SOME NOTICES

CONCERNING THE

PLANTS OF VARIOUS PARTS OF INDIA,

AND

CONCERNING THE

SANSCRITA NAMES OF THOSE REGIONS.

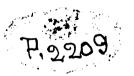
BY

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By Order of the Council,

D. BREWSTER, LL. D. Sec. R. S. E.

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Some Notices concerning the Plants of various Parts of India, and concerning the Sanscrita Names of those Regions. By FRANCIS HAMILTON, M. D. F. R. S. & F. A. S. Lond. & Edin.

(Read June 18. 1821.)

As it is my intention soon to publish, in various works on Natural History, the observations on the Botany of India which I made during my residence there, I wish to place on record an account of the opportunities which I enjoyed of making such observations, with the view of explaining to the Botanist where he may find the various collections which I made in different parts. I also wish to explain the geographical terms that I shall employ, in giving an account of the places where I found each species. For this purpose I prefer using the ancient Sanscrita names, both as being more scientific, and as being more likely to remain permanent; for, after a lapse of many ages, they continue to be known to all Hindus of learning, while each new invasion or revolution sinks into immediate oblivion the mushroom appellations imposed by modern rulers, whether Muhammedans or Christians.

Immediately after my appointment to the Company's Service on the Bengal Establishment, I was sent with Captain SYMES to 'the Court of Ava, and, during the year 1795, I had an opportunity of seeing somewhat of the Andaman Islands, with a good deal of the kingdoms of Pegu and Ava. The plants of the Andaman Islands are nearly similar to those of Chatigang, of which

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I shall give a more full account. Those of Pegu nearly resemble those of the southern and eastern parts of Bengal, while those of Ava bear a stronger resemblance to the productions of Mysore. The reason of this seems to be, that the territory of Pegu enjoys much more copious rains than Ava, which, like the southern parts of what we call Hindustan, is a parched country, and, in order to bring rice to maturity, requires artificial irrigation by means of reservoirs or canals. On the way, however, between Pegu and Ava, where we approached the mountains bordering Arakan on the east, we had a vegetation much resembling that of Chatigang, and of the mountains extending from thence along the eastern frontier of Bengal, which will be afterwards described. The plants, which I collected during this journey, were transmitted, together with a good many drawings, to the Court of Directors, and were given to Sir JOSEPH BANKS, in whose collection they probably remain; but copies of most of the drawings, partly coloured, were preserved by me, and deposited in the Company's Library. I also preserved a copy of the Notes, which I took on the spot, and this will be found in the same collection.

In 1796, 1797, and part of 1798, I was stationed at Lukhipur, in the south-eastern part of Bengal, and in the ancient kingdom of Tripura. My time was there much occupied in describing the fishes of the country; but I took many descriptions of plants, which are also deposited in the Company's Library; but I did not preserve specimens. I corresponded, however, very frequently with Dr ROXBURGH, and transmitted to him whatever he thought would be acceptable, learning, at the same time, what both he and KGENIG called various plants.

In spring 1798, by the desire of the Board of Trade at Calcutta, I visited the district of Chatigang, which, together with that of Komila, formed the chief part of the ancient kingdom of Tripura, and I afterwards skirted the hills of Komila, where the tribe of Tripura still maintains a kind of independence. Here I had a full opportunity of examining the splendid vegetation of the well watered districts of Farther India (*extra Gangem*) which bounds the extensive Gangetic plain on the east, and extends south from what we call China to the Ocean. It must be observed, however, that this Farther India, as it has been called, is the proper China of the Hindus, from whom we derived the word, while, what we name the Chinese Empire, the Hindus call Maha China, or the Great China.

