovate segments. Corol sub-rotate; segments of the border ovate. Filaments five, short, inserted into the base of the corol. Anthers sagittate, united into a cone. Germ ovate, one-celled, containing one ovulum attached to the bottom of the cell. Style longer than the stamina. Stigma simple.

• 3. A. colorata. R.

Shrubby. Leases linear-lanceolar, entire, smooth; veins nearly diverging. Panicles terminal, (large and highly coloured,) composed of a few, decompound, expanding branches.

{7mr/r-k?/]li,the vernacular name at Silhet, where the shrub is indigenous, and one of the most desirable species of the genus I have yet met with. It is in flower and seed the greatest part of the year.

Trunk erect, with numerous, smooth, expanding branches and branchlets; general height, in its native soil, about twelve feet. Leaves alternate, short-petioled, linear-lanceolar, entire, acute, veins parallel, and nearly diverging from the rib, about six or seven inches long, and about two broad. Floral leaves minute. Panicles terminal, solitary, very large; composed ofseveral large, compound and decompound branches; all of which with their sub-divisions are smooth, and of a pretty deep, bright red colour. Bractes lanceolate. Calyx, coro/, &c. as in the family. Berries somewhat oblate, smooth, succulent, red, size of a pea. Seed solifary, of a deep yellow in the baft. Perisperm conform to the seed, very hard, some small rust-coloured specks on the surface, which in some

places penetrate a little. *Embryo* transverse, serp6htine, &c. as in Gsertner's *Anguillaria*, i. 372. t. 77.

4. A. umbellata. R_m

Shrubby, erect. *Leaves* short-petioled, oblong, smooth, veinless, entire. *Umbels* axillary, drooping. *Calyx* five-parted. *Berries*, vertically compressed.

A native of Sumatra, from thence Dr. Charles Campbell sent the seeds to this garden, where the plants thrive luxuriantly, and blossom most part of the year.

Stem shrubby, erect, with alternate, ascending branches; all are covered with a smooth bark; general height of the full grown shrubs about eight feet. Leaves alternate, shortpetioled, oblong, entire, polished on both sides, deep green, and almost destitute of veins; length from three to four inches, and about two broad. Peduncles axillary, solitary, shorter than the leaves, bearing in a simple umbel let, many pretty large, drooping, rose-coloured flowers. Calyx five-parted; divisions short, and rounded. CoroL Tube very short; divisions of the border lanceolate, first recurved, then revolute. Filaments short, inserted on the mouth of the tube of the corol. Anthers united by their heads into a cone. Germ superior, round. Style tapering. Stigma simple, appearing without the points of the anthers. Berry depressed, smooth, shining black, size of a large pea, succulent; the pulp being in considerable proportion, and replete with purple juice. Seed solitary, round. Perisperm and embryo as in the other species.

5. A. villosa. R.

Shrubby, erect, with spreading, villous branchlets. *Leaves* lanceolate, crenulate, villous underneath. *Umbellets* terminal, compound, hairy.

A native of the foresHs of Pulo Pinsing, where Mr. R. tbuud it in blossom in July. Compare with *Pyrgus rtkemosa*, *Lourier. Cochin* CA. 149.

6. A. lanceolata. R.

Shrubby, with diverging branches. *Leaves* broad-lanceolar, polished. *Panicles* terminal, axillary, composed of a few simple racemes.

A native of the forests of PuIo'Pinang, where Mr. W. Roxburgh found it in blossom in July.

Leaves alternate, short-petioled, broad-kmceolar, acuminate, smooth, entire; from six to nine-inches long, and two or three broad. Panicles terminal and axillary, shorter than the leaves, composed of a few diveiging branches. Flowers numerous, pedicelled, of a middling size, diverging. Bractes solitary, under each pedicel, lanceolate. Calyx deeply divided into five ovate segments. Corol rotate segments five, ovate-acuminate. Anthers sub-sessile, sagittate, open near the acute apex on the inside. Germ ovate, one-celled, containing one ovulum attached to the bottom of the cell. Style length of the stamina. Stigma simple, acute.

7. A. divergens. R,

Shrubby, with diverging branchlets. *Leaves* sub-sessile, lanceolate, smooth, entire. *Umbellets* terminal, sessile.

A native of the Moluccas.

8. A. crenata. R.

Leaves lanceolate, crenate. Racemes terminal, often compound. Flowers drooping.

From Pulo Pinang, where it is a native.

Shrubby, erect. *Leaves* short-petioled, alternate, lanceolate, margins smooth, somewhat obtuse, crenate. *Racemes* generaHy°selitary, from the extremities of the corymbiform lateral branchlets, and always accompanied with a leaf or two, sometimes they are proliferous. *Flowers* numerous, small, drooping- *Calyx*, *corol*, *stamens* and *pistillum* as in A. *solanacea*. *Berry* globular, smooth, size of a pea, oneseeded. •

9. A. glandulosa. /?.

Shrubby, *heaves* lanceolar, margins coloured and glandular. *Umbetlets* sub-terminal, numerous, long-peduucled, globular.

jBtin-nt/rttkalee' the vernacular name in Silhet, where the shrub is indigenous, flowering in the rainy season.

Leaves alternate, short-petioled, lanceolar, smooth, margins coloured, somewhat repand, and strongly marked with little, elevated, dark-coloured glands on and rather under the margin; from four to six inches long, and an inch or an inch and half broad. Umbellets generally from four to eight, alternate at and round the extremities of the numerous smooth branchlets, long-peduncled, few-flowered, and globular. Flowers small, white, short-pedicel led. Calyx fiveparted, marked with ferruginous spots. Corol alternate, the tube being very short; segments of the border five, round, emarginate; imbricated in the bud. Filaments inserted on the base of the tube. Anthers large, sub-sagittate, sides firmly united, forming a little dome over the mouth of the tube. Germ ovate, one-celled, and containing one ovulum, attached to the bottom of the cell. Style slender. Stiffma rather enlarged, and even with the top of the anthers.

CHJRONIA. Schreb. gen. X. 349..

Corol rotate. Pistil declined. Stamina inserted on the tube of the corol. Anthers at last spiral. Pericarp two-valved, one-celled. Seeds numerous.

1. C. centaureoides. R.

Annual, erect, four-sided, first brachiatc, afterwards dichotomous. *Leaflets* of the calyx keeled and acute. *Leaves* sessile, from oblong to linear, sub-tri-nerved. *Stigma* two-lobed.

Chironia carinata. Herb. Banks. Beny. Girint.

A native of Bengal, appears during- the end of the cold, and beginning- of the hot season.

Stems erect, four-sided, often very ramous, smooth, from three to twelve inches high; below brachiate, dichotomous, with a flower in the fork. Leaves opposite, sessile; the lowermost from oval to oblong, and three-nerved, the superior linear, and half stem-clasping; all are smooth, and entire; about an inch long. Flowers long-peduncled, solitary in the divisions of the branches and two or three-fold at their Calyx nearly as long as the tube of the corol, terminations. five-cleft to the base; divisions keeled and acute. Corol and stamens as in the genus, the anthers becoming much twisted. Germ oblong. Stigma of two large, round plates, each surrounded with a thick, glandular, pubescent, horse-shoe-like Capsules oblong, one-celled, two-valved. Seeds margin. numerous, affixed to two longituginal receptacles as in Gentiana.

Obs. I attend to the spirally twisted anthers, otherwise I should from the structure of the capsules and two-lobed stigma have considered it a *gentiana*. The fresh plant is considerably bitter, consequently when dry much more so. In the *Banksian HerbaHnm*, I found specimens both of this and C. *carinata* under ray name.

ERYCIBE. Roxb.

Calyx five-toothed. Corol one-petalled; border ten-parted. Germ superior, one-celled, from three to four-seeded, attached to the bottom of th# cell. Berry one-seeded.

1. E. paniculata. Roxb. Corom. ii. 159.

Erimia-Tali. Rheed. Mai. vii. 73. t. 39.

A very large, climbing shrub; a native of the mountain forests, the Circare, and the eastern border of Bengal; young shoots covered with much rust-coloured farina. Leaves alternate, short-petioled, reflexed, linear, oblong, pointed, en-

tire, smooth, from four to five inches long, and about two broad. *Panicles* terminal, large, oblong, covered with some rust-coloured farina. *Flowers* numerous, small, rust-coloured; border yellow. The ten divisions of the border of the corol unequal and orbicular. *Filaments* from the base of the tube of the corol, short. *Anthers* ovate, pointed. *Germ* superior, round, smooth, one-celled, containing three, four, or five *ovula*, attached to the bottom of the cell. *Style* scarcely any. *Stiff ma* large, five-grooved. *Berry* the size of a small cherry, black, pulpy, one-seeded.

EMBELIA. Jus.

Calyx five-parted. Corol five-petalled, on which the stamina are inserted. Germ superior, one-seeded; attachment inferior. Drupe one-seeded. Embryo transversely serpentine, and furnished with a perisperm.

1. E. Ribes. Burnt. Ind. 62. t. 23.

Shrubby, scandent. *Leaves* alternate, petioled, oblong, entire, smooth. *Panicles* terminal, hairy.

Ribesioides. Linn. ft. zeyU JV*. 403.

Baberung, the vernacular name in the Silhet district.

An immense climber, a native of the forests on the east border of Bengal, where it blossoms in February and March; and the seeds ripen towards the close of the rainy season.

Trunk when full grown about two feet in circumference, covered with scabrous, light brown bark. Branches and branchlets very numerous, and of great extent, the tender shoots hoary. Leaves alternate, petioled, oblong and elliptic, obtuse, finely veined, smooth; from two to three inches long, and one or one and half broad. Petioles one-fifth or one-sixth the length of the leaves, margins somewhat winged. Stipules none. Panicles terminal, large, open, and hoary. Bractes ensiform, villous, one-flowered, flowers numerous, very small, hoary, of a greenish yellow colour. Calyx five-part-

ed, clothed with short, white hairs. *Petals five*, oblong, concave, spreading, hoary with short, soft, white hairs, filaments five, very short, and inserted into the middle of the petals. Anthers sub-sagittate, resting on the exterior half of the petals. Germ round, one-celled, containing a single ovulum attached to the bottom of the cell. Style short. Stigma headed, sub-truncate. Drupe the size of a grain of blackpepper, round, crowned with a small point, smooth, succulent, when ripe black, when dry wrinkled and very much like that spice, one-cell, ed. *Nut* brittle, rugose, one-celled. Seeds solitary, roundish, with a cavity at the base. Integuments two. Perisperm conform to the seed. Embryo curved transversely, with the convexity up. Cotyledons two, minute, oval, lodged on the side of the base of the perisperm. Radicle filiform, of "a curved, serpentine form, with its apex near the margin of the perisperm considerably above its base, on the side opposite to where the cotyledons are lodged, nearly as in Gartner's Anguillaria, and in Ardisia.

The natives of the hills in the vicinity of Silhet, where the plants grow abundantly, gather the little drupes, and when dry sell them to the small traders in black-pepper, who fraudulently mix them with that spice, which they so resemble as *to* render it almost impossible to distinguish them by sight, and they are somewhat spicy withal.

2. E. robttsta. R*

Arboreous. Leaves from oblong to oval, smooth. Racemes axillary and terminal, solitary.

Found by Mr. Roxburgh on the Rajaraahul hills; from thence he sent the seeds to this garden, where in six years the plants produced from them were about ten feet high, with an erect rfem, many nearly erect, and spreading branches, covered with smooth, ash-coloured bark. The young shoot* are somewhat angular and downy.

Leaves alternate, short-petioled, oval, smooth, entire, from two to three inches long, by one and half or two broad, /tecemes axillary, solitary, simple, much shorter than the leaves. Bractes solitary, subulate, one-flowered. Flowers small, short-pedicel led, greenish white, rather inconspicuous. Calyx five-leaved, or deeply five-cleft, ovate, villous. Corol five-petalled, ovate, first spreading¹, afterwards re volute; thrice the length of the calyx, villous. Filaments five, short; inserted on the petals. Anthers cordate. Germ superior, ovate, one-celled, containing one ovulum, attached to the bottom of the cell. Stifle short. Stigma rather enlarged, but simple. Berry dry, spherical, size of a grain of pepper, one-celled, one-seeded. Seed, perisperm and embryo as in the former species, viz. copious perisperm, with transverse, serpentine embryo, as in Gcertner's Anguillaria, i. 372. t. 77.

3. E. vestita. Roxb.

Shrubby, scandent, very ramous. *Leaves* oblong-lanceolate, attenuate, sub-serrulate. *Racemes* axillary.

Oauor Baberung, the vernacular name in Silhet, where it is indigenous in the forests, climbing over trees and shrubs for support. It is uncommonly well furnished with branchlets and foliage. The flowers are particularly small and delicate, collected in little oblong, sub-sessile, axillary racemes. They appear in January.

CORDIA. Schreb. gen. N. 350.

Calyx one-leaved. Corol sub-campanulate, five-parted. Germ four-celled; cells one-seeded; attachment lateral. Drupe superior, with a four-celled nut, one or two of which only are fertile. Embryo inverse, without perisperm.

1. C. latifolia. R.

Polygamous. *Leaves* round-cordate, entire and repand, three-nerved. *Panicles* terminal and lateral. *Drupes* oblateglobose, on a smooth calyx. Nut from one to four-seeded.

Hind. BuraAesoora.

A native of Hindoosthan and introduced by the late General Martin, into the Botanic garden at Calcutta, where it blossoms during- the cold season; and the fruits ripen in June and July. They are much larger than those of C. *Myxa*, smooth, and of a beautiful pale straw colour covered with a whitish bloom*

Trunk short and generally crooked, as in Myxa; the bark also scabrous and crooked. Branches numerous, spreading, and drooping; young shoots angular and smooth; the general height of trees ten or twelve years old is about twenty feet. Leaves alternate, petioled, from round to cordate and ovate, often slightly repand, three-nerved; texture hard, smooth above, scabrous and pale underneath, from three to seven, or even eight inches long, and rather less in breadth. Petioles nearly round, and smooth. Stipules none. Panicles short, terminal and lateral, roundish; ramifications alternate, diverging-, and once or more diphotomous. Flowers numerous, Bractes minute, villous. Calyx villous, cammall, white. panulate, leathery; mouth unequally dentate. Corol short, canipanulate; segments five, linear-oblong. Filaments as long as the segments of the corol, and inserted immediately under their fissures. Anthers incumbent. Germ ovate, four-celled; with one ovulum in each attached to the upper end of the axis. Style short. Stigma four-cleft; segments four-cleft, long, rugose, and recurvate. Drupe oblate-spheroidal, about an inch or an inch and a quarter in diameter, smooth, when ripe yellow. · Pulp in large quantity, soft, clear, and very clammy; (Ihe natives eat it freely,) one-celled. Nut nearly circutor, laterally compressed, rugose on the outside, with a cavity at each end, the lower one deeper than the other, exceedingly hard, four-celled, though rarely all fertile. Seed solitary, ovateK>blong. Integument single, white, soft and oily. Plu-Radicle conic, superior. niula verjfcpmall.

Mr. Henry Colebrooke, who is intimately acquainted with Hindoo literature, informs me that the yvriters on Indian *Materia JUedica* notice two sorts of *Sepistan*. The first as

large as a prune, with its nut immersed in mucilaginous pulp, and separable from it. The second smaller, with its nut adhering¹ to the pulp (as described by our writers on *JWateria JWedica* in Europe), but with less mucilage, and sweeter than the large one. The rest of the descriptions, he observes, is common to both kinds, viz. The leaf round, the fruit growing in clusters, when ripe yellow, but afterwards turning black, &c.

The first, or large sort, is no doubt, the fruit of the tree just now described; and the small sort that of Cordia Myxa> which has hitherto, I believe, been considered in Europe, as the only tree which produces this drug; but from the information furnished by Mr. Colebrooke we have reason to believe there are two sorts used in medicine by the Asiatics, which are the produce of two trees of the same genus, and that the Arabic and Persian names Septstan and Pistan, are applicable to both sorts.

It might be well to give the trivial or specific appellation *Sepistana* to this broad-leaved tree, which for the present I have called *latifolia*; and the scarlet-flowered West India tree, now called *Sebestena*, I would term *coccinea*. *Novella nigra*. *Rvmph*. *Amb*. 2. p. 226. t. 75. is no doubt a distinct species, which I have seen and examined, and call *Cordia campannlata*.

2. C. JHyaca. Willd. i. 1072.

Polygamous. Leaves oval, repand. Panicles terminal, and lateral.

Vida-inarum. RheeJ. Mai. 4. /. 37.

Schestena officinalis. Garrt. sem. A. p. 363. /. 7(i,

Beng. Bohooari.

Hind. Lusora, or Lesoora.

Teling. Nekrft.

The dried fruit of this tree is the Sebestena oi me JUateria Medica.

It is a pretty large, but low tree, growing in most parts of

the Circars, but chiefly in gardens-, hedges, &c. near villages. Flowers about the end of the temperate, (or cold) season, and the fruit is ripe in May and June.

Trunk generally crooked, from eight to twelve, feet high, and as thick or thicker than a man's body. gray, cracked in various directions. Branches numerous, spreading, and bent in every possible direction, forming a dense shady head. Leaves scattered, petioled, ovate, oval, or obovate, exterior half slightly scolloped, or toothed, smooth above, below a little scabrous when old; from two to three inches long, and from one and a half to two broad. Petioles about tme-third the length of the leaves. none. Panicles terminal, and also lateral, globular, dichotomous. Bractes none. Flowers numerous, small, white, a very large proportion of them are sterile, and they always Calyx tubular, widening towards the mouth want the *style*. and there torn as it were juip three or five divisions, smooth, not in the least striated. Corol, divisions of the border re-Style in the fertile flowers as in the genus, in the volute. barren flowers wanting. Drupe globular, smooth, the size of a cherry, sitting in the enlarged calyx, when ripe yellow, the pulp is almost transparent, very tough and viscid. Nut cordate, at both ends bidenlate and perforated, rugo.se, somewhat four-sided, four-celled, but it rarely happens that all Seeds solitary. prove fertile.

The smell of the nut when cut, is heavy and disagreeable, the taste of the kernels like that of fresh filberts. The fruits are not used in this part of India, (the Northern Circars), for any medicinal purpose. When ripe they are eaten by the natives and also, most greedily, by several sorts of birds, being of a sweetish taste.

The wood is soft, and of little use except for fuel. It is reckoned *Qne* of the best kinds for kindling «re by friction.

3. C. serrata. R.

Arboreous, tender parts hairy. Leaves ovate-cordate, ser-

rate, acuminate. *Corymbs* lateral. *Flowers* sub-octandrous; with from seven to nine-cleft corol.

A native of Travancore, from thence the seeds were sent by IXr. A. Berry to the Botanic garden at Calcutta, where the plants reared from them blossomed in August, when four years old.

Trunk in our young trees from eight to ten feet high, and about as thick as a man's thigh. Branches very numerous, spreading* in every direction. Bark of the old woody parts smooth, olive-colour, that of the young shoots green, and hairy. Leaves alternate, rather long-petioled, ovate-cordate, serrate, acuminate, a little harsh, with few hairs, from four to six inches Jong", and from two to four broad. Stipules none. Corymbs lateral, and about the forks of the branchlets, long-peduncled, dichotomous. Flowers white, of a middling size, Calyx sub-cylindric; mouth from three to five-toothed, with Corol with a qplindric tube, the length of the inside hairy. the calvx, border about eight-cleft; segments oblong, recurved. Filaments about eight, hairy, inserted on the tube of the corol below its middle. Anthers ovate, small. Germ superior, conical, four-celled, with one ovulnm in each, attached to tlie axis. Style two-parted, as are also the segments.

4. C. monoica. Willd. i. 1072. /?. Corom. 1. 58.

Leaves ovate, three-nerved, scabrous. Corymbs axillary and terminal, with many male flowers. Nut four-celled.

Teling. Paniigeri.

Hind. Pida.

A small, irregular, poor looking tree, with gray bark, chiefly a native of the Circar forests, where barren land predominates. *leaves* deciduous during: the cold season. The *flowers* are prodhiced during the rainy season.

Leaves alternate, petioled, ovate, three-nerved, very scabrous; about three inches long, and two broad. Petioles round, scabrous, about an iuch and a half long. Panicles from the divisions of the branchlets, or terminal, small, two-forked, composed of short, recurved one-ranked spikes *Flowers* white. There *in* a very large share of male or barren flowers which generally occupy distinct parts of the corymbs, and frequently the whale. *HermaphroditeJiowers* as in the family. *Drupe* the size of a cherry, pointed, yellow, pulpy: pulp glutinous, as in *Mt/.ra*. *Nut* perforated at the apex, four-celled. The *male Jiowers* want the style entirely, but have the rudiment of a germ*

5. C grandis. /?.

Leaves round-cordate, obtuse, entire, scabrous, sub-triplenerved. Panicles terminal, drooping. Flowers tetrandrous. A large quick growing tree, native of Chittagong-, in the # Hon. Company's Botanic garden its leaves are often a foot long; its immensely large, dichotomous, very famous panicle nearly as much; the calyx has an eveu surface and fourtoothed mouth.

G, C. campanulata. /?.

Leaves loug-pjHioled, ovate-cordate, repand, acute. Panicles lateral. Corol campanulate. Drupes ovate, dry, hid in the permanent calyx.

Novella nigra. *Rumph. Amb.* 2. 75. is no doubt this plant, though it has hitherto been quoted for *Cordia Sebestena*. M hich is also uow before me from the West Indies, in full blossom in the Botanic gardeu at Calcutta, and differs from *Novella nigra* in the following- respects.

1*/. In having larger, cordate, almost entire, obtuse, scabrous leaves; where as in C. campanulata they are smaller, long-er-petioled, more ovate; repand, and very acute.

2rf. In having corymbiform *terminal* panicles, withinfundibulifonn corols; on the other hand *injpmpanulata* the panicles are lateral, and the corol *campanulate** In both, the *calyx*, *stamina*, and *pistdlum* are nearly alike.

Drupe (in campanulato) ovate, pointed with the permanent base of the style, and completely covered with the thin dry permanent calyx; instead of pulp, as in the other species, there is a thick coat of a dry, firm, friable texture, scarcely differing in colour from the nut. Nut five-ribbed, with as many fluted grooves between, very hard, light brown, adhering firmly to its friable covering, four-celled, though it is rare to find all fertile, perforated up through the centre. Seed solitary, ovate, pointed. Integument single, pure white, thick, soft, and tender. Perisperm none. Embryo inverse, pure white. Cotyledons deeply grooved, as in Sebestena officinalis, G<ert. sem. 1. 364. /. 76. p. 1. Plumula small, two-lobed. Radicle roundish, superior.

7. C. muluccana. R.

Leaves long-petioled, ovate-cordate, obtuse, entire, smooth. Panicles axillary and terminal, shorter than the leaves; calyx gibbous, inside hairy.. Style twice two-cleft. Drupe pointed, and nearly hid in the calyx; nut four-celled.

A native of the Moluccas. This species is often tetrandrous. The filaments are short, and very hairy; as is also a rim round the mouth of the gibbous tube of the corol, where they are inserted.

8. C. polygama. /?.

Polygamous. Leaves ovate-cordate, entire, scabrous. Pa* nicle terminal. Male generally tetrandrous, hermaphrodite often pentandrous.

A tree, a native of the mountains of Coromandel. Flowers about the month of May, and the seeds ripen in August.

Trunk tolerably straight, but short. Bark pretty smooth, of a dark olive colour. Branches spreading; young shoots round and scalUbus. Leaves alternate, petioled, from ovate to cordate, entire, or slightly scollop-toothed; when young soft and villoue, when old scabrous, from one to six inches long, and about three-fourths of that broad. Stipules none.

Panicles terminal, in the male more divided, pubescent. flowers small, whiifo.

HERMAPHRODITE FLOWERS on a separate tree. narrow-campanulate; month irregularly four or five-tooth-Corol funnel-shaped. ed, villous on the outside. four or five-cleft; divisions linear, revolute. Filaments four, or five, shorter than the segments of the border of the corol. Germ superior, ovate, four-celled, with Anthers incumbent. one ovulum in each, attached to the axis. Style twice two-Stigma rather small, but rounded. Drupes oval, the size of a black current, smooth, when ripe yellow. mucilaginous, as in the officinal fruit of C. myxa, one-celled. Nut very hard, ovate, longitudinally perforated through the centre, four-celled. Seed solitary, ovate, &c. &c. almost exactly as in Sebestina officinilis, G&rt. sent. I. p. 364. t. 76. p. 1.

MALE FLOWERS on a different plant. *Calyx* and *corol* as in the hermaphrodite, but more generally divided into four. *Filaments* generally four, as long as the corol. *Germ* a spherical, abortive body, without style or stigma.

Obs. In the early part of my botanical career, a very short description and drawing of the male plant were sent with my other dispatches of the same nature, to the Honourable the Court of Directors under the name *Callicarpa alternijblia*. *Roxb.* JV. 163.

9. C. angustifolia. R.

Leaves sub-opposite, lanceolate, scabrous. Panicles terminal. • Flowers tetrandrous. Style twice two-cleft. Nut four-celled.

A native of Mysore, from thence Dr. Buchanan sent the seeds to the Botanic garden at Calcutta, in 1800, and in May 1803, the trees were in blossom for the first ime.

Trunk short. Branches numerous, spreading in every direction, with their long, slender extremities often drooping. Bark ash-coloured and pretty smooth. Leaves sub-opposite,

petioled, lanceolate, generally entire, obtuse, scabrous, particularly when dry; about four inches long¹, by one broad. *Petioles* short, channelled. *Stipules* none. *Panicles* terminal, corybiform. *Fiotcers* numerous, small, white. *Calyx* cyliudric; mouth obscurely four-toothed. *Corol; tube* longer than the calyx. *Border* of four linear, re volute divisions. *Filaments* four, inserted just below the divisions of the border. *Style* two-cleft, with two-cleft divisions. *Drupe* the size of a large pea, round, smooth, yellow, when ripe the pulp is yellow, gelatinous, and pellucid. *Nut* four-celled, though seldom more than one seed comes to maturity.

EHRETIA. Schreb. gen. N. 352.

Calyx five-parted. Corol one petalied, five-parted. Stiffma two-cleft. Drupe superior, with a four-partible nut, or with one or two from two to six-celled nuts.

I.E. serrata. R.

Leaves broad-lanceolate, serrate, five-pointed, smooth. Fiotcers panicled. Style half two-cleft. Drupes with two two-celled nuts.

This tree has been introduced from Bhotan, and is now growing and bearing fruit in Dr. Glass's garden at Bhag?tl-poora. It is also a native of the eastern part of Bengal. Flowering'time the beginning of the hot season.

Leaves alternate, petioled, oblong, and broad-lanceolate, acutely serrate, smooth on both sides; from two to five inches long-, and from one to two and a half broad. Petioles short, slender, and smooth. Stipules none. Panicles terminal, and from the exterior axills, ovate-oblong, with numerous, short, spreading, compound^ and simple ramifications. Flowers small, numerous, collected into small, somewhat remote, sub-sesvile fascicles; some of them hexandrous. Bractes ovate, small, pressing on the calyx. Calyx five-cleft. Corol; tube as long as the calyx; divisions of the border oblong and spreading;

Filaments in the mouth of the tube of the corol, and rather shorter than the border. Anthers ovate. Germ roundish* . Style as long- as the stamens, half two-cleft. Stigma obtuse. Drupes round, pulpy, when ripe red, and about the size of Nuts two-celled, they are flat on one side, and cona pea. vex on the other. The above description is taken from trees sent to the Botanic garden by Dr. Glass, who says the fruit is delicious. Plants of the same have also been received from Dr. Buchanan, but with him, about Lukshmeepoora where the tree is indigenous the fruit is not esteemed, indeed they have little or no pulp on them. The others have but little, what they have is, however, palatable. Both now have been twelve years in the Botanic garden. The trees are about thirty feet high, ramous, and stout in proportion.

2. E. laevis. Willd. i. 1077. Roxb. Corom. 1. 56.

Arboreous. *Leaves* ovate, smooth. *Corymbs* lateral, composed of dichotomous, recurved, secund spikes. *Drupes* with a four-partible nut.

TeVmg. Seregada.

The species grows to be a pretty large tree. It is a native of the Circar mountains.

Trunk erect. Bark ash-coloured. Branches numerous, nearly erect. Leaves alternate, short-petioled, oval, sometimes scolloped, pretty smooth, from three to four inches long, and two or three broad. Corymbs lateral or axillary, two-forked, composed of thin, recurved, one-raiifced spikes. Flowers white, small.

The parts of fructification as in the last, except that here the seeds or *nuts* are wrinkled on the outside. The chief specific difference is in the corymbs, there they are terminal, here lateral or axillary.

