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SELECTIONS FROM THE RECORDS OF THE BOMBAY
GOVERNMENT.
No. XVI.—NEW SERIES.

TOURS

FOR

SCIENTIFIC AND ECONOMICAL RESEARCH,

MADE IN

GUZERAT, KATTIAWAR, AND THE CONKUNS,

IN 1787-88,

BY DR. HOVE.

PUBLISHED FROM THE MS. IN THE
Banksian Library, British Museum,

UNDER THE CARE OF

ALEXANDER GIBSON, F.L.S.

WITH PERMISSION AND BY ORDER OF THE GOVERNMENT OF BOMBAY.

Bombay:

PRINTED FOR GOVERNMENT

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ACCOMPANIMENTS TO DR. HOVE'S JOURNAL.

MAPS.

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- *2.—A Mahratta Chart of the Guzerat, made by Sudanando, a Brahmin of Cambay.
- *3.—An unfinished Pencil Sketch of the Broach Purgunnas, &c.
- *4.— Ditto Ink ditto of Guzerat.

DRAWINGS.

- Fig. 1.—A Machine for cleaning Cotton.
- *2.—Agricultural Implement.
- *3.— Ditto Plough.
- *4.—Hindoo Sculpture.
- *5.— Ditto. Carved Figure.
- *6.— Ditto. Colossal Elephant.
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- *8.— Ditto. Carding Bow.
- 9.—Man working Carding Bow.
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- *14.—Bear of Lymree Deserts.
- *15.—Coloured Drawing of Fruit and Leaves of Wild Mango.
- *16.— Ditto Cobra-de-capello.

* Of the above, no copies have been made of those marked with an asterisk.

Fig 1.

Machine for Cleaning Cotton from the Seed.

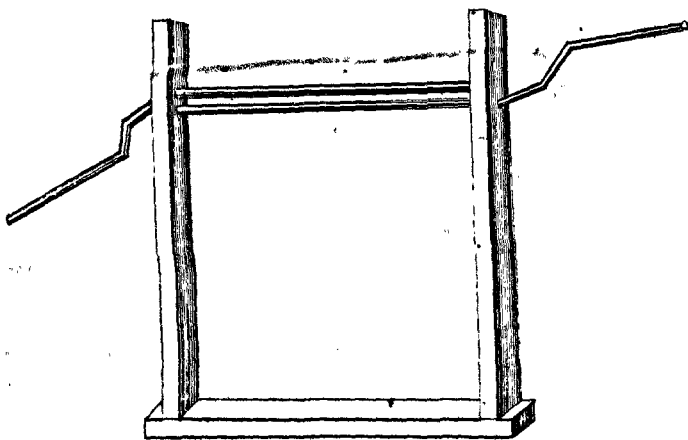


Fig 8.

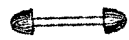
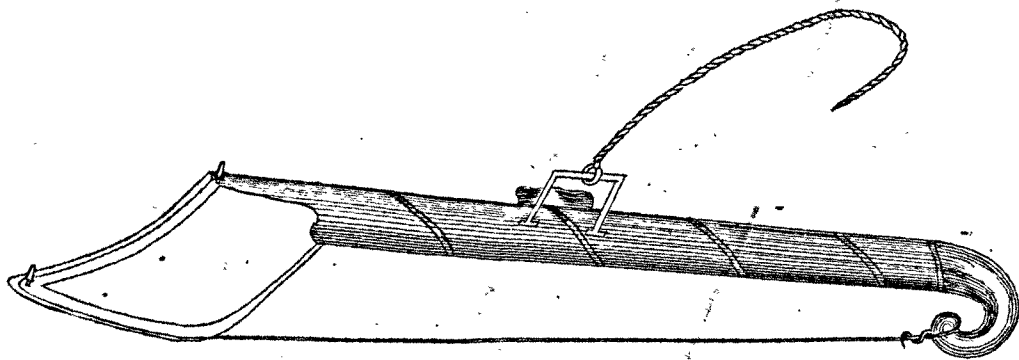


Fig. 9.

Pindrewala:
The Carder is called so.

Czatha,
The name of the Machine.

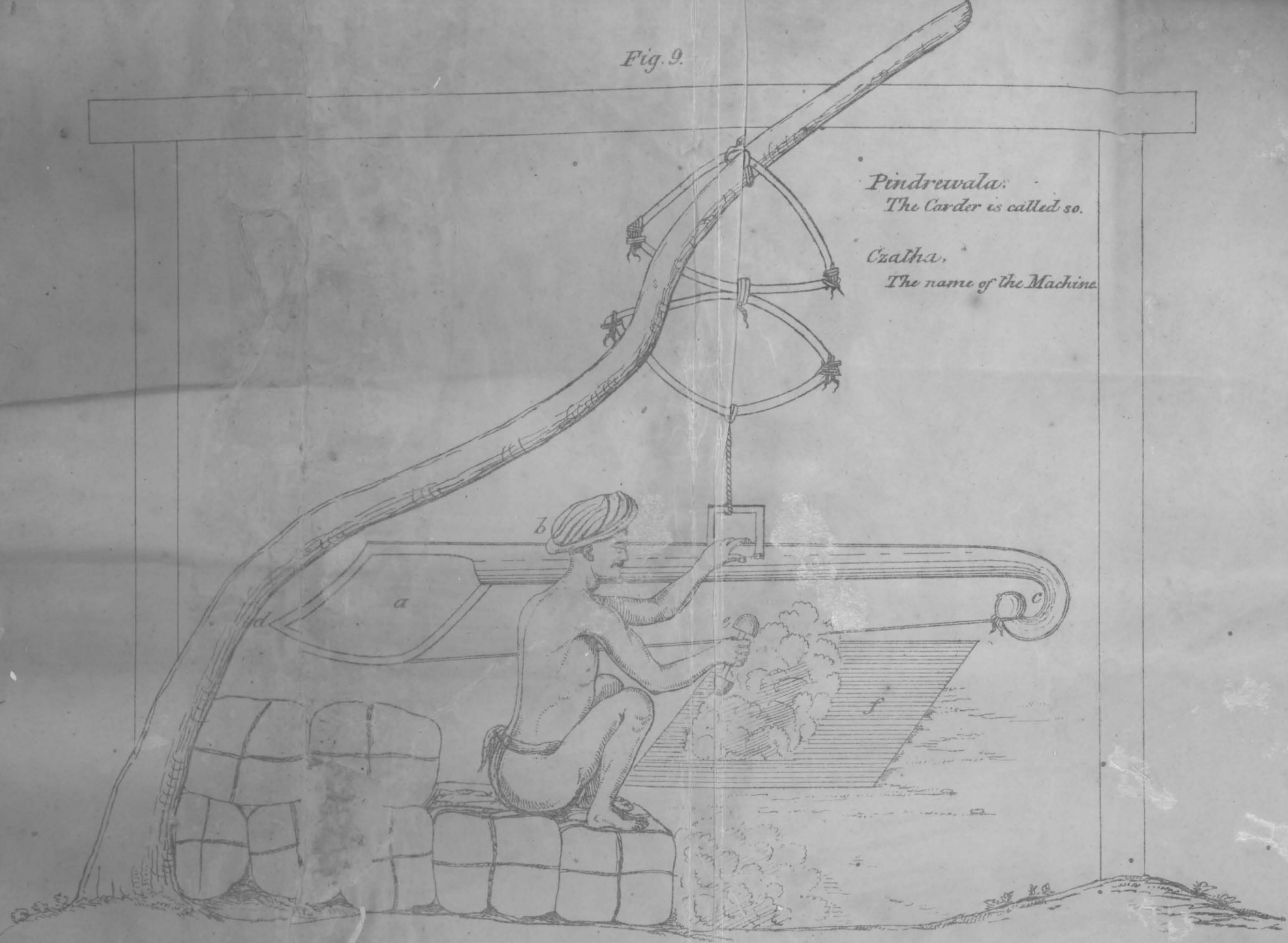


Fig. 10.

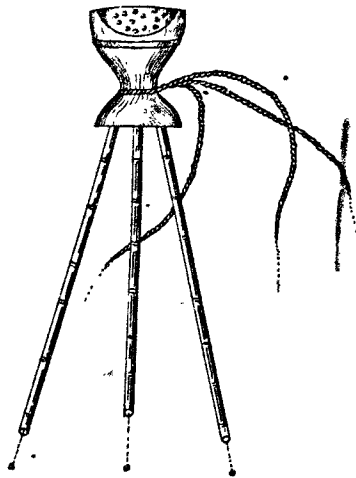


Fig. 11.

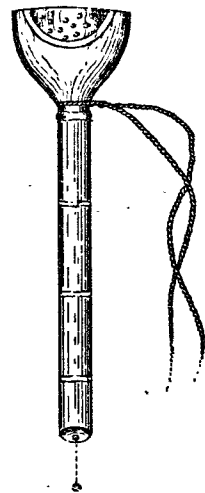


Fig 13.



PREFACE.

THE history of this Publication is as follows :—When in Europe in 1852, my attention was directed by Mr. Brown, so justly celebrated as the first Botanist of modern times, to a MS. in the Banksian Library, which he said contained some interesting and curious information on a subject in which he knew I took much interest, *viz.* Indian Cotton.

2. I accordingly read the MS., and found that it most fully warranted the character which had been given of it by Mr. Brown.

3. The author was a Dr. Hove, a Polish *savant*, who appears to have been employed, by the Ministry of the day, in travelling through the Cotton Districts of India, in the view (I surmise) of ascertaining what supply of cotton could be looked for from that country, to fill the void then deemed (how vainly subsequent events have proved) likely to be caused by the interruption of our former close relations with Carolina, and other American Colonies, containing cotton plantations.

4. That Dr. Hove was not employed by the East India Company will, I think, be apparent from several circumstances :—

1st,—From the rather chilling reception he seems to have met with in Bombay ; and the cool, determined manner in which he set aside the Governor's proposition that he should take an oath on the Bible as to not having brought any private letters, &c.

2nd,—From the decided manner in which an advance of cash, asked by him from the Government, for his necessary expenses, was refused. He was finally obliged to take up money from a Parsee merchant, on the security of Dr. Scott.

3rd,—From there not being a copy of the MS. at the India House.

4th.—From his allusions to Lord Hawkesbury as the party by whom his proceedings were immediately patronized and guided.

5. Whatever his antecedents may have been, it is evident from the book that he was a most active and industrious observer; thinking and saying little of himself, but having his whole mind bound up in the pursuits in which he was employed.

6. Neither miry roads, heavy rains, nor a country infested by bands of mounted robbers, seem to have had any terrors for *him*; and he talks as coolly of pitching his tent at Jumboeser in the height of the monsoon as he does of shooting the armed Grassias who burned his tent, and plundered his baggage, but a portion of whom he was fortunate enough to intercept before they repassed the Dahdur.

7. It will from the book also be apparent, that he must have been a man of excellent tact, in having so thoroughly conciliated the attentions, and obtained the friendship, of the numerous Native Chiefs, Mahratta and Rajpoot, with whom he came in contact. He seems to have had none of that behaudering, offensive assumption of European superiority, which so often makes respectable Natives shy of cultivating a close acquaintance with the English.

8. From his book it will also be clear that, in regard to cotton, we have been working in much ignorance of what was formerly the practice in the growth of that important staple. It is most satisfactorily shown that, up to 1788, two waterings were deemed essential to the proper development of the fruit, and the requisite length of fibre. Now of all this we find nothing in any of the modern works on cotton, though one would suppose that in the Revenue Records of the Broach, Ahmedabad, or Kaira Zillahs, there must be some trace of the existence of the practice in former times. How or when it fell into total desuetude does not appear.

9. From the book we may also gather much as to the palmy state of cotton cultivation in Guzerat in the last century; and it will be seen that even in the low lands of the Konkun, near Dasgaum, cotton was largely grown.

10. The Doctor seems to have visited Guzerat at a favourable time,—at a period when the Mahratta rule was of a beneficent

character, under the administration of Nana Furnavis and his able master,—after the reivings and harrings of the early Mahrattas and decadent Moguls had subsided, and the cultivators were able to follow their avocation in comparative security. However, the strength of the Kolees and Grassias seems to have been still occasionally too great to allow of Guzerat being considered a settled country : cattle-liftings, and such like irregularities, were looked on as daily occurrences ; and a stranger could not stir, to travel from one place to another, without a guard of some twenty or thirty Kolees or horsemen.

11. The notices to be found on the subject of stuffs, cloth, weaving, borax mines, cornelian cutting, &c. are of much interest, as are those regarding the use of liquid manure.