The largest portion of this Farther India, or Southern China, is mountainous and well watered; but its mountains nowhere rise to an alpine elevation, and, owing to a copious supply of moisture, and a deep soil, are, in general, covered to the summit with lofty forests. I have already mentioned, that a great part of the proper kingdoms of Pegu and Ava differs a good deal from the general appearance of the neighbouring countries, the former resembling more the southern plains of Bengal, and the latter the southern peninsula of India; but by far the greater portion of this Farther India, in its vegetable productions, resembles Chatigang; and what RUMPHIUS called India aquosa, or the immense Eastern Archipelago, including the Andaman and Nicobar islands, may be considered as belonging to the same vegetable arrangement. Of this the most prominent feature is a tendency in trees of considerable size to twine round others, forming thus forests almost totally impervious. These twining trees, the Funes sylvestris of RUMPHIUS, are often thicker than the human body, and extend to great distances, overwhelming the most lofty and vigorous woods; and so strong is the tendency to this kind of vegetation, that some even of the Palmæ (Calamús, L.) a tribe in general remarkable for erect stiffness, are here climbers, and, after overtoping the highest trees, again drop branches to the earth, which take root, and climb up the trees that are adjacent; and thus, with other thicker, though less powerfully armed

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climbers, form a mat which becomes almost impenetrable. This thick vegetation produces a delightful coolness, and preserves a moisture that encourages the growth of numerous and beautiful parasitical plants, Filices, Aroideæ and Orchideæ; but renders the climate rather sickly to constitutions unaccustomed to such a moisture. In this fine region, the valleys between the hills are uncommonly fertile, and, being well watered, produce abundant crops of rice, the grand source of nourishment for the inhabitants, although the tuberous Aroideæ and Dioscoreas, both very nutritious, may be considered as the proper offspring of this territory, where they thrive with an uncommon vigour and variety. In this country, even the unoccupied wastes have a luxuriance of vegetation, that renders them almost equally impervious with the forests; and grasses, mostly of the genus Saccharum, shoot up with a prodigious luxuriance and thickness. They generally exceed six feet in height, and often reach to twice that elevation.

The trees that are most common in this territory, are of the orders of Urticæ, Euphorbiæ, Terebinthaceæ, Magnoliæ, Meliæ, Guttiferæ, Sapotæ, Vitices, and Eleagni, and, together with the Palmæ, Bambusæ and climbers, form the great features of vegetation, which are of a totally exotic appearance to the European, having scarcely any thing to recall the memory of his native scenery; yet still highly pleasing, not only from their novelty, but also from their beauty and grandeur. Notwithstanding this great difference of general appearance, several of the trees have an affinity with those of Europe, and the woods contain an Æsculus, and several Querci and Coniferi.

The specimens which I collected during this journey were transmitted to Sir JOSEPH BANKS, in whose collection I saw them in the year 1806, and there they no doubt will still be found.

and on the Sanscrita Names of those Regions.

Soon after my return from Chatigang, I was removed to Baruipur, a station near Calcutta, where I chiefly employed my leisure in describing fishes. Still, however, I continued to collect whatever appeared rare for Dr ROXBURGH, especially during several journeys which I made through the great forests that occupy the islands formed by the estuaries of the Ganges. These dreary woods, half inundated by the tides, and skreened by banks of offensive mud, afford but little scope to the botanist. The variety of vegetables which they contain is by no means great; and the danger in attempting to collect them, by landing where tigers are so numerous and ravenous, is very great. I believe, however, that in the various journies which I made between Calcutta and Lukhipur, and from Baruipur, through these woods and islands forming part of the ancient kingdoms of Vanga, Upavanga, and Angga, I had an opportunity of describing most of their vegetable productions. Mangroves of various kinds, including Rhizophora, Ægiceras, Avicennia, Sonneratia, and Heritiera, especially the latter, form the predominant feature of these woods; but they are ornamented with curious Convolvulaceæ and Apocineæ, with many parasitical Filices, and some elegant Lycopodiums and Lichens, not remarkable, indeed, for variety, but of great size and beauty.

The cultivated parts of this Delta of the Ganges, as it has been called, are not more favourable to the botanist than the wastes. The plough or hoe occupies almost every spot, one ricefield succeeds another, and the houses are buried among groves of Mangifera, Artocarpus, and Bambusa, intermixed with Palmæ, and are only kept above water, by being raised on the banks thrown up by digging ponds. In this territory the wastes are generally covered with reedy grasses, almost as lofty as those of Tripura. The whole aspect, indeed, of the country, and of its vegetation, is strange and foreign to an European, unless to a

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Hollander. For four months in the year every field swarms with fish, and at all times the only conveyance is by boats.

