

Biographies of kid, Roxburgh and
ft. Hamilton



Portrait of [Name]

A SHORT ACCOUNT

OF

Colonel Jigb,

THE

FOUNDER OF THE ROYAL BOTANIC GARDEN, CALCUTTA.

(Reprinted from Vol. IV of the Annals of the Garden.)

CALCUTTA:

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1893.

A SHORT ACCOUNT

OF

folcmel Kyd,

THE FOUNDER OF THE ROYAL BOTANIC GARDEN, CALCUTTA.

THE hundredth anniversaiy of the death of the founder of this Garden appears to be an appropriate occasion for putting on record as much as can now be traced of his career, and of the early histoiy of the Garden itself. Robert Kyd belonged to an old Forfarshire family, several members of which had preceded him in the service of the Honourable East India Company. He was born in 1746. At the age of eighteen he became a cadet of the Bengal Engineers, and on the 27th October 1764 he received his commission as Ensign in that corps. His promotion to the rank of Lieutenant followed in the year after (16th October). Two and a half years later (on 3rd April 1768) he became Captain, getting his Majority on 29th May 1780, and his Lieutenant-Colonelcy on 7th December 1782. He died at Calcutta on 26th May 1793. From the fragmentary evidence which is still extant it appears that Colonel Kyd was a man of wide and varied sympathies and experience, and that, during the later years of his service, he attained a position of so much influence that his suggestions on various weighty matters were not only listened to but promptly acted upon. Himself a keen gardener, he had brought together, round his country house at Shalimar, a collection of various plants of economic and horticultural interest which had been sent to him, partly by correspondents in the interior of the country, but which had chiefly been brought to him by Captains of the Company's ships returning from their voyages to the Straits and to the Malayan Archipelago. Colonel Kyd conceived the idea of supplying the Company's Navy with teak timber grown near the ports where it could be used in ship-building, and of increasing their commercial resources by introducing into India the cultivation of the spices which, in those days, formed so important an item in their trade, but for supplies of which they had to depend on their factories

» Sumatra and Penang. Ho communicated this idea to the Governor-General of the day; and, in a letter written on 1st June 1786, he officially submitted a scheme for the establishment of a Botanical Garden, or Garden of Acclimatization, near Calcutta. This scheme also included proposals for introducing, into territories subject to the Company, the cultivation of cotton, tobacco, coffee, tea, and various other commercial products. To have suggested to the local representatives of what was then practically a Trading Company, the provision (at a considerable annual cost) of facilities for the pursuit of pure, as distinguished from economic, botany would probably not have increased the chances of the acceptance of the Garden scheme. The scientific aspect of the matter was therefore, with commendable sagacity, excluded from mention in the original proposal. Warren Hastings had in 1785 been driven into relation with the office of Governor-General by the successful machinations of his enemies in England. Colonel Kyd's proposal did not therefore come officially before that great and far-seeing statesman, but before Sir John Macpherson, who acted as Governor-General pending the arrival of Lord Cornwallis from England. Sir John Macpherson recorded a Minute in its favour; and a copy of this Minute, together with the proposal itself were sent home by the Calcutta Government, warmly recommended to the Court of Directors in a public general letter dated 21st August 1786. So much in fact were the local Government impressed with the advantages of Colonel Kyd's proposed scheme that without waiting for a reply to this letter from the Board, they secured land for the Garden "in anticipation of sanction;" and, in a letter dated 27th July 1787, they reported this action to the Directors. This second letter, however, must have crossed a despatch, dated London, 31st July 1787, in which the Board not only conveyed their sanction to the formation of the Garden suggested by Colonel Kyd, but warmly approved his action in bringing the proposal to their notice.

Colonel Kyd's country house and garden* stood near the village of Sibpur, on a promontory round which the Hooghly bends in passing the site of the present Fort William (at that time only recently completed), and which was known then (as it is now) as Shalimar. And it was land in the vicinity of Shalimar, and separated from his

* The following extract is from the late Dr. T. Anderson's "Notes on the foundation of Calcutta," in the Journal of the Agri-Horticultural Society of India, volume I, new series, page 629. It is currently reported that Colonel Kyd built the garden, referred to in the "Flora Indica," page 629. It is currently reported that Colonel Kyd built the garden, referred to in the "Flora Indica," page 629. It is currently reported that Colonel Kyd built the garden, referred to in the "Flora Indica," page 629.

I have endeavoured to discover the site of Colonel Kyd's garden, referred to in the volume of the "Flora Indica," page 629. It is currently reported that Colonel Kyd built the garden, referred to in the "Flora Indica," page 629. It is currently reported that Colonel Kyd built the garden, referred to in the "Flora Indica," page 629.

which I have already referred to, and the grounds around that house, extending westward towards the river bank, seem to have been Colonel Kyd's private garden. These grounds, extending westward towards the river bank, seem to have been Colonel Kyd's private garden. These grounds, extending westward towards the river bank, seem to have been Colonel Kyd's private garden.

Royd's Garden (Sir John Royd, Judge of the Supreme Court, to whom Roxburgh deduced the title of the garden), Barwell's Garden, and in 1819 I find them styled Metcalfe's Garden. The garden which Colonel Kyd's Dame, and the land which is held from them on a perpetual lease (mowrasipottah) said to be drawn up in 1787, is now in the possession of the widow of Rajah Kissennath, near Manikpore, Calcutta.

Shalimar, which I believe was Colonel Kyd's private garden, was separated from the Shalimar House into what was then part of the Botanical Garden by a ditch, crossed by a masonry bridge, over which was brought a metalled road, which continued on a bund from the Shalimar House into what was then part of the Botanical Garden, and a road and bridge still exist.

own private garden only by a ditch, which Colonel Kyd selected for the proposed Botanic Garden. The piece of land thus selected measures more than three hundred acres in extent, and is of rather irregular shape. It consists of a rather narrow strip running along the right bank of the Hooghly for about a mile and a half, but expanding towards its lower extremity into a large square block. The upper part of this piece of land was in the hands of some villagers, "who had no other title than possession to produce as giving them right of tenure." These squatters appear to have been compensated and turned out. The lower part of the land (where it expands into a square block) had been the site of an old fort or outpost, and it is marked in old charts of the Hooghly river as "thana." A creek appears to have run up through this piece in the direction of the great Banian, which appears even then to have been rather a large tree.

Colonel Kyd, whose office at this time was that of Military Secretary to Government, was appointed Honorary Superintendent of the Garden, a post which he retained until his death. He never lived within the Garden. In fact there was no dwelling-house within its limits until his successor, Dr. Roxburgh, built the present Superintendent's house in 1795. Colonel Kyd probably, as was the fashion of the day, had a town house in Calcutta. But he appears to have passed a good deal of his time at Shalimar; and in his will he directed that he should be buried in his garden there. The part of the Botanic Garden nearest to Colonel Kyd's house was devoted to the planting of teak trees, in accordance with the Company's earnest desire to supply themselves with timber for ship-building. The experience of thirty-four years having shown that good teak timber cannot be successfully raised on the muddy soil of the Gangetic delta, this part of the garden (extending to about 40 acres) was in the year 1820 given up by Government to the Lord Bishop of Calcutta (Dr. Middleton) as the site for a Christian College. The Garden was thus reduced to its present area of 270 acres. During the hot season of 1793 Colonel Kyd appears to have become very sick, and to have known that he was about to die; for on the 18th of May he made a new will, which was filed in the Supreme Court of Calcutta on the 10th of June 1793, Colonel Kyd having died on the 26th of May. The will is so interesting, and throws so many lights on Kyd's character, that I venture to print part of it as an

The following extract from the diary of a friend of Major Alexander **Kyd** gives a rather depreciatory account of the garden house which that officer had inherited from Colonel R. Kyd. The concluding note by another hand, which states the price at which Major Kyd sold it, shows, however, that it must have been rather a good house, for in those days Rs. 40,000 went much further than the same sum would do now: '*21st January 1796*.—Breakfast, at Major Kyd's. The house and grounds very neat and well laid out, but only two good apartments in it, which are at the extremities of the two wings. The little octagon room in the middle, to which there is a dome, is so small as scarcely to dine six people with servants behind their chairs, and the ornaments are so multiplied as to give that a trifling appearance, which, were it on a sufficient scale, would have a grand effect; but all this blame is not to be imputed to the Major: it arose from his unwillingness to pull down the old house in which the octagon room was as having been built by his uncle, from whom he inherits it. The building has, however, upon the whole, an imposing appearance on the outside, and is abundantly convenient.' In 1795 Major Kyd sold his "Garden House" to Isabob Sydat Alii for Es. 40,000.

appendix to this brief memoir. By this will the bulk of Colonel Kyd's property was left to his relative Alexander Kyd, then a Major in the Bengal Engineers. In spite of the instructions given in his will, Colonel Kyd was buried in the South Park Street Cemetery in Calcutta. The tomb is covered by an oblong platform of masonry and is described as being situated immediately to the right on entering the gate- but as it is marked by no tablet or monument, it is not now distinguishable. A beautiful marble urn by Banks the sculptor was, however, in 1795 erected to his memory in the Botanic Garden on a site selected by Dr. Roxburgh. This urn is still in excellent preservation and is much adorned. It stands upon a marble pedestal, on which this inscription is carved-*Roberto Kyd, mil. trib. horti Fundatori: posuit A K MDCCXCV*

The Major Alexander Kyd to whom Colonel Robert Kyd bequeathed the bulk of his property was the son of Captain James Kyd, Royal Navy, of Elm . p-# i . Alexander arrived in Calcutta in 1772 without any appointment to his uncle Thomas Kyd, who was either a friend or a relative of Colonel Robert Kyd, described as "Commander of country service » the East Indies;" and, when young Alexander Kyd arrived in Calcutta, Thomas was absent on a voyage from which he therefore came under the protection of his (the boy's) father (happily interested by a descendant of the family) gives so interesting a glimpse into the Anglo-Indian life of that time and so signally illustrates the kind-heartedness of Colonel Kyd that Alexander Kyd returned to India in 1775 as an ensign when his relative Colonel Robert Kyd died.

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passed through all the grades of the Military service until, in 1819, he was promoted to the rank of Lieutenant-General. Seven years later (on 25th November 1826) he died in London. He was survived by three sons, James, Robert and Thomas, who were educated in England, but returned to India early in life. They were ship-builders, the former joining Mr A Waddell, the latter joining Mr Waddell, while Robert became the partner of another ship-builder. In 1817 James and Robert and James Kyd was appointed Master Builder in his stead. And shortly after joined by Robert, the two brothers became the proprietors of the well-known docks at Kidderpore. Robert Kyd died in 1827 and the dockyard was purchased by the Government in 1836, and on his death the name of Kyd disappeared. The charming house near the dockyard, which in later days became the residence of the Superintendent of

Marine, was pulled down a year or two ago in connection with the formation of the new docks; and with that house the last trace of the Kyds disappeared from Kidderpore.

The portrait of Colonel Robert Kyd, which forms the frontispiece to this notice, is copied from a coloured crayon in the possession of the Agri-Horticultural Society of India, which was presented to the Society (I believe by Mr. Blechynden) some years ago. In preparing this brief memoir I have had the kind assistance of Major-General C. E. Nairne, R.A., and of the Revd. A. Kyd Nairne, descendants of the Kyd family; also of Miss Kathleen Blechynden, in the possession of whose family are various papers connected with the Kyds. I am also indebted for some of the facts given in the preceding pages to "A few notes on the foundation of the Botanical Garden, Calcutta," which were contributed by Dr. T. Anderson, a former Superintendent of this Garden, to the Journal of the Agri-Horticultural Society of India (volume I, new series, p. 169). The copy of Colonel Kyd's will was obtained from the High Court of Calcutta.

ROYAL BOTANIC GARDEN,

Sibpur, Calcutta, 26th May 1893.

PAPERS CONNECTED WITH THE FOUNDATION OF THE BOTANIC
GARDEN, CALCUTTA.

Letter from LIEUTENANT-COLONEL ROBERT KYD, *Corps of Engineers, to the Governor-General and Council, dated 1st-June 1786, proposing the formation of a Botanic Garden at Calcutta.*

IN the course of last month I did myself the honour of communicating to you some thoughts that occurred to me on the means of lessening or preventing a calamity to which this country has been some time subject. Whether what I presumed to offer to the Board's consideration has yet come under their notice or appeared to merit it, I know not; but it has occurred to me that the subject on which I now propose to address you, though widely different in its nature, may not appear less important to you on account of its immediate relation to the great national object of our conquests in India in the extension of its commerce.

About ten years ago, while I was on an excursion to our eastern frontier in search of health, and rambling through the woods which surround the garden at Fzong in company with a friend, we stumbled on a tree, the unusual foliage of which attracted our notice, and which on application to the bark immediately discovered itself to be some species of Cinnamon. On relating the circumstance to the Eesident, we found that this tree was not indigenous to the soil, nor was it to be found anywhere else in the neighbourhood; we also observed that it had not propagated, but stood alone, and had so far attracted the notice of the natives that they ascertained its leaves to be the same as the aromatic leaf known by the name of *taj paat*, a spice universally used in Indian cookery, and generally imported from Assam. By the assistance of the late Captain Cowe, who then commanded at Dacca, I procured from the borders of the province of Assam some of the plants of the tree in question, and one or more of these plants were deposited in the late Governor-General's gardens. This led to further enquiry, and the tree was found to be the Cassia or true Cinnamon tree, but presumably of an inferior species. It was also found to be a native of the Bhutan mountains, from which country the Governor-General likewise obtained Bom9 other specimens, in a year or two following.

Muoh about this time, I believe, Captain Price, the present Marine Paymaster, but then in command of the Bengal squadron employed in the blockade and reduction of Pondicherry, took the opportunity, when touching at Colombo, to bring from thence some plants of the true Cinnamon tree, foreseeing the possibility of its cultivation in our provinces. These were added to the stock in the Governor-General's gardens. I can aver that both trees have with very little attention thriven in an uncommon degree, and that last December, when I was about to leave Bengal, the Ceylon species had actually given fruit, and I saw a rising plantation of not less than 8 or 10 young trees.

The East India Company, I belevie, have been often jealous of the benefits accruing to the Dutch from their possession of the island of Ceylon. If this arises principally from its production of cinnamon, the Board may inform them that this very valuable tree now begins to flourish in Bengal from the slock procured about five years ago from this very island. Not expecting that this tree would have blossomed last year, I missed the opportunity of taking a drawing of it; but enclosed is a sketch from nature, of the fruit not quite ripe, at which period it assumes a different form and acquires nearly a purple' colour, resembling the fruit of the coffee shrub. It was just beginning to blossom when I left Bengal in December last, but the flowers were too imperfectly expanded for me to delineate distinctly the sexual parts, which are in themselves very minute.

I have likewise the honour to enclose a drawing (taken hastily) showing the disposition and hanging of the tree and its branches. A seale is wanted, but it may be estimated at 16 or 17 feet. I have further to add that the tree of the same sort supposed to be Cassia brought from the borders of Assam, and which, on the most authentic intelligence, I can inform the Board flourishes in the greatest abundance

in a state of nature all over the skirts of the Sylhet Province, is in taste, flavour, smell of its leaves and bark, the same as that from Ceylon. It has not yet given fruit so as completely to demonstrate its quality, but from what I have said it will be obvious to the Board that, with the smallest encouragement from the Court of Directors, they may in the course of five years have a plantation of the Cinnamon tree as extensive as they choose, from our now actually holding in possession the means of effecting it, free from all visionary and systematic suppositions.

I have been induced to throw out these communications in hopes of their being the means of awakening the nation at large to a sense of the inestimable treasures which we already hold in our extensive dominions in this part of Asia, and, if possible, to divert the Administration not only from thinking of making further acquisitions by new settlements (except in as far as they may prove absolutely necessary for the preservation and security of what we already hold), but also to embrace the opportunity of peace to reject such unprofitable parts of our empire as have only proved useless burthens to our more valuable possessions, and that they may also illustrate the small degree of encouragement which it is requisite to afford to the efforts made by private industry to enable us to outstrip our rivals in every valuable production which nature has confided to this part of the globe, and which she has showered down with so bountiful and partial a hand over our possessions.

I also do myself the honour of enclosing a drawing of the long and black pepper plants, both of which species, I can inform the Board, rise to maturity and give fruit in perfection, although reared in the vicinity of the Presidency under a very imperfect knowledge of the requisite mode of cultivation.

I shall not presume to intrude anything further on the subject, resting assured that the Board will foresee the inferences to be drawn from these communications.

But I take this opportunity of suggesting to the Board the propriety of establishing a Botanical Garden, not for the purpose of collecting rare plants (although they also have their use) as things of mere curiosity or furnishing articles for the gratification of luxury, but for establishing a stock for disseminating such articles as may prove beneficial to the inhabitants, as well as to the natives of Great Britain, and which ultimately may tend to the extension of the national commerce and riches; and this I conceive can be best effected by Government procuring from the different parts of India, and establishing a nursery stock, from which private individuals may be supplied gratis who may think themselves qualified to adventure on a general cultivation of the innumerable articles which our possessions will furnish the means of raising with success, of which I shall beg leave to suggest the enclosed very imperfect enumeration.

And I have to add that the charges attending such an institution ought not, I conceive, to exceed Us. 150 or Rs. 200 per month, considering the great influence and assistance which this Government is capable of affording it.

Minute of the Governor-General on the foregoing letter.

I HAVE great pleasure in laying before the Board the accompanying letter and memorandum from Colonel Kyd.

The establishment of a Botanical Garden as a nursery for rearing and propagating for the public benefit the productions of other countries and climates, and such as may be equally conducive to increase the commerce and improve the culture of these Provinces, is an institution I have long had at heart, and to forward which the Board are, I know, perfectly disposed. The late Governor-General was a great encourager of the introduction of new articles of commerce and foreign production into these Provinces, and I regretted very much that the state of the Company's finances prevented our purchase for them of his garden, in which these plants were reared. If agreeable to the Board, I will look out for a spot in a proper situation where a garden may be formed, as a General Plantation or Nurseiy where the cultivation of the cinnamon, and the different articles mentioned by Colonel Kyd, may be attempted. It

•will be necessary to prevent much expense in either establishing or carrying through this institution. If the Board approve of the design, I could lay before them a plan which in carrying on this business will secure the Company against much or any unnecessary expense.

J. M.

(JOHN MACPHEHSON,

Governor-General.)

Extract from a Public General Letter from the Governor-General and Council, Calcutta, to the Hon'ble the Court of Directors,—dated the 21st August 1786, paragraphs 50 to 53.

50. "We forward to you a separate number in this packet, copy of a Minute recorded by the Governor-General, introducing a letter from Lieutenant-Colonel Kyd, ^{Per Seiern packet and Manger, 21st} August and nth September 1786 proposing the establishment of a Botanical Garden as a nursery for rearing and propagating for public benefit the productions of other countries, as a means of increasing the articles of commerce and improving the culture of these Provinces.

We beg leave to refer you to the letter itself for a fuller information of the Colonel's expectations and the grounds upon which he has formed them. We are impressed with a conviction of the practicability of bringing this plan to maturity, without incurring any considerable expense, and shall take the most effectual measures to this end, as soon as a suitable place is selected and the Governor-General shall have had leisure to furnish the plan he proposes for carrying it into execution.

52. The cultivation of the cinnamon and pepper seems practicable, and we are sanguine in our expectations of greatly improving the indigo plant, as well as of introducing the date and sago trees. These may prove of infinite service to this country should it ever experience a failure in the crops.

53. The drawings of plants alluded to will be put into the letter packet by the *Banger* that they may reach you in good preservation.

Extract from a Public General Letter from the Governor-General and Council, Calcutta, to the Hon'ble the Court of Directors,—dated 27th July 1787, paragraphs 114 and 115.

114. The intended establishment of a Botanical Garden was noticed to you last year. A proper Cons. 21st May 1787, Botanical spot of ground having been selected for it by Colonel Kyd in the vicinity of Calcutta, and a mode adopted of satisfying the possessors (who had no other title than possession to produce giving them a right of tenure), the undertaking has since been in progress. It is attended with very little expense to the Company under the present management, and holds out a flattering prospect of rearing by care and attention

Cons. 12th March.

in Bengal the valuable productions of all parts of India. To this end we have made application to your different Presidencies, and through them to more distant places for sundry plants, trees, &c, suggested by Colonel Kyd, and we beg leave to extend this application to you, as we are persuaded from an experiment made by Captain Cummins of

Cons. 18th May.

the *Bnttanvca*, who brought a great variety in good condition to Bengal, that it may be effected at a very trifling expense.

115. On this subject we beg leave to refer to your particular attention a letter from Colonel Kyd, and a list of the different plants that he wishes to have sent out,

Per ship *Raveruworth*, 27th July 1787. which are forwarded in a separate number in the packet.

Extract from a Public General Letter from the Eon'ble the Court of Directors, to the Governor-General in Council, Calcutta,—dated 31st July 1787.

Paragraphs 39, 50 and 53.—We have Received great pleasure from the perusal of Lieutenant-Colonel Kyd's letter referred to in these paragraphs, proposing the establishment of a Botanical Garden, and give our most hearty approbation to the institution, as the charges thereof are estimated at not more than Es. 200 per month. The experiment respecting the cinnamon tree in particular must be made in different parts and soils of those extensive Provinces, in order to ascertain with certainty whether this spice can be produced in Bengal equal to that which grows on the island of Ceylon. We have likewise perused a former letter from Lieutenant-Colonel Kyd, of the 13th April 1786, relative to the sago tree, and its efficacy and importance in cases of famine and pestilence. We hope you will give this subject all the consideration that it may appear to merit. You must keep us constantly advised of the progress that may be made in the Botanical Garden, and continue to send us drawings of such of its productions as you may deem worthy of our attention. We are aware that, by extending your experiments too far, the expense may increase to an amount of which you may not at present have any idea. The establishment therefore must be confined in the manner pointed out by Colonel Kyd, as mentioned in the last paragraph but one of his letter of the 1st of June last. But so sensible are we of the vast importance of the objects in view, that it is by no means our intention to restrict you in point of expense in the pursuit of it. In the cultivation of the cinnamon tree in particular, we foresee a great source of wealth to the Company, and of population and opulence to the provinces under your administration. Most earnestly therefore do we recommend it to you to proceed in your endeavours to propagate this spice in different places, and that you avail yourselves of the abilities and zeal of Lieutenant-Colonel Kyd herein, and who, by the attention he has shown to a matter which may one day prove of the greatest benefit to his constituents and to his country, stands most deservedly high in our esteem and favour.

LIEUTENANT-COLONEL E. KYD'S *Will.*

THK last will and testament of Eobert Kyd, Lieutenant-Colonel in the East India Company's service on the Bengal establishment, hereby revoking and declaring null and void all former wills. * * * * * I leave to my friends Charles William Boughton Eous, John Shore, and William Larkins a ring each, value fifty guineas, and entreat their acceptance of this memorial of my affection, respect and esteem for their character. The rest of my fortune I leave to Major Alexander Kyd aforesaid. * * * * * To my friend John Fleming, Surgeon in the East India Company's service, a ring three thousand rupees value, in testimony of my regard for his humane attention. To my friend Herbert Harris for his kind attention to me during my sickness, a ring of one thousand rupees value. To Doctor Hare a ring of one thousand rupees value. To my native servant, known by the name of Eajemahl Missah, the monthly sum of eight rupees during his life, in retribution for the unsuitable education given to him, entailing separation from his native soil and kindred. To the other native known by the name of George, in reparation of the injury done him by his former master, in alienating him from his tribe (understood Eajpoot), conveying him to Christianity, and secluding him from all future connection with his family, the monthly sum of six rupees during his life; to both on condition of their continuing to serve Major Alexander Kyd during his residence in India. To all my other servants one month's pay on my decease. To Eaja Kishore Eoy, the talukdar of Sibpur, a ring value fifty rupees. I further leave to my niece, Miss Eachael Lindsay, now Mrs. Dickson, the sum of five hundred pounds. To the two orphans at my gardens, known by the names of Boonchey and Chooneah, I desire fifty rupees be given to each. The remaining part of my fortune, I say the remainder of my fortune, including my house, garden at Sibpur, and all monies or effects of mine whatever in Europe and here, I leave to the aforesaid Major Alexander Kyd, and appoint him, Charles William Boughton Eous, John Shore, William Larkins, and Henry Wilsone and Company (my present acting attorneys in Calcutta) executors of this my last will and testament, which I beg and entreat of them to cause to be executed. It is my further desire that I may be buried in my

own garden without the attendanoe or offices of any priest whatever. In witness whereof I, the said Robert Kyd, have to this my last will and testament set my hand and seal, declaring this to be my last will and testament, and revoking all former wills. Dated this eighteenth day of May in the year of our Lord one thousand seven hundred and ninety-three.

Signed, sealed, published and declared by the above-named as his last will and testament in the presence of us, who at his request, in his presence, and in the presence of each other, have subscribed our names as witaessea thereto in Calcutta, where no stamps are to be had.

EOBEET KYD. L.S.

A true copy carefully collated by me with the original will which was delivered out of Court by order of 2nd January 1794.

WM. JACKSON,

Regr. \$ Not. Pub.

HERBERT HARRIS.

J. FLEMING.

DANIEL TEMPLETON.

IT is my desire that Mr. Henry Wilson keep up the establishment now employed of labourers for keeping my garden in order, consisting of a serang, four labourers, and a number of children, and also the two Europeans now in charge of the small vessel; that the two boys Missah and George be allowed to remain at the gardens until Major Kyd's arrival, which may be expected in July. All my looge papers in the several tin boxes had best be kept for Major Kyd's previous examination. In addition to what is mentioned in my will respecting my being buried in my own garden, that my burial may be attended with no military oeremony, and that I trust my friend Captain Apsley will pay due attention to this article, and see my last remains committed to the ground in my own garden, on the west side of the puoka-walled tank near to where an alligator pear tree now stands, and that my funeral expenses do not exceed three hundred rupees.

There are in the house at Sibpur three boxes containing botanical drawings of the plants in the environs of this petty discriot; also a box and several books containing an unfinished colleotion of the birds indigenous to this tract, as also of such as migrate here from the adjoining frontiers during the cold and hot weather: also of the fish frequenting the Hooghly. These, having been oollected at the Company's expense, are public property and should be transmitted to the Court of Diractors, although unarranged in botanical or artificial order which I had reserved for a future day.

BOBERT KYD.

Gardens, 18th May 1793.

A true copy carefully collated by me with the original codioil which was delivered out of Court by order of the said 2nd January 1794.

WM. JACKSON,

Regr. fy Not. Pub.

I BO hereby certify that this is a true copy of the original in my custody, dated this 24th day of April 1893.

E. BELCHAMBERS,

*Registrar of the Sigh Court of Judicature at
Fort William in Bengal, Original Jurisdiction.*

Letter from CAPTAIN ROBERT KYD, Calcutta, to CAPTAIN JAMES KYD, R.N., EHe, Fifeshire, dated 28th February 1773. •

YOUR son Sandy arrived here three weeks ago and delivered me your letter from Elie, dated March last. Though we have received no certain account of your brother's death, yet his loss must be looked upon as certain, seeing it is now three years since he sailed from, this river on a voyage to the coast of Africa, and he has not yet been heard of. So that the army was the only resource left for your son, and into that he must have entered under great disadvantages, which I will now point out to you. First, he must have entered as a cadet; and there are now more than two hundred on that list, all of whom must have been commissioned before him, and this could not have taken place in less than two years, during which time he would have learned nothing here but what he already possesses from his military education at Douay, with the almost inevitable risk of imbibing his share of the vices and prejudices peculiar to this climate. This has determined me to send him home again in the first ship (which sails in two or three days), and the plan I have to lay down to him and to you is as follows.

On his arrival in England he must proceed again to Douay and qualify himself for an engineer and artillery officer. And he assures me that, from his former acquaintance and connections there, he will find no difficulty of gaining admittance into the academy. Meanwhile, you must lose no time in using all your interest with Gr. Dempster and Sir J. Cookburn, and with any other person in the direction, in order to get him appointed an Ensign in the Corps of Engineers, infantry or artillery, on the Bengal establishment, and no other; and, failing an ensigncy, he must be appointed a cadet, in which, I think, you cannot fail. In this latter case, an Ensign's commission in the King's must likewise be bought: for, by the rules of this service, it will give him rank of all the cadets of the season in which he comes out, and will also entitle him to be employed as an officer upon his arrival. You must perceive that (exclusive of the advantages your son will receive from ten or twelve months' study at Douay) he also will be further advanced in the army in point of rank than if he had remained here; and, in order that no time may be lost, I have resolved to accommodate him with a sum of money, which he himself thinks equivalent to the expenses that will be incurred during his two years' absence, which will in a great measure provide against the worst that can possibly happen, namely, of your failing to procure him either of the aforesaid appointments from the India House. I have also introduced him to some of my friends here, who, in case of any accident happening to myself, will receive and provide for him in a manner next to what he would have expected from myself. Respecting your son's genius and parts, I am perfectly satisfied with them, and doubt not he will make the desired proficiency in the studies which I have already pointed out to him.

This plan which I have laid down for your son may probably startle you upon first reading: and, if upon due consideration it should not appear to you in the same light that it does to me, I am confident that, upon your submitting it to any Indian lately returned from this part of the continent and acquainted with the state of affairs, every part of what I now write to you will be confirmed. Xor have I presumed on the strength of my own judgment alone to decide in this matter, but I have the unanimous approbation of all the friends whom I have consulted. •

I have omitted mentioning your getting your son appointed to the civil branch on this establishment, apprehending that this may be attended with too much difficulty, if not expense; but, if you can muster interest enough, by all means do it; but do not alter the plan of his education, for here it is equally necessary to know how to brandish the sword as to wield the pen.



Wm. Pitt the Younger

A BRIEF MEMOIR

OF

William Roxburgh,

Author of the "FLORJA IJSTJDIC^L."

(Reprinted from Vol. V of the Annals of the Boyal Botanic Garden, Calcutta.)



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1895.

A BRIEF MEMOIR

OF

William Roxburgh,

Author of the "FLORA. TJSTDTCA.."

PREFIXED to the last volume of these Annals, I gave a short account of Colonel Robert Kyd, the Founder and first Superintendent of the Calcutta Botanic Garden. It seems fitting therefore that some account should, in the present volume, be given of the Botanist to whom this Garden owes the establishment of its reputation as a centre of botanical work.

William Roxburgh was born at Underwood in the Parish of Craigie in Ayrshire on the 3rd June 1751.* His family, although not rich people, managed to give him the kind of liberal education which, during the two centuries that preceded the introduction of school-boards, "standards" and capitation grants, used to be obtainable at almost every parochial school in Scotland. From the parish school Roxburgh went to the University of Edinburgh and, having attended as many of the medical classes there as were then required for a license to practice as a Surgeon's mate, he received (through the influence of Dr. Hope, then Professor of Botany at Edinburgh) an appointment in that capacity on one of the Honourable East India Company's ships. He accomplished several voyages to India on East Indiamen, and having, during the intervals spent at home, completed his medical studies at the University of Edinburgh, Roxburgh was offered, and accepted, an appointment on the same Company's Madras Establishment. Roxburgh arrived at Madras during 1776, and he there made the acquaintance of Dr. Koenig, who happened at the time to be making one of his frequent visits to Madras. Koenig had come out to India about eight years previously, and had been working at Natural History (chiefly on its botanical side) ever since. Koenig had been a pupil of Linnaeus, and was still an active correspondent of that great master. Coming originally to India at the instance of the King of Denmark, Dr. Koenig was attached to the Danish Settlement at Tranquebar. The inadequate income which he received there, however, induced him to accept service under the Nawab of Arcot, and it was while in the Nawab's service that he first met Roxburgh. From the special interest taken in him by Dr. Hope,

* In Chambers' Biographies of Eminent Scotchmen, the date is given as 29th June 1769, but that does not agree with Roxburgh's age at death as given on his tombstone.

† John Gerard Koenig, a native of Courland, pupil and correspondent of Linnaeus, travelled in Iceland during 1766; went to the Danish Settlement in the Carnatio as Physician and Naturalist in 1768; entered the service of the Nawab of Arcot about 1774; was employed by the Madras Board in 1776, and entered the Service of the Honourable East India Company in 1780; died of dysentery at Jagrenathporum on 36th June 1786.

A BRIEF MEMOIR OF

there is every probability that Roxburgh had, as a student enthusiasm for Botanical Science. Koenig had already shown his devotion to it; and there can be little doubt that the two men in an unfamiliar country, where every plant was committed to work. The researches of the two friends, into the botanical and economic products of the (Jarnatic imp.ess3d the Madras Pres.ve from 1778, the Madras Board made a monthly XwaTceto to extend his enquiries to Siam and the Straits of Malacca formally admitted into the Company's service. On the 1st of June 1785; he was attended during his last illness touching allusion to him in the following note appended to his *ffUftoeoides*, Dry and. (Fl. Ind. 11,236) «This plant is called *Roxburghia* plants Dr. Koenig saw. It was brought in when he was on his way to examine it, but was unable; for the cold hand of death that I would describe it particularly, for he thought it curious and beautiful. This observation from a predecessor has made me more than usually minute in his drawing it." Dr. P. Russel, who, however, held the office for but a short time succeeded by Dr. Roxburgh. Roxburgh, who was previously attached to a regiment to place; but, from his first arrival in the Madras Presidency Calcutta Botanic Garden in 1793, his service was confined to a great deal of it was at Samulcotta,* a small station about twenty-two miles from the town of

Samulcotta stands on the edge of a hilly region possessed by the Godavery river. For years it had been the practice, both of Koenig and Roxburgh, to make drawings of every plant they met. During his residence in the East Indies he transmitted many specimens of plants to Europe, some of which had been published in his *Supplementum Systematis flantarum* of the younger Linnaeus; while others had been described by Schrader and Koenig himself had also been published in the Transactions of the Berlin, Copenhagen, and Lund; and one in the first volume of the Linnæan Society of London. By Koenig's will, all his manuscripts, as well as his dried specimens of plants, were deposited in the hands of Sir Joseph Banks, President of the Royal Society of London. Roxburgh had, so far as can be learnt, sent no plants to Europe, published nothing. Between the years 1791 and 1793, however, he published descriptions and figures of several plants, to the Court of Directors in London, which were published, at the Company's expense, in a large folio volume

* In the article on Roxburgh in Knight's *Cyclopaedia of Biography* it is stated that he resided at Samulcotta from 1781 until his transfer to Calcutta; and also that he discovered the plants yielding coffee, cinchona, negro ebony, mulberry tree, and various kinds of pepper vine. He is also said to have introduced the cultivation of sugar, indigo, rears silkworms and the

under the title *The Plants of the Coast of Curomandel*. This was Roxburgh's earliest book; the first part of it appeared in 1793, the last not until 1819. Contemporary with Roxburgh in India there were, in the end of the last and the early part of the present century, many keen Botanists, chief among whom may be mentioned Anderson, Beny, Campbell, Carey, Colebrooke, Fleming, Hardwicke, Kyd, Heyne, Hunter, Buchanan-Hamilton, John, Sir W. Jones, Klein, Leschenault, Rottler, Russell, Shuter, and Sonnerat. All these men probably received some stimulus from the ardour of Koenig, who appears to have been in India a sort of *avalar* of Linnaeus. The majority of them contented themselves, however, with collecting and distributing unnamed specimens of Indian plants. Many of their plants sent to Europe were published by Linnaeus filius, Lamarck, Roth, Retz, Smith, Vahl, A. P. De Candolle and others; while not a few were published in India by Roxburgh himself, though he did indeed issue some species bearing manuscript names, some of which have been kept up. But Roxburgh was the only one of the group who attempted to give an account of any considerable number of Indian plants in the form of a *Flora*, and for this reason he has been called the "Father of Indian Botany" and "the Linnaeus of India."