The wood of this tree is used by the hill people for many purposes.

3. E. aspera. Willd. spec. i. 1077. Roxb. Corom. 1. 55. Shrubby. Leaves ovate, above scabrous, below downy. Corymbs terminal, dichotomous. Drupe with a four-celled nut.

Teling. Tella-joovf.

A small bushy tree, a native of dry rocky barren places. Flowers during the wet season.

Trunk and larger branches 'covered with dark, rust-co-loured bark; young shoots downy. Leaves alternate, petioled, ovate, above scabrous, downy underneath, from two to three inches long, and from one to two broad. Petioles channelled, about an inch long. Corymbs terminal, globular, composed of dense, recurved, one ranked spikes; divisions always two-forked. Flowers very small, white. Calyx; divisions ovate, outside downy. Corol; tube gibbous. Style two-cleft. Stigma simple. Berry the size of a gram of pepper, red, marked with four angular elevations corresponding with the angles of the four-celled nut. Nut four-celled, or by exposure four-partible, smooth.

4. E. uniflora. R.

Shrubby, twiggy. *Leaves* crowded, sub-sessile, oblong, entire, hairy. *Flowers* solitary, sub-sessile. *Drupe* with four one-celled nuts.

A native of the Moluccas.

5. E. setosa. R.

Tender parts bristly. *Leaves* ovate-cordate, acuminate. *Panicle* terminal, composed of dichotomous:, secund, recurved spikes. *Drupe* with four one-celled nuts.

A native of the Island of Hamoa.

6. E. burifoHa. Willd. i. 1079. R. Corom. pi. 1. 2V. 57.

Shrubby. Leaves wedge-shaped, apex tridentate, scabrous. Peduncles from two-to six-flowered. */>*uts five or six-celled.

Cordia retusa. VahL syrnb. ii. J., 42,

Teling. Bapana-booree.

A middling-sized, ramous shrub or small.tree, very common on barren lands and in forests. Flowering- time the wet season.

Leaves on the young shoots alternate, on the former branch-lets fascicled, sessile, reflexed, wedge-formed, very scabrous, very hard above, shining, from half au inch to an inch long, and a quarter or half an inch broad. Peduncles from amongst the leaves on the woody branchlets, from two to six-flowered. Pedicels very short. Flowers small, white. Calyx five-parted; divisions lanceolate, as long as the corol. Corol campanulate. Border five or six-cleft. Stamens five or six, shorter than the corol. Style two-cleft. Stigmas simple. Berry the size of a pea, succulent, red. Jfut fi ve or six-celled.

7 E. iniernodis. Willd. I 1077.

Arboreous. Leaves oblong, entire, smooth. Panicles terminal and lateral.

Found indigenous at the Mauritius by Colonel Hardwicke.

CHRYSOPHYLLUM. Schreb. gen. N. 355.

Calyx five-leaved. Corol campanulate, fiv^arted, (ten, Lin,,.) Germ five-celled; cells one-seeded; attachment interter. Berry superior, five-seeded, (ten, Lum. one or ten, G«rt.) Embryo erect, and furnished with a penspenn.

1. C. acuminatum. R.

Leaves lanceolate, smooth. Flowers axillary. Fruit globose, five-seeded.

Pitakara is the vernacular name about Silhet, where the tree is indigenous, and blossoms in April. The fruit ripens in October, and is greedily eaten by the natives; though to me the taste is by no u^paus agreeable; the pulp being al-

most insipid, and though tolerably firm, uncommonly clammy, adhering to the lips or knife, with great tenacity.

A middling-sized tree, with numerous slender, smooth, round branch! ets.

Leaves alternate, short-petioled, lanceolate, entire, acuminate, polished on both sides, except while young, then clothed with ferruginous down; veins small, simple and parallel; from three to four inches long, and one and a quarter broad. Peduncles axillary, several together, recurved, one-flowered. Flowers minute, pale yellow. Calyx, five-leaved, leaflets *Corol* one-petalled. *Tube* the length of the calyx, border five-parted, segments oval. Filaments five, inserted into the tube of the corol near the base. Anthers in the mouth Germ inferior, ovate, very hairy, five-celled, of the tube. with one ovulum in each, attached to the middle of the axis. Style short. Stigma five-lobed. *Berries* spherical, size of a small crab-apple, smooth, when ripe yellow. Pulp in considerable quantity, five-celled. Seeds solitary, attached to the axis by the greater part of the length of the thin inner edge, smooth, polished, of a shining brown colour. perm conform to the seed, yellowish. Embryo extended through the whole per is perm, erect. Cotyledons obliquely ovate, thin, three-nerved. Radicle curved, sub-cylindric, inferior.

TECTONA. Schreb. gen. N. 356.

Calyx five-toothed, becoming inflated over the growing pericarp. Corol one-petalled. Germ four-celled; cell one-seeded; attachment central. Drupe superior, dry, hid in the calyx. \Yut four-seeded. Seed solitary. Embryo erect, without perispenn.

1. T. grandh. Willil. sp. i. 1088. Roxb. Corom. I. N. 6* Tekka. Rheetl. Mai. iv. p. 57. *. 27. Jatus. Rumph. Amb. iii. p. 34. 48.

with ash-colour and brown, that of the young shoots smooth and green. Leaves alternate, rarely sub-opposite, short-petioled, reclinate, oblong-ventricose, serrate, pretty smooth'on both sides; from one to three inches long, and from half an inch to an inch broad. Stipules petiolary, ens» iform, ciliate, base Peduncles from the scaiss which embrace the permanent. base of the young shoots, and axillar, ', generally tern, slender, one-flowered. Flowers very small vellow. Caty* cam panulate, more generally four than fiv -cleft. Corol no other than the little scales of the genus, which are here very imper-Filaments four or five, as there are divisions in the border of the calvx, small. Anthers often imperfect. Germ two or three-Iobed, ovate, smooth, from two to three-celled, with one ovulum in each, attached to the lower and inner an-Stigma two or three-cleft; gle of its cell. Style short. segments recurved.

* It differs from R. catharticus; the only species known to me which it approaches in having a two or three-cleft stigina with just as many lobes, cells, and seeds as in the germ, consequently the number of seeds in the berry can never exled the contents of the germ, it cannot therefore be cathartic&s which has a four-cleft stigma, and four-seeded berry.

4. R. lucidus. R.

Sub-arboreous, armed with short, opposite and solitary, recurved aculci. *Leaves* opposite, from round to oblong, emaro-inate, entire, polished and firm. *Peduncles* axillary, diorCfroni two to four-flowered. *Berries* globular, generally two-seeded.

A small, very ramous tree, with far spreading and straggling, some what scandent branches; a native of Mauritius. it fa very nearly allied to R. circumscissus, the chief differ, ence is in the leaves being entire and retuse, or eniarginate in this species.

ZIZIPHUS, Lamarck.

Calyx five-parted. Corol five-petalled. Germ hid in a crenulate, flat nectary, from two to three-celled; ceils one-seeded; attachment inferior. Drupe superior, nut from one to three, or more, one-seeded. Embryo erect, with scanty perispeim, or none.

1. Z. trinervia. R_m

Arboreous, unarmed. *Leaves* ovate-oblong, three-nerved, obtusely serrate, glossy. *Flowers* in axillary fascicles. *Stigma* two-cleft. *Drupes* spherical.

A native of Mysore; from whence Dr. Buchanan sent seed, to the Botanic garden at Calcutta in 1800, and in eight years the plants therefrom have grown to be beautiful small trees, of about twenty feet in height, with innumerable branches and branchlets spreading in every directions, with extremities often pendulous, and crowded with beautiful, dark green, glossy foliage. Flowering time in the Botanic garden March and April, the fruit ripens in September, October, and November.

Leaves alternate, bifarious, short-petioled, broad-lanceolate, or ovate-oblong, obtuse, strongly marked with three nerves, smooth, firm and glossy, obtusely serrulate, from one to five inches long, and from one to two and a half broad. Stipules filiform, caducous. Floicers numerous, small, greenish yellow, collected in little axillary fascicles. Scales of the corol small, and shorter than the recurved stamens. Germ ovate, immersed in the large, convex, fleshy receptacle, twocelled, with one ovttlum in each, attached from the base to the bottom of the partition. Style scarcely any. two-cleft, divisions short and recurved. Drupes spherical, the size of a cherry, polished, of a lively yellow, one-celled. Pulp soft, gelatinous and sweet. Nut obovate, considerably flattened, a littlfe rugose, one or two-celled. Seed conform to the cell, of a brownish colour, and rather soft. Embryo nearly as long, and broad as the perisperm, and of the same colour, erect. Cotyledons two, nearly orbicular. Radicle obovate, inferior.

2. Z. albens. R.

Arboreous. *Prickles* solitary, recurved. *Leaves* obliquely oval, serrulate, downy underneath. *Corymbs* axillary, long-peduncled. *Corol* none. *Style* two-cleft. *Dntpes* drooping, smooth, white.

Found by Dr. Hunter in Col. Palmer's garden, near Calcutta, in full flower, and with ripe fruit in April 1803. It was originally brought from China.

Trunk arboreous, with spreading branches. Prickles solitary on the under side, short, recurved, being nothing more than the indurated stipules. Leaves alternate, bifarious, short-petioled, three-nerved, obliquely oval, most slightly ser-Stipules subulate, the lower one rulate,-downv underneath. hardens into a prickle, the other is caducous. Peduncles axillary, solitary, three or four times longer than the petioles, many-flowered. Calyx five-cleft. Corol none, nor any thing like the usual scales of the genus. Style two-cleft. Drupe round, the size of a small cherry, smooth, when ripe The pulp rather mealy and sweet, white, and pendulous. Was turbinate, thin, two-celled, with a single seed in each.

3. Z. latifolia. R.

Arboreous, prickles stipulary, short and recurved. *Leaves* °val, serrate, three-nerved, downy underneath. *Panicles* terminal. *Petals* wanting. *Drupe* turbinate. *JSTut* one-celled.

This species is very rare. It is a native of mountainous tracts in the Circars and grows to be a small tree.

Prickles solitary, very thick, but short, recurved, a rigid pointed thorn-like stipule occupies the other side of the insertion of the petiole. Leaves alternate, short-petioled, hilarious, oval, serrate, three-nerved, smooth, from four to six inches long. Corymbs terminal, and from the exterior axills,

forming a large oblong panicle. *Corol* none. *JYectary* as in the other species. *Anthers* three-lobed. *Germ* two-celled, one ovuluin in each, attached to the bottom of the cell. *Drupe* turbinate, size of a cherry, yellow. *Nut* generally one-celled.

4. Z. Jwjuba. Willd. sp. i. 1104.

Arboreous. *Leaves* obliquely-ovate, serrate. *Peduncles* axillary, many-flowered. *Thorns* fetipulary, one recurved, the other straight. *JVuts* two-celled.

Perim Toddali. Rheed. Mai. iv. 85. t. 41.

Malum indicum. Rumph. Amb. ii. 117. t. 36.

Beng. Kool.

Bind. Bier.

Teling. Renghn.

On the coast of Coromandel this grows to be a small tree. Flowering tv*-° the rainy season; the fruit ripens after the rains.

Trunk seldom straight, yet not much bent. Bark scab* rous, much and deeply cracked. Branches spreading in every directiou; hranchlets bifarious, flexuose; young parts Thorns stipulary, very sharp; the under a little downy. one recurved, the upper one straight. Leaves short-petioled, alternate, bifarious, obliquely-oval, serrate, with the apex often three-toothed, above smooth, below downy; from one to two inches long. Flowers axillary, crowded on sub-ses-Calyx one-leaved, spreading¹, live-parted, sile umbellets. divisions acute. Petals (scaled of Linn.) five, wedge-shaped, apex large, concave, spoon-like, with its margin slightly CTenulate; they are inserted on the inside of the divisions of the calyx. Nectary saucer shaped, perforated for the pistillum, margin ten-notched. Filaments five, rather shorter than the petals, and inserted immediately over them, so that the small oval anthers rest in their concave apices. Gerit* above.- Style two-cleft; divisions recurved. Drupe globular, size of a large cherry, smooth, yellow when ripe. JVut rough, two-celled. Seed solitary, affixed at the base.

The fruit is eaten by all classes of persons.

5. Z. vulgaris. WMd. sp. i.1105.

Leaves obliquely oval, serrulate, three-nerved, hoary underneath. Thorns stipulary, one straight, the other recurved. Drupe oblong. Nut sharp-pointed, two-celled.

Z. saliva. Gcert. i. p. 202. /. 43. $J \setminus 4$.

A pretty large tree, often as large as a full-grown apple tree in England, a native of Persia and Hindoost'han; only found in gardens in Bengal, where it blossoms in August, and the fruit ripens in January.

6. Z. nitida. /?.

Arboreous. *Thorns* stipulary, one projecting, one recurved. *Leaves* obliquely ovate-oblong, three-nerved, obtusely serrate, smooth. *Fruits* sub-cylindric; *nuts* two-celled.

Introduced from China into the Botanic garden at Calcutta, where it grows to be a small tree. Flowering time the hot season.

Root superficial, sending up many suckers for some yards found the tree. Trunk generally crooked. Bark brown, pretty smooth; branches few, flexuose, and thin of leaves, Spines stipulary, the upper one straight, long, and pointing much forward, the other shorter and recurved. Leaves alternate, short-petioled, obliquely oblong, emarginate, three-nerved, serrate, smooth, of a shining green on both, sides, from one to two inches long. Flowers axillary, few, collected on short common peduncles; they are small, yellow, semi-digynous. Drupe oblong, pendulous and smooth, about an inch long, when ripe pale-yellow. Nut lanceolate, pointed at both ends, a little compressed, rugose, two-celled.

The fruits are eaten, but to my taste they are rather insipid. Innumerable suckers constantly rise from the root which run to a great distance from the parent tree, and make it a troublesome plant in a garden, but at the same time they render it easily propagated, if necessary.

7. Z. Lotus. Lamarck Eucyclop. iii. 304. lllustr. 1. 185.

Arboreous; *spines* stipulary, one long, slender, and straiglit, the other recurved. *Leaves* oval, three-nerved, most slightly crenulate serrate, smooth on both sides, /^lowers axillary; *style* two-cleft.

Z. Lotus. Willd. i. 1103.

A native of Persia, &c.; blossoms in the hot season in the Botanic garden at Calcutta. It is readily known from its Indian congeners by the whiteness of its bark, and the pale yellow tinge of its long and very slender prickles.

8. Z. elliptica. R*

Arboreous. *Thorns* paired, the upper one rather incurvedy the under one recurved. *Leaves* elliptically oval, serrulate, three-nerved, pale underneath. *Corymbs* axillary, dichotomous. *Flowers* semi-trig-ynous.

A stout straight tree, a native of Travancore, from thence introduced by Dr. A. Berry, into the Botanic garden at Calcutta, where it blossoms in May and June.

Trunk straight, but slightly bent to one side, covered with pretty smooth, brown bark. Branches and branchlets numerous* spreading much while young, and divaricated when old. Young shoots slightly villous, and flexuose. Prickles paired and stipulary; the upper one straighter and pointed forward; the under one much recurved. Leaves alternate, bifarioue, short-petioled, elliptically oval with the base obliquely cordate, finely serrulate, three-nerved, smooth above, pale and soft underneath, from one to two inches long. Stipules subulate, soon becoming the sharp thorns above described. Corymbs axillary, much shorter than the leaves, several times dichotomous, villous, many-flowered. Calyxf corol9 and stamina, as in the genus. Germ ovate, inimers-

ed in ihe receptacle, tbree-celled, with one *ovttlum* in each, attached to the bottom of the cell. *Style* short, three-cleft.

9. Z. Oenoplia. Willd. spec. i. 1105.

Shrubby. *Thorns* solitary, recurved. *Leaves* unequally ovate-cordate, entire, acute; three-nerved, downy underneath. *Flowers* minute, crowded in the axills.

Native of various parts of India. Flowering time the close of the ruins.

10. Z. tomentosa, R.

Shrubby. *Thorns* solitary, scarcely curved. *Leaves* unequally Qvate-cordate, three-nerved, obtuse, minutely serrulate, hairy above, and tomentose underneath. *Panicles* lateral.

A short, very ramous shrub, a native of Chittagong, and there used for fences.

11. Z. arylopyrus. Willd. spec. i. 1104.

Arboreous. *Leaves* obliquely cordate, three-nerved, serrate, downy. *Thorns* when present stipuiary, one recurved, the other straight. *Nats* three-celled, three-valved.

Rhamnus Xylopyrus. Retz. Obs. ii. 11.

Teliaga. Gott.

Common in every forest on the coast of Coromandel.

In a good soil it grows to be a pretty large tree, with a tolerably erect trunk, but in general it is found in the state of a large straggling shrub. *Bark* light ash-coloured, much cracked, corky; young parts covered with soft white down. The *prickles* in a poor soil are always present and stipulary, the under one recurved, the upper one erect and straight. *Leaves* alternate, short-petioled, bifarious, obliquely-cordate, serrate, three-nerved, downy, particularly on the under side, about two inches long-. *Corymbs* axillary, small, manyflowered, *flowers* as in the genus. *Style* three-cleft. *Drupe* the size of a large cherry, greenish and downy, marked

rbund the base with the remains of the nectary. *Nut* three-celled, three-valved, the valves separating when the nut has been sometime exposed to the weather, leaving* a centrical three-sided receptacle. *Seeds* one in each cell, orbicular, compressed, affixed at the base to the receptacle.

Cattle eat the leaves, young shoots, and fruit. The kernels taste like filberts, and are eaten by the natives.

The wood of the largest trees is much esteemed by the natives # being yellowish or orange-coloured, very hard and durable, and at the same time not very heavy.

12. Z. Caracutta. Buck.

Arboreous. *Thorns* in pairs; the under one recurved, the upper one straight. *Leaves-* round, serrulate, three-nerved. *Peduncles* axillary, very short, many-flowered. *Style* three* cleft. *Drupe* oval, with a three-celled nut.

A native of the southern parts of Mysore, and there known to the natives by the name Karaktctta. Seeds sent from thence by Dr. Buchanan to the Botanic garden at Calcutta produced plants, which in four years were about ten feet high, with a tolerably erect, stout trunk, and many spread* ing crooked branches; covered with smooth, dark ash-co-loured bark. The young shoots are round, and villous. They blossom in April, and the fruit ripens in December.

Thorns in stipulary pairs, the lower one recurved, the upper one straight, both are hard, smooth, and acute; where the tlowers are, the thorns are generally deficient. Leaves short-petioled, obliquely round-cordate, or nearly round, obtuse, or retuse, serrulate, three-nerved; while young somewhat villous; from one to two inches long, and nearly as broad. Peduncles axillary, very short, bearing-many small, short-pedicelled, greenish-yellow flowers. Style three-cleft. Drupe the size of a large cherry, oval, depressed a little at both ends, smooth, dark-brown; fleshy part tough, firm, and yellowish. JSTul roundish, a little uneven on the outside, very hard and thick, three-celled. Seeds solitary, attached

to the bottom of the cell, nearly round, compressed, convex on the inside. *Integuments* two; the *exterior* firm, lig-lit, brown, and polished; the *inner* thin and softer. *Perisperm*; when the seed is ripe, there is only on each side of the em* bryo a white, fleshy lamina; but at this period not connected round its margins, as before maturity. *Embryo* erect; *cotyledons* two, nearly five-nerved. *Radicle* inferior, oval* just within the umbilicus.

13. Z. microphylla. /?.

Shrubby; branch lets bifarious, flexuose. Thorns stipulary, one straight, the other recurved. Leaves ovate, three-nerved, serrulate, woolly underneath. Flowers fascicled*. Stigma two-cleft.

Jffjubas zizyphvs zeylunica. Pluck. Aim. 199. t. 197. $J\backslash 2$.

Rhamnus nummularia. JBurm. Inch 61.

Common on barren uncultivated lands on the Coromandel coast. Flowering time the beginning of the rainy season.

Stem scarcely any, but many slender, rigid, bifarious, flexuose branches spreading in all dictions, and forming a small bush. Bark covered with a light-coloured, almost white pellicle. Thorns stipulary, the upper one straight, slender, but very sharp, and as long as the leaves. The Under one shorter, and much recurved. Leaves alternate, bifarious, very short-petioled, ovate and oval, serrulate, above pretty smooth, woolly underneath; about half an inch long. JF lowers collected in the axills of the leaves, short-peduncled. Calyx toiuentose on the outside. Petals short-clawed, oval. Stigma tw.o-cleft.

14. Z. Napeca. Willd. spec. i. 1104.

Shrubby, climbing. *Leaves* obliquely cordate, serrate, three-nerved, downy underneath. *Thorns* stipulary. *JS"uts* two-celled.

₀Sans. Sookshm?/ph?/l0, **Buhookuntuka, Sookshmuputruka,** D00sp?f.rsha, *Mudhoora*, SliKvurahara, Slukhipriya, Ki/r-kitndhoo, Shr?''gah/koh°.

Beng. Shea-kool.

Telinga. Paramie.

This is the most common species of the genus; it is to be found in every hedge throughout India, and always with scarcely any thing that can be called a trunk, but many large, straggling, climbing branches, which are too weak to support themselves. Bark dark, rust-coloured, pretty smooth; young shoots downy. Prickles always present, stipulary, large,"and exceedingly sharp; the lower one is much recurved, the upper one straight. Leaves alternate. short-petioled, bitarious, very obliquely ovate, serrate, threenerved; downy underneath, from one to two inches long. Corymbs axillary, many-flowered. Style two-cleft. Drupe the size of a pea, smooth, shining black, marked round the base with a circular scar. Nut rugose, obcordate, two-celled; generally one of the cells is obliterated, or abortive. Seed solitary, affixed to the bottom of the cell.

The fruit is eaten by the natives; the taste a very pleasant acid. A decoction oj^he bark of the fresh root is said to promote the healing of fresh wounds.

15. Z. glabra. R.

Shrubby, scandent, smooth. *Thorns* solitary, recurved. *Leaves* ovate-cordate, long, obtuse, pointed, serrulate, smooth, strongly marked with three nerves. *Dntpes* oval.

A native of Chittagong, where it flowers in the cool season, and the fruit, which is about the size of a gooseberry, ripens in May.

16. Z. incurva. R.

Arboreous. Thorns paired, one straight and patent, the other incurved. Leaves ovate-oblong, polished, three-nerv-

ed, serrulate; obtusely acuminate. *Peduncles* axillary, few or many-flowered; *flowers* semi-digynous.

A native of Nepal, from thence introduced by Dr. Buchanan into the Botanic garden at Calcutta, in 1802, where in ten years they had grown to be slender trees, of about fifteen feet in height, with innumerable well armed branches, and smooth branclilets spreading* in every direction. Flowering time the rainy season.

CEANOTHUS. Linn.

Petals five, vaulted, opposite to the stamens. *Berry* dry, three-ceJ led, three-seeded.

- 1. C. asialica. Linn.
- Erect, smooth. *Leaves* ovate, serrulate, glossy, tri-nerved at the base; *peduncles* axillary, ramous, many-flowered, shorter than the leaves.

Grossularia spiuis vidua, baccis in racemo congestis spadiceis, foliis crenatis ovato-acuminatis. Burm. ZeyL 111. t. 48.

Jihamnus acummata. Colebr. Mss. fide ic. pict. in horto bot. Calc. asservata.

I have found this small tree in flower and fruit in October at Singapore. In the Honourable Company's Botanic garden, where it was introduced from the garden at Reduite in the Mauritius in 1813, it blossoms in April and May, and ripens its fruit in June.

A small branchy tree or large shrub: the largest of those that were reared from the seeds measure at the present time (1823), about sixteen feet in height, with a stem scarcely more than four inches in diameter. *Branches* long, slender, round, with green bark, slightly flexuose, perfectly smooth; while young a little pubescent. *Leaves* irregularly scattered, ovate, or ovate-lanceolate, tapering into a blunt acumen; serrulate, serratures small, gibbous, incurved, cuspidate, slightly undulate, base rounded or retuse, from two or three

inches long; perfectly smooth, very glossy and lucid, of a dark green colour above; pallid and shining underneath, with a whitish slender rib and a few oblique nerves, the lowermost pair of which are opposite; the base rising a little above the rib, in consequence of which the leaf appears triple-nerved; veins capillary, transversal, reticulate. Petiole slender, a little compressed, channelled, slightly pubescent, about an inch long. Stipules minute, withering, adpressed, lanceolate, with a broad fleshy base and glandular apex. Flowers small, yellowish green, fragrant, collected in rounded, axillary, ramous fascicles which are shorter than the petals. Peduncles pubescent; bractes very small; pedicels capillary, two or three times longer than the flower, Calyx cup-shaped, with five broad, cuspidate, vellowish. somewhat margined, deciduous lacinia, equalling in length the cuneate, fornicate, narrow petals. Vertex of the ovary covered with a broad rugose yellow disc. Style short, deeply three-lobed, deciduous. Stigmas convex, scabrous. Capsules round-obovate, about the size of a small gooseberry, pale-brown, its vertex retuse, its base supported by the persistent circularly-truncate bottom of the calvx, threefurrowed, three-cell[^] three-valved. Seeds triangular, with gibbous back, ash-coloured. The rest as in C. circumscissa (Rhamnus Linn.) Gcert. carp. ii. 110. U 106.

SCOPOLIA. Smith.

Calyx five-toothed. Corol five-petalled. Germ superior, five-celled; cells two-seeded; attachment interior. Berry five-celled, with generally one seed in each cell.

1. S. aculeata. Smith, ic. ined. ii. 34. Willd. sp. i. 1115. Scandent, armed. Leaves ternate; leaflets crenulate* Paullinia asiatica. Linn. sp. pi. 524. Kaka-toddali. Rheed. Mai. v. 81. t. 41.

Chamaelaea trifolia, aculeata, floribm spicatis. *JBurm.* Zeyl. 58. t. 24.

Toddalia. Juss. gen. 371; and Lamarck Illustr. ii. 116. 2757. Encycl. Bot. vii. 692.

Cranzia. Schreb. gen. N. 362.

Telinga. Conda Cashinda.

Is one of the most common bushes on the coast of Coroman del, delights in a rich soil, such as old hedges, under old trees, &c. is in general found in the state of a very famous bushy shrub, but in less frequented places, where it meets with support and no enemies, it runs over the highest trees.

Stem irregular. Bark corky. Branches exceedingly numerous, scandent. *Prickles* innumerable, scattered over every part of the younger branches, tender shoots, petioles, and nerves of the leaflets, recurved, very acute. Leaves alternate, teruate, armed. *Leaflets* oblong, or broad-lanceolate, notched, emargined, smooth; about an inch and a half long, and half or three-fourths broad. Petioles channelled, armed like the brancblets. Racemes axillary, generally compound, length of the leaves. Flowers small, white. Calyx inferior, small, glandular, five-toothed. Petals five, oblong, spreading. Filaments five, nearly as long as the petals, spreading. Anthers oblong, incumbent. Germ ovate, five-celled, with two ovula in each, attached to the middle of the axis. Style short, thick. Stigma five-lobed. Berry "the size of a small cherry, compressed, five-grooved, orangecoloured, five-celled. Seed one in each cell.

Every part of this shrub has a strong pungent taste. The roots when fresh cut smell particularly so. The fresh leaves are eaten raw for pains in the bowels; the ripe berries are fully as pungent as black pepper, and with nearly the same kind of pungency; they are pickled by the natives, and a most excellent one they make.

The fresh bark of the root is administered by the Telinga physicians for the cure of that sort of remittent, commonly called the hill feer. I conceive every part of this plant to be possessed of strong, stimulating powers, and have no doubt but under proper management it might prove a valuable medicine where stimulants are required.

BÜTTNERJ. Schreb. gen. N. 366.

Calyx five-leaved. CWo/five-petalled. Nectary st'aminiferous, surrounding the five-celled superior germ. ^Anthers double. Capsules quiuquecoccea. Embryo inverse; perisperm scanty.

1 • B. pilosa. R.

Shrubby, twining, hairy. *Leaves* from three to five, acuteangled, dentate. *Umbels* axillary, proliferous.

A most extensive, twining shrub; a native of Chittagong. The flowering time in the Botanic garden at Calcutta is September. The seeds are ripe in April. I have also had specimens from Si I bet.