During my stay in this part of the country I made few botanical observations, except by communications with Dr Rox-BURGH. I, however, transmitted a few descriptions and drawings to Sir J. E. SMITH, with whom they still remain.

During the year 1800, I was employed by the Marquis WEL-LESLEY to examine the state of the country which he had lately taken from TIPPOO SULTAN, and of the province which Europeans call Malabar. I landed at Madras (Chinapatana of the natives), and travelled through the territory belonging then to the Nabob of Arcot, which Europeans call the Carnatic, but it is the Draveda of the Hindus, bounded on the south, at the mouth of the Kaveri, by Chola, which Europeans call Tanjore, and to the north by Andhra, the sea-coast of which by Europeans is usually called the Circars, as having once been divided into five districts (Circar), which were early ceded to Europeans by the Muhammedan princes of Andhra or Tailingana. The coasts of Chola, Draveda, and Andhra are usually included by Europeans under the denomination of Coromandel, a name totally unknown to the natives, who consider it as English, and from which we have several plants named Coromandeliana, as from the English word Madras, with the addition of Patana (City) we have Maderaspatana, as if plants grew in the streets. Both names should be avoided as inconveniently long, as well as devoid of meaning in any language.

On leaving Draveda, and ascending to the elevated region, lately under the dominion of TIPPOO SULTAN, I entered the ancient Hindoo territory, called by them Karnata (Latine, Carnata), but usually known to Europeans by the name of Mysore, from the town where its princes for some generations resided. Having examined this and the skirts of the interior of Andhra, I descended again to the low country by the south, and exa-

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mined the country west from Chola, which the natives call Chera or Cheda, but which Europeans, from a town in it, call Coimbetore (Coiamatura). Chera as well as Chola is bounded on the south by the country which the natives call Pandiya, extending from near the Kaveri to the Southern Ocean. The northern parts of this, towards Chera, I had an opportunity of examining. The vegetation of all these countries is nearly similar. The elevation of Mysore above the others, although probably about 3000 feet of perpendicular height, produces no great change. The temperature is no doubt somewhat lower, and more agreeable to European feelings; but the aspect of the upper country is not materially different from that of the lower. Both labour under a scarcity of rain, so that artificial irrigation from reservoirs or canals is necessary for the production of rice, which, in the low country especially, is the staple article of food, although both there and in the higher country the rainy season produces crops of miserable small grains, such as Eleusine Corocanus, Panicum Italicum, and Panicum miliaceum, that are used by the natives as a succedaneum for rice. These crops have little of an European appearance; nor do the orchards and gardens heighten the resemblance. The fruit trees round the villages consist chiefly of the Mangifera, Citrus, Bassia, Artocarpus, Eugenia, Elate, and Borassus, while the kitchen gardens require to be watered by machinery from wells. The general appearance of the country is sterile, the rock projecting in a great many places, while, during the greater part of the year, the grass is entirely parched up from want of moisture; and even in the rainy season the grass is not longer than is usual in Europe. In the woods, the trees are still more stinted than those of Europe, and consist in a large proportion of wild prickly dates (Elate sylvestris) and Bambusæ, with trees of the Leguminosæ, especially such as have prickles, and of the Rhamni. Even the thickets consist chiefly of bushes of the Leguminosæ, and of the Rhamni

and Caparides, almost all armed with prickles or thorns, while the fences are chiefly of naked Euphorbiæ (Antiquorum and The most common trees besides the Leguminosæ Tirucalli). and Rhamni, belong to the tribe of Eleagni and the genus Grewia: and the most common herbage consists of small Cyperus, Scirpus, Andropogon, Convolvulaceæ, Acanthaceæ, and Leguminosæ, especially Hedysarum, Crotolaria, and Indigofera, so that the vegetables have little in common with those of Europe, especially of its northern parts. With the more barren parts of southern Europe there is more resemblance, the Rhamni and Caparides being common to both.