12. It is also worthy of remark, that teakwood appears to have been in those days a tree of very common growth, even between Bombay and Tanna, and to have been of a more respectable character than that now to be seen in the scrubby trees of the Sag Bagh, close to Tanna. It shows that most of that which we now have springing up in many parts of the Konkun is the renascence of a former growth, natural to the country, and which may at a future day again become of importance.

13. The statement of the fact (if it be a fact) as to the knowledge of the transplantation of rice having been derived from Guzerat, is curious ; and is in so far borne out by the circumstance that the practice of sowing this grain broad-cast is still in vigour in some parts of the southern Collectorates.

14. On one point, mentioned in the earlier part of the book, I must confess my ignorance, viz. as to the shrub which is alluded to. I mean a tree which he speaks of as cultivated on the main land opposite to Tanna, having an oblong drupaceous fruit, of a purgative character, and exported to China for a yellow dye. I would suppose him to have alluded to the Heerda or Terminalia chebala, but for the circumstance which he mentions as to the tree being planted in June, and producing fruit in November. Perhaps some of the herbaceous Crotons might suit the description, which can hardly apply to the

Woody or Calysaccion, a shrub still grown, though not cultivated in that quarter. I would respectfully solicit any information on this subject.

15. It will be observed that in Guzerat, plantations of sandalwood, Bixa, and spurious black wood (*Diospyros melanoxylon*) or "Temroo" were observed on the Sabermuttee, and are minutely reported on.

16. It is also worthy of remark how much the trammels of the artificial system of botany then in vogue seem to have bound down the faculties, and circumscribed the observant powers, of even enlightened and educated physicians. Thus we find Dr. Scott, Dr. Guise, and even the author himself, staggered and puzzled at the flower of that most distinctive of trees the *Adansonia*, when a knowledge of family relations of even common plants might have at once led them to guess its affinity.

17. The style peculiar to a foreigner writing in the English language will be observed to run throughout the work: most or all of these terms of expression I have left as I found them; being satisfied that I should only do harm by attempting to alter the idiom.

18. In conclusion, I beg to express my best thanks and acknowledgments to Major George Wingate for the trouble he was kind enough to take in getting the MS. copied at the British Museum; and as the subject of the book is one germane to those pursuits which have already rendered his name so widely known in India, it may be readily supposed that with him the supervision of the work was a labour of love.

19. I was also encouraged to hasten the preparation of the work by the efforts of a distinguished public officer, now, alas! no more. I need hardly say I mean the late Officiating Chief Secretary to the Bombay Government, Mr. Goldsmid: of whom it may so well be said—

— "Multis ille..... febilis occidit,
Nulli febilior quam tibi —."

ALEX. GIBSON.

HEWRA, 23rd April 1853.

TOURS IN GUZERAT, KATTIAWAR, AND THE CONKUNS.

TUESDAY, the 3rd of April 1787, I embarked on board the *Warren Hastings*, at Gravesend, and Friday, the 14th of the same month, we left Deal, at eleven o'clock in the morning.

On Wednesday the 4th of July we made the island of Johanna, and anchored in the bay in the afternoon, within a mile of the town.

Passing the island this morning, I observed in every direction on the highest hills, which rise directly from the sea shore into a stupendous height, and terminate over each other into large hummocks, many plantations, and by the luxurious growth of everything it appeared that the island had a fruitful soil. As soon as I got a canoe, I proceeded to the town, and hired a guide to conduct me into the country, who brought me to a inland town, about six miles from the beach, where the king of this island resided. I found him under a mango tree, with a large retinue of his relations, who were richly adorned with different European trinkets. Each of these gentry had likewise a European title, either of a prince, duke, or a general, given to them, as I supposed, by the different ships which touch here for provision, and they were such enthusiasts of these, that if perchance one of them was called a captain, and had a title of a general, he took it as a great disgrace to his class, and replied, with displeasure, that he had a higher dignity.

Having wished to visit and examine the inland parts, I requested of the king for a few people to go with me, for which I would reward him accordingly. Being only able to spare me two men for this day, he did not advise me to go beyond three miles, which was the limit of his district, on account of the Boshmen, with whom he is at constant war. I set out instantly to the westward of the town, but have

made a poor progress in my researches, on account of the rain that poured almost uninterruptedly. I found, however, amongst the plantations several species, which I have not seen before, especially one that was parasitic, and adhered to the bark of the *Chamærops* and *Areca* by a spongy membrane, which contained a quantity of water, and by which I imagine that this plant is chiefly nourished. On the declivities of the hills and valleys the soil consisted of a light black earth, and the whole district was laid out into plantations of the *Areca*, which they chew continually, sweet potatoes, yams, and cocconut trees. Under the *Areca* grew the *Indigofera tinctoria* very luxuriantly, without the least culture. With the use and quality of it they are totally unacquainted, by which I am apt to think that they would not object to any person settling here for the purpose of making indigo, which he could do with the greatest facility and advantage.

The following day the king gave me five armed men with musquets, and I made an excursion into the hills, the valleys of which were everywhere inhabited, and the soil of an entire black earth, and cultivated with yams, sweet potatoes, limes, and oranges, which were remarkably well flavored. Where the stream was precipitated from the hills, channels had been cut in a winding manner, to lead the water through all the plantations and gardens that were situated on the higher grounds. The *Areca* and *Corypha umbraculifera*, of which they drew the juice, were planted in rows on the declivity of the hills, and the cocconut tree, with the *Musa Paradisiaca*, which require more moisture, were interspersed on the level yams plantations. Notwithstanding there was pasture everywhere in abundance, their black cattle were remarkably small and lean, which is of the species that have hump backs. I judged now to be at least 10 English miles from the town. The country, beginning to terminate into large mountains, and finding no increase in the variety of plants, I proposed first to climb a high hill which was just before me. I flattered myself that from the top I should be able to command the whole island, but making the summit, I now saw mountains before me so much higher than my situation with respect to them, I appeared to be in a valley. The whole mountain was covered with a small wild orange tree, and full of fruit, but they were so infested with such quantities of vermin, that scarcely one in ten was eatable. I saw no habitation, but discovered smoke in many places, which my guide told me the

Boshmen inhabited, frequently descended and plundered the inhabitants of the valleys. As I descended the mountain towards NE., in which direction from here the town was situated, I observed many springs rush out of the chasm on the side of it, and have searched for appearance of ore and metal, but have found none, and I am apt to believe, as the inhabitants are very fond of it, and value it the same as we do, that there is none, or else they must have discovered it by this time. In a valley on my way back, I met with a species of *Gossypium*, which I took by its small yellow flowers for the *Fruticosum*. It grew to the height of three feet, and was full of blossom. As it grew in such plenty everywhere, I asked my guide if they made any use of its wool, which he either would or could not understand; and as they get their cloth of Mozambique, I am led to think that they have not the art of weaving amongst them.

Upon the flats, sugar-cane grew very luxuriantly without the least culture. I likewise found a species of *Amomum* and *Turmeric*, which they use in their dishes, both also wild. On my return to the town, I found a message from Captain Larkins, that he intends to sail early the next morning. I therefore, having rewarded the king with a pair of pocket pistols, which I thought he would like best. In this however I was unfortunately mistaken: he took them with a seeming reluctance, and hinted for guineas; but having none, he was at last contented with this present, and we parted very friendly. Coming on board, the Chief Mate informed me that the sudden resolution of Captain Larkins' departure from this island was occasioned by the *General Elliot*, which was coming into the bay, but seeing us at anchor, she tacked and proceeded on her voyage to Bombay, in hopes of getting before us, for the first market. However, as there were many casks on shore for water, and the wind against him, he proposed to stay a day longer. In consequence, the next morning I went on shore again, in hopes of meeting with

Friday 16th. something that escaped my notice, and went up the valley from whence the streams source by which the ships are supplied with water. On one of the declivities of the hills, I found a bulbous *Asplenium*, which is marked with No. 3, Chest No. 2, a species of *Phytolacca*, with beautiful scarlet flowers, marked No. 4, Chest No. 2,* and a *Cotyledon*, which I think is the *Laciniata*. The fifth part of each fructification is wanting; the flowers are yellow,

* *Qy. Rivina Madagascarensis.*

and marked with purple stripes ; each of the leaves have on the margin small glandula, which, as the leaf drops off, strikes root, and propagates a new plant. The specimen of the leaf and flower I have preserved in spirit, which is marked with No. 25. Besides these, I dug up several other plants, which I have not observed in any collection, and planted them in a chest. In the evening, I returned on board, and the following day about noon we sailed for Bombay. The soil throughout the districts that I have visited was very rich, and occupied everywhere with different esculent vegetables ; but notwithstanding the island produces in abundance, every article was sold to us at an immense price, and they would take nothing else in return but guineas and dollars. The musquets and other fire-arms were so common amongst them, that they never rated the former more than two dollars, and then took them in exchange for bullocks. Of their manners and customs, I had but little opportunity of seeing. Their religion is a species of Mahomedanism. They had during our stay here their fasting days, which they call Ramasan, and would not eat the least during the day, but as soon as the sun set they eat and drank everything that was given to them. Their stature is of the middle size, and well limbed ; but I saw not a single one amongst them that was inclined to corpulency. Their features are well proportioned, of a dark complexion ; their teeth were remarkably even : these they tinge, and their nails, with a scarlet dye, which rather disfigures them. In this, however, they pride themselves ; and when asked the cause for deforming themselves, they always answered, that they do it for distinguishing themselves from the brute creation. The clothing amongst the first cast consisted of scarlet cloth, and of the inferior ones silk and cotton, which was made up in an Arab frock, and their turbans likewise after the same manner ; as their language is also of the Arabian dialect, by which I conjecture that they origin from an Arab extraction. Their canoes had a double outrigger, to prevent oversetting, but remarkably small and narrow. They had, however, two vessels of 30 tons burden, constructed after the Indian stile, with which they go to war with the inhabitants of the islands of Maghilla (Mohilla), and Mayetta, but as the latter have no fire-arms, they usually make peace on the first attack, by furnishing them with a certain number of slaves. They also trade to Mozambique, where they get silk, cotton, cloth, and opium. These articles being at

first imported from India, they purchase them at an exorbitant price. To cultivate their land, they purchase also slaves from thence, but as they have nothing valuable to give them in return, the purchase is made chiefly with guineas, of which Captain Larkins left not less than 160 only for provision, and permission of taking in water. None of their women came to my sight, but our ladies who had permission of visiting the wives of the head men, who supplied us with provision, reported that they were remarkably fair, and some handsome, of which their religion allowed them to keep as many as they could maintain. Our people who went on shore with the view of obtaining female favours reported, that in the dusk of the evening many of them came to the watering-place, and stayed with them till daylight, but all those that spent that night on shore suffered a violent fit of sickness. Even the ladies and passengers who went for an afternoon on a party of pleasure were not exempt from it, and as it came of such a sudden, they thought themselves poisoned by the sweatmeats that were presented to them by the women; but as none of the gentlemen tasted of them, I ascribed it to the impurity of the air, that was solely confined to the valley, and which was excluded and obstructed by the high cocoanut trees. I stayed two days in the mountains, and spent a night under the free canopy of heaven, besides perhaps have walked further into the country than any European ever did, and have found not the least inconvenience as long as I stayed there. But on walking only a few hours at the bottom in a valley, near the sea side, I found immediately a giddiness, and a slight headache, which, however, having taken a few doses of bark during my excursion, could not gain on me, and on my arrival on board it left me entirely. But the ladies, and every other person that were on shore, were in a dangerous state for a long time after they had left the place. Captain Larkins informed me that touching here, when a Midshipman, for refreshment, every soul that slept on shore was suddenly seized and died in a few days, but eat and drank almost to the last hour of their existence.

Sunday, the 29th of July, we made the island of Bontbay, and about noon anchored in the harbour, within a mile of the shore. Every passenger that came in the ship left her immediately, except myself, on account of the collection which I had made at Johanna, for which I wished to have a place previous to landing it.

Sunday 29th.

BOMBAY.