Stem woody, twining, in five years old plants as thick as a man's wrist, and irregularly obtuse-siilcate. Branches numerous, twining up ajid over large trees, to a very great extent; the younger ones very hairy, and irregularly obtusesulcate. Leaves alternate, petioled, having from three to five acute angles, dentate, posterior lobes large and rounded; about seven-nerved, with a large, long gland on the middle one near the base, from four to six inches each way. Peti~* oles round, often as long as the leaves, hairy. Stipules subulate, hairy. Umbels axillary, generally one large, and superdecompound; and two or more smaller, all are clothed with short, harsh pubescence, and are much shorter than the leaves. Bracies subulate. Flowers numerous, small. Calyx of five, spreading, pale-coloured, lanceolate leaflets. Petals five; the lower third part of their leugth linear, yellow on the outside, and red within; much incurved so as to form a circujur dome over the pistil and nectary, open at the five sides, and

in the vertex, the other two-thirds filiform, below slightly incurved, above recurved; colour a bright orange. five-cleft, yellowish, divisions fleshy, truncate, shorter than the lower portion of the petals. Filaments short, inserted into the fissures of the nectary, recurvate. Jlnthers two-lobed. Germ round, hairy. *Style* short, five-grooved. Stigma minutely q ui liquid en tate. Capsules the size of a filbert, round, armed with long, rigid bristles; texture hard, approaching to that of a nut, five-celled, ten-valved. Seeds solitary, small m proportion to its cell, and attached to its inner angle, ovateoblong, rather pointed at the apex, and obliquely truncate at the base. Integuments three; the exterior and interior niembranaceous: the middle on and thick. Perisperm *Embryo* inverse, yellow. none, or very thin. **Cotyledons** large, two-lobed; and rolled spirally up. Plumula two-lob-Radicle cylindric, nearly as long as the seed, superior.

- 2. B. herbacea. Roxb. Corom. i. N. 29.
- B. cordata. Willd. spec. i. 1119.

Unarmed, herbaceous, erect. *Leaves* cordate, serrate, downy. *Nectary* one-leaved, five-ioothed.

An erect herbaceous plant, a native of the tops of the Circ&v mountains.

Leaves alternate, petioled, cordate, serrate, downy, two inches and a half long, and one and a half broad. Stipules reflexed, small, acute. Peduncles axillary, one or more, three-flowered. Leaflets of the calyx large, reflexed. Nectary one-leaved, five-toothed; teeth converging over the pistil 1 urn. Filaments five, very short, from the fissures of the nectary, reflexed. Anthers double; singly oval.

CELASTRUS. Schreb. gen. N. 372.

Calyx »five-cleft. Corol five-petalled. Germ three-celled, with two or more ovula in each cell; attachment inferior. Capsule superior, from one to three-celled, from two to three-

valved; seeds fejv covered with a coloured aril. Embryo erect, and furnished with a perisperm.

1. C. emarginata. Willd. sp. i. 1128.

Shrubby, armed. Leaves obovate, entire, smooth. Flow* ers numerous, axillary. Capsules inflated; cells two-seeded, Telinga. Chennee Chiutoo.

Is one of the most common, rather poor looking¹ shrubs in these parts of India, it grows every where and in every soil. Flowers during the cold season.

Stem nothing* deserving the name, but branches innumerable, bent in every direction, and armed with exceedingly strong, large, straight, very*sharp thorns. Leaves alternate on the young shoots, on the old wood or thorns fascicled, very short-petiolid, obovate, einargiuate, smooth, shilling; about an inch long. Stipules small, withering. Umbellets very short-peduncled, many-flowered, one or two from the centre of the fasdicles of leaves. Pedicels many times longer than the peduncle, one-flow ered. Flowers small, whitish, Petals twice the length of the calyx. Nectary, H saucer-formed, crenulate body surrounding the base of the germ. Germ conical, three-celled, two ovula in each, attached to the bottom of their cell. Style single, half three-parted. Stigmas emargiuate. Capsule inflated, turbinate, threesided, three-celled, valved. Seeds two in each cell, small, shining, red, resting on a white fleshy receptacle.

It makes good fences, and fuel.

2. C. montana. JR.

Arboreous, thorny. *Leaves* obovate, serrulate, smooth. *Panicles* axillary, small, dichotomous. *Capsules* with cells two-seeded.

Telinga. Pedda-chintoo.

A small tree, a native of mountains. Flowering¹ time the cold season.

Trunk erect, though generally a little crooked. Branch**

numerous, armed with the same large, sharp leaf and flower bearing¹ thorns as in the last. Leaves alternate, short-petioled, obovate, slightly serrate, smooth, shining; about two inches long*. Panicles axillary, dichotomous, many-flower-Flowers small, white. Petals many times longer than Nectary as in C. emarginatus. Germ round, three-celled; cells with two ovula in each, attached to the bottom of the cell. -Styles three, short, clubbed. **Stigmas** Capsules small, not inflated, in other respects emarginate. like the last. Seeds one or two in each cell, small, nearly round, attached as in the germ. Aril white, sebaceous, embracing the lower half of 4he seed. Integument single, polished, brown. Perisperm conform to the seed, dull white, and hard. *Embryo* nearly as long as the perisperm, erect. Cotyledons roundish. Radicle ovate, inferior.

The wood of this tree is hard, and durable.

3. C. paniculata. Willd. sp. i. 1125.

Unarmed, shrubby, scandent. *Leaves* round, oval, serrate. *Panicle* terminal. *Stamens* inserted into a nectainal ring.

A large, climbing shrut[^] a native of the Circar mountains. Flowering time March and April.

Branches twigfgy. Bark covered with gray, scabrous specks. Leaves alternate, petioled, broad-oval, serrate, pretty smooth, about two inches long, and one and a half broad. Petioles round, and one-third the length of the leaves. Panicles terminal, erect, thin, oblong. Bractes small, falling. flowers small, yellow, numerous. Calyx inferior, five-toothed; segments concave, emarginate. Petals five, inserted between the nectary and calyx, spreading. Nectary cupshaped; border five-toothed. Filaments five, which are a continuation of the teeth of the nectary, rather shorter than the petals. Anthers ovate. Germ round. Style shorter. Stigmas three. Capsule round, size of a pea, one-celled, three-valved, opening from the apex. Seeds from three to six,

surrounded with a yellow pulpy nidus, and always separating into three lobes?,⁴ whatever the number be.

4. C. multiflora. R.

Shrubby, scandent, unarmed. *Leaves* alternate, oblong", acuminate, serrate. *Panicles* terminal. *Stamens* alternate, with an equal number of reniform nectarial glands.

A native of Nepal, from thence Dr. Buchanan sent the seeds to the Botanic garden at Calcutta, in 1802. In July 1808, the plants therefrom blossomed for the first time and ripened their seed seven months afterwards.

Trunk short, about as thick as a man's arm. Bark brown, soft and spongy. Branches numerous, spreading' much, and having their extremities often twining, but the scandent habit prevails most. Leaves alternate, short-petioled, drooping, oblong, acuminate, serrate, smooth on both sides; about six inches long, and from two to three broad. Stipules minute, 600n withering and drooping. Panicles terminal, ovate-oblong, composed of many, simple, diverging*, short, smooth racemes. Flowers numerous, small, pale greenish white. Braetes very small, caducous. Calyx obscurely five toothed. Petals oblong, inserted on thecalyx^plternate with the stamens; soon after expansion recurved. Filaments shorter than the petals, alternate, with as many semi-lunar nectarial glands. Germ superior, ovate, three-celled, with two ovula in each, attached to the bottom of the cells. Style about as long as the stamens. Stigma of three emarginate lobes. Capsule roundish, somewhat tliree-lohed, three-celled, three-valved, and generally with a single seed-in each cell. Seeds obovate, entirely covered by a thin, pulpy, scallet aril. Integuments (exclusive of the aril), single, tender, white and smooth. Perisperm of a soft cartilaginous texture. *Embryo* erect. **Cotyledons** two, round-cordate, and so large as to divide the perisperm. Radicle inferior, pointing obliquely to the umbilicus.

5. C. nutans. R.

Shrubby, scaudent, unarmed. *Leaves* alternate, petioled, broad-obovate, obtusely serrate, smooth. *Panicles* racemose, terminal. *Seeds* invested in a complete aril.

A native of Mysore, from thence introduced by Dr. Buchauan, into the Botanic garden at Calcutta, where it flowers in April. Seeds ripe in August.

Stem short, round, woody, scandent. Bark a little scabrous, light brown. Branches climbing; and twining: over the tops of large trees, &c.; young shoots round, drooping, marked with white, rough dots. Leaves alternate, short-petioled, drooping, broad, obovate, cuneate, serrate, smooth on both sides; length from two to three inches, and from one Petioles about half an inch long, slightly to three broad. Stipules minute, deciduous. Racemes or pachannelled. nicles terminal, drooping, sub-cylindrical, a little downy. Bracles a single, acute, very small, caducous one at the base of each pedicel. Calvx deeply five-parted, divisions roundish, slightly pubescent, several times shorter than the petals. Petals five, alternate with the divisions of the calvx, spread-*ng; margins becoming* recurved. Nectary a concave, fivesided receptacle, on which the germ rests. Filaments five, very short, inserted on the five angles of the nectary, alternate with the petals. JInthers sub-sagittate. Germ ovate, three-lobed, three-celled, with two ovula in each, attached Style scarcely any. to the base of the axis. Stigma threelobed, lobes spreading, with notched margins. Capsule found, bize of a pea, one-celled, three-valved. Seeds from three to six; three or four is the most common number; shape conform to the number, each invested in a thick, complete, fleshy, orange-coloured aril. Integument single. Perisperm conform to the seed, white and hard. Embryo straight, Cotyledons oblong. Radicle cylindric infeerect, green. rior, with its apex pointing to the umbilicus.

Cbs. There are five or six large plants of this in the Bota-

nic garden, of these one only is hermaphrodite and fertile, all the rest are male, or male-hermaphrodite, and barren.

6. C. trigyna. /?.

Unarmed. Leaves alternate, short-petioled, oblong, entire. Flowers on small, axillary, dichotomous, round heads. Nectary of five scales, alternate in the stamen. Styles three.

A native of the Moluccas.

7. C. verticillata. R.

Arboreous, unarmed. *Leaves* scattered, broad-lanceolate, waved, entire, smooth. *Panicles* terminal, umbelliferous. *Capsules* one celled, two-valved, few-seeded.

Reared in the Botanic garden at Calcutta from seeds sent from Nepal by Dr. Buchanan in 1802, under the vernacular name Tib?Ht?. The young trees flowered for the first time, in the rainy season of 1805, when they were from twelve to fifteen feet high. The seeds ripen in January.

Trunk straight; the branches and branchlets have a strong tendency to be verticillate. Bark of the trunk, and larger branches greenish ash-coloured, dotted with some small, elevated, lighter-coloured specks. Leaves numerous, drooping, scattered, more crowded towards the ends of the branchlets, and like them having a tendency to be verticillate, petioled, broad-lanceolate, acute, entire; margins waved, smooth, ' upper surface polished; about six inches long, by two broad. Petioles rounded on the under side, flattish above. Stipules Panicles terminal, with alternate, spreading, umbelliferous, simple ramifications. Peduncles and pedicels round, and smooth. Bractes lanceolate. Calyx five-leaved. Leaf' lets ovate-oblong, slightly ciliate. Petals five, alternate with, and three times longer than the leaflets of the calyx, linear-oblong, entire, obtuse, at first spreading, afterwards recurved, with the edges re volute. Germ ovate-oblong, a little compressed, two, rarely three-celled. Style erect, Stigmas two, rarely three-lobed, about even permanent.

with the anthers. *Capsules* roundish, size of a large pea, dry, rugose, one-celled, two-valved, opening round the apex! *Seeds* from one to six, or even eight, attached to the centre of a ridge in the bottom of the cell, which crosses the opening of the valves; their shape varies according to the number of seeds. *Integument* single, and while fresh more like a thin, smooth, soft, moist, entire, scarlet aril, than a common skin. *Perisperm* conform to the seed, cartilaginous. JEmbryo erect, minute, lodged in the base of the perisperm, rather below the umbilicus. *Cotyledons* two, very small. *Ra~dicle* inferior, oval.

8. C. micrantha. R.

Scandent, somewhat armed. *Leaves* unequally pinnate; leaflets from five to seven, opposite, oblong, entire., smooth, with simple parallel veins. *Particles* axillary, filiform, ferruginous. *Nectary* saucer-shaped, bearing the stamina on its margins, style none.

A native of the Moluccas, a very doubtful species.

9. C. obtusifolia. 72.

Arboreous, unarmed. *Leaves* petioled, lanceolar, obtusely serrulate, very obtuse, hard, smooth. *Peduncles* axillary, many-flowered.

A native of the Mauritius.

10. C. *monosperma*. /?.

Shrubby, scandent. *Leaves* oblong, glossy, serrulate. *Panicles* thin, linear, axillary and terminal, longer than the leaves. *Capsules* three-valved, one-seeded.

Tiara the vernacular name in Silhet, where it is found wild in thin forests, climbing up and over trees, &c. to a great extent. Flowering time the month of April. Seeds ripe in October.

Young shoots smooth and brown, perfectly void of every kind of pubescence. Leaves alternate, short-petioled, from

obovate-oblong to lanceolar, glossy on both sides, serrulate, obtusely pointed, from three to five inches long, and one or Panicles axillary and terminal, linear, thin of two broad. branches, two, three, or even four times longer than the leaves, Flowers numerous, small, pale greenish vellow* JSractes subulate, small, smooth. Calyx five-parted, segments short and rounded. Petals five, sub-orbicular, inserted, alternate with the stamens under the margin of the flat repand nectary, which embraces the base of the germ. **Filaments** five, short. Anthers oval. Germ obovate, oblong, three-celled, with two ovula in each attached to the bottom of the cell. Stigma trigonal. Capsule the size of a field Style short. bnn, oblong, smooth, three-valved, but I never found more than one cell. Seed solitary, covered with an orange-coloured, pulpy tunic, under it a single, tender integument, of a light brown colour. Perisperm conform to the seed, pure white. Embryo erect, deep green. Cotyledons oblong. Radicle oval, inferior.

11. C robnstvs. /2.

Leaves alternate, lanceolar, entire, glossy. Racemes axillary, length of the leaves. Capsule one-celled, two-seeded.

Sheelkoil the vernacular name in Silhet, where it is indigenous and grows to be one of their largest timber trees. It blossoms in August, and the seeds ripen in March.

Young shoots straight, round, and smooth. Leaves alternate, petioled, lanceolate, entire, acuminate, firm, and even glossy; about six inches long, and one and a half or two broad. Stipules small, caducous. Racemes axillary, single, or paired, simple, cylindric, length of the leaves. Flowers numerous, and over every part of the raceme, small, greenish yellow. Bractes conical, one under each pedicel. Calyx fiveparted; segments oblong. Petals five, oblong, spreading. Nectary, a fleshy, fi ve-lobed ring round the base of the germ. Filaments five, rather longer than the petals. Anthers two-lobed. Germ superior, round, with a little long white wool

on the apex, two-celled, with two ovula in each attached to the base of the cell. Styles two; slightly'united at the base, recurved. Stigmas headed. Capsules' ovate-oblong, size of a small olive, smooth, brown, one-celled, two-valved. Seeds generally two; when so lanceolate, and flat-on the inner side, arilled. Integuments smooth, light chesnut-coloiir, pretty thick and may while recent be divided into two or three lamina; aril complete within half a line of the apex, thick and soft, colour a lively bright yellow. Perispenn conform to the seed, soft, white. Embryo erect. Cotyledons cordate. Radicle cylindric, as long* as the cotyledons, inferior.

EUONYMUS. Schreb. gen. N. 373.

Corol from four to five-petalled. Germ from two to five-celled; cells two-seeded; attachment inferior. Capsule superior, three or four-celled, three or four-valved. Seeds calyptred. Embryo erect, and furnished with a perispenn.

1. E. atropurpnrea. Willd. spec. i. 1132.

Shrubby, erect. *Leaves* opposite, lanceolar, smooth, serrulate. *Peduncles* few-flowered; *flowers* tetraudrous.

Found by Dr. Buchanan in Nepal, from whence he sent seed to this garden, where in eight years the plants are four or five feet high, thin of branches; and now beginning to blossom in March.

Trunk erect. Bark smooth, and ash-coloured. Branch-lets spreading, round, and smooth. Leaves opposite, short-petioled, lanceolar, smooth on both sides, very finely serrulate, from four to six inches long, by one and a half broad. Stipules; while the shoots are quite tender a small soft bristle or two occupy their place. Peduncles below the leaves, opposite, expanding, dichotomous, each division three-flowered, with generally one in the fork. Flowers pedicelled, small, greenish white. Calyx four-leaved; leaflets round, concave and smooth. Petals four, cordate, lanceolate, ex-

panding; margins revolute, white, and smooth. *Nectary* a deep green, four-lobed, flesby body surrounding the base of the germ. *Filaments* four, rather longer than the pistillum, inserted on the four lobes of the nectary. *Anthers* two-lobed, dark brown. *Germ* superior, four-lobed, four-cellecjj with two ovula in each, attached to the middle of the axis. *Style* four-sided. *Stigma* obtuse.

· 2. **£•** glabra. R.

Arboreous. Leaves opposite, oblong, smooth, with the anterior margin serrate. Peduncles axillary and lateral, two or three times dichotomous, with a single flower'in each fork; flowers pentandrous*.

A small tree, a native of Chittagong, where it flowers in May.

3. E. garcinifolia. R_m

Sub-arboreous. Leaves opposite, lanceolar, entire, smooth. Peduncles between the leaves, three-flowered. Capsule two-valved, one-seeded.

Mor? the vernacular name in Silhet, where it is indigenous; growing to the size of a small upright tree; flowers and ripe seed were found on the same trees in the month of January 1812, but whether it is in constant flower and fruit the whole year round, I cannot say.

Branchlets opposite, round, and covered with smooth brown bark. Leaves opposite, short-petioled, lanceolar, entire, smooth on both sides; from three to four inches long, by about one broad. Peduncles between the pairs of leaves, sometimes opposite, sometimes solitary, short, and three-flowered. Flowers short-pedicelled, small, pale-yellow. Bractes subulate, caducous. Calyx five-leaved; leaflets roundish, smooth and imbricated. Petals five, oblong, margins incurved, many times longer than the calyx; down the middle on the inside runs an elevated sharp rib. Filaments five, shorter than the germ, alternate with the petals. An-

thers erect, long-cordate. Germ superior, ovate, two-celled; each cell containing two ovitla, attached to the thickened middle of the partition. Style none, or very short. Stigma four-toothed. Capsule oblong, size of a small field i>ean, smooth, one-celled, two-valved, opening from the base. Seeds solitary, at least I have not found more, oval, cover* ed with a thin, succulent, veined, bright, scarlet aril. Perisperm conform to the seed, firm, and tough. Embryo erect. Cotyledons ovate-cordate. Radicle cylindric, inferior.

VENTILAGO. Gart.

Calyx five-parted. Corol five-petalled. Germ hid in the crenulated flat nectary. Style two-cleft. Samara semi-supera, globose, long-jvinged, one-seeded. Embryo erect, with perispenn.

I. V. Madraspatana. WilliL sp. i. 1106. Gtert. carp. i. 223. t. 49.

Funis viminalis. Humph. A nib. v. 3. t. 2.

Heng. Jtuktupita.

Telinga. Yerra chictal?.

A very large climbing shrub; a native of forests and other uncultivated places, amongst the mountains; flowering during* the cold season.

Leaves alternate, short-petioled, bifarious, ovate-oblong", serrulate, smooth, except while young, then villous; from three to four inches long. Panicles terminal, composed of alternate, bifarious, ramous, villous branches. Flowers very numerous, small, greenish, smelling very strong and offensive. Calyx, corol, nectary, stamens, and pistilluin as in Rhamnus Jujuba. Capsule (Samara) globular, size of a pea, surrounded near the middle with the remaining nectary, terminating in a long, linear, membranaceous wing-, one-celled, not opening of itself. Seed solitary, round.

Obs. Thi9 plant is generally dioicous. The smell of the flowers is very offensive, not unlike that of Sterculiajwtida*

HOVENIA. Schreb. gen. N. 375.

Calyx five-parted. Corol five-petalled. Germ superior, three-celled; cells one-seeded; attachment inferior. Styles three-cleft. Capsule tricofccous. Embryo erect, with scanty peris perm.

1. H. dnlcis. Thunb.japon. 101. Willd. spec. i. 1141. Sicku, vulgδ Ken et Kenpökdnas, Kaempf. amoen. p. 808. t. 809.

A tree, a native of Nepal; from thence introduced by Dr. Buchanan into the Botanic garden at Calcutta, where when eight years old, it began to blossom in April.

Trunk in our young trees straight and high, from ten to twelve feet to the branches; and twenty inches in circumferences, four feet above the earth. Total height about thirty feet. Hark smooth, dark-brown. Branches spreading much, branchlets bifarious, round; young shoots hairy. Leaves alternate, short-petioled, cordate, acutely serrate, acuminate, three-nerved, smooth above, a little hairy underneath; from four to six inches long, by from two to four broad. Stipules lanceolate, hairy, caducous. Cymes axillary, rarely terminal, dichotoraous, villous; divisions clavate. Flowers numerous, small, white. Calyx one-leaved, acetabuliform, inside hairy. JJorder five-parted; divisions ovate, reflexed. Petals five, inserted within the fissures of the calvx, broad spatulate, sides incurved round the filaments. Filaments five, longer than the petals, recurved. Anthers ovate. Germ superior, ovate, three-celled, with one ovulum in each, attached to the bottom of its cell. Style cylindric, apex three-cleft. Stigmas simple. Capsules superior, round, size of a pea, thin, smooth, and brown, three-celled. The ramifications of the cyme are now, when the seeds are ripe, much

swollen, and variously bent, as represented by Kaempfer, but the taste is simply astringent. Seed solitary. Integuments two; exterior tough, thick, hard, and highly polished; interior membranaceous, and covered with a brown mealy substance. Perisperm in small quantity, tough, dull, livid-white. Embryo erect, yellowish. Cotyledons orbicular. Radicle oval, inferior.

Obs. By Dr. Buchanan, dated Katumanda, 10th and 14th November, 1802." Munko-khoshee. A tree originally brought from China or some country subject to it. The fruit is a capsule, containing three seeds, and resting on an enlarged pedunculus, which is soft, and contains a sweet juice. This does not come to maturity till after the capsules are ripe. Part of the seed now sent in this parcel was brought from China, and part has ripened here. There can be no doubt, from the singular nature of the peduncle, that it is an *Hovenia*, *Thunb*. but whether or not his species, I know not. It has hairy leaves and is reckoned the largest tree in Nepal."

PITTOSPORUM. Schreb. gen. N. 379.

Calyx five-leaved, deciduous. Petals five; germ superior, thrA-celled; cells many-seeded; attachment interior.. Capsule three-celled, three-valved. Seeds many. Embryo centripetal, and furnished with a perisperm.

1. P. Tobira. R.

Z*aw.*sub-verticelled,obovate, cuneate, entire, and lucid, apex circular.

Tobira. Kaempf. amoenit. 796. tab. 797.

From China this pretty shrub has been introduced into the Botanic garden at Calcutta.

GOUANIA. Schreb. gen. N. 1592.

Calyx five-parted. Corol five-petalled. Gfrm three- $N \circ 4$

I

Celled, sunk in the saucer-shaped, five-horned nectary; *cells* one-seeded; *attachment* inferior. *Capsule* inferior, three-celled, with a single seed in each. *Embryo* erect, and furnished with a perisperm.

1. G. tilicpfolia. Willd. sp. iv. 1000. Roxb. Corom. 1. Jf. 98.

Shrubby, climbing. *Leaves* cordate, serrulate, smooth. *Racemes* terminal, and axillary.

Telinga. Penki-tiga.

A large, climbing*, woody shrub, a native of the Circar mountains.

Tendrils simple, small, generally from the lower part of the racemes. Leaves alternate, petioled, cordate, slightly serrate, or crenulate, smooth, from two to four inches long. Racemes terminal, and from the exterior axills, long, filiform. Flowers numerous, small. Bractes minute. Calyx above, five-parted. Corol as in Rhamnus. Nectary the saucer-shaped part is here augmented by five emarginated, spreading horns. Filaments inserted in the margin of the nectary, alternate with its horns. Germ below, three-sided. Style three-cleft. Capsule dry, triangular, three-celled, three-valved. Seeds one in each cell.

ITEA. Sckreb. gen. N. 381.

Calyx five-toothed. Petals five, (four of which, with the stamina are inserted on the receptacle.) Capsule one-celled, two-valved, many-seeded. Receptacles lateral,

1. I. umbellata. R.

Shrubby. *Leaves* alternate, petioled, broad-lanceolate. *Panicles* axillary, and terminal, composed of long-pedicell* ed, simple umbel lets.

A native of the Malay Islands.

Leaves alternate, petioled, broad lanceolate, entire, smooth,

from six to twelve inches long. *Petioles* from one to two inches long. *Stipules* one. *Panicles* axillary, terminal, and scattered amongst the leaves, composed of long-pedicel led umbellets, which are sometimes proliferous. *Flowers* numerous, pretty large. *Bractes* minute, villous. *Calyx* cup-shaped, five-toothed. *Petals* five, lanceolate, obtuse, inserted, with the stamina round the base of the germ. *Filaments* shorter than the corol, flat. *Anthers* sagittate. *Germ* oblong, pedicelled, containing many ovula, attached to two opposite, parietal receptacles. *Style* short and thick. *Stigma* slightly two-lobed. *Capsule* oblong, one-celled, two-valved. *Seeds* several, affixed to the two parietal receptacles.

DJLRYMPLEA. Roxb.

Calyx five-leaved. Petals five, alternate with the stamina. Germ superior, three-celled; cells many-seeded; attachment of the ovula inferior. Berry three-eel led. Seeds few, nuciform. Embryo sub-inferior, and furnished with a perisperm.

In memory of the late Alexander Dalrymple, Esq. author of the *Oriental Repertory*, See.

1. D.pomifera. R.

Junki jam the vernacular name in Silhet where it is a native, and grows to be a large tree. Flowering in March, and the seed ripening in September and October.

Young shoots rather succulent, round, and perfectly smooth. Leaves opposite, unequally pinnate, some of them ternate; from ten to twenty inches long. Leaflets three or four pair, and a terminal one, the pairs opposite, all more or less petiolate, oblong, obtusely serrate, acuminate, smooth, from five to six inches long, by two or three broad. Petioles and petiolets round and smooth. Panicles terminal, spreading much, more broad than long, primary branches decussate; partial ones alternate with the small yellowish white flowers, which are crowded round their extremities; every

part smooth. Brucles to the primary branches of the panicle opposite, as in the Rubiacece; the rest solitary under each division and sub-division. Calyx inferior, five-leaved; leaflets rather unequal and oval. *Petals* five, oblong, obtuse, spreading. Nectary acetabuliform. Filaments five, alternate with the petals, and shorter than they, inserted under the nectary. •Anthers ovate. Germ superior, three-lobed, indeed almost separable, three-celled; ovula about eight in each cell, widely attached to the axis. Style length of the germ, three-grooved. Stiff ma three-lobed. Berry drupaceous, having the appearance of a pome, of a roundish, three-lobed form, very fleshy, when ripe yellow, and almost smooth, size of a large medlar, three-celled. Seeds several in each cell, shape various, the most common roundish, reniform and considerably compressed, attached to the partition. Integument single, thick and of great hardness, in fact a perfect nut, exterior surface brown and highly polished. Perisperm conform to the seed. Embryo obliquely inferior. Cotyledons cordate, threenerved. Radicle oval, obliquely centrifugal.

CEDRELA. Sckreb. gen. N. 383.

Calyx five-toothed. Corol five-petalled. Capmdes five-celled, five-valved. Seeds several in each cell, winged and imbricated on a pentagonal receptacle. Embryo inverse, perisperm scanty.

This genus is very nearly related to *Swietenia*, the chief marks of distinction appear to me to be the number of stamina, viz. in *Cedrela* five, inserted on five nectarial glands which embrace the base of the germ; *in Sieietenia* ten, inserted iuto the mouth of a sub-cylindrical nectarium, which embraces the whole of the pistilluin. In both, the seed vessels and seeds are very exactly alike.

1. C. Toona, JR.

Panicles pendulous. *Leaflets* from six to twelve pairs, lanceolate, entire, acute.

Surenus. Rumph. Arab. iii. 66. t. 39.

Beng. Toon. Lood.

This most elegant, large timber tree is now found common in Bengal, probably brought thither originally from **the** mountainous parts of the northern, and north-east frontier. *Leaves* deciduous during the cold season, appearing again with the flowers in February. *Seed* ripe in May and June.