Colonel Robert Kyd, the Founder and first Superintendent of the Botanic Garden at Calcutta, having died in May 1793, Roxburgh was appointed to succeed him, and he took charge of the Calcutta Garden on 29th November of the same year. Colonel Kyd had never lived in the garden; in fact there was no house fit for occupation by a European within its precincts. Roxburgh, however, determined to live in it, and one of the first matters which occupied his attention was the building of a house for himself. The spot selected by Roxburgh for his house (the present Superintendent's quarters) was on a bold promontory where the river Hooghly makes a bend. This site is marked in the old charts and maps as "thanna," and had at one time been occupied by a fort. On the left bank of the Hooghly, just opposite this promontory and on the site of the village still known as Mattitibuij (mud-bastion), there stood in former days a similar fort; and the two formed a protection against enemies and pirates coming up the river. Roxburgh does not appear to have been so expert at building as he was at Botany. For the cost of the house erected by him exceeded the sum allotted by the Honourable Company by a considerable sum, and the Accountant-general of the period, with the obduracy hereditary to his office, refused to pay the excess.

Roxburgh, appears to have arrived at Calcutta with a constitution impaired by hard botanical work in the feverish jungles of the Carnatic; for, within four years of his transfer to the Botanic Garden (*i.e.*, in 1797), he was obliged to make a voyage home for the re-establishment of his health.* In October 1799 he returned to Calcutta. But so soon as 1805 he had again to visit England on account of illness, and during this second visit he lived in Copenhagen. He returned to Calcutta for the last time apparently about 1813, during the illness of 1813 his health completely broke down, and he was compelled to undertake a sea-voyage, which he at first intended should have been any to the Cape of Good Hope. His health, however, did not improve sufficiently at the Cape to warrant his return to Calcutta, and he therefore extended his voyage to Batavia, Celebes, and finally to Singapore. Shortly after his arrival at home, he proceeded

* According to one account, it was during this visit to Scotland that he was elected to the degree of Doctor of Medicine at the University of Edinburgh.

to Edinburgh, where he died at Park Place on the 18th February 1815. He was buried in the Greyfriars Churchyard there in the tomb of the Boswells of Auchinlech, his third wife having been a daughter of that house. The part of the inscription on the tombstone which refers to Roxburgh is as follows:—

Here are deposited the* remains of Doctor William Roxburgh, of the Honourable East India Company's Civil Service, who died at Edinburgh on the 18th February 1815, aged 64. Also those of Mary, his -wife, daughter of the late Eobert Boswell, Esquire, W. S., who died in London on the 18th January 1859 in her 85th year. Beneath this stone are also deposited the remains of Mary, the eldest daughter of Doctor William Eoxburgh, and the wife of Henry Stone, Esquire, who departed this life on the 30th January 1814, in the 30th year of his age.

Dr. Roxburgh was three times married. Through the kindness of Mr. N. Bonham-Carter, of the Bengal Civil Service, who is a lineal descendant of the Mrs. Stone mentioned on the tombstone, I am enabled to give the under-noted family table which, however, is unfortunately for the most part -without dates:—

Marriages and families of Dr. W. Roxburgh.

<p><i>Mist Bonté.</i> (Swiss or French.; father perhaps Governor of Fenang. She was one of three sisters. The other two married Mr. Amos and Baron Von Strong.)</p>	<p><i>Miss Sutzenmann.</i> (German.)</p>	<p><i>Mm Boswell</i> (of the Auohinleoh family).</p>
<p><i>Child.</i> The above named Miss Bonté had one child, Mary, who married Henry Stone, B.C.S., and had four children—</p> <ol style="list-style-type: none"> 1. Richard (?), who died, aged about six. 2. Mary (Lady Marjoribanks). 'A. Amelia (Mrs. James Mao-Arthur). 4. Sibella (Mrs. G. W. Norman). 	<p><i>Children.</i></p> <ol style="list-style-type: none"> 1. George, killed by lightning in Java. 2. Anne, married Eobert M. Tulloh, B.C.S. 3. Robert, Indian Army. 4. Bruce, ditto. 5. Elisabeth, married F. Curwen-Smith, B.C.S., and died 1891, aged 92. 6. Sophia, married John W. 7. James, Indian Army, married Mies Carnegie. 8. Henry (Eoyal Navy). 	<p><i>Children.</i></p> <ol style="list-style-type: none"> 1. Sibella. 2. Mary Anne, married H. C. Tucker, B.C.S. *3. William, married Miss A. E. Boswell. (<i>Miss Jlotwill, the third Mm. Jlostburgh, was sister of Mrs. Egertm of Gresford.</i>)

Estimated by the amount of elaborated botanical materials which he left behind him Roxburgh's life at the Calcutta Garden must have been one of continued hard work. When he quitted India for the last time in 1813, he left, under the charge of Dr. Carey, not only the manuscripts of his *Hortus Bemjalensis* and of his *Flora Indiia*, but also no fewer than 2,533 life-sized coloured drawings of Indian plants, with figures of excellēt analyses of their flowers which had doubtless been made by

* There is apparently some error as to the order of the birth of the son named William; for in a paper written in 1801 (and printed in the *Transactions of the Society of Arts*, Vol. XXII, page 313), William Roxburgh, Junior, is credited with having discovered *Maritima tenacissima*, W. and A.) in the jungles of the Rojmsheil Hills.

himself. The majority of those drawings are of plants described in his *Flora*, so that, between his own descriptions and those figures, there is, in most cases, no room for any doubt as to what Roxburgh's species are. With the characteristic caution of his nationality, Roxburgh had several copies made of the manuscript of the *Flora Indica*. One of these he took home with him, intending to occupy the remainder of his life in amending and passing it through the press. Another copy he left with his friend, the Revd. Dr. Carey, the celebrated Christian Missionary, who was himself an ardent Botanist, and who had brought together, in the Garden of the Mission House at Serampore, a collection of living plants second - only to that under Roxburgh's charge at Sibpur. So competent a Botanist was Dr. Carey acknowledged to be, that he was put by the local Government in charge of the Botanic Garden when Roxburgh was obliged to leave it; and he continued to hold charge of it until relieved by Dr. Buchanan-Hamilton, who was nominated its Superintendent by the Court of Directors in England. Dr. Roxburgh had not long left India before Dr. Carey passed the *Hortus Heiigalensis* through the press, and thus secured for his absent and sick friend priority for many of his species. The *Hortus Bengalensis* consists of two parts, the first being a list of the plants growing in the Garden when Roxburgh left it; the second a catalogue of plants described by Dr. Roxburgh in his manuscript *Flora Indica*, but not yet introduced into the Botanic Garden. The former list contains about three thousand* five hundred species, of which no fewer than fifteen hundred and ten (including many new genera) had been first described and named by himself; the second list contains four hundred and fifty-three species, mostly Roxburghian. As has already been stated, Roxburgh took a copy of his manuscript *Flora Indica* home to Scotland with him, with the intention, in the light of the most recent views of systematic Botanists in Europe, of improving and amending it prior to publication; and (as he wrote to Dr. Carey) he hoped to have secured the assistance of Robert Brown in this matter. His ill-health, and death so soon after his return home, prevented, however, his doing anything towards this object; and the *Flora* remained in manuscript and untouched for six years. In the year 1820, however, Doctors Carey and Wallich undertook its publication. Dr. Wallich, then Surgeon to the Danish Settlement at Serampore and a young Botanist of much promise, had been appointed Superintendent of the Calcutta Garden at the end of Dr. Buchanan-Hamilton's short tenure of office; and he had employed the early years of his Superintendency in making extensive collections in Nepal, and subsequently in the Straits of Malacca and in other parts of India which had never come within the scope of Roxburgh's efforts. It was decided that descriptions of these collections of Wallich should be incorporated with Roxburgh's manuscript, and that the whole should be published under the joint supervision of Carey and Wallich. [The first volume of this work, covering the Roxburghian manuscript to the end of *Tetrandria*, appeared in 1820, and that volume contained but few of Wallich's interpolations. The second volume, which did not appear until four years later, contained, however, a great many of them, and it did not quite finish the *Pentandria* of the Roxburghian manuscripts. In fact, the decision to include Wallich's novelties was the cause of the failure of the whole project. For Wallich's capacities for collecting were so far in excess of his leisure for description and classification that he had to abandon the idea of earning on his share of the work. The publication of the Carey and Wallich edition of Roxburgh's *Flora* therefore ended prematurely with the second volume.] Eight years having

* Of this number, three hundred were growing in the garden when Roxburgh assumed charge of it

elapsed without anything having been done towards the completion, his author, two sons, Captains J.W. and James E. was a Botanist, determined to print, at their own expense, exactly as he had left it. This was done under the editors' and the book was published, in three editions, the first edition having been for many years out of print and difficult to reprint of it, in a single volume (paged, however, according to the edition taken in Calcutta in 1874, at the expense of Mr. C. B. Clarke, distinguished President of the Linnæan Society. Mr. Clarke's account of Indian *Cryptogamia*, which was not included in his edition, but which (having been rescued from oblivion by Roxburgh in 1844, in the fourth volume of the Calcutta Journal of Botany) objects in re-publishing Roxburgh's *Flora* are stated at length in his preface to Indian student, and that object was most effectually fulfilled at a price (five rupees) which could not have covered one-half even had every copy of the edition been sold within a most useful book to persons who, without being themselves acquainted with the plants of the plains and of Northern India and of the Madras Presidency. In the majority of the exotic plants which are cultivated in the gardens in the plains of India, and also described in Roxburgh had introduced from various parts of the Malacca (which he named in a general way "The Moluccas") "Molucca" plants are often, meagre in the extreme value. Many of the common garden plants also are described. And of the plants of the Himalaya and of the Western Ghats, above levels of 500 feet or thereby, the *Flora* gives no reference to the imperfections of Roxburgh's *Flora*. Indian mountain ranges, it should, however, be borne in mind that the indigenous population lives in the plains; and that it is only a small percentage even

The excellence of Roxburgh's *Flora* as a botanical work is acknowledged that it is unnecessary here to enter simply remark that Roxburgh's descriptions of Indian plants are accurate and graphic that, while identifying a plant by Roxburgh's *Flora*, one can feel quite one's attempt with a headache and with the uneasy feeling that does not finish of half a dozen! I regard Roxburgh's accuracy as something that one organ is not too minute for proper observation by means of the microscope. When an obfusca in Roxburgh's time, one may trust to L. J. J. Authors since Roxburgh and especially young authors who have specimens have, as it seems to me, reduced some of his levity. I have worked a good deal with Roxburgh's *Flora* and it takes a good deal to convince me of a lack of affinity are in the higher degree his *nr.* would have doubtless been as near as possible to the system as

it was on the Linnjean. Finally, I would claim for Roxburgh's book the merit that it does not contain a single ill-natured or unkind remark. Never once does its author, insinuate that some other botanist is either an egregious blunderer, a vile filcher of another man's species, or a person of supreme incompetence.

As regards economic botany, Roxburgh's *Flora* is a perfect mine of wealth; and it is only since the publication of Dr. Watt's Economic Dictionary that it has been superseded as the standard book on Indian vegetable economics. Much of Roxburgh's time and a great deal of his attention were given to enquiries into indigenous vegetable products; and so greatly were his researches into the sources of fibres* and other useful substances esteemed in England, that on no fewer than three occasions were gold medals awarded to him by the Society of Arts. To him also much credit was due for the organization of the arrangements successfully carried out by one of his sons, for the introduction into the Honourable Company's Malayan possessions of the cultivation of the trees yielding cloves, cinnamon and nutmeg.

Roxburgh was not, as has been stated in Eome notices of him, one of the founders of the Asiatic Society of Bengal. As a fact he was stationed at Samulcotta when it was founded (1784^X); but after his settlement in Calcutta he took an active interest in its management and contributed several papers to its *Researches*.[^] Besides being a member of the Asiatic Society, Roxburgh was a Fellow of the Linnsean Society of London, of the

* In Vol. XXII of the Transactions of the Society of Arts (London, 1804), there are printed many letters of Roxburgh's giving an account of his experiments into the mode of cultivation and properties of the fibres of hemp jute, bowstring-flax, sun, agave, Hibiscus, &c.

A list of all Roxburgh's contributions to Scientific Journals (taken from the Royal Society's Catalogue of papers) is given below:—

Roxburgh, William. On the Lac-sha or Lac-Insect (*Coccus lacca*). Asiatic Researches, II, 1780, pp. 361—364; Tilloch, Phil. Mag. III. 1799, pp. 887—369.

2. A description of the plant *Butea*. Asiatic Researches. III, 1792. pp. 469—474.

3. A description of the *Jovesia*. Asiatic Researches, IV, 1795, pp. 365—358.

4. *Protopit aculeata*, Knmig, Tshawie of the Huidus in the Northern Circars. Asiatic Researches, IV, 1736, pp. 406-408.

6. Botanical observations on the Spikenard of the ancients. Asiatic Researches, IV, 1795, pp. 433—436.

6. A botanical description of *Urceola elastic a*, or Caoutchouc Vine of Sumatra and Pulo Penang, with an account of the properties of its inspissated juice compared with those of the American Caoutchouc. Asiatic Researches, V, 1798, pp. 167—177; Nicholson, Journ. III, 1800, pp. 436—440; Tilloch, Phil. Mag. VI, 1800, pp. 154—161.

7. An account of a new species of *Delphinus*, an inhabitant of the Granges. Asiatic Researches, VII, 1801, pp. 170—174.

8. Account of the Tusseh and Arrindy Silk-worms of Bengal. [1802] Linn. Soc. Trans. VII, 1804, pp. 83—48.

9. A botanical and economical account of *Bassia butyracea* or East India Butter Tree. Asiatic Researches, VIII, 1806, pp. 477-486; Nicholson, Journ. XIX, 1808, pp. 872—379; Gilbert, Annal. XL, 1612, pp. 84-840.

10. On the culture, properties, and comparative strength of Hemp and other vegetable fibres, the growth of the East Indies. Nicholson, Journ. XI. 1806, pp. 32—47; Gill, Tech. Rep. VI, 1824, pp. 184—194, 240-244.

11. An account of the Hindu method of cultivating the Sugarcane and manufacturing the sugar and jaery in the Eajamundry district. Tilloch, Phil. Mag. XXI, 1806, pp. 264-275.

12. A table of the growth of trees in the Botanic Garden at Calcutta. Nicholson, Journ. XVII. 1807, pp. 110-11.

13. A description of several of the monardrous plants of India, belonging to the natural order called Seltamine* Linn. s. Ca. Nicholson, Journ. XVII. 1807, pp. 110-11. * Asiatic Researches. XI, 1810, pp. 818-862; Sprengel, Journ. Phil. Mag. XXI, 1806, pp. 264-275.

14. Letter on various natural productions of the East Indies. Nicholson, Journ. XXVII, 1810, pp. 69-76.

* *Jiimi*, *add the causes*. London, Med. Soc. Trans. I, 1810, pp. 199—211; Tilloch, Phil.

16. Some account of the Teak tree of the East Indies. Nicholson, Journ. XXXIII, 1812, pp. 348-351.

17. *Flora Indua, Tart 4* Cryptogamous Hams. Calcutta, Journ. Nat. Hist. IV, 1844, pp. 463-620.

18. On the genus *Jgudar* with remarks by the late H. T. Colebrooke. [1861] Linn. Soc. Trans. XXI, 1865, pp. 199—206; Linn. Soc. Proc. II, 1865, pp. 123—125.

Society of Arts, and of the Royal Society of Edinburgh. He was not, however, a Fellow of the Royal Society of London.

There can be little doubt that Roxburgh must have collected many plants during his long Indian career of some 15 years. It is known that his earlier collections in that province prior to his removal to Calcutta; and I believe that his earlier life in the Calcutta Garden, when collecting was his sole occupation, must have accumulated large quantities of dried plants of his, however, now exist in the Calcutta Herbarium. It is stated by Griffith, in his report on the Calcutta Garden written for Dr. Wallich in 1834, that the latter had carried off all the plants formed part of the great Herbarium of Indian plants in Europe, at the expense of the East India Company in that direction. A few of Roxburgh's Indian plants are to be seen in the Herbarium; there are a few also at Kew and the British Museum. There are others in some of the great Herbaria on the Continent and doubtless there they cannot be now traced. The want of copies in Europe; but the mass of them however, greatly compensated for by the drawing of Roxburgh's plants, a majority of the species named by him. Copies of a number of the drawings were made at the expense of the late Sir W. J. Hooker and the drawings were made by him. They can be now consulted in Wight's *Icones Plantarum Indiae Orientalis*. Printed on a reduced scale

A few years after Roxburgh's death some of his friends raised a monument to his memory on a little mound near the great banyan tree. The inscription on this monument, which was composed by Bishop Hurd, is as follows:—

Quisquis ades

Si loas suavitate mentem permuloet
Aut admonet ut pie sentias de Deo
Habeas in honore tibi

Roxburghius

Horum hortorum olim profectus
Virtutum botanices laude florens
Idemque in Britannia magistrum

Suum artifex

Conservat oiaerem Patria

Hic viget ingenium

Tu fave et profraere

H. M. P. C. Superstates Amici A. D. 1822.

The portrait which forms the frontispiece to this book (by the process of photographic etching by my friend Z. J. is a production

• A number of plants, collected at the Garden (by the late Sir W. J. Hooker) of the the Herbarium about twenty years ago by a student of his (now at the University of Cambridge) were presented to

picture published in thirty-third volume of the Transactions of the Society of Arts (London, 1815).

In preparing this brief memoir, I have received much kind help from my friend, Mr. Henry Beveridge, late of the Bengal Civil Service. Mr. Beveridge had the records of the parish of Craigie, as well as the Register House in Edinburgh, searched (unfortunately in vain) for the entry of Roxburgh's birth; and it was he who kindly copied for me the inscription on the tombstone in Greyfriars Churchyard.

BOTANIC GARDEN, CALCUTTA, " |
June 1895. }

G. KING.

A HISTORY OF THE LIFE

Francis Hamilton (— Buchanan),

DEPOSITED IN THE HONOURABLE COMMONS BY
PARLIAMENTARY ORDER.



LONDON:

PRINTED BY RICHARD CLAY AND COMPANY

1911

EMATVM SLIP.

Sketch of the pfe of #« Hamilton (once Buchanan).

Page) Ixix, lines 5 to 8 from top should read as follows :-

« There is no indication that Roxburgh recommended Hamilton's selection as Surgeon and Naturalist to accompany the Ava Mission; the actual appointment was probably secured for him through the influence and interest of Sir James Murray."

A SKETCH OF THE LIFE

OF

Jfrana0 Hamilton (owe Buchanan),

SOME TIME

SUPERINTENDENT OF THE HONOURABLE COMPANY'S BOTANIC GARDEN AT CALCUTTA.

1. INTRODUCTORY.

IN these Annals Sir George King has already published *A short account of Colonel Kyd, the founder of the Royal Botanic Garden, Calcutta** to whose care this institution was committed from its origin in 1786 till his death in 1793. This was followed by *A Brief Memoir of William Roxburgh, Author of the Flora Indica** who succeeded Lieutenant-Colonel Kyd and was Superintendent till 1814. In continuation of the series of sketches thus initiated the writer proposes to give here an outline of the career of Dr. Francis Buchanan (subsequently Hamilton) who was Superintendent of this garden, as successor to Dr. Roxburgh, for a brief period in 1814-15.

Notices of Buchanan Hamilton, of various degrees of merit, are to be found in Chambers' *Biographies of Eminent Scotsmen*, in the *Dictionary of National Biography*, in Higginbotham's *Men India has known*, in Anderson's *Scottish Nation*, in Britten and Boulger's *Biographical Index*, and in the *Calcutta Review* for July 1894. The basis of most of these articles has, however, been an incidental account, by Buchanan himself, in the *Transactions of the Royal Society of Edinburgh** of his service in India; the Indian portion of Buchanan's career is therefore easily followed.

As regards, however, Buchanan's career before entering the service of the East India Company and as regards his life after retiring from India, the majority of his biographers have apparently found it difficult to obtain facts and have been content at times to substitute surmises, without always clearly indicating the statements that are merely surmises.

In the Library of the Royal Botanic Garden at Calcutta are preserved many letters, written during his Indian career by Buchanan to his friend and predecessor

¹ Annals of the Royal Botanic Garden, Calcutta, vol. ir.

² Ditto ditto TOL v.

³ Vol. x., p. 171, (read June 18, 1821).

Roxburgh.¹ These deal mainly with botanical subjects and therefore rarely admit of being suitably reproduced in their entirety. They do, however, in many cases throw light on his Indian career, as passages extracted from them will show. In the same collection are also preserved a number of letters written by Buchanan (now Hamilton) to his friend and successor Wallich; these are invaluable as a record of Hamilton's life after he retired.

In his endeavour to obtain further information regarding points that in previous notices seemed doubtful or inexact the writer has received much assistance from many friends, to whom his warm thanks are due for their kind interest in the subject. For information regarding Buchanan's family history and the history of the house of Buchanan since 1682, he is indebted to J. Hamilton Buchanan, Esq., of Leny and Spittal, and to A. C. Cameron, Esq., LL/D., of Edinburgh; for facts and dates relating to Buchanan's education and to his connection with the Indian Medical Service he has to thank Lieutenant-Colonel D. G. Crawford, I.M.S.; for an examination of Naval and other Records with the object of throwing light on Buchanan's career before he entered the Company's service he is indebted to J. F. Duthie, Esq., and through him to Lord Walter Kerr, J. Britten, Esq., and B. Daydon Jackson, Esq.; for an opportunity of consulting an extremely interesting series of letters regarding his father written by Buchanan's son and successor, the late J. B. Hamilton, Esq., of Leny, Spittal and Bardowie, he has to thank Sir George King and through him II. Beveridge, Esq.

To the kindness of Mr. Hamilton Buchanan of Leny the writer is further indebted for the use of two letters from Lord Wellesley and of two other very interesting documents; a sketch of the life of his grandfather Francis Hamilton (formerly Buchanan) by his own father, the late Mr. Buchanan Hamilton of Leny who was Dr. Buchanan's son and heir; and a copy of the 'Rotour' in the claim successfully advanced by the subject of our sketch, towards the close of his life, to represent the house of Buchanan and to be therefore chief of the name.

2. EARLY LIFE AND FAMILY HISTORY.

Francis Buchanan was born at the Branziet, in the county of Stirling, a dower house on his mother's estate of Bardowie, on 15th February 1762. He was the fourth son of Thomas Buchanan, of the house of Buchanan of Spittal, by his second wife, Elizabeth Hamilton, daughter and eventually heiress of John Hamilton of Bardowie.

¹ These letters are 149 in number and may be classified as follows:—

Belatke to the Burmese mission	...	...	...	1
Ditto his life in Lutkipur (Puttahaut)	...	...	...	19
Ditto the Chitta.ong survey	...	...	...	1
Ditto the Mysore survi-y	...	...	...	19
Dit'o the Nepal miscioa	...	...	...	9G
Ili'to his life at Baraipur	...	...	...	2
Ditto the BeDgal surty	...	...	...	11
				<hr/>
			Total	... U9
				<hr/>

There were other 21 letters written from Nepal that were stolen or otherwise lost in transit.

Thomas Buchanan, the father of the subject of this sketch, was a younger son of John Buchanan of Spittal, a small property in the county of Dumbarton¹ consisting of a few farms and possessing now no mansion house.² As a younger son Thomas Buchanan had to adopt a profession and he is described variously as a physician³ and as an officer in the Dutch service;* he is, moreover, usually spoken of as Thomas Buchanan of Spittal. The statements regarding his occupation, which are not necessarily incompatible, the writer has not succeeded in verifying; his territorial designation, though correct, requires some explanation.

In an entry in the *Service of Heirs in Scotland*, dated 12th January, 1759, Thomas Buchanan is erroneously described as the son of Robert Buchanan of Spittal.⁵ Robert Buchanan was the elder brother, not the father of Thomas Buchanan. Robert inherited Spittal from his father, John Buchanan, about 1730. The estate being encumbered was disposed of by Robert Buchanan to a younger brother, Peter Buchanan, in 1735. Peter in turn sold it, in or about the year 1755, to his brother Thomas Buchanan. By an entail, dated 10th December 1786, the succession to, as apart from possession of, Spittal was vested in Thomas Buchanan, who had already been in possession for over 30 years, and his heirs. As both Robert and Peter Buchanan⁶ died without issue, Thomas Buchanan thus, about 1755, acquired by purchase a property that he or his successors must ultimately have obtained by inheritance.⁷

Thomas Buchanan married, as his first wife, Katherine Buchanan, daughter of Henry Buchanan of Leny, in Perthshire, the head of a house that has been intimately associated with the parent house of Buchanan of Buchanan throughout their joint history. Allan Buchanan, second son of Sir Maurice Buchanan, whose charter of confirmation in the lands of Buchanan was granted by David II, married the daughter and heiress of the last male representative of the house of Leny of Leny, and founded the house of Buchanan of Leny. The last male representative of this first line of Buchanan of Leny was John Buchanan, great-grandson of Allan Buchanan, whose daughter and heiress, Janet Buchanan, married John Buchanan, eldest son of Walter Buchanan of Buchanan, whose charter of confirmation was granted by Robert II. This John Buchanan, who predeceased his father, left three sons: (1) Sir Alexander Buchanan, a notable soldier, who was killed, leaving no heir, at the battle of Verneuil on 17th August 1421; (2) Sir Walter Buchanan, who married a daughter of Murdoch, Duke of

¹ Buik: Landed Gentry for 1 POO—*article* Buchanan-Hamilton of Spittal, Leny and Bardowie.

² Though, comparatively unimportant in a material sense this small estate has been of much historical and genealogical consequence to the branch of the house of Buchanan to whom it belongs; it was in virtue of his ability to demonstrate that he was the representative of his ancestor Walter Buchanan, younger of Buchanan and first of Spittal, that Dr. Francis Hamilton established his claim to represent also the house of Buchanan of Buchanan and to be chief of the name.

³ Chambers : *Biographies of Eminent Scotsmen*. Higginbotham : *Men India has known*.

* Anderson: *Scottish Nation*.

⁶ This entry refers, it may be remarked, to his second wife, Elizabeth Hamilton, not to himself, a fact that probably explains the error.

The widow of Peter Buchanan of Spittal, whose name was Agnes Hamilton, was still living on 15th January 1809.

In connection with this it is interesting to find that although, on the death of his own elder brother Colonel John Hamilton, Dr. Francis Buchanan acquired possession of the property of Spittal in 1818, he considered it necessary, as a preliminary to the establishment of his larger claim to represent his ancestor Walter Buchanan, first of Spittal, to serve himself heir, on 13th September 1626, to his father's elder brother, and his own uncle, Robert Buchanan of Spittal.

Albany by his wife Isobel, Countess of Lennox in her own right, and inherited the Buchanan estates from his grandfather; and (3) John Buchanan, who inherited his mother's estate of Leny and so began the second line of Buchanan of Leny. Sir Walter's son, Patrick Buchanan of Buchanan, whose charter of confirmation in the Buchanan estates is dated 1460, became owner of some portion of Strathyre in 1455, and in that year was a party, along with his cousin, Andrew Buchanan of Leny, to a mutual entail of their respective estates in favour of each other and of their lineal descendants, passing over their brothers on either side. For the next two centuries the writer can trace no matrimonial alliances between the houses of Buchanan of Buchanan and Buchanan of Leny, but the penultimate Buchanan of Buchanan, Sir George Buchanan, who died in 1651, had by his second wife a daughter, Janet Buchanan, who married Henry Buchanan of Leny.

Henry Buchanan of Leny is stated to have died in 1723.¹ By his first wife he had six children: (1) John Buchanan, who died unmarried; (2) Colin Buchanan, who also died unmarried—he was served heir, on 23rd January, 1728, to his father Henry Buchanan of Leny, and to his brother, John Buchanan of Leny; (3) James Buchanan, who died without leaving descendants; (4) Robert Buchanan, who also died without leaving descendants—he was served heir to his brother Colin Buchanan of Leny on 14th September, 1734; (5) Elizabeth Buchanan, wife of Francis Buchanan of Arnprior,² who succeeded to the estate of Leny on 22nd March 1740, but died leaving no issue; (6) Margaret Buchanan, who succeeded her sister Elizabeth in the estate of Leny and died unmarried.

By his second wife, Henry Buchanan of Leny had two sons, Henry Buchanan and John Buchanan³ both of whom died without issue; and three daughters, (1) Lillias Buchanan, died without heir; (2) Jean Buchanan, who appears to have married but to have left no issue; (3) Katherine Buchanan, the lady who, as already stated was the first wife of Thomas Buchanan. There were no children by this marriage, but, on the death of his wife's half-sister, Margaret Buchanan of Leny, Thomas Buchanan inherited the estate of Leny, and was thus the founder of the existing line of Buchanan of Leny.

¹ *Scottish Nation*, i., 452. This is possibly a printer's mistake for 1728.

² Francis Buchanan of Arnprior, the husband of Elizabeth Buchanan of Leny, was the representative of a family founded by John Buchanan, younger son of Walter Buchanan of Buchanan, and grand-son of the Patrick Buchanan of Buchanan who, in 1455, was a party to the joint-entail of the estates of Strathyre and Leny. This John Buchanan, to whom the estate of Arnprior, formerly owned by one of the Menzies, had been left by testament, was the well known 'Kin' of Kippen, the friend of James V. His descendant, Francis Buchanan, husband of Elizabeth Buchanan of Leny, accepted a commission as Major in the Duke of Perth's regiment and was beheaded at Carlisle in 1746. As a relic of this gentleman there still are preserved at Leny one of the gloves worn by him at his execution and a part of his commission signed by Prince Charles' Secretary of Buchanan of Arnprior is now believed to be extinct. The name Francis is not one that was in the family of Buchanan of Spittal and it is just possible, though there is no direct proof of the fact borne by the object of our sketch was bestowed in commemoration of his unfortunate kinsman. It is here that the subject of our sketch was not the first of his name to enter the Indian Medical Service. Buchanan, M.D., was appointed Assistant Surgeon on 1st July 1757 and as a result of this appointment he was sent to the East Indies.

•Xh. fact that there was a John in Henry's family, who also was John Buchanan, must have predeceased his father and as a result of this fact in Scotland shows that Henry's second son, Colin, succeeded to the estate of Leny and must have succeeded his father immediately and that, although he was a younger brother John, this brother never was in possession of Leny. This length Buchanan should be 1728 and not, as has elsewhere been stated, 1723?

Elizabeth Hamilton, the second wife of Thomas Buchanan, and mother of Francis Buchanan was, in **1757**, about two years after her marriage, served heir-portioner to the estates of her two brothers, John Hamilton and Robert Hamilton, and in 1759, along with her sister Mary, served heir-portioner to the estate of her father, John Hamilton of Bardowie. Subsequently she became the solo possessor of the Bardowie property¹ and an entail was executed in terms of which such of her descendants as might avail themselves of the succession to her estate were obliged to assume her own name of Hamilton.

The family of Thomas Buchanan and Elizabeth, his second wife, included five sons, Henry, John, Robert, FRANCIS, and Peter, with two daughters, Elizabeth and Marion. Henry Buchanan, born in 1755, predeceased both his parents.² John Buchanan, the second son, born in 1758, became a soldier and saw a good deal of service abroad. He married Margaret, daughter of Sir Hew Crawford of Jordanhall, and on the death of his mother succeeded to her estate of Bardowie and, in accordance with the terms of her entail, assumed the name of Hamilton. "When his father Thomas Buchanan died in 1790, Colonel John Hamilton succeeded to the paternal estates of Spittal and Leny but continued to make Bardowie his residence. He died on the continent, whither he had gone for the benefit of his health, in 1818, and left no issue, Robert Buchanan, the third son, born in 1760, who predeceased his brother, Colonel John Hamilton, married and had a son, Robert Hamilton Buchanan, who entered the service of the East India Company and also died, as a Captain in the 24th Regiment of Native Infantry, leaving no legitimate descendants, before his uncle, Colonel John Hamilton. Francis Buchanan, the fourth son and the subject of this sketch, born, as already stated, in 1762, survived and succeeded his brother, John Hamilton, in all three estates of Bardowie, Spittal and Leny. Peter Buchanan, the youngest son, born in **1767**, died unmarried. The two sisters Elizabeth and Marion were both married but have now no living descendants.

Francis Buchanan received part of his early education in Glasgow. The schools that he attended are not recorded but he entered the University of Glasgow at the early age characteristic of the period. The Professors at Glasgow then were William Richardson,—Humanity; John Young,—Greek; James Williamson,—Mathematics; John Anderson,—Natural Philosophy; James Clow,—Mental Philosophy; Thomas Reid,—Moral Philosophy. As his subsequent career and writings show, Buchanan in Glasgow acquired a scholarly knowledge of the classical languages and a thorough training in physics and philosophy. Of these teachers, probably the now venerable Reid, who himself

¹ In a letter dated Leny, 15th October, 1821, Dr. Francis Hamilton, referring to Sir Robert Colquhoun, Bart., then serving in India, writes:—"I am happy that Sir Robert Colquhoun is a botanist or, at least, an amateur. His sister is married to a relation of mine and her son, unless I marry, will succeed me in my maternal inheritance of Bardowie." There were thus, when the entail referred to was executed, residuary rights of succession beyond the immediate descendants of Elizabeth Hamilton. The entail she executed was removed some years ago and in consequence of this, although Dr. Francis Hamilton's son continued, till his death in 1903, to be known as J. Buchanan Hamilton, his grandson, who is now proprietor of Spittal and Leny and chief of the name of Buchanan, has been able to revert to the original family name. More recently the estate of Bardowie, as Mr. Hamilton Buchanan informs the writer, has been disposed of.

² Henry Buchanan would appear to have died young; this may explain how it happens that previous notices of the life of Francis (Buchanan) Hamilton speak of him, erroneously, as having been the third son of Thomas Buchanan of Spittal.

used the Baconian method in his lectures with such effect, had the greatest real influence on Buchanan's career, if one may judge by Buchanan's skilful and often masterly use of the inductive process with regard to those matters as to which he had only native reports and opinions to guide him. From Glasgow Buchanan obtained the degree of M.A., when he was 17 years of age, in 1779.

Being, like his father, a younger son, it was necessary for Buchanan to adopt a profession. He accordingly decided to follow that of his father and, after graduating at Glasgow, he proceeded to Edinburgh where he studied medicine. John Hope,¹ pupil of Jussieu, and friend of Linnaeus, had been teacher of Botany for eighteen years when Buchanan's studies began, while John Walker² had entered on his duties as teacher of Natural History during Buchanan's final year at Glasgow. The influence of the teaching in these two classes on Buchanan's mind and future career was evidently great. The Professor of Materia Medica at Edinburgh then was Francis Home,³ who possibly did not so greatly influence Buchanan, but he evidently benefited by the inspiring influence of Alexander Monro *secundus*,⁴ who was then the Professor of Anatomy. A fellow-student and college friend of Buchanan while at Edinburgh was James Edward (afterwards Sir J. E.) Smith, the purchaser of the herbarium of Linnaeus and founder of the Linnean Society of London, and from Smith we learn that, after the often temporary enthusiasm for natural history which accompanies attendance on the scientific classes of a medical curriculum might have worn off, Buchanan during the intervals between the sessions of the University was still a keen collector.⁵ Buchanan obtained the degree of M.D. from the University of Edinburgh in 1783, when he was in his 22nd year.