About eleven (at night) Mr. Boddam the Governor sent to me a Surgeon on board, with a request that I would attend on Mr. Blackman, the head Surgeon, who was disordered for some time past with a disorder of a particular nature, with which (as he said) the faculty at Bombay was not acquainted with. Accordingly I waited on him, and found it a contraction of the bladder, with which he was afflicted for many months past. As he had already shivering fits the foregoing day, which had reduced him remarkably, I thought that the next would put an end to his period. I drew, however, a considerable quantity of water, by which he found himself much relieved, and I left him at half-past one in good spirits. Early the next morning the Surgeon came on board to me with information

that after I had left him he had some hours rest,
 Monday 30th, but having had a cold fit again, in which he left him, he gave him but little hopes of recovery. I went on shore immediately, but found him dead. * * *

About ten o'clock, I waited on Mr. Boddam, who received me with great politeness. I requested of him to favour me with the requisite introductions to the country powers in the Guzerat, which he promised me, but as the country is overrun by the freshes which have prevailed this season about Surat, and no boat is venturing to sea till the ceremony of the cocoanut day is passed, he advised me to amuse myself on the neighbouring islands, especially Salsette, the largest belonging to the settlement. In the meantime he gave me a general invitation to his house, and sent with me Mr. Brown his Aide-de-Camp, to assist me in getting for my stay a lodging, but having found none in town, I was obliged to put up my quarters in the tavern, where everything is remarkably expensive. Mr. Brown, thinking that Dr. Scott could inform me of Bombay's produce, was so obliging as to introduce me to his acquaintance, and by his interest

I got permission to place my collection in Colonel
 Tuesday 31st. Nicholson's garden, which I removed from on board the following day.

To-day I and Dr. Scott went to the Grove, a country-house belonging to Mr. Tate, a merchant (and formerly to Mr.

1787, August.

Wednesday 1st.

David Scott, who went home a few years ago). This is the healthiest and pleasantest spot in Bombay. It is situated on an eminence near the sea side, protected from the hot winds by the Calophyllum inophyllum, which keeps off the hot

winds by its compactness of growth. At the foot of the hill I found a new *Erythrina*, the *Bombaxceiba*, of an astonishing size, and the *Hibiscus populneus*. The inhabitants call this tree the *Bendy*, and appropriate chiefly its wood for carriages, as the eligiblest for that purpose. Back to the town we returned over the Grove Bridge, or rather causeway, which is built over a lake to keep off the encroachment of the sea from the Varelle (Parelle) Road, which has formerly overflowed half the island: This bridge has been twice demolished by the force of the sea in the monsoon. Now it is constructed over the lake in three angles towards the land side, and since it is built it has not received the least damage during all that period. On passing the rice or paddy plantation, we met with many boys angling for fish in these fields near the road, which were under water. Expressing my surprize on such an uncommon meeting, Dr. Scott told me, that in the rainy season fish are found in every field on this side of the island. As those places have no communication with the sea, nor birds that prey on fish, which might bring them over, such a strange phenomenon is not easily to be accounted for.

The 2nd, we made again an excursion to the Malabar Hill, the only one whereupon we could expect to find indigenous plants of this island, and have found there these following species of *Plumeria*,* with white flowers, the bark of which the inhabitants use in intermittents as we do the *Cinchona*: *Ixora coccinea* all over the hill in the greatest plenty, *Achyranthes*, *Aspera*, and an *Annona*,† which seemed to me new—it answers in every respect the *Palustris*, except in the spines, which has none; the flowers are yellow, and very fragrant. Having found it both in seeds and flower, I preserved a bunch of it in spirits, and have marked it with No. 1. At the extremity of the hill is a look-out house, from whence signals are given, announcing the ships' approaches. Not far from the signal-house stands a Gentoo pagoda, and a small village chiefly of *Fakiers* and beggars. The Deputy from the Nabob of Surat has his country seat here, whom we found happily intoxicated, sitting near a tank, and surrounded by *Fakiers* and *Brahmins*. On our return we started an hare, which was as large as a European one. The soil of this hill is very fruitful, but there is little of it; the whole is almost covered with loose stones,

* *Qy. Plumiera Acuminata* ?

† *Qy. Randi species* ?

which by appearance were parted by a subterraneous convulsion. On the summit of the hill are still greater marks. I measured some rocks of 25 feet in length, and 74 broad, which were parted from the mountain. The cavity was so deep that I could not get ground, nor meet with any obstruction, with a line of 43 feet.

Europeans build houses here, for the benefit of fresh air, which are remarkably expensive, on account of the rocks, which are previously removed. Most of them are now in Parsies'* possession, who purchase from the owner on his leaving India, at a high rate, and as there is not an established price of most commodities, but is paid by custom, as they express it, they lend the house to Europeans at a most exorbitant price, and there are hardly ten houses in the island in which Europeans reside that Parsies are not proprietors of. In coming home, I found a public order to attend the Governor in Council on the following day at the Governor's house.

According to the order I had received the preceding day, I waited on the Governor at the appointed place, whom I found with Mr. Sparks the first Councillor, and who locked the door on my entry. Mr. Boddam then informed me that it was customary in India, by order of his employers, to question every passenger in the Company's ships where they touched at, and whether they knew of any prohibited goods on board, and many other things which he requested me to answer him to my best knowledge. The first question was how I was treated on board: to which I replied well. The second where we touched at, and how long we staid there: to which I replied, in Johanna we staid four days. The last, whether the Captain landed any prohibited goods, or took any unlawful passengers with him from England: I answered him, that being sent on a particular research, I truly gave, nor could give myself any further concern, than to be in time on board again, and could not say otherwise. He then took up a book, which he told me was the Bible, and that it was customary to take an oath on such an occasion. I thought it rather an extraordinary demand on such a trivial incident, and told him that I hoped my answers would have the same value; but he, pleading his particular orders, again and I may say politely insisted on, I therefore asked him in return if he had any further commands, of which he had none.

* Worshippers of the elements, particularly fire, originally from Persia, driven out by the Mahomedans.

I then took my leave, leaving the Bible to those who set less value on an oath.

In the afternoon, I and Dr. Scott made an excursion into the woods on the plantations of the cocoanut tree, where he knew a tree, bearing a poisonous fruit. I found it in flower, and took it for the *Morinda citrifolia*. The owner of the plantation told me that he brought it from the continent, where they have large plantations of this shrub, and extract of its root a scarlet dye. He likewise showed me some worked handkerchiefs, the borders of which were dyed with it, and by the bright appearance which they still retained, the color seemed lasting; but the process of its preparation he could not tell me.

To-day I went to Colaba, or Old Woman's Island, which is passable from Bombay at low-water. I found a tree resembling in many respects those *callabash* trees (*Adansonia*), which are found on the Emanuel Islands, near Goree in Africa, but having not seen the flower at either place, I cannot positively determine if they belong to the same genus. The callabash, or the seeds vessel, was already advanced to the size of a quart tumbler, and began to ripen. They call it here the elephant tree, I suppose from its immense height and thickness, and the Africans call it the monkey bread-fruit. Dr. Scott told me that he often examined the flower, which belongs to the class *Monadelphia* or *Polyandra*, but could never make out its genus. The seeds are marked with No. 7. It grows in sandy places. On the southern extremity of this island stands a lighthouse, where fire is kept during the night as a signal for the ships which come in the Bombay harbour. In the neighbourhood of it I found a new species of *Vitex*. The inhabitants call it the fomentation shrub, and it is used in the hospitals for a foment in contractions of the limbs, when occasioned by the land winds, which commonly happen here when the people sleep in the open air, or are overpowered by intoxication. The sea being retired, I was enabled to go into the salt marshes, where I have found numbers of plants peculiar to the salt marsh, amongst which I have met the *Acanthus illicifolius*, in great plenty. I planted them in their natural soil, and I had the satisfaction to find that they bore transplanting. Mr. Guise, the Surgeon of this island, presented me with some bulbous roots, which he found near the sea shore. The flowers he said were white, but not being acquainted with botany,

he could not tell me its class or genus. He uses them instead of squills, and added that the inhabitants make of it a part of their common food. The soil of this island is sand, and little cultivated, except a grove of several hundreds of cocoanut trees, which are planted in straight lines, and watered from wells that are built solely for that purpose. The inhabitants draw the toddy from them, and chiefly maintain themselves by it. On my return to the channel, I found the tide already set in, and was under the necessity of taking a boat over. The tide enters here with so much rapidity, that often boats are lost, by being carried amongst the rocks to the opposite side of Bombay island.

I and Dr. Scott made an excursion to the woods, which the inhabitants call *Dungery* or *wilderness*, but here found Thursday 9th. nothing new. The plants consisted here of the *Gardenia capensis*, *Ixora coccinea*, *Bauhinia acuminata*, two sorts of *Amomum*, which they cultivate amongst the cocoanut trees. This wood, by the computation of Dr. Scott, consists of 20,000 full-grown cocoanut trees, besides small ones; and the *Areca*, *Mangifera*, the jack,† with the plantations of the piper betel complete the wilderness. The roads to the different parts of the island are cut through this wood, which are shaded by the luxurious growth of the trees, and walking during the heat of the day is very pleasant. The planters are chiefly fishermen of a Portuguese extraction. For each of these cocoanut trees they pay to the Company five rupees a year, and so much an acre for the *Areca* and betel. For the mango and jack they pay nothing.

The bazar or market price of the betel is 300 leaves for a rupee. The rest of this wood is inhabited by Parwoos or Native scribes, black writers, and Portuguese priests, having several chapels, watermen, sepoy, and prostitutes. All the while we were here the heat was excessive, without the least circulation of air, which is entirely obstructed by the high cocoanut trees. Dr. Scott informed me, that they often manure their plantations with putrified fish, which renders the air unwholesome to those that live in it, and that there is not an instance known of a European recovering of a fever if he has contracted it in these woods.

Having found an invitation to dine at Mr. Boddam's the preceding

* *Erythronium*.

† *Artocarpus Integrifolia*.

Friday 10th. day, I waited on him accordingly at Parella, a Governor's house belonging to the Company. The weather being favorable, we went out to the garden, where Mr. Boddam distinguished to me several trees from Diego Rayes, which grew not unlike the Barringtonia of the South Seas and St. Helena island (Garcia); by the drawing Mr. Boddam showed me I took it for the Barringtonia. On the least incision issues a quantity of lacteal juice, which I do not recollect having seen on the trees at St. Helena.

Having obtained an introductory letter to Mr. Carnegie, the Chief of Tanna, I made preparation for that place to-day, Saturday 11th. and the following proceeded to Mahim, a town situated close to the river on the northern extremity of Bombay, where likewise a custom house is established to collect the toll of those goods that are imported and landed there from Surat and the Mahratta continent. Having still two hours daylight, I made an excursion to the cocoanut wood, to observe the Curcuma plantations, for which this place is famous. The plantations are situated on the lowermost districts. The soil consisted of a light black earth, which they manure with cow-dung. They prepare the ground before the rains, and set the roots at the depth of ten inches, and about fifteen from each other. When the plant begins to vegetate, they heap up the furrows, and continue so gradually till the period of maturity, with such regularity, that each plant receives its requisite quantity of water for its nourishment. The higher grounds are all sandy, which they occupy with onions, for which Bombay distinguishes itself from the adjacent settlement. On my way back to the town, I shot a fox of a small size, and a poor skin, with which I understand this island abounds. The town of Mahim is pretty large, chiefly built of brick, and inhabited by Hindoos, Mahomedans, and Portuguese, in which the latter have a church and chapel; but not a single house for the reception of strangers, who usually spend the night under the covering of the firmament, and I was under the necessity of sleeping in my palankin. Fortunately we had but little rain, and felt not the inconveniency which commonly occurs in India on such occasions.

Early the next morning I crossed the river to Salsette, which is about a quarter of a mile broad, and passable at low-water, in hopes of proceeding to Tanna. My interpreter, however, who understood English but

Monday 12th.

poorly, brought me instead of Tanna to Varcuda (Varsova—quite a different direction), where I was obliged to spend the night. The fort is built on a hill at the entrance of Wersewe river, over which it has a good command. It is very old, but is well situated, and protected by rocks, that no sea force could even take it; the land side is however as pliant as the other is inaccessible. The villagers are chiefly fishermen, and the stoutest people I ever saw. Near a bank I found a tree bearing a remarkable long pod. I took it for a *Bignonia*, by its membranous seeds, but the flowers belonged to the class *Pentandria*, order *Monogynia*: two of the five filaments were shorter, like in the class *Didynama*, the antheræ upright and furcate, with a lanceolate stigma.*

We had to-day almost a constant rain, which hindered me going anywhere to examine the produce hereabouts. The following day, the weather being moderate, I proposed to set out on my journey; but none of my people would go with me if I did not hire an additional set of hammals, complaining of the road, and badness of the weather, which, candidly saying, was very bad, wading sometimes in mud and water above the knees. I found it therefore necessary to get another set of hammals, and with great difficulty I came to Tanna about midnight. The soil was everywhere remarkably good. The teak-wood trees grew here to an amazing height and thickness, but for the space of 12 miles I have not met with a single village, nor marks of present culture. On both sides of the road, wherever I cast my eyes, I saw many remains of churches and chapels, which were surrounded by large buildings; but all pining in decay. I judged by this ruinous appearance, that this island has been in the time of the Portuguese in a flourishing state; at present, however, it is entirely deserted from human notice. In my journey, I met with a *Nymphaea* of a beautiful purple hue, but the place where they grew was so overflowed by the rains that it was impossible to get the roots.