Trunk erect, growing to a great size and height, though I have only seen small trees about Calcutta. Bark smooth, Branches numerous, forming a large, beautiful, sha-Leaves alternate, abruptly pinnate, drooping, from twelve to eighteen inches long-. Leaflets from six to twelve pairs, opposite or nearly so, short-petiolated, obliquely lanceolate, the upper half broadest, and extending further down the petiolet than the lower; margins waved, smooth on both sides, tapering to a long acute point; from two to six inches long. Petioles and petto lets round and smooth. Stipules none. Panicles terminal, nearly as long as the leaves, pendulous, composed of numerous, diverging, compound ramifications, smooth in every part. Bractes minute, deciduous. Flowers very numerous, small, white, and possessing* a fragrance like that of fresh honey. Calyx fiveparted. Petals five, oblong, with the margins ciliate, the apices incurved over the stamens, and keeled on the inside near the base. Nectary consisting of five, large, hairy, orange-coloured glands, sitting round the lower half of the germ. Filaments erect, inserted into the centre of the five nectarial glands, rather shorter than the petals. bent in towards the stigma. Germ superior, oblong, internal structure and contents as in the capsule. Style length of the corol. Stigma large, flat, composed of five lobes. Capsules oblong, rather larger than a field bean, smooth, fivecelled, five-valved; valvelets opening from the apex and

felling off with the seeds. Seeds numerous, imbricated, both the ends and the exterior side membrane-winged, affixed to the upper end of the sharp ridges of the receptacle, &c. exactly as in Swietenia J'ebrif\iga_9 and JHahogani. See GterL carp. ii. 86. Perhpprm in very smut I Quantity, and more like a fleshy interior integument. Embryo inverse. Cotyledons oval, three-nerved. Radicle obliquely superior.

The wood of this tree is much like mahogany, but lighter, consequently not so close in the grain. It is much used for furniture and various other purposes. The bark is a power-* ful astringent, and though not bitter is a tolerably good substitute for *Peruvian Bark* in the cure of remitting and intermitting fevers; particularly when joined with a small portion of the powdered seed of *Cesalpinia bonduccellag* (*Kutkulegei* of the Bengalees), which is a most powerful bitter.

CAMUNIUM. Rumph.

Calyx five-toothed. Petals five. Nectary globular, apex perforated, inside staminiferous. Germ superior, one-celled, from one to two-seeded; attachment of the ovula superior.

1. C chinense. Rumph. Amb. v. 28.1.18./; 1.

An elegant shrub, most probably a native of China, at least it has been brought to the Botanic garden at Calcutta from Canton, under the name Sam-yeip-lan, where it blossoms during the hot season, and the early part of the rains in June and July, but has not yet shown any tendency to produce fruit.

Stem in our young, small plant trifling, but many branches and branchlets rising and spreading in every direction. Bark of the old ligneous parts olive gray; of the young shoots green, with their very tender apices clothed with stellate ferruginous scales. Leaves alternate, petioled, ternate and unequally pinnate. Leaflets rarely more than five, the pairs opposite, and much smaller than the terminal one, all

oblong, but tapering most toward the base, smooth, deep green, entire, obtuse; from an inch and a half to four inches long, and from half an inch to two inches broad. *Petioles* somewhat winged, and channelled. *Panicles*, sometimes only *racemes*, axillary, solitary, shorter than the leaves. *Flowers* minute, yellow, faintly fragrant. *Bractes* ovate, one embracing the insertion of each pedicel. *Calyx* flat, five-toothed; teeth semi-lunar. *Petals* five, t>val, concave, at all times pressing on the nectary, smooth, much longer than the calyx* *Nectary* sub-globular, mouth contracted, and slightly five-toothed. *Filaments* scarcely any. *Anthers* five, cordate, attached to the nectary near its base on the inside. *Germ* superior, oblong, hairy, one-celled, with one or two seeds, which are attached to the top of the cell. *Style* none. *Stigma* large, conical.

MILNEA. Roxb.

Calyx five-parted. Petals five. Nectary urceolate, with the five anthers round its inside. Germ three-celled; cells from one to two-seeded; attachment centripetal, no perisperm.

In honour & Colin Milne, LL. D. author of a *Botanical Dictionary*, *Institutes of Botany*, and other works*

I • M. ednlis. R*

A tree of middling size, a native of the Garrow hills and of rfie Silhet district, where it is called Gum? by the natives, who eat the large succulent aril which surrounds the seed under the cortex of the berry. Flowering time June and July. The fruit ripens two or three months afterwards.

Young shoots densely clothed with dark brown down, ivbon more advanced smooth. Learws alternate, unequally pinnate, from six to twelve inches long. Leaflets from three to six pair, sub-opposite, petiolatc, lanceolate, entire, smooth hut not lucid, obtusely acuminate, from three to six inches

long, by one or two broad. Stipules none. Petioles cylindric, somewhat villous. Panicles one from each of the lower axills, nearly as long as the leaves, very ramous and spreading; like the young shoots very downy. Flowers numerous, minute, caducous. Bractes very minute, caducous. Calyx five-parted, small, downy on the outside; segments rounded. Petals' five, oval, concave. Nectary urceolate, rather shorter than the petals, mouth five-toothed. Filaments five, very short, inserted on the inside of the bottom of the belly of the nectary. Anthers sagittate, and completely hid in the nectary. Germ semi-superior, three-celled; cells |\|t\| one or two ovula attached to the axis. Style short and thick. Stigma turbinate, truncate, six-grooved. Berry round-oval, rather more than an inch in diameter, three-celled, containing seldom more than one fertile seed, most of the ovula being in general abortive. Cortex firm, rather dry, covered with a rough, brownish gray mealiness. Seed solitary, oval, inserted in a complete thick, fleshy, lucid, edible aril, like that of the Lichee of China. Integument single, brown, adhering more firmly to the aril than the seed. Perisperm none. Embryo transverse. Cotyledons conform to the seed, equal with the surface, furrowed. Corculum transverse, hairy. Radicle short, pointing to the umbilicus.

ELJEODENDRUM. Schreb. gen. N. 385.

Corol five-petal led. Germ two-celled, two-seeded; attach" vient inferior. Drupe superior, oval. JSTut two-celled. Embryo erect, without perisperm.

1. E. glaucum. Persoon. Synops. ii. 241. Roxb. Coronu ii.2.

Leaves opposite, ol>long, serrate. Panicles axillary, dichotomous. Drupes spherical.

Scbrebera albens. Willd. spec. i. 1092.

Celastrus glaucus. Vahl. symb. ii. 42.

Mangifera glauca. Rottb. in. Nov. Act. Havn. ii. 534. *-4-/-1-

A middle-sized, or rather small tree, native of various parts of India. From Ceylon it was received into the Botanic garden at Calcutta, under the name Ceylon tea; its leaves are like those of that plant but much longer; their taste slightly bitter and astringent. It flowers in May; the seeds ripen in September and October.

Bark in young trees, smooth, and olive-Trunk straight. coloured. Branches numerous, spreading in every direction, and forming a very dense, oval head; young shoots round, and smooth. Leaves opposite, short-petioled, oblong, and cuneate oblong, sometimes very acutely, and sometimes obtusely serrate; texture hard, with both surfaces polished, the upper shining; apex rather obtuse, and always bent down, from three to four inches long, and about two broad. Stipules a minute scale on eacli side of the inside of the base of each short, polished petiole. Panicles axillary, shorter than the leaves; all its divisions dichotomous and divaricate. •Flowers pedicelled, small, greenish yellow. BractessiuM, oblong, from one to three, at the base of each pedicel, and-at the divisions of the panicle. Calyx of five, somewhat unequal round, concave, caducous leaflets. Petals five, expanding, Hnear-oblong, sessile. Nectary a green, pentagonal, fleshy, scolloped gland, in which a great part of the germ is immersed. Filaments five, inserted on the nectary, scarcely half the length of the petals; at first nearly erect, but by age becoming so much revolute as to bring the roundish, twolobed anthers under the calyx. Germ superior, immersed in the very large, green, fleshy nectary, two-celled, with two ovula in each, attached to the bottom of their cells. short. conic. Stigma simple, obtuse. Drupe nearly round, size of a large cherry, smooth, pulpy, when ripe olive-colour-^Gd, one-celled. *Nut* oval, rather more acute at the apex than at the base, a little rugose, with two grooves on the opposite sides; uncommonly thick, and hard; two-celled, though one

is often abortive. Seed solitary, very rarely two, oblong, more convex on the inside. Integument; there seem two, rather spongy. Perisperm none. Embryo erect. Cotyledons conform to the seed, amygdaline. Plumula minute, two-lobed. Radicle oval, interior, and lodged close to the umbilicus.

2. E. indicum. Gcert. carp. i. 274. t. 57.

Arboreous. *Leaves* opposite, obovate-obloug'', obtuse, remotely serrulate. *Panicles* axillary, small, dichotomous. *Drupe* and *nvt* oblong.

Rubentia. Jussieu. Genera, plant. 416.

A middling-sized tree, a native of the Mauritius, where it is called *Bois* d^9 *Olive*. Flowers in May and June, and the seeds ripen in October.

MANGIFERA. Schreb. gen. N. 387-

Calyx five-leaved, or five-parted. Corol from four to five-petalled. Germ one-celled, ovulum single; attachment lateral. Drupe superior, reniform. Embryo sub-erect, without perisperm.

1. M. oppositifolia. /?.

Leaves opposite, lanceolar, acuminate. Panicles terminal. Stamina from four to five, all fertile.

Meriam, the vernacular name at Rangoon in Burma, where the tree is indigenous, and grows to the general size of a small apple tree in England. The wood is somewhat red, hard, close-grained, and said to be very durable. Flowering time the month of March, fruit ripe in June and July.

Branches and branchlets smooth and green. Leaves opposite, short-petioled, lanccolar, polished, obtusely acuminate; from four to six inches long, and from one to two broad. Stipules none, but the scales of the bud remain for some time at the base of the young shoots. Panicles generally

terminal, shorter than the leaves, oblong, rather dense; ramifications opposite, smooth in every part. Brtides ovate, acute, caducous. Flowers numerous, minute, pale-yellow. Calvx from four to five-parted, segments rounded. four or five, oblong-, a keel down the middle on the inside. 1* Ha merits four or five, short, alternate with the petals. Anthers ovate with an obtuse point. Germ obliquely ovate, one-celled, and containing one ovuluin attached to the side of the cell, under the perforation of the stigma. Style scarcely any. Stigma of three, very unequal lobes, one of which is much more elevated and much larger; between it and the lower and smaller lobes the channel may be traced. Drupe sub-ovate, a little compressed, smooth, pale-yellow, tbe size of a small pullet's eg'g, one-celled, like the mango the pulp is yellow, and universally eaten in Burma. Nut oblong, &c. in every respect like that of the common mango, but much smaller, thin, and of a soft texture, easily cut, fibrous on the outside, smooth on the inside, chesnut-coloured, one-celled, eval vular. Seed solitary, conform to the nut. Integumenti no other than the nut could be observed. Embryo erect. rhperm none. Cotyledons conform to the seed, oblong-, fleshy. Plumula pointed, curved up, two-lobed. Radicle inferior, conic, transverse.

2. M. indica. Willd. spec. i. 1150. Vahl. en. pi. i. 7. Corom. pi.

Leaves lanceolate. Panicles terminal. Flowers with one fertile stamen.

Mao, du. Miiu, vef. Mangos. *Rheed. Mai.* iv. 1. /. 1. 2. Manga domestica. *Humph. Amb.* i. 93. t. 25.

Beng. Am.

English. Mango.

Telinga. Mamadi-chitoo.

Tarn. Mangas marum.

Of this tree, though one of the most common in Jndia, I VOL. i, $^{\circ}$

have not yet met with any description which deserves the name.

It is universally cultivated all over India, and all the warmer parts of Asia. Is generally raised from seed, though sometimes by layers, or. grafting by approach, which are the only methods of certainly continuing* a good sort, probably The stones must be sown soon after of improving them. they are taken from the fruit, otherwise they do not vegetate, but there is no depending on the quality of the fruit so The seed of a very superior sort will produce fruit raised. of a bad kind; and vice versa, hence such an infinite variety. Colonel Kyd in Bengal, and Dr. Anderson at Madras, have lately begun to graft by approach; which will no doubt be a means of improving* this excellent fruit. Flowering time January, February, and March; the fruit is ripe in May, June, and July.

The tree grows to be of a very great size, with an erect trunk, covered with dark-coloured, scabrous, cracked bark; (large old trees of from ten to fifteen feet in circumference are meant.*) Branches very numerous, the lower ones spreading horizontally to a great extent, the upper ones gradually ascending tilF they become nearly erect in the centre. Leaves alternate, pctioled, about the extremities of the young shoots, approximated, reclined, Ianceolar, entire, often a little waved at the margins, firm, smooth, shining*; generally from six to twelve inches long, and from two to three broad, Petioles round, smooth, from one to two inches long, thickish at the Stipules none. Panicles terminal, large, erect, or asbase. cending, rigid, a little downy, often tinged with red. Pedicels short, thick, rigid. Bractes oval, concave, a little downy. Flowers small, yellow, with some stripes of red near the base of the petal?, many perfect male flowers are often found mixed with the hermaphrodite ones throughout the panicle.

^{*} A grove of that size is before my door, and a most noble sight It 18.

Calyx five-leaved; leaflets oblong-, concave. Petals five, lanceolate, spreading-, twice the length of the calyx. five, large, yellow, fleshy bodies surrounding the base of the germ, forming- as it were an excavated, five-lobed receptacle for it to sit in, each of the lobes as large as the germ itself. Filament single, subulate, ascending-, half the length of the petals, inserted between the lower lobe of the nectary and the germ. Anther oval, purple. Besides these there are generally two, three, four, or more, very minute, sterile filament like bodies, issuing' from the apices of the lobes of the nectary. Germ obliquely oval, one-celled, and containing a single ovulum, attached to the side of the cell, opposite to the fertile stamen, and under the style. Style from the side of the germ, length of the stamen, subulate, declining, so as to bring the stigma which is small, and incurved nearly to touch the anther. Drupe oblong, or kidney-formed, also a little compressed like a kidney, fleshy, smooth, when ripe yellow, size various, but in general about as large as a goose-egg. Nut conform to the *drvpe*, but more compressed, woody, one-celled, two-valved, covered on the outside with many* fibrous filaments, particularly on the worst sorts.

It is by no means necessary for me to mention that the ripe fruit of this tree, (when of a good sort,) is universally eaten, and esteemed the best fruit in India. Jellies, preserves, tarts, pickles, &c. are made of them before ripe.

The kernels are large, and seem to contain much nourishment, however they are made no use of, except during times of scarcity and famine; they are then boiled in the steam of water, and used as an article of diet.

The wood is of a dull gray colour, porous, yet pretty durrable if kept dry, but soon decays if exposed to wet. In very large old trees it acquires a light chocolate colour towards the centre of the trunk, and larger branches. This is hard, closer grained, and much more durable.

From wounds made in the bark, there issues a soft, reddish/ brown gum resin, which age hardens, and renders exceedingly like bdellium. L^id on the point of a knife and held in the flame of a candle, it readily melts, catches flame, and burns with a cracking noise; emitting a smell exceedingly like that of Cashew nuts when roasting. It softens in the mouth, and adheres to the teeth. Its taste is slightly bitter with some degree of pungency. It dissolves almost entirely in spirits, and in a great measure in water; both solutions are milky with a small tinge of brown.

3. M. sylvatica. R.

Leaves alternate, lanceolar, glossy. Panicles terminal. Flowers monandroiis. Drupe obliquely conic, with the pointed apex turned one side.

'Lf/kshmee am, the vernacular name in Silhet; on the mountains adjoining to that district it grows to be a tall tree of great size. Flowering time October; the fruit ripens in February and March, and is eaten by the natives, though by no means so palatable as even a bad domestic mango, they also dry them and keep them for medicinal purposes.

Leaves as in the common cultivated sorts, alternate, petioled, lanceolar, entire and smooth; from six to eight inches long, by one and a half or two broad. Panicles terminal, much larger than in the domestic sorts, and with the numerous ramifications more erect and slender. Flowers very numerous, small, white, with a faint shade of pink; they are more completely monandroiis than any of the cultivated sorts. five-leaved, many times shorter than the corols. Petals five, linear, spreading*, and finally becoming somewhat twisted and re volute. Nectary a short, solid, turbinate, slightly grooved, villous receptacle for the germ to rest on. In the domestic sorts it is composed of five distinct glands, which embrace the base of the germ. Filament single, inserted into the pot of the nectary, incurved, length of the pistillmn. Anther oval. Germ elevated on the above-mentioned nectary or receptacle, unequally oval, smooth, one-celled; ovnlum single, attached to that side of the cell from whence the style rises, and most

remote from the stamina. Style subulate, length of the filament, incurved, after fecundation recurved. Stigma simple, acute. Drupe ovate, obliquely acuminate, smooth, when ripe yellow, like the common mango and nearly as large, one-celled. Nut oblong, less fibrous than in the common sorts, and also less firm, with an even surface. Seeds solitary, conform to the nut. Integument single. Perisperm none. J?/w-hryo between erect and transverse. Cotyledons equal, conform to the seed. Radicle lodged between the cotyledons on one side of their base, pointing out, and rather upward.

HARPULLIA. R.

Calyx five-leaved. Corol five-petal led, alternate with the stamina. Germ two-celled; cells one-seeded; attach* ment of the ovula sub-superior. Capsules two-celled. Seed solitary, arilled. Embryo with incumbent cotyledons, and lateral radicle without a perisperm.

]. H. cupanioides. R.

Harpulli the vernacular name at Chittagoug.

A small tree; a native of the hilly parts near Chittagong, it flowers in April; and the fruit ripens in July.

Trunk straight. Branches few, and tending to be erect also; bark ash-coloured; young shoots smooth. Leaves alternate, abruptly pinnate, from twelve to eighteen inches long. Leaflets from four to six pair, short-petiolate, from alternate to opposite, from ovate below tolanceolar above; all are entire, and smooth on both sides; apex considerably pointed; from three to six inches long, by one or two broad. Petioles round and smooth. Panicles axillary, solitary, erect, thin of branches, and shorter than the leaves. Flowers small, pale yellow. Bractes subulate. Calyx inferior, five-leaved, permanent; lea/lets oval. Petals five, lanceolate, obtuse, spreading, becoming recurved. Filaments five, alternate with the petals, and much shorter. Anthers oblong. Germ

ovate, hairy, somewhat two-lobed, two-celled, wiih one pendulous ovulum in each attached to the upper end of the par-Style short. Stigma two-lobed; lobes reflex, adnate. Capsules pendulous, orbicular, two-lobed, considerably compressed, villous, two-celled, t»vo-valved, opening* all round. Partition opposed to the valves. The whole very exactly resembling the capsule of Gelonbnm cnpanioides. G&rt. carp. ii. 271. /. 189. Seed solitary, Semi-oval; the inner side being- straight, the exterior rounded, arilled. Integument single, rather thin, smooth, chesnut colour. Aril ck*ep orange, covering the whole seed from the base except the apex. Perisperm none. Embryo green. Cotyledons two, conform to the seed, incumbent, their line of separation being nearly through the middle of the seed, which makes them equal* Radicle on the exterior or convex side of the seed, apex rather acute, and turned up into a small hollow in the uppermost cotyledon I, so that it points to the apex of the seed. After it has lengthened a little by the progress of vegetation, the two-lobed plumula is very conspicuous.

NEERIJA. JR.

Calyx five-leaved. Corol five-petalled. Style simple. Serry superior, one or two-seeded.

1. N. dichotoma. R.

Telinga. Neerija.

A middle-sized tree, a native of the mountains of Coromandel. Flowers about the beginning of the hot season.

Trunk erect. Bark rust-coloured, scabrous. Branches numerous, spreading in every direction. Branch lets opposite, round and smooth. Leaves opposite and alternate, petiolate, oval and oblong, serrato-crenate, smooth; about four inches long, and two broad; texture hard. Petioles round, three-quarters of an inch long. Panicles axilhiry. globular, thin, throughout; dichotomous, with the divisions stand-

ing at right angels. *Peduncles* three times the length-of the petioles, round, smooth, *Flowers* small, yellow, not very numerous. *Calyx* five-leaved; *leaflets* orbicular, unequal, caducous. *Petals* five, oblong, spreading. *Nectary* a large, fleshy, pentagonal ring- surrounding the base of the g'erm, into its angles the filaments are inserted. *Filaments* five, shorter than the petals, spreading. *Anthers* two-lobed. *Germ* superior, conical. *Style* shorter than the stamens, thick. *Stiyma* simple. *Berry* oblong, succulent, red, smooth, one-celled. *Seeds* one, or two.

Is nearly allied to *Elceodendrum glaucum* in habit, but in that the drupe with a single, very thick, hard nut will alone be sufficient to distinguish them.

The fresh bark of the root, rubbed with plain water, is by the natives applied externally to remove almost every sort of swelling. It is a very strong astringent, possessing scarcely any other sensible quality.

VJRECA. Gaert.

Calyx five-leaved, or five-parted. Coral five-petal led. Germ superior, one-celled; ovnla numerous, their attachment parietal. Berry one-celled. Seeds a few, inserted on the three parietal receptacles.

1. Yfmoluccana. /?•

Leaves alternate, lanceolar. Peduncles axillary, many-flowered. Filaments free.

A small tree, from fifteen to twenty feet in height, a native of the Molucca islands, and from thence introduced into the Botanic garden at Calcutta, in 1798, where it blossoms in October and November, ai again in March, April, and May; but has not yet, though now fourteen years in Bengal, produced even well-formed fruit, so that the genus is still doubtful.

Trunk erect. Branches numerous, between erect and pa-

tent. Jgark of the old parts smooth, and ash coloured; of (he young¹ shoots with a little, short, ferruginous pubescence. Leaves alternate, about the end of the branchlet, *hort-petioled, lanceolar, entire, waved, acute, smooth, and glossy above; from four to twelve inches long, and from one to four Stipules none. Peduncles axillary, solitary, about broad. an inch long, many-flowered, villous. Flowers middlesized, white, inodorous, pedicelled. Bractes small, cadu-'Calyx one-leaved, five-toothed, villous, caducous. Petals five, linear-oblong¹, recurved, many times longer than the calyx. Filaments five, inserted on the receptacle, shorter than the germ, and pressing upon it. Anthers sagittate. Germ superior, oblong, torulose, villous;, one celled, with many ovula, attached to two or three parietal receptacles. Style short. Stiff ma pretty large, two or three lobed.

2. V. lanceolata. /?.

Leaves alternate, lanceolar. Flowers in axillary fast ides. An erect, shrubby plant, a native of Pulo Pinnng-.

Leaves alternate, bifarious, short-petioled, lanceolate; veins numerous, simple and parallel; smooth on both sides. Stipules w ithin the leaves, lanceolate, chuffy. Flowers smalt, numerous, collected on short-ped uncled, axillary, compound corymbs, pale yellow. Calyx five-leaved; leaflets oval, concave, permanent. Petals five, lanceolate, expanding, permanent. Filaments five, shorter than the petals, incurve*}, united at the base into a ring round the lower half of the germ. Anthers arrow-shaped, erect. Germ superior, ovate, hairy. Style longer than the stamens, hairy. Stigma simple. Capsules three-lobed, leathery, one-celled, evalvular. Seeds several, affixed to three, vertical, parietal receptacles, on the inside of the middle of the lobes of the capsules.

3. V. heterocliia. R.

Shrubby. Leaves broad-lanceolar, creuutr. *liuwers* axillary, crowded, sessile.

A small shrub, received into this garden from General Martin at Lucknow. Blossoms in October.

bark smooth, ash-coloured. short and slender: Branches bifarious, slender, all spreading nearly horizontally. Leaves alternate, bifarious, sessile, cuneate-lanceolar, crenate, smooth on both sides; in the axill of each vein on the under side is a remarkable hollow gland. Stipules ensifonn, Flowers axillary, crowded, sessile, small, white. Calvx of five, unequal, imbricate, woolly, margined leaflets. **Petals** five, lanceolate, confined at the base, by the rigid leaflets of the perianth, into a bell shape; above they are re volute and smooth on both sides. Filaments five, long, and slender, projecting considerably beyond the mouth of the bell-shaped part of the corol, at the base each side is enlarged with one or more adjoined hornlets which are bearded at the base. Germ superior, ovate, somewhat three-sided. Style as long as the stamens, villous; stigma simple. In the germ are the rudiments of two, three, or four seeds.

VIOLA. Schrcb. gen. N. 1364.

Calyx five-leaved. Corol five-petal led, irregular, calcarate. Anthers united. Capsules superior, three-valved, onecelled. Seeds many, parietal. Embryo furnished with a perispenn; radicle centrifugal.

1. V. snffruticosa. Willd. spec. i. 1171.

Perennial, diffuse. Leaves alternate, sub-sessile, lanceolate. Stipules subulate. Peduncles axillary, with two bractes near the middle. Corol res u pine. Capsules round.

A native of the sandy lands about Madras. In the Botanic garden at Calcutta i{ continues in flower and seed most part of the year.

Stem scarcely any, but many diffuse, perennial, round, smooth branches, often extending to a foot in length. Leaves alternate, sub-sessile, lanceolate, slightly serrate, pretty

smooth, about an inch long, and a quarter of an inch broad. Stipules small, subulate* Peduncles axillary, solitary, oneflowered; shorter than the Leaves, jointed above the middle, where there are two small bractes, one on each side. five leaved. Leaflets nearly equal, lanceolate, acute. Petals five, rosy, the two upper ones smallest, linear-oblong, and pointed; the two lateral ones sub-ovate, with long, taper, recurved apices; the lower one (here the corol is resupinate,) much larger than the others, broad-cordate, supported on a claw as long as the superior petals, which is protruded behind, between the two lower leaflets of the calyx, into a gibbous nectary. Filaments; the two lower ones have each a ciliate hornlet projecting* back. JInthers with brown, ovate, scariose apices. Capsules nearly round, size of a pea, onecelled, three-valved. Seeds several in each cell, attached to a ridge which runs along the inside of each valve, obovate. Integument single, thin, striated. Perisperm conform to the seed, white. Embryo three-fourths the length of the peris-Cotyledons oval. Radicle sub-cylindric, perm, greenish. pointing to the umbilicus, at the small end of the seed.

2. V. enneasperma. Willd. spec. i. 1171.

Perennial, rather diffuse. Leaves lanceolate. Corol with little or no horn behind.

Nelam. parenda. Rheed. MaL 9. t. 60. rather a bad figure.

3. V. primulifblia. Willd. spec. i. 1162.

Annual-, btemless. *Leaves* from triangular to lanceolar-cordate, serrate, decurrent. *Flowers* resupinate; in that position the lower petal is broader, and emarginate.

Native of the interior parts of Bengal; in the Botanic garden at Calcutta it blossoms and ripens its seed more or less the whole year.

4. V. apetala. /?.

Annual, stemless. Leaves broad-cordate, sagittate, ser-

rate lobes, and apex rounded, in luxuriant plants the scapes are many-flowered. *Flowers* diandrous, and very generally without a corol.

Received from the Mauritius into the Botanic garden in Bengal, where it is in constanUflower and seed the whole year.

IMP ATI ENS. Schreb. gen. N. 1365.

Calyx two-leaved. Corol five-petalled, irregular. Nectary cucullate. Anthers united. Germ five-relied; cells many-seeded; attachment central. Capsules superior, five-celled, five-valved. Seed numerous. Embryo naked, with centripetal radicle.

1. I. Balsamina. Willd. spec. i. 1175.

Leaves lanceolate, serrate. Peduncles one-flowered. Nectary shorter than the flower.

Tilo-Onapa. Rheed. Mai. ix. 101. U 52.

Beng. Doupati.

Hind. Gool-mendee.

2. I. tripetala. R.

Leaves alternate, opposite and tern, broad-lanceolar, serrate. Peduncles from one to many-flowered. Corol threepetal led; horn of the ample nectary hooked.

A native of the mountains near Silhet, where it flowers and ripens its seed more or less the whole year round. *Rheede's Tilo-Onapu* is, 1 think, more like this than it is to I. *Balsumina*, though quoted for that species; and I can scarcely conceive this to be that plant in its original wild state.

Root annual, fibrous. *Stem* erect, swelled at the leaves, scarcely pubescent in any respect. *Branches* opposite, several pairs, and generally below the middle of the plant; ^hole height from one to two feet. *Leaves* on the stem opposite, and teru; on the branches often alternate, long-peti-

oled, broad-lanceolar, serrate, a little hairy, particularly the serratures; about three inches long, by one broad. Flowers axillary, from one to many, in the latter case their long pedicels are inserted on a very short, common peduncle* Perianth of two, small, bi^cte-like leaflets. Corol three-petalled; the upper one forming a roof over the interior part of the whole flower; lateral pairs composed of two, large, roundish lobes each; the lower lobes thereof for mi ug the lip. Nectary large, with a hooked or incurved slender horn from its obtuse end. Stamina. &c. as in the o-enus.