The year following graduation appears to have been spent at home and we learn incidentally from Sir J. E. Smith that he was still collecting, and that Smith and he were attempting conjointly to identify his specimens.⁶ His attention at this time was apparently given largely to mosses.⁷ It is clear from the references that provided us with this information that Buchanan, though already a keen collector, was a collector of an unselfish type, forming no permanent herbarium for himself but making over his specimens to friends, just as he did in later years.

Early in 1785 Buchanan embarked on the first of his Eastern voyages⁸—we find from one of his subsequently published papers that on the last day of July 1785 he was in the Arabian Sea on a vessel bound for Bombay from Johanna in the Comoros. The paper in which this fact is recorded,⁹ and a later reference to the conditions of the cotton export trade in Bombay, contained in a letter dated

¹ Dr. John Hope, Professor of Medicina and Botany in the University of Edinburgh, 1761—1780.

² Dr. John Walker, Professor of Natural History, 1779—1804.

³ Dr. Francis Home, Professor of Materia Medica, University of Edinburgh, 1768—1798.

⁴ Alexander Monro *secundus*, *patrii eminentis filium eminentior*, Professor of Anatomy, University of Edinburgh, 1754—1798.

⁵ His name is associated with the first record of a British Moss, collected at Lenvy his father's home in 1782, the year before he obtained his medical degree. *English Botany*, xxiii., t. 1690: 180(3).

⁶ *English Botany*, t. 2004: 1809; another first record of a British moss.

⁷ This branch of Botany is one that Buchanan evidently did not continue to cultivate in later life for one of his letters, given in a subsequent chapter, laments his ignorance of the group and is interesting as showing that the example and influence of Hooker and Greville almost tempted him to renew his acquaintance with these fascinating plants.

* It is not clear in what Edinburgh *Philosophical Journal*, vol. v.; 1821. **bi *e point is dealt with more fully below.

1st November, 1828, which is given further on, show that Buchanan thus early in his career already possessed all the faculty for careful observation that was to be so distinguishing a feature of his later life. It is not therefore surprising to find, that, just before he started on another voyage, Buchanan joined, as one of its original associates, on March 18, 1788, the Linnean Society founded in London by his friend, Dr. (afterwards Sir) J. E. Smith.

During Buchanan's second voyage his vessel, evidently outward bound, was, on May 24th, 1788, somewhere in the latitude of Walfisc'i Bay. The 8th of January, 1789, found him in the Sea of Celebes about midway between the Philippines and the Moluccas and on the 12th of April, 1789, his vessel, obviously homeward bound, was somewhere in the Southern Atlantic.¹ There is an indication, in two contemporary records, that Buchanan may have made a third Eastern voyage, for he is spoken of, in works² published in 1791, as being then in the East Indies. Nothing definite has been traced with regard to Buchanan's life between 1791, assuming that he was again on a voyage in that year, and 1791 when he accepted a commission from the Honourable East India Company.

Most previous notices of Buchanan's career state that after graduating in medicine in 1783 he entered the Royal Navy as an Assistant Surgeon, but that he soon had to resign this service owing to the delicate state of his health, and on this account spent a considerable number of years at home before proceeding to India in 1794. This belief has almost crystallized into a family tradition and in a letter from his son, written in 1894, that gentleman, who was a small boy at the time of his father's death, refers to his dim recollection of a wound, which Buchanan was believed to have received in a naval engagement in the West Indies^a, that gave trouble to the end of Buchanan's life,

It has to be remarked, however, in the first place, that the grade of Assistant Surgeon did not exist in the Navy between 1783 and 1794, and further, that a thorough search of our naval records for the period 1783—1794, kindly undertaken on behalf of this memoir by Lord Walter Kerr, fails to show that Buchanan ever did serve in the Navy. That Buchanan's health was, during some part of the 1783—1794 period, in an indifferent state may, the writer believes, be accepted, for it is extremely unlikely that a family tradition of this kind should be without foundation. But it is clear that the period of ill-health was at any rate shorter than has been supposed, and that there was certainly no enforced residence at home at Leny between 1783 and 1789, possibly none till after 1791. The prolonged ill-health recorded by previous biographers is thus reduced at most to the four years 1790—1794*, and is quite likely to have lasted only for two years from 1792—1794.

¹ *Edinburgh Philosophical Journal*, vol. v.; 1821.

^a *Statistical Account of Scotland*; Callander: also *Transactions of the Linnean Society of London*, vol. i.; 1791. The Rev. Dr. Robertson, author of this account of Callander, mentions Dr. Francis Buchanan as "the most learned person who is known to have belonged to this parish" and speaks of him as "at present in the East Indies." The manuscript of this account of Callander was placed in the hands of the Editor of the *Statistical Account* in 1791, but it is of course not impossible that it was written, at least in part, two or three years before 1791, and the passage quoted may therefore very well refer to the voyage of 1788-89. This, however, can hardly be the case with the list of members given in the first volume of the Linnean Society's *Transactions*, where Buchanan's address, for the year 1791, is given as the "East Indies."

There is no reference, so far as the writer can ascertain, in any of Buchanan's own papers, to a third Eastern voyage or to his movements at all, between 1789 and 1794 when he first took service in India.

must have been, and we further gather both from Symes and from various papers published by Buchanan himself while in India and after he had retired,¹ that he made the most of the opportunities afforded by this journey not only in the matter of direct observation but in the way of acquiring information by questioning the more intelligent inhabitants of the country with whom he came in contact. Though only one passage is given by Symes in Buchanan's own words² we are told that a good deal of the geographical as distinguished from the political fruit of this mission was the outcome of Buchanan's assiduity. There are also, in Symes' narrative, incidental references to Buchanan's work as a botanical collector,³ and a number of the more interesting species of plants obtained during the journey, of which drawings had been made on the spot, were selected for publication and described, so Symes says, by Sir Joseph Banks, as a portion of Symes' work.⁴ His correspondence with Roxburgh began during this journey though only one of the letters in Roxburgh's collection, dated Rangoon, 21st May, 1795, belongs to this period. It is too technical for reproduction in full but the closing passage:—

"any of the seeds you think worth the planting in your garden I beg you may use; the others, if any opportunity offers, be so obliging as to send to Smith in my name,"

is interesting owing to its reference to his friend the founder of the Linnean Society.

On his return from Burma, Buchanan was posted to Luckipoor (Lakshmipur) the head-quarters of the present district of Noakhali in South-Eastern Bengal. His actual residence was at Puttahaat six miles north of Luckipoor and, except for occasional visits to Comillah, Chittagong and Calcutta, he was here during the latter half of 1796, the whole of 1797, and a considerable part of 1798. He was, as we learn from his letters, in constant correspondence with Roxburgh,⁵ who took a great interest in Buchanan's welfare and career, and did much to push his fortunes at the outset of his Indian service.

Shortly after settling at Puttahaat he applied unsuccessfully to be allowed to return to Pegu. Besides travelling in the district and crossing the Megna to make occasional botanical excursions in the Eastern Sundrivers we find that he busied himself with the arrangement of his Burmese notes and papers. Thus, in a letter dated Puttahaat August 13th, 1796, he says:—

"I have finished my account of the Pegu plants some time ago and would have kept it up but am in daily expectation of bringing it up myself. It has turned out much longer than I

¹ *Asiatick Researches*, vols. V. & vi.; *Edinb. Phil. Journ.*, vols. ii., iii., iv., v., vi., vii., ix., x.; *Edinb. Journ. Sci.* i.

² A note on the rivers of Burma; Symes: *Embassy*, p. 241.

³ E. g., Symes: *Embassy*, p. 437, where reference is made to Buchanan's search for the Launzan tree, which, was also the subject of a short paper (*Asiatick Researches*, vol. v.) by Buchanan himself, and which now perpetuates his memory by having been made the type of the genus *Buchanania*.

⁴ Symes: *Embassy*, p. 473. Descriptions of rare and curious plants, selected by the President of the Royal Society. "We know, however, from Buchanan's letters to Roxburgh, and from his own published papers, that he prepared a full account of the collection made in Burma and that what Symes says Banks did was really entirely Buchanan's work.

* The following 19 letters to Roxburgh belong to this period: 1796; August 13th, November 17th, December 14th; 1797; February 1st, Uih March, 11th, April, 10th May, 16th June, 6th July, 10th July, 19th July, 26th July, 2nd August, 17th August, 20th August, 4th September, one without date received by Roxburgh on 3rd October, 30th October; 1798; 7th January.

expected; 168 folio pages. Since it was finished I have been busy in arranging my geographical papers."

In the same letters he gives an indication of his zoological studies:—

"I believe I have discovered a new genus of animals. It is very near the Lima* but differs in several particular. It is impossible to preserve the animal in spirits so as to show its Umbs but I have got very good drawings." M iim^oa

In the next letter of the collection, dated Puttahuat November 17th, 1796, he says:—

"I should very willingly have described the new animal here, but Mr. Fleming when I offered it thought that it would not answer, and I am afraid Smith would not take it kind should I withdraw it from him."1

He had joined the Asiatic Society at letters there are several allusions to the and in his dated Pallet nth ^ 1797, need be here ^ en; ,ho ije ^ 'o f,™ i L a letter particularly in the concluding sentence, which seems to indicate that R J L ! act lies *Iniica*, which was not published in its entirety till 1«, , } R<Mtra GI> 's Flora at the disposal of hU friends. B J ^ T ^ ^ ^ T ^ 7 , fn - nuscript, arranged to visit Chittagong, passing* by LuTpZa p bein' t c h ' Z show had the way. The proposed e*cu,sion had to be abandoned, owll to The s h ^ t i oo of Hope. " 8 " , 8 h6al,h WMCh " ~*** * ^ ^ a TMTM • *»' ^ C>Pe T Good

"Two days ago I received yours and am sorry that v^ T ofe . en ing thi., way, especially as it proceeds from so bad a ^ 7 am mucfoUi.! T **?" " com- to make up my migigemaata to the Soociey; ba so obli^n, aTtTS ° t JT. Undekin^ shaU procura an order on Odloatta as soon as posabla . T <<° i T -now he amoat aad I the number of your Flora Indlca." P J im &ho ^^ obli^d *o you for 8Gcuring

From a letter dated 10th May 1797 we learn +W n u i. , naci obtain for Buchanan a place on /,, exped^onTen t i n g l e ^ d 7*TM"* to Manilla. Nothing came of this, but a subsequent recommdaCn of t j ceed ^ Buchanan should be posted to the 24-PergumiahB: so as faTh^l\ ^^ that the books to be had in the libraries of Galcuttx, was successful, n H -im n uain IGach of mendment of Roxburgh's, submitted t, the Board of Trade at n 7'! anoth * reCOaQn nan's services should be utilized in making an economic survey of 0^ ^ ^ the rainy season of 1797 Buchanan was still engaged in arrana-Ino- l . t * agong* Dunh g for in a letter dated 19th July 1797 he says:- arransing *» Burmese papers,

«I have now nearly finished my account of the Burmese ^lio-icm and .l, w u to Sir John Shore, whos, opinion relative to the publication of a" part or TT ue g i a d *0 Bhow ^ to have. " M do not think that it would answer for a separat^bH ^ w , ole I ^^ like long it might do for the Asiatick Eesearches." P Publl'o ation, but although rather

He reverts to this subject in several subsequent letters; i_u one w* . j t on 3rd October 17^7 he says:— One lec eived by Roxburgh

"I intend setting out for your house on the twentieth of October By the time I have come I hope Sir John and perhaps Air. Fleming' m u . . . and we shall then be able to determine what ought to be done with th_ ay uave 10 oked them OTe If th_e contents are thought

» This, a^d ana^er «oalo,ica. paper belonging to the ««* period, appeared i, j ^ ^ ^ ^ T ^

interesting enough for justification, I can get Shcolbrd or peihops Bmce to look over tlc.m with me and to coiText the language. Both of them -write with a considerable degree of elegance."¹

The temporary cessation of Buchanan's correspondence with Roxburgh, for there is no letter after 7th January 1788 till 16th October 1798, was due to Roxburgh's absence from India. The letter of 16th Octjber, which was addressed to Roxburgh at the Cape, is given below:—

" Your aj>lication to the Eoard of Trade for my going to Ohitagong was successful and I had a chainring botanical excursion for near 3 months; the latter part of it, however, was much interrupted by the rains which set in remarLably early and are not yet over. I found many places with a most excellent soil in Chittagong, but have ipy fears that the climate will not be sufficiently mild for the 6pice plants. I however sent in a report to you, communicating it to Fleming and mentioning that I would communicate my journal² which contains the remarks I made on the soil, produce, culture, and people of the country through which I passed, and thst I would also communicate my specimens of dried plants which are pretty numerous. I havo sent a good many seeds and growing plants to tho garden and have laid things in such a train that I expect many more. In what condition the seeds and plants have arrived I cannot say, as I have not yet been able to go down to the garden. Among my specimens are four species of Grurgeon or wood oil trees; a tree which yields a very acrid vnmish which I suppose is the same with that of the Burmas and Chinese; another the bark of which united with indigo is said to form a black dye. I saw noi the fructification of either, but suspect tLe first to be a species of Semecarpus and the latter to be a Ricinus. I sent growing plants of both. What will be the result of my report I cannot say, as Fleming does not intend giving it in till Smith goe3 away to the eastward which he will do in a few days. He says that I will have seme difficulty in getting expenses paid owing to my being so late of making a charge.

According to your recommendation I was appointed to Barripur on the 15th May * * * * *
 * * * * * I could not leave with propriety before the first of this month. I was thus for a long time kept in a disagreeable situation and run great litks of having my interests materially injured, yet as very frequently happens in our profession I did not even receive thanks from those I had eo materially served. Fleming has been very angry with me for staying so long, but I know that if I had como away • • • • • would have raised tuch a clamour about inhumanity that I should probably [have] been looked upon by every civil servant as a monster.

Fleming at one time I am told had strong intentions of going home, but as he is now as much in favour as ever I hope he will not think of it. I dined yesterday with Boswell, who is very well and in good spirits, and I am happy to hear from him that you are so much pleased with the Cape."

From the beginning of October 1798 till the commencement of 1800 Buchanan was stationed nt Baruipur in the 24-Pergunnahs, not far from Calcutta, and while here he had tccasion to make several voyages in the Wtstern Sundribuns. Not having Roxburgh to correspond with, he appears to have given less attention than usual to botany, for he collected no specimens; any drawings or descriptions that he made were sent to his friend Smith. His zoological studies were, however, steadily pursued, more paticularly bis investigation of the Gargetic fishes. This subject had already engaged his attention while at Puttahaut, for in a letter from there to Roxburgh, dated 30th November 1797, he says:—

" I have given my old painter a gold mohur a month and have him employed on fUhos. I am attempting to make him do the outlines with some degree of accuracy; when ho succeeds in that I shall begin to colour."

¹ This piper, ana another on the languages spoken in Burma, were published in *Atiatiek Researches*, vols. v. and vi.

³ This journal was never published, but a nood deal of the information it containLed appeared subsequently in three papers on the frontier between Bengal and Ava, in the *Edinburgh Journal of Science*, vols. ii., iii. and iv.

Again, in a letter, dated 7th February 1798, just before Roxburgh sailed, heremark^:—

"If you do not take Blocke and Forster's Termini Ichthyologici with, you, I should esteem it as a great favour to have the use of them till your return."

At Baruipur, therefore, the fishes received his chief attention and It was here that he really laid the foundation of his great knowledge of the G-angetic species, embodied in one of his most finished publications.¹ Roxburgh returned to India in October 1799 and their correspondence was immediately renewed. Before, however, Roxburgh had returned, Buchanan was offered an opportunity of visiting Nepal, and that he was able to set out on this journey we learn from a letter dated Gorasan, 12th February 1800.

"We have been waiting at this place, which is the village nearest to Nepal, for 14 days. The chief miuistr arrivel two days ago at the village next to us on the frontier of hij country. There has been as yet no interview nor do I know when we shnll advance, but it is expected to be in the course of a few days. I am very well pleased at the d^lay, as I shall have a greater chance of finding the forest trees in flower the later we are,

* * * * *

Captain Craufurd who commauds the escort * * has commenced the study of Botany with eagerness. Ha has rather forgotten his Latin and wishes to have the families of plants and vegetables of the Litchfiell Society. * * *

The Nepal journey had, however, for the moment to be deferred, and Buchanan had once more to thank Roxburgh for an opportunity of distinguishing himself. While on his way back from the Cape in 1799 Roxburgh landed at Madras and had the privilege of an interview with Lord dive, then Governor of Fort St. George. In the course of their conversation Lord Clive mentioned to Roxburgh his desire to investigate the newly acquired territories in his Presidency, and asked Roxburgh whether he could recommend a suitable officer for the work. On his return to Calcutta Roxburgh wrote, in October 1799, to Lord Clive as follows:—

"When in Madras I took the liberty of mentioning to your Lordship that I thought Dr. Francia Buchanan of the Bengal Medical Establishment a very proper person to be employed in your newly acquired territories above the Ghauts. He is the best botanist I know of in India and in every other respect the best qualified to furnish you with an account of the Vegetable Productions of these countries. He is also a good Zoologist; in short every way well qualified for the research I have had a good deal of conversation with him on the subject and find him willing to be employed by your Lordship in the above manner. Could Mr. Heyne accompany him as Mineralogist and Chemist I have no doubt but their joint endeavours would soon furnish a more oompleto account of the natural History, state of Agriculture, etc., of these provinces than we at present have of any of the BnUsh Possessions xn A81a. Should your Lcrdship wish to employ this gentleman it Zl I imagine, be necessary to apply to this Government for him."

When Lord dive's suggestion reached Calcutta the Marquis of Wellesley took if warmly and adopted it as his own. He appears to have been greatly impressed W* the perusal of Buchanan's Chittagong Journal and decided to adopt RoxbmW* on that Buchanan was the officer to whom the duty could best b f T 7? Buchanan was therefore recalled from the Nepal frontier, and L ^ ^ ^ were issued to him to visit and report on the territories of the Raj"l of Mysore, and on the country acquired by the Company aft. thi. 2h? The Sultan well as on that part of Malabar previously ^ ^ ^ l . . .rnwallis. "

¹ *Account of the Fishes found in the river Ganges and its branches.* 2 vols. Text, 1 vol. 8vo. Plates 1 vol. Royal 8vo. Edinburgh, 1822.

The chief object of this enquiry was to be the agriculture of the country, including a report on all esculent vegetables; cattle; farms. Next, the natural resources of the country, such as cotton, pepper, sandalwood, cardamoms were to be investigated; as were mines, quarries, minerals, and mineral springs; also manufactures and manufacturers. An account was to be drawn up of the climate and seasons and, as far as possible, of the forests; finally, he was to report on the condition and character of the people. His instructions included an order to transmit seeds and living plants to the Botanic Garden at Calcutta, with observations as to their nature and their culture.

Soon after receiving these comprehensive instructions Buchanan sailed for Madras, leaving that place on 23rd April 1800 to carry them out. He travelled through Arcot, Mysore, Coimbatore, then crossed the Anamalai Hills to Malabar, and returned to Madras on the completion of his survey on 6th July 1801. His itinerary is given in his published journal, so that little additional information is to be obtained from the letters addressed to Roxburgh¹ during the journey. The following, however, dated Seingapatam, 20th May 1800, from the glimpse it affords us of Colonel Wellesley, who was in time to become Duke of Wellington, is sufficiently interesting for reproduction on that ground alone:—

"I expected to have been able on my journey to this place to have procured many seeds to have sent you, but hitherto it has not been a favourable season, and I have got absolutely nothing. Almost every plant that I have got has been already described by you,² and of the few that appear to be new I have not been able to get the seeds. The whole country above the ghauts through which I have passed is very naked, and at this season is entirely burnt up for want of water. Besides, I had no authority to call upon any of the natives for information and assistance and, without that, it is impossible to procure the most trifling thing. I arrived here on the night of the 17th and have been very well received by Colonel Close, who seems disposed to give me every assistance, and has procured me an interview with Furneah the Rajah's Dewan. He is very profuse in his promises but, from the little I can see, I imagine that privately he will throw every delay in my way that he can.

I live with Colonel Close in the Lai Baug, one of the late Sultan's garden houses. The garden is laid out in the French taste, but suffered much from Lord Cornwallis's army and has been much neglected ever since, for our army made it an hospital and, many Christians having been buried in the grounds, gave Tippoo a disgust to them. The soil is very good and admirably well watered by canals from the river. For my own part I think it a much preferable place to Bangalore for a botanica establishment, but I find Dr. Heyne is of a contrary opinion. The European vegetables thrive at all seasons of the year. Coffee and mulberry trees thrive much better than any I have seen in Bengal. One great advantage of this place is its vicinity to the Coorg Mountains and Western Ghauts where I am told there is a wonderful variety in the vegetable productions. Besides, its being the seat of Government, useful things that may be introduced will be much more likely to spread than if they are cultivated at a remote place such as Bangalore.

I shall probably remain here for some time and then proceed through the eastern parts of the Rajah's dominions to Coimbatore. I must leave the north-western parts, the most favourable for botanical pursuits, till the last, as at present they are in very unsettled state. Colonel Wellesley marched to-day with the 73rd Regiment to join a considerable force that is going to make a settlement.

¹ There are again 10 letters in this series:—Seringapatam, 20th May 1800; Sera, 1st August 1800; Seringapatam, 4th September 1800; Polinura, 16th November 1800; Palighautchery, 2nd December 1800; Paryanuri, 6th December 1800; » letter without place or &te, replying to one from Koxburgh dated 26th September 1800, but by its context intermediate between the last and the next; Calicut, 27th December 1800; Tellicherry, 9th January 1801; Buniwal, 31st January 1801; Coondapoor, 14th February 1801; Nugger, 24th March and 27th March 1801; Chitteldroog, 15th April and 16th April 1801; Seringapatam, 30th May and 1st June 1801; Madras, 7th July 1801.

³ This statement is a further indication that Buchanan possessed a manuscript copy of Roxburgh's *Flora Indica*.

This place is very fortunate in two such men as Colonels Wellesley and Close. Every person is please*! with them and they are both men of great abilities and perfectly men of business. There can be no doubt of their producing a wonderful alteration in a few years. Tippoo's Government since Lord Comwallia's war has been dictated entirely by caprice and bigotry and together with depredations of hostile armies, especially the Marratahs, has reduced the country to a very wretched state. Nothing can be barer than this place. On my last day's mirch o£ 15 mile³, I hardly saw a bush largo enough to make a broom. I have therefore little employment for my painter. On tha road I got hardly anything completed by him, A mo3t beautiful Stapelia, very different from your adscendexu. ia the most valuable of his performances/'

Another letter of the series, dated Buntwal, 31st January 1801, is interesting, as the subjoined extract* show, because it gives the first indication of the interest which Buchanan subsequently took in the *Hortm Mahbaricus*, to the preparatio-i of a much-needed commentary on which he devoted abojt five years of his life after retirement, only in order* that two-thirds of the work should be buriod in the archives of a Botanical Society. It is almost equally interesting because of the light it throws on Hamilton's views regarding a subject which was only dealt with by him once again and then in what apparently is the last paper he ever wrote:—

" I got yours of the 4th and 5th instant two days ago and am obliged to ycu for the great trouble you have had in making the extracts from the *Hjrtus Mahbaricus*. I am sorry that the nature of my visit to Malabar will afford very little prospect of illustrating the work of Von liheede. It was performed in the middle of winter, when you know how very few plants are in fructification, and I found no native who could or rather who would inform mo of the name³ of plants. The obstinacy of the people of Malabar is astonishing and every man you meet suspects yoa have an e/il design in ©very question you ask. Without therefore making some stay in the province and breeding up a man or two to collect plants and procure their names nothing [more] can be done than to collect specimens and describe- such plants as you find in a proper state.

• • • • • • • • • •

I am informed lhat a nephew of mine, Robert Hamilton Buchanan, c*mo out in the *Alilcil Cattle-Captain* Lamb. I do not know in what capacity, but I think it probable in the service, Civil or Military, for the Bengal establishment. I hope you will have the goodness to inquirië after him and to show him any attention in your power.

I have no specimens of stones with me, but when I arrive Mr. Fiohtel will be extremely welcome to such as I can spare. I must oonfess myself a great Bceptio with regard to the theories formed concerning the present appearance of fossils. My opiuion is that we should believe them to have existed frotn the beginning just as we find them unless the contrary can be demonstrated. In the few cases even when this can be done the agency by which the changes have been produced seems to me very seldom to be demonstrable."

• • • • • • • • • •

Buchanan's practice throughout this survey was to make a stated daily march and in the morning before leaving camp to gather round him the leading people of the neighbourhood, whom he questioned on the various points enumerated in his instructions. During his march and at the places where he halted his own observations were carefully noted, and extensive botanical and geolgical collections and notes were made. Tho journal of this survey was remitted to the Court of Directors and by their orders was

published in three quarto volumes¹ exactly as it stood and not, as it should have been, and as Buchanan had wished it to be, in a digested form. Luckily, he was able to provide for it a well-ordered index.

The Nepal journey was after all only deferred by reason of the Mysore Survey, for Buchanan had hardly returned to Calcutta after the completion of the Mysore journey when, he was appointed to accompany the embassy that had been despatched under Captain Knox to the Court of Nepal. Leaving Calcutta during the cold weather of 1801-02, Buchanan proceeded by river to Patna and marched from there by easy stages and with numerous halts through Saran and Tirhoot, collecting and making notes of the vegetation of the country by the way.

In a letter dated 28th January 1802 from Dacca, a small village on the Nepal frontier, which was the last halting place in the Company's territories, where the mission waited till Captain Knox should be joined by some notables from Khatmandu, he asks Roxburgh to send him up a native collector to join the mission. Roxburgh found, as was natural, that none of his Bongali collectors would face the risk of a visit to Nepal and suggested the deputation of his son William, who had lately been appointed Assistant Superintendent of the Botanic Garden, and who was a great personal friend of Buchanan's. Replying from Bassaia on March 2nd, 1802, Buchanan shows how much this arrangement would have pleased him both on personal grounds and because the botanical work of the mission would thus have been greatly benefited. But he feared that for once Roxburgh's influence would not be able to overcome the difficulties that stood in the way. Buchanan's anticipations were correct; young Roxburgh was not allowed to join the mission.

"I shall be very happy if you succeed in sending William, but I am afraid you will not meet with success in the application to Government for the purpose. I spoke to Captain Knox on the subject, who informed me that very serious objections have been made by the Nepal Government to the number of Europeans now in company with him, although they are only the usual number attached to the number of troops composing the escort.

I have taken a particular account of the cultivation in Bettiah, which will be sent down by and by to Government. No buckwheat is raised there. The Cannabis sativus grows there spontaneously.

I am much obliged to you for the genus named after me. Lueirero's having given a name to the Roxburghia will not at all deprive you of that fine genus, but should it be so, there are plenty of your own discoveries to which your name may be given. I had a letter from Smith the other day; he desires to be kindly remembered to you. I had seen him and Sir Joseph four species of Gurgeon under the title of Hopea, which name he seemed inclined to adopt.

We have made our entry into the dominions of Nepal and were received near the frontier by many of the principal men of the country with the greatest civility and attention. We have halted after advancing about two miles and political arrangements have occasioned a long delay, but it is expected that every thing will be adjusted and that then we shall proceed towards the capital."

¹ *A journey from Madras, through the countries of Mysore, Canara, and Malabar, performed under the order of the Most Noble the Marquis of Wellesley, for the express purpose of investigating the state of Agriculture, Art and Commerce, the Religion, Manners and Customs, the Natural and Civil History and Antiquities in the Dominions of the Eajah of Mysore and the countries acquired by the Honourable East India Company in the late and former wars from Tippoo Sultan, 3 Vols., 4to, London, 1807.*

However on March 11th Buchanan wrote again U Bassaxia acknowledging a communication from Roxburgh himself 'and a letter from William,' and continues :-

"It is said that we are to advance to-morrow, but we have been so long waiting that I am quite doubtful. A short time must determine, as the pestilential season is fast approaching."

Buchanan's next letter to Roxburgh, dated Norcote, March 26th, 1802, says:—

«Since I wrote you last we have had a retrograde motion and are now again in the Company's territory, but we expect to move on again to-morrow morning, and in five days march to reach the top of the hills."

Writing from Chitlong on April 11th, 1802, he says:—

"I have now got above the ghats and find myself in Europe both respecting the climate and vegetable productions. I wish the people also were like those of Europe."

Four days later Buchanan writes from Tancote, April 15th, 1802:—

" We arrived here yesterday and are in sight of Catamandu in a bare ugly valley resembling many of those in Scotland before the introduction of fences and other improvements "

Ten days later he writes from Khatmandu, 25th April, 1802:—

" I have much professional duty, the country being most unhealthy and wish for nothing more than to be out of it again as soon as possible."

He spent, however, the next fourteen months in Nepal, in the neighbourhood of Khatmandu, bringing together a large botanical collection and making numerous drawings and descriptions. During his sojourn in Nepal, Buchanan was accompanied by a very intelligent Brahmin from Calcutta, Babu Ramajai Bhattacharji,¹ whom he employed in obtaining information of the most varied description, so far as this could be prudently done without causing alarm to the jealous Government of Nepal or giving offence to the Resident, under whose authority Buchanan was acting.

The instructions which Buchanan received before setting out for Nepal would appear to have been much like those issued to him before his visit to Mysore. At all events the information he obtained and recorded was of the same general character.²

During his stay in Nepal Buchanan was in constant correspondence with Roxburgh. We know that he despatched, between the date of his leaving Patna in 1802 on his way to Nepal and the date of his return to Patna in 1803, 117 notes or letters and that there are many of these present among the Roxburgh letters. The bulk of the communications are however, for obvious reasons, very brief³ and are entirely confined to botanical subjects. When a complete round of the seasons had enabled him to

¹ Babu Bamajai Baattacharji, of whom Buchanan writes, long, after his retirement, in very affectionate terms, accompanied Dr. Buchanan during his subsequent Survey of Bengal and was evidently at all times one of the most trustworthy and respected of his lieutenants.

» This information, with information subsequently gained during 1810, when Buchanan lived on the Purnea-Nepal frontier, and during 1813-14, when he was in Gorakhpur, was published in his *Account of the Kingdom of Nepal* in 1819.

³ The letters sent by the members of the Mission were doubtless often opened and perused by agents of the Nepalese Government before, perhaps even after, they reached the Company's territory, and many of them as Buchanan explains in one of his letters, never reached their destinations at all. We see that of the 117 sent off to Roxburgh, as many as 21 disappeared on the way. For this reason Buchanan hardly wrote to any one except Roxburgh while he was in Nepal, and deliberately made his letters brief and, except as regards botanical subjects, colourless.

exhaust the botanical interests of the valley of Nepal he began to realise that the life at Khatmandu was tiresome and once again expressed a wish to be back in Bengal. Thus, on 18th December 1802, he says:—

"I would write you news occasionally were it proper in a person attached to a political expedition. I am heartily tired of my situation, but hear nothing of my removal"

Roxburgh evidently recognised that this was natural and that Buchanan's talents would be more usefully employed elsewhere. We accordingly find that once more he had interested himself on Buchanan's behalf, for in a letter, dated 22nd February 1803, Buchanan says:—

"I received yesterday yours of the 6th of February. I am much obliged to you for having mentioned my wish to return to M. Malcolm. I wonder it had not been done before from another quarter. The people with you are so dilatory that I suspect the season will be past before my recall comes. However, there is no occasion to trouble his Lordship further on the subject."

The news of his wished for recall reached him on 1st March but before his successor could reach Khatmandu the whole mission was recalled. It left Khatmandu on 18th March and reached Segouli on 28th March 1803. Here Buchanan was relieved and pushed on to Patna, where he arrived on April 4th.

On his return to Calcutta Buchanan took up his old appointment at Baruiপুর, in the 24-Pergunnahs, as we learn from letters dated from that place in August. One of these, dated 16th August 1803, is so interesting in many ways that it is here given in full:—

"I have been so busy for some time past that I have not stirred one day from home since I left Calcutta a few days after I saw you last. I think my hurry will be over in a few months and among the first visits I pay [one] will certainly be at the Botanic Garden. The *Buchanania* growing in the Sundurbuns with a dichotomous panicle is called *Amor* by the natives. The fruit is three-lobed, three-celled and of a coriaceous substance not opening or dividing into valves. Each cell has a large seed covered by a kind of aril much resembling mace. If the plant which has been sent to you as the Pursar is a *Buchanania* there has been a mistake, for the Pursar is of two kinds—the one the *Carapa moluccensis* of Lamark and the other a new species.¹ Willdenow calls Lamark's species the *Xylocarpus Granatum*, which is a stupid name I have got a half of the *Encyclopedie Methodique* which is a noble work—by far the most satisfactory thing I have ever seen except Jussieu's *Genera*."

The Marquis of Wellesley, then Governor-General, had formed a menagerie at Barrackpur, for the purpose of bringing together examples of as many species of animals as possible, as part of his comprehensive scheme for investigating the natural history of India. During the cold weather of 1803-04, Lord Wellesley attached Buchanan to his staff as Surgeon to the Governor-General, and confided the management of this menagerie to his care. Buchanan's time was therefore now mainly devoted to zoological studies and was largely spent in identifying and making drawings and descriptions of the animals in the Barrackpur collection.

None of the results of his observations during the two years thus employed appear to have been published, but *ut* least copies of some, if not all, of his descriptions

¹ That there are two very distinct *Carapas* in the Sundribmis is a fact which the writer has found botanists who have not visited the region, for some reason, unwilling to admit. It is interesting to know that a century ago Buchanan was perfectly well aware of their existence.

and drawings belonging to this period are carefully preserved in the library of the Asiatic Society of Bengal.

In the end of 1805, when Lord Wellesley retired, Buchanan accompanied him to England. His habit of observing natural phenomena, we learn incidentally, was exercised as usual during this voyage.¹ During his stay in England Buchanan was able to prepare the excellent index which accompanies his work on Mysore, with the object of enabling readers to understand the Indian terms employed in the journal and in order to compensate, to some extent, for the absence of method in the arrangement of the work.

During this visit Buchanan renewed his old intimate intercourse with Smith. One result of this renewal of their companionship was that Buchanan gave Smith all his Nepal specimens, a gift that was subsequently to be far from beneficial to Buchanan. Smith refers to the transaction as follows³:—

" My excellent friend and fellow-student Dr. Francis Buchanan having most generously put me in possession of all his drawings of Indian plants, together with his manuscripts and an herbarium of about 1,500 species collected in his journey to Nepal, I hasten to communicate some of these rarities to the public."

Another result was that Smith took up some of the Perthshire specimens collected by Buchanan in their student days, and described them. Regarding one of these Scottish plants Smith writes³:—

" These specimens were collected by Dr. Francis Buchanan in 1782 at Leny near Sterling, his native place. The glen of Leny has recently been celebrated in the beautiful poetry of Mr. Walter Scott, and from these romantic and sequestered scenes a long residence in various parts of India has neither perverted the taste nor weaned the heart of our friend."

During this visit to England Buchanan joined, on 1st May 1806, the Royal Society of London.