After examining these countries of rigid vegetation, as it may be called, I passed through the gap in the Animaliya or Elephant Mountains, and entered the province called Malabar by Europeans, but Kærula and Malayala by the natives. These, indeed, consider Malabar as an English word, meaning the whole seacoast between Cape Comorin and Surat, which seems to be the fact. We ought, therefore, to call the province of Malabar by one or other of the native appellations. The territory called Kærula by the natives, extends from the southern extremity of India to almost the latitude of $12\frac{1}{2}$ degrees North; but this includes a portion of the English province of Canara; and it extends from the summits of the mountains to the sea. In its vegetable productions and appearance, it more resembles Chatigang and the mountains of Farther India than the adjacent territory of rigid vegetation; but it is better cultivated, contains more plantations, especially of Palmæ, and, the rock projecting more, the vegetation is not quite so luxuriant. It has, however, perhaps still less of an European appearance, none of the Amentaceæ nor Coniferæ being found in its woods. The Dutch, however, have introduced many fine trees from the Eastern Islands, and the Portuguese some from the West Indies; both of which give a considerable variety to its plantations, and few countries possess a ve-

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getation so elegant, prospects more grand and beautiful, and a climate more genial. Its highest mountains, although of considerable height, perhaps 6000 feet perpendicular, have nothing of an alpine appearance, but produce a moisture and coolness that extends a more vigorous vegetation to the adjacent country above.

Nearly connected with Kærula, and little different from it in vegetable productions is Ceylon, the Taprobana of the Romans, and the Lanka of the ancient Hindus. In 1815, I had an opportunity of a cursory examination of its southern end, and saw sufficient to indicate, that, in general aspect at least, it does not materially differ from Malayala.

North from Kærula, and, as I have said, including a portion of it, is the extensive English province of Canara, a word of doubtful origin, and supposed by the natives to be English. The Hindus divide it into four territories : 1st, Part of Kærula or Malayala, extending to about 12° 28' North latitude ; 2d, Tulava, extending from thence to about 13° 35' N. ; 3d, Haiva or Haiga, extending to about 14° 38' N. and Kankana (Latiné Cancana) extending to the Portuguese territory of Goa ; but this, as well as all the sea coast to near Bombay, are included in the territory which the Hindus call Kankana. These countries, like Malayala, extend from the summit of the mountains to the sea, and scarcely differ in appearance or vegetable productions from that territory ; but they are rather hotter and drier, and their vegetation is rather less vigorous, approaching more nearly to the rigid thorny nature of that prevailing towards the East.

The specimens of plants which I procured during this journey, suffered much by the carelessness of those who were entrusted in conveying them from the ship to Calcutta; but such as they were, they were given to Sir J. E. SMITH, together with a good many drawings, and both remain in his collection. The notes which I took have been deposited in the Company's Li-

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brary. Some duplicate specimens were given to A. B. LAMBERT, Esq. and I think that Sir J. E. SMITH has a copy of the notes : of this, however, I am not certain.

Soon after my return from the south of India, I was sent to Nepal along with the embassy conducted by Captain KNOX. Having proceeded by water to Patna, I passed, by easy stages, and with many halts, through the ancient territory of Besala, now called Sarun; and through a portion of Mithila now called There I carefully examined and collected such plants Tirhut. as were in flower; and, on the 1st of April 1802, I ascended into Nepal, where I remained nearly twelve months, delighted with the variety, beauty, and grandeur of its vegetable productions, of which I procured many specimens, descriptions and drawings, all of which I gave to Sir J. E. SMITH, only reserving specimens, where there were duplicates, for Mr LAMBERT. I afterwards had an opportunity of procuring many specimens from the same quarter, and of making many observations on these plants, which I may have occasion to use under the disagreeable circumstance, that I may have described the same plant under different names, among those given to Sir J. E. SMITH, and among those which I afterwards procured; but under the circumstances already men-For an account of the appearance tioned, this was unavoidable. of the vegetables in this interesting region, I may refer to the Account of Nepal which I have published.

Soon after my return to Calcutta in 1803, I was appointed Surgeon to the Governor-General; and the leisure I then had for the study of Natural History, was chiefly employed in superintending the Menagerie founded by the Marquis WELLESLEY, and in describing the animals there collected. I returned to England with this distinguished Nobleman in the end of 1805, and in 1806 was appointed by the Court of Directors to make a statistical survey of the territory under the Presidency of Fort William, usually in Europe called Bengal; but containing many ex-

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tensive regions besides Bengal, taking that even in the most extended sense of the Mogul province of the name; for in Hindu geography, Vanga, from whence Bengal is a corruption, is applied to only the eastern portion of the Delta of the Ganges, as Upavanga is to the centre of this territory, and Angga to its western limits.