It has a pretty appearance when in full blossom, the flowers being numerous, largo, and of a lively red colour, with the nectary deeply tinged yellow.

3. I. natans. Willd. spec. i. 1175.

Leaves linear-lanceolate, serrate. Peduncles three-flowered. Berries five-seeded.

Telinga. Neer-Ganaroo, i. e. water Oleander.

This is a large annual species; a native of ponds, ditches, &c. of sweet water. It flowers during the rainy aud cold seasons.

Stem piped, all the parts that grow in, or float on the water, bending in various directions, and being often some yards in length; the part above the water is erect, branchy and from one to two feet high. The former part is jointed, with roots from the joints, and the pipe interrupted there; the erect part five-sided, smooth, coloured, as thick as the fore-finger; pipe interrupted at the leaves, as in the floating parts. Leaves sessile, scattered, lauceolate, serrate, smooth: from four to five inches long, and less than one broad; there is a gland ou each side of the base instead of stipules. Peduncles axillary, solitary, generally three-cleft, three-flowered. Bractes (Involucres) oblong.* Flowers large, very beautifully variegated with red, white, aud yellow. Pericarp* Berry sub-globular, five-grooved, succulent, smooth, red,

frize of a cherry. *Seeds* five, hard, nut-like, obliquely oblong-, lapped over at both ends.

When in flower, this is one of our most elegant water plants.

LEEA. Schreb. gen. N. 1432.

Calyx five-toothed. Corol one petal led, with a five-cleft, staniiniferous nectary in the mouth of the tube. Germ six-col led; cells one-seeded.

This definition includes, I think, Aquilicia sambucina, which of course I do not consider as a distinct genus.

The position of the anthers in this family is so remarkable and anomalous, that I know of nothing like it elsewhere. The filaments are inserted into the bottom of the fissures of the nectary, and rise parallel with its segments, to their height, where they are quickly bent in and down, to their projecting apices, the inverted anthers are attached near the middle of their backs, with their sides touching, and in most of the species, as firmly united as in any syngenesious plant, forming a cylindrical tube round the stigma; in this position they Remain, until by the detachment of the filaments from the nectary, they fall off* in one body.

1. L. macrophylla. /?.

Herbaceous. Leaves simple.

Sans. Sumoodruka.

Beng. Dhol-Shwmoodra.

Is common throughout Bengal. Flowering time the rainy reason.

Root tuberous, perennial, red. Stem erect, annual, flexuose, jointed. Leaves simple, alternate, petioled, broad-cordate, irregularly serrate, or tooth-lobed; posterior lobes large and °verlapping each other; smooth on both sides, except that on the under 6ide the numerous veins are very protuberant, of wh fh- the larger are always opposite; from one to two feet

long, and nearly as broad. *Petioles* tapering from the base, furrowed below, channelled above, as far as the stipule-like membrane reaches. Cymes terminal, large; first division three-parted, or three distinct cymes, superior divisions less regular* Flowers very minftrous, small, white. Bractes small, falling. Calyx five-toothed, permanent. Carol one-petalled. Tube length of the calyx. Border five-parted; divisions lanceolate, expanding with an incurved apex, and there bagged. JVectary; in this species the apices of the divisions are entire. Filaments five, length of the nectary, and inserted on the bottom of its five fissures. Anthers inverted within the mouth of the nectary, with their sides united. Germ superior, sixcelled, with one ovulum in each, attached to the base of the Stigma simple, perforated, lodged Style cylindric. about the middle of the inverted anthers. Berry much depressed, torose, size of a small cherry, obscurely six or morelobed, smooth, black, and succulent when ripe, six or morecelled. Seeds solitary. Integuments two; the exterior one somewhat nuciform, pretty thick, and brown; the inner one very thin, and lighter coloured, adhering to the perisperm. Perisperm conform to the seed, deeply intersected with brown, clammy fissures. Embryo small, scarcely half the length of the perisperm, subulate. Cotyledons subulate. Radicle inferior, pointing to the umbilicus.

-Obs. The root promises to yield a colour fit for dyeing; its taste is astringent, and it is mucilaginous.

2. L. crispa. Wilfd. spec. i. 1177.

Herbaceous, stem and branches fringed at the ancress. *Leaves* pinnate; *leaflets* oblong, serrate. *Anthers* free.

Nuluçru. Kheed. JttaLii. 43. t. 2J.

JBeng. Bun-cheha.

Grows wild among bushes near Calcutta. Flowering time the rainy season; and though the flowers are not conspicuous yet the uncommonly elegant curled wings give to the whole plant a great degree of beauty.

Hoot perennial. Stems several, herbaceous, somewhat Woody, from four to five feet high, jointed, swelled above die joints, the young shoots chJIfly are ornamented with from six to eight, thin, short, much curled wings. Leaves alter^ toate, petioled, generally quinatejpinnate, though in luxuriant plants the lower pair is sometimes compound. Leaflets Petioled, ovate-oblong, pointed, deeply and acutely serrate; veins numerous, simple, parallel, large, running off at an ang'le of about forty-five degrees, corresponding in number with the serratures of the margin, and ending in their points, as in Dillenia speciosa. Petioles four or five-winged; wings curled. &c. as on the branches. Stipules falcate, not riliate. Cymes terminal, small, a little hairy, five-flowered. Bractes minute, hairy, margins running down the next peduncle or pedicel immediately below, forming a deep groove thereon, with high winged margins. Calvx absolutely five-toothed, Carol as in the last species. Nectary also as in permanent. .Anthers lodged within the mouth of the nectary, the last. but not adhering to one another. Germ conical, six-celled, with one ovulum in each, attached to the base of the axis. Style five-grooved. Berry round, size of a small cherry, when ripe smooth, black, and succulent, six-celled. Seeds one in each cell, all of which very frequently come to perfection, °bliquely-obovate, inserted near the inner and lower angle to the lower part of a soft, central receptacle. Integument single, hard, and pretty smooth; a very thin membrane seems to cover and adhere to the perispenn. *Perisperm* conform to the seed, deeply intersected with brown, clammy fis-*Embryo* small, lodged in the base of the perisperm **ar the umbilicus, a little iucurvate. Cotyledons subulate. Radicles inferior, oblong.

3. L. robust a. /?.

Shrubby, jointed, pubescent. *Leaves* bi- and tri-pinnate; *leaflets* ovate-lanceolate, sen-ate, cuspidate. *Nectary* sub-globular.

A native of the northern Circars. In the Botanic garden at Calcutta, it flowers during* the rains.

Stem* in plants five years*old erect, about five or six feet high, stout, simple, flexuous, jointed, round, the woody parts pretty smooth, the more tender parts rather harsh, with coarse, short prubescence. Leaves alternate, from pinnate to tripinnate, from one to three feet long-, and often broader than long. Leaflets ovate-lanceolate, the lateral ones with a broad-cordate base, serrate, hairy underneath; from five to ten inches long¹, and from three to five broad. Petioles channelled on the upper edge. Stipules petiolary, large, semi-elliptic, villous, caducous. Cymes terminal, super-decompound, villous. Flowers very numerous, small. Bractes linear, villous, caducous. Calyx cam pan ul ate, five-toothed. Corol green, five-cleft. Nectary round, urceolate, pearl-coloured, inserted on the mouth of the small tube of the corol, and there contracted by a sharp vein on the inside, deeply five-parted; segments linear-oblong-, fleshy, with a thin, rounded apex. Filaments inserted iuto the bottom of the fissures of the nectary, above the middle jointed, and there bent in and down. . Anthers linear-oblong, inverted, and in that position their margins are firmly united into a ring round the stigma. Germ superior, ovate, six-celled, with one ovulum in each, attached to the base of the axis. Style short, but thin, and six-grooved. Stigma rather large, entire, convex. Berry much flattened, fcize of a small cherry, smooth, black, and somewhat succulent* Seed solitary. Ferisperm conform to six-Iobed, six-celled. the seed, intersected with some deep brown fissures, as in all the other species examined by me. Embryo small, a little Cotyledons subulate, lladicle j'uferior, pointing' *° curved. the umbilicus.

4. L. hirta. Herb. Banks.

Shrubby. Leaves pinnate, and bi-pinnate; leaflets lanceolate, serrate, hairy. Antlters connected.

Beng. Kakwjangba.

A native of the lower parts of Bengal. Flowering- time the rainy season.

Stems several, somewhat woody, flex uose, jointed. Bark greenish, slightly scabrous; branches few, and like the stem. Leaves alternate, petioled, from simple to decompound. Leaflets opposite, oblong, serrate, scabrous and hairy on both sides, particularly on the under one, from two to eight inches long, and from one to three broad. Petiole and petiolets round, scabrous and hairy. Stipules petiolary. Nectary inserted into the Cymes terminal, three-parted. edge of the projecting ring* which surrounds the mouth of the tube of the corol, the tube of which is erect, and five-parted; divisions oblong, emarginate. Filaments five, the length of the nectary, and inserted into the bottom of its five fissures. •Anthers oblong, three-fourths or more lodged within the mouth of the nectary, with their points downwards, and firmly coalescing at the sides into a tube. Berry; when ripe it has much the appearance of a black currant, a little flattened, generally six-seeded, when dry it appears with as many lobes, (torose). Seeds, &c. exactly as in the former and following species.

5. L. sambucina. Willd. spec, i. 1177.

Shrubby. Leaves from simple to decompound; leaflets ovate, oblong, serrate, smooth. Cymes super-decompound.

Frutex aquosus, foeinina. Rumph. Amb. iv. t. 45.

Aquilicia Sambucina. Linn. Mant. 211. Gtert. carp. 2. 127. t. 108.

A native of the Moluccas, from thence introduced into the Botanic garden at Calcutta, in 1798, where it blossoms during the rains, and ripens its seed hi November, December, and January.

Stems erect, almost straight, ramous, height of the whole plant from eight to twelve feet. Bark slightly furrowed lengthways, in other respects smooth. In this species roots generally descend to the ground from the lower joints of the

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stems. Leaves from simple to decompound. Leaflets, the single leaves, which are rarely present, from ovate to nearly round; those of the compound leaves from ovate-oblong to linear-oblong, serrate, smooth on both sides. Corymbs terminal, trichotoinous. Flowers small, yellow; structure as in the former species. Berries round, pulpy, smooth, glaucous, black, size of a marrow-fat pea, six-seeded; when dry torose.

6. L. Staphylea. /?.

Shrubby. Leaves compound and super-decompound; leaflets linear-oblong, finely taper-pointed, serrate, smooth on both sides. Cymes thin.

Aquilicia Otillis (Otillis zeylanica. J G<ert. carp. i. 275. t. 57.

Staphylea? indica. Burnt. Tnd. 75. /. 24./I 2.

Betty. Kookoor-jthwa.

Teling. Ancados.

Stems several, erect, stout, ligneous. "Branches few; the young ones flexuose, smooth; round, articulated. Leaves alternate, compound, and decompound, commonly about eighteen inches long; pinnce opposite, generally 1 wo pnir, the lower pair is sometimes compound; all terminate with an odd one. Leaflets opposite, petiolated, linear-oblong, pointed, serrate, smooth on both sides; from four to seven inches long, and from two to three broad. Petioles and petiolets round, smooth. Stipules large, adjoined to the lower part of the petiole, coloured, leathery, falling. Cymes terminal, hir'e, with frequently a smaller one accompanying the chief one. small, greenish white, very numerous Calyx cup-shaped, five-toothed, permanent. *Corol* one petalled. Tube a little longer than the calyx. Border five-parted; divisions oblong, concave, with an incurved point. Nectary a yellow, fleshy, five-cleft ring, inserted into the mouth of the tube of the corol, descending wijh a contracted rim considerably into it, and rising about it; divisions emarginate. Filaments five,

inserted into the outside of the nectary, just below, or rather in the lower sloping edge of its fissures. Anthers oblong, inverted within the nectary, their sides adhering to each other as in the plants of Syngenesia. Germ superior, globular. Style the length of the tube of the corol. Stigma simple. Berry dry, size of a small cherry, flattened, five or six-grooved, five or six-celled. Seeds one in each cell.

7. L. integrifolia. R.

Sub-arboreous. Leaves super-decompound; leaflets Ianceolar, entire, acuminate. Corymbs super-decompound.

Teling. Booradtpakai.

A native of the moist vallies among the Circar mountains. It is a large shrub, and flowers during the wet season.

Leaves alternate, super-decompound, about thirty inches Pinna as in the last species; the lower pair always Leaflets opposite, sub-sessile, linear-lanceolate, bipinnate. and Innceolar, sometimes very slightly serrate; smooth above, a little downy underneath, from six to eight inches long, and from two to three broa J. Petioles and petiolets smooth, with an elevated ridge running along the upper side; beyond the lower pair of pinnae the ridge has a groove in it. Stipules as in the former. Corymbs terminal, &c. as in the last species, Calyx as in the other species. Corol; tube but larger. shorter than the calvx, in other respects as in the last species. Nectary composed of five erect, emarginate scales, issuing from the mouth of the tube of ihe corol. Filaments five, alternate with and longer than the neetarial bodies. Pistil, pericarp, and seeds, as in the last oblong, pointed. species; it is rather more common for the capsule to be sixseeded in this species than in the others.

FITIS. Schreb. gen. N. 396.

Calyx five-toothed. Corol five-petalled. Germ two-celled; cells two-seeded; attachment inferior. Berry superior,

from one to four-seeded. *Embryo* erect, and furnished with a perispėnii.

1. V. indica. Willd. spec. i. 1180.

Shrubby, scandent. *Leaves* round-cordate, often more or less angled, finely serrate, downy underneath. *Tendrils* panicle-bearing. *Germ* embraced by a five-lobed cup. JSerries round, from one to two-seeded.

Schembra-valli. Rheed.MaL vii. 11. U 6.

Beng. Amdhouka. *

A native of various parts of India. Flowering time the month of April. The fruit ripens in July.

Stem and branches long and slender, *Root* perennial. climbing up and over trees, hedges, &c. to an extent of many fathoms; young shoots villous. Tendrils opposite to the leaves, floriferous, beyond the flowers bifid. Leaves alternate, petioled, round-cordate, more or less angular, finely serrate, more or less villous according to their age, particularly underneath, from three to six inches each way. Petioles rather shorter than the leaves. Panicles issuing solitarily from the middle of the tendrils, peduncled, ovate, dense. Flowers numerous, very minute, greenish purple. Calvx small, five-toothed. Petals five, ovate-oblong, at first spreading, afterwards reflex, and not cohering at top as in some of the species. *Nectary* a five-toothed, saucer-shaped body, surrounding the base of the gc*rm. JFi/amettts five, nearly as long as the petals. Germ superior, nearly round, two-celled, with two ovula in each, attached to the bottom of the cell. *Style* none. Stigma five-lobed.

2. V. lanata. R.

Shrubby, climbing. *Leaves* cordate, serrate, woolly underneath. *Racemes* panicled, leaf-opposed. *Petals* cohering at top.

A native of the forests amongst the Circar mountains. Flowering- time the cold season.

rrunk woody, climbing over trees, &c.; yonftg shoots very long, covered with a little rusty wool. Tendrils opposite, simple, or split. Leaves alternate, pctioled, cordate, serrate; above a little woolly, below much so; four inches long-, by three broad. Petioles round woolly, two inches long-. Peduncles opposite, composed of compound racemes, a little woolly. Flowers very numerous, small, green, fascicled. Petals cohering at the top; when they drop they seem to be a monopetalous corol, and what was the top must then be considered as the bottom. Berries round, purple, succulent, size of a pea, one or two-seeded.

3. V. laufolia. R.

Herbaceous, climbing. *Leaves* cordate-lobate, crenate-serrate, smooth. *Tendrils* panicle-bearing. *Petals* oblong. *Germs* embraced by a necturial cup.

Vallia-Pira-Pitica. Rheed. Mai. vii. 13. t. 7.

Beng. Govila.

A native of Bengal and of the warmer maritime parts of India, blossoming about the beginning of the rainy season; and ripening its fruit in July.

Stem and branches herbaceous, climb-Root tuberous. ing, round, and smooth, very long, and slender, running over trees, &c. to a great extent. Tendrils leaf-opposed, generally two-parted, panicle-bearing. Leaves petioled, alternate, always opposite to a tendril, nearly of a round, cordatelobate shape, with three, five, or seven rather acute lobes; margins serrate-dentate, pretty smooth on both sides, length and breadth from three to nine inches. Panicles issuing solitarily from the middle of the tendrils before they divide; peduncles ovate, dense. Flowers very numerous, small, of a Bractes linear. Calyx small, obdeep reddish brown. scurely five-toothed. *Petals* oblong, at first expanding-, then reflexed. Germ superior, nearly round, two-celled, with two ovula in each, attached to the bottom of the cell. Stigma a pit in the lobate apex of the germ. Berry

the size, shape, and appearance of a black currant, rarely more than two-seeded. *Perisperm* conform to the seed. *Embryo* erect, in the lower half of the perisperm. *Cotyledons* nearly round. *Radicle* inferior.

4. V. parvifolia. /?.

leaves angle-cordate, three-lobed, crenate-serrate, smooth. Stipules oval. Thyrses leaf-opposed, few-flowered.

A slender, perennial vine, of exactly the habit of the common grape vine; a native of the eastern part of Bengal. Flowers in February.

Stems and old branches ligneous considerably flattened, ten or twelve feet high. Lark dark brown, with the exterior lamina thin, and frequently peeling off; young shoots somewhat angular, and pretty smooth. Leaves simple, cordate, sometimes three-lobed, crenate-serrate, apex somewhat attenuate, smooth on both sides, about two inches lon<r. Stipules oval, caducous. Thyrses opposite to drils bitid. the leaves, diverging, very small, and only a little longer than the *petioles*. Flowers very minute, green. scurely five-lobed. Petioles five, cohering, and falling' off in one body. Nectary five-rounded scales, embracing the base of the germ, alternate with the filaments. Filaments five, length of the germ, at first erect, but by age becoming recurved. Anthers ovate. Germ round, four-celled, with one ovulum in each, attached to the base of the axis. Style scarcely any. Stigma obscurely lobed.

MUSA. Schreb. gen. N. 1563.

Polygamous. Calyx. Spathes partial, one or many flowered. Coro/of two unequal petals. Flowers all hermaphrodite. Male-hermaphrodite toward the apex of the spadix. Germ inferior, abortive. Female-hermaphrodite toward the base of the spadix. Germ inferior, three-celled; cells many-seeded; attachment central. Jierry oblong, three-celled, many*

seeded. *Embryo* central, and amply furnished with a perisperm.

1. M. sapientum. Willd. spec. iv. p. 894.

Spadix drooping, spatbes ovate, deciduous; those of the female-hermaphrodite Howers of the wild plant often wither and remain till the seeds are ripe, but in the cultivated varieties they are always deciduous.

Bata. Rheed. $Ma \pm i$. 17. t. 12,13, and 14.

Mtisa. linmph. Jlmb. v. 130. t. GO.

Ram KMIUI, Wiilli k?/l)a.Ram Jakialia-kulla, are the names *the* wild *banana* and plantafh are known by at Chittagong where they are found indigenous in the forests, and blossom during* the rains.

Beng. Kula.

Telinga. Aretti; and Komaretti the cultivated plantain.

The varieties of the *banana*, cultivated over India, are very numerous, but fewer of the plantain, as I have hitherto obtained knowledge of only three; whereas, I may safely say, not less than ten times that number of the former have come under my inspection.

Their duration, culture, habit, and natural character are already well known; 1 shall therefore confine myself to (what I think,) the original wild *JWnsa*, from which I conclude all the cultivated varieties of both plantain and *banana* proceed, and which 1 consider as varieties of that one species.

In the course of two years, from the seed received from Chittagoiuy, the *e attained to the usual height of the cultivated sorts which is about ten or twelve feet. They blossom at seasons, though generally during the rains; and ripen their seed in five or six months afterwards; the plant then perishes down to the root, which lon«r before this time has produced other shoots; these continue to grow up, blossom, &c. in succession for several years.

-. Their leaves are exactly as in the cultivated sorts. Spa-

dix simple, drooping. Spathes partial, numerous, ovate, concave, smooth, crimson on the inside, outside darker-coloured, six or eight of these nearest the base of the spadix embrace a double row of female-hermaphrodite flowers, and are not always deciduous, but sometimes wither, and remain till the seeds are ripe. AH the rest, and they are very numerous, expanding in succession for two or three months, embrace similar double rows of abortive, or male-hermaphrodite flowers; which, with their spathes, are always c'ciduous. other than the just mentioned spathes. Corol of two, dissimilar petals; the exterior one with an unequally five-toothed apex, which soon becomes re volute, the *inner* one sometimes called the nectary, half the length of the exterior one; when forcibly expanded they are nearly round, but in their natural state oblong, and deeply concave, with an emarginate apex, and incurved, ensiform point. Filament* in both flowers five, with sometimes the rudiment of a sixth. in the male-hermaphrodite linear, and as long as the filaments; in the female-hermaphrodite minute, and without Germ inferior, oblong, three-celled, with from four to five or six rows of ovula in each cell, regularly attached to a central, fleshy receptacle axis; by their growth they are forced from the regular situation in which they are found in the germ, their insertions cannot then be easily traced; in the male-hermaphrodite they are abortive. •Style cylindric. Stigma three-lobed, large and clammy. Berry oblong, tapering to each end; of a soft fleshy consistence, smooth and yellow, marked longitudinally with five ribs, three-celled; the partitions distinct, but soft and pulpy, and no doubt dis-Seeds numerous, the size appear when dry, and lqng kept. of a small pea, round, turbinate, tubercled; the exterior half dark-chesnut or blackish toward the umbilicus, which is a large circular cavity; light brown. Integument, &c. as described and figured by Gartner. Carp. i. 28. 9. U 11.

2. M. coccinea. Andr. Repos. i. 47.

Spadix and spathes straight, the latter one or two-flower* fcd, and permanent.

Chin. On-ang-chok-chee.

This has been brought from China, where it is said to be indigenous. It thrives well in the Company's Botanic gar-* den at Calcutta, where I long took it for the banana in a dwarf state; a state the Chinese have the art of reducing most plants to; but now, after repeated examination for many years, I find it is undoubtedly a permanently distinct species. It resembles the banana and plantain in habit, and' m its perennial root.

Stem erect, generally three or four feet high, and about as thick as a man's arm. Like the other species they perish soon after fructification, and like them, are succeeded by shoots from the root. Leaves linear, &c. as in M. Sapientum. Spadix erect. Spat he s linear-oblong-, boat-shaped, erect, obtuse, both sides smooth, and of a bright scarlet colour; all are permanent, and embrace one, or at most two flowers. Flowers, the inferior ones are female-hermaphrodite and fertile. The superior ones male-hermaphrodite and abortive. With Gaertner I consider the corol as twp-petalled in this genus, (and not as a nectary;) and in this species In M. Sapientum the two ovate scales it is particularly so. over the inside of the fissures of the exterior petal may be called *nectarial*. Petals two, as long as the stamens, somewhat ringent; the *exterior* one involving the interior like a spathe, its apex three-parted; the lateral divisions thereof endino- in a slender hornlet; the middle one is broader and three-parted; soon after expansion they become reflected, *Interior* petal nearly as long as the exterior, then revolute. apex sometimes entire, sometimes three-parted. uniformly five, surrounding three-fourths of the style. thers in the male-hermaphrodite flowers linear, about as long »s the filaments, with a deep polliniferous groove on each margin; those of the fertile, or feuiale-hermaplirodite flowers

are small, and totally destitute of pollen. *Germ* inferior, oblong-, three-celled, &c. *Style* as long as the stamens. *Siiyma* oval, obscurely three-lobed. *Pericarp* of the male hermaphrodite flowers abortive, of the female-hermaphrodite ones fertile, oblong, ami a little compressed, pulpy, about two inches long*, and less than one broad, when ripe yellow, divided in ternally into three cells, with a double row of seeds in each, these seeds however rarely come to maturity here.

The plant is highly ornamental, which so far as I know, is all that can be said in its favour.

3. M. ornata. /?.

Spadix erect; spat lies deciduous, three-flowered, lanceolate. Both petals of the covols equal in length.

Beng. Rainanigee-kwla.

A native of Chittagong, where this and some other sorts are commonly called monkeys⁹ plantain*. Except in size and manner of flowering, the species does not in any respect differ from the common cultivated sorts already well known. In the Botanic garden at Calcutta, they blossom and ripen their seeds the whole year.

Root perennial, pushing forth a succession of stems every way like those of the cultivated sorts, only about as thick as a man's arm, and in general, in a rich soil from three to five feet high. Leaves petioled, fltc. as the common plan-Spadix erect. Spathes partial, alternate, boat-shnped, tain. broad-lanceolate, obtuse, smooth, striated, colour a most lovely light purple or lilac, two or three-flowered, deciduous, length from four to six inches. Flowers, the inferior five or six spathes are occupied by female-hermaphrodite ones; all the rest, and they are very numerous, by male-hermaphrodite ones, all are orange-coloured. Carol two-petalled, the exterior one irregularly five-toothed, the lateral segments with calcarate apices. The inner petal is as long as the exexterior one, thin, and membrnnaceous. Filaments five, in some flowers there is the minute rudiment of a sixth. Anthers

in the male hermaphrodite flowers linear, as long* as the filaments, in the female ones most minute and abortive. Germ inferior, in the female-hermaphrodite flowers large, and linear-oblong, with three most distinct cells, &c. in the male °ne minute. Style in the former twice as long as the filaments, with a large clammy stir/ma; in the latter shorter than the stamens very slender, and with scarcely any stigma at all. Berry linear-oblong', slightly incurved, obscurely four or five-sided, with the angles much rounded, smooth, fleshy, when ripe dull yellowish green, about the size of a 'nan's little finger, three-celled. Seeds many in a single **ow in each cell, compressed, tending to be quadrangular, tubercled, very black, inserted into the soft Meshy partitions. Perisperm and embryo as in the former species.

A very pretty ornamental plant, and would no doubt be much admired in Europe.

4. M. svperba. R.

Root fibrous and perishing with the short conical stem. Leaves petioled, but not sheathing. Spadix nodding. Spathes cordate, ninny-flowered, those of the female-hermaphrodite flower permanent.

A native of the vallies of the southern parts of the peninsula of India. From Dindig-ul Dr. Anderson of Madras received it into his garden, and from thence introduced into the Botanic garden at Calcutta, where the plants thrive, blossom, and ripen their seeds at various times of the year.

Tt nnk almost conical, being only three feet to the leaves, seven and a half in circumference close to the ground, and four and a half immediately under the leaves; and invested with the Numerous, somewhat stem-clasping bases of those that have decayed; hfight of the whole plant to the highest part of the curvature of the spadix, thirteen feet. Leaves numerous, equally surrounding every part of the stem, petioled, lanceokle, vrry entire, until broken by Mind, &c. filiform, pointed, smooth on both sides, with numerous parallel, diverging

veins; from five to ten feet long, and from two to three broad. Petioles about two feet long; those of the lower leaves have their bases broad and embrace the stem; while those near the inflorescence have long*, stem-clasping* sheaths, like those of the plantain and banana; seuii-cylindric on the under side, and deeply channelled on the upper one. Spadix terminal, simple, drooping, before any of the spathes expand, cordate. Spathes numerous, expanding* in succession, broad-cordate, slightly ribbed, smooth, ferruginous, many-flowered, permanent, and not becoming revolute. JFlowers numerous, from twenty to thirty in a double series to each spathe; thejemalehermaphrodite ones occupy the bases, or lower spathes; and the *male-hermaphrodite* ones the superior. Perianth none* Corol; petals two, very unequal. Exterior petal involving the inner one like a spathe, leathery, three-parted; the linear divisions often adhering by their margins; soon after expansion they become twisted into one body. Inner petal five or six times shorter than the exterior one, pale-coloured, almost pellucid, and composed of two sub-rotund lobes with an ensiform process between them; from the inside of the insertion of this petal a very large quantity of transparent jelly is discharged. Nectary two filiform scales inserted over the two fissures of the exterior petal. Thus far the male and femalehermaphrodite flowers agree. Filaments five, with the rudiment of a sixth on the under side. Anthers in the male-hermaphrodite flower longer and thicker than the filaments. In the female-hermaphrodite they are wanting, or only small, black, withered points. Germ beneath. In the female-hermaphrodite flower large, three-celled, and fertile; in the male one small, and barren. Style liuear, thick, and fleshy. In the feinale-hermaphrodite flower twice as long as its barren stamens. In the male-hermaphrodite one only half the length of the fertile stamens. Stigma in both somewhat three-grooved, and obscurely six-lobed, clammy. Pericarp; berry oblong, size of a goose-egg, smooth, three-celled, when ripe nearly dry, so little pulp is there on the fruit of this species. Seeds

numerous, angular, and black. *Perisperm* and *embryo* as in the former species.