It appears that Buchanan's official Nepal journal, and many of the drawings executed at Barrackpur, reached the Court of Directors during the course of this visit to England. The Court were so impressed by the excellence of Buchanan's work in Ava, Chittagong, Mysore, Nepal, and at Barrackpur that they nominated him successor to Roxburgh as Superintendent of the Calcutta Botanic Garden when Roxburgh should retire, and decided that in the interval his peculiar ability as a statistical surveyor should be utilized in making a survey of the territories forming the Presidency of Fort William.

4. SERVICE IN INDIA, 1806-1815.

SURVEY OF BENGAL.

Towards the end of 1808 Buchanan sailed again for India, reaching Calcutta early in 1807. The instructions from the Court of Directors with reference to his future employment were issued on 7th January 1807. The Court in their despatch observe:—

"We are of opinion that a statistical survey of the country under the immediate authority of your presidency would be attended with much utility; we therefore recommend proper steps to be taken for carrying the same into execution."

¹ *Edinb. Phil'soph. Journ.*, vol. v, 1821.

² *Exotic Botany*, ii., p. 73, t. S7 : 1806.

³ *English Botany*, xiii., t. 15:0 : 1808.

In this despatch the Court nominated Buchanan, on the ground that he had been deputed by Lord Wellesley to carry out the survey of Mysore and had afterwards been given the management of the menagerie which Lord Wellesley had formed at Barrackpur, as the Surveyor to be employed.

In accordance with this recommendation Lord Minto, then Governor-General, appointed Buchanan to the post of Surveyor. Buchanan, who had in the meantime been promoted to the rank of Surgeon (on 20th June 1807), made preparations to begin work, so that when the Government at Calcutta issued final orders on 11th September 1807, he was in a position at once to carry them out. The survey was directed to be commenced in the district of Rangpur and to be continued thence westward, district by district, throughout the Gangetic plain to the north of the Ganges, till the western limits of the Company's territories were reached. This done, the districts to the south of the Ganges were to be taken up, one by one, in reverse order, and when they had been completely surveyed, Dacca and the districts along the Company's Eastern frontier were to be dealt with. At the same time Buchanan's enquiries were to be extended to adjacent countries and to minor states with which the Government at Calcutta had no regular intercourse, though as regards all such foreign territories the information was to be obtained either by cross-examining natives of such countries or states as might be temporarily sojourning within the Company's territories, or from the reports of subjects of the Honourable Company who had travelled or resided across the Company's borders; Buchanan himself was expressly prohibited from quitting the Company's possessions.

For each district Buchanan was instructed to prepare a full topographical account. The climate and meteorology, the history and antiquities of the area were to be described. The number and condition of the inhabitants were to be reported on; their food, their habits, their diseases, the state of education among them and the resources of their poor were to be dealt with. The nature and state of their religion, the number and character of their various tribes and sects; the resources and the influence of their chiefs and their priests; the feeling of these temporal and spiritual leaders towards the Company's Government were all to be assessed. The natural productions of each district, animal, vegetable and mineral; the fisheries, forests, mines and quarries were to be enumerated and discussed. Agriculture in the widest sense, including the nature and quality of the crops grown and the stock reared; the character and conditions of the tilth, as regards methods, implements, manures, means of irrigation and the like; the size of farms and the bearing of this on the condition of the farm labourers; the state of landed property and the systems of tenure prevailing, so far as these affected agriculture, were all to be considered. The progress made by the inhabitants in the fine arts, the common arts and manufactures; the architecture, sculpture, and paintings; the processes and the machinery employed; the quantity of goods manufactured and the amount of raw material and capital available were all to be estimated. Finally, an account was to be given of the character, the channels and the extent of their commerce.

A more comprehensive programme than this was probably never entrusted to a single officer in or out of India, and it is equally probable that no officer better qualified than Francis Buchanan to undertake the task ever lived. For this, it must be recollected, was a *real* survey, undertaken on the spot by a competent observer, not an assessment, by an officer at the head-quarters of a Government, of reports submitted

by district officials, but derived, when their source is finally reached, from the often hardly responsible statements of the village watchman.

Buchanan was liberally supplied with everything that was required for the successful accomplishment of his gigantic task, save one. He entered the service of the Company after his thirty-second birthday, and had already completed 11 years of service when the huge survey began. It is therefore no matter for surprise, though it certainly is for regret, that the survey was never completed.

Buchanan's time was wholly occupied in the work for eight years, from the rainy season of 1807 till the hot weather of 1814, and the marvel, when the sustained high quality of his work is considered, is that during so short a period he accomplished so much as he did.¹

The itinerary outlined in the original instructions was not precisely followed. The survey commenced towards the close of the rainy season of 1807, not with Rangpur, but with the district of Dinajpur, and the examination of this district having been finished early in 1808, Buchanan began the survey of the north-eastern portion of Rangpur, which district then included a considerable part of what is now Lower Assam. By the commencement of the rainy season of 1808 he had reached Goalpara, where he had his head-quarters till the advent of the ensuing cold weather. He then continued his investigation of Rangpur till the onset of the rains of 1809. During the 1809 monsoon his head-quarters were in a house close to the town of Rangpur; this he left, as the end of the rains approached, for Purnea, the district investigated during the cold weather of 1809—10. The rains of 1810 were passed in temporary head-quarters at Nathpur, near the Nepalese frontier, and during his stay here Buchanan made carefully organised efforts to obtain information as regards Nepal supplementary to that acquired by him in 1802—03. When the cold weather of 1810—11 began, Buchanan took up the survey of the adjacent district of Bhagalpur which lies partly to the north, partly to the south of the Ganges. Having finished his work for the season in the southern part of the district, Buchanan fixed his head-quarters for the monsoon of 1811 at Monghyr. When the rains were over he undertook the survey of the two districts of Gaya and Patna, which lie to the south of the Ganges, finishing up his work for the season at Patna which became his head-quarters during the rains of 1812. The seasons of residence at Monghyr and Patna were utilized, among other things, in studying, with the assistance of a Hindu Physician, both in the field and in the bazar, the characters and identities of the various officinal plants of South Behar.² Quitting Patna on the advent of the cold weather, Buchanan devoted the dry season of 1812-13 to the survey of Shahabad, the next district to the west, still south of the Ganges. When the rains of 1813 set in Buchanan embarked on a journey up the Ganges to Allahabad and thence up the Jumna to Agra. During this journey he was able to visit and obtain information regarding the Diamond mine at Panna. Leaving Agra before the close of the rains he dropped downstream to the mouth of the Gogra, sailing up that river as far as Gorakhpur, which district he investigated during the cold and hot seasons of 1813-14.

¹ The subsequent treatment of the information he accumulated and the fate of the records he left have been the subject of a good deal of controversy. This controversy will be dealt with further on; for the moment it is sufficient to trace the progress of the Survey and Buchanan's movements in connection with it.

² This particular work was undertaken on behalf of Ainslie, who was at the time engaged in preparing his well-known *Materia Medica*,

Advantage was taken of his being again near the frontier of Nepal to acquire further information regarding that country. When the rains of 1814 commenced he went up the Ganges by boat to Fatehgarh, where his head-quarters were till the cold weather of 1814 set in. While stationed at Fatehgarh he was able to obtain information regarding the Corundum quarry at Singraula.

From Buchanan's letters to Roxburgh during this period¹ we learn that except when at Goalpara in Lower Assam he was in a country far from inviting botanically. As usual these letters refer mainly to despatches of roots or seeds for the Botanic Garden and are not of very general interest. Writing from Nathpur on 1st August 1810 he refers to Roxburgh's well-known paper on the *Scitamineae* as follows:—

"I am very much obliged to you for your paper on the Scitamineae which was very much wanted and throws great light on the subject. I have just now, in treating on the gardens of this district, had occasion to mention some of the Scitamineae and am happy to have some well-known name to which I can refer though I shall be obliged to differ from you respecting some of the synonymes, especially those 'of Eumph."

From one of his letters to Roxburgh from Monghyr in 1811 we learn that his health was beginning to suffer from the survey work, and in a letter from Patna, dated 10th June 1812, we find that he had made up his mind to visit Europe:—

"I take this opportunity of a boat going with my annual report to send you such seeds as I have been able to collect here. The country is so much cultivated that it is not a good field for a botanist. I am a good deal surprised to find the *Oerbera Thevetia* with a fine yellow flower, which I think you must have introduced from America, with numerous Sanskrit names and in common use as a medicine. The same also is the case with a red or scarlet flowered sage which I believe you also introduced from America. I send you a small specimen that you may judge of its identity with your plant. I hope you will have the goodness to let me know when and from whence you procured the two plants.

Unless some very unforeseen accident happens, it is my intention, about this time next year, to bend my way towards Calcutta in order to embark for Europe and I hope that I shall then have the pleasure of finding you stout and hearty."

The unforeseen did happen and, as we have seen, Buchanan, instead of coming to Calcutta in 1813 in order to go to Europe on furlough, spent the dry season of '1813-14 in surveying Gorakhpur. The prolonged labour of the survey had, however, unmistakeably told on Buchanan's health, and in place of undertaking the survey of another district in the cold weather of 1814, Buchanan returned by river from Fatehgarh to Calcutta in order to prepare for his return to Europe, not now merely on furlough, but with the intention of retiring.

However, even if Buchanan had been able to carry out his original plan, he would not have been in time to see his friend Roxburgh again. During the cold weather of 1812-13 Roxburgh's health gave way, and at the commencement of the hot season he left Calcutta for the Cape, making over charge of the Garden to Mr. H. T. Colebrooke,² an accomplished botanist and a warm personal friend. Roxburgh's voyage extended, however, beyond the Cape to St. Helena, where he arrived on

¹Only *U* letters for the whole period are preserved in the Roxburgh collection, viz., from Dinajpur, 1; from Goalpara, 4; from Ealiyachak and Nathpur in Purnea, 3; from Monghyr, 2; and from Patna, 1.

²Henry Thomas Colebrooke, who, among the many men of outstanding ability whose services it was the good fortune of the Honourable Company to command at the end of the 18th and the opening of the 19th centuries, was by no means the least remarkable, though mainly famous as a scholar, historian and antiquarian, was a true

7th June 1813, so ill that he had to be left in the island as the only hope of saving his life. Towards the end of February 1814 Roxburgh was able to go on to England, apparently still hoping to regain health and to return to the Botanic Garden.

At the time of Roxburgh's departure the health of Colebrooke's wife was a cause of great anxiety to her Mends, and the correspondence between Roxburgh and Colebrooke at this period indicates that both he and Roxburgh hoped that, under the circumstances, the comparative exemption from social duties that a life at the Botanic Garden, ensures would 'increase her health and comfort.' Apparently there was at first a marked improvement, but from a sudden illness, which she had no strength to shake off, the unfortunate lady died in October 1814. The blow was so keenly felt by Colebrooke that he decided to leave India, where he had served since 1783, at once and on 3rd November 1814, he requested Government, as it was his intention shortly to proceed to England, to be relieved from the charge of the Honourable Company's Botanic Garden. Replying to this request on 5th November 1814, Government informed Colebrooke that Dr. Buchanan of the Medical Service on the Bengal establishment had been directed to receive charge of the Garden. A letter of the same date,¹ addressed to Buchanan, who had just arrived from Fatehgarh, informed him that:—

"His Excellency the Vice-President in Council has been pleased to appoint you to take charge of the Honourable Company's Botanical Garden until further orders and to succeed to the situation of Superintendent of the Garden in the event of Dr. Roxburgh proceeding to England from St. Helena."

member of the Asiatic Society and a worthy companion of Jone*, its founder, for his interests included 'whatever is performed by man or produced by nature.' It appears strange that Colebrooke's biographers, including his son, are unaware of the fact that Colebrooke's list duties in India, from March 1813 till November 1814, included those of Superintendent of the Botanic Garden.

¹ The precise expressions of this letter of 5th November 1814 are important in connection with misunderstandings that have arisen, and that are reflected in various notices of the lives of Buchanan and of Roxburgh, with regard to the connection of the former with this garden.

In more than one account of Buchanan's life it is said that he was appointed successor to Roxburgh by the Court of Directors in 1807. Buchanan himself states, in a paper read in 1821, that the Court of Directors had appointed him to be Roxburgh's successor, but he does not say when the Court did this. The terms of the letter quoted in the text show that the statement is literally accurate, even if the date 1807 be wrong; and though the writer has failed to confirm the date there is every reason to believe that it also is correct. The Government of Fort William were not empowered to make a permanent appointment—when, in 1816, they proceeded to do so, the Court of Directors ordered the Government of Bengal to revoke their appointment forthwith and to install another officer nominated by the Court. The terms of Buchanan's letter of appointment therefore may be accepted as confirming the statement that Buchanan had at some previous date been appointed successor to Roxburgh. By a lapse of memory, however, which is unusual in him, Buchanan says he took over charge of the Garden at Calcutta on Roxburgh's death. In the *Calcutta Review* for July 189* Beveridge detects this obvious error only to fall into another, because Beveridge says that 'Roxburgh left India for ever in 1803.* The source of Beveridge's belief the writer has failed to trace; he can only suppose that in some notice of Roxburgh which he has not seen, the printer is accountable for the date 1803, by a mistake that had escaped the proof-reader, instead of 1813, the actual year in which Roxburgh left never to return. As a matter of fact Roxburgh died in Edinburgh on 18th February 1815, so that though Roxburgh was dead five days before Buchanan left Calcutta, he was still alive when Buchanan succeeded him.

One point that does not seem clear, in connection with the whole incident of Buchanan's superintendency, has hitherto escaped notice. When Roxburgh left Calcutta, Government were aware of his intention to return wherever he had on this particular voyage to go beyond St. Helena or not; and even from St. Helena Roxburgh had signified his intention of returning to the Botanic Garden. This letter of 6th November 1814 indicates that Government were not yet made aware officially from London that Roxburgh had been obliged to proceed to England from St. Helena, though they probably were aware unofficially, since Roxburgh had intimated the fact in a letter to Colebrooke from St. Helena, dated 21st February 1814. They had, however, evidently already up their minds to dispense with Roxburgh's services whether he recovered his health or not, since by their order of 6th November 1814 they definitely deprived him of the post he had filled so worthily and so long.

As the state of Roxburgh's health did compel him to proceed to England from St. Helena, Dr. Buchanan therefore actually succeeded to the situation of Superintendent of this Garden.

Buchanan's tenure of office here was brief. His health as he himself has explained, had been impaired by his long continued exertions in connection with the survey. He therefore carried out his intention of proceeding to England; and in a letter from Government, dated 10th February 1815, Dr. Nathaniel Wallich, who in 1817 was confirmed by the Court of Directors as Superintendent, was informed that Dr. Buchanan, the Superintendent of the Botanical Garden,* had intimated his intention of proceeding to England in the Honourable Company's ship *Marchioness of Ely*, and was directed to receive charge of the Garden from Dr. Buchanan until further orders.²

When applying for permission to return to Europe Buchanan at the same time asked for official sanction to take with him the whole of his collections for presentation to the Court of Directors. He desired, in fact, to deal with the collections made during his Bengal Survey precisely as the collections made during his Burmese and Chittagong journeys had been dealt with. The only difference was that on this occasion he desired to take them home himself. The Honourable the Vice-President in Council granted the permission asked for and everything had been packed in readiness to be put on board when on 5th January 1815 His Excellency the Earl of Moira, afterwards Marquis of Hastings, who had called for the papers connected with Buchanan's application, made a note regarding the proposal which resulted in the issue of the following letter to Buchanan from the Secretary to Government, dated 31st January 1815:—

"The Governor-General having communicated his opinion to the Honourable the Vice-President in Council that the drawings of plants and animals which you have lately intimated your intention of taking to England for the purpose of presenting them to the Honourable the Court of Directors are already the property of the Honourable Company, the survey on which you have been employed since your return from England to India having been undertaken by their directions and at their expense, and delineations of the animal and vegetable productions of the country being particularly necessary as references to the reports on the several districts received from you, I am directed to desire that you will transmit the drawings in question to me for the purpose of being disposed of as Government may direct."

¹ From the use in this letter of the designation "Superintendent of the Botanic Garden" it is probable that during the interval between 5th November 1814 and 10th February 1815 official intimation had reached Calcutta that Dr. Roxburgh had gone beyond St. Helena and that Dr. Buchanan had* in consequence definitely succeeded him. As explained in the text Roxburgh had himself intimated the fact privately to Colebroote.

² Permission to return to Europe was accorded to Buchanan towards the end of December, as we learn from a note by Sir George Nugent*, Bart., addressed to His Excellency the Vice-President of Council, dated 23rd December 1814, in which Sir George signifies his intention of directing Mr. Assistant Surgeon Wallich, who was under orders to proceed to Nepal for the purpose of joining the army, to remain at head-quarters in order to take temporary charge of the Botanic Garden on Dr. Buchanan's departure. Wallich relieved Buchanan on 24th February 1815. On 11th December 1816, Wallich was directed to make overcharge to Dr. James Hare, who on that date was appointed Superintendent by the Government at Calcutta. Hare did not relieve Wallich till 20th April 1816. He was himself soon replaced by Dr. Thomas Casey, who on 7th December 1816 was appointed Superintendent in place of Hare. Wallich was reinstated, by an order from the Court of Directors in London, on 1st August 1817.

On 18th February 1815 Hamilton replied as follows:—

"I have been honoured with your letter of the 31st ultimo withdrawing the permission of the Honourable the Vice-President in Council for sending to the Honourable Court of Directors such drawings of nature* productions as have been made at the public expense and desiring me to deliver them to you, which I have accordingly done by the bearer. I hope you will have the goodness to return a receipt annexed to the accompanying list. I request that you will be pleased to represent to the Honourable the Vice-President in Council that upon examination it will, I am persuaded, be found that the drawings in question are little, if at all, calculated to explain the reports which I have delivered to Government, all of which were accompanied by such of the drawings made at the public expense as appeared to me likely to elucidate the subject. Have the goodness also to represent that my object in requesting that I might be permitted to present the drawings to the Court of Directors did not originate in a view of claiming the merit of making a present to the Company of its own property, but arose from a conviction that their being deposited in the collection at the India house was the most probable means of rendering them useful to science. I am persuaded that they will be found of little use to natural history unless they were accompanied by the descriptions which it was my intention to have prepared; but accompanied by these and open to the inspection of naturalists with the liberality shown at the Honourable Company's collections they no doubt would contribute to render the Natural History of India more complete. While, however, I am deprived of that access to the drawings and of the means of elucidating my descriptions by their use, which I would have enjoyed had they been deposited in the Honourable Company's collection, I shall probably be altogether deterred from wasting my little remaining time on the labour of descriptions, always imperfect without the elucidation of engravings."

Two days later, in a letter to Government, dated 20th February 1815, with which he forwarded his Statistical Report on the district of Gorakhpur, Buchanan said:—

"I now return by the bearer the papers and drawings which were collected at the menagerie, and which I obtained from your office by order of Lord Minto, as an assistance in my investigation of the Natural History of India. I hope you will be pleased to acknowledge their receipt."

Buchanan made over charge of the garden to Wallich on 23rd February 1815, and embarked that evening carrying with him, as we gather from his later writings, no very pleasant memory of this incident marking his last days in India.¹

As mementos of his Superintendentship two of Buchanan's official letters are given here in full. They are selected because they refer to matters that are of as much interest to-day as they were when the letters were written.

The first letter, dated 16th December 1814, deals with *Doehmeria nivea*—China grass, Ramia or Khea, names that are now familiar but that were all quite unknown in India ninety years ago. Evidently, however, the article itself, and the difficulties connected with it, were very well understood even then.

"I have this day sent to the sub-export Warehouse-keeper two bales of Caloee hem) mcked in gunny and marked "Caloee for the H. C. of D." containing 185 lbs. each and request that the necessary orders may be given for their being sent by one of the ships of the present season.

I beg leave to mention that the Caloee plant is by no means a new species I UHL T D, Roxburgh supposed. It is the *UrUca nivea* of Willdenow, and the *Ranuncul*, t T>
 «,, ^ , W , , Kto. 5th, table n, figure U. The plant, unde, ttf IZ: e l Z, t^ h T \ Z

¹ In *Trans. Roy. Soc. Edinb.* x. 186 (1821) Buchanan refers to the incident as an ill-judged act «f authority unworthy of the character of the Marquis of Hastings.

time immemorial been cultivated in the Dinajpur and Ronggopur districts of Bengal, and its fibres are used for a few purposes that require great strength -with little thickness, but the expense of cleaning the fibrous part has always prevented it from coming into general use, so that the fishermen of the above-mentioned districts, even for their nets, use the *Crotolaria juncea* or Sun. As Dr. Roxburgh has in vain made every exertion to discover means for reducing the trouble of cleaning the fibres of this plant, I consider as groundless the expectation of its turning out of general use, and unless I receive further instructions to the purpose, shall direct the cultivation and cleaning of the plant to be abandoned as an unnecessary expense."

The next letter, dated 22nd February 1815, on the subject of the Rules for the Regulation of the Botanic Garden, is the last official communication from Buchanan before he left India.

"On taking charge of this Garden it was my wish to afford every accommodation to those whose curiosity might induce them to visit the place. For this purpose I directed that no gentleman nor lady, who chose to come, might be interrupted, in full confidence that such persons would avoid doing any voluntary injury. In order to prevent such injuries as might arise from inadvertency, I directed a book to be shown to each party, in which it was requested that no person should pluck either flowers or fruit. If they wanted either, application should be made to the nurseryman, who was directed to furnish all persons that applied with whatever could be spared without injury. These measures, I am sorry to say, have not answered my expectations. On one occasion I observed some ladies who ran upon the borders and broke various plants 'for their flowers' and I am informed that another, notwithstanding the remonstrances of the gardener, tore up a plant, of which only one individual existed in the garden, and had been reared with great difficulty.

It would give me great uneasiness that on account of the misconduct of a few individuals many respectable persons should be deprived of an innocent and perhaps instructive recreation, and I beg leave to suggest that the inconsiderate may be deterred from injuring the garden by an order published by Government directing the Superintendent to report the names of any * persons, who in future visits to the garden may assume unbecoming liberties; the publication of such persons' names with an order for any party, in which they may be, to be prevented from visiting the garden, or even a private reprimand, would probably deter the most thoughtless from doing any considerable injury."

On the way to England the *Marchioness of Ely* made a sufficiently long stay at Gralle to enable Buchanan to make a cursory examination of the vegetation there, and to provide him with material for a subsequent note on the Vanderon monkey.

Except for the account of the Mysore journey, which was issued without reference to the author and without the editorial attention he had himself wished to give it, very little of Buchanan's work was published during his service under the East India Company. Articles contributed by him during this period to scientific and literary periodicals include only one short botanical paper and two literary papers relative to his Burmese journey¹ and two short zoological papers written during his service in Lower Bengal between 1796—99.² A brief geographical note by Buchanan is incorporated in the account of the embassy to Ava, and at the end of that work there are some descriptions of Burmese plants with which Buchanan's name is usually associated, but for which, if we are to credit Symes, he was only partly responsible.³ All these

¹ *Asiatick Researches*, vols. v., 1798, and vi., 1799.

² *Trans. Linn. Soc.* v. (1800).

³ Symes : *An Account of an Embassy to the Kingdom of Ava*, pp. 211. 473. London, 1800.

notes and papers were written, it may be remarked, before 1800, and except for the publication of which did not primarily rest with the *CS.tS.gS.Ti* wJe wa/given to the public, after 1800, until he had reared from India and could devote himself to the arrangement of the voluminous memoranda collected by him between 1795 and 1814. ^

Buchanan's formal retirement took place, after he had reached Europe, on 14th August 1816, with which date his direct connection with India and his lien on the Superintendentship of the Botanic Garden at Calcutta ceased.

5. LIFE AFTER RETIREMENT.

In an interesting article on the Buchanan Records in the *Calcutta Review* for 1894 Buchanan's life after retirement is briefly summarised.¹ He survived his return to Scotland for many years and resided during most of the time at Leny near Callander. He married late in life, had children, and occupied himself in gardening; he published, in 1819, a book of which only 50 copies were printed, consisting of tables of Hindu dynasties extracted from the Puranas, &c, by his pandit. This sketch, though not inaccurate, is hardly adequate as an account of Buchanan's life during the fourteen years which he devoted to rendering accessible to the world, so far as he could, the results of observations made during the previous thirty years.

Buchanan reached England about August 1815. He was apparently at first well received at the East India House, though he seems subsequently to have been indifferently treated. Soon after his arrival he received the greeting from Lord Wellesley contained in the following letter, dated East Cliff Lodge, Friday, September 8th, 1815, in which the feelings entertained for Buchanan by his former chief are shown:—

"I sincerely congratulate you on your safe return to Europe, and I trust that your native air and a season of repose from labour will soon recover your strength.

It would have afforded me great pleasure to have seen you and to have learnt from so good an authority what is really the present condition of India; a subject in which I feel a warm interest. Whenever you may be at liberty, I shall be happy to see you; if I should be at this place, I can always give you a room and your society would be particularly acceptable to me. 4

If I can render you any service, I shall be happy to receive your commands; being always, dear Sir, with the most sincere wishes for your prosperity and welfare, and with the greatest respect for your talents, attainments, and integrity, your faithful and obliged servant."

Buchanan's early tastes appear to have been for a country life and his long experience of Indian camps must have aggravated his natural dislike for the cramped conditions of existence in a city. He therefore left London for Scotland with the intention of settling somewhere near Callander and Leny where he appears to have thought of building a house. While passing through London he appears to have

¹ *Calcutta Bazaar*, July 1894. In this part of a careful article Mr. Beveridge thinks that Buchanan might have done more than he did to induce the Court of Directors to make the valuable results of his last survey work available. "Beveridge's reference to a letter from Buchanan, dated 8th February 1820. 'in a feeble hand-writing' conveys the impression that after his retirement Buchanan was 'used up' by his Indian service, occupying his waning intelligence with trivialities like garden shrubs and genealogical trees. Instead, however, of discussing what Buchanan might have done, it may be well to form some estimate of what he actually did after his retirement.

arranged for a change of his status in the Linnean Society, of which he was elected a Fellow early in 1816.¹

As events turned out, it was not necessary to build a house. Buchanan's elder brother Robert, who was, however, younger than Colonel John Hamilton, had died before Buchanan returned. Robert's only son, Robert Hamilton Buchanan, who, as we have seen, joined the service of the East India Company in 1801, was, when Buchanan left India, a Captain in the 24th Regiment of Native Infantry. This officer, Colonel Hamilton having no children, was therefore next-of-kin to his uncle and heir-presumptive to his estates. Early in 1816, however, Captain Hamilton Buchanan died, and Francis Buchanan became his brother's heir.² It has been recorded that, when this happened, Buchanan at once redeemed the encumbrances on the family estates.⁸

When Colonel Hamilton succeeded to his mother's property he made Bardowie his home and continued to occupy the Bardowie mansion after his subsequent succession to his father's estates. The mansion at Leny was therefore at his disposal and he was able to offer it, as a residence, to his brother Francis when the latter became his heir-apparent. At Leny therefore Buchanan set up an establishment, and in spite of being in indifferent health he began at once, with characteristic energy, to arrange for publication some of the papers in which were recorded the results of * many years of observation. This task, with gardening and forestry to which he was devoted, and with his duties as a county magistrate, filled his time. Though we know of occasional visits to Edinburgh and of at least one visit to London, we find that these journeys were made mainly, if not entirely, subsidiary to what was now the work of his life.

On January 27th, 1817, we find that Buchanan was elected a Fellow of the Royal Society of Edinburgh. About the same time he became a member of the two Societies of Antiquaries of London and Edinburgh.

When Buchanan left India in the end of February 1815 Dr. Nathaniel Wallich was placed in charge of the Botanic Garden at Calcutta. Circumstances prevented the confirmation of Wallich as permanent Superintendent when Buchanan's actual retirement from the Company's service took place. With the object of overcoming the difficulties that had been raised Wallich naturally invoked the assistance of friends and among others wrote to his predecessor Buchanan. Buchanan's reply, which is given below, forms part

¹ As already explained Buchanan had been, since 1788, one of the original Associates of the Linnean Society. He attended one meeting, that of 21st January 1806, when in England on furlough. His name was proposed as a Fellow on 6th February 1816; he was elected on April 2nd of that year. He does not appear to have attended a meeting of the Society during his visit to London in the winter of 1819-20, the only subsequent visit to London of which, the writer can find any record, so that he never was formally admitted.

³ The following notes relative to Captain R. H. Buchanan's service in India have been kindly communicated to the writer by N. L. Hallward, Esq., in charge of the Record Department of the Government of India:—

Buchanan, Robert Hamilton; Lieutenant, April 10th, 1801; Adjutant and Quartermaster, February 5th, 1810; Captain-Lieutenant, March 3rd, 1813 (Senior Captain-Lieutenant according to the Register of 1814); Captain (Regimental Bank), December 15th, 1814. Died, at Ghazipore, as Captain, 24th Regiment, N. I., May 10th, 1816.

Chambers: *Biographitt of Eminent Scotsmen*. The sum expended by Buchanan in effecting this is given at £16,000 sterling.

of a correspondence with Wallich¹ which continued unbroken till a few months before Buchanan's death. This letter is dated Callander, 4th February 1817.

" I was some time ago favoured with yours of the 2nd of January 1816. I would have answered it immediately had I not intended going to London where I might have had an opportunity of forwarding your views. I have however now given up all intention of ever visiting England and have taken up my abode in the Highlands of Scotland in the vicinity of this where I shall occupy my father's house which my elder brother has given me. I am within an easy day's journey of Edinburgh from whence vessels sail almost every day for Denmark, so that I shall be scarcely out of your way when you return to your native country, and I therefore hope for and expect a visit. In the meantime my situation is so remote from people of influence * * * * * that I can do you no good in that quarter. The Court of Directors has indeed received my collection with such contempt and arrogance that I would neither ask nor receive any favour * * * * * My collection would have been received with the utmost thankfulness by the most learned bodies here and might have gratified several of the most distinguished. Do not therefore throw any of your pearls before swine but collect largely and keep your collection for the learned of your own country, who I have no doubt will be thankful.

I am highly pleased with the engravings and descriptions of the Asclepiades which you sent. The workmanship does great credit to the natives and the whole is highly scientific. If you can go on with your Hortus Bengalensis you will ensure your reputation as a Botanist and above all will please our friend Browne. The expense in this country would be altogether intolerable nor is there at present any encouragement for works on natural history so that the first volume of Browne's Prodromus Florae Novae Hollandiae, a most scientific work, finding no sale whatever, he has stooped short

I am just now engaged in preparing for the press an account of Neral Asclepiades a fishes. I remain with great esteem and regard, yours very truly." Gangetio

Colonel Hamilton, who had gone abroad, for the winter of 1817-18, returned in January 1818. Buchanan consequently succeeded to the estate of Bardowie, and in ten days of the entail reflecting the another letter to Wallich, dated 'Lenny, 27th

"I have very lately received your valuable despatch of seeds, which I immediately sent to Mr. Macnabb, who has charge of the Botanical Garden Edinburgh. He is attempting to naturalize in my hills and woods, you will much oblige me by sending him once or twice a year a despatch of seeds directed for Mr William Hanneman, Esq., No. 5 Meard Street, Dean Street, Soho, London, a conveyance than if the parcels were directed for Mr MMM, B I n Edinburgh, or to me at Lenny, near Callander, N. Britain.

Inclosed I send you a list of those seeds which Macnabb is most desirous of procuring; but whatever else you send will be very agreeable.

I was very happy to see from your signing the list of Superintendent, in which situation I am sure you will be useful to science. I should, however, have great satisfaction in his efforts to advance

¹ Only those letters of the collections are printed here which he was engaged; they enable us to give almost as full an account of Buchanan's life in Scotland as we have been able to give of his life in India.

⁸ He was served heir on 3rd November 1818. The entries in the two (or Hamilton), Doctor of Medicine, to his brother, John Buchanan or Hamil (or Bilchael), Doctor of Medicine, 1818. Heir of Tailue and provision special in the land, of I, Franc Hamilton (or Bilchael), Doctor of Medicine, Little Lenny, etc., Perthshire. 3rd November, 1818; and a gift of two Franc Hamilton (or Bilchael), Doctor of Medicine, Burdston and Bothkenoar. Stirlingshire. Dated 3rd November, 1818.

By my elder brother's death I have succeeded to his landed property, and have been under the necessity of relinquishing the name of Buchanan, and adopting my mother's name of Hamilton. I have not yet commenced arranging my botanical papers, that science being at present rather unfashionable in this country. I have prepared for the press an account of Nepal which will appear in November; an account of the Gangetic fishes which will appear in January; and an account of Asam; and I am now busy in preparing genealogical tables of the Kings and Princes of India. I find considerable difficulties in residing so far from London where my collections are deposited; but the management of my lands and the healthiness of a country life render, in my opinion, the situation where I now am more desirable. Nothing indeed I detest more than the life led in overgrown Capitals such as London. I was very unwell for some time after my arrival but my health is now completely restored. Please remember me to all old friends that may be talking of me, especially Sir John Eoyds, Dr. Russell and Mr. Leny, and believe me to be most truly yours."

In 1819, the year which saw the appearance of three of Hamilton's published works,¹ he paid, in spring, as we find from the following letter, one of his visits to Edinburgh; the letter is dated Edinburgh, 12th March 1819:—

"A short time ago I had the pleasure of receiving yours of the 9th October 1817, and it was fortunate that you sent a copy of that of the 25th of July as the original did not reach me.² The success you have had especially in procuring plants from the northern mountains gives me the greatest pleasure. I have shown your letters to two of the most eminent cultivators in this country—Mr. Macnabb, who has charge of the Royal Garden here, and Mr. Shankly, of the house of Dicksons & Co., who has a most astonishing collection—I think more curious than the late Lee of Hammersmith near London. Both are eager to participate in the spoils of Nepal, and I am anxious to assist them because they would give me a share of every hardy plant they could rear, and my favourite object at present is to naturalize as many hardy exotics as I can in my woods and mountains at Leny. I hope therefore that you will have the goodness to send seeds of every kind to Mr. Macnabb, who has given me the accompanying letter to commence a direct correspondence with you. He will be an excellent correspondent for the garden as being both able and willing to send you plants from all the warmer parts of America and the West Indies. He is a most skillful cultivator and has many of our Indian plants in a very thriving state.

Mr. Shankly being a dealer of course wishes chiefly for ornamental plants with which Nepal abounds. All those from Goeingsthan I am sure would thrive here and even the greater part of those from the hills surrounding Kathmandu will, I am persuaded, bear our winters as many of the plants of Japan, Spain and the Cape of Good Hope do. The grand *Ehododendron* in particular ought to be tried. Mr. Shankly is anxious especially for all new species of *Ehododendron*, *Viburnum*, *Androsace*, *Lonicera*, *Gentiana*, *Hydrangea*, *Clematis*, *Gaultheria*, *Andromeda*, *Fritillaria*, *Caryophyllaceae*, *Primula*, *Lysimachia* and *Orchidiae*, but there are many others equally interesting, especially «11 trees from the higher parts of the mountains.

The seeds sent to him should be addressed to Messrs. Dicksons & Co., Seedsmen, Edinburgh, care of Messrs. Menier, Nash and Edmonds, Seedsmen, Strand, London.

In this country there is at present little turn for Botany as a science, but there is a great demand for exotic shrubs, trees and ornamental herbs, with which most country gentlemen have their teats adorned to a much greater extent than was done formerly.