Mr. Carnegie, the Chief of Tanna, took me out to his country house, about 3 miles inland from the river: as he never resides himself here, it is entirely out of repair. The garden belonging to it is remarkably large, but exactly in the same state as the house—a universal

* Probably *Bignonia Indica*.

wilderness, by luxurious growth of the high grass. The soil seemed favorable, and such that a lover of improvement could make a fine spot of it. He proposed to go a few miles beyond, but the heavy showers of rain prevented us going further, and so we hastened home. The rice fields, by their voluptuous growth, pointed me out that the soil is superior to Bombay. The plantations are all laid out in the plains, and divided in equal squares. Each of these plantations is banked up about two feet high, wherein the water is preserved a long time after the rains have ceased. The farmers here have lately introduced a method of cultivating their rice from the Guzerat, which I have never observed on the Coast of Guinea. It is the following:—In the beginning of the rains, they sow in a level field a certain quantity of rice very thick, from whence, when it is grown to the height of five or six inches, they transplant it into small tufts into the other fields, as soon as the rains permit them. This mode, which is only attended with little more trouble than the former, saves to the farmer not only a considerable quantity of seeds, but likewise brings him a triplicate crop.

By daybreak I made an excursion to the caves, accompanied by Mr. Stevenson, the Custom House Director, and
 Saturday 18th. Mr. Atkins, a Lieutenant of Engineers. The caves are situated on a high hill, about 8 miles to the NW. of Tanna. We found the road, which is but little frequented, so overgrown, that we were under the necessity of cutting a passage to the chief entrance through a great part of the wood. The caves, of which there is a considerable number, are all cut out of solid rock, but for what motive no person can be positive in. By the solemn posture of the figures, and size of the cave, I suppose that they were consecrated for a religious assembly. The great cave is 48 paces long, and 26 broad; the height I can't conjecture less than 200 *foot*,* which is hewn into an arch, without any support of pillars. At the head of the cave stands a round pillar, resembling the crown of a hat, about 16 feet high, and 14 in diameter, to which the Hindoos to this day pay their adoration. At each side of the entrance stand two figures of a gigantic size, but for what they could be designed I can't form myself the most distant idea. Each of them measures 22 feet. Close to the entrance are two cisterns, 6 feet long and 4 feet broad, receiving a spring of water that issues *very* spontaneously

* He must mean from the plain below.

out of a chasm from the upper adjacent rock of the cave, and the water is considered by Europeans as the best in the island. The inscriptions on the pillars before the cave are much defaced; they were taken off, by the information I had from Mr. Watkins, by Mr. Wilmouth, a painter from Bengal, who came over here with that view, by the assistance of wetted cartridge paper, which he took up by a pressure, and likewise made a compleat drawing* of all the remarkable caves on this and the island of Elephanta; but, as I understood, in going home by the way of China he died at Canton, and his works and remarks were entirely lost. The rest of the caves were so overflowed by the rains, that we were obliged to abandon our design of visiting them. The summit is quite a plain, wherenpon I have found a small bulbous root, which was heavily covered by earth. My people eat it, instead of onions, and called it Jungel-ka-piata, or a wild onion; they are marked with No. 5; Chest No. 5. Although it rained in the valleys and at Tanna, we had here the finest weather: the thermometer did not exceed out of the cave 82°, and 74° in the inside. On my return to Tanna, Mr. Carnegie informed me that from ten in the morning till four in the afternoon the thermometer was never less than 99°.

Tuesday the 21st, by the tide of flood, I went in a boat up the river, accompanied by Mr. Atkins, to see a sluice, which was built at first on the Company's account, and afterwards built by a Hindoo planter, to keep off the encroachment of the sea from the rice plantations. The river Tanna separates the island of Salsette from the continent at the eastern extremity. The river at low-water is very shallow, and only navigable by flat-bottomed boats, which supply the Tanna market from the continent with vegetables, and other necessaries of life; for although the island of Salsette is so remarkably large and fruitful, it does not cultivate a sufficient quantity of grain to maintain the town, and the garrison. The Portuguese had at the entrance of the river a strong fort, which the Mahrattas during their possession of this island quite neglected, and at present, as it does not bring an immediate great income to the settlement of Bombay, it is suffered to decay. The inhabitants call this place Gorabunder. The village consists of 600 families, who chiefly maintain themselves by fishing. On the banks of the river we saw a great many alligators. They

* Also Mr. Wallis. (Vide Daniell's publication of his Works.)

appeared on our approach quite unshy, and slowly moved into the water. Mr. Atkins fired at one, but the ball struck off him as from a rock, and flew beyond a considerable way. At noon we arrived at Darawee, and took our residence at Captain Camarin's, the Commandant of this place. The fort, which has only a front and a kind wall, without guns, but only English colors, is situated on the highest hill on the whole island—a situation that cannot nor could answer the expences that are bestowed on it. Since the last war a battery of eight guns has been erected close to the river side, at the foot of the mountain. In my opinion, they are not able to keep it an hour in time of war; the only purpose it can answer is to keep off the boats crossing from Bassein.*

At daybreak, I set out to see the sluice, which is about 5 miles distant from Darawee. It is built across the entrance of a lake, which overflowed at high-water a considerable district of land, and caused it to lay waste, that no person could have the least profit from that extensive and fruitful spot. In consequence, a sluice was proposed, which cost the Company several lacks of rupees. However, as it was begun too late in the season, and finished in the beginning of the rains, so that the combination of the bricks was but slight, and soon demolished by the first freshes, and at last found useless. The engineer who built it gave it as his opinion that no sluice could be made sufficiently resistable, or else they would have allowed him double the sum of the former. The expence incident on the former occasion being already too great, and without the least advantage, the Governor in Council thought it fit to decline, and left it to decay, till a Banian addressed himself to the Governor, with the following proposal: that he would build it up again, and keep it in repair, if they would grant him the plantations for fifteen years free from every tax. The Governor, having given up every thought of receiving any further benefit from it, granted him the demand. The Banian, having obtained the permission, set on to work in the proper season, and finished it a considerable time before the rains. I had the satisfaction of congratulating him to-day on his good success, which to my idea he will enjoy, to the infinite censure of the engineer. The rainy season was this year rather severe; however, I could not observe the least damage the sluices have received. I have not seen

* Bassein is a Mahratta fort just opposite, across the river.

the engineer, but must give as my candid opinion that he little understood his profession. The wall he built has been nearly a mile across the entrance. In the middle of it he made, but one single opening, without calculating the quantity of water that must pass through at different times. The rainy season set in, and the consequence was, that by the first moderate fresh from the mountains the sluice gave away, and the rest of the wall soon followed to the ground. The Banian, having obtained permission, made the secret known, by opening four sluices more, which he accomplished with a trivial expence, and has every prospect of enjoying it. Having overlooked his plantations, which chiefly consisted of rice, he invited me to his temporary house, and as a mark of friendship he presented me with some Areca and betel, and for my people he ordered provision. The soil of this district is remarkably rich where the land is already occupied. The rice stands prodigiously promising, and it is a pleasure seeing the planters, who are chiefly females, transplant, which they perform, in point of square and line, with the utmost exactness. They are never hindered from their employment may it rain ever so hard; for that purpose they have a cover made, in the shape of an upper turtle shell, from the leaves of the Ficus religiosa, and they appear to a stranger at first sight as some unknown animals.

Friday the 24th, Captain Camarin, having obtained permission for

me to visit the hot-water cascade on the Mahratta

continent, I set out this morning, accompanied by

Mr. Atkins. We reached the hill where the cascade

sources from by four in the afternoon, and ascended the precipice. The chasm the hot water issues from I can't conjecture less than 16 feet, which is in the shape of a conoid, out of which it issues (this was the rainy season) with such force, that at least it throws the water 25 feet from the rock, and so falls down without any opposition, till it comes to the foot of the mountain, a depth not discernible from the summit we stood upon. At the bottom are large reservoirs made, wherein the people bathe. The bathing months are March, April, and May, at which period the Hindoos assemble here from the distant parts, and bathe both for the benefit of their health, as likewise for religious motives. The whole summit is barren, and the soil of the same appearance as that on the volcanic mountains on the Coast of Guinea, and some parts of St. Helena island. On the

opposite hill in moist places I found a species of a Polypodium, which I believe has never been described. It is very small: the back surface of the leaf is covered with a whiteish farinaceous powder; and the hill appeared at a distance as if covered with snow. The soil is argillaceous, intermixed with silicious particles. None of the plants suffered transplanting, but I have propagated many by seeds. The specimens and seeds is marked under No. 8. At the foot of the mountain I found a tree full of yellow blossoms, which I took by its fructification and thread hanging seeds for a Magnolia.* It grows to about 50 feet, and two in the girth. As the thermometer did not exceed 74°, and I understand never exceeds here 83°, I have not the least doubt but that it will do well in England. The soil consists of a sandy clay. We came here and returned different ways, but have not met for the space of 16 miles a single village, except innumerable guard-houses belonging to the Mahrattas, which are stationed at every pass. At the first that we came to, on our return, they would not let me pass my little Magnolia trees, which I dug up, but on giving them a bottle of spirits, which they took instead of medicine, nothing was said further about it. On many parts of the hills and valleys, fit spots are found for rice and sugar-cane, but the greatest part consists chiefly of a solid rock. On our setting out, we were cautioned to be on our guard of tygers, of which it is said here that there is a great number, and soon after, having crossed the first two mountains, we started two of them; and in a short time three more. Two of them I saw at a little distance, which were not near so large as those I have seen on the Coast of Africa. Our company consisted of 23 men, properly prepared with spears against them. Travellers, on going through the wood, make a constant noise, and it is confirmed here, that if a tyger hears two different voices, he never will attack a man. How far this may be credited I do not know. From us entirely every one of them flew. However, I ascribed this to the number of men we had with us, and not to the cowardice of the tyger. In the dusk of the evening we came to the river side, but it blew and rained so violently that we could not venture crossing it, and we were obliged to take shelter and spend the night in a Czoky (Ang. Chokey). The Czokydar at first hesitated our company, but on shewing him my pass, which I had from the Governor of Bassein,

* Qy. Cochlospermum Gossypium ?

he complied with our request, but on these terms, that we should eat nothing that had life. I asked him if he would drink any liquor, which offer he accepted, but begged that it might not be mentioned to any of his Hindoo tribes, for unavoidably he would be rejected from his cast if it came to their knowledge. After the rest of the ceremony that passed between us, he presented me with two fowls, which were killed, roasted, and eat in his presence, without the least objection.

If I may give credit to my interpreter, they are the greatest hypocrites I ever heard of. He told me, on our return home, that notwithstanding the Czokyard requested of us to kill nothing that had life in his hut, himself had a curried fowl dressed for his supper.*

To-day I made an excursion to the westward of this island, but have found nothing new of plants that I have not

Monday 27th. already seen. Near the sea shore is a village situated, chiefly consisting of fishermen. There is no great variety of fish; the chief are bombalós, which are brought to market dried, on which principally the inhabitants subsist. It is a small fish, of a glutinous substance, and remarkably rich when fresh eaten. Although they appear so numerous, they are not adequate to the demand there is at Bombay for them, and this deficiency is usually made up with young sharks, of which there is an incredible number, and which the inhabitants esteem as a great dainty.

Captain Camarin being troubled for some time past with swelled legs, to-day he observed a whiteish bladder close to his ankle, which convinced him that it was not the gout, with which he has been threatened by a black doctor. On my examining it, I found it a guinea-worm, which are so common in Africa. The black doctor being present, I asked him if such a worm existed in this country. He replied in the affirmative, and added that it is only peculiar to the Natives, by which many of them lose their limbs, and often die. As there is abundance of the Aloe Sóccotrina on the banks of the river Tanna, I sent for it, applied it in the same manner as the Africans do theirs, and I had the satisfaction of extracting a worm of eighteen inches; therefore it is evident to me, that the worm is not peculiar to the Guinea Coast, as it is imagined by the faculty; but that

* The Cooruraline, and several other Mahratta tribes, have no scruples about animal food, except of horned cattle.

likewise every aloe is a specific for it. The inhabitants call this worm Baragenewar* (Naroo), and apply for it the leaf of the *Asclepias gigantea*; but the performance is very slow. They twist the worm round a piece of packed thread, as soon as it makes its appearance externally, and extract it by degrees. Very often, by unsteadiness, they break it, by which the patient loses his limb, or dies by mortification, or a tetanus, which terminates usually in death if they are occasioned by a cut.†

On my researches to-day, I heard a harsh voice, resembling that of a partridge. On following the sound, I discovered a bird on a tree, which I brought down with my fowling-piece, and found it a real partridge, which was a size larger than those in England, black-legged, and of a lighter color. The flesh was as white as a chicken, but rather hard, and without the least flavor. Captain Camarin informed me that quails and partridges commonly nest and breed in this country on trees, as likewise that they are in the harvest remarkably tender and white. We had to-day a great quantity of rain, which rendered walking very troublesome, both on account of the high grass, which grows here to a prodigious height, as likewise of the buffaloes, which attack Europeans wherever they meet them, and pursue them like their enemy. Even the blacks are not free from them if they are clothed in colored cloaths, but especially scarlet.