5. M. glauca. R.

Root fibrous, and perishing with the columnar stem. Spadix drooping; spat lies ovate-lanceolate, imbricated, from ten to twenty-flowered, permanent; those of the male-hermaphrodite flowers withering.

A very stately, elegant, perfectly distinct, strongly marked species, a native of Pegu, and from thence introduced, by the discoverer, Mr. F. Carey, into the Botanic garden at Calcutta, where it blossoms in May, and the seeds ripen in October and November. Like my M. superba it never produces suckers, consequently it must be reared from the seed, which it furnishes in great abundance; the fruit containing little else, even fit for a monkey to eat. The whole plant has a pale glaucous appearance, which, with its columnar stem and total want of suckers, readily distinguish this from all the other Muses known to me.

Root fibrous, about triennial, for like that of my svperba, it perishes with the plant, when it has perfected its seed, and not like the cultivated sorts, tuberous, permanent, and furnishing a succession of suckers, by which they are quickly and abundantly propagated. * Stem simple, erect, columnar, from ten to twelve feet high and about two feet in circumference. Leaves numerous round the apex of the stem, &c. as in M. Sapientum. Spadix in this species rather long-peduncled, perfectly pendulous, base occupied with fertile female-hermaphrodite flowers, which are completely hid under the permanent, ovate-lanceolate spathes; the barren or male-hermaphrodite flowers occupy all the rest to the very apex, and continue to blossom in succession until the seeds are ripe, by which time this part greatly exceeds in length the fertile part, and continues covered with the withered, but permanent spathes. Corot, stamina, and pistillum, as in M. Sapientum, &c. Berries triconally clavate, as thick as a cucumber, and about four or five inches long*, smooth, striated lengthways with small veins, colour when ripe a mixture of green, yellow and pink, three-celled. *Seeds*, rather *nuts*, a few in each cell, oval, size of a field bean. *Integument* a perfect, hard, black, substantial nut, divided iuto three transverse cells, the uppermost and lowermost filled with spongy matter, the middle one is occupied by the friable white *perhperm*, in the middle of the base thereof is lodged the small, simple, short, sub-obconic embryo, the whole nearly as in *Gtertner*⁹s *Sapientum*, *Carp*. i.28. M1.f. I.

HELICONIA. Schreb. gen. N. 403.

Spathes alternate. Calyx none. Carol six-petalled. Nectary one-leaved. Germ inferior, three-celled; cells with one or more seeds; attachment inferior. Pericarp three-celled, thrt3-valved, seed solitary, or several.

J • H. buccinata. R.

Stemless. *Leaves* lanceoiar, glossy. *Spadix* central, flexuose, pubescent; *spathes* from six to eight, bifarious, diverging, each embracing from six to ten pedicel led flowers. *Nectary* oblong; *cells* of the germ one-seeded.

Folium buccinatum. Rum ph. Amb. v. 141*. t. 62.^/*. 2.

From Amboyna plants were brought to the Botanic garden at Calcutta,in 1798, where in seven years they began to blossom during the hot season, viz. April and May; but have not yet ripened their seed in Bengal.

Root consisting of numerous, strong, fleshy fibres, like the common banana, and still more permanent than in any species of Musa known to me. Stem no other than the united sheathing part of the petioles, except when in flower the scape then rises through their centre. Leaves in uumerous bundles from the same root, forming an immense, beautiful bush; bifarious, petioled, lanceolate, entire, polished, acute, with diverging veins, from two to four feet long, and one loot

broad. Rib protuberant, and pale. Petioles from three to *ix feet long, the lower half sheathing, those within smooth in every part. Scape rising through the centre of the sheathing of the petioles, and elevated but little above them. Spadix about a foot long, flexuose, hairy, compound, of from «ix to ten, alternate, bifarious branches. Spathes from six to ten, alternate, bifarious, diverging, smooth, lanceolate, boat-shaped, each embracing a small raceme, of from six to twelve, pedicelled, pretty large, pale vellow flowers, which expand in succession. Bractes numerous, bifarious, imbricated, linear-lanceolate, acute, villous, each of the most inferior ones embraces a single flower; the superior ones are smaller and abortive. Calyx none, except what I take for the corol be so called. Petals firom six to three interior, and three exterior, unequal in breadth, but of the same lencrtb, linear-lanceolate, all united at the base. Nectary or sterile-stamen, a single, oblong, acute leaflet, inserted on the base of the largest of the three exterior petals, and into this petal no stamen is inserted. Filaments five, inserted on the base of the petals on the inside. Anthers linear, erect, with their apices nearly as high as the stigma. Germ pedicelled, inferior, three-sided, three-celled, with one ovulum in each, attached to the bottom of its cell. Style nearly as long as Stigma simple. the petals.

ACHYRAJfTHES. Sckreb. gen. N. 404.

Calyx five-leaved, and calyckd. Corol none. Nectary and stigma various. Germ superior, one-celled, one-seeded; attachment inferior. Capsule utricular, one-seeded. Embryo annular, with central perispenn.

1. A. incana. /?.

Annual, erect, hoary. *Leaves* lanceolar. *Spikes* panicled, terminal. *Nectary* ten-toothed.

Illecebrum javanicum. Willd. spec. i. 1205*

Iresine javanica. Burm. hid, 212. (by mistake 312,) tab. 65./. 2.

Found wild in various parts of India, in flower, and with ripe seed most part of the year.

Stems nearly erect. Branches few, and nearly erect, all the most tender parts very hoary, indeed white; general height from three to five feet. Leaves alternate, sub-sessile, narrow-lanceolate, entire, hoary. Panicles terminal, composed of alternate, sessile, incurved, cylindric spikes, completely crowded with numerous, small, white flowers. Calycle two or three, broader, smooth, hyaline scales. Calyx five-leaved; leaflets lanceolate, hyaline, very woolly toward the base on the outside; three of the five rather narrower, and with a little green iu«the centre. Nectary a short, tentoothed cup round the germ. Filaments no other than the teeth of the nectary. Anthers could not be detected, yet the seeds are fertile. Germ superior, obcordate, one-celled, one-seeded. Style short. Stigma two-cleft; segments hairy, and recurved in opposite direction. Utriculus an entire, onecelled membrane. Seeds solitary.

Obs. From the above description it appears evident that this plant is clearly ?LWAchyranthes; having the entire membranaceous utricular capsules of that genus, containing a single, lenticular, reniform, highly polished seed, with central perisperm, and peripherical embryo.

2. A. aspera. Willd. spec. i. 1191.

Biennial, sub-erect, ramous. Leaves opposite, obovate, downy. Spikes most long, with flowers retrofracted.

Deny. Chichiria, Apang.

Cadelari. Rheed. Mai. x. 155. /. 78.

Amaranthus spicatus zeylanicus, foliis obtusis. *Burm. zeyL* 16. t. 50./. 3.

A troublesome weed in every part of India, chiefly during the rainy and cold season, but in some measure all the year.

3. A. aquatica. R.

Herbaceous, straggling to a great extent about the edges of *>weet water. Leaves opposite, lanceolate. Spikes terminal. •Flowers retrofracted. Bractes and scales of the calyx spinous.

Celosia spinescens. Koen. JUss.

A native of Coromahdel, where it blossoms during the rainy season.

4. A. J. J. Honsonicc. R.

Tetrandrous, cespitose, very ramous. *Leaves* subulate, tufted; *spikes* terminal, sub-cylindric.

Illecebrum Jktonsonite. Linn. Suppl 161.

Celosia JHonsonia?. Retz. Obs. 2. p. 13. Willd. spec. i. 1200; and Ait. kew. i. 288.

Amaranthoides spicatum Spergulce foliis. *Pluck. Almag. JMantiss.* 11. *. 334./. 4. *Almath.* 13. t. 357./. 4.

A native of Bengal and Coromandel, where it blossoms during the cool season.

Stem none, but numerous branches, with opposite, diverging, round, somewhat woolly branchlets, spreading close on the ground and extending to from one to three feet in length* Leaves subulate, opposite, sessile, with tufts of smaller ones in their axills. Spikes terminal, ovate-oblong, compact, being closely covered with numerous, minute, rose-coloured flowers. Calyx and calycle seven-leaved. Nectary four-leaved, alternate with the stamens. Stamens four. Utricules with a single seed.

5. A. lappacea. Willd. spec. i. 1192.

Biennial, straggling. *Leaves* opposite, petioled, ventricose-oblong, smooth. *Spikes* terminal; *flowers* remote, generally in pairs, with three fascicles of coloarcd. hooked bristles to the pair.

Willia-codiveli. Rheed. Mai x. 117. I, 5&.

Blitum scaudeus, fructu lappacco. *Burm. Zeyl.* 47. t. 18. f. I. (good.)

Beny. Kuya-duya. Duya-knya.

Is found in most parts of India, generally growing among¹ bushes. Flowering time the rainy season.

6. A. alternifolia. Herb. Banks.

Annual, diffuse. Leaves alternate, ovate-oblong. Spikes axillary, longer than their leaves, two variously horned bodies between the corol and calyx. Nectary none.

JBeng. Lwta-mohoor/ya, G#rngat/ya.

Teling. Chancheli kura.

Annual, common on most cultivated lands, in the Botanic garden at Calcutta; it is a most troublesome weed.

Stem when the plant is young, tolerably erect, but ever afterwards prostrate, with longer, prostrate, striated, succulent branches. Leaves alternate, pelioled, oblong, or ovate, pointed, sometimes a little waved, margins coloured; below a little hairy, about two inches long. Petioles channelled. Spikes axillary, twice as long as the leaves or more. Flowers solitary, alternate, small, red. Bractes three-fold, concave, one-flowered; immediately within each of the two lateral bractes is a compressed, ramous, green body. Calyx five-leaved; the inner segments three-coloured. Nectary no other than the enlarged bases of the filaments. Seed single, in its «rugose utriculus.

The leaves and tender tops are used by the natives in their curries. It ought to be carefully compared with A. mvricata.

7. A. prostrata. Willd. spec, i, 1194.

Annual, diffuse. Leaves opposite. Spikes filiform. Flowers re flexed, with fascicles of bridles adjoining. Sectary with five bidentate horns, alternating with the filaments.

Scheru-cadelari. Rheed. Mai. x. 157. /. 79.

Auris cauina femina. *Humph. Jlmb.* vi. 20. t. 11.

Introduced into the Botanic garden at Calcutta, amongst

spice plants from the Moluccas. Flowers during the cold season.

Root ramous, annual. Stem scarcely any, but several pairs of opposite, diffuse, round, smooth, coloured branches. Leaves opposite, sessile, oblong-, entire, coloured. Spikes terminal, solitary, filiform, sub-erect. Flowers scattered, reflected, generally two together. Bractes (or calyx) three to the two flowers, with the same number of fascicles of hooked red bristles as in A. iappacea. Nectary with five, two-toothed hornlets, alternate with the filaments, and with them united into a membranous ring round the base of the germ. Germ sub-pedicelled. Style single.

8. A. sericea. Koen. Mss.

Stem erect, downy. Leaves opposite, broad-lanceolate, covered with much silky down. Peduncles axillary, longer than the leaves, bifid or trifid, many-flowered.

A large, straggling annual, growing in sheltered shady places in a dry sandy soil.

Root single. Stem erect, with many long spreading branches resting on the ground, or something* else; all are round, and covered with silky down. Leaves opposite, petioled, broadcordate, acute, covered with very soft silky down, about an inch and a half long. Peduncles axillary, opposite, round, downy, as ISng as the leaves, each ending in two, three, or more, spreading, winding filiform spikes. The rest as in the genus.

9. A.Jerrughtea. /?.

Annual, flaccid. *Leaves* opposite, obovate. *Spikes* subconical, peduncled and sessile. *Nectary* five-toothed; each tooth ending in a proper anlheriferous filament. *Stigmas* entire.

Beng. Rnkta-Si'michee.

Hind. Lal-S#r?nchee.

A small annual, wild in gardens, or about the borders of

cultivated lands near Calcutta, where it appears during¹ the rainy season.

Stems slender, leaning¹, about a ibot long, absolutely four or five-sided, smooth, rust-coloured. Branches opposite, and like the stem. Leaves opposite, short-petioled, oval or obovate, entire, smooth, of a very soft texture, reddish, about an inch long. Spikes peduncled, or sessile, small, conical. Peditncles four-sided, length various. JBractes in general two, opposite, leaf-like, but much smaller. JFlotoers crowded, Small, dull red. Calycle three-leaved, the two lateral ones falling off with the five-leaved calyx and seed; the third or undermost one remains. There may be an impropriety in calling these the calycles. Nectary cup-shaped, five-toothed, teeth lengthened into five filaments. Stigma simple. Seed solitary, in a membranaceous utriculus.

10. A. scandens. R.

Perennial, climbing, downy. *Leaves* alternate, oblong-ventricose. *Spikes* axillary, solitary, sessile. *Calyx* hairy. *JVectary* ten-parted. *Stigma* two-lobed.

Beng. Nooriya.

A native of hedges, &c. near Calcutta; in flower about the close of the rains.

Stems and branches climbing, below woody, perennial; young parts more or less hairy. Leaves alterable, short-petioled, oblong, a little ventricose, hairy, and of a soft texture; size very various. Spikes sessile, axillary, and terminal; those from the axills small, and solitary; while the terminal ones are large, and generally three or more of them together. Calyx and calycle silver-coloured, and woolly. Nectary ten-toothed; teeth equal, alternately antheriferous. Style single. Stigma two-lobed. Capsules circumcised, coutaining a single, black, smooth reniform seed.

11. A. *lauata*. R.

Annual. «»r*-rt. ramous, woolly. Leaves alternate, orbicular.

Spikes crowded. Nectary ten-parted, alternately antheriferous. Stigmas two-cleft.

Illecebruin lanatum. Willd. spec. i. 1204.

Scheru.bula. Rheed. Mai. x. 57. t. 29. (good.)

Chenopodium incanum, raceraosum, folio majore minori opposiio. *Burm. Zeyl.* 60. f. i. (good.)

Beng. Chaya.

Is commou every where, both on the Coast of Coromandel and Bengal.

A stout, hardy, annual plant, from one to two *feet* high, flowering all the year round. *Stems* erect, with many ascending, woolly branches. *Leaves* alternate, petioled, roundish, with somewhat of a point, and tapering at the base, entire, woolly both sides; size very various. *Calyx* woolly. *Nectary* ten-toothed, as in A. *scandens*. *Spikes* axillary, oval, woolly. *Stigma* two-lobed. *Capsules* with a single, smooth, shining black, reniform seed.

Obs. The late edition of the Spec. Plant, by Reichard, makes this plant an Illecebrumj for what reason I know not.

12. A. diandra. R.

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.

A native of Ceylon.

Root fibrous, annual, or at most biennial. Stems slender, straggling, striated, clothed with a few hairs pointing forward. Leaves opposite, short-petioled, linear-lanceolate, entire, nearly smooth. Spikes terminal, solitary, simple, long, and slender. Flowers solitary, small, after blossoming reflected back close to the rachis. Bractes (csdyx?) three-leaved. Calyx of five, rigid, smooth tapering, acute leaflets. Nectary two-lobed; lobes finely and deeply multifid. Filaments two, one in each fissure of the nectary, half as long as the corol. Amthers incumbent. Utriculus turbinate. Seed solitary.

13. A. triandra. R.

Annual, creeping. *Leaves* opposite, sessile, lanceolate, smooth. *Flowers* triandrous. *Capsules* winged.

Illecebrum sessile. Willd. spec. i. 1209.

Coluppa. Rheed. Mai. x. 21. t. 11.

Amaranth us humilis foliis op posit is, flosculis in alis congiomeratis. *Burnt. Zeyl.* 17. *t.* 4.^/1 2. (good.)

Telinga. Ponagunta-kura.

Sans. Shalancht.

Beng. Shanchi, also shalooncha.

A native of Bengal where it is a common weed during the rainy season.

14. A. nodiflora. R.

Annual, diffuse. *Leaves* obovate, cuneate. *Spikes* globular. *Nectary* with only five, autheriferous divisions. *Stigma* simple.

Cclosia nodiflora. Willd. spec. i. 1202.

Amaranthoides indicum, nodiflorum, capitulis exalbo viridescentibus. *Bnrm. Zeyl.* 16. t. 5.^/1 2.

A native of Coromandel. Flowers in the cold season. The ovarium in this plant contains but a single ovuluin, attached te the bottom of its single cell, consequently its place is in this genus to which 1 have transferred it.

CELOSIA. Schreb. gen. N. 405.

Calyx five-leaved and calycled. Corol none. Nectary stamiterous, surrounding the base of the ovarium. Germ one-celled; ovula several, attached to the bottom of the cell. Capsules opening transversely and containing more seeds than one. Embryo annular, with a central perisperm.

1. C. argentea. Willd. spec. i. 1197.

Erect, annual. Leaves from lanceolate to oblong. Spikes

sub-cylindric, scariosc. *Nectary* with five, short toothlets, alternate with the loim- antheriferous divisions.

Beng. Shwet-moorga.

Hind. Debkotee.

Tsjeria-belutta-adeka-manjeii. Rheed. MaL x. 77. t. 39.

Belutta-adtka-nianjeu. *Ibid.* 75. /.38. I take for the same plant iu its wild state; at least the wild plants of *argentea* found in the corn fields of India, are more stunted in their growth, but hive their leaves broader, and the spikes shorter, as in the figure just quoted; and I am inclined to think Willdenow's *afbida*, consequently Burman's *pyramidalis*, can, at most, be reckoned only another variety of the same species. Plants from the same seed have leaves of very various breadth, and are as often with, as without the falcate stipules.

2. C. cristata. Willd. spec. i. 1198.

Annual, erect. *Leaves* oblong-ovate, -peduncled, round, striated. *Spikes* oblong.

B*>ng. Lal-inoorga, the red variety; Htridee-moorga, the yellow.

Amarantbus vulgaris. Riynph. Amb. v. 236. /. 84.

I have never been able to find any other species or variety in India, that 1 could refer to C. coccinea. 1 cannot consider the breadth of the leaves, nor falcate stipules, to beany more characteristic in this than in argentea and its varieties.

In wardens only throughout India, and thrives best during the rainy and cold seasons.

S. C comosa. Willd. spec. i. 1198.

Erect, annual. *Leaves* lanceolate. *Spikes* cylindric, tufted.

Found in most parts of India in gardens, and like the last thrives best during the rainy and cold seasons.

4. C. cernua. R.

Annual, erect, ramous. *Leaves* lanceolate, acute. *Racemes* terminal, cylindric, with long sterile, ramous, pendulous tails. *Capsules* operculed, many-seeded.

A native of the tops of the Rajm?ihal hills, where Mr. W. Roxburgh first found it in great abundance wild amongst fragments of a rich iron ore, and from thence sent the seeds to the Botanic garden at Calcutta, where it grows well, and continues in gaudy blossom, during the whole of the cold season.

Stem erect, with numerous, ascending, ra-*Root* annual. mous branches, slightly striated, colour from green to a deep Leaves alternate, lanceolate, acute, smooth, liver colour. entire, from one to six inches long, and broad in proportion. Stipules, or rather the lower opposite pair of leaves of the branches and branchlets often present, and then falcate, as in C argentea, &c. but I do not think their presence or absence can, in any of the species found in India, be taken into the specific character; for in some plants they are tolerably constant, whereas in others of the same species reared from the same seed no sign of them can be traced. Racemes terminal; the fertile flower-bearing part simple, cylindric, but curved from the weight of the long, pendulous, lovely crimson, sterile panicle into which they divide, and which gives to this charming species its great beauty. Flowers numerous, short-peduncled, before and during expausiou of a bright, vivid purple colour, but as the seed advances to maturity the margins of the scales become pure white, more or liractes tapering, acute, one larger under the less broad, base of the pedicel, find two on its apex, pressing the calyx laterally, and about half its length. Calyx; leaflets daggerpointed, rather longer than the stamina. Nectary ten-parted, the five* long, subulate, alternate ones are antheriferous, the other five short and incurved over the germ. slightly three-lobed. Capsules; the lid is a little scabrous and marked with five elevations. *Seeds* several, shining* black.

This species appears to me to differ from Retz. comosa in the following' points: 1st. Here the stamina and style are about the same length, and rather shorter than the calyx; there twice as long. 2d. Here are many, about eight seeds in the capsules; there only two.

5. C. corymbosa. Willd. spec. i. 1200.

Perennial, erect. Leaves opposite and fascicled, linear. Corymbs terminal. Calyx five-leaved. Corol five-detailed, no nectary. Capsules one-celled, three-valved; seeds many.

Paronychia foliis ad genicula confertis, acutis, floribus umbellatis. *Burnt. Zeyl.* 184. t. Qb.f. 2.

Telincja. Rajuma.

Is a native of dry sandy lands. Flowers all the year round. This would better form a separate genus than a species of *Celosia*; probably it is one of Jussieu's *Caryophyllea*.

Root perennial. Stem straight, frequently branchy, round, jointed, reddish, covered with white down; about a foot high. Leaves opposite, sessile, linear, spreading, with fascicles of many smaller leaves in their axills. Stipules generally four-fold, ensiform, membranaceous. Umbels terminal, dichotomous. Calyx five-leaved; leaflets lanceolate. AVctary, or rather corol, of five, obcordate petals, alternate with the stamens. Filaments inserted, alternate with the petals. Style short. Stigma three-lobed. Capsules three-sided, one-celled, three-valved, opening from the apex. Seeds from six to twelve or more, round.

Cattle are not found of this species.

i>. C. polysperma. R.

Annual. Leaves oblong, smooth. Spikes axillary. Nee*

PENTANDRIA MONOGYNIA,

cleft, bacciform, evalvular, many-seeded,

tary > «!i only it * antheriferous divisions, Style three-

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DEERINGIA. Brown. prodr. nov. holl. i. 413.

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I. wwwkMl. Ltmum nltenwiN*,

terminal, panicled, Styles three, Berries linee-seeded,

Deeringia.

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cordate, acute, entire. Spikes panicled, terminal, and from

ing, struted, otherwise smooth. LefiMf «llara«l*, petioled,

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tinct, Calycle three-leaved, bractiform, i'il<tm*mt five,

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III JMHUtTk I found a very large plant of this climbing

Hind.

over a small tree, of about si Unit or eighteen feet high, with

imw lew uttuuiimlilr, INWHWUI, |HI loaded with small, Mnuulb, bright red berries, each contained

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Stem ligneo

2. II. Hormerly Celosia, R.) tetragyna, R.

Shrubby, scandent, Leaves ovate-cordate, Flowers axil-Uiy Styles i.,,t.,1eft.

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young shoots pendulous, striated,

• » * mbrr (.Utiu j itow^tMK iiwr in Bcofml, tW oold

PAEDERIA, Schreb. gen. N. 412.

one seeded; attachment Mfrf»«. Sttymn N*> < I« •• Berry inferior, two-seeded.

1. P. fatida, Pitt, spec. i. 1219.

lUry MIMI Umm.

Somaraji. Asiatie Res. iv. E.O.

Beng, Gundliff imilbuice.

Hind. GOMUIL

Convolvulus for Rumph, Amb, v. 436, t. 160.

Apocynum Jbeiidvm. Bvrm. Ind. p. 71.

Is rather a rare plant, I have only found it in the vicinity of Calcutta, twining up and over trees, &c. Flowering time the beginning of the cold season. Its root is used by the Hindoos as an emetic.

Stem ligneous, twining; young parts round, smooth. Leaves opposite, long-petioled, oblong-cordate, pretty smooth, Stipules broad-cordate. Panicles axillary and terentire. minal, brachiate. Flowers numerous, of a deep pink colour. Calyx five-toothed. Bractes ovate. Corol; tube pretty long, somewhat gibbous, inside woolly. Border narrow, divided into five cordate, crenulate segments. Filaments short, inserted irregularly about the middle of the tube. Anthers erect, within the tube. Germ inferior, turbinate, two-celled; cells containing one ovuluin each, attached to the bottom of Style single. Stigma two-cleft; segments various, the cell. bent amongst the anthers. . Berry dry, compressed, smooth, with five lines on each side; one-celled, two-seeded. Seeds compressed, smooth, enlarged with a somewhat membranaceous ring all round. Peri&perm conform to the seed, but scanty. Embryo large, erect. Cotyledon* routid, cordate. Radicle short, inferior.

2. P. recurva. R.

Shrubby. Leaves lanceolar, acuminate. Corymbs terminal, recurved.

A slender shrubby species; a native of Chittagong, where it is chiefly/ound in moist situations amongst the hills, flowering in the hot season. The seeds ripen in October and November.

Stem and branches erect; young shoots round, and smooth. Leaves opposite, short-petioled, lanceolar, entire, acuminate, pretty smooth on both sides, about six inches long, and from two to three btoad. Stipules as in the other rubiacete, with a subulate, hairy point. Corymbs terminal, recurved, brachiate, villuus. Bractes opposite, ensiform. Calyx five-cleft,

hairy; segments conic, pennanent. Cbrol funnel-shaped. Tube the length of the border, widening to the mouth, a lit* tie hairy on the outside* **Border** of five, contorted, oblique* ly oblong segments. Filaments scarcely any. Anthers five, linear, erect, attached below the middle to the mouth of the tube of the corol, and their lower ends in it. Germ hairy, two-celled, with one *ovulum* in each, attached to the partition a little above its middle. Style the length of the tube of the Stigma simple, linear-clavate, longer than the stamicorol. na. Berry inferior, size and colour of a black current, when dry striated, crowned with the remaining calyx, two-celled. Seeds solitary, the outside convex.; on the inside a deep pit filled with the spongy receptacle. *Integument* single, thin. Perisperm conform to the seed, hard, dull white. **Embryo** lodged in the middle of the convexity of the seed. Cotyle-Radicle inferior. dons reniform.

3. P. erecta. R.

Shrubby, erect. *Leaves* sub-sessile, broad-lanceolar, entire. *Panicles* in the terminal forks of the branchlets, erect. *Stamina* protruded.

An erect, shrubby plant; a native of the Silhet district. It flowers in May and June; and the seeds ripen about the end of the rainy and beginning of the cold season.

Stem short, erect. Bark smooth, ash-coloured. Branches round, smooth, and dichotomous. Leaves opposite, sub-sessile, broad-lanceolar, entire, smooth, ribbed with parallel veins underneath; from three to four inches long J>y one and a half broad. Stipules interfoliaceous, as in other rubiacem. Panicles solitary in the fork of the branchlets, often longer than the leaves; tlfin, being composed of a few small, short, opposite ramifications. Flowers small, numerous, white, inodorous. Calyx superior, short, slightly five-toothed. Corol with a short tube which is woolly on the inside; segments of the border oblong. Filaments short, inserted on the tube of the corol. Anthers oval, scarcely exsert. Germ turbinate,

two-celled, with one *ovulum* in each, attached to the inner, and lower angle of its cell. *Style* the length of the tube of the corol. *Stigma* two-lobcd. *Berry* inferior, the size of apea, when ripe smooth, shining', highly polished, black, two-celled; one of the cells frequently abortive. *Seeds* solitary, with a very deep concavity on the inner or flat side. *Integument* single. *Perisperm* conform to the seed, rather hard. *Embryo* lodged in the middle of the perisperm. *Cotyledons* round, reniform. *Radicle* inferior.

GUETTARDA. Schreb. gen. N. 1437-

Calyx sub-entire. Corol infundibuliform, with the border from five to eight-parted. Stamina from five to eight. Drupe dry; nut from five to eight-eel led. Seed solitary.

1. G. speciosa. Willd. spec. iv. 398.

Arboreous, unarmed. *Leaves* obovate. *Cymes* axillary, dichotomous. *Flowers* sessile, from seven to ei»ht-cleft. *Drupes* with as many seeds as divisions in the border of the corol.

Jasmin um hirsutum. Willd. up. 36.

Cadamha. jasmini/lora, v. Fleur. de St. Thome. Sonnerat. t. 2. p. 228. t. 128.

Ráva pu. Rheed. MaL iv. 99. I. 47, and 48.

On the coast of Coromandel, it is only to be found in gardens, where it is raised from the seed. It is in flower all the year round,, and highly ornamental as well as fragrant. I am not aware that it is used for any economical purposes.