Owing to my living so far from London I find the utmost difficulty in having access to my collection which I consider as in a great measure lost. I hope you will take greater care of yours and never part with it.

¹ The *Account of Nepal*, the *Genealogies of the Sindus* and the *Genealogical Tablet* that are associated with the second work.

² Note by Dr. Wallich: "It was sent by the missing *Atlas* in 1817."

If ever you come to this part of the world it will give me great satisfaction to know Mrs. Wallich to whom, in the meantime I beg to offer my best respects and you will much oblige ^ by remembering me to Colonel Mackenzie, Dr. Russell and Mrs. Robertson as well »*»»*.<?* S J a tilt you may meet. If you have any opportunity of seeing my old servant Ramajayi B T a L T it would give me much satisfaction to hear how my old people are. I am much pleased with your account of Bharat Singha. Yours most truly."

Towards the end of 1819 or the commencement of 1820 Hamilton visited London. This visit had two interesting sequels. Golebrooke, from whom he took over charge of the Botanic Garden in 1814, obtained sanction from the Court of Directors to publish the antiquarian portions of Hamilton's Bengal Survey journals in the *Transactions* of the newly founded Royal Asiatic Society, which owed its origin to Colebrooke's enthusiasm and of which Hamilton became a member. At the same time Hamilton himself obtained from the East India House the botanical collections deposited there in 1815. With his usual energy Hamilton began to name and arrange them for issue. In connection with this he took up commentaries on the *Hortua Malabaricus* and the *Herbarium Amboinense*, tasks that occupied much of his spare time for the next five years.

The letter in which this visit to London is alluded to is dated Leny, near Callander, N. B., 8th July 1820. The passage omitted deals with matters regarding the estate of his late nephew, Captain R. H. Buchanan, who had died in India, and does not concern our narrative.

••I had the pleasure of receiving your very obliging letter of 6th December, 1819, some time ago, but deferred answering it until I received the seeds which have arrived safe. I have sown part of these from Gosaingsthan and sent part to Macnabb and part to Shankly. I have also sown part of the rorie and sent part to Maonabb. The remainder with all other seeds I sent to the Botanical Garden at Glasgow where there has been lately appointed a professor likely to be somewhat distinguished. Mr. Hooker, this person, is, I believe a correspondent of yours. Should you be able to procure any more seeds from the higher Alps, especially of trees, I shall be much obliged to you for them. I have no hot house and it is hardy plants therefore alone that I can cultivate and an addition to our hardy trees is very desirable, the number of those which bear this climate well being rather confined.

I went lately to London and have got my dried specimens and descriptions, in arranging which for the Company's collection and for publication in such journals as may accept them I am ~~now~~ very busily engaged.

The paper which Mr. MacCulloch took charge of for me has not yet arrived and poor Dr. Wright is dead. When I was in London poor Sir Joseph Banks was quite gone, evidently fast hastening to dissolution. His loss will be severely felt, nor do I see any likelihood of any fit person succeeding to his situation at the head of the Royal Society. Brown refused the Botanical Chair at Edinburgh worth £1,200 a year, so that I suppose he has good prospects in London, I suppose however not equal to what he refused, but he seems to have been unwilling to part with Sir Joseph's library and collection.

* * * * *

I beg to be remembered to all old friends, especially to Colonel Mackenzie, Mr. and Mrs. Robertson and the Russells and please present my best respects to your Lady. I remain, dear Wtillich, yours faithfully.

Fleming, whom I saw in London, is very poorly. Shoolbred I have not seen for a long time. I hear that he is at Bath."

In 1821 the Marquis of Wellesley, when appointed Lord lieutenant of Ireland, invited Hamilton to join his staff. However, Hamilton's love for a country life and, though he does not say so, his desire to complete the arrangement of his papers and notes for publication while he had strength and health to do so, led him to decline this kindly invitation. From the letter given below which is dated Leny, 16th October 1821, we gather moreover that, though now in his 59th year, the idea of marriage had suggested itself to him. Shortly after this he married a lady named Brooke, by whom he had two children:—(1) Katherine, who died unmarried in 1839, and (2) John, who ultimately succeeded to the family estates and died in 1903.¹

"I have had the pleasure of receiving yours of the 23rd March and rejoice at your good luck in having had access to the treasures of Nepal. A great part of what I have done there has been in a sort lost as having been given to Sir J. E. Smith who is rather indolent and not likely to publish any considerable part of what he has. A Mr. Don, however, who lives with Mr. Lambert, to whom I gave duplicates of the collection presented to Sir J. E. Smith, is engaged in publishing an account of them together with those which you have sent, and I believe has both abilities and industry to produce a very valuable work. Whether or not Sir J. E. Smith will allow him the use of my drawings and writtē descriptions I have not learned. Your offer of joining me in a work on Nepal is very flattering, but I have no intention of taking upon myself such a labour; indeed I have not a single note respecting any of the plants I brought with me from Nepal—Smith has the whole. I believe I shall confine myself to publishing commentaries on the *Hortus Malabaricus* and *Flora Amboinensis*, having a good many materials for the purpose. You have my notes on the latter and I should be happy [to] have from you any new information on the subject and any corrections that may occur to you from further investigation, which in my publications shall be duly acknowledged.

My advice to you as an old man of a good deal of experience both in India and Europe is, along with your search after science, to collect money as fast as possible and, whenever you have a competence, to return to your native country. Already your collection far exceeds what you will be able to arrange and publish. From all that I can learn Copenhagen is vastly superior to London for publishing works on natural history. The expense is much more moderate and works of real science are more saleable. Nothing will pass in London without a degree of splendour which puts the work far beyond the reach of the man of science. Such, to see works of science, must now have recourse to public libraries which contain the splendid works published in the great capitals. Brown's work on the plants of N. Holland, one of the most scientific that has of late appeared, would not sell in London and he was so mortified that I believe he will publish no more of his Prospectus.

I am vastly obliged to you for offering to add to my collection, but I have none. I have given away the whole. You will, however, do me a favour in sending me seeds of anything that you think will bear the open air in Scotland, where I hope to see you on your way to Copenhagen. Between Edinburgh and this your capital is as easy a trip as from Edinburgh to London, and from Edinburgh to my house is an easy day's work, two-thirds of the way by water.

I have Bent extracts from your letter to Brewster for the *Philosophical Journal* and shall send the descriptions of your two new Genera to Brown for the *Linnean Transactions* by the first

¹ Most of the accounts of Hamilton's life give this lady's name as Miss Brock; the late J. Buchanan Hamilton, Esq., of Leny, however, gives his mother's name as Anne Brooke. An entry in Burke's *Landed Gentry*, for 1700, seems to imply that Hamilton's daughter Katherine was senior to her brother, and it is definitely stated in another passage that the late J. B. Hamilton, Esq., of Leny, was born on February 14th, 1822. As Hamilton himself explains that he was not yet married on 16th October 1821, some error has found its way into Burke's usually accurate pages.

opportunity. I am happy that Sir Robert Colquhoun is a botanist, or at least an amateur. His sister is married to a relation of mine, and her son, unless I marry, will succeed me in my maternal inheritance of Bardowie, from whence I take my present title in this Aristocratic land.

I have not yet seen Professor Hooker, but shall probably be in Glasgow in February next. Last year when there he had gone on a visit to his relations in England. I do not know what map you mean when you ask whether his has priority. I have written to Mrs. Boxburgh what you mention. I remain, my dear Wallich, yours truly.

I have seen the first volume of the *Flora Indica*, with which I am pleased. The greatest defect in it is to be found in the specific characters which appear to me often inaccurate. I suspect that our friend Boxburgh sometimes mistook his own plant and took his specific characters from a different one from what he had described. His names also are often grievously barbarous, owing chiefly to his ignorance of the Latin language, and his synonyms very incorrect as he generally quoted merely from the figure, although this I find is a common error among botanists who had plenty of learning to understand the descriptions, which was not his case. The work will however be highly useful and I hope you will make large additions to it; and also amendments."

In 1822 the account of the Gangetic fishes, perhaps the ablest and most finished of all Hamilton's works, was published, and for the next five years the *Hortus Malabaricus* and *Herbarium Amboinense*, more particularly the former, occupied much of his time, as may be gathered from the letter that follows,¹ written from Edinburgh, 10th February 1826:—

"About three weeks ago I had the pleasure of receiving your valuable present of the second volume of the *Flora Indica*. I had been long in vain searching for it, as it will be of great use in my future commentaries. I have now nearly finished the tenth volume of the *Hortus Malabaricus* and will have completed the whole in the course of the year, when I shall resume the *Herbarium Amboinense* of which I have as yet only explained the two first books. I live entirely in the country and enjoy excellent health. A little business has brought me to this city, but I never visit it except in cases of necessity. The new botanical garden here is on a grand scale, and Dr. Graham, the Professor of Botany, who has charge of it, is becoming a good botanist, but I do not learn that he is about to publish anything. Dr. Hooker at Glasgow I see frequently as I have a property in that vicinity. He is more active than Graham, but I have some doubt whether or not he will be able to go on with his intended translation of DeCandolle's System, a very valuable work, but that would require very numerous corrections. Brown, I understand, has become a very lazy and Smith is nearly *ab agenda*. Don, I believe, is at present the most active botanist about London, but has not yet acquired sufficient experience to render him at all correct. His *Prodromus Florae Nepalensis* abounds in errors.

Greville's work on the Cryptogamia of Scotland, going on here, is a most beautiful and correct work, fully equal in merit to Hooker's *Exotic Flora*, which is saying a great deal for it. Whether any of them pay the expense I cannot say. These two botanists are great friends and their *Muscologia*, about to be published, promises to be a very valuable production and may tempt me to commence the study of these plants with which this country so much abounds, but of which I am entirely ignorant. I remain with great regard, yours faithfully."

In 1826 Hamilton was made a Deputy Lieutenant of the county of Perth, having been already on the Commission of the Peace for a number of years. In this year he satisfied himself that he was the male representative of the house of Buchanan and

¹Various letters written between 1821 and 1826 which belong to this series are omitted because they deal only with private matters and throw no additional light on Hamilton's life.

took steps to have his conviction legally admitted. The first measure was to have himself recognised as the heir and representative of his uncle, Robert Buchanan of Spittal, and as thus the male representative and head of the house of Spittal.¹ This point established, he presented his *Claim of Dr. Francis Hamilton Buchanan of Spittal to be considered chief of the name as male representative of the Family of Buchanan of Buchanan*.

To explain this claim it is necessary to advert once more to the history of the Buchanan family. When Sir George Buchanan of Buchanan died in 1651, he was succeeded by his only son, John Buchanan of Buchanan, who died without issue in 1682. The Buchanan estates, being much encumbered, were sold by his creditors after he died. Buchanan itself was purchased by the head of the house of Graham, and is now the seat of the Dukes of Montrose.

On the extinction of the main line the headship of the house of Buchanan devolved on the house of Buchanan of Auchmar, the youngest of its cadet branches. When the house of Auchmar in turn died out in 1816, the headship devolved on the next youngest cadet branch; that of Spittal.

The house of Buchanan of Auchmar was founded by William Buchanan, son of Patrick Buchanan, younger of Buchanan, by his second wife, a daughter of the Earl of Argyle. Patrick Buchanan was killed at Flodden in 1513, and his son George, elder half-brother of William Buchanan of Auchmar, succeeding his grandfather, was, as we learn from contemporary records, head of the house of Buchanan before 11th July 1526, and was still in this position on 26th January 1594.

George Buchanan's uncle Walter Buchanan, younger brother of the Patrick Buchanan who was killed at Flodden, had a son, also named Walter Buchanan, to whom in 1594 he conveyed the lands of Spittal. Dr. Francis Hamilton's claim to be the lineal descendant of this Walter Buchanan, first of Spittal, was brought to a successful issue in 1828, and the entry on the subject in the *Index to Service of Heirs in Scotland*, which is dated July 9th, 1828, is as follows:—"Dr. Francis Hamilton (Buchanan), M.D., to his Great, Great, Great, Great, Great, Great, Great, Grandfather Walter Buchanan of Spittal—Heir male in general."

This finding established, as a corollary, the fact that Dr. Francis Hamilton was, as he believed himself to be, the representative of the Buchanans of Buchanan and therefore the chief of the name. To the kindness of Hamilton's grandson, the present head of the house of Buchanan, the writer is indebted for a copy of the interesting 'Retour,' given below, of the 'inquisition' that was held with reference to Hamilton's 'claim.' This document establishes Hamilton's claim to be heir male in general of his *proavus tertius*, that is, of the great-grandfather of his great-grandfather's great grandfather.

¹ *Index to Service of Heirs in Scotland*. Entry dated 13th September 1828; "Dr. Francis Hamilton (Buchanan) of Leny and Bardowie, to his uncle Robert Buchanan of Spittal." As Hamilton, like his brother before him, and like their father, at all events subsequent to 1756, was already proprietor of Spittal, it is clear that his 'Service' was intended merely to establish Hamilton's right to represent the house of Buchanan of Spittal, as being the representative of his uncle Robert Buchanan, his father's oldest brother, who while he lived was the head of the house of Spittal.

Beveridge, in the article in the *Calcutta Beviato* for July 1864 already referred to, hazards the suggestion that Hamilton's work on the Genealogies of the Princes of India may have led him to think of his own family. There is nothing in Hamilton's correspondence to favour the suggestion.

« This Inquiry was made in the Court of the Sheriffdom of Edinburgh before an honourable man George Tait, Esquire, Sheriff Substitute of the said Sheriffdom, on the 9th day of the month of July in the year of the Lord 1823, by these generous worthy men and faithful to their country underwritten, viz:-John Grahame Dalryell, Esquire, Advocate, Chancellor, James Balfour Esquire Writer to the Royal Signet, David Wardlaw, Esquire, Writer in Edinburgh, George Gorse Scott Esquire, of Sinton, James Gibson Thomson, James Buchanan, Esquires, Merchants in Edinburgh, George Buchanan, Esquire, Civil Engineer of the same place, Joseph Gordon, William Gardiner, James Burnett, George Dalsie, Augustus Maitland, James Cunningham, James Thomson Gibson Craig, and David Cathcart, inquires, Writers to the Signet: who being sworn say their great oath intervening, that the late Walter Buchanan, sometime of Spittal, who lived in the year of 1519, son of Walter Buchanan of Buchanan and Spittal, great grandfather of [the great grandfather of Francis, lately designed Francis Buchanan, of Leny, M.D., now designed Francis Hamilton of Bardowie, according to the conditions of Tailie and Settlements of the Estate of Bardowie which he holds under the same, the bearer of the presents, died at faith and peace of our Sovereign Lord the King. And that the said now designed Francis Hamilton of Bardowie is the only surviving son of Thomas Buchanan, sometime of Spittal, and brother's only surviving son of his brother Robert Buchanan of Spittal, and as such served and returned next and lawful heir male in general to the said Robert Buchanan his paternal uncle, who was the son of John Buchanan, who was the son of Edward Buchanan, who was the son of James Buchanan, who was the son of Edward Buchanan, who was the son of Walter Buchanan, who was the son of Robert Buchanan, who was the son of Edward Buchanan, who was the son of the said Walter Buchanan of Spittal, who lived in the year 1519: therefore he is the nearest blood and lawful heir male of the said Walter Buchanan of Spittal, and of his grandfather's great grandfather, who lived in the year 1519, and who is lawful of which thing the seals of the greater part of those who were present together with the King's brief enclosed therein and the seal of the said Sheriffdom are appended to the presents, together with the mammoth clerk to the Sheriff of the said Sheriffdom and clerk in the month, and year respectively before specified (thus it is subscribed)

This is a true copy of the principal Retour upon the premises in the Chancery of the King remaining, extracted, copied and collated by me John Dundas, Depute of the most honorable James St. Clair Erskine Earl of Ross, Chancellor of the Exchequer, under this my subscription John Dundas Subt."

The last letter of the collection from which those in Leny, 1st November 1828, is the longest of 11, for it conveys to Wallich authority so make use of Hamilton's botanical collections in but, n. It was written just after made in Nepal, India, Burma, and the Straits years in distributing to the great European Herbaria interpretation that Wallich put upon it, and with his own collection in Java!

"I am happy to learn that you have fairly settled in best regards to Mrs. W. with whom we should be heard from you I had received notice of the Malabar's the commentary on the Hortus

You are perfectly welcome to use all my collections given the whole away. Those at the India House may, upon me, but I have access

to on showing this to my good friend Mr. Wilkins who will oblige me much by giving you every assistance in his power to facilitate your works.

The plants I collected in Ava and Chittagong were sent to Sir Joseph Banks with descriptions and some drawings and to these you can have access through Mr. Brown, to whom I beg to be remembered.

Those which I collected at Mysore and Nepal were given to Sir James Smith with descriptions and drawings. How you are to procure these unless they are purchased by the Linnean Society I know not.

I know nothing of the Varnish tree if it be different from the Holigarna as you seem to think. By far the finest varnish work made in Ava is done at a town according to my orthography called Gnaun-u, a large town a little above Paukgan what you call Paghammew. I did not see the process but understood that the ware made even at Gnaun-u is reckoned inferior to that made in Siam. The basis used in both countries is ratan basket work which is covered with the gum and then painted or gilded.

I have considerable doubt of the cotton of Ava, at least of that produced near the Ayrawadi, which alone I know, being superior to that of Hindustan. I indeed admit that it may be rather better than what is reared in the hilly countries surrounding Q-angetio India and extending from I-fajmahal to Bombay where no doubt most of the Indian cotton is reared, but what grows on the plains especially to the north-west of Dacca is vastly superior and I beg to call your attention to the report which I have made on the cultivation of that kind in my report on the Agriculture of the Dinajpur district, which you can readily procure at the India house. A small portion of the country favourable for the fine cotton extends into the south-east corner of the district and is distinguished by being sufficiently high to escape inundation and by having a considerable portion of strong clay in its composition. The hill cotton however constitutes more than nine-tenths of the produce of India and you will find reports on its management in the agriculture of Bhagalpur. Its great inferiority to the American cotton seems to me owing in a considerable measure to two circumstances: first, the want of proper machines for cleaning it and removing the seed as you justly state: secondly, the injury it receives in transportation in bales very badly secured from rain both in the carriage by land and by water; the Pateli boats especially in which it is conveyed being to the last degree miserable. Nor are those by which the cotton is brought from Surat to Bombay much better, while the manner in which the bales are exposed on Bombay green before they are shipped is truly deplorable. Were these two defects in management remedied the quality even of the hill cotton would be greatly improved and I have no doubt that the fine cotton produced near Dacca is one cause of the superiority of the manufacture, nor do I think that any American cotton is so fine, but then there can be no doubt that the American kinds have a longer filament and on that account are more fitted for European machinery. I think however that if the good Dacca cotton were sent home, which I do not suppose has ever been done, that our people would contrive to spin it and find it superior to any other; and the first experiments to be tried on the subject should I think be directed to that quarter. Although I am inclined to think that there is really only one species of cotton plant, this is to be taken in the sense used by the botanists of the true Linnean school; and by no means supersedes the necessity of choice in selecting seed of a good kind for cultivation. A Crab apple and a Newington Pepin belong to the same species, but you may work to eternity with the seed of a Crab without producing one eatable apple, much less a Pepin. I therefore think that the introduction of the best seed from America of the long stapled cotton would be of the utmost importance especially to try its cultivation on the sea coast in places similar to where it grows in America.

Cotton is not so universally cultivated in India as you seem to think. The quantity reared in the south is very trifling: the great supply there comes from the Marhatta territory in the line east from Bombay as I have mentioned before: and except in the land N.-W. from Dacca the quantity raised on the Gangetio plains is inconsiderable. The banks of the Ayrawadi is another great field and supplies a great quantity to China. The capability, however, of producing this crop,

were there any sufficient demand for it, is eno-mous, and probably no parts are better fitted for it than the coast and islands along the coast of Tavoy or Tenasserim.

I have already mentioned the two kinds of soil on which I have seen cotton reared: the clay level land N.-W. from Daooa, and the dry soil of the hills surrounding Gangetic India and the Ayrawadi. The produce of the former is by far the finest, but still that of the hills might be vastly more valuable were pains bestowed on bringing it to market. I think however that seed o! the long stapled kinds from America should be tried in both situations, and perhaps a careful person should visit the best parts of America and examine their processes and the situations chosen for cultivation and then be sent to India to select proper places and instruct the people in a proper management. I sincerely hope that the people who have sent their cursed spinning and weaving machinery to India may suffer the penalty due to so nefarious an innovation. Were they successful they would reduce the poor people there to the same deplorable state that the labouring classes here have been brought to, that is wallowing one day in the most gross dissipation, and next day starving for want of employment. It is however to be hoped that the want of fuel and of perennial streams will prove a bar to their endeavour, and I hope to see the importers return beggars.

I shall be very happy to assist you so far as I am able with the native names of plants. The best authenticated names that I have are given in the catalogue which accompanies the specimens sent to the India house. The Hindwi and Bangilise names of these were taken down by a native on the spot in their own characters, and afterwards written in English according to the plan given by Mr. Wilkins. In the account of the plants of Ava sent to Sir Joseph Banks you will also find the names written in the Burma characters by a native. The Sanscrit and Hindwi synonyms of the materia medica, which with the assistance of a learned Hindu at Mungger I made there, would afford a great many accurate names, but this collection was sent to the India house for the use of Mr. Ainslie. Whether or not he has it I know not. If you can lay your hands on it the names in the catalogue above mentioned will in general point out the plant meant. The names of plants collected in Mysore and Nepal were taken entirely by the ear, an intelligent Brahuian pronouncing the words, but much reliance can be placed on these than on such as were written in a native character. All of the names are however liable to numerous mistakes among the chief of which is that a native seldom hesitates in giving some name or other to every plant which you meet, although it is probable that with a great many he is quite unacquainted.

Should you see Mr. Tuoker please present him with my best respects. He is a person for whom I have a great regard both on account of his talent and heart. I remain, dear Wallioh, yours sincerely,"

There is no sign in this letter of any impairment of Hamilton's physical powers; its directness and lucidity show that his intellectual powers were as keen as ever. Nor is there any suggestion either in the tone of the letter or in its allusions that it was to be the last. This, however, it unfortunately proved to be. Dr. Francis Hamilton died at Lsnny, in the 68th year of his age, on June 15th, 1829.

6. JOURNALS AND COLLECTIONS.

As early as 1782, while still a student of medicine at Edinburgh, Buchanan was a collector of all events of mosses, and was endeavouring, along with his friend Smith, to whom he gave all his specimens, to identify his species, but there is no indication that he kept any journal at this time. On the other hand there is no indication that during the period of his eastern voyages any collections were made, though from his subsequently published papers it would seem that the habit of keeping a journal had already begun in 1785.

With the commencement of his Indian service in 1793 opportunities for collecting presented themselves, and he appears both to have made collections and kept journals during the whole of his Indian career, though, just as in his student days, he made no permanent personal collection, preferring to give away the whole to his friends. Further he appears to have been somewhat chary of collecting duplicates and to have been inclined to rely on good drawings accompanied by field descriptions as equivalent to actual specimens.

Dealing first with Hamilton's journals we find now no trace of any that may have been kept between 1785 and 1791 and only surmise their existence from the occurrence of two papers, published in the *Edinburgh Philosophical Journal* for 1821.

The journal kept while he was attached to the Embassy to Ava, under Symes, in 1796, was never published in full. Two copies of it were made and retained in Calcutta; one of these was placed in the Home office, the other in the office of the Surveyor-General. Both copies had disappeared before 1857¹ whether the original which was sent to the Court of Directors be in the India Office Library now, is unknown. Much of the information contained in this journal has, however, been made available. The philological, ethnological and historical portions were published in two papers in the *Asiatick Researches* for 1798 and 1799. The geographical portion was communicated to the Surveyor-General and was used by Dalrymple along with the results of the surveys executed by Hamilton's colleague Lieutenant Wood of the Bengal Engineers, in preparing a map to accompany Symes' account of the embassy.⁸ A short geographical passage from the journal is given by Symes³ but the bulk of the geographical material was extracted and arranged by Buchanan himself in 1796-97; it was not, however, published till 1820—21, in the form of a series of thirteen papers, descriptive of maps he had obtained from natives of Burma. This series of papers appeared in the *Edinburgh Philosophical Journal* and the *Edinburgh Journal of Science*.

The journal kept during the survey of Chittagong in 1798, which was undertaken at Roxburgh's instance by order of the Board of Trade at Calcutta, seems to have disappeared. It was submitted to Fleming, who acted as Superintendent of the Botanic Garden during Roxburgh's absence on leave in 1798-99, and by Fleming was forwarded to Government. The historical, ethnological and geographical information it contained was published in a series of three papers in the *Edinburgh Journal of Science* during 1825-26.

The journal kept during the journey in Mysore in 1800-01 was transmitted to the Court of Directors, by whom it was ordered to be published. This journal therefore has to be dealt with in the next chapter.

The whereabouts of the journal made during the journey to, and residence in, Nepal during 1802-03 are not known. The information it contained, along with information subsequently acquired on the Nepal-Purnea frontier in 1810 and on the Nepal-Gorakhpur frontier in 1818-14 and embodied in Buchanan's journals for these two years, formed the basis of the descriptive account of the Kingdom of Nepal

¹ Yale : *Narrative of the Mission to the Court of Ava* in 1866, p. 263.

* Symes : *JLmbatsy*, Preface; Hamilton, *Edinb. Philosoph. Journ.* ii. 90,

¹ Sjmel : *Embassy*, p. 241.

which appeared in 1819 and which will be dealt with in the chapter relating to publications.

No journal appears to have been kept while Buchanan was a member of the Governor-General's staff during 1803-05 or during his visit to Europe in 1806; at any rate none can now be found.

The great Survey of Bengal during 1807-14 was duly recorded in a journal of the utmost value, which has never been completely published or properly edited. So much of it has, however, from time to time appeared that though the whole will be dealt with from another point of view in the chapter on Buchanan's publications, it may be convenient to enumerate the minor parts that have been issued and state when these appeared.

From the 1807, or Dinajpur portion, a brief extract on hunting was issued in 1829 by the editor of *Gleanings in Science*. From the 1808, or Goalpara portion, Buchanan himself extracted much of the historical, ethnological and scientific matter to form an account of Assam that appeared in 1820 in the *Annals of Oriental Literature*; from the 1809, or Rangpur portion, Jenkins in 1838 extracted and edited, for the *Journal of the Asiatic Society of Bengal*, a history of Cooch Behar. The transfrontier researches included in the 1810, or Purnea portion of the journal, were incorporated in the account of Nepal by Buchanan himself. A portion of the 1811, or Bhagalpur portion of the journal, relating to the minerals of the Rajmahal hills, was extracted and published in *Gleanings in Science* in 1831, while most of the archaeological results of the Surveys of 1811-13, in Bhagalpur, Patna, Gaya and Shahabad, were edited by Colebrooke as a series of four papers published in the *Transactions of the Royal Asiatic Society* in 1826 and 1830. From the journal for the rainy season of 1813, Buchanan himself published in the *Edinburgh Philosophical Journal* in 1819 the passages relating to the Diamond mine at Panna. Of the 1813-14, or Gorakhpur portion, all the transfrontier information was incorporated in the account of Nepal, and from the journal for 1814, or Fatehgar portion, Buchanan printed in the *Edinburgh Philosophical Journal* in 1820 an account of the Corundum quarry of Singraula. The India office copy of the Bengal Survey Journal was placed without reserve at the disposal of Walter Hamilton, and much of the topographical and statistical information it contains is to be found in Hamilton's *Hindustan*,¹ published in London in 1820.

An abortive attempt to publish the whole journal in India, undertaken at Calcutta in 1831, will be dealt with in the next chapter; as will the ineffective endeavour to compress and issue it as a complete work in 1838. The omission of many of the scientific references from this 1838 edition has, however, rendered it necessary for all of the matter relating to fishes and fisheries to be issued as a separate work, which forms a considerable portion of the concluding volume of the *Statistical Account of Bengal* edited by Hunter in 1877. The same cause induced Beveridge to publish in the *Calcutta Beoieto* for 1894, a series of interesting archaeological and historical passages that are neither dealt with in the papers edited, by Colebrooke between 1826 and 1830 nor included in the work published in 1838.

A puzzling feature about this Bengal journal is that we have three distinct accounts of its extent and condition, and that these three accounts are not in entire

¹ W. Hamilton: *A geographical, statistical and historical description of Hindostan, and the adjacent countries*. London, 2 vols. 1820.

accord. As all three are accounts by people who actually have handled the journal, and whose accounts are entitled to equal respect and attention, it is necessary to record them here.

When Hamilton left India in 1816 the journal and its accompanying drawings remained behind in order that the whole might be copied. As we have seen, the last portion of the journal, dealing with Gorakhpur, was handed over to Government only three days before Buchanan sailed. From the preface to the account of Dinajpur, issued in Calcutta in 1833, we learn, from the actual editor of the Calcutta copy of the journal, who had the Indian set of manuscripts before him that—

"The original records, occupying twenty-five folio volumes in manuscript, were transferred by the Indian Government to the Honourable Court of Directors; a copy of the whole having been previously made and deposited in the office of the Chief Secretary at Calcutta. Duplicates of the drawings and maps were unfortunately not preserved with the rest, probably from the difficulty at that time of getting them executed in India.¹"

In the introductory note to his edition of Buchanan's *Fish and Fisheries of Bengal?* Dr. Francis Day explains how he obtained access to the manuscript of Dr. Francis Buchanan, so long withheld from the general reader, and goes on to say:—

"His exhaustive work fills twenty-one large volumes of manuscript, besides seven more of tables of statistics, all of which have now been re-transferred from the India House to Hindustan and are at present in the charge of W. W. Hunter, Esq., LL.D., the Director-General of Statistics, who is engaged in utilising the materials they contain.

Irrespective of the twenty-eight volumes alluded to, there are others in the charge of the Asiatic Society of Bengal, but I shall only remark upon two, wherein are one hundred and forty-nine original coloured delineations of fish and forty-five copies. These drawings were made use of for the purpose of illustrating the observations in the Statistical Accounts.³"

This interesting passage shows us that possibly the copy kept in Calcutta in 1816 was not arranged exactly as was the original one sent home to the Court of Directors. It further shows that in 1877 Sir W. W. Hunter either was unaware of the existence, or had been unable to ascertain the whereabouts, of this Indian copy of the journal.

Beveridge in the *Calcutta Review* for July 1894 gives an account which has the appearance of having been written with no knowledge of Day's one, and therefore possesses the value of being quite independent. In this notice Beveridge, criticising the statements made in the preface to the *Account of Jhincy'pur*, issued in 1833, writes:—

"In fact there are twenty-six folios in the India Office; that is, there are twenty-two volumes of manuscript in one press,⁴ including a thin volume of statistics relating to Dinajpur and in

¹ As we shall see presently, there was no difficulty about this, and the reason for the despatch of the drawings without copies having been taken must have been altogether different.

² *Statistical Account of Bengal*, xx. 1877.

³ It will be shown presently that Dr. Day has here confused two more or less distinct things—the set of drawings intended to illustrate the journal, and the set of drawings meant to illustrate the detailed accounts of the natural productions of the districts surveyed, which Buchanan hoped to publish, and to some extent did succeed in publishing, as ancillary to the actual statistical journal. The main point is that the original journal, arranged as Day describes, was for some time retransferred to India.

* The Scottish vernacular term for a book-case or cupboard.

another there are four handsomely bound volumes of drawings, etc. The first of these contains the costumes of Bihar; the second, figures and architecture; the third, maps and plans; and the fourth, inscriptions."

From this we see that the twenty-one large volumes of manuscript which Sir W. W. Hunter brought to India have been safely replaced in the India Office. But of the seven statistical volumes that were lent to Hunter, Beveridge was only shown one; possibly the others are present in another book-case. It is clear from this, too, that Hunter did not bring the four volumes of drawings illustrative of Buchanan's text temporarily back to India.

«

Turning now to Buchanan's collections of natural history specimens, drawings and descriptions, as apart from his journals, we find no proof that prior to 1785 he did more than collect mosses. The specimens were given to his friend and fellow-student Smith, in whose collection they were between 1806—09, as references in *English Botany* show, and these specimens may be in Smith's collection still.

We have no evidence that collections were made between 1785 and 1793. Drawings, however, accompany one of Buchanan's published papers—that dealing with water-spouts—taken from notes of this period.

During the Ava journey of 1795 extensive botanical collections were made, with a good many drawings and notes. All these were sent to the Court of Directors in London, Buchanan, however, keeping partly coloured copies of most of the drawings and a copy of the notes. With the assistance of his notes and drawings he prepared an account of the plants of Ava, which was finished by the middle of August 1796. The Court of Directors made over the collection to Sir Joseph Banks, then President of the Royal Society, to whom, as his letters explain, Buchanan also subsequently gave the manuscript account of the plants of Ava alluded to above. Banks selected—Symes says also described—a number of these Ava plants and drawings for publication in Symes' account of his embassy. The specimens were incorporated in Banks' herbarium, so that all of them should now be in the British Museum (Natural History) collection.

Buchanan's period of residence at Puttaha (Luckipur) was largely occupied by zoological research. He kept on his old artist to make drawings, and in some instances he was evidently unable to preserve his zoological specimens; he had to be satisfied with drawings, but it appears that of some, if not all, the specimens were preserved in spirits.

The botanical collection made during the visit to Chittagon in 1798 to the Court of Directors and the specimens, as in the case of the Ava collection, were made over to Sir Joseph Banks. These specimens should therefore be with the other Banksian collection, in the British Museum (Natural History).

Owing to Roxburgh's absence from India, the stay at Baraipur and the Sundribuns during 1798 and 1799 were not utilized in making a botanical collection, but drawings and descriptions were obtained as usual. The botanical activity was compensated for by increased devotion to the study of fishes.

During the Mysore journey considerable mineralogical and zoological collections were made. The bulk of these were presented to Lord Wellesley, who subsequently

placed them in the Library of the Company in Leadenhall Street, but some were apparently given to Mr. Fichtel, a mutual acquaintance of Roxburgh and Buchanan. There is no indication that Buchanan made any zoological collection at this time, but a very considerable herbarium was formed and many drawings and descriptions were prepared. This particular collection was greatly damaged owing to the carelessness of the parties entrusted with its conveyance from the vessel, in which it had come from Madras, to Calcutta. Such as it was, however, it was given, along with the * drawings, to Smith. How, exactly, it happened that the Court of Directors consented to its being given to Smith and not to Banks the writer has been unable to discover. It was, as we learn from the preface to the Mysore journal, Buchanan's intention to have published some, if not all, of these drawings in a botanical appendix to the journal. The publishers were, however, unable to incur the cost of the plates and only one of the drawing*, with its corresponding description, was ever published.¹

A large herbarium was accumulated during the journey to and residence in Nepal; numerous drawings and many descriptions were also made. The whole collection was made over to Smith who explains that Buchanan gave him 1,500 specimens with all his drawings and all his descriptions.² The drawings, according to Britten and Boulger,³ were 400 in number. Of this fine collection Smith published only 12 species, with Buchanan's drawings, in *Exotic Botany*, and some others, without drawings, in Rees' *Cyclopaedia*. A duplicate set of the specimens of this collection, as complete as Buchanan could make it, was given to another botanical friend, Lambert. This set was put to greater use than Smith put the original set, because it formed, along with Wallich's earlier, or 1819, Nepalese collections, the basis of D. Don's *Prodromus Florae Nepahnsis*. From Buchanan's letters we gather that he had hoped that Don might be able to consult the fuller original set of specimens and the drawings and descriptions he had given to Smith, but from Don's preface we learn that in preparing the *Prodromus* he was entirely restricted to the use of the less perfect Lambertian collection. This doubtless to some extent explains the fact that, as Buchanan tells us, Don's work abounds with errors. The fine original collection given to Smith should still be in Smith's herbarium; if not there, the authorities in charge of the Linnean Society's collection should be able to say where it now is. The fate of the duplicate collection which formed part of Lambert's collection is one of the minor tragedies with which the history of botany is replete. The fact of its having formed the basis of the *Prodromus Florae Nepahnsis* converted its specimens into types of the species that Don had described and thus rendered it priceless. Yet, when the Lambert collection was dispersed, and the bulk of Lambert's plants were purchased by Decaisne and other botanists in charge of the large national collections in Europe, the packages of Nepalese plants provoked no competition and bundle after bundle fell to Mr. Pamplin for quite trifling sums. Even for Mr. Pamplin the adventure proved unfortunate, for there is no record of his ever having been able to resell them, and they appear now to be irretrievably lost. At all events the writer, who has been endeavouring for

¹ *Exotic Botany* ii. t. 119, 1805, where Smith published Buchanan's figure and edited Buchanan's description of, and his notes regarding *TJtrieularia reticulata*.