I commenced this survey after the rainy season of 1807, with the English district of Dinagepore (Dinajpura), forming part of the ancient kingdom of Matsiya, bounded by the Mahananda on the west, by the Korataiya (Latiné Coratæa) on the east, by the mountains on the north, and by the Padma or eastern branch of the Ganges on the south. This district is not very favourable for the botanist, being in general highly cultivated; but its southern parts, especially round the ancient city of Purua, are woody, and yielded a considerable increase to my collection.

In spring 1808, having finished the survey of Dinagepore, I passed through the English district of Rungpur (Ranggapur), the Kamrupa of the ancient Hindus, and having examined the north-eastern wastes of that territory, where I added much to my botanical stores, I halted for the rainy season at Goyalpara (Latiné Goalpara). This place, situated at the northern extremity of the mountainous district, which bounds the Gangetic Plain on the east, afforded me most ample employment as a botanist, producing a variety of beautiful and rare plants, almost equal to that of Nepal; and, with my journeys to Ava and Chatigang, enabled me to form a proper estimate of the vegetable productions of Farther India (*ultru Gangem*), the China of the Hindus, and which I have already described.

With the fair weather of 1808 I recommenced the survey of the Rungpur district, where I found an excellent field for a botanist, as it contains many wastes. As the rainy season of 1809 approached, I retired to a house near the town of Rungpur, and there continued, in a situation not very favourable for a botanist,

until I had time left only to convey me to Purneah (Puraniya), before the fair weather of 1809 should commence.

The English jurisdiction of Purneah (Latiné Purania) forms a part of the ancient Hindu kingdom of Mithila, with a small portion of Angga around the ruins of Gaur; but my journey, during the dry season, added little to my botanical stores. This, however, was amply recompensed by my stay, during the rainy season 1810, at Nathpur, on the frontier of the Kiratas or Ciratas, subject to Nepal, from whence, as well as from the forests in the northern parts of Mithila, I procured a great variety of rare and curious plants.

In autumn 1810, so soon as the weather cleared, I proceeded to the district of Boglipore (Bhagulpur), the eastern part of which is included in the ancient Hindu kingdom of Angga, while its western portion is in Magadha, and the portion on the northern banks of the Ganges is partly in Angga, partly in Mithila. The greater portion of this district being waste, was very favourable to me as a botanist, and I had here an opportunity of extending my knowledge of the rigid vegetation of the Vindhiyan Mountains, which the Hindus consider as bounding the Gangetic plains on the south, and as extending from the southern banks of the Ganges to the Southern Ocean. These hills are here much lower than the parts of the same mass which I examined in the south; but their vegetable productions are nearly the same, and have a similar rigid thorny appearance; but, the rains being more copious, the vegetation is not quite so much stinted, although it is very far from being so luxuriant as that towards the east or north.

The rainy season 1811 I passed at Mungger, where the vicinity of the hills gave me a considerable increase to my stock of plants, and I employed a Hindu physician not deficient in learning to point out the plants which he considered officinal, and to give me both their Sanskrita and Hindu names, which I compa-

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red with those given to the same plants by the ignorant people who collect and vend drugs.

In the following dry season 1811–12, I examined the jurisdictions subject to the magistrates of the cities of Patna and Gaya, both included in the ancient kingdom of Magadha, which for many centuries before the Muhammedan invasion, was considered the chief seat of Hindu power and glory, so that its princes were indifferently called Kings of Magadha and of Bharatkanda, or the Land of Virtue, the name by which the Hindus fondly call the territory occupied by their race, the descendants of Brahma. In these districts I had a farther opportunity of making myself acquainted with the rigid vegetation of the Vindhiyan Mountains, and, during my stay at Patna, in the rainy season 1812, I extended my knowledge of the officinal plants of India, by consulting the same physician and the druggists of Patna.