Trunk erect, straight, covered with smoothish, dark-coloured bark. Branches numerous, opposite, decussated, spreading, horizontal, forming a large beautiful, shady, evergreen head, heaves opposite, petioled, nearly decussate, obovate, sometimes cordate at the base; entire, smefoth, from six to nine inches long, and from four to six broad. Petioles round, coloured, about an inch and a half long. Stipule* large, with-

in the leaves, oblong-, spreading. Cymes opposite, axillary, long-peduncled, twice two-forked. Peduncles round, a little inflected, from three to four inches long. Bractes many, linear, obtuse, caducous. Flowers sessile, from fifteen to twenty on the cyme, large, white, and exquisitely fragrant, partaking much of the fragrance of cloves. Calvx cup-\$*haped, entire, permanent. Corol; tube cylindric, an inch and a half long. 1'hroat woolly. Border from six to nine-cleft. Filaments none. Anthers as many as there are divisions in the border of the corol, linear, within the mouth of the tube. Germ Style a little shorter than the tube. Stigma nearly inferior. Pericarp a dry drupe, nearly globose, pretty globose. smooth, inwardly of a fibrous, woody texture, containing as many curved cells as there were anthers, or divisions in the border of the coroL Seeds one in each cell, much curved, concave part of the curvature outward.

Obs. I have at various times examined many hundreds of the flowers of this tree, and never found any that were hermaphrodite. It agrees better in habit and in most other respects, the seed vessels excepted, with *Gardenia* than with any other genus I have met with.

CARISSA. Schreb. gen. N. 413.

Calyx five-toothed. Corol funnel-shaped. Germ superior, two-celled; cells two to four-seeded; attachment interior, Berry two-celled, few-seeded. Embryo inverse, and furnished with a perispenu.

1. C. Carandas. Willd. spec. i. 1219. Roxb. Corom. 77. Sub-arboreous. Thorns often two-forked. Leaves elliptic, obtuse, smooth. Corymbs terminal, few-flowered. Germ eight-seeded.

Avinga, Knshna-pakphwla, and Sanscrit names. See Asiatic Res. iv. 2(W.

Telinya. Waaka.

Tarn. Kalaaha. It is also thus called by Europeans on the Coromandel coast.

Beng. Kuritmcha.

A common, large shrub; or irregularly formed small tree, growing in most wild, woody, dry, uncultivated parts. Flowering time February, March, and April. Fruit ripe in July and August.

Trunk, when it is of age to have one, irregularly bent in Bark gray. various directions. Branches and branchhts very numerous, always two-forked, and standing nearly at right angles, rigid, smooth, and round. Thorns constantly in pairs at the divisions of the branches and branchlets, and at every other pair of leaves, opposite, horizontal, very strong, smooth, and exceedingly sharp; they are frequently forked. Leaves opposite, nearly sessile, oval, obtuse, smooth, hard, shining; their insertions remarkably regular, generally one pair below the fork, crossed with the thorns; and another pair between the forks, where there are no spines. duncles terminal, generally in pairs, each less than an inch long, bearing from three to many, beautiful, milk-white, Jasmine-like flowers. Bractes, a small one at the insertion Calyx, corol and stamens, as in the genus. of each pedicel. Germ ovate, two-celled, with four ovula in each, attached to the thickened partition. Berry single, (never two, not even the rudiment of more than one,) size of a small plumb, but of a more lengthened form, when ripe of a shining black, Seeds four in each cell when all come to matutwo-celled. rity, which is uncommon; oblong, compressed, concave on the inside, from the centre of the concavity is the attachment to the large fleshy particular margins, thin. Integument Perisperm conform to the seed, white. single. Cotyledons nearly round. Radicle cylindric, suinverse. perior.

Obs. This plant makes exceedingly strong fences. The number of their strong, sharp thorns, renders them almost impassable.

The fruit just before ripe is employed to make tarts and preserves of various kinds, also to pickle, and by most people reckoned superior for these uses, to every other fruit in the country, not even the *mango* excepted.

They are universally eaten by the natives when ripe, and are tolerably pleasant to the taste even of a European.

2. C. diffusa. R.

Shrubby, diffuse, armed branches dichotomous. *Leujes* sub-sessile, roundish-ovate-cordate, mucrouate, polished. •*Flowers* terminal. Germ-four-seeded. *Berries* ovate.

Sans. Ki/rimiwd/ka.

Telinya. Waakoyloo.

Oorissa. San Kwrwnda.

Is a native of the Ganjam district, and from thence northward to the mouth of the Hoogly. Flowering time the hot season.

Stem scarcely any can be traced, but numerous, spreading*, dichotomous branches, forming* a low, broad, rigid, thorny bush. Spines opposite, &c. as in C. Caranda, at the larger pairs of the leaves ouly, horizontal, simple, bifid, or t\\ ice-bifid. Leaves opposite, sub-sessile, the alternate pairs always larger, and ovate-cordate, roundish, and without spines; all are entire, of a firm, polished, shining texture, each ending in a short, subulate, somewhat recurved point. Corymbs terminal, rarely axillary, many-flowered. Flowers pure white. Calyx five-toothed, small. Corol funnel-shaped; the upper half of the tube a little swelled. of five, obliquely-lanceolate divisions. Filaments five, inserted rather below the middle of the tube of the corol; anthers oblong. Germ ovate, two-celled, with two ovula in each, attached to the middle of the partition. Style half the length of the tube of the corol. Stigma double, the lower half nearly round, the upper half more slender, and taper-Berries oval, pulpy, when ripe smooth, shining black, ing*.

size of a French bean, two-celled, with two seeds in each. Seeds, per isperm and embryo as in C. Carandas.

3. C. villosa. JR.

Shrubby, tender parts viilous. *Leaves* from broad-lanceolate to oblong-acute. *Flowers* terminal, sub tern, or seven. *Germ* four-seeded, (two in each cell.)

Several plants of this shrub have been long* cultivated in the Botanic garden at Calcutta, but from whence, or how they got into the garden, has never been ascertained. Flowering time the same as the other species, viz. during the warmest time of the year, March, April, and May. This species seems perfectly distinct, and has much less to recommend it than either *Carandas*, or *diffusa*. In most respects it agrees pretty well with VahPs description of C. *cdnlis*. The following description will, however, point out some difference.

Stem rather weak, and leaning considerably, soon dividing into several, rather slender, dichotomous, flexuose branches. Mark of the ligneous parts spongy, and deeply cracked; that of the young shoots viilous. Thorns opposite, at the forks of the branches, and in all other parts at aveyz ^jgcgijij, straight, strong, very sharp, and less frequently compound than in the other two species just mentioned. Leaves opposite, short-petioled, oblong, and broad-lanceolate, acuminate, soft with down, particularly while young, from one to two inches long, and rarely more than one broad. Stipules small, and only present where the spines are. Flow* ers terminal, tern, or twice tern, small, white. Calyx; segments lanceolate, acute, viilous. Tube of the corol a little curved, swelled near the mouth. Border of five, linear-lanceolate, acute segments. Stamina lodged in the swelling of Germ conic, two-celled, with two ovula in each, attached to the partition. Style shorter than the tube. Stigma large, with a viilous, bidentate apex. Berry round, the size of a pea, smooth, deep black-purple, two-celled. succulent, purplish, and sweet. Seeds one or two in each

cell, shape various, concave on the inside, convex on the exterior. *Integuments* single, light brown, and rather roug-b. *Perisperm* conform to the seed, white, amygdaline. *Embryo* inverse, white. *Cotyledons* roundish. *Radicle* cylindric, length of the cotyledons, superior.

4. C. axillaris. R.

Sffrubby, armed with simple, opposite, recurved spines. *Leaves* short-petioled, oblong. *Corymbs* pedificied, axillary, many-flowered.

A native of the Moluccas.

CERBERA. Schreb. gen. N. 415.

Calyx five-parted. Corol funnel-shaped. Germ two-lobed * lobes two-celled; cells two-seeded; attachment interior. Drupes superior, one or two singly, one-seeded. Embryo inverse, without perisperm.

1. C.jruticosa. R.

Shrubby, dichotomous. Leaves broad-lanceolar. Corymbs terminal. Drupes obliquely urn-shaped, and gaping. 7

From Pegu this elegant shrub has been introduced into the Botanic garden at Calcutta, where it is in constant blossom. The flower like those of *Vinca rosea*⁹ but larger, and faintly fragrant; it is in fact one of tike most ornamental shrubs in the garden.

Stem short, soon dividing, and sub-dividing into many, straight, round, smooth, dichotomous branahes and branchlets. Leaves opposite, often remote, short-petioled, from oblong to lanceolate, entire, smooth, acuminate, about five or six inches long, and from two to three broad. Stipules interfoliaceous, acute. Corymbs terminal when they first appear; but long before the whole of the blossoms expand, a branchlet shoots forth on each side and places them in the fork; divisions sub-trichotomous and short. Flowers large, mouth

of the tube lively red, the rest a bright lively pink, somewhat fragrant, and highly ornamental. Bractes opposite, triangular, acute. Calyx five-leaved; leaflets oblong, smooth, permanent, a smooth gland on the apex of each. Coro/infundibuliform. Tube nearly two inches long, and equally slender, except near the apex, where 4) swells considerably, mouth highly coloured and hairy. Border of five, obovateoblong, equal segments. Filaments five, short, inserted round the bottom of the swelled top of the tube. sagittate, entirely hid within the mouth of the tube. two, villous, on the sides where they meet, a small subulate scale covering the fissure on each side, singly two-celled, with one ovulum in each, attached to the middle of the par-Style nearly as long as the tube. Stigma large, with a two-lobed apex, which is lodged in the dome formed by the converging of the sagittate anthers. Drupe (in this rather capsule) generally solitary, obliquely urn-shaped, size of the first joint of the little finger, villous and veined, dark greenish purple, apex truncate, sloping much to the inner side, with a slit down the middle, semi-two-vaived, opening up the inside and along the apex, one-celled. Pulp scarcely any, the whole substance being thin and somewhat fibrous. Seeds Oplitary, ovate-oblong. Integument single, white, pretty thick, and soft. Perisperm none. .Embryo erect. Cotyledons conform to the seed, of a pale yellowish colour. dicle ovate, superiOr.

2. C. Odollam. Gtert. Carp. ii. 193. t. 124.

Leaves alternate, lanceolate, with transverse nerves, smooth.

Corymbs terminal, divisions of the calyx linear, and revplute.

Odallam. Rheed. Mai. i. 71. t. 39. But Manghas lacteseens₉ Burnt. Zejjl. 150. t. 70. J'. 1. is without doubt a different species, which Gartner has considered to be C. Manghas. Linn. -A pretty large tree, a native of salt swamps near the shores of various parts of India, yet it thrives well in the sweet and comparatively rich soil of the Botanic garden at Calcutta, where the trees are fully as large as the largest pear trees, and in flower and seed the whole year.

The wood is remarkably soft, spongy and white, the bark on the youftg, generally trichotomous shoots polished, deep Leaves alternate, and crowded about the ends of the green. branchlets, short-petioled, lanceolar, firm and polished. Corymbs terminal. Flowers large, white and fragrant. Bractes and calycine segments linear and revolute. Corol infundibuliform; segments of the border sub-triangularly falcate, in the bud imbricated. Stamina enclosed. Germ two-Iobed, each lobe with a groove on the outside, and containing two cells, with two ovula in each, attached to the partition. I never saw more than one of the lobes come to maturity, and that with rarely more than one seed, the other cell proving abor-The style is slender, and the stigma in this species is remarkably large, conical, resting in a saucer-shaped receptacle, the circumference fluted with ten grooves, and the apex two-cleft. Gartner's description and figures of the mature seed vessel and seed, are so good as to tender any thing further unnecessary.

3. C. macnlata. Willd. spec. ii. 1223.

Leaves sub-verticelled, oblong, tapering most toward the base, smooth, veined. Drupes acuminate.

Ochrosia. Jussieu. gen. plant. 161.

Found by Colonel Hardwicke indigenous on the Island of Mauritius, in seed in September. From his specimens the above definition is taken.

OPHIOXYLON. Schreb. gen. N. 1578.

Calyx five-toothed. Corol funnel-shaped. Germ twocelled; cells one-seeded; attachment inferior. Berries twin, superior, slightly united, each one-seeded. *Embryo* inverse, and furnished with a perisperm.

1. O. serpentinnm. Willd. iv. 979.

Tsiovanna-Amel-Podi. Rheed. Mai. vi. 81. t. 47.

Radix Mustela. Humph. Jlmb. vii. 29. t. 16.

Sans. Chf/ndrika, Chimimhftntree, Pttshoomehttniikarika, Ni/ndwnee, Karuvee, Bhudra, Vasoopooshpa, Vastnra, Chtftidrttshoora.

Beng. Chandra.

Hind. Ch'hota-chand.

Telinga. Patalganni.

This, in a rich soil, is a large climbing or twining shrub: in a poor soil, small and erect. It is a native of the Circar mountains. In my garden it flowers all the year round.

Stem woody, erect, climbing, or twining. Bark ash-co-loured. Leaves three or five-fold, short-petioled, oblong*, pointed, waved, entire, smooth; from four to five inches long, and about two broad. Stipules none. Fascicles axillary, peduncled, many-flowered. Peduncles long, smooth, round, sometimes nearly erect, sometimes drooping. Pedicels, and calyces of a bright red colour, which with the white flowers, gives the fascicles a very pretty appearance.

The HERMAPHRODITE FLOWERS, frflted I never could discover any other, are well described in the *Genera Planta-rum*₉ except that the corol is always contracted. *Germ* superior, two-lobed, with one ovulum in each, attached to the inner and lower corner of the cell. *Berry* two-lobed, smooth, shining black, and succulent when ripe; *lobes* the size of a pea, each one-celled. *Seed* solitary, somewhat trapezifbrm. *Integuments* two, the exterior one nuciform, most pointed at the base, hard, thick, and rugose, the inner one a fine membrane, adhering to the perisperm. *Perisperm* conform to the seed, greenish white. *Embryo* inverse, straight, nearly as long as the perisperm. *Cotyledons* round, cordate. *Radicle* sub-cylindric.

Obs. The want of the nuciform, bony, exterior integument of the seed in Geertner's O. trijbliatum, ii. 129, induces me to think his cannot be the same, yet I know of no other to compare his with.

The root of this plant is employed for the cure of various disorders by the Teliuga physicians. *First*, in substance, inwardly, as a febrifuge. *Secondly*, in the same manner, after the bite of poisonous animals. The juice is also expressed, and dropt into I be eye, for the same purpose. And *thirdly*, it is administered, in substance, to promote delivery in tedious cases.

HUNTERIA. R.

Calyx five-parted. Corol infundibuliform. Germ two-lobed; lobes one-celled, two-seeded; attachment of the ovula sub-inferior. Berries two, pedicelled, one-celled, one or two-seeded.

]. H. corymbosa. R.

A tree, a native of Prince of Wales* Island, where it blossoms in July; in Bengal, in May; but in the latter place it has not ripened its seed.

Leaves opposit getort-petioled, oblong and lanceolate, obtuse, pointed, entire, smooth on both sides, from three to four inches long, and one or two broad. Stipules none, but a swelling on the inside of the base of the petiole. Corymbs terminal, decussate. Flowers numerous, small, white. Calyx oue-leayed, five-parted, permanent, segments ovate. Corol one-petioled, funnel-shaped. Tube two or three times longer than the calyx, gibbous at the base, and swelled a little at the mouth. Border contorted, five-parted, divisions obliquely ovate-oblong, in the bud spirally imbricated. Jvectary a fleshy ring round the base of the germ. Filaments five, very short. Anthers ovate, lodged in the swelled part of the tube, just within its nioufb. Germ superior, ovate,

two-lobed, two-celled, with two ovula in each, attached with their, base to the bottom of the partition. *Style* nearly the length of the tube of the corol. *Stigma* ovate, short, with a two-lobed apex. *Berries* two, perfectly distinct, singly somewhat of a roundish ovate shape, short-pedicelled, size of a cherry, pulpy, when ripe orange-coloured, one-celled. *Seeds* two in each berry.

Obs. The whole of the generic character of this plant, agrees so well with that of Carissa, as it stands in the various editions of the Genera Plant arum that I have seen, (Jiissieu's excepted) as to leave no doubt with those, who stiJl may think two berries are the produce of one flower in that genus, that this ought to be considered a species thereof. But in all the Indian species of Carissa,* that I have yet met with, the pericarpium is uniformly single. As therefore this plant cannot be placed in the same family, I think it better to continue the former generic name (Carissa.) to the well known thorny plants described under tHft genus, for I have not yet met with any of the unarmed species, consequently cannot say what their pericarps may be. I consider this to be a well defined, perfectly distinct genus, and have named it after Dr. William Hunter of the Bengal Medical Establishment, an eminent Botanist, and author of various papers in the Asiatic Researches, of the History of Pegfijfr&.c. He was the first discoverer of this very plant.

JVEBERA. Schreb. gen. N. 1733.

Calyx five-parted. Corol funnel-shaped. Germ inferior, two-celled; cells few, or many-seeded; attachment interior. Berry bilocular; cells few, or many-seeded. Embryo centripetal, and furnished with a perisperm.

^{1.} W. corymbosa. Willd. spec. i. 1224. Gcert. carp. 3. 71. *. 102.

^{*} To which, with the celebrated Jussieu I would join Arduina.

Shrubby. *Leaves* from lanceolar to oblong, glossy. *Corymbs* terminal. *Calyx* five-parted, and nearly as long as the tube of the corol. *Capsules* few-seeded.

Rondeletia asiatica. Linn, snppl. 244.

Cupi. Rheed. Mai. ii. 37. t. 23.

Benff. Kzmkra.

A pretty large, erect, unarmed, ramous shrub, common on most parts of the Coroinandel coast.

Leaves opposite, petioled, broad-lanceolar, margins reflexed, smooth, deep shining green, with hairy glands in the axills of the large veins; six or seven inches long, and about two and a half broad. Stipules interfoliaceous, as in the other species. Corymbs terminal, large, divided by three. Flowers small, very numerous, white, faintly fragrant. Calyx, corol, and stamens as in the genus. Germ turbinate, two-celled, with from six to nine ovula in each, attached to the thickened centre of the partition. Berry the size of a large pea, when ripe smooth, shining black, two-Qhed. Seeds from four to eight in each cell. Embryo furnished with a perisperm, and centripetal radicle.

The extremities of the young shoots are often found covered with a white resinous matter. A substance of the same nature and appearance is to be found on the germs of most of the species of *Gardenia* known to me.

2. W. macrophylla. R.

Shrubby. Leaves broad-Ianceolar. Panicle terminal. Corols with a long slender tube. Berries many seeded.

A shrubby species, found by Mr. W. Roxburgh, indigenous on Prince of Wales' Island-

Young shoots somewhat villous. Leaves opposite, short-petioled, broad-lanceolar, entire, acuminate; from six to eighteen inches long, and from four to five broad. Stipules angular. &c. as in the Rubmcea of Jussieu. Panicles terrninal, very large, brachiate, villous. Bractes subulate, villous. •Flowers large, white. Calyx divided into five, short, acute,

villous segments. *Corol*; ta&e cy lindric, long, slender and villous; *segments* of the border five, obliquely linear-lanceolate, shorter than the tube. *Filaments* short, rising above the mouth of the tube. *Anthers* filiform, nearly as long as the segments of the corol. *Germ* oval, two-celled, with many *ovula* in each, attached to an elevated receptacle on the centre of the partition. *Style* longer than the tube of the corol^ villous. *Stigma* clavate. *Berry* the size of a pea, two-celled. *Seeds* many in each cell, from six to twelve, angular, &c. as in W. *corymbose*^ *Gcert. carp.* 3. t. 192.

3. W. scandens. R.

Shrubby, scandent, glossy. *Leaves* oblong, cymes axillary. *Stigma* of two oval plates.

G/ijer-kota, the vernacular name in Silhet, where it is indigenous. It flowers in April.

Stem and branches ligneous, scandent; young shoots polished, as is every tender p^; of the plant. Leaves opposite, short-petioled, long, entire, acuminate, glossy, about six: inches long, and from two to three broad. Stipules as in the rest of the Rubiacea. Cymes axillary, and in the forks of the brancblets, solitary, divisions generally bi-ternate. large, infundibuliform, fragrant, when they first open white, but like the Gardenias become yellow by the second day. Calvx sub-campanulate, five-toothed. Corol with a long, slender tube; segments of the border five, obliquely oblong. Anthers linear, sessile on the mouth of the tube. Germ inferior, oval, two-celled, with many ovula in each, attached to an elevated receptacle on the centre of the partition. Style the length of the tube of the corol. Stigma of two, thin, oval lamina.

4. W. opposițifolia. R.

Shrubby. Leaves lanceolar-oblong, firm and glossy. Panicles opposite to a leaf, composed of a few rigid, jointed, sub-

recurved spikes. *Corols* with a short, woolly-mouthed tube. *Stigma* clavate, entire.

A native of Chittagong, where it blossoms in April.

5. W. odorata. R.

Shrubby. Leaves lanceolar, polished, acuminate. Corymbs terminal. Calyx five-toothed.

Patwgroojtf, the vernacular name in Silhet, where it is indigenous, and grows to the size of a large shrub, or small tree. Flowering time the hot season, when the air is perfumed with the fragrance of its blossoms.

Leaves opposite, short-petioled, lanceolar, acuminate, entire, polished, from four to eight inches long, by from one to two broad. Stipules triangular, &c. as in the order. Corymbs terminal, trichotomous; ramifications villous. Flowers numerous, middle-sized, white, and very fragrant. Bractes opposite, sub-lanceolate, villous. Calyx poculiform, mouth Hve~toothed. Corol with the tube twi# the length of the calyx; border of five, spreading, linear-falcate segments, which are longer than the tube. Filaments five, very short. Anthers subulate, nearly as long as the segments of the border of the corol, over which they spread. Getm inferior, short, turbinate, two-celled, Vith three or four ovula in each, attached to the thickened middle of the partition. Style and stigma together longer than the corol, of a clavate-subulate shape.

ALYXIA. Banks.

Calyx five-toothed. Corol hypocrateriform. Germ two-lobed; lobes one-celled, few-seeded; attachment interior. Berries two, pedicel led, oraseeded. Embryo erect, with echinate, lobed perisperm.

1. A. stellata. R.

Shrubby, often twining. Leaves tern, and quatera, oblong-lanceolate, polished. Corymbs terminal, simple, recurved.

Gynopogon stellatum. Forst. Prod. n. 47. Willd. spec. i. 1221?

Pulassarium. Rumph. A nib. v. p. 32. t. 20.

A native of Arnboyna, and from thence brought to the Botanic garden at Calcutta in 179S, where it thrives well, blossoms about the close of the rains in September, and ripens its fruit in the cool season.

Trunk scarcely any, but many, long, twining, straggling, or scandent brandies as they meet with support. the ligneous parts ash-coloured, of the young shoots smooth, Every part abounds in a milky juice. Leaves tern, or quatern, short-petioled, oblong, or oblong-lanceolate, entire, of a deep shining green on both sides; with very slender, diverging, parallel veins; length from three to six Stipules, a small scale between the petioles. Flowinches. ers many, small, pure white, collected in small, for the most part, terminal, cymose fascicles. Bractes short, cordate, ri-Calvx deeply five-barted. Corol: tube swelled at the base, and a little below the mouth where the stamens are lodged, divisions of the border nearly round, in the bud im-Filaments short. Anthers sagittate, just within Germ two-lobed, and with care sethe mouth of the tube. parable without violence, each lobe one-celled, and containing three or four ovula, attached to the corol. Stigma slight-Berries two, when both prove fertile, which ly two-lobed. is rarely the case, short-pedicelled, oval, size of a small cherry, smooth, with a groove on the inside from the blunt-pointed apex to the base, when ripe yellowish. Pulp in very smal[^] quantity; one-celled. I have frequently found proliferous berries, that is a second, on a short pedicel, growing from the apex of the first, as iifthe genus Anosa. form to the berry. Integuments single, thin but hard and elastic, approaching to nuciform • from the middle of the inside a vertical lamina projects one-third into the seed, then divides and proceeds in opposite directions, like the receptacles in Chironia (see GarU sem. \n t. 114») to these the perisperm is attached. *Perisperm* conform to the seed, in the centre a thin portion thereof forms an entire sac, or cavity for the embryo, the rest is divided into innumerable, diverging, fleshy, cuneiform lobes; colour greenish, becoming white, texture fleshy. *Embryo* erect, straight, nearly as the perisperm. *Cotyledons* lanceolar. *Radicle* sub-cylindric, inferior.

Obs. I am inclined to think that this may be Forster's Gynopogon stellatum, or another species of the same genus; (now Alyxia; see Brown's Prodromus, Nov. Holl i. 469.) and I conclude he had not an opportunity of making himself acquainted with the carpology of the genus. Until I met with the fruit I considered it a Rauwolfia; but am now satisfied it cannot belong to that family. To what natural order? Apocynece f

OPHIORRHIZA. Schreb. gen. N. 273.

Calyx five-toothed. Corol funnel-shaped. Germ inferior, two-celled; cells many-seeded; attachment to a sub-inferior, free, clavate receptacle. Stigma bifid. Capsule two-lobed, two-celled. Seeds numerous, angular.

1. O. Mungos. Willd. i. 826.

Leaves opposite, elliptic, smooth. Corymbs terminal. Radix Mungo. Kcempf. Amoen. 573 and 577.

Leaves opposite, petioled, oblong, entire, pointed, in texture remarkably thin, length from four to six inches. Petioles short, villous. Stipules, a slight connecting membrane. Corymbs terminal, many-flowered. Calyx superior, one-leaved, five-toothed^permanent. Corol one-petalled, funnel-shaped; tube short; border five-parted; divisions oblong, hairy on the inside, pointed. Nectary a thick, two-lipped, fleshy body crowning the germ between the base of the stamens and style. Filaments five, very short, inserted on the base of the tube. Anthers linear, erect, nearly hid

in the tube of the corol. *Germ* beneath, turbinate. *Style* as long- as the stamens. *Stigma* two-lobed. *Capsule* obverse reniform, totally compressed, (two-lobed); on the outside five ribs run down from the divisions of the calyx, internally divided into two cells by a transverse partition, opening between the remains of the two fleshy nectarial lips. *Receptacle* sub-cylindric, free, affixed to the partition near its base. *Seeds* very numerous, angular.

Obs. From my own knowledge, I can say nothing of the virtues, that have been by various authors ascribed to the root of this plant. Indeed I am rather inclined to look upon the whole to be a fiction.

2. O. villosa. R_m

Suffructicose, erect* villous. Leaves from ovate-oblong to lanceoiar. Corymbs terminal, long-peduncled, villous.

A native of shaded, moist places amongst the hills of Chittagong; where it blossoms in May, and the seed ripens in three or four months.

Stems a few inches high, simple, sub-ligneous, while young hairy. Leaves opposite, short-petioled, oblong, entire, veins many, large, parallel, and hairy; from three to four inches long, and one or two broad. Stipules ensiform, villous. Corymbs terminal, solitary, rather long-peduncled, sub-globular, rough, with ferruginous pubescence, composed of a few recurved, short, villous branches, with the numerous, white, sub-sessile flowers on the upper, or convex side there-Calyx hairy, five-toothed. Corol funnel-shaped. the length of the five segments, its mouth shut with hairs. Filaments five, inserted on the bottom of the lube of the ilnthers linear, erect, *Nectary* a fleshy bilabiate body on the top of the germ embracing the base of the style, as in O. Mungos. Germ turbinate, inferior, two-celled, with numerous ovula in each, attached to two large, free receptacles which are attached to the base of the partition. Stigma large, two-lob* the length of the tube of the corol.

ed, villous. *Capsule* two-lobed, transverse, breadth twice the height, two-celled, opening round the apex. *Seeds*, &c. as in O. *Mungos*, *Geert. Carp.* i. 264. *t.* 55.

GARDENIA. Schreb. gen. N. 416.

Calyx with the divisions uncertain. Corol funnel-shaped. Germ inferior, one-celled, with numerous ovula, attached to two or more parietal receptacles. Berry one-celled, many-seeded. Embryo furnished with a perisperm, directions various.

With Jussieu, Lamarck, Gaertner and others, I have at last separated the *Gardenias* with a one-celled seed vessel and parietal receptacles from those which are two-celled, with the receptacles attached to the partition. To those still called *Gardenia* belong the following unarmed species, viz. G./?o-rida, calyculata, costata, latifolia, arborea9 lucida, gummiferay tetrasperma, montana, and the two armed species, tur~gida, and campanulata. And to the latter (PosoqueriaJ belong uliginosay dumetorum, nittans, longispina9jragrans9 Jästiculata, and longiflora, all of which are armed.

SECT. I. Unarmed.

1. G.florida. Willd. spec. i. 1225.

Shrubby, unarmed. *Leaves* oval, acute at both ends. *Berries* long, turbinate, with as many sharp ridges as there are divisions in the calyx.