² *Exotic Botany* ii, p. 73. The gift of this collection to Smith had consequences, which Buchanan, appears not to have foreseen.

³ *Biographical Index of British and Irish Botanists*, p. 76.

12 years to ascertain the whereabouts of this invaluable collection, can find no trace of it.¹

There is no record of any natural history specimens having been preserved while Buchanan was in charge of the menagerie at Barrackpur in 1803-05, but many drawings and descriptions were prepared. These were lent to Buchanan, by order of Lord Minto, when he began the survey of Beugal in 1807, and were duly returned by him to Government, on 20th February 1815, when handing in the manuscript of his report regarding Gorakhpur, the last of the districts that he had surveyed. The manuscripts and the drawings are now in the library of the Asiatic Society of Bengal where they appear to have been deposited in or about 1839. Their history has, since 25th February 1815, become blended with that of the collections, drawings and descriptions relative to the great survey of Bengal.

From Buchanan's letters to Roxburgh we know that except during his stay at Goalpara in 1808, and except for what he was able to obtain by means of native collectors despatched across the Nepalese frontier in 1810 and again in 1813-14, he did not find it possible to make large botanical collections. Still the total number of specimens obtained during the seven years of survey was very respectable, because the manuscript catalogue of the collection, that he succeeded in making in 1822, reaches 2599 numbers. We know, too, that he made drawings and descriptions, and from the evidence of the native artists whom he employed, which was submitted to Government, in connection with an order received from the Court of Directors early in 1816, we learn that the preparation of these was undertaken with Buchanan's usual method and forethought. The artists he employed, who had previously been in the employment of Roxburgh and had in fact been provided by him, assured Dr. Hare, who superseded Wallich as Superintendent of the Botanic Garden in April 1816, that they were directed to make drawings only of such plants as had not already been figured by Roxburgh. It is equally certain that his drawings and descriptions of animals were similarly to species not previously dealt with by himself at Barrackpur; to ensure this he borrowed these Barrackpur drawings. The drawings and descriptions of fish were similarly altogether supplementary to those made by himself when at Puttahaut and Baruipur; these latter drawings were of course his own private property and remained in his own custody during the survey; after he reached Europe they were utilised subsequently in illustrating his account of the

know that after asking for and obtaining permission, to take all the drawings with their drawings and descriptions to the Court of Directors was

For the benefit of work, who, like IXLT^T:r™.ist es XTis. the ' * - *
way out of the difficulty created by the loss of Lambert's Nepal collection. Wallich's specimens there is a which Wallich gave to Lambert were given to Mr. A. P. ... journey to Geneva or Copenhagen should afford a opportunity of collecting act that nusaiaig plants. The reason for the neglect of this part of the collection was that Wallich had in the meantime ... dislike for Don. it all Wallich's Nepal plants. This was doubtless true. But the ... deluded in assisted him in distributing his magnificent collection between 1828-2 ... been done, and the treatment accorded to the Nepalese ... to go back on what had already from that of Wallich himself in 1819 and ... little reference to ... somewhat different or said between 1822 and 1825,

deprived of the drawings relating to natural history a few days before he sailed. He was not, as the letter of 31st January 1815 shows, asked to give up anything except those drawings that dealt with animal and vegetable productions, and there is no indication that he did give up anything else. At all events his drawings of Indian scenery, some of them of a quite spirited character, are still in safe keeping at Leny. That Buchanan felt the deprivation we gather from his letter to Government, dated 18th February 1815, on the occasion of his making over the collection to Government; and from a subsequent public reference to the subject, made in 1821, which from its bearing on an incident that has given rise to some controversy, deserves to be quoted in full:— *

"While preparing for the journey I was deprived by the Marquis of Hastings of all the botanical drawings which had been made under my inspection during my last stay in India; otherwise they would have been deposited, with my other collections, in the library at the India House. By this ill-judged act of authority, unworthy of this nobleman's character, the drawings will probably be totally lost to the public. To me as an individual they were of no value, as I preserve no collection, and as I have no occasion to convert them into money."

How far Buchanan's criticism of the action of the Marquis of Hastings is justified has been much disputed, some agreeing with Buchanan, indeed going far beyond what Buchanan has stated, since they accuse His Excellency of having deprived Buchanan of what was his private property. This latter accusation is perfectly groundless and is as unjust to Buchanan as it is to Lord Hastings.

When, moreover, this exercise of his authority is considered, it is necessary to recollect that the Marquis of Hastings was far from being indifferent to scientific studies and pursuits: he had, on the contrary, much sympathy with, and took great interest in, matters pertaining to science generally, as we learn from a contemporary allusion in a letter to Roxburgh from Jannet, then in charge of the Jardin de Reduit, dated October 20th, 1813:—

"A. la requisition du Noble Lord Moira qui a visite' ce Jardin en savant botaniste, etc."

and as we know from the fact that the Marquis (then Earl of Moira) accepted the post of President as well as Patron of the Asiatic Society at Calcutta in 1815 and again in 1822.

M'Clelland, who champions Buchanan's cause so warmly that he allows himself to alter what Buchanan actually said,² nevertheless admits that—

"In deciding that Buchanan's papers should be retained in India! it may be presumed that the object was that they should here be rendered more useful to the country than they could be in England. It could scarcely have occurred to the Marquis of Hastings that these works would be consigned to oblivion and the author in consequence superseded by his successors."

It is not necessary to do more than to remark that in the official correspondence the question of Buchanan's papers did not arise; the subject of discussion was such of his drawings as pertained to natural history generally and were moreover already the property of Government. Day, who deals soberly with what M'Clelland treats

¹ *Trans. Roy. Soc. Edinb.* x. 186.

¹ *Asiatic Researches* six, 219, foot note.

rather warmly, has gone carefully into the subject and explains¹ that the drawings were kept in India

"to illustrate Dr. Buchanan's statistical reports on several of the districts and it was proposed to take copies of the originals which were subsequently to be transmitted to England."

This, though given as one reason in the Governor-General's note, was not the only reason for retaining the drawings. It so happens, too, that it was the reason given by his Lordship which was least sustainable. The drawings required to illustrate the statistical reports were all already carefully arranged by Buchanan in their proper places and all duly referred to in the body of his reports. As we know, they accompanied from the first, and still accompany, his reports and journal. The natural history drawings which were the subject of Lord Hastings' note were meant by Buchanan to illustrate the descriptions that he hoped to base, after his retirement, on his notes and specimens. They had no immediate reference to, or bearing upon, his reports or his journal as such.

Beveridge, in his account of the Buchanan Records in the *Calcutta Review* for June 1894, thinks that if the Marquis of Hastings' action was dictated by a desire to keep the drawings in India and for the benefit of the Botanic Garden, he was right in preventing their removal to England. We know, however, that the official order was to transmit them to the Secretariat and that this order was complied with. The question of benefiting this Garden, or any other public institution in India, is not touched upon in the actual correspondence.

The author of the article on Buchanan's life in the *Scottish Nation*, more correct in this, as he is in most matters, than the majority of those who have dealt with the subject, has alone divined, or had access to, the ostensible official reason; the deprivation is said by him to have been 'probably on account of his (Buchanan) having been officially employed to prepare them' (the drawings).

This was, as we have seen, the reason given to Buchanan himself. But it was not the only reason, and to settle once for all the vague surmises to which the incident has given origin to it is only fair both to the memory of the Marquis of Hastings and of Dr. Buchanan to state, in the Marquis of Hastings' own words, why he decided to deprive Buchanan of these drawings. His Excellency's note, dated 5th January 1815, is as follows:—

« By a letter from Dr. Buchanan recd here it appears that he proposes to carry to Europe all the drawings of animals and plants collected by him during the tour which he was employed to make in this country. Dr. Buchanan states that it is his object to request the Comt of Directors to accept this collection as a present from him. Now, I apprehend that these drawings are already the property of the Hon'ble Court, the service for which Dr. Buchanan was employed and paid having specifically been the furnishing Government with a knowledge of the animal and vegetable productions of this country, delineations are essentially included in this service, and I am particularly informed that the descriptions given by Dr. Buchanan on his written account examined by him are so vague and indistinct as to be absolutely useless without the drawings to which they refer. I therefore beg leave to suggest the presentation to Dr. Buchanan the drawings in question. From the condition in which they were left the present transmission of them to the Court of Directors could not be attended to. They must be

¹ *Proc. As. Soc. Beng.* for 1871, p. 107.

methodized here on the spot by persons sufficiently conversant with this country to avoid error in fashioning them into form. This you will perceive to be an additional reason for retaining here the drawings illustrative of the several subjects."

In this note it will be observed that His Excellency anticipates the confusion of ideas in the statement made by Dr. Day. Two very distinct things,—the passing observations, mainly of an economic character, with which Buchanan's reports and journals are replete, and the formal descriptions, of a purely scientific nature, which were to be drawn up after Buchanan's retirement, of the natural objects whereof his collections were composed—are assumed to be identical. The confusion of these two things on the part of the Marquis of Hastings is quite excusable because his sympathy with science, though great, was after all only that of the cultured and intelligent amateur, not that of the expert worker. His Excellency is by no means the first who has taken an economic reference for a scientific contribution.

To this error, in any case natural, His Excellency was further predisposed by the particular information that Buchanan's scientific descriptions were 'so vague and indistinct as to be absolutely useless without the aid of the drawings to which they refer.' A man of the Marquis of Hastings' abilities and judgment cannot be accused of accepting lightly an opinion of this kind regarding one whose work he had not seen, and whose reputation in the scientific world stood so high as did Buchanan's. His particular informant was clearly therefore some scientific man of assured position, whose opinion was entitled to the greatest consideration. Whether the opinion of Buchanan's work thus expressed be accurate or not, it is not necessary to discuss here, but the fact that the Marquis of Hastings had good reason to trust its accuracy must be admitted by us, as doubtless it would have been by Buchanan himself, to justify his action as Governor-General. What, however, does interest us is to ascertain the source of the particular information which biased a Governor-General of such high character as the Marquis of Hastings against a public servant so faithful and so eminent as Buchanan.

In seeking a solution to the problem we have to reflect on the whereabouts of all Buchanan's descriptions and drawings at the time His Excellency's note of 5th January 1815 was written. These were (1) the Ava drawings and descriptions, with Sir Joseph Banks; (2) the Chittagong ones, also with Banks; (3) the Sundribun ones, with Sir J. E. Smith; (4) the Mysore ones, with Smith; (5) the Nepal ones, also with Smith; (6) the Barrackpur ones, all with Buchanan, to whom they had been lent by order of Lord Minto, and by whom they were not returned till 20th February, six weeks after the note was written; (7) the Bengal Survey drawings, which were also with Buchanan and for which no descriptions had been prepared. With the departure of Roxburgh in 1813 and of Colebrooke in 1814 no one was left in India capable of expressing an opinion on Buchanan's work at all. But, apart from this, no one in India on 5th January 1815 had access to any of Buchanan's drawings or descriptions except Buchanan himself. Clearly therefore the particular information so damaging to Buchanan's reputation could not have been derived from any one in India, but must have been imparted to the Marquis of Hastings before he left England.

Now in England there were two men, and two only, who possessed both drawings and descriptions prepared by Buchanan. These were Buchanan's lifelong friend and fellow-student Smith, who was the recipient of the Nepal treasures, and Banks, to whom the Court of Directors had given Buchanan's Ava and Chittagong specimens, descriptions

and drawings, but who had not received a share of the Nepal collections. What, however, His Excellency lays stress on is the vagueness, indistinctness and absolute uselessness, without the aid of drawings, of Buchanan's descriptions. The only descriptions, without the aid of drawings, *arranged for publication* by Buchanan prior to 1815 were those drawn up by him in 1796 for his account of the plants of Ava, the manuscript of which, as Buchanan himself tells us, was forwarded to Banks.

When Buchanan reached London in 1815 he presented all his collections to the Court of Directors, who sent the following despatch, dated December 10th, 1815, on the subject to the Government at Calcutta:—

'Dr. Francis Buchanan, of the Bengal Medical Establishment, who is lately arrived in this country, having made us an offer of his collections in natural history, coins and Hindu manuscripts, which he brought home with him on the *JUarchiones* of Ely*, we have accepted of the same and directed that the several articles of which they are comprised should be deposited in the Company's library.

At the same time that Dr. Buchanan made us this offer he represented that during the progress of his survey of the territories under your Presidency, which we are informed has now been brought to a conclusion, he made a considerable collection of prepared plants and minerals and that he had employed the painters attached to the survey, when not engaged in making drawings illustrative of that work, in delineating plants and minerals, and that it was his intention to have presented the whole of these specimens and drawings to us if your Government, after having directed them to be forwarded to this country freight free, had not thought fit to detain them in India as appendages to the reports which he had made of his Survey.

As the proceedings of your Government of January and February last (the date of the correspondence submitted by Dr. Buchanan) are not yet arrived, we are unable to form any opinion on the circumstances under which these articles were detained by you; but as it is desirable that the whole of the materials illustrative of the natural history of India which have been accumulated by Dr. Buchanan should be deposited in the Company's library, we direct the immediate transmission to us of the drawings and collections in question, copies of such of the drawings being retained in India as may be deemed indispensably necessary for the illustration of Dr. Buchanan's reports!"

The striking feature of this despatch is the inaccuracy with which it is drafted. The statement that Buchanan had made drawings of 'plants and minerals' is an obvious *lapsus calami* for 'plants and animals,' but the statement that the Government at Calcutta detained any 'specimens' or 'collections' is a more serious error. The despatch admits that Buchanan had laid the correspondence before them, and the writer of the despatch was therefore well aware that only certain specified drawings had been retained; it further admits that Buchanan had brought home and given to the Court all his natural history collections. Yet the despatch accuses the Government at Calcutta of retaining, and asks that Government to send home not only the drawings of which Buchanan had, as the letters show, been deprived, but part of the collections which the despatch itself announces that the Court had already received.

From what actually happened to the drawings we know that they were not kept, as Day supposed, to illustrate Buchanan's reports, and it is not quite a fair interpretation of the facts of the case to say, as Beveridge suggests, that they were retained for the benefit of the Botanic Garden. Buchanan embarked, as we have seen, on February 23rd, 1815, and two days later Wallich, who relieved Buchanan, was requested to call at the Secretariat and take away Buchanan's drawings. The following letter, dated 25th February 1815, was subsequently sent to him:—

'I am directed by the Honourable the Vice-President in Council to transmit to you the accompanying drawings of natural productions, &c, collected by Dr. Buchanan during the period he

has been employed on a Statistical Survey of districts in the Lower Province³, also drawings of the animals, birds, etc., in the menagerie at Barrackpore with the descriptions of them, and to desire that you will take charge of these drawings until further orders."

In the margin of this letter is the following pencil note by the Secretary to Government:—

" My dear Sir, This is the letter which I mentioned to you when you took away the drawings, that I would send you."

The acknowledgment of their receipt by Wallich, dated 26th February 1814, is as follows:—

"I beg leave to acknowledge the receipt of your letter of the 21st instant together with the accompanying descriptions and seven hundred and forty-five drawings of Dr. Buchanan, which the Hon'ble the Vice-President has pleased to commit to my charge, viz.,—

One hundred and forty-four drawings of fishes.

Two hundred and thirty-one ditto of birds.

Twenty drawings of other animals.

Twenty-seven unfinished drawings.

One hundred and thirty-eight drawings of plants.

One hundred and forty-seven drawing of birds of the Barrackpore Menagerie.

Thirty-eight drawings of other animals."

The most interesting feature of these letters is the fact that not only were the botanical drawings of which Buchanan was deprived sent to the Garden, but the zoological ones as well. Moreover, not only were the zoological drawings of the Bengal Survey sent, but those made at the menagerie at Barrackpore.¹ The whole occurrence shows that no attempt was made to utilise the drawings in the manner recommended by His Excellency, and that, although the duty of acting as their custodian was certainly imposed on the Superintendent of this Garden, there was no intention of making them permanently over to this institution.

Further orders were not long delayed. On receipt of the despatch of 15th December 1815, an order, dated 22nd June 1816, was sent to Hare, who had superseded Wallich as Superintendent, along with all the correspondence in the case, calling for a report from him on the subject and directing him—

" to send the drawings in question to the public department for transmission to the Honourable Court of Directors, after having had copies made of such as may be Useful for botanical purposes."

In submitting the report asked for, Hare suggested the advisability of his being permitted to copy the zoological as well as the botanical drawings before returning them to the Secretariat for transmission to England. The reply to this suggestion, which is dated July 17th, 1816, says that—

" His Lordship in Council entirely approves of your retaining copies accordingly, and requests on their completion that you will cause the originals to be carefully packed up for transmission to the Honourable Court of Directors by the first fleet of the season."

From this point much obscurity exists as regards the fate of the drawings. The natural history collections which they illustrated went home with Buchanan in the "Marchioness of Ely" and the mistake in the despatch of December 15, 1815, which said that certain collections had been retained in Calcutta, was no doubt pointed out. The note of 5th January 1815 by* the Marquis of Hastings, which Buchanan had

¹ There is no indication in Wallich's or in Buchanan's letters that Wallich ever told Buchanan that the drawings were sent to the Botanic Garden, where the bulk of them were useless, the day after he had gone. Probably he did not desire to wound the feelings of his friend.

not seen and which was not therefore among the correspondence handed by Buchanan to the Court when he arrived in England, appears to have also reached the Court of Directors and to have led to enquiries on their part from the authority who had so depreciated Buchanan's work to Lord Hastings. The result was a change of the attitude of the Court towards Buchanan and his collections which, as Buchanan explains in a letter of February 1817, they treated with 'arrogance and contempt,' an attitude which they for a time unfortunately adopted towards his journals and reports as well.

The Court in 1820 so far unbent as to permit Buchanan to take away his botanical specimens and arrange them "for the Company's collection and for publication in such journals as may accept them." About the same time, as we have seen, the Court allowed Colebrooke to extract and edit certain portions of Buchanan's reports. The interesting point is that when Buchanan (now Hamilton) obtained his botanical collections the corresponding drawings had not reached England, so that the order of the Government of Bengal, dated July 17th, 1816, was not yet fulfilled in June 1821.

Why the order was not carried out the writer cannot ascertain. There is no doubt that the drawings were transmitted to Government by the Superintendents of the Garden between 1816 and 1821. At the same time it is difficult to understand orders so definite as those quoted above could have remained unfulfilled without a reminder from the Government at Calcutta, or the Court of Directors, or both.

The next reference to the Buchanan drawings that the writer is able to find is an indignant one by McClelland of 1836.¹ From the somewhat vigorous manner in which McClelland writes, we gather that McClelland believed the drawings which Superintendent of this Garden, had placed at his disposal in 1833 were the zoological drawings of which Buchanan had been deprived in 1815. Nor is there in Day's careful notice² to indicate that he had a different belief. As we see from the letter of 25th February 1815 the drawings made over to McClelland were only the drawings of which Buchanan had been deprived in 1815, but the drawings were made at the menagerie, and if the orders of July 17th, 1816, was really the drawings, at any rate of the 1807-14 survey period, could only be copies, any originals, these originals should belong only to the menagerie collections of 1803-05.

The much discussed collection is in the Library of the Asiatic Society at Calcutta this moment. It consists of zoological drawings only, in four volumes, of which the first is respectively and one, marked vol. IV, is shabbily bound. The first contains the most part, and they appear to the writer to be chiefly copies of drawings made at Barrackpore and sent to the India House. The second and third are devoted to birds, but though often endorsed by Buchanan they are not drawings supervised but drawings by a Mr. Gibbons; as the endorsements show, they are in many cases, only copies.' The fourth volume is chiefly devoted to fishes, and is the

> Asiatic Researches, xix., 218. McClelland, while criticising severely the action of the Government, practically repeats the accusation in the case of the descriptions of the Marquis of Hastings made as regards the descriptions of the plants of India.

* Proc. As. Soc. Beng. for 1871, p. 195.

Some of these endorsements may be quoted :—

Drawings delivered at the India House, 1806. Drawings of Mr. Gibbons left with D. Filming. Among the drawings of Mr. Gibbons left at India House, 1809. Done after my return to Bengal. They are arranged without much order whether as to systematic or other.

one which has received most attention from M'Clelland and Day ; the latter says that in two volumes there are 149 original coloured delineations of fish and 45 copies* The writer's opinion is that the majority, though, not all of the 149, are replicas made under Buchanan's supervision of drawings that in due course found their way to the India House and are the some in the main as a set described by Giinther in the *Zoological Record* for 1869^x as preserved in the British (Natural History) Museum. The obvious copies are possibly the copies that Hare was directed to make in 1816. Whether the drawings from which these copies were made, which are the ones that were ordered to be sent home, did or did not go home after 1820 perhaps might be ascertained at the India Office. As far as the botanical drawings are concerned, we know that though they did not go home in time to be of use for Buchanan in 1820-22, or if they did go home before 1820 they were not given to him then, they certainly ultimately went home, for there is no botanical drawing made by Buchanan in the Botanical Garden now, and the collection there has not even Hare's copies of any of Hamilton's original drawings of plants.

Buchanan's bulky archaeological collections went apparently to the Asiatic Society's museum at Calcutta. Beveidge in the *Calcutta Review* from July 1894 has cleared up satisfactorily the story of the disinterment of two statues now in the Indian Museum, and there is a letter from Buchanan, in Wallich's correspondence, recording the gift to the Asiatic Society of four carved stones. One, containing numerous figures of Buddha, was found in the ruins of Bajagriha, the city of Javersarda in Behar ; the other three were found near the Kavatiya river in the southern part of Dinajpur.

The manuscripts that are associated in the Asiatic Society's collection with the four volumes of zoological drawings are in two folio volumes, one of which is endorsed by Wallich:—

"Dr. Buchanan's Zoological MS3. deposited in the Botanic Garden in 1815."

The descriptions and notes are mostly but not always in Buchanan's handwriting; they appear with few exceptions to be rough drafts from which finished accounts might afterwards have been prepared. A few are copies of finished descriptions in another handwriting. Some but not all are dated. Of the dated ones, some are from Barrackpore, 1804, others are of later dates up to and including Gorakhpur, 1814.

The existence now of zoological specimens connected with much of Buchanan's work in India appears to be doubtful. Giinther states that the types of the fishes to which his drawings refer have been lost.² But Day appears to question this,* and refers to a passage in a British Museum Catalogue⁴ which suggests that at least some of these types may be in the Natural History Museum. The question is one on which the writer can form no opinion.

¹ Giinther speaks of some of Buchanan's (then Hamilton's) figures being copies of figures by Hardwicke. It was of course Buchanan's figures that were copied by Hardwicke. M'Clelland says, General Hardwicke did this without acknowledgment; but as a matter of fact he did this with the consent of Buchanan, according at least to Richardson; Day thinks with only Wallich's consent. But Hardwicke and Buchanan were intimate friends, and Richardson is probably quite accurate.

ⁱ *Zoological Record* for 1869, p. 127.

^j *Proc. At. Soc. Beng.* for 1871, p. 197-

* *Catalogue of the Fishes of the British Museum* id. p. iv. (1861).

The botanical specimens of the 1807—14 period, as we have seen, were taken home and given to the Court of Directors in 1815. They were handed to Buchanan (now Hamilton) in 1820 for arrangement. A duplicate set of the specimens and a copy of the manuscript catalogue were given to the University of Edinburgh.¹ The original set, and the original MSS. of the catalogue, were sent back to London in 1822. When Wallich reached London with the great East India Company's herbarium he had a copy of Buchanan's manuscript catalogue prepared for his use; this copy is now in the Calcutta Herbarium. The corresponding specimens were incorporated among and distributed with the Wallichian plants between 1828 and 1832. A complete set of the plants is therefore present in the Wallichian type herbarium, at the rooms of the Linnean Society. Other herbaria, recipients of Wallichian duplicate sets, have many of Buchanan's plants but not one of these subsidiary sets is so complete, so far as Buchanan's numbers and specimens go, as the original type Wallichian collection.

In 1808, while stationed at Goalpara, Buchanan brought together a collection of timber specimens for transmission to the Honourable Company's Master Builder at Kishinipore. The history of the catalogue which accompanied these wood specimens belongs to the chapter which follows.

The collections of seeds, roots, or living plants sent to the Botanic Garden at Calcutta during Buchanan's various journeys were extensive, from Ava, as his letters show, more than twenty species were thus contributed; from the Gangetic delta during 1796—98 more than one hundred; from Mysore about two hundred; from Nepal about one thousand.⁴ From Assam in 1808 a considerable number of species were sent but from all the other districts surveyed between 1807-11 he sent comparatively few. The reasons for this are obvious; the flora of the districts surveyed, except Lucknow, is not very rich; Roxburgh and Carey, too, had, between them, already pretty well explored the greater part of the Lower Provinces and, if not a very good part of Sylhet. The number of those species that eventually survived and proved to be new accessions to the Botanic Garden collection may be traced from Roxburgh's *Bortus Bengalensis* and *Flora Indica*. From Ava and the Andamians one is recorded; from the Gangetic Delta in 1796-98 about 20; from Chittagong the same; from Mysore and Malabar about 40; from Nepal 70; from the Gangetic Plains during 1807-14 about 20.

7. PUBLISHED WORKS AND PAPERS.

In dealing generally with Hamilton's publications it will be found that he neglects the sequence of their appearance and to follow rather the order of their inception. This makes it impossible to separate the few that were published while he was still in India from the bulk of his papers, which appeared after his return. In some cases were edited by others after his death. If it is desired to see the sequence of their publication and retirement, the following list will be found to be of some service.

¹ Madden: Elucidation of some plants mentioned in Dr. F. Hamilton's *Trans. Bot. Soc. Edinburgh*, vol. 6. As Madden points out, the plants of the Kin d... of Nepal which are concerned. This is because the Edinburgh collection includes a complete set so far as we know of Buchanan's native collectors in 1810 and again in 1813-14, but contains a few plants of the collection given to Smith and Lambert. Madden appears to have overlooked the fact that the manuscript of the catalogue the Edinburgh copy of the catalogue the...

⁴ There were 117 different despatches of seeds, rhizomes, &c. from the various parts of the East Indies, &c. than ten.

however, gives a chronological view of the whole¹ so that the method here adopted, while it lends itself to more satisfactory treatment from the biographical side, can cause no practical inconvenience. Had Hamilton's range of interests been less wide, the papers might have been arranged either by subject or by place of publication, but the advantages gained by such a treatment are more than counterbalanced, by the drawbacks incidental to any system of artificial classification.

None of Hamilton's observations during his student days, if the subject matter of his graduation thesis be excluded, *have* been recorded by himself. There are, however, references to some by his friend and fellow student Smith.⁸ A short paper published by Hamilton in 1821^s records observations made during the Eastern voyage of 1785, and another paper which appeared in the same year* records observations on water-spouts made during the similar voyage of 1788-89 and includes a reference to observations made in 1805. This latter paper is one of considerable importance and has been the subject of more than one critical reference.

Hamilton's papers relative to the Ava journey are rather numerous. The earliest of these, an account of the Launzaa tree,⁵ the search for which is incidentally alluded to by Symes,⁶ gives a full description of what Hamilton deemed a new genus, though he did not venture to give it a name (ill botanists in Europe should 'have ascertained whether or not it be reducible to any known genus of plants.' The original paper was published in 1798 and, when copies of the description reached Europe, Sprengel, reviewing the contribution, endorsed the author's opinion and very appropriately named the genus *Buchanania* in honour of the discoverer.⁷ A curious dubiety subsequently arose with reference to the genus that should perpetuate Hamilton's memory among botanists. We find that in a letter dated Puttahaüt November 17th, 1796, Hamilton (then Buchanan) had already expressed a wish to have a genus named after him:—

"As I make little doubt but that the palm will prove a new genus should you be inclined to honour me with the name of a plant I would prefer this, as I have discovered it with some labour and danger."

The palm in question appears to have been the species now known as *Pinanga gracilis*, so that Hamilton's view as to its natural rank was sounder than that of Roxburgh, who was contented to treat it as an *Areca*, and was therefore unable to associate it with one of its earliest discoverers. Later on Roxburgh, as we learn from Hamilton's letters, did give the name *Buchanania* to one of Hamilton's discoveries, the tree known to the Sundribun wood-cutters as Amúr. To this tree, however, Roxburgh in his published works gave the name *Andersonia*, doubtless because he had discovered in the meantime that Sprengel had employed the name *Buchanania* for the Launzan tree. What is odd with regard to this is that, though Roxburgh obviously followed Sprengel in this use of the name *Buchanania*, the editor of Roxburgh's works attributed the name to Roxburgh,

¹ In the list in question the writer has recorded all the writings that can be traced by him. It is more exhaustive than any previous list and probably is practically complete, though it is not impossible that some of Hamilton's minor notes may even yet have escaped him. The Royal Society's *Catalogue of Scientific Papers*, usually a safe guide in matters of this kind, is, in the case of Hamilton's contributions, somewhat inadequate.

* Smith and Sowerby: *English Botany*: see t. 1590 (1806) and t. 20M (1809).

* Account of an extraordinary appearance of the sea, observed 31st July 1785, in a voyage from Johanna to Bombay, long- 61° 25' F., lat. 6° 82' N. : *Edinb. Phil. Jour**, v.

⁴ Account of water-spouts observed at sea on voyages to and from India : *Edinb. Phil. Jour.i. r.*

* Description of the tree, called by the Burmas Launzan : *Atalick Retearchet v.*

« Symes : *Embaity*, ed. 1. p. 437.

; Sprengel in Schrader's *Journal*: 1800.

an error¹ that has been followed in most works on Indian TW. e •, in 1806 proposed the recognition of a second *Buchamnia* in Ham i C I n y. * m i t a in however, between the time that the plate was preprfrTInd I W 1 2 ^ " ^ Sprengel had already established a geaus *Buclamnia*, Smith in L tēxt, T T S ^ * * * name *Su_mdia* by the name *Colebrookea*. Hamilton in 1796 7 - e P. u. u. Hamilton's detailed account of the vegetation of Burma which he ^ T ^ V l T M h & V e 86 en, a Court of Directors had given all the specimens and drawing ol ^ L ^ A ^ \ Whom the Part of this paper, with the corresponding d ^ g ^ K ^ ^ E ^ * * B a b M * an integral portion of the work of Symes' in 1800 In th r VI - - - P u b l i c * * * tion as in the prefatory note, for which Banks is responsible we find t o ^ P a p 6 r S n d Hamilton was the author either of the names 7 I " - - - ack «owle%ment that as follows:- ^ or the d e s c r i p t i o n 8 . The note • 1

" The plants of which the following descriptions and figures are ^ V o - v e n , u s e v e ^ Selected V the President of the Royal Society as the most rare and curious Z Z Co P l o U 8 " ^ Valuable collection made by Dr. Buchanan, who transmitted to the Court of Direct B & M U T M excellent preservation, together with delineations of each plant, executed on the spo T " ^ * * * & M U T M excellent

Symes in his preface further categorically states th c f P u a n a s V J o v i d e d the d e s c r i p t i o n s . Roxburgh, who knew of Hamilton's manuscript-! *, ^ f f i a t & o f t h e d e s c r i p t i o n s . exist in the Roxburghian correspondence in the library of th & r l ^ ^ extracts from it was aware, at first band, of the true facts of the case, and • r * T M * Botanic Garden- attributes the species first published in Symes' work to H ^ u . t h e F l o r * 7 " * C a c o n s i s t e n t l y Banks.* In this Roxburgh has been generally followed * * L . o n (B u c h a n a n) > and not to Hamilton has nowhere himself claimed the authorship of t i f s u b e c l u e n t w r i t e r s ; but as ment of Symes is precise, the citation usually adopted is t e h * 6 T * " 5 8 , and as the 'state-

Two important papers regarding the Burma journey w e r / ^ 7 ^ T ^ 8 - , stationed at Puttaha in 1796, and published in the *Asia* * 7 p e t e n w h i l e H a m i l t o n w a s They deal with the languages, the religion and the literature 7 7 ^ " * 1 7 9 8 a d d 1 7 " 6 intrinsic interest and bear moreover the marks of p r e v i o u s o * - u r m a t t h e y a r e o f much In the paper on the religion and literature of B u r m a t h e r e a s a ^ * * & f ^ ^ S t u d e n t the origin of which is explained by Colebrooke, 7 where T T < T ^ a n i m p o r t a n t e r r o r , reference to Buddha in the Vedas. m a u i t o n s t a t e s t h a t t h e r e i s a

The geographical results of Hamilton's researches in Burma w V \ that they appeared, of very great importance, were mostly A H T A ^ ^ & t t h e t i m e y t - D 8 t i e d J after Hamilton's

• This is not the only error that has escaped the edito 7 T ^ ^ I r r ~ ~ printer of Launzan into U m m in Roxburgh's citation, has escaped the notice of India, * * * o o d ^ s i o n b y t h e the omission of HamUtoa's name for the tree, and of his interest ^ l P a f - r e a d e r a n d - y e x p l a i n t U _ T T o f M ^ ^ c / B u r m a B u r m a f o r t h e o f V V £ £ j j ^ h t . J o n l y f r o m of India. f r t h e E c o n o m i c P r o d u c t s

' *Exotic Botany*, ii. t. 115.
 • Descrip and Curious plants selected by the President of the B a n t a n society; in s y m e s . E . v m o u n , ed i. p. 473.
 • Roxburgh.: *Flora Indiae*. iii. 142 j iii 696.