These two days the rain was incessant, accompanied with loud explosions of thunder, lightning, and great swarms of flying bugs, which are very odious, on account of their offensiveness, but a sure prognostic of the breaking of the rainy season.

This morning I set out once more for the continent, to observe some plantations of trees, the fruit of which is exported for the China market, and used for a yellow dye. In the evening I came to Panging village; but it was too late for to-day to venture to the place where the plantations are situated. Previous to my setting out from Darawee, Captain Camarin observed to me many difficulties that I must undergo

* Doubtless "Boora Janwar," bad animal.

† The Doctor has here been misinformed: neither death nor tetanus are at all common consequences of guinea-worm.

on going there, from the country-people. I thought to remove every obstacle by a bottle of spirits, as I had done at the Mahratta Czoky, but here I have been happily mistaken. On my arrival at the village, I sent my interpreter to the Vatel (Patel), or the headman, to permit me to take shelter under one of the roofs which are purposely built for strangers; but that he positively refused. I then had recourse to the bottle, thinking that he scrupled about this, which he likewise rejected. I then repaired to my palankin, in which I impatiently waited for the break of day.

Fortunately, we were able to purchase wood, and kept up a constant fire, both against the inclemency of the weather, as likewise against the inhabitants, who are such enthusiasts of their religion, that that they do not scruple killing a European, whom they look on as one of the lowest class on earth.

Early in the morning I set out for the plantations, leaving my palankin at the foot of the mountain, and about ten Tuesday 4th. o'clock I reached the plains near Bungar, where they are situated.

The trees are planted in straight lines, about 30 feet from each other: they grow to the size and thickness of an apple tree; and by the account I had from the planter, they flowered in the month of June, and were now full of oblong drupaceous fruit. The planter gave me some seeds from the last crop, and told me that two of them would serve for a purge. However, by experience, one of them is sufficient to answer the purpose. They sell it here at two rupees per mohn; the mohn contains 50 ser, or 48 English weight. I could not observe that they bestow any particular treatment after they are planted, except that they water them during the hot season from reservoirs, which are hollowed at the foot of the mountain, and contain a considerable quantity of water. The planter told me that he plants the seeds at the depth of six inches, about a month before the rains have set in, and that the fruit ripens in December and January. [Vide Preface.] The soil throughout the plantation consisted of a heavy clay. The seeds are marked under No. 46, Mahratta Country. In my way back I visited a Faquier village, which contains at least 2,000 inhabitants, the largest I have yet seen in India.

They received me with many marks of friendship: even some of them came up to me and shook hands, a custom that convinced me that they are not entire strangers to Europeans. On my request for

some milk, they expressed great sorrow, being too late in the day, but offered me different fruits, amongst which was a reddish plantain, which had the exact taste of musk. They would not part, however, with a single plant. The boys, who were as dirty as their fathers, overpowdered with cowdung ashes, capered and rejoiced on seeing me, calling to each other Jungalla, or wild-man. However, they never hinted so much as insult, and were kept at a distance by their parents from me. They shewed me their god, which was a cow hewn in its natural size out of a rock. Before it were several offerings placed, consisting of a curdled milk beat up, shells with water, and adorned with garlands of the *Jasminum officinale*, *Poinciana pulcherrima*, and the Champa. Near to it, in a cavity of the wall, stood a piece of rock about 2 feet high, tufted with a reddish substance, with which the head Faquier tipped my Hindoo men on their foreheads. In return, each of them gave him four copper pieces, which was their half day's allowance, which he took as if he had been entitled to it—even returned when he did not approve. On going away, I presented him with half a rupee for those articles I had from him, which he however declined, saying that in case he should come to me, he had no doubt but that I would entertain him, and make him welcome in my house; and we parted very friendly.

About three o'clock, I came to the place where I left my palankin, and about midnight I arrived at Darawee. The soil was everywhere rich, and cultivated with rice, sugar-cane, and other esculent vegetables. About Bungar the soil is likewise remarkably good, but little cultivated, and this consists only of the *Sesamum*, of which they extract an oil, for burning in their lamps. Their chief subsistence is milk, for which they rear a great number of cattle, and amuse themselves by begging and wandering in the country; and as they are free from every tribute, they spend their lives very happy.

To-day I made the last excursion to the northward of this island, where I found a species of acorns, cultivated in low swampy places, near the sea. Of the roots the villagers extracted a spirit, and adulterate their Mowra liquor, to make it more palatable. A living plant is marked under No. 5, Chest No. 2. The land for some miles is as low as at Gorabunder, which the force of the currents destroys daily in such a manner, that if it is not prevented soon, it will be found in a few years destroyed and useless.

Having dispatched my growing collection the preceding day, I proceeded to-day to Tanna; but the tide setting against us, we were obliged to spend the night at Thursday 6th. Gorabunder. At two o'clock the following morning, the tide being in our favor, we set sail again, and arrived at Tanna by noon. The country on both sides of the river looks remarkably pleasant, but the landing was everywhere indifferent, on account of the salt marshes, which extend a considerable way into the country, and commonly are overgrown with brush-wood peculiar to the salt marshes and bogs.

On the Mahratta side, close to the river, I observed some plants resembling at a distance bulbous roots, for which I sent a man out of the boat, who, when swimming ashore, an alligator making towards him, ~~the man immediately~~ cried out, but on discharging a musquet he went down directly, and we saw no more of him. The rest of the men were now so dispirited, that none of them would venture on shore. Fortunately one of the inhabitants came paddling in a canoe towards us, with toddy, and fetched it me. These roots grow to an immense height and thickness: some were as thick and high as the wild *Musa Paradisiaca*, with long broad leaves, and my people said that it bears a large white flower.* The soil is a heavy gravelly clay. The roots are marked under No. 2, Chest No. 1.†

Having received intelligence from Dr. Scott that the fleet is to sail soon for Surat, I made preparations for that Sunday 9th. place; and the following day, having hired a boat, I dispatched my collection to Bombay.

To-day I made the last excursion on this island, where I found many plants that I have not seen before. Two of

Tuesday 11th. them were dioecious. One of them I took for a *Celtis*, which is marked with No. 2, Chest No. 3, and the other with No. 1, Chest No. 4. The country on this side of the island is beautifully diversified with different prospects, groves of the *Corypha umbra*, and waterfalls. The soil is remarkably fertile, but not inhabited nor cultivated on the highest hills. For many acres the land is level, and fit for sugar-canes and rice plantations. No person, however, thinks here culture an honorable employment,

* I saw it since in flower: it appears to me a new *Amaryllis*.

† *Qy. Crinum Latifolium?*

therefore I may positively affirm that it will always be an unprofitable island till it comes to the proper hands again. Here and there are still remains of wells, and marks of former culture. I understand from Mr. Stevenson, that these are the memorandums of the Portuguese, when they called this island their granary.

This afternoon, having sent my additional collection to Bombay, I took my leave of Tanna, and proceeded to Morally, Thursday 13th. a Portuguese village, where I arrived in the evening, and spent the night at a Portuguese Padri's, who acts both as a physician and pastor to the inhabitants, by which he has accumulated a considerable fortune. He shewed me a catalogue of 700 plants, which he said were indigenous of this island, but by the virtues that he attributed to every one that grew in this neighbourhood, I believe there is but few that have a great virtue.

Early this morning I set out for Bombay. On passing the Parelle road, Mr. Boddam sent to me his Aide-de-Camp, with an invitation to dine with him. I accepted the offer, and spent the day there. Captain Larkins, who was one of the company, took me out to a tank where one of the Gentoo tribe was doing penitence, by hanging himself with his head downwards from a tree of the *Ficus religiosa*. I understand that this impostor has practised this here several times, and obtained from the Banians several thousand rupees. His present demand is 5,000, which he undoubtedly will obtain, if he hangs fourteen days longer. These merciful people are of opinion that he inflicts this pain on himself for getting money to maintain his family with. I am, however, credibly informed, that the most of his tribe are the profligatest existing. The contrivance he made to hang himself by the feet, although the feet suffer the least, by having passed a rope round his waist and across the thighs. His legs are tied with another, which is articulated to that round his waste, and which chiefly supports him. This is, however, so well contrived, that it is only to be seen by a minute observation, and it is in general taken for his hanging by the feet. He has a proper assistant, who is undoubtedly brought up to that purpose: he attends on him day and night, and hoists him up and down when particularly required.

From the 14th till the 25th we had continual pure and fair weather; the thermometer never exceeded 92°. During this period I made several excursions to the neighbouring islands, and have

planted my living collection in Colonel Nicholson's garden, which I intend to keep until my departure from India. Likewise I have recommended a chest of plants, with a few specimens and seeds, to Mr. Pemberton, who was leaving India for Europe, and obligingly promised his care on.

Having taken my leave of the Governor, who gave me an introductory letter to Mr. Griffiths, the Chief of Surat, Wednesday 26th. I proceeded the same night in an armed boat. We were not above two leagues out of the harbour, when it fell calm, and soon after began to blow an hurricane. The Syrang, who was an experienced seaman, took it for what it afterwards proved, and put back to Colaba Creek. Many of the boats that were under the Commodore's convoy put likewise back; several of those which proceeded with him were lost in our sight, and at last the rest, with the Commodore's ship, were obliged to return in a deplorable condition. The inhabitants call this wind Hatty or Elephanta, from its violence, which blows commonly on the breaking of the monsoon.

On the 29th the gale gradually decreased, and about midnight it fell calm. At day-break a fair breeze sprung up, and Saturday 29th. we set sail for Surat at half-past 3 p. m. The tide being against us, which runs here at the rate of 9 miles an hour, we anchored about 6 leagues from the continent in 12 fathoms water.

About ten we set sail, and came the following morning in sight of St. John. This part of the coast is high, and mountainous, some interior views presenting remarkable high land. The hills rise in a steep line from the sea, and become gradually loftier as they advance. They are plentifully covered with trees and shrubs, indicating a fertile appearance. On one of the interior mountains I saw smoke issuing, which the Syrang told me was discharged all the year round: in consequence, I am led to think it a volcano.*

The wind increasing to a gentle gale, brought us, with the assistance of the tide, the following day at noon, to Surat Bar, and we anchored at the mouth of it in 12 fathoms water. As it blew pretty strong, I was

* The hill Maha Luxmee, or that of Asheree, is probably alluded to here; but on neither is there trace or tradition of recent volcanic action. The latter being, in 1787, an inhabited hill fort, would very readily show signs of smoke.

not desirous of spending another night in such a dangerous place as we had before us, and proceeded in a boat to Surat, where I arrived in the afternoon. About a degree from St. John, towards the north, the land terminates into a flat, open country, and continues so all the way to Surat. On the left side of the Tappy's entrance is a high monument, erected to the memory of Mr. Fowe, a Dutch Chief, who was drowned on the Bar some years ago, which serves to the navigators as a mark to avoid the dangerous Surat Bank, which is situated at the mouth of the entrance. The soil is hereabouts sandy, and quite unfit for culture. To the eastward of the river it is more favorable, and every spot is cultivated with Bajery and Joary. Higher up the river, the soil consists of a heavy black clay, and it is chiefly occupied with esculent vegetables, and the rest is suffered to lay for pasturage; but on both sides of the river, for the ~~space~~ of 15 miles, there is not a single tree or shrub, except those which are peculiar to salt marshes.*

The last rain fell in Bombay on the 22nd September: here we had almost continual rain from the beginning of our Monday 8th. arrival. To-day, the weather being more favorable, I set out to the opposite side of the river, but have found nothing of plants that were worth observing, except an Hibiscus, that is cultivated in sandy places for cordage, and a few roots, which I took by their fragrant smell for the *Nardus Indica*. They were lying on the surface of a field, and I suppose were turned up by the plough; but on digging the ground I could find none such. The inhabitants call it Muth (*Nagar Moth*, *Cyperus rotundus*), and sell it for a drug in all public market-places, but for what purpose I was not able to learn. The country as far as my eyes could reach was plain, well inhabited, and cultivated, but likewise destitute of wood, except here and there a *Tamarindus* in the hedges, or a *Ficus religiosa* or a mango tree in the villages. The soil is of a heavy black clay, and everywhere cultivated with Bajery and Joary. Where the land is low and swampy they occupy it with rice, but this is very inconsiderable. On my return, to the NW. of Surat, I passed a few scattered trees of the *Mimosa Nilotica*; the Natives call it *Cagar*, and this is the only wood they have for fuel, which sells here at a great

* From this we can collect that the river has materially diminished in breadth below Surat since 1787.

price. At the river side, I met with several hundreds of females, who carried cowdung cakes for the Surat market; which the citizens appropriate instead of firewood, and which, I understand, answers the purpose remarkably well.