Sans. Gtmdhtcraja.

Seng. Gwndhwraj.

Catsjopiri. Humph. Amb. vii. 26. /• 14.yi 2.

A large, very ramous shrub, found in gardens about Calcutta, and originally from China.

Thunberg's description of it is the best I have seen, I can only add that the flowers are axillary for the most part, and that in the calyx I have always found a small inflected toothlike process at the bottom of each fissure, which exists also in that of the ripe berry. The seeds nestle in a firm, deep orange-coloured pulp, which is a substance employed for dyeing in some parts of India.

To distinguish it from Gardenia sulcata, Gart. carp. iii. p. 78. tab. 194, I will add the following account of the fruit of this species. Germ turbinate, from five to six, acute-angled; at the base from three to five-celled; above one-celled, with from three to five parietal receptacles, to which the numerous ovula are attached. Berry oblong, orange-coloured, smooth, the size of a pigeon's egg_{θ} down the sides run six equidistant ribs, a continuation of the permanent, ensiform segments of the calyx, one-celled. *Receptacles* generally four, projecting from the lining of the cell to about one-fourth of its diameter, when they divide into two or more portions. Seeds numerous, nidulant in orange pulp, roundish, a little compressed, rugose; mode of attachment on the ripe fruit obscure. *Perisperm* conform to the seed, pale. straight, nearly as long as the perisperm. Cotyledons two, cordate. Radicle straight, pointing to, very near to the umbilicus.

2. G. culyculata. R.

Arboreous. Leaves petioled, ovate, acuminate, smooth. Flowers terminal, solitary, sessile, germ involucred. Calycine segments ensiform. Anthers within the swelling tube of the five-cleft corol.

Native place uncertain; some thirty years ago, it was brought from Ilydradad to Lord Pigot at Madras, who planted it in his garden there, where it was pointed out to me by Lady Clive in 1798. The flowers are large, white, and like most of the genus, fragrant.

3. G. costata, R.

Arboreous, unarmed. *Leaves* cuneiform-oblong*, smooth, ribbed. *Calyx* five-angled. *Flowers* hypocrateriform.

Berry drupaceous, oval, five-ribbed, one-celled, shell two-valved.

A native of the mountainous parts of India. From those of Cuittagong, it has been introduced into the Botanic garden at Calcutta; where, in ten or twelve years it has arrived to the size of a small elegant tree. It blossoms in April, and the seeds take nearly one year to ripen.

Trunk straight, in twelve years old trees eighteen inches circumference. The brandies expand but little, the bark of the ligneous parts is smooth and ash-coloured, that of the young shoots round, and somewhat harsh, with short, adpressed hairs; whole height from ten to twenty feet. Leaves opposite, short-petioled, oblong, and cuneiform-oblong, smooth, when young resinous, entire, pom fed; veins numerous, large, and parallel; length from six to twelve inches, and the breadth Stipules interfoliaceous, supporting the from three to five. leaves. Flowers terminal, or nearly so, very large, the tube being above three inches long, and the border above four mcjiameter; when they first expand at day-break, they are white, but in the course of the day change to a pretty deep yellow, powerfully fragrant. Calyx cylindric • mouth irree-ularly divided into five lobes; outside resinous, and strongly marked with five, very prominent angles, caducous. my lucida, which this resembles most, it is permanent, smooth on the outside, and deeply divided into five uniform segments.) Corol; tube cylindric; border of five obliquely ovate segments. Anthers five, sessile, completely within the mouth of the tube, of two filiform lobes. Germ clavate, five-angled, and one-celled, with numerous ovula attached to two opposite receptacles, rising from the sides of the cell, as in Gaertner's figure of Chironia baccifera, carp. 2.1.114. Style the length Stigma rather above the tube, large, and conof the tube. sisting of two variously grooved lobes. Berry drupaceous, oblong, ventricoso, smooth, yellow; five strong vertical ribs run its whole length. Pulp yellow, soft and rather foetid, Shell thick, hard, and two-valved. Seeds nuone-celled.

merous, small, shape very irregular, but always much flattened, nidulant in dark-coloured, soft pulp. It is only in fhe germ that their insertion can be clearly traced. *Integument* hard and two-valved. *Perisperm* soft. *Embryo* straight, nearly as long as the perisperm^ *Cotyledons* ovate. *Radicle* as long as the cotyledons, and pointing directly to the umbilicus which is generally the most pointed end of the seed.

4. G. latifolia. Willd. spec. i. 1226.

Arboreous, unarmed. *Leaves* opposite, or tern, sub-sessile, dvate. *Flowers* terminal, three-told, sessile, from eight to nine-cleft. *Berry* drupaceous, round, even, oue-ceUed, five-halved.

Hind. Papara.

Gardenia enneandra. Kb'nig's JWss.

Telinga. Caringua.

Is a native of barren rocky hills both in the Cirrare, and Carnatic, like the other species it flowers about the beginning of the hot season, and the *.eeds take nearly one year to ripen.

By slow growth it becomes a small tree, with sub-erect branches, covered with smooth, ash-coloured bark. either opposite, or three-fold, in a good soil always three-fold, nearly sessile, inserted into the stipulary ring, obovate, entire, of a deep shining green on the upper side, paler on the lower; veins many and large, running parallel; in their axills are hollow glands, with hairy margins; from six to twelve inches Stipules annular within the leaves, splitting irregular-Flowers one, two, three, or four, at the extremities of the branchlets, very large, very fragrant; when they first open in the morning white, gradually growing yellow Peduncles short, one-flowered. before night. Calyx small, irregularly divided. Corol; tube long, cylindric, smooth. Border large, spreading, from seven to eleven-cleft, divisions obliquely oblong, the length of the tube. Filaments none. Anthers corresponding with the number of segments in the border of the corol, linear, pointed at both ends, half iinmersed in the tube, the other half above its mouth. *Germ* oblong one-celled, containing numerous ovula, attached to five parietal receptacles. *Berry* the size of a pullet's egg, nearly round, crowned, with a small part only of the tube of the calyx, which makes me suspect *G&rtner's* G. *lalijbfia*, *vol.* iii. *p.* 78, must belong to a different species. That my plant is the original *latifolia* I know well, as 1 was with Konig* when he first discovered it. Colour at all times a cineritious greenish yellow, a little scabrous, one-celled, and the internal, nuciforra portion five-valved. *Seeds* very numerous, attached to five parietal receptacles.

Obs. This species *is* very deserving¹ of notice. Its large, white, young, glossy, green leaves, independent of the size, beauty and fragrance of the flowers, render it very ornamental.

5. G. lucida. R.

Sub-arboreous, unarmed, erect, g*ems resinous. *Leaves* oblong, smooth, hard, and lucid, with simple parallel veins. *Divisions* of the calyx subulate. *Tube* of the corol cylindric, three times the length of the calyx, border five-parted. *Berries* drupaceous, with a two-valved cell.

A native of Chittagong and various other parts of India* It is in flower and fruit the greater part of the year.

Trunk short, and straight. Branches numerous, opposite, decussate, ascending, covered with smooth, ash.coloured bark; young shoots round, smooth, and generally incrusted with a little yellow resin, a bright yellow drop of which is often found on the gems. Leaves opposite, *>hort-petioled, oblong, smooth; margins interior and waved; rather obtuse-pointed, bard to the feel, both surfaces polished; nerves numerous, parallel, and simple; about six inches long*, and about three broad. Stipules annular, within the leaves; mouth variously divided into unequal, obtuse segments. Peduncles terminal, and above the axills, solitary, round, clavate, tmoolb, froiu half an inch to an inch long, supporting- a simple

beautiful, large, pure white, fragrant flower. Calyx five-Segments ensifonn, with the margins incurved, so as become subulate; permanent* Corol; fttfrecylindric, smooth, from one to two inches long¹, which is more than twice the length of the calyx. Border five-parted; divisions obliquely obovate-oblong*, about the length of the tube. **Filaments** none. Anthers five, very long, slender and acute, half hid in the tube of the corol, and affixed by their backs to its mouth. Germ oblong, even, one-celled, containing numerous ovula attached to two parietal receptacles. Style length of the Stigma clavate, exert. Berry drupacetube of the corol. ous oblong, size of a pigeon's egg₉ smooth, crowned with the permanent calvx, one-celled, its inner lamina of a bony hardness, turning into the cell on opposite sides, but soon separated into two receptacles each. Seeds numerous, attached to the just mentioned receptacles. Perisperm conform to the Embryo with two cordate cotyledons, and a cylindric radicle pointing to the umbilicus.

Obs. The total want of pubescence, structure of the stipules, length of the calyx, and sharpness of its divisions, distinguish this from 6. gummifera, which it most resembles.

6. G. arborea. R.

Arboreolis, unarmed. *Leaves* ovate-oblong. *Flowers* terminal, often three-fold, sub-sessile; *tube* filiform; *border* five-parted. *Berry* drupaceous, even; *shell* four or five-valved.

Tarn. Karinga inarum,

Teling. Gurga.

A native of the Circar mountains. Its leaves are deciduous during the cold season, and it continues naked till the hot season is pretty far advanced. Flowering lime the beginning of the hot season while the tree is naked of leaves.

From the buds and wounds made in the bark there exudes a very beautiful yellow resin, like that from *Gardenia gumnrifera*.

The size, number, fragrance, mutability and beauty of the

flowers of this species, renders it more deserving of a place in our gardens thau any species I know; .1 may even say, than G. *Jlorida*.

The natives eat the ripe fruit.

7. G. f/nmmifera. Linn. Sttppt. 164.

Shrubby, with resinous gems. *Leaves* oblong, obtuse-pointed. *Divisions* of the *qfitltjx* ovate, acute; and very short. *Tribe* of the corol as long as the divisions of its border.

Native of Coroniandel.

In a specimen in the Bauksian herbarium, the divisions of the calyx are long, slender, and acute.

8. G. tetrasperma. R.

Shrubby. Leaves obovate-cuneate, smooth. Flowers axillary, solitary, short peduncled, pentandrous. Calycine segments subulate. Harry round, four-seeded.

Found by Colonel Hardwickeon the mountains near Shreenugur. See Asiatic Researches[^] vi. 354.

SECT. II. Armed.

9. G. montana. R.

Arboreous. *Leaves* oblong-ventricose, downy underneath, terminal, short-peduncled. *Stamens* within the belly of the tube. *Berry* drupaceous, subr-rotund; *shell* from five to six-valved.

Telinga. Telia kakisha.

A small, rainous tree; armed with strong, short, acute thorns; a native of the Circar mountains. *Leaves* deciduous in December. It flowers about the beginning of the hot season, viz. in March and April, soon after which the leaves appear. (*Bark* white, soft and spongy. ^

(TKorns above the axills, opposite, spreading, short, but sharp; sometimes they are wanting. Leaves opposite on the young* shoots, fascicled on the older, nearly sessile, oblong,

obtuse, entire, with the margins re volute, above shining and smooth, a little downy underneath, three inches long, by two Stipules annular, within the leaves, membranous. Flowers three, four, five, or six, from little buds about the extremities of the naked branchlets, pretty large, very fragrant, when first open white, but soon becoming more or less yellow. Fedvncles short, one-flowered. Calyx small, somewhat five toothed, permanent. Corol: tube short, somewhat gibbous; throat smooth. **Border** from five to sevencleft; divisions wedge-shaped, emarginate. Filaments none. Anthers in number equal to the segments of the border of the flowers, linear, entirely within the tube. Nectary a monifiform, fleshy ring surrounding the insertion of the style. The stigma just appears within the tube. Berry the size of a pullet's egg, scabrous, ash-colour and yellow mixed; an exterior, pulpy cortex covers a hard bony shell which immediately encloses the seeds with their pulpy nidus, it is onecelled, five or six-valved, and the incurved edges of the valves form the parietal receptacles for the seeds.

10. G. cumpanulata. R_m

Shrubby, armed. Leaves lanceolar, smooth. Flowers in terminal and lateral fascicles. Calyx five-toothed. Corol cainpanulate; border five-cleft. Berry round.

A native of tha forests of Chittagong. Flowering time the mouth of JM-irch; seed ripe in November.

Trunk straight, but short, soon dividing and subdividing into numerous, stiff, erect, and spreading branches. Bark of the old parts brownish green, and pretty smooth; that of the tender parts lighter coloured; height of the shrub in five years from five to ten feet. Thorns single, short, strong, and sharp, they generally terminate the little, lateral, opposite braui'hlets. Leaves opposite, short-petioled, broad-lanceolate, tapering' most toward the base, entire, and smooth on both sides, from two to five inches long, and from one to two broad. Stipules triangular, acute. Flowers small, of a pale

yellowish white, short-peduncled, crowded on the extremities of short, rigid, lateral, spinous branch lets. Calyx cylindric, five-toothed. Corol with a five-sided, campanulate tube, and a border of five obliquely-ovate segments. . Anthers five, sessile in the bell of the corol. Germ inferior, one-celled, containing numerous ovula attached to generally five, parietal Stigma somewhat five-grooved, receptacles. Style short. and situated deep in the tube. Berry round-ovate, the size of a o>olden pippin, smooth, depressed, and slightly five-furrowed at the apex and base; one-celled; the exterior tunic thick, fleshy, yellowish, with slender, hard, longitudinal fibres interspersed, the inner luuic thin and firm, but not bony, the edges of which turn in five portions, forming five parietal Seeds minute, nidulant in a little yellow pulp. receptacles. Perhperm conform to the seed, pale. Embryo straight. Cotyledon* round. Radicle cylindric, pointing to the umbilicus.

Obs. The fruit is used by the natives as a cathartic and anthelntintic₉ and also to wash out stains in silk.

11. G. turyida. R.

Arboreous, with swelled mealy bark, branches brachiate. *Thorns* opposite and terminal. *Heaves* obovate, smopth. *Flowers* lateral, sub-solitary, calyx five-toothed, apices of the anthers scarcely peeping from the tube of the smooth corol.

A native of Bhotan, and introduced by Dr. Carey into the Botanic garden at Calcutta, where it blossoms during the months of March and April, the season when most other species of this genus are in flower, but after being twelve years in the grarden it has not once ripened a single fruit.

Trunk straight. Hark very thick and spongy, appearing as if swollen and somewhat mealy. Branches brachiate, drooping short, aud covered with bark like that of the trunk. Spines opposite, above the axills, and, when not terminal, in form of a small leaf-bearing branchlet, shorter than the leaves. Leaves opposite, sub-sessile, obovate, entire, smooth

on both sides, from one to four inches long, and from one to three broad. Stipules interfoliaceous, acute. Flowers lateral, generally single, sub-sessile, I a roe, white, and fragrant. Calyx short, cylindric, smooth, mouth slightly five-toot lied. Carol; tube many times longer than the calyx, somewhat gibbous. Border of five, spreading, and finally revolute, obliquely-oblong, obtuse segments. Stamina no filaments. Anthers filiform, with their apices only peeping from the mouth of the tube. Germ turbinate, one-celled, ovula numerous, attached to four or five parietal receptacles. Style, short. Stigma clavate, five-grooved, rather longer than the anthers.

Obs. The swollen, even bark of this species and its straight trunk even up through the branches, render it readily known and easily distinguished from all our other Indian *Gardenias*.

POSOQUERIA. AubL Juss. Lamarck, and Gcert. also Ceriscus of Gcert.

Calyx five or six-cleft. Corol tubular, border from five to six-parted. Germ inferior, two-celled; ovula numerous, attached to a free receptacle from the centre of the partition. Berry two-celled. Seeds numerous, nidulant. Embryo furnished with a perisperm, direction various.

1. P. uliginosa. R.

Arboreous, armed, branches straight, four-sided; branchlets decussate, horizontal, bearing* the thorns and flowers at their extremities. Berry oval, drupaceous, even.

Gardenia uliginosa. Willd. spec. i. 1228.

Beng. Peeralo.

Tarn. Wagatta.

Telinga. Nella-kakisha.

A rigid ramous, small tree, armed with numerous, strong thorns. A native of various parts of India, delighting in moist places, such as the banks of rivers, low lands, &c. Flow-

ering time the beginning* of the hot season, and in some measure all the year. The seeds ripen in the cool season.

Trunk short, covered with a dark, rust-coloured, sédbrous bark* Branches, some stiffly erect, very rigid, four-cornered, thick set with short, round, diverging, decussated branchlets; others spreading. Thorns one, two, three, or four, at the extremities of the short, round branchlete just mentioned. Leaves ^opposite, on the young shoots, fascicled at the extremities of the branchlets, short-petioled, oblong, smooth; shiuing, entire, from two to three inches long, by one and a half broad. Stipules within the leaves as in the rest of the genus. Flowers one, two, or three upon their proper short peduncles, at the extremites of the branchlets, large, white and fragrant. Calyx tubular, obtusely five-toothed, perma-Corol, mouth of the tube shut up with much white nent. hair. Border flat, from five to eight-cleft; divisions orbicular. Nectary a fleshy, angular ring surrounding the base of the style. Germ inferior, two-celled, each containing numerous ovula, attached to a crescent-shaped receptacle in each cell, vertically united to the middle of the partition. Berry two-celled, size and shape of a pullet's egg₉ bark ash-coloured, or olive gray; pulp in large quantity, hard and dry. Seeds numerous, oval, flattened, nidulant. Embryo furnished with a perisperm, its direction various.

The flowers of this species render it deserving* of a conspicuous place in the flower garden. The uncommon appearance of the plant is also in its favour.

2. P. dumetorum. Willd. i. 1229.

Sub-arboreous, armed, *heaves* obovate. *Flowers* lateral, and terminal, solitary; *tube* short, border five-parted. *Berry* drupaceous, spherical.

Gardenia dumetorum. Willd. i. 1229.

G. spinosa. Suppl. Plant, p. 164.

Telinga. Manga.

This is one of the most common, thorny, ramous shrubs,

or, in a good soil, small trees, on the coast; there is scarcely an uncultivated spot where it is not to be found. Flowering¹ time the beo-innins: of the wet season.

Dr. König's description of this shrub, published in the *Svpplemetttum Plantarum* of the younger Linnaeus is good and full.

Germ two-celled, each containing many ovula attached .to a crescent-shaped receptacle in each cell, which is vertically attached to the middle of the partition. Berry round, smooth, when ripe yellow, and much like a small crab apple both in size and appearance. Pvlp in large quantity, of a firm, fleshy texture, two-celled. Seeds numerous, oval and oblonce, attached as in the germ, and nestling in a quantity of gelatinous pulp. Perisperm conform to the seed. Embryo more than half the length of the seed, straight. Cotyledons roundish. Radicle cylindric, length of the cotyledons, vaga.

It is employed for fences, and fire-wood. The flowers like all the rest of this genus are highly fragrant, but in this species few in number.

The fruit when ripe, looks like a small yellow apple; if bruised and thrown into ponds where there are fish, they are soon intoxicated, and seen floating. If this is doue during the hot season, it is said, the fish generally die, but if during the wet or cold season they recover.

Fishermen sometimes follow this mode to enable them to take the fish with more ease. They are not deemed less wholesome from the effect#of the fruit. *Coccubs Indicus* does not grow in those parts, nor is it known or used there for this purpose.

3. P. nutans. R.

Shrubby, armed, branchiets drooping. *Leaves* narrow - obovafe-oblong. *Flowers* solitary. *Berries* round, crowned with the entire calyx.

Ciriscus malabaricus. G<erU sem. i. t. 28, is with respect

to shape and size a very good representation of the berry, but to render it exact, the calycine segments, and the receptacles of the seeds must be added. The figures are too small for *dnmetornm* growing¹ in exactly the same spot, and with the same management. In the Botanic garden at Calcutta, in twelve years, this is a tall slender shrub with very slender drooping branches, and a trunk not thicker than a mail's wrist, whereas *dnmetornm* of the same age has grown to be a stout, ricrjd, small tree, with a trunk two inches and a half in circumference, at four feet above the ground.

Trunk straight, from three to four feet high. **Branches** numerous, with the extreme divisions long-, slender, and droopiuir; tender shoots a little hairy. Spines aftillary, opposite, horizontal, straight, slender, but hard, stiff, and sharp. Leaves on the young shoots opposite, on the old ones fascicled, short-petioled, from cuneifonn-oblong to round, from one to two inches long, by about one broad. Stipules triangular, acute, &c. as in the order. Flowers solitary from the old axills under the spines, with or without leaves, short-peduucled, middle-bized, white and fragrant. Calvx with a short, rather hairy, cylindric tube, and five-parted border, ('orol₉ outside sericeous. Tube very little all permanent. longer than the cil'x, swelled near the base, and there shut with a dense circle or valve of white hairs, pointing upwards. Border of five, obovato, spreading segments, which are imbricaled in the bud. Filaments, scarcely any. Anthers filiform, without the lube. Germ turbiuate, two-celled, with many ovula in each, attached to two peltate receptacles arising from the centre of the partition. Style rather longer than the tube of the corol, swelled near the middle. Stigma large, roundish, clammy, apex two-lobed. Berry the size of a nutmeg, nearly round, somewhat rugose, pulpy, crowned with the entire calyx, two-celled. Seeds numerous, small, oval, flattened. Perispenn and embryo as in the other species.

4. P. longispina. /?.

Arboreous, armed, spines opposite, and alternate, horizontal. *Leaves* obovate-cuneate, smooth. *Flowers* solitary, terminal, and axillary. *Calyx* smooth, border permanent. *Fruit* obovate, smooth.

A native of the coast of Coromandel. Flowering time the hot and rainy season.

Branches numerous, the smaller long, Trunk straight. slender, spreading, and drooping, a habit which immediately distinguishes this species from König's dumetorum; branches being short and rigidly erect. Spines opposite or alternate, decussate, horizontal, straight, strong and sharp; length from one to two inches. Leaves on the young shoots opposite, on the old ones in fascicles below the spines, all are short-petioled, obovate-cuneate, entire, smooth on both sides; size varying, from half an inch to three inches in length. Stipules (examine the very young shoot* to find them) within the leaves, subulate, pointed. Flowers solitary, short-peduncled, generally from the extremities of the little, leaf-bearing branchlets below the spines, rarely axillary, pretty large, pure white, and fragrant* Calyx perfectly smooth. cylindric; border of five, ovate-cordate, permanent segments. In *dumetorum* the tube only is permaiient. Corol salver-Tube as long as the tube of the calvx, villous on shaped. the outside, within, a ring of projecting hairs shuts it up about the middle. Border of five, obliquely ovate, spread-Filaments none. Anthers five, linear, affixing divisions. ed over the fissures of the border of the corol, and entirely Style thickened at the middle. without its tube. Berry obovate (in P. dumetorum round,) erect. two-lobed. siae of a large nutmeg, smooth, two-celled. Seeds numerous, immersed in pulp.

Obs. Thunberg's Gardenia spinosa is a plant I have not seen, if it be not König's dumetorum or this very species I have now described, consequently cannot say wherein they differ, but from dumetorum, which I know well, it differs

very conspicuously in the structure, and disposition of the branches, in the shape of the fruit, and in the border of the calyx being permanent.

5. V. fragrans. Kbn. Mss.

Shrubby, armed. *Leaves* long-obovate. *Flowers* numerous, collected in small, simple, terminal umbel lets. *Berrie>* from eight *to* ten-seeded.

Gardeniay'rai/raM^. Kon. Mss.

Telinga. Pedally.

With P. dumetorum it is a common, rigid, shrubby species; it seems also to delight in a poor soil, and like it is armed with strong sharp thorns. Brought into a good soil these almost totally disappear. It flowers about the beginning of the rains in June and July.

Leaves opposite on the young shoots, fascicled on the old ones, short-pet ioled, oblong; on both sides are smooth and glossy hollow glands in the axills of the large nerves; border hairy; from two to three inches long, by one and a half broad. Stipules connecting the petioles, acute. Umbellets simple, small, terminal, or from small tuberosities on the branchlets, bearing many, small, white, fragrant flowers. Peduncles ||iort. Bractes, a small, acute one at the base of each pedicel. Calyx five-toothed, toothlets acute. Corol, throat hairy. Border always five-cleft, divisions acute. Stamens and pistil/urn as in the genus. Berry the size of a small cherry, red, two-celled. Seeds from eight to twelve in both cells, kidney-shaped, orange-coloured.

. *Obs.* 1 know of ^Nno use this tree is put to, except to make fences, for which it is well adapted, particularly when it is the produce of a poor barren soil, it is then well armed with strong thorns. The flowers like those of all the rest, are delightfully fragrant.

6. P.fasciculata. R.

Shrubby, spines axillary, patent. Leaves ovate-oblong*,

sub-sessile. Fascicles axillary, and in the forks of the branches. Berries two-celled.

A middling-sized, very ramous, well armed shrub, a native of Silhet, where it blossoms in Mure 11 and April.

Branch lets smooth, opposite and dicbotomous. Spines axillary, patent, straight, rather short. Leaves opposite. short-petioled, ovate-oblong,* entire, pretty smooth, from one to three inches long. Stipules interfoliaceous, acuminate. Flowers collected into small, sub sessile fascicles, in the forks of the dichotomous branchlets, or axillary, middling-sized, and like those of most of the other species, fragrant; when they first expand they are white, but gradually change to pale yellow by the second day. Calyx hairy, margin divided into five, subulate segments. Corol infundibiilii'orm, border of five oblong segments. Filaments scarcely anv. Jinthers five, linear, one-third of their length within the tube of. Germ inferior, two-celled, ca\$h containing many the corol. ovula attached to a receptacle rising from the centre of the Style of the corol. Stigma clavate, unequally partition. two-lobed.

7. P. long iflora. R. •

Arboreous, armed with opposite, recurved epinre. *Leaves* lanceolar-oblong, smooth. *Corymbs* terminal and axillary, few-flowered.

Compare with Gardenia mufti flora. Willd. i. p. 1231.

A native of Chittagong, where it grows to be a pretty large tree. It flowers during the hot season, and the seeds ripen in July and August.

Branches and branchlets opposite, and smooth. Spines axillary, very strong, sharp, and considerably recurved. Leaves opposite, short-petioled, from broad-lanceolar to oblong, entire, smooth, from four to six inches long, by one and a half or two broad. Stipules as in the order. Corymbs terminal, and axillary, short, generally about eleven to thirteenflowered, every part smooth. Flowers large, pale, or nearly

white when they first expand, becoming yellow by the second day, fragrant. Calyx tubular, mouth cut into five, semilunar segments. Corol; tube long and slender; border of five, unequally lanceolate, spreading segments, filaments none. Anthers five, linear, attached to the mouth of the tube of the corol. Germ inferior, two-celled, with many ovula in each, attached to their elevated fleshy receptacle, rising from the centre of the partition. Berries the size of common cherries, when ripe yellow, smooth, fleshy, two-celled. Seeds numerous, &c. &c. as in the genus.

8. P. floribunda. R.

Sub-arboreous, armed. *Leaves* opposite and fascicled, obovate, cuueate. *Flowers* in lateral fascicles; calyx longer than the tube of the corol, its segments lanceolate. *JJerries* ovate-cordate, polished.

A large, rigid, ramous shrub, or, in a good soil, small tree, like *dumetorntn* a native of the coast of Coromandel. Flowering time April and May, and the seeds ripen immediately after the rains.

Trunk in ten years old plants in the Botanic garden at Calcutta as thick as i man's leg, but short, soon dividing into numerous branches, and straight, stiff branch lets, in Bark ash-coloured, on the oldest parts every direction. considerably cracked. Spines axillary, and rarely more than one to each pair of leaves; about an inch long, stiff, straight, rigid and sharp. Leaves on the tender shoots opposite, on the old flower-bearing twig fascicled, round the flower subsessile; the general form obovate, tapering a good deal to the base; obtuse, smooth, from one to two inches long, by one Stipules as in the order. Flowers short-peduncled, broad. generally from four to six produced from each of the small lateral, short, scaly spurs, (as they are called by gardeners,) of a middling size, and fragrant, when they first expand pure white, but soon becoming yellow. Calyx smooth; tube cylindric; segments of the border generally five, sub-Ianceolate, acuminate, permanent. *Corol*, outside sericeous. *Tube* rather shorter than the calyx, shut about the middle with a valve of fine white hairs pointing up. *Border* of five, obovate segqients. *Filaments* scarcely any. *Jlnthers* linear, spreading. *Germ* turbinate, two-celled, ovula numerous, attached to a far-projecting receptacle from the ceutre of each side of the partition. *Style* rather longer than the tube of the corol, swelled toward the middle. *Stir/ma* oblong, two-lobed. *Berries* broad, ovate-cordate, polished, size of a prune, crowned witfr the remaining tube of the calyx; two-celled. *Seeds* numerous, &c. &c. as in the other species.

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• The words in italics are synonyms.

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