' Here, as sometimes in other matters, law and equity are at vari>p. two the writer would suggest that, now that the whole facts of the casell t ' ^ m g t M o f ' e c o n c i l i n , t i . *Emla*, y be cited as of Buchanan and Bank, conjointly: e.g. *Eeritiera R m e s B u h T M t h e 8 p e c i « »* Ascribed in Sym ^ • A Comparative Vocabulary of some of the Languages spoken in the Bur». " S j r m e s : ^ ^ V e d i K e l i g i o n a n d L i t e r a t u r e o f t h e B u r m a s : *Asiatiek Betearches*, vi. " m p i r e : *Miatitlk Meitare*), e t y . o \ » Life of H. T. Colebrooke, by his son Sir T. E. Colebrooke, p. 26].

retirement, in the *Edinburgh Philosophical Journal* and the *Edinburgh Journal of Science*, in a series of papers explanatory of maps in which he had taught travelled Burmese to record the information they possessed.¹ By this means Hamilton filled the complete blanks that had previously existed in the charts of Indo-China, and fixed even remote places like Bhamo and Mogoung with fair accuracy. The last paper of this series, that dealing with Pegu, which was not necessary for geographical purposes, was interesting in another way; it provided a standard whereby the accuracy of the information contained in the other maps might be estimated. The painstaking work of Hamilton in this geographical study has stood the severe test of subsequent exploration and survey work in a wonderful manner; the only cardinal error into which he fell was the fashionable geographical belief of the time that the waters of the Sanpo reached the sea by way of the Irrawaddy. Besides these papers on maps there is a short note on the rivers of Burma, contributed by Hamilton, which is incorporated in Symes' work.⁸

While stationed at Puttahaat in 1796, Hamilton contributed a zoological paper to the Linnean Society which was published in the Society's *Transactions* in 1800.* This paper, as we find from his letters, was at first not considered suitable for the *Asiatick Researches*, but when subsequently it was asked for, Hamilton could not give it to the Asiatic Society as he had already promised it to Smith. Another zoological paper, written in 1793, was published in the same periodical.⁴ Hamilton did not write any other papers during his Indian Service; his copious notes on fishes, collected while he was stationed at Puttahaat and at Baruipur, were incorporated in his *Account of the Gangetic Fishes*, the publication of which will be referred to further on. The ethnological, geographical and historical portions of his Chittagoug journal of 1798 formed the basis of a series of papers published in the *Edinburgh Journal of Science* in 1825 and 1826.⁵ The first of the papers of this series, which deals mainly with Tippera, is still our chief authority for that territory; the

¹ Account of a map of the countries subject to the King of Ava, drawn by a slave of the King's eldest son: *Edinb. Phil. Journ.* ii. 1820.

Account of a map of the route between Tartary and Amarapura: *Edinb. Phil. Journ.* iii. 1820.

Account of a map of the country north from Ava: *Edinb. Phil. Journ.* iv. 1821.

Account of a map, constructed by a native of Taunu, of the country south from Ara: *Edinb. Phil. Journ.* v. 1821.

Account of a map of the country between the Erawadi and the Khinn daam rivers: *Edinb. Phil. Journ.* vi. 1822.

Account of a map, by a slave to the heir-apparent of Ava: *Edinb. Phil. Journ.* vi. 1822.

An account of a map of the Tarout Shan Territory: *Edinb. Phil. Journ.* vii. 1822.

Account of a map of the vicinity of Paukgan or Pagan: *Edinb. Phil. Journ.* vii. 1822.

Account of a map drawn by a native of Dawa or Tavay: *Edinb. Phil. Journ.* ix. 1823.

Account of two maps of Ytemse or Yangoma: *Edinb. Phil. Journ.* x. 1824.

An account of the map of Koshanpri: *Edinb. Phil. Journ.* x. 1824.

Account of a map of Upper Laos or the territory of the Lowa Shan: *Edinb. Journ. Sci.* i. 1821.

Account of a map of the kingdom of Pegu: *Edinb. Journ. Sci.* i. 1821.

² Symea: *Embassy*, Ed. i. p. 241.

» An account of the *Onchidium*, a new genus of the class of Verities, found in Bengal: *Trim. Linn. Soo. Lond.* v.

⁴ Description of the *Vespertilio plicatus*: *Tram. Linn. S'JC. Lond.* v.

* An account of the Frontier between part of Bengal and the Kingdom of Ara: *Edinb. Journ. Sci.* ii. 1825.

An account of the Frontier between Ara and the part of Bengal adjacent to the Karnaphuli river: *Edinb. Journ. Sci.* iii. 1326.

An account of the Frontier between the southern part of Bengal and the Kingdom of Ava: *Edinb. Journ. Sci.* iii. 1825; *ib.* 1820.

second' which deals with northern Chittagong or the Saksah country, and the third which treats of Southern Chittagong or the country of the J... M... perusal if only because they show* how little Hani™ Jr... it "A writers to add.

The Mysore journey of 1800-01, as dprriW in n i. , urnal, was published J ^ at L instnce - ^ £ ^ ^ ^ O , ^ , the volumes, under one of the exhaustive and unquotable ti*. fulolbl^at t^

As issued the work consists of Hamilton's journal, precisely as > was written, without any atten.pt at co-ordinating and codifying the L Z t mas of Tied and valuable information it contains, and particularly without that nati of Tied and estimation of the information derived from native sources "that IT "S ^^ papers based on his Ava and his Chittagon. journals so J 1-? Hamilton's moreover destitute of the scientific appndd ^^ t tn ^ ^ T ^ le. It is it.* o add to

Its weak points did not escape the reviewers at the time th*f > more recently Sir Alexander Arbuthnot, with whom Mr. Bev J appeared, and the perfectly just opinion that the work would have beeTTr agr668, ^ ^^ journal had been recast and condensed. There i, nothin "T usefu/ * thb however, seeing that it was Hamilton's own. i_n tha n-if_ o_j!™8!™ TM itaa view, to supply to the work, which was in the press when* he roamed ET ^ ^ ia 1805, he explains that it had been hi* desire to abridge th! j rns; and its matter before publication. However, the printing had 1- j rns; and he armed in London, and his stay in England was°likel y to b a.rea.y ComnienCed before of his undertaking the necessary alterations. He did, h > 6 too8^or* * o a(AM^ a most satisfactory character, which at least renders the o We q r, supply ai ind ex of adds very greatly to its value. The first reviewer T k easij, f nSultable, and discussion as follows:— Uie vv0lk " «ums up the

"These who vrLl take the trouble to peruse Dr. Buohaua ' h i more accurate notion of the actual condition and appearanoe o^Iodi o^ ^ . certainl^ ottai n a hr aad manners, than could bo derived from all the booka relating o^ T. ^ * existilJ & artS uaages frequently be misled as to its religion, literature and antiquities a d " * eXXSt6nCe, but 4W will thou readers are usually disposed for, in collecting and plācing 'to « mUst BUBmit to 1Bore kboui, od fragments of information of which the volumes are composed" ge--er the scattered and disjohit-

From the manner in which the information was obt- A V- explained, it will be seen that Hamilton was under the n-ecessi , will ^ hAb beCQ al «*JV all that he saw, but all that he was told The 7 nOt Only of «eoniiii^ aLnply to this, that on everything which lianuhon C o S ST*. ***** «"A AS ftavmS - ^ en seen by

• A journey from Madras, through the count™, of Mysore Canara and Malabar, performed under the orders of the Most Aotiv the Marqu.s of Welleslet,, for the exprt 1... ArU. and Commerce; the B.li.gion, Manors and Custom, the 'ZT', " Mui*1"«* «* « state or -A • , are, dorian of the Bojak of Mysore, ar,d countries acjquire/b^ j T t " £ o » il * * 1 and... Z ^ ^ re, former wars, from Tif-poo Sultan. 3 vols. 4to. Loudon, 1807. ...lowra- East India Company in the late and
2 One oi tie boiamcal drawiogg made during thi, journey .: " " " ,
refwuluta: Exotitf Jlotany, iL p. 119, t. 119.
3 Edinburgh Review; October 180S. PONwtacs, * Etotic Bs>tan, i* lm— Uticulariu

himself implicit reliance may be placed, while, as regards what he was told, it is advisable to keep the open mind that Hamilton himself kept. The summary was therefore fair and just, and fully anticipates the views expressed later by Arbuthnot and Beveridge, though it after all only confirms what Roxburgh predicted when he recommended Hamilton to Lord Clive as the most suitable officer to conduct this survey.

Shortly after the work appeared, an extract from it was republished by Tilloch in the *Philosophical Magazine*,¹ and twenty years later another series of extracts were collated by a contributor to *Gleanings in Science*. A second edition of the work in two octavo volumes was published in Madras in 1870; this is perhaps the best evidence of the importance of the information in the journal and of its value, in spite of its author not having been given an opportunity of revising and, in the true sense, editing it.

The subject of Nepal, a region as to which Hamilton had acquired much information during his residence at Khatmandu in 1802-03, was taken up immediately he retired. The early information had been greatly supplemented in 1810 when Hamilton resided at Nathpur on the Nepal-Purneah frontier, and still further added to while he was engaged in surveying Gorakhpur during 1813-14. The result of his labour was the publication in Edinburgh in 1819 of an account of Nepal³ which still remains one of the principal sources of information regarding that country. In preparing this work Hamilton was able to give all that attention to arrangement of matter and revision of statement which was denied him in the work on Mysore. The result is a condensation of the corresponding information into something like one-third of the space. Thirty years later a *Blackwood* reviewer,* dealing with various works on Nepal that had been published since Hamilton's work and that of Kirkpatrick, of 1811,⁸ had appeared, remarks that all these works were—

"very largely indebted to the Doctor and the Colonel, although their authors very rarely remember to acknowledge their obligation."

The work is a mine of information from which much of what has since been written regarding Nepal has been extracted.

In the account of Nepal Hamilton makes reference to a considerable number of plants, and in Rees' *Encyclopaedia** and in *Exotic Botany* some of his descriptions and notes have been reproduced.⁷ In the case of *Exotic Botany* these descriptions are accompanied by copies of the corresponding drawings. Even in his *Prodronuis*, although he was perfectly well aware that the names and descriptions were those of Hamilton,

¹ Account of the manufactures carried on at Bingleore and the processes employed by the natives in dyeing Silk and Cotton : *Phil. Mag.* xxx. 1808.

² Machines for Irrigation: *Gleaning* in Science* i. 1829.

³ *An account of the Kingdom of Nepal and of the territories annexed to this dominion by the host of Gorkha.* 1 TO., 4to. Edinburgh, 1819.

⁴ *Blackwood's Magazine* ; July 1862.

⁵ Kirkpatrick : *An account of the Kingdom of Nepal, being the substance of observations made during a Mission to that country U the year 1793.* London; 1 vol., 4to : 1811.

• Rees : *Encyclopaedia.* Cfr. art. *Paris polyphylla.*

Exotic Botany, ii. tt. 97-101 ; t. 107 , t. 108 ; tt 1U-117.

for some unaccountable reason cites Smith as the authority for them.¹ The practice, for which there was little excuse, seeing that Don not only had Hamilton's names before him, but that Hamilton had in 1819 incidentally pointed out the true state of affairs in an interesting contribution to the *Edinburgh Philosophical Journal*? has been almost universally followed. It is one of the oddities of modern citation that a different treatment should be accorded to the Hamilton plants described in Symes' *Embassy* and in Smith's *Exotic Botany* respectively. We know that in both cases the relationship of Hamilton to the actual publication was identical. Yet in the case of the Ava plants, though Symes tells us explicitly that Banks wrote the descriptions, we attribute the publication to Hamilton; in the case of the Nepal ones, though Hamilton expressly states that the names were his, we attribute the publication to Smith.⁸

The only other paper relative to Nepal that Hamilton issued was a brief account of the Nepalese aconites, which he was induced by Mr. (afterwards Sir) W. J. Hooker to publish in the *Edinburgh Journal of Science* for 1844.* This, as it happens, is one of the most interesting of Hamilton's short papers; at the same time it is one of the least satisfactory. He was greatly interested in the question of the identity of the source of this arrow poison, but could get no satisfactory information during 1802-03. When at Nathpur in 1810 he organised a search for the plant or plants by means of native collectors, but unfortunately the men returned too early in the year, and some of the specimens he obtained are still indeterminable.⁶ A short field note sent by Hamilton from Nepal is given in full by Roxburgh in the *Flora India*. The note refers to *Jlovenia dubif* and, in the first edition of Roxburgh's work, the veteran Carey makes an interesting comment on the vernacular name obtained by Hamilton, which illustrates the risk of taking down names by the ear only, a practice that, as we learn from his letters, Hamilton always avoided where he could do so. The comment further gives Carey's shrewd estimate of vernacular names generally.

We find from Hamilton's letters that Wallich suggested collaboration with him in a new work on the botany of Nepal, but that Hamilton did not accept the invitation. We learn, too, from the same source, that though Don gives Hamilton's name equal

Don quotes Hamilton's names or synonyms for all other species, but for those siren in *Exotic Botany* he has quoted Smith as the author, in spite of what Hamilton himself has told us, though, even with regard to these species his citation of Hamilton's name *Sumdi* opponhofia*, which Smith changed first to *Buchanania oppositifolia* and then to *Colebrookea oypnitifoUa*, shows that Smith was not even responsible for the suggestion that the plant should be treated with a new genus, and that, moreover, Don was aware of the fact.

« Notice of the Progress of Botanical Science in Bengal, being the substance of a letter from Dr. W. J. Hooker, Superintendent of the Botanical Garden near Calcutta to Francis Hamilton, F.B.S. & T. Journ. i. 1819. This paper is usually attributed to Wallich! The authors who do this, however, are not Wallich—the age of self-advertisement had hardly begun in 1819.

• The simplest way out of the (Jiff)uly U to recognise frankly the connection of both authors and to cite them accordingly. Neither Banks nor Smith themselves assert their own authorship if the facts are known, it is advisable to cite the names or synonyms as being of joint authorship, e.g., *fyIZfyZ^^^* Buch. k Smith.

• An account of a genus including the Herba Toxicaria of the Himalayan Mountains natives poison their arrows = *Edinb. Journ. Sci.* i. 1821.

» Stapf: Monograph of the Aconites of India: in the present volume of the *Annals of the Royal Botanic Garden Calcutta* «

• Kojburgh: *Flora Indica*, ed. Carey & Wallich, ii. 415:1834.

prominence with his own on the title page of the *Prodromus Flora NepaUnsis*,¹ published in 1825, Hamilton in no way directly assisted Don in preparing this work. His later Nepal collections Hamilton named and catalogued for the Honourable East India Company in 1822, but none of the material thus dealt with, and none of the information contained in that catalogue, was utilized by Don.

A very careful review of the plants alluded to by Hamilton in his *Account of Nepal* by Lieutenant-Colonel Madden, based on a study of the text itself, on a comparison of the plants of Hamilton's later collections, and on an examination of the manuscript catalogue given to the University of Edinburgh in 1822, was published in the *Transactions of the Botanical Society of Edinburgh* in 1858."

The majority of Hamilton's other publications deal with the period of his great survey of Bengal between 1807—1814; those that are of a more general character, such as his commentaries on Rheedea and Rumphia, his works on the genealogies of the Hindus, and his account of the Gangetic fishes, if not entirely or even mainly concerned with the survey, at any rate include observations made during its progress. The main results of the survey were not published during Hamilton's lifetime, so that for the moment their consideration must be deferred, or only incidentally alluded to, as the scientific contributions relative to the different stages of the survey are dealt with.

During Hamilton's lifetime nothing was published with regard to the work of 1807 in Dinajpur and the northern part of Rangpur. But in 1829 a brief note regarding methods of capturing wild animals in Dinajpur was edited in *Gleanings in Science* by Captain Herbert,³ and in 1838 an account of Cooch Behar was edited in the *Journal of the Asiatic Society* by Major Jenkins.⁴ The full text of Hamilton's account of Dinajpur was issued at Calcutta in 1833 under circumstances presently to be described.

The work of 1808 in Rangpur, which then included a good deal of what is now Lower Assam, afforded material for a geographical, topographical and ethnological account of Assam published in the *Annals of Oriental Literature* in 1820.⁵ This paper is of the style of the accounts of Tippera and Chittagong already referred to, but its existence does not appear to be alluded to in any of the accounts of Assam published since it was issued.

Several short botanical papers were published by Hamilton relative to the Assam or Rangpur part of the survey. One of these, which appeared in the *Journal of Science* in 1825, deals with the genus now known as *Chhranthus* f another, published in the same periodical in 1827, discusses a species of *Garcinia*.⁷ A third paper, read

¹ *Prodromus Flora Nepalensis, sine Enumeralio Vegetabilium, qua in itinere per Nepalem propriam dirtam et regiones vonterminas ann. 1802—1803, detent atque Itgit D. D. Franciscus Hamilton (olim Buchanan) M.D. Societ. Reser. Linnaean. Loadin. Soc. Accedunt plantae a D. Wdlioh nuperius misse. Secundum methodi naturalis ni'inam di-pvs.uit atque d esc rip sit David Dan. London ; I vol 8vo : 1825.*

² Madden: Elucidation of some plants mentioned in Dr. Francis Hamilton's Account of the Kingdom of Nepal: *Trans. Bot. Soc. Edinb.* v. 116.

³ Manner of Hunting in District Dinajpur: *Gleanings in Science* i. 374.

⁴ « History of Cooch Behar, being an account of a passage from Dr. Uchansb's account of Eaigpur (Riv^ti-tira) revised and corrected by Major J. Jenkins: *Journal of the Asiatic Society of Bengal* vii. 1.

⁵ An account of Assam, with some notices concerning the neighbourhood of the territory. *Ann. Orient. Lit.* UK 1820.

⁶ Account of a plant allied to the genus Piper: *Edinb. Journ. Sci.* u, If 25

⁷ Description of a plant of the order Guttiferae, which Dr. Roxburgh called *Garcinia pedunculata*: *Edinb. Journ. Sc.* vii. 1827.

before the Royal Society of Edinburgh in 1823, on the structure of various *Cacur-Infaceoui* fruits,¹ we know from an allusion in a letter written to Roxburgh from Goalpara on 13th June 1808, to belong also to this period. Besides these a useful Hat of timber trees of the Goalpara district, prepared in 1808, was published by M'Coah in 1837.³ This list was originally drawn up as an accompaniment to the collection of 90 Assam timbers prepared at Goalpara for the information of the Honourable Company's Master Builder in Calcutta. When in 1828 Wallich took home his large collection, it was arranged that he himself, with the aid of botanical friends, should undertake the distribution of all herbarium specimens. The timber specimens, however, with the sanction of the Court of Directors, were made over to the Society of Arts for arrangement and distribution.

The collection formed the subject of a paper by Aikin, Secretary to the Society, in their *Transactions* for 1833.³ Aikin, who had access to Hamilton's original list of Assam timbers, decided, for the sake of its vernacular names and its notices regarding the various species, to incorporate it in his general list, indicating, however, in every case the source of his information. M'Cosh, having been deputed in 1837 to prepare a topographical account of Assam, extracted from Aikin's list all the entries that Aikin had obtained from Hamilton's catalogue, and issued them as being a fair statement of the 'timbers of Assam.'

Nothing regarding the survey of Purnea in 1810, beyond what is included in the account of Nepal, was published prior to the posthumous issue of his journal.

Part of the archaeological results of the surveys of Bhagalpur, Patna, Gaya and Shahabad is dealt with in a series of interesting and valuable papers extracted from the India Office copy of the reports and journals, and edited by Colebrooke between 1826 and 1830." A paper dealing with the mineralogy of the Rajmahal hills was extracted by Captain Herbert from the Calcutta copy of the journal in 1831.⁵ The results of Hauiltou's enquiries into the indigenous drugs of South Behar generally, are incorporated in Ainslie's *Materia Medica*.*

A paper describing a journey to the diamond field in the Panna State, made during the rainy season of 1813 in connection with Hamilton's survey work, was published in the *Edinburgh Philosophical Journal* in 1819.⁷ In the same journal

¹ Observations on the structure of the fruit in the natural order *Cacurbitacea*: *Trans. Soc. Eiinb.* xi. 1831.

² Catalogue of woods peculiar to Goalpara: M'Cosh: *Topography of Assam*. 1 vol, 8vo. Calcutta 1837. The list of timbers occurs at p. 88.

³ Aikin: *List of Indian woods collected by N. W. Mich, M.D., F.B.S., Corresponding Member of the Royal Institute of France and of the Academy of Sciences at Berlin, Secy of the Society of Arts of London; Superintendent of the Botanic Garden at Calcutta.* *Trans. Soc. Arts Manuf. and Comm.* xviii. 39. The list which subsequently was issued as a separate pamphlet, is by some misapprehension ascribed by Pritzel to Wallich; no doubt the greater portion, but as the text shows by no means all of the entries were made by Wallich.

⁴ Inscriptions upon rocks in South Bihar, described by Dr. Buchanan Hamilton and explained by H. T. Colebrooke: *Trans. Roy. As. Soc.* i. 1828; Descriptions of Temples of the Jains in South Behar and Bha-
Trav. Voy. As. Soc. i. W. On the Sarracs, or J'ias: *3W R.Y.Y. Asiat. Soc. D. ii.* URM... **Description of the juiu» of Buddha Gaya by Dr. Francis Buchanan Hamilton.** ««»!., extnstei from hU report of a survey of South Behar: *Trans., Voy. As. Soc.* ii. 1830.

⁵ On the minerals of the Itanjulial cluster of hills: *Glean, in Sci.* iii. 1831.

⁶ Ainslie: *Materia Medica*. 3 TO'S. 8vo. London: 1826.

⁷ Description of the Diamond mine at Panna: *Eiinb. Phil. Journ.* i. 1819.

Hamilton published in 1820 an epitome" of the information derived by him from various sources regarding the corundum quarry of Singraula.

Two brief botanical papers, both of some economic importance, and both referring mainly, if not wholly, to Bengal were published in the *Edinburgh Journal of Science* in 1824 and 1827. The particular year in which the notes were originally made cannot be traced from the existing papers and correspondence. The first deals with a plant used in many parts of India in refining sugar;² it has, however, considerable scientific as well as economic interest, and shows that Hamilton had come to very sound conclusions as to the relative position of the genera in the natural family *Hydrocharideae*, a family that, when he wrote, was imperfectly understood. The second, mainly an economic paper, deals with two vegetables in fairly common use in Bengal.³ These exhaust the list of papers, based on or extracted from the reports and journals of the Bengal survey of 1807-14, that were published prior to Montgomery Martin's attempt to issue these documents as a whole in 1838.

Hamilton's brief visit to Galle on his way home in 1815 provided material for a short zoological note published in the *Edinburgh Journal of Science* in 1827.*

At the time that Hamilton was engaged in preparing his accounts of Nepal and of Assam, which were the two first subjects taken up by him on his return to Scotland, he arranged for publication tables of the genealogies of Hindu dynasties and other remarkable personalities, extracted from the Puranas and other sacred writings by his Pandit. These were published in 1819.⁵ Only 50 copies were printed, one of these is in the library of the Asiatic Society of Bengal.

As soon as these works were completed Hamilton arranged for publication the most sustained and notable of his zoological works, the account of the Gangetic fishes." In this treatise Hamilton has embodied the observations of nearly 20 years. His attention was first given to Indian fishes in 1796; his studies were carried on with hardly a break till the end of 1799; they were renewed while he had charge of the menagerie at Barrackpur during 1804-05, and were continued while he was engaged in the Bengal Survey of 1807-14. The numerous drawings made at Puttaha and at Baruiipur were his own property and there is reason to believe that copies of the Barrackpur drawings were also at his disposal. Those made between 1807-14 were, under circumstances already dealt with, taken from him, so that the volume of plates accompanying the text is less complete than it otherwise might have been.

M'Clelland says that Hamilton's specific descriptions are so obscure as to render the task of identifying individual species most difficult and uncertain, and implies that

¹ Account of the mine or quarry of Corundum in Singraula: *Edinh. Phil. Journ.* ii. 1820.

* An account of the Jansī, or Vallisneria spiralis of Dr. Roxburgh, the plant used in India in refining sugar: *Edinh. Journ. Sci.* i. 1824.

» Description of a plant (*Beta bengalensis*) well known in Bengal as a common green vegetable (*Olus*) and of another nearly allied to it: *Edinh. Journ. Sci.* vii. 1827.

* Notice respecting the Vanderon Monkey, or the Guenon a favourite pet of Buffon: *Edinh. Journ. Sci.* vii. 1827.

» *Genealogical Tables of the Deities, Princes, Heroes and Remarkable Personages of the Hindus*, extracted from the sacred writings* of that people. With an Introduction and Index. Edinburgh: 1 vol. fol. 1819. *Genealogie of the Hindus*, extracted from their sacred writings. Edinburgh: 1 vol. 8vo. 1819.

⁶ *An Account of the fishes found in the River Ganges and its branches*. Edinburgh: 1 vol. 4to. With a volume of plates; 1 vol. Royal 4to. 1822.

Cuvier found the same difficulty in dealing with those fishes not illustrated by drawings. But, in a letter written by the late Mr. J. B. Hamilton of Leny, Hamilton's son and successor,¹ there is a reference to an interview with Dr. Giinther who, speaking of this work on the fishes of the Ganges, informed Mr. Hamilton that—

"ha always kept it on his tabb for reference, a3 he had implicit reliance on it as an authority, for it was the work of one who recorded in absolute truthfulness the results of his own observatioa and nothing more or else."

While this work was passing through the press Hamilton, as we have seen, was engaged in preparing the catalogue of his 1807—14 botanical collection, which unfortunately was never published, though the preliminary sketch, intended evidently as an introduction to a series of botanical papers corresponding to the geographical series which he did succeed in completing, was read before the Royal Society of Edinburgh on 18th June 1821. In this paper he incidentally summarises his own Indian journeys and gives a valuable general sketch of the physical, botanical, historical and political jreDgraphy of India.* The geographical treatment was intended to provide a key to the localities be might subsequently cite, and the references to his own journeys were made in explanation of the circumstances under which the different coilestions were procured, and of the places in which they might be consulted. The necessity for such a key arose from his determination to employ their ancient Sanskrit names for the provinces he had explored. This determination was due to his considering the method at once more scientific and more useful, because probably more permanent, than auy other. There is much to be said in favour of his deiiga though it has not been adopted by subsequent Indian botanists. As Hamilton very justly says, the Sanskrit names of localities continue, after the lapse of ages—

"to be known to all Hindus of learning, while each new invasion or revolution sinks into immediate oblivion the nkaown appellations imposed by modern ruUrs, whether Muhammadaas or Christians."

The Bottled system of Government that has prevailed since Hamilton wroto has made the system adopted by him less immediately necessary, but we can only congratulate ourselves that Hamilton should have formed the resolution he did, since it has bam the means of giving us, in the excellent map of 'India according to the ancient divisions used in the Sanskrita language' the first western attempt to illustrate cartographically the old Hindu geography, and haa moreover given us an attempt so satisfactory that it has not since required any serious modification.

The impossibility of getting access to the collections of specimens and drawin s that the Court of Directors had given to Banks or that he himseif had given to Smith² and the absence of the corresponding drawings from the later botanical collections the use of which was permitted by tue Court, diverted Hamilton from his original design and led him to devote his energies instead to the preparation of commentaries on th« works of Eheede³ and Rumphius.⁴ He seems to have begun the two commentaries

¹ Letter dated Leny, March 24, 1891, addressed to H. Bereridge, Esq., Eastbourne.

² Some notices concerning the plants of various parts of India, and concerning the Sanscrit* BUQM of those Begiana: *Trans. Roy. So. Edinb.* s. 171: 1826.

³ Kheede: *Borlm Indiciu Malabaricus.* 12 Tols. fol. Amsterdam: 1678—1703,

⁴ Rumphius: *Herbarium Anboixeme.* 6 vols. fol. Amsterdam: 1730.

simultaneously about 1821, but about 1823 he laid aside Rumphius after having dealt with the two first books and concentrated his attention on Rheede. With the latter his progress became more rapid, for he had finished the tenth volume early in 1826, and sent the manuscript of the last part of the work to the Linnean Society of London in 1828.

It was perhaps unfortunate that a writer of Hamilton's calibre should have devoted himself to so thankless a task as he set before himself. Yet his object in taking it up is very evident. We are apt now-a-days to forget the extent to which the figures of Rheede and Rumphius form the basis of species and even genera recognised by Linnaeus, Lamarck and other less influential exponents of the binominal method of nomenclature. The conflicting views held regarding the plants figured in these two works, and the often extraordinary identifications of the plates of the two authors, suggested in the seclusion of European herbaria by the botanists of the latter half of the eighteenth century, were only too distracting to the ordinary field worker in India and Malaya; and the serious attempt made by Hamilton to satisfactorily elucidate these two books, then considered and treated as fundamental, strikes us now as a singularly public-spirited act. He certainly brought to the task the three essential qualities of scholarship, cultivated observation, and wide personal knowledge; all that was lacking for the successful accomplishment of his design was sympathy on the part of those whom he desired to benefit.

To the *Hortus Malabaricus* Hamilton devoted about six years of his valuable life.¹ The discussion of the first book was published in 1822 by the Linnean Society; that of second appeared in 1825; that of the third in 1827; that of the fourth was not published till 1867.

The delay in publishing the fourth part till ten years after the manuscript reached the Society appears to have been due to the same cause that led to the disappearance of Lambert's Hamiltonian specimens. The distribution of the great Wallichian Herbarium in 1828 led to the idea that Rheede and Rumphius were now of minor importance. A year later Dillwyn, who had for some years been endeavouring to ascertain the names of the plants figured by Rheede, and for this purpose had consulted the libraries and collections in London, printed privately a review of the references to Rheede's work.² This public-spirited action, instead of stirring the Linnean Society's council to a sense of their duty to their Indian and Malayan fellow workers, had the unlooked for result of putting an end altogether to the publication of Hamilton's work. Dillwyn, as he tells us, had access to Hamilton's unpublished manuscripts, and it seems to have been supposed that Dillwyn's references made further publication of Hamilton's work unnecessary. However, Dillwyn's list, excellent as it is, does not pretend to be much more than an improved Dennstedt,³ and the decision to suppress the greater part of Hamilton's *Commentary*, though doubtless it seemed wise and necessary to the council of the Linnean Society at the time, has been a source of keen regret to botanists in India ever since.

> A commentary on the *Hortus Malabaricus*: I. *Tram. Linn. Soc.* atiii: II, *Trans. Linn. Soc.* xiv: III. *Trant. Linn. Son.* XT: IV. *Trans. Linn. Soc.* xrii.

¹ A review of the reference! to the *Hortus Malabaricus* of Henry van Rhatit van Draakenitein. 1 vol. Svo. Strauses 1339: not published. The preface is dated Dec. 25, 1838.

¹ Dennstedt: *Schlueud san Hwtut Indicut Malubaricut*. 1 TOI. 4to. Weimer : 1*13.

The corresponding commentary on Rumphius was published by the Wernerian Society of Edinburgh.¹ The first part appeared in 1824; the second, which we know was completed before February 1826, was published sometime between 1826 and 1831. There is nothing to show that more of the work was ever written; probably not. The original rough comments, as Hamilton explains in one of his letters, it was no. n the £.cks of the plat3.s of the copy of Rumphius which belongs to the "CakutVoarden Library; on the , Calcutta copy of Rheede he has written no

Hamilton's claim to represent the house of Buchanan of Buchanan was publicly t.d and tried in 1826-28 and may therefore be included among his publications.³ h^onlv other paper for which he is believed to have been responsible during his V^time, is one that was actually published after his death in the *Edinburgh Sew Philosophical Journal*.³

In 1831 an attempt was made in Calcutta to publish in their entirety Hamilton's reports¹¹ regarding the Bengal Survey. Captain Herbert, editor of *Gleanings in Science*, being anxious to increase the local as opposed to the general interest of his excellent journal asked for permission to publish Hamilton's manuscript. The plan suggested was to print a certain number of pages, not fewer than eight at one time, -with a separate pagination, along with each number of the *Gleanings*. Government readily granted the request and the manuscript, of the 1807 or Dinajpur report was made over to Herbert by Mr. Swinton, then Chief Secretary, for the purpose. When the publication of *Gleanings in Science* ceased and the newly founded *Journal of the Asiatic Society of Bengal*, under the editorship of James Prinsep, took its place, Prinsep con...uejjert's idea and completed the issue of the Dinajpur journal. The separate portions were provided with a title page, etc., and became available as a complete work in 1833.⁴

In this edition of the Hamilton manuscript nothing was omitted, even the references to drawings were left as they stood, although the drawings themselves had been sent home to the Court of Directors without copies having been kept. The hope of the editors, Herbert and Prinsep, was that even if the Court were unable to publish the original manuscript, they might publish the drawings.

The determination how far it was advisable to continue the publication of the accounts of the other districts surveyed, was made dependent on the amount of immediate interest which the Dinajpur one might command. The Anglo-Indian community in 1833 was much like the same community in 1804; no more of the work appeared.

In 1838 the records left by Hamilton were at last made available in a connected form. Permission was given by the Honourable Court of Directors to a Mr. Robert

¹ Commentary on the Herbarium Amboinense: *Mem. Wern. Soc. Edm.* v. (part 1) and vi (part 2). From the manner in which the reference to part 1 is given (read Uth Jun,? 1823, etc) it appears as if the paper may have been read by instalments.

² *Francis Hamilton Buchanan of Spinal to be considered the chief of the name as most representative of the family of Buchanan of Buchanan.* 1 vol. Kdinbu-gh: 18*.

³ A Uniformity of Climate prevailed over the earth prior to the time of the Deluge?: *Edinb. Phil. Journ.* TM * *Geographical, Statistical and Historical Description of the District, or Zila, of Binajpur in the Province, or Soubah, of Bengal.* 1 vol. 8vo. Calcutta: 1833.

Montgomery Martin to 'collate' from the original documents at the East India house a work on Eastern India, which is found when critically examined to consist of Hamilton's reports of the Bengal Survey with those parts left out which the collator did not understand or which did not interest him.¹ Day found the allusions to Fish and Fisheries, one of Hamilton's favourite subjects, so casual in Martin's edition that they were useless both from the scientific and the economic point of view. With exemplary piety he printed *verbatim*, with an introduction and explanatory notes of his own, Hamilton's original account of the Bengal fisheries.² The same is equally true of the allusions to plants and vegetation; unfortunately no one has had the time to do for these what Day has done for the fishes. Beveridge on the other hand finds that Martin has left out much less that is of value in the historical or antiquarian chapters,³ though he has been able to contribute a series of most interesting passages omitted by Martin.* Martin's edition of the work is marred by an unsuitable introduction and a somewhat tedious dedication; the title-page⁵ is distinguished by the absence of the author's name and the substitution of Martin's own. This substitution has given rise to many severe remarks, but the writer agrees with Beveridge in believing that the procedure was a simple act of folly, and that Martin had no intention either of passing off the work as his own or of depriving Hamilton of the merit of having written it. If, however, we can with Beveridge acquit Martin of anything more serious than stupidity as regards his title-page, we must admit that Martin had extremely rudimentary ideas of the duties of an editor, and that his work in this direction is as primitive and unsatisfactory as Hunter alleges it to be. This, however, is only a misfortune and, as Beveridge says, 'one is disposed to feel grateful to Mr. Martin for having done something.' In one respect, however, Martin's conduct was truly criminal; he provided no index for the work.

The following list exhibits in chronological sequence the various publications referred to in the foregoing paragraphs:—

1. De Febribus intermittentibus medendis. 1 vol. Edinburgh: 1783. Graduation Thesis; M.D.
2. Description of the tree, called by the Burmas Launzan. *Ashtick Eesexichet* v. 123: 1798.
3. A comparative Vocabulary of some of the Languages spoken in the Burma Empire. *Asialick Researches* v. 219: 1798.

¹ Hunter: *Imperial Gazetteer of India*, \L p. 205, footnote.

² Fish and Fisheries of Bengal; edited, with an introduction and notes, by Surgeon-Major Francis Day, Inspector-General of Fisheries in India: *A Statistical Account of Bengal*, xx. 1877.

* Beveridge: *Calcutta Review* for July 1894.