In the dry season 1812–13, I examined the jurisdiction under the magistrate of Shahabad, forming a great part of the ancient Hindu kingdom of Kikata (Latinè Cicata); and here I completed my knowledge of the vegetation of the Vindhiyan Mountains, which, the farther west I proceeded, rose to a greater elevation, were more rocky, and communicated to their vegetation more and more of the rigid and thorny nature of that produced on the arid hills and mountains of Draveda, Karnata, and Chera.

Soon after the rainy season of 1813 commenced, I embarked at Chunar, and proceeded up the Ganges and Yamuna (Jomanes PLINII) or Jumna to Agra, and thus had an opportunity of examining the plants on the banks of these rivers, passing along a portion of the ancient kingdom of Malava (Malwa) on the east of the Yamuna river, near the Ken (Cainas PLINII) and Chumbul rivers, and then proceeding through the centre of the ancient kingdom of Kuru, which, in the earlier part of the Hindu government, was the chief seat of power and glory, restored to it afterwards by the Muhammedan conquest, and only lately restored to

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Angga by British valour and prudence; for, in the time of ALEX-ANDER, Angga was no doubt the chief seat of Hindu power, as Palibothra seems to have been seated opposite to Rajamahal in Angga, although on the skirts of Magadha, which in latter times was the great seat of authority.

Before the end of the rainy season I returned down the rivers, and ascending the Gagra, entered the district of Gorakhpur, forming a considerable portion of Cosala, the territory of the powerful Family of the Sun, who reigned at Oude (Ayudhiya). During the dry season 1813–14, I remained in the district of Gorakhpur, where I made large additions to my botanical observations, both from the forests of the country, and from the neighbouring parts of Nepal, from whence I procured many plants.

When the rainy season commenced I again embarked, and proceeded up the Ganges to Futehgar, where I had again an opportunity of examining the vegetable productions of the ancient kingdom of Kuru, through the centre of which the Ganges passes; for it includes both banks of the Ganges and Yamuna, being bounded on the east by Kosala, and on the west by Pangchala, now called the Punjab, or the country watered by the five rivers joining the Indus from the north-east.

Having thus examined a considerable portion of the Gangetic plain, always considered the proper seat of the Hindu race, descended from a colony of civilized persons calling themselves sons of BRAHMA, who in the earliest ages settled at Vithora (Betoor Rennell), and gradually extended their power over what is now called Hindustan, I shall proceed to give some general account of the vegetation of this fertile tract, which, without any thing that can be called a hill, extends from the Indus to the Eastern Ocean, and from the Vindhiyan to the Himaliya mountains.

This plain, extending in length about fourteen degrees of longitude, in the middle latitude of 25°, and in breadth from two

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to four degrees of latitude, seems to derive a large proportion of its vegetation from the neighbouring hills; but grasses, especially Bambusa, Saccharum, Andropogon, Apluda, and Panicum, together with the allied tribes of Cyperoideæ, form a larger and more marked feature than trees or shrubs. On the whole, the rigid and thorny vcgetation of the Vindhyan mountains seems more suited for the plain than the more ornamental vegetation of either the Eastern or Himaliya mountains. Near both these, however, their plants have made considerable encroachments, and communicate a change of appearance to the adjacent plains, especially towards the east, where the air is vastly cooler and moister than farther west.

I have already mentioned the appearance of the Gangetic Delta, which, on the whole, has a strange and exotic appearance to the European traveller. As we advance, however, to the north, and still more as we proceed west, notwithstanding the intense heats of the summer, the vegetation appears more of an Wheat, Barley, Pease, and Rape-seed form accustomed form. by far the largest proportion of the crops, and we observe fields of Potatoes and Carrots, while the Palmæ and Bambusæ disappear from the plantations, and the gardens produce the Vine, the Fig. the Apple, and the Plum, with many flowers common in Europe, and the thickets contain much of the wild Rose. Still. however, even in Kuru, the Mangifera, the Eugenia, the Calyptranthes, the Fici (religiosa and bengalensis) the Rhamni, and the exotic crops produced in the rainy season (Oryza, Holcus, Panicum, Paspalum, Dolichos) with the want of the Coniferæ and Amentaceae in the plantations, remind us sufficiently that we are not in Europe.

I now was exhausted by a long continued exertion; the observation of plants making but a small part of my duty, and I required to pass the remainder of my days at peace in my native