To-day Mr. Spinks, the Surgeon of the establishment, accompanied me to the southward of Surat, into a wood that consists entirely of the *Mimosa Nilotica*. It extends nearly two miles, but being planted in a heavy clay, the progress of growth is but poor. The district is exactly such a plain as that I have visited yesterday. The soil consists of a heavy black clay, and chiefly occupied with Bajery. It is naturally so rich, that they have no occasion for manure, and occupy the same plantations yearly. Where the soil is poor, they cultivate it with esculent vegetables, as the *Solanum tuberosum*, a species of *Arum*, and *Dioscorea*. In the midst of these plantations are draw-wells built, and artificially risen above all the adjacent fields, whence they supply and assist the vegetation with water in time of scarcity of rain. This is, however, only at a little distance from the river side, wherein the water is filtered through the sand; but further the water is only to be got at a considerable depth, which neither answers the supply the vegetation requires, nor repays the expences that are bestowed on it.

At daybreak I made an excursion to Rander, to observe the culture and plantations of cotton, which had escaped my notice on my being the first time over the river, of which it is said by the connoisseurs of cotton that the produce is superior to the cotton country in the Guzerat.

Thursday 11th. They are situated close to the banks of the river Tappy, considerably lower than the rest of the country; but if this was done artificially in former times, or by nature, no person could inform me. I found the plantations overflown, and much damaged by the late freshes, which have destroyed so many villages about Surat. One of the planters informed me that he had sown the seeds about three months ago, and that he performs it yearly at the same period. The greatest part of the cotton shrubs were about 2 feet, and the rest just coming up, which were re-sown since the freshes. The seeds were sown in a direct line; the lines about 3 feet from each other. The intermediate vacuities were interplanted with rice, which the

females performed, as those at Tanna. The planter informed me likewise, that the produce of those plantations does not exceed 130 bales; that the shrub grows to 6 feet high, and bears a yellow flower. We had to-day a scorching heat, with loud explosions of thunder, but not a drop of rain.

Having sent my baggage yesterday to Broach, I took my leave of Mr. Griffiths, who was obliging to give me for Tuesday 16th. my protection to Broach 17 Nabob's horsemen, accompanied with an introductory letter to the Resident. I then proceeded in the cool of the evening to the Kim Catladara Czoky. About six we crossed in boats the Tappy at Viriow, and arrived at the Czoky at half-past eleven, where we found all the soldiers quietly asleep. After a long knocking at the gate, they asked who there was, but, as it happened that several of my attendants answered at once, and one of the Czoky soldiers discovering so many horses from the look-out place, took us for the Grassias who inhabit this neighbourhood, and gave a general alarm to the Czoky. The headman of the party, thinking that it might be attended with ill consequences, as they appeared in confusion from their sleep, and would not pay the least attention to what was said to them, ~~he ordered the rest of the horses to a little distance,~~ and only staid with me at the wall. After a long expostulation, my pass was handed to them under the gate, and after more than an hour's waiting I got by myself permission to enter. Fortunately a Bauian, sleeping likewise at the Czoky, who saw me at Mr. Griffiths's but the day before, removed their fears; by which means the horsemen got permission to come in. As we were not able to bring with us hay or straw, as other travellers do, to sleep upon, we were under the necessity of sleeping on the bare floor, which swarmed with ants of a prodigious size, whose bites are a great torment to us. Fortunately they were of a short duration; the day came on sooner than we expected, and we made our best way for Broach. The Kim Czoky is just half way from Surat to Broach, and derives its name from the river Kim, which passes by at a mile's distance. It is situated close to the high road, built in a square, and surrounded by high walls, in which there are openings for musquetry. It is properly the property of Fatessing (Fatty Sing); but of late it is hired out to a cotton merchant of Broach, who pays four lacks of rupees every year to the revenues of Bradray. Everything that passes by here

pays a most exorbitant toll : a horseman pays from Broach to Surat one rupee and a half, and half a rupee on his going back ; a hackery and two bullocks two rupees ; a bale of cotton one and a half ; and everything else accordingly. Even a new Broach handkerchief round a woman's neck is not exempt from it. The Kim river being still much overflowed by the rains, we waited for a clearer day, when we began to swim over our horses. One of the sepoys, who I believe was not quite awake from his opium, which they take before going to sleep, fell off his horse. Luckily one of his companions called out to him to take hold of the horse's tail, which he did, and was kept so afloat till the fishermen, who live here during the rainy season, to guide the passengers over the river, swam up to him, and saved both him and the horse, who were hurried a considerable way up [y. down?] ~~the river by the rapidity of the current.~~

About seven we arrived at Occliseer, a large village surrounded by a mud wall, under a Pundit belonging to the Vachan Peshwa, where I was again examined. From this village, after a short refreshment of milk, we proceeded to Broach, but on coming to the banks of the Narbedah, I was informed that I could not get a boat over till ten, and the cause was ascribed to me that this custom has been established soon after the English had given up Broach to Sindia. As the heat increased, and there is not a single tree whereunder a person could take shelter, I impatiently waited for the appointed time. Having no further occasion for my guard, I discharged them, according to Mr. Griffiths's desire, namely I gave the horsemen a billet of the precise hour when they were discharged, that they might be brought to an account if they exceeded the time that is commonly allotted to them, as a check to hinder plundering the villagers, which they usually do on their return, when sent on such expeditions. At half-past ten the passage-boat came over with a variety of goods, and passengers ; the unloading lasted till twelve. I then, half roasted in the sun, embarked, and came, without the least molestation at the town gate, to the English factory. Mr. Smith, the Resident, on the delivery of my letter, received me with great politeness, and surprize how I came here without being previously detained at the town gate ; but it proved afterwards that the doorkeeper mistook me for an Officer that lately lived with Mr. Smith, for which, to my sorrow, he was dismissed the service.

I understand that Mr. Smith has often requested of the Pundit a free admittance to the English strangers; however he could never obtain it, but for what reason no person could positively inform me, except that it may be owing that Mr. Smith never paid the visit to the Pundit on his entry to the factory, and which Mr. Smith claims first on his side.

The darkness on my setting out from Viriow prevented me from determining the nature of the soil to the Kim Cathadara Czoky, but what I could discover, by the assistance of a Mussal, it was cultivated, and by the luxuriant growth of the cotton shrubs, I judge that the land is fertile. From the Czoky to Harsuran village, for about three coss, the districts are overgrown by the Mimosa Nilotica. The soil is very rich, but it is suffered to lay for pasturage. From Harsuran to Umerswarra are two villages, each of the distance of ~~three coss from each other~~, called Panully and Czuty Panully. The soil consists of a heavy black clay, and chiefly cultivated with cotton; the shrubs were about 2 feet high, and still under water.

From Umerswarra to Occliseer river, as far as the eye could reach, towards the Raja Peopla country, although the soil is remarkably rich, the land is suffered to lay for pasturage, and nowhere cultivated ~~nor inhabited. From Occliseer river to the village~~, on both sides of the road, the land is cultivated with cotton. I alighted from my horse, and have examined the soil, which consists of a heavy black clay, as that at Rander; the shrubs are about 3 feet high, and the lines divided at the distance of 2 feet. Some plantations that were situated lower from the rest of the land were overflowed, and not near as high as those that were situated on the elevated grounds. From Occliseer to the river Narbedah the soil is by far inferior, and likewise occupied with cotton. If I may judge by the shrubs, which appeared half withered, and retarded in growth, the soil is by no means favorable for cotton. The rest of the ground is overgrown with a new species of Cassia, the flowers of which are yellow, and make a beautiful appearance. On the banks of the Narbedah I found a Tamarix, which I think is of the same species as that under which we found the inhabitants of Wall-fish Bay, on the Coast of Caffraria. All the way from Surat the land is parallel, level to the horizon, except a group of mountains, distant about 20 miles from Broach, and inhabited by Coolys and Beels, who chiefly maintain themselves by plunder.

Thursday the 18th I made an excursion to Diroll village, where the first cotton plantation begins, which I found about 4 feet high, and just setting in to flower. The flower is yellow, answering in every respect the description of the *Gossypium fruticosum*. The shrubs were placed very thick, in straight lines, the lines at 3 feet distance from each other. In some plantations, the intermediate space was occupied with rice, which began to ripen, and those that were situated on the higher districts were interwoven with Bajery and Joary. I understood from the people that weeded the plantation of the grass, that the cotton was sown at the same period with the grain, which by their reckoning was three months ago. The country hereabouts is as level as that I passed the day before yesterday. On my return home, Mr. Smith observed to me that my staying so long in the country from the town would occasion the country powers to raise some strange suspicion of my coming here; on which account he fears that the Pundit will give him some trouble, and wished that I would not go out again till my person comes more familiar to them. I thought it a prudent advice to avoid offence. I staid at home till the 19th, when I asked Mr. Smith if I might venture to-day in the country, but he again put me in mind of the Pundit, who already made strict enquiry respecting me. I then remarked to him, that my stay being short, I wished to do the most in my researches. As there was no possibility of examining the produce of this district without incurring some trouble, in consequence, I requested of him to write respecting me to the Rajah of Ahmood, which place I would prefer. Mr. Smith then told me that he would dispatch a Pattewala to Ahmood on the following day.

Six days were now past, and I had done nothing, and having more people than I had real use for, I discharged them, and sent them back to Surat. In the meantime, I inquired of Mr. Smith if he had received an answer to his letter from Ahmood, to which he replied, with seeming anger, that he had not wrote him yet, and that he could not do everything at once. This answer solved the description I had of him by Mr. Warden, the Second in Council. I took, however, no notice of it, but began to despair of any success in the object in view, or feared that at least it would be delayed if I staid longer within doors. The following day Mr. Cheek, a Lieutenant

of the Infantry, who staid with Mr. Smith, and slept in the same tent with me, informed me that Mr. Smith found himself much hurt by the discharge of my people, which he takes as a disgrace and disrespect to his house, and which he supposes that it is the only cause why Mr. Smith does not take notice of my request.

Thursday 25th, early in the morning, Mr. Smith told me that he was going up the river with the two Lieutenants, and likewise should be happy in my company. Being so long in town without the least employ, I very gladly accepted the offer, supposing that by this uncommon invitation that my host had changed himself by the last change of the moon; but in this I was unfortunately mistaken. About twelve we came to the appointed place, where a tent was pitched, and a bottle introduced. I then made an apology to Mr. Smith, that I ~~could not be so soon~~ and ~~be one~~ of their company, on account I wished to examine the produce of the country. In consequence, I proceeded higher up the river, where I have observed some cultivated grounds.

At half-past four o'clock I returned to the tent, and unhappily discovered them intoxicated. On asking one of his people for a glass of wine, ~~he desired him to leave not to bring me any~~, and immediately addressed himself to me in the following manner:—"Mr. Hove, it is true that I am desired to assist you in your way, but I am not compelled to assist you with my people; and if you wish to be respected, keep more people and servants. In the mean time, let me tell you, that we take it in India for a high affront when a person accepts of a party of pleasure, and goes astray from the company, as you did just now." As a reply to such treatment, and in that situation, would only have increased his ungentility, and having no hopes of succeeding in my undertaking by his interest, on account of his being in constant quarrels with the Pundit, in consequence I immediately proceeded to Broach, with intention of leaving it for Surat the next day.