³ Beveridge: *loc. cit.* The passages include the following: *Discovery of two statues in the Ganges near Palna: the Panchpahari at Patna: the worship of Buddha, as a Hindu goddess, at Patna; Notes on temples at Patna and Goya; a short account of an old fort called Lakragar; the Pal Rajaht: Notes on the ruins of Tāngra: Origin of the caste of the Sarvariya: the Eosi.*

⁴ *The History, Antiquities, Topography, and Statistics of Eastern India, comprising the districts of Behar, bhah-ibad, Bhagalpoor, Goruckpoor, Dinagepoor, Puraniya, Rungpoor and Assam,- in relation to their Geology, Mineralogy, Botany, Agriculture, Commerce, Manufacture*, Fine Arts, Population, Religion, Education, Statistics, etc., turvytd under the orders of the Supreme Government, and collated from the original documents at the East India Home with the permission of the Honourable Court of Directors, by Montgomery Martin.* 3 vols. 8TO. London: 1838.

4. On the Religion and Literature of the Burmas. *Asiatic* Researchs* vi. 1799.

5. [Note on the Rivers of Bur.na.] Symes: *An Account of an Embassy to the Kingdom of Ava*, 241: 1800.

6. Descriptions of Rare and Curious Plants selected by the President of the Royal Society. Symes: *An Account of an Embassy to the Kingdom of Ava*, 473: 1800 — The drawings were by Buchanan, the actual descriptions are said by Symes to be [the work of Banks.

7. An Account of the *Oncidium*, a new genus of the class of V. in Bengal. Read 5th June, 1798. *Transactions of the Linnean Society*

8. Description of the *Vespertilio plicatus*. Read November 5, 1799. *Transactions of the Linnean Society* v. 261: 1800.

9. *Utricularia reticulata* [edited by J. E. Smith in] *Exotic Botany* ii. p. 119; t. 119: 1805.

10. [Figures and Descriptions of Nepal Plants, edited by J. E. Wirt. *Exotic Botany* ii. p. 73, tt. 97-101; p. 95, tt. 107, 108; p. 107, tt. 109-117. The species figured are:—97. *Epitenirum pmcox*; 98. *Epidendrum humile*; 99. *Plectanthes pectinate*; 100. *Orchis gigantea*; 101. *Begonia picta*; 102. *Home* purpurea*; 103. *Androsace rotundifolia*; 104. *Androsace coronaria*; 105. *Colebrookia oppositifolia* (*Buc/ianania oppomifolia* on plate and in Ilamiltou's manuscript); 106. *Leucosceptrum canum*; 107. *Leucosceptrum racemosum*.

11. A journey from Madras, through the countries of Malabar, performed under the orders of the Most Excellent Governor-General, for the express purpose of investigating the state of Agriculture, the Religion, Manners and Customs, the Natural and Civil History, in the Dominions of the Rajah of Mysore, and the Honourable East India Company in the late and former *Edinburgh Review*, October 1804.]

Account of the Manufactures carried on at Bangalore and by the Natives in dyeing Silk and Cotton. *Philosophical Magazine* 1808. [Reprinted by A. Tilloch from the above.]

Machines for Irrigation. *Gleanings in Science* i. 275. Imprinted by Captain Herbert from the above. Second edition. 2 vols. 8vo. Madras: 1870.

12. An Account of the Kingdom of Nepal and of the this Dominion by the House of Gorkha. 1 vol. 4to. Edinburgh *Magazine*, July 1852.]

Prodromus Florae Nepalensis, sive Enumeratio Vegetabilium per Nepaliam propriè dictam et regionos conterminali, legit D. D. Franciscus Hamilton (olim Buchanan) M. D. Societatis Regiae Societatis et Linnæi naturalis normiam dispobuit atque descripsit David Don. I. London: 1825.

Elucidation of some plants mentioned in Dr. Francis Hamilton's account of the Kingdom of Nepal. By Lieutnant-Colonel Midden. *Transactions of the Society*, Edinburgh, 1858.

13. Notice of the Progress of Botanical Science in Bengal, being the substance of a letter from Dr. Wallich, Superintendent of the Botanical Garden near Calcutta, to Francis Hamilton, M.D., F.R.S., & F.A.S., L. & E. *Edinburgh Philosophical Journal* i. 376: 1810.—This paper is accredited, in the Royal Society's catalogue, to Wallich. It is, as a matter of fact, a review of a letter from Wallich, with comments by Hamilton.

14. Genealogies of the Hindus extracted from their sacred writings. 8vo. Edinburgh: 1819.

15. Genealogical Tables of the Deities, Princes, Heroes and Remarkable Personages of the Hindus, extracted from the sacred writings of that people. With an Introduction and Index. Fol. Edinburgh: 1819.

16. Description of the Diamond Mine at Panna. *Edinburgh Philosophical Journal* i. 49: 1819.

17. Account of the Mine or Quarry of Corundum in Singraula. *Edinburgh Philosophical Journal* ii. 305: 1820.

18. An Account of Asam with some notices concerning the neighbouring territories. *Annals of Oriental Literature* 244. 1820.

19. Account of a Map of the Countries subject to the King of Ava, drawn by a slave of the King's eldest son. *Edinburgh Philosophical Journal* ii, 89 and 2(j2): 1820.

20. Account of a Map of the Route between Tartary and Amrapura. *Edinburgh Philosophical Journal* iii. 32: 1820.

21. Account of a Map of the Country north from Ava. *Edinburgh Philosophical Journal* iv. 76: 1821.

22. Account of a Map, constructed by a native of Taunu, of the Country south from Ava. *Edinburgh Philosophical Journal* v. 75: 1821.

23. Account of Water-spouts observed at Sea on Voyages to and from India. *Edinburgh Philosophical Journal* v. 275: 1821. [*Annal, de Chimie* xix. 70: 1821. Gilbert: *Annal.* lxx. 104: 1822.]

24. Account of an extraordinary appearance of the Sea observed 31st July 1785, in a voyage from Johanna to Bombay, long. 61° 25' E., lat. 1° 32' 2". *Edinburgh Philosophical Journal* v. 303: 1821.

- 25. An Account of the Fishes found in the River Ganges and its branches. 4to. With a volume of plates, Royal 4to. 2 vols. Edinburgh: 1822.

26. Account of a map of the country between the Erawadi and the Khisendusén rivers. *Edinburgh Philosophical Journal* vi. 107: 1822.

27. Account of a map, by a slave to the Heir Apparent of Ava. *Edinburgh Philosophical Journal* vi. 270: 1822.

28. An account of the map of the Tarout Shan Territory. *Edinburgh Philosophical Journal* vii. 71: 1822.

29. Account of a map of the vicinity of Pankgan or Pagan. *Edinburgh Philosophical Journal* vii. 230: 1822.

30. A Commentary on the Hortus Malabaricus, I. *Linn. Soc. Trans*, xiii. 474: 1822. II. *Linn. Soc. Trans*, xiv. 171: 1823. III. *Linn. Soc. Trans*, xv. 78: 1827. IV. *Linn. Soc. Tram.* xvii. 147: 1837. [Oken; *Iris* xxi. col. 180: 1827: Dillwyn: *A review of the References to the Hortus Malabaricus of Ilenry van Rhcede vxn JJraakenslein*, 1 vol. Svo.

Swansea: 1839—not published.]—This work was finished in 1821; we learn from Dillwyn, who has made full use of Hamilton's text, that the remainder of the unpublished MSS. was, when he wrote, in the library of the Linnean Society of London.

31. Account of a map drawn by a native of Dawae or Tavay. *Edinburgh Philosophical Journal* ix. 228: 1823.

32. Commentary on the Herbarium Amboinense, I. *Memoirs of the Wernerian Society of Edinburgh* v. 307: 1823-4. II. *Memoirs of the Wernerian Society of Edinburgh* vi. 268: 1826—31.—Whether this work was ever completed is doubtful; the Wernerian Society, which afterwards became absorbed in the Edinburgh Botanical Society, published the commentaries on the two first books. If more was written, this must have been after the completion of the *Hortus Malabaricus*, and the whereabouts of the MSS. is unknown.

33. Account of two maps of Zaenmae or Yangoma. *Edinburgh Philosophical Journal* x. 59: 1824.

34. An account of the map of Koshanpri. *Edinburgh Philosophical Journal* x. 247: 1824.

35. An account of the Janji, or *Vallisneria alternifolia* of Dr. Roxburgh, the plant used in India in refining sugar. *Edinburgh Journal of Science* i. 34: 1824.

36. Account of a map of Upper Laos, or the Territory of the Lowa Shan. *Edinburgh Journal of Science* i. 71: 1824.

37. An Account of a genus including the *Herba Toxicaria* of the Himalayan Mountains, or the plant with which the natives poison their arrows. *Edinburgh Journal of Science* i. 249: 1824. [Madden: *Trans. Bot. Soc. Edinb.* v. 1858; Stapf: *Ann. Roy. Bot. Gard. Calcutta* x. part 2. 1904.]

38. Account of a map of the Kingdom of Pegu. *Edinburgh Journal of Science* i. 267: 1824.

39. Observations on Mun Kokhosee [Munco-Khoshee] (dated Katumanda, 10th and 14th November 1802). *Roxburgh, Flora Indica*, ed. Carey and Wallich ii. 415: 1824; *Roxburgh, Flora Indica*, ed. Carey i. 631: 1832. [Carey in *Roxburgh*, ed. 1824 I. c]

40. Account of a plant allied to the genus *Piper*. *Edinburgh Journal of Science* ii. 9: 1825.

41. An account of the Frontier between Part of Bengal and the Kingdom of Ava. *Edinburgh Journal of Science* ii. 49: 1825.

42. An account of the Frontier between Ava and the Part of Bengal adjacent to the Karnaphuli River. *Edinburgh Journal of Science* iii. 32: 1825.

43. An account of the Frontier between the Southern part of Bengal and the Kingdom of Ava. *Edinburgh Journal of Science* iii. 201: 1825; iv. 22: 1826.

44. Some notices concerning the Plants of various parts of India, and concerning the Sanscrita names of those Regions (read June 18, 1821). *Trans. Roy. Soc. Edin.* x. 171: 1826. *Flora* ix. 689: 1826; Froriep: *Notken* xi. col. 97: 1825; *Calcutta Review*; for July 1894.]—This paper forms the basis of most of the notices of Buchanan's Indian career.

45. Inscription upon rocks in South Bihar, described by Dr. Buchanan-Hamilton, and explained by H. P. Colebrooke, Director (read December 4, 1821). *Trans. Roy.*

As. Soc. i. 201 : 1826.—[Beveridge in *Calcutta Review*, July 1894.] Extracted by Colebrooke from the original Buchanan manuscript in London.

46. Descriptions of Temples of the Jainas in South Bihar and Bhagalpur. *Trans. Roy. At. Soc.* i. 523: 1826.—Edited by H. T. Colebrooke, from the original Buchanan manuscript in London.

47. On the Sravacs or Jains. *Trans. Boy. As. Soc.* i. 531 : 1820. Edited by H. T. Colebrooke, from the original Buchanan manuscript in London.

48. Claim of Dr. Francis Hamilton Buchanan of Spittal to be considered the chief of the name as male Representative of the family of Buchanau of Buchanan. 1 vol. Edinburgh: 4826.

49. Description of a plant of the order Guttiferae, which Dr. Roxburgh called *Garcinia pedunculata*. *Edinburgh Journal of Science*, vii. 45 : 1827*

tO. Notice respecting the Vanderon Monkey, or the 'Guenon a face pourpre' of Buffon. *Edinburgh Journal of Science* vii. 60 : 1827.

51. Description of a plant (*Beta bengalensis*) used in Bengal as a common green vegetable (*Olus*). and of another nearly allied to it. *Edinburgh Journal of Science* vii. 244 : 1827.

52. Description of the ruins of Buddha Gaya, by Dr. Francis Buchanan Hamilton, M.R.A.S., extracted from his report of a survey of South Bihar (read May 5, 1827). *Trans. Roy. As. Soc.* ii. 40: 1830.—Extracted and edited by H. T. Colebrooke, from the original Buchanan manuscript in London.

53. Manner of Hunting in District Dainajpur. *Gleanings in Science* i. S74 : 1829.—Extracted by the editor of *Gleanings in Science* from the Calcutta copy of the Buchanan manuscript.

54. A Uniformity of Climate prevailed over the Earth prior to the time of the Deluge? *EHnb. New. Phil. Journ.* viii. 366 : 1830.—This article is incorrectly cited as to title in the *Roy. Soc. Cat. of Sc. Papers*. The authorship is not formally claimed ; no name is given in the list of contents or with the title of the paper; the signature is simply H—N.

55. Observations on the structure of the fruit in the order Cucurbitaceae (read 4th February 1828). *Trans. Roy. Soc. Edinb.* xi. 229 : 1831.

56. On the Minerals of the Rajmahal cluster of hills. *Gleanings in Science* iii. 1 : 1831.—Extracted by the editor of *Gleanings in Science* from the Calcutta copy of the Buchanan manuscript.

57. A Geographical, Statistical and Historical Description of the District, or Zila, of Dinajpur in the Province, or Soubah, of Bengal. 1 vol. 8vo. Calcutta : 1833.—Printed and issued with the monthly numbers of *Gleanings in Science* and afterwards of the *Journal of the Asiatic Society*, the former under the editorship of Herbert and the latter under that of J. Prinsep.

58. Catalogue of Woods peculiar to Goalpara. M'Cosh: *Topography of Assam*, p. 36: 1837.—This list of 90 timbers was drawn up by Hamilton when stationed at Goalpara in 1808, and was sent, along with the corresponding timber-specimens, to Mr. James Kyd, the Honourable Company's Maeter-Builder at Calcutta. When Wallich's Herbarium was taken home in 1828, the timber specimens were, with the permission of the Court of Directors, transferred to the Society of Arts for arrangement and examination. They formed the subject of a paper by Aikin, the Secretary to the Society, entitled *List of Indian Woods collected by N. Wallich, M.D., F.U.S., Corresponding Member of the Royal Institute of France*

and of the Academy of Sciences at Berlin, etc., and of the Society of Arts of London; Superintendent of the Botanic Garden at Calcutta; Trans. Soc. A.S. 439:1831. Aikin, for the sake of the vernacular names and the notices regarding the species, incorporated Hamilton's catalogue in his list, in all cases indicating the source of his information by adding -*TM. M'Cosh, who was directed to prepare an account of Assam in 1837 extracted from Aikin's LU (which Priestley ascribes to all the entries that Aikin indicates as derived from Hamilton's Catalogue, and issued them as being 'a fair statement of the Timbers of Assam')

59. History of Cooch Behar, being an extract of a passage from Dr. Buchanan's account of Rangpur (Rangapura) revised and communicated by Major F. Jenkins, As. Soc. Ben., vii. 1: 1838.-Extracted by Major Jenkins from the Buchanan manuscript.

60. The History, Antiquities, Topography and Statistics of Eastern India comprising the districts of Behar, Shahabad, Bhagalpoor, Goruckpoor, Dinapore, Purania, Rungpoor, and Assam; in relation to their Geology, Mineralogy, Soil, Agriculture, Commerce, Manufactures, Fine Arts, Population, Religion, Education, Statistics, etc., surveyed under the orders of the Supreme Government, and collated from the original documents at the East India House with the permission of the Honourable Court of Directors, by Montgomery Martin. 3 vols. 8vo. London- 1838 — The 'original documents' in question are Buchanan's manuscript journals. The 'collation' referred to consists of those passages in which Martin was not interested, or which he did not appreciate. [Quarterly Review, No. cxxvi. vol. 1. Calcutta Review, July 1894.]

61. The Fish and Fisheries of Bengal [edited, with an introduction and notes, by Surgeon-Major Francis Day, Inspector-General of Fisheries in India; from the India Office copy of the Buchanan Records in.] A Statistical Account of Bengal, 1773-1877

62. [Passages from the Manuscript Record of the Survey of Bengal by Dr. Francis Buchanan, afterwards Hamilton, omitted from the edition by Montgomery Martin.] Calcutta Review. July: 1894.-Extracted by H. Boveridge from the original Buchanan manuscript in London.

The passages are as follows:-i. Discovery of two statues in the Ganges near Patna; ii. The Panchpahari at Patna; iii. The worship of Buddha, as a Hindu Goddess at Patna; iv. Notes on temples at Patna and Gaya; v. Notes on Inscriptions in the district of Shahabad; vi. A short Account of an old Fort called Lakragar; vii. The Pal Rajahs; viii. Note on the Ruins of Tangra; ix. Origin of the Caste of the Sarvariyas; x. The Kosi.

8. CONCLUSION.

There unfortunately appears to be no extant portrait of Francis Hamilton and the only clues to his personal appearance are some stray allusions in his letters and the necessarily vague reminiscences of his son and successor the Hon. Hamilton, Esq., who was quite a child when his father died. In a letter dated March 1894, Mr. Hamilton writes.—

"My personal recollection of him is that he was a tall man with a very white hair."

» At Ltny there are portraits of Hamilton's mother a very handsome lady with intellectual face, and of his brothers, Colonel John Hamilton and Kobort Buchanan, Esq., but none of him self

From Hamilton's letters we gather that between the ages of 35 and 40 he was inclined to become stout. Whether this tendency was temporary or remained permanent is not recorded.

Hamilton's capacity as a public servant may be deduced from the estimate which Roxburgh, an excellent judge of character, had formed. Roxburgh recommended Hamilton's selection as surgeon and naturalist to accompany the Ava mission; there is no indication that the actual appointment was probably secured for him through the influence and interest of Sir James Murray. But we know that Hamilton was the subject of remarks in letters that passed between Roxburgh and Banks, Smith, and other scientific friends in Britain, and it is not improbable that Smith, perhaps also some of Roxburgh's Edinburgh acquaintances, may have provided Hamilton with letters of introduction and recommendation to Roxburgh when he entered the Company's service in 1794. However this may be, it is clear that Hamilton had made Roxburgh's acquaintance before he left for Burma, and that a warm friendship sprang up between the two men during Hamilton's period of residence at Puttaha after his return from Ava. We know, too, that Roxburgh showed his practical interest by endeavouring to obtain a place for Hamilton in a projected Philippine expedition in 1807, when the latter had explained that his position at Puttaha was uncomfortable. In this application Roxburgh was not successful, but he did succeed in having Hamilton deputed for special service to investigate Chittagong and in obtaining his transfer from Noakhali to the 24-Pergunnahs. We find also that Hamilton was primarily indebted to Roxburgh for the opportunity of carrying out the Mysore Survey, an undertaking which, among other things, brought him the personal acquaintance of the Marquis of Wellesley. Again, it was to Roxburgh that Hamilton was indebted for his recall from the Nepal mission when it was obvious that he could do no more useful work there. This recall gave Hamilton the opportunity of joining the staff of the Governor-General; here his previous acquaintance with Lord Wellesley ripened into a mutual friendship which endured for the rest of Hamilton's life.

The feelings entertained by Lord Wellesley towards Hamilton are shown in many ways; perhaps the strongest evidence of the Governor-General's regard is to be seen in the fact that among Hamilton's papers, in the possession of his family, are drifts of memorials or reports in which he had been requested to submit his opinions, among other matters, as to the conduct of contemplated campaigns, as to the annexation of territories, and even as to the colonisation of New Zealand! But we see the same regard displayed in the letter of welcome addressed to Hamilton on his return to England in 1815, and in the fact that Lord Wellesley subsequently invited Hamilton to join his staff in Ireland. There is, however, further evidence of the feelings with which the Marquis of Wellesley regarded Hamilton, in his Lordship's reply to the request of the latter for permission to dedicate his *Account of the Kingdom of Nepal* to his former chief. The letter, which is dated Richmond, December 27, 1817, is given below:—

"I have been wandering so much for several months past that I have not been able to return early an acknowledgment of your obliging letter as was demanded by its tenor and by my sincere and warm sentiments of respect and gratitude towards you.

I accept the honour which you propose to confer upon me, with a deep sense of its value. No part of my Government affords me more matter of satisfactory reflection than the opportunities of which I availed myself to render your talents and knowledge useful to the world. In discharging

this duty, the intimate acquaintance and friendship *which* was established between us enabled me to appreciate the integrity, independence, and frankness of your character, and the manly spirit of truth and honor which animated your intercourse with all persons in power.

These advantages furnish me with the certain means, not only of anticipating the high success which must attend your work, but of estimating the benefit which must accrue to my reputation from your public declaration of our mutual esteem.

Be assured that I take a strong interest in your happiness and welfare, and rejoice in the ease and comfort of your situation.

If you should approach London, I hope to see you at this place, where you will always find the most friendly reception from, dear Sir, your most faithful and obliged servant."

It is often said that the Court of Directors suppressed Hamilton's journals and reports relating to the survey of Bengal. It certainly is unfortunate, as the editorial preface to the attempt to publish them from the Calcutta copy in 1833 says__

"that those valuable documents were not given to the public when stamped with the interest of originality and immediate applicability to the actual circumstances of the districts, and when they would have proved of great utility to the public officers of Government."¹

This one immediately admits, and one is constrained further to regret that the public interest in the reports proved to be so slight that it was not considered advisable by the Government of Bengal and the Calcutta Editors to continue the series beyond the first, or Dinajpur, report.

The Court of Directors perhaps only anticipated what the Calcutta editors themselves experienced; at any rate the accusation that the reports were suppressed either because they were deemed of no value or because they contained matter which it would be dangerous to publish,² may be dismissed at once. The only danger that could conceivably arise must have been with regard to transfrontier information; yet the bulk of this Hamilton was, as a matter of fact, allowed to publish in his accounts of Nepal and Assam. That the Court did not depreciate the value of the documents is clear; even at the time when Hamilton complains of the arrogance and contempt shown towards his collections there is no suggestion that this feeling was exhibited towards his reports. On the contrary we find that the Court gave full permission to Walter Hamilton to consult the whole, and to incorporate as much of the topographical and statistical information that they contained as was necessary for his purpose in his work on Hindustan;³ this information is there always fully acknowledged. We find too that the Court gave full permission to Colebrooke to publish any extracts he might care to edit for the Royal Asiatic Society's *Transactions*. That any thin sinister, or indeed that anything careless, underlay the long suppression of these manuscripts is therefore not only unproven but improbable. In all likelihood the question was mainly a financial one, and while one may regret the circumstance, there is little doubt that the Court deemed it impossible at the time to vote the funds required to meet their publication. It will be noticed that when in 1800 Hamilton was

¹ Account of Dinajpur, Editorial preface.

* Higginbotham; *Men India has known*, p. 42.

»Walter Hamilton: *A Geographical, Statistical and Historical description of the countries. In two volumes*. 3 VOIB., 4to. London: 1820. In his *East India* author cites* freely Hamilton's Mysore journal. " " " Qasetteer published in 1815 this

given his collections for arrangement and publication, there was no suggestion that the Court should assist in publishing Hamilton's results; these were to appear in the form of papers 'in such journals as might accept them,' a circumstance that is in keeping with the suggestion made regarding the manuscripts.

It has also been suggested that it is singular that Hamilton did not make more persistent efforts to have his reports made use of.¹ Before, however, forming an opinion on this aspect of the question it is necessary to recall what Hamilton actually did. We have already seen what his publications were; it may throw light on this suggestion that the fault was Hamilton's own, if we examine the principle that underlay his action.

Considering the extent and the methodical nature of his observations Hamilton had published remarkably little before he retired. When he reached England he therefore had much material that called for publication. Some of this material, for example his Hindu genealogies, we know was prepared for issue while he was in India, and practically all that had to be done was to find a publisher and send the manuscript to the press. Other portions, such as the accounts of Nepal and Assam, must also have been nearly ready for publication before he left India, for they were issued soon after Hamilton's return to England. Still other parts appear to have only existed in the form of notes or journals which required to be revised, collated with subsequent notes, and edited.

The publication of his *Account of Nepal* in 1819 exhausted the general information he could give with reference to his fourth survey, just as the appearance of the Mysore journal in 1807 exhausted the general information he could give regarding his third survey. But when in 1819 he had completed the issue of the works mostly written and arranged in India, and could turn his attention to his other notes and journals, there still remained to be dealt with not only the results of the final or Bengal survey but those of the Chittagong survey and much of those of the Ava survey. It was only natural that he should attempt to clear off the Ava and Chittagong materials before he dealt with the Bengal ones; and as regards the Bengal results, which, in accordance with the instructions under which he had acted, included information obtained regarding countries beyond the Company's frontiers, it was not only natural but proper that he should try to clear off the outlying transfrontier notes before attempting to edit the Bengal results. Accordingly we find that he dealt with the transfrontier results of the Rangpur survey in a separate work on Assam; incorporated the transfrontier results of the Purnea and Gorakhpur surveys in his work on Nepal; made his observations in, or information obtained from the Panna State and from Singraula the subject of separate papers; dealt exhaustively with the geographical results of his Ava journey and codified the results of his Chittagong deputation; finally, cleared off such notes as he deemed worthy of publication from the journals kept or observations recorded during his voyages of 1785-91, of 1805-6, and of 1815.

As regards the whole of the surveys and travels prior to the Bengal series, he was greatly handicapped by the absence of his botanical collections, which had found their way into the herbaria either of Banks' or of Smith, and had thus become practically inaccessible to him. He had as a matter of fact prepared a systematic account of the vegetation of Burma which he gave to Banks, but which Banks

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¹ Bereridge: *Calcutta Review* for July 1894.

suppressed; and had at least contemplated the Drenamt;™ the vegetation of Mysore, which the publishers' T Z Mys« C f " ^ u of to accept on the score of its expense. Whether he ~, t * iten. ieu * o ^ ** " * " by Nepal is not clear, at all events he was reievod o / i is as t oWing lo Don having undertaken it. Bat it is clear that t_i t ..on / . T ? ^ ^ to the fact that economic references to natural prod" ts are vZ T ? ^ ^ to the fact accompanied by a full systematic J d t ^ ^ ' T ^ " 7 " . * * " " ^ them, and it is- evident that he was determinedl to provide he ^ * * ^ foundation for the numerous economic references to the anill T * ? TM 7 ^ ^ ^ mentioned in the Bengal survey reports. and plants that are

To meet the necessity he therefore published his account of ^ n which is the scientific basis of his remarks on the fishes and fished o f T, tic fishes, afterwards edited by Day; and h, prepared the still unpublished c a t a l ^ T, long which is the scientific basis of his references to the vegetation of the v plants, of Bengal that have never yet been adequately editei. That he neve/ r, ou d i T i n s plant catalogue, or dealt systematically with any zoological family save the % h - e was owing to the retention in India of the drawings which related to natural - s - es, made under his supervision during tho Bengal survey. & 18tory

Another circumstance which delayed any attempt by Hamilton himself to d with the body of his Bengal Reports was his having devot?d liis energies to th eal much-needed critical examinations of the works of Rheede and T?nm<v i , - G the first though completed was never published in full, while the second was possibl -- only partially completed at the time of his death. *

On the whole perhaps it was unfortunate that Hamilton devoted his attentio on to the *Hortus Malabaricus* and the *Herbarium Amboinense* so seriou>ly as he did . TT A he given the six or eight years he bestowed on tiis task to the careful editing- of his Bengal journals, which, even in the mutilated condition in which Martin has supplied them, form one of the finest works of the kind that was ever written, we should have been in possession of a masterpiece of Indian statistical and topographical literature. But this cannot now be helped and, however much wo may regret that Hamilton's botanical energies were diverted into the channel which they took, we cannot complain that the non-utilisation of his Bengal reports was duo to any lack of energy on his part. J'robably no one has ever given the whole of his life after retirement more persistently and single heartedly, and with less consideration for money or reputation, to the task of making his observations available to the public than Hamilton did. The pity of the situation, as regards Hamilton's great commentaries, does not lie so much in their preparation as their fate. The *Herbarium Amboinense* we in India miss least, because in the first place Hamilton's identifications are still available in the Calcutta copy of Rumphius, and because, since then Hasskarl has provided an excellent key to the work.¹ But the *Hortus Malabaricus* commentary of which only one-third has been printed, is a continual regret to the Indian botanist for the keys of Dillwyn and Dennstedt, though painstaking and useful, are not the works of men who had the great advantage of an Indian experience

The mistake that Hamilton made, though it is one that w, s perfectly natural, was that he should have sent the Malabar manuscript to London and the Ambo *na one to

¹ Hasskarl : *Keuer Schlüssel zu Eumph's JTe'larium Amboniense* 1 vol. 4to. Clere : 1864

Edinburgh, Had some happy accident led him to reverse their destinations the results would probably have been very different. The study of botany had, as we learn from Hamilton's letters and as we know from other sources, become very unfashionable at the time that he prepared these two works. In England Banks was no longer able, and Smith no longer willing, to stem the tide of philistinism that had set in. Brown had attempted to face the situation but the treatment which the botanical world accorded to his *Prodromus Fbrcc Novce Ilollandice* had so mortified him that he refused to go on with the work. This being the case with the giants who were on the spot, there is little room for surprise that the Linnean Society's council should have been induced to relegate Hamilton's manuscript to a cupboard. In Scotland, as we know, the successful termination of the Napoleonic wars was marked by the same exacerbation of indifference to science in high places. There, however, a few vigorous intellects refused to be disheartened by the conditions that prevailed, and the philistinism so rampant at the time, if it went naked, could hardly, in the presence of men like Brewster, W. J. Hooker, Greville and a few others, walk wholly unashamed. Had Hamilton's manuscript of the *Hortus MaUiharicus* commentary been given to an Edinburgh journal it is highly probable that we should now be in possession of the whole, and even the Linnean Society of London might have given us the two books of the *Herbarium Amioinense* for which we are indebted to the Werneian Society of Edinburgh.

In estimating Hamilton's place as an observer one has to take into consideration the many-sided nature of his interests. The earliest estimate of his powers that we possess is one by the Rev. Dr. Robertson, minister of Callander.¹ "In classical and medical knowledge," says this authority, writing in 1791, "he has few equals, and he is well acquainted with the whole system of nature." Beveridge, it is true, will have it that "Buchanan was not a scholar," but it is necessary in dealing with matters of the kind to define one's terms, and the statement that the author of the 'Map of India according to the ancient divisions used in the Sanskrita language,' and of the commentaries on the works of Rheede and Rumphius, was not a scholar, is one that the writer at any rate, cannot for a moment admit.

That Hamilton was keenly interested in linguistic studies we know not only from the paper on the subject of the Burmese languages in the *Asiatick Researches*, but from an interesting reference in the life of Colebrooke.² It appears that 'in furtherance of the views developed by Sir James Mackintosh' Colebrooke attempted to compile practically useful vocabularies of all the languages spoken in India. In order to obtain the necessary data Colebrooke issued to officers who were considered competent, blank forms to be filled up with vocabularies of provincial languages. Almost the only answer he received was from Hamilton.

Hamilton's interest in the literature, religion and history of the peoples of India was equally real and equally lasting. It is first shown in one of his early papers on Burma, but we find from the papers extracted from his journals and edited by Colebrooke between 1826 and 1830 that it was as keen and direct as ever towards the close of his Indian service, and the publication of his genealogical tables of the Hindu dynasties shows that it continued, after his retirement.

¹ Statistical Account of Scotland: Callander 1791.

² Life of H. T. Colebrooke, by his son Sir T. E. Colebrooke, p. 228.

If Hamilton can be said to have been more eminent and to have done more to advance human knowledge in one branch of science than in another, that science was geography. One has only to allude to his excellent work in Ava, Chittagong, Assam and Nepal as evidence of this; the combined and uniformly appreciative testimony of geographers so eminent as John Crawford, Carl Ritter, Henry Yule and John Anderson renders supererogatory anything that might be said here.

M'Clelland says that Hamilton was professedly a botanist,¹ a statement which may be true; but if this was the case he certainly did not neglect zoology, and there is nothing in his writings to show that he was more interested in, or gave greater attention to, the one science than to the other. The practical testimony of Drs. Day and Giinther as to the quality of Hamilton's zoological observations renders any allusion by the writer to his merits as a zoologist unnecessary.

As regards Hamilton's place among the botanists of India at the close of 18th and the commencement of the 19th century, it is needless to do more than quote the opinion of his ablest contemporary. In a letter to Banks, dated 13th July 1797, Roxburgh says :—

"I have mentioned Dr. Buchanan in the accompanying memorandum. He is a worthy valuable man and no doubt the best botanist in India."

Looking back, as we now can, with all the advantage that a true perspective affords, and with the further advantage of being able to judge by results, we can only entirely endorse Roxburgh's view. In spite of his limitations Roxburgh himself, though not a scholar and though, as his works show, obviously a less critical observer than Hamilton was, has proved himself the greater and more useful constructive worker of the two. But, while this is the case, there is no doubt that, after Roxburgh, Hamilton was the best botanist in India of his day, and we can readily concede that as a botanical critic he was certainly Roxburgh's superior.

Hamilton's knowledge of mineralogy and geology was well abreast of the time in which he lived, as allusions in his letters and as his various papers dealing with these subjects show. He appears, indeed, to have given the same attention to these matters that he gave to zoology and botany.

The change of name from Buchanan to Hamilton has led to some rather oddly illogical results. Cuvier suggested that as Hamilton was best known to naturalists by his earlier name he ought always to be cited as "Hamilton Buchanan" in systematic references. M'Clelland has gone further and has said that Cuvier's suggestion should be adopted because most of Hamilton's publications appeared under the name Buchanan. It is not at all clear that Cuvier was correct in what he said; it is not known, and it is hardly to be supposed, that Hamilton had an extensive personal acquaintance with European workers while he served in the East, and before he changed his name. In any case M'Clelland's remark has been made without due consideration for facts; Hamilton only published two brief zoological papers and one brief botanical one under the name Buchanan, and only one of the journals in which economic, as opposed to scientific, references to natural products appear, was published before Hamilton had to assume his later name.

¹ *Atiatic Besearchet zix. 223.*

Don, who published many of the Nepal species of plants during Hamilton's life-time, always cites him, correctly, as Hamilton. Since then the erroneous and unnecessary practice adopted by zoologists has been followed by botanists who, however, usually cite Hamilton as "Buchanan Hamilton." Why, in deciding to deliberately and conventionally err, the botanist should reverse the error of the zoologist, is not at all clear. The one convention is as needless as the other and both should be dropped.

Hamilton's shrewd sense is shown again and again in his letters, and is perhaps nowhere seen to more advantage than in his early appreciation of the outstanding ability of Sir William Hooker, and in his remarks on other contemporary workers. It is perhaps least pleasantly seen in his estimate of Roxburgh, though even in this instance it was not unjust; as it was only made in a letter to Wallich, the one other person who was as greatly indebted to Roxburgh as Hamilton himself had been for opportunities, at the commencement of his service, which led to his ultimately rendering himself distinguished, there was no danger of its being misinterpreted.

Montgomery Martin, in introducing the first volume of Hamilton's Bengal reports to the public, promised to prepare a memoir of Hamilton's life. But at the close of the third and last volume Martin explains that he had failed to find material for the purpose.

• It is hard to realize that Martin could find nothing, within ten years of Hamilton's death, to aid him in enabling us to form some conception of Hamilton's interesting personality. What was difficult in 1838 is naturally still more difficult now, and we must therefore unfortunately content ourselves with a review of what Hamilton did as some substitute for a picture of what Hamilton was. The writer, however, cannot help feeling selfishly grateful to Martin, since Martin's failure has afforded him this opportunity of performing, as best he might, a pious duty to the memory of his predecessor Francis Hamilton, once Buchanan.

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