Early in the morning I sent my interpreter to the Pundit for permission to cross the river, with which he directly complied, and I set out for Oilusa, where I hired two sepoy for my guard, a horse for myself, and two hackerys. On coming to the Kiin river, I received intelligence that Sudzadowla had taken possession with 200 men of the

Czoky, and intercepted every person that passed by. I therefore avoided him, by going a by-road, but as they can oversee in this level country at a considerable distance from the walls of the Czoky, he guessed my motion, and sent after me a band of horsemen. As any defence against them would have been in vain, and for an escape my horse was not one of the best, I therefore, as one of my men had left me already, gave myself up entirely to their mercy, and was led with the rest of my people in triumph to the Czoky. I was brought before him, and asked who I was, and what I had with me. Directly my trunk was searched, for which he asked 2,000 rupees ransom, but as the contents altogether were not worth one-fourth part of the sum he demanded, I told him he was welcome to keep it. My pockets were then searched, where I had 25 gold-moors. He asked me if this was all the money I had. On my replying in the affirmative, my pockets and trunk were ~~searched again, and all my pockets~~ not excepted, but finding nothing more of money, my cloaths were returned, and he then told me that I might go where I pleased. I observed to him, through my interpreter, that it was rather unkind of him to keep my money, as I owed him nothing; but on a wink to one of his people, my interpreter received a blow in his face, and I was led out of the gate. ~~This vagabond had been, on my arrival in India,~~ at Bombay, where he practised many unlawful frauds; but at last the deceits and injuries increasing daily, he was ordered by the Government to leave the island. He then proceeded with his retinue to Surat, where he was likewise refused an entry by Mr. Griffiths's order. At last, he took possession of the Kim Czoky, and soon assembled a band of robbers, who flocked to him instantly. Although he was so near Surat, and every person was acquainted with the depredations he practised to the inhabitants, who traded to Broach, no steps were taken to prevent it. Futessing, to whom the Czoky belongs, fearing that the injuries he practised may be attended with some ill consequences, ordered him out. Next he took up his residence at a small Pagoda between the Narbedah and Occliseer, where he again exercised his unrighteous authority, and used Lieutenants Ross and Macklin, who were going for their health to Cambay, worse than he did me. It was said that he ordered Mr. Macklin to be flogged; however Mr. M. only owned to me that he received a few knocks from one of the vagabonds. May that be how it will, no notice was taken, and he was suffered to do what he pleased.

The 27th I arrived at Surat, and immediately waited on Mr. Griffiths, more for an introduction to the country powers than for redress. I presented to him the cause of my return, who, hearing Mr. Smith's treatment of me, and having soon after received an unmannerly letter in his defence, by all means advised me to pass it unnoticed in regard to Mr. Smith's person, but to make a complaint respecting it to the Governor of Bombay, which I did accordingly; but as Mr. Boddam was preparing for Europe, I believe no notice was taken,—at least Dr. Scott informed me so,—neither has an answer been sent to my letter. Being now indebted more than I was allowed for the expedition, and having not been provided with many articles which I found requisite by experience, namely fire-arms and presents for the head-people, I took the freedom of writing to the Governor of Bombay, ~~and requested of him to advance me a sum~~ to the amount of 7,000 rupees, till I should receive a reimbursement from my employers; but having likewise not obtained an answer, in consequence I was reduced to the necessity of taking up the above sum at Naserwangies Bomagies', a banker, at, $1\frac{1}{2}$ per cent. per month.

Saturday, the 3rd of November, having received a pass from Mr. Griffiths, ~~and an introductory letter to Mr. Holford,~~
 17th November.
 Saturday 3rd. the Resident at Cambay, and having provided myself with presents for the country-people, consisting of pistols and daggers, with a tent and a hackery, I hired an armed boat, and proceeded early in the morning by water to Jambazeer, and the following day by noon I arrived at Tancary village, or landing-place, belonging to the Jumboseer Purganah, where they embark their goods and cotton for Surat and Bombay. In the evening, I crossed the Dahder, and about 8 I pitched my tent in a plain district, not far from the Mosque of Ahwood. In the mean time, I sent my interpreter to the Rajah, to explain to him the nature of my coming here; and that I would wait on him personally the following day. In a few hours, the interpreter came back, with one of the Rajah's head-men, who was attended by a band of Arabs, drums, and lights, in a large procession, which, by the accompaniment of the Arab song, made a magnificent and warlike appearance. On his entry to the tent, a carpet was spread, which he brought with him for that purpose. After the usual ceremony that prevails amongst them, he informed me that the Rajah's father had been always a friend to the

English, and that the son follows his example in every respect, and should be glad to see me on the following day. He likewise told me, that the Rajah ordered him to prepare a supper for my people, and hoped that I would send to the Durbar for everything that I had occasion for, for which purpose he would leave me two persons as messengers. He then took his leave in the same manner as when he came to the tent.

About 10 in the morning, I waited on the Rajah, who received me agreeable to the country custom, namely embracing each other, from right to left, and presented me with betel leaf, opium, and Areca. After this refreshment, he led me to an adjacent house, where his library is kept. He shewed me it with marks of pleasure, saying that his father set a value on it of twelve lacks of rupees, but he valued it at twice the sum. By his account, the library consists of ~~many~~ ^{many} books. They are chiefly Persian manuscripts, neatly written, and bound in red morroco leather. Some of them were delineated with figures, representing the person as is spoken of in history. He has particular people, whose business it is only to mind the library, and keep it in order. Most of these books have a calico cover, by which they are protected ~~from rain, and the gilding looks as if it had been finished but a short time ago.~~ When I told him that I proposed to stay in his territory till the next monsoon, he expressed great satisfaction, and promised to lend me every assistance in his power. In the afternoon, he came to my tent on an elephant, and, if possible to conceive, with greater splendour than his headman yesterday. I presented him with a pair of double barrel pistols, which he received with seeming satisfaction. I likewise offered him betel and opium, which they take (though they are convinced of its pernicious quality) almost every three hours. To his people, agreeable to the country custom, I ordered provision, after which he departed.

Early in the morning I made an excursion to the cotton plantations near Somny village, where I found the cotton shrubs in full blossom, which were scarlet, and quite a different species from that cultivated at Diroll, and the opposite side of the Narbedah at Broach.* They were from 5 to 7 feet high. The country is hereabouts as level as that

* Nurma Kuppas.

about the Kim Cathadara Czoky. The soil consists of a sandy clay. The distance of the cotton shrubs is from 2 to 3 feet, distance of the lines or furrows between which Bajery and Joary was sown is at 3 feet. The planter told me that he had sown this cotton fifteen months ago, and suffers it to grow for two seasons or crops. I asked him with what substance they manure their ground, to which he replied that the remaining stumps were sufficient to raise the vegetation. I dug the ground in several of these plantations, and found it at the roots of the shrubs pretty moist.

Having heard yesterday by the farmer at Somny that the best cotton is cultivated about Dahnetote, Kerwan, and

Wednesday 7th. Sarwood, I proceeded to Dahandolle in the cool of the morning. The village is situated on an eminence, about one mile from the river Dahder, but the rest of the ~~district is occupied by~~ ^{is occupied} with the yellow flowered cotton.

The lines and shrubs are exactly divided as those about Broach and Occliseer; the intermediate places were sown with Bajery and Joary, and some with the root of a pea which they call in the Moorish language Chana, or gram, and a small grain called Bawta. The soil is everywhere alike, which consists of a heavy black clay. On the borders ~~of the river the plantations are very low, with~~ under water, and not yet cultivated. The enclosures of these plantations are either ditches, like in England, planted with tamarind trees, or they are fenced with the milkbush,* which makes as good an enclosure as a brick wall. It grows in many districts to the height of 20 feet, and by its compactness of growth, and prickles, keeps both men and the cattle from doing any damage to the plantations. In many places the Dahder is above one mile broad, and in some very narrow. At this period it does not contain above 15 feet of water, which is brackish, but by the marks that are left on its banks, I dare say that in the rains it exceeds so many fathoms. On my return to Ahmood, I waited on the Rajah, and took my leave from him for Kerwan.

Early the next morning I crossed the Carkary, and about four I came to the village, which is surrounded by a mud wall. On my journey, for the space of 16 miles, wherever I cast my eye, I could see nothing else but cotton plantations. Where the soil consisted of a heavy clay, those

* Euphorbia.

districts were planted with the yellow sort, and those which consisted of sand, or were situated higher from the adjacent ground, were planted with a red species. The shrubs of this sort were on some plantations in flower, on some cut at 2 feet from the ground, and on the rest, which have a lower situation, and where the water had been lately admitted, cultivation was just coming up. The plantations of the yellow sort that were situated on the lower districts were still in flower, but the greatest part already disflowered, and began to pod. The planters were everywhere employed in cultivating the rice at half a foot from the ground, leaving the stumps to decay as a manure for the next year's cotton.

On my arrival at Kerwan, the Jamedar of the place, having previously received notice from the Rajah to supply me with everything I had occasion for, cleared a large bungalow for my stay, where I spent the night, and the following morning I pitched my tent in the midst of a cotton plantation at Bandrar, which I had been told distinguishes itself for fine cotton. This plantation is the property of the Rajah's headman, on whose account it is cultivated. It consists of 35 acres of good land, and is situated between Kerwan and Poslata village. An inlet passes from the Dahder almost through the centre of this district, which supplies them with water at the period when the cotton requires it. The soil of the meadows where my tent has been pitched consisted chiefly of a heavy yellow clay, and on both sides of the inlet of a lighter sandy ditto. The cotton was of the red sort, and likewise in some plantations cut down from two to three feet; but as no person belonging to the plantation was present, I could not learn the cause for so doing.

To-day I went to Desberah landing-place in the Broach district, and likewise cultivated with red species of cotton, Friday 9th. which they call Dyna Nerna Capass. The plantations that are situated between Bandrar and the landing-place were watered from a draw-well, which was situated close to the banks of the Dahder. This method of watering I have never observed before. A wheel about 15 feet in diameter is placed on four poles, round which is suspended a rope ladder, with globular earthen pots, which take up the water by the turning of the wheel, and empty it in a trough which leads it to the plantation. The turning of the wheel seems to the sight a fatiguing performance, but on trial I found it very easy. The planters usually execute it

by setting themselves upon one of the cross-beams, and turn the wheel with both their hands and feet, and with such activity that I have seen them water 3 acres of land in the space of eight hours, and on examining the ground I found that the water had penetrated below the roots. The second method is performed by bullocks or buffaloes, who draw the water up by large leather bags. This is executed in the following manner :—Two poles are placed close to the river side, for which purpose the bank is hollowed in a semicircle. The bag is then fastened at the bottom, either to a chain, or a thick rope, which passes through a roll that is fixed in the middle of the cross-beam. A second rope is tied to one of the extremities of the beam, to which the buffaloes are fixed, with which the driver sets out as soon as the bag is filled. The meeting of the bag with the beam and the trough comes to pass at the same period, but when the ~~the allotted distance, the bag empties itself in~~ the trough from a snout at the bottom, confined by a rope held by the man who drives the bullocks, and as soon as the cattle is freed from the rope, the bag, by the time the driver comes back to the well, falls down, and fills itself without further assistance. The driver has nothing then further to do than to put his cattle to the rope, ~~and pursue his course.~~ I asked the planter how many bags of water he could draw in an hour's time, in which, however, he could not satisfy me; but to gratify my curiosity, he would quicken his pace if I indulged him with a few pieces of opium, to which I agreed, and he drew up 39 bags in 62 minutes. On drawing out, each bag contained 47 gallons of water: this is in the whole 1,835 English measure; but as the plantation was already half watered, I could not well determine what effect the 39 bags might have had on an acre of land. By my reckoning, this plantation consisted of 7 acres, which he told me he used to water with two sets of buffaloes in one day. The cotton of these plantations is of the red species, which was sown two seasons ago, and began to ripen. The soil is a mixture of sand and clay, and the intermediate places between the lines were occupied with Joary, Bajery, and gram.

To-day I went to the Kundra village, and to the plantations close to the river side, but I have found nothing done in them worth observing, except that the planters weeded the grain of the grass, and cleared the cotton shrubs of dry wood. In the afternoon, I shifted my quarters

Saturday 10th.

for Parolly, a village above 3 miles from Kerwan, where I pitched my tent in a fine large meadow, which is entirely surrounded by cotton plantations. The plantations of this district are cultivated with the red species, which, by the account I had from the planter, were sown five months ago. Some plantations were so slender, and so small bodied, that they will have but a poor crop for this year. Higher up, towards the river, I met with several plantations, the soil of which was of a swampy nature, and the cotton of the yellow sort, scattered here and there over the district. The intermediate places were cultivated with Bawta, Chana, Oorced, and Joary, which began to ripen. The females that guarded the grain from the sparrows and crows, which are of the same species which are indigenous of Europe, except that the latter is smaller, informed me that this was the second crop of cotton which is going to be gathered off these shrubs. On further examination, I find that they ~~are the same species~~ in swampy places for two seasons, which survive the hot season, and if they intend to occupy the same land with other grain. On my asking if the same cotton is suffered to grow for another crop, they replied in the negative, and that as soon as the wool is gathered in, the shrubs are taken by the roots, and suffered to dry till fit for fuel. The ground, being manured with the remaining stumps of the grain, is sown again in the latter end of the rains with the same species of cotton, in which one of my sepoys confirmed her intelligence. For my return, I chose the borders of the Broach Purganah, and found all the cotton plantations so divided with pasturage fields as those I had just left. I dug in the ground in several places, and found the soil at the depth of 4 feet of an entire black clay. The plantations were considerably lower from the river, and all pretty moist.

The cotton is of the yellow sort, which was sown, by the account I had of the planter, on the low districts, in the latter end of the rainy season. The intermediate places betwixt the shrubs were occupied by the Bajery and Joary, but the greatest part with rice, of which only the stumps still remained. One of these plantations being unguarded, the black cattle that fed in an adjacent meadow preferred the cotton to grass, which they so dexterously picked off the shrub that hardly one leaf was destroyed, and I am told that even the wool and seeds is preferred to anything they can give them. The cotton of this plantation began already to ripen, which I ascribed to the situation they

are planted in. I gathered some of the wool, which was as fine as that I have seen at the cotton merchants' at Broach. In the midst of the plantation stood a well, half filled with water, which I conjecture was filled by the rains, and from whence they water the plantations.

To-day I made an excursion to Dejberah, but found nothing new in the cotton way that I have not already seen.

Monday 12th. The cotton that is cultivated here is the same as in the Ahmoed Purganah. The ground within two miles of the town is suffered to lay for pasturage, on which I found feeding several thousand black cattle. On coming to the town, I sent my interpreter to the Subadar, who is placed here by the Pundit of Broach, for permission to stay here that night, to which he consented, and ordered provision to be given to my people. In the evening, he came to the place that was allotted for my residence, and requested that I would take up my residence in his town, in preference to that of Ahmoed; but having informed him that my business is constantly in the field, and that I proposed in a short time to go to Broodra, he seemed to be disappointed. My interpreter, who got himself acquainted with the cause, told me that he was diseased with a private disorder, and that at once accounted for the uncommon invitation he made me. Although he had the disorder on him these three years, it did not seem that it made a great progress. He had a few scabs on his legs, which he told me did not increase since he had taken a decoction of *Aristolochia*, that grows here spontaneously, and which they use as an antidote in the venereal disease. This plant grows in moist places, especially in the cotton plantations which are situated close to the rivers. The plant is annual, and spreads like a *Cucumis* on the ground, and bears a purple flower.* The inhabitants call it Chalypare. The roots and leaf are remarkably bitter, and yield a thick yellowish fluid, which they extract, and combine it with boiled milk; and as their diet consists chiefly of vegetables and milk, it is no wonder that the disease makes no greater havock amongst them. In gonorrhœas they use this plant with great success, and speed, which they then combine with opium, but make no use of injection. The seeds and specimen are marked in the collection with No. 7.

The following day I took my leave of him, and on my arrival

* *Aristolochia Bracteata*.

at the tent, which was about midnight, I sent him proper medicines. About two, the usual hour that I commonly awake, I heard an uncommon whispering; but my dog being quiet, I ascribed it to the talk of my people, and being fatigued with my journey, I fell asleep again. I awoke, however, soon after. Calling out to my dog, and finding no usual opening to my call, I thought there must be more than the whispering I conjectured was occasioned by my people. Feeling for my pistols, which I kept in a trunk by my side, I found both the trunk and my pistols gone. I then, taking my fowling-piece, went to the place where I had every night a sentry placed, but, to my great surprize, I found him gently asleep. By the time I awoke him, every person was up, and having got lights, I discovered the dog strangled ~~close to the tent, my trunk, a chest, a pair of pistols, and a sword that I got from the Rajah, gone.~~ I then, ~~being resolved~~ to recover them, if there was any possibility, instantly proceeded with eight of my people towards the river, and the rest I divided to the different passes that lead to the plantation, ordering them to fire as they went on, in hopes by hearing the firing they would abandon the plunder.

This had the desired effect, and I found my chest in the mud at the pass close to the river, but the trunk, being lighter, they carried it away with them. At daybreak, I went again in search of it, but to no purpose, and I heard nothing more of it. This rather surprizing me, that none of the people awoke when the dog was dragged by the place they slept,—and by the imprinted marks of his paws it seemed that he made a violent resistance,—as they did not enter at the tent door, where the people slept, but slit one of the tent's sides, where the trunk stood, made me apprehend that some of my people were concerned, or that they had pointed out my situation during my absence at Dejberah. In the afternoon I struck my tent, and proceeded to Ahmood. The Rajah likewise

Friday 16th. made every effort for the recovery of my loss, but to no purpose. They traced them as far as the river, which they undoubtedly had crossed, at low-water to the Cooly Country.

Having now seen the whole state of cotton to the westward of Ahmood, I sent the tent to be pitched at Hanley village, close to the river Dahder. In the afternoon, I took a walk with the Rajah in the

town garden, where I met with a cotton shrub which I have never before observed. A Portuguese Padri, a favourite of the Rajah's, who was one of our company, informed me that the inhabitants have obtained this species from Junaghur, and cultivated it for the fineness of its wool during several years; but having found that the produce is not equivalent to their former, they left off cultivating it these five years. As this species of cotton seemed to me larger podded, and more luxuriant than either of the former two sorts they cultivate at present, I asked the Padri for the cause of its extinction, who gave me the following reply:—That the cotton shrubs grow to such an height, and spread so much, that every grain that the inhabitants used to sow amongst the cotton was destroyed for want of air. Secondly, that it possessed such sweetness by nature, that the insects have destroyed the greatest part, before it ~~cause to fail perfection.~~ I asked him further if the insects do the same damage in the Purganah where it originates from: to which he replied, that in the Cattyware country the inhabitants are the richest people in the whole Guzerat, merely by distinguishing themselves by the fineness of this cotton, and the quantity that it produces. However, with the real cause for the pre-eminence in culture ~~he could not tell the~~ nor any other person was acquainted with it here. In the evening I took my leave of the Rajah, and proceeded to Hanley.

Next morning, I made an excursion to the plantations that are situated close to the river, which are chiefly occupied with the red species. Some of these plantations I found cut at 2 feet from the ground, and in two of them I found the planters shorten the delicate young sprouts of the shrubs which were sown in the end of the rains. The cause for so doing was ascribed to me, that as this species is suffered to grow for two seasons, or two crops, and as it grows by nature very slender, they cut it twice a year, that the plant might form a bushy shrub, by which the produce is increased for the next year's crop. The first period of cutting occurs commonly about two months after it is sown; the second has no limited time, and the planters must be guided by the growth of the plant, so as to form a tolerable shrub before the hot season sets in. The soil of all these plantations consists of a light sandy clay, and the intermediate places were occupied with the same grain that is cultivated to the westward of Ahmoed.

To-day I went about four miles higher up the river from the district I had visited yesterday. The cotton plantations were watered from wells, which are situated on a rising ground, in every plantation, in the same manner as I have seen performed at Parolly. The wells were almost filled, and the water well tasted. On asking one of the planters how often he used to water them, he answered me commonly twice a season; but that it chiefly depended on the rains, by which means the well is filled, and consequently the plantations are watered more or less. They water these grounds for the first time three months after the rains have ceased, and continue so till the period the wool is to be gathered. These wells are built of stone, which are brought at a great expense from Baonegar, and are about 46 feet in diameter. We had no other line but that by which the buffaloes draw the water up, which ~~measured the depth~~ and by tying one of the chains I sounded for the depth, but could not get ground. (This was soon after the rainy season, when the springs were high.) The planter told me that it is nearly half as deep, and some in the other plantation considerably deeper. The soil of this district consists of a heavy black clay. Where the plantations were not watered, the earth was so dried by the immense heat which has lately prevailed here, that a man might have thrust his arm at the depth of 2 feet into the cavities, but on digging into the ground I found it pretty moist. The cotton of all these plantations is of the yellow sort, the pods of which began to swell already prodigiously. The planter told me that he had it sown in the beginning of the rains, and that he uses no other manure but the remaining stumps of the different grain, which was, except the wheat, already gathered in. On going home, I met the Rajah on the road, with some of his relations, who came to see him from Cambay. I gave, as usual, to his people provisions, and presented to him betel and opium, which I have always kept for that purpose; but he was so dispirited that he would not take any. My interpreter took the freedom to ask the cause of his oppression, but only was answered, that he wished the English would come and take possession of the country; and in a short time after he left me. My interpreter, who gained the cause of his low spirits from one of his attendants, told me that the Mahrattas who have the second part of Ahmoed, distinguished by the name of Jalput, attempted yesterday to extort

some money from the Rajah's subjects, and insulted two of his head people, who left him, because he was not in condition to give them immediate redress, for Cambay. This was the first time I heard Ahmoos was divided, and that the Rajah lives in enmity. About six in the evening, a thick mist began to spread, and during the night such a heavy dew fell that the water penetrated through my tent.

The preceding night we had again a great fog, accompanied with a heavy dew, and such chilliness, that I was under
 Monday 19th. the necessity to-day of going to the town to buy for the next night some additional covering. The thermometer fell to $49\frac{1}{2}^{\circ}$; the sun began to be very acceptable.

As I intended to shift my quarters higher up the river and country, I took the few remainings that I had left
 Tuesday 20th. under the Rajah's care, and proceeded to Gadzora. Gadzora is a large town, about 12 miles from Jumboseer, under a Pundit (it is placed in the chart, but not named), where I understood the inhabitants distinguish themselves for cultivating fine cotton, and indigo. In the afternoon, I took my leave of the Rajah, and the following day I pitched the tent under a grove of the Mowra trees, which divide the Jumboseer Purganah from that of Brodra.

Next morning I sent my interpreter to the Subadar of the town, acquainting him with my motives for coming here,
 Thursday 22nd. and that I would in person wait on him, and ask permission for my stay; who on his return brought me the intelligence that the Subadar had no objection to my stay, if it was of no long duration, but if otherwise he must acquaint the Governor of Poona, and obtain his consent for it. In the afternoon I waited on him, and presented him with a pair of pistols. After the usual refreshment, he gave me a general invitation to his Durbar, and in return for the present, he gave me two jars of sweetmeats, which I conjecture were gathered, by the filth that surrounded them, occasioned by the numerous flies, as a tribute from every shop in the public bazar. I took them, however, in the value they were presented to me, and having obtained permission to go wherever I pleased, I took my leave of him. We had to-day a heavy fog, and dew: the former did not subside till noon, accompanied with a continual chilliness, that even the inhabitants began to fall rapidly in fevers.

In the afternoon I went to those plantations where the famous cotton is cultivated. They are situated in a low plain, between Onlar and Philodra village. The soil is a heavy black clay, and the cotton of the yellow species. The wool was just coming to maturity, but none in perfect state, that I might confirm the report; but if I may judge their produce by their growth, they were the most luxuriant I have yet seen. They were pretty moist, but I could not see a well that could have supplied them with water. I conjecture, therefore, that it was occasioned by the heavy dews which fell every night. For my return, I chose my way through the midst of the plantations, which I have found everywhere in this district luxuriant in growth, and stocked with Pericarpiums. On the borders of Onlar, the cotton on the higher grounds was so high advanced, that the wool dropped down on the ground. In the midst of some meadows, which divided the plantations, I met with many large basons filled with water, which undoubtedly was occasioned by the heavy rains which prevailed here last rainy season; but they are of such a depth that it seems the planters do not think it equivalent to the trouble of levelling and cultivating them.

To-day I made an excursion to the eastward of these plantations which I visited yesterday. I found the planters stripping the bushes, and taking them out of the ground by the roots, which were of the yellow species, although they were suffered to grow for two crops. The produce was as great and fine as that I have seen at Onlar. I asked the superintendent who inspects—that the wool is not sold to the neighbouring districts as it is gathered in, what they intend to sow after they had ploughed the ground: he replied that they usually occupy these fields, whereon the cotton has produced two crops, with wheat, and let it lay for the pasturage for two seasons, when they cultivate it again with the yellow cotton. He pointed me out some fields which were sown with wheat six days ago, which stood prodigiously fine; and told me that these fields would be likewise suffered to remain for pasturage the allotted period, after which they will be occupied successively for four crops with cotton, and other grain. On my asking him by what means they used to establish so

* The basons are made with great labour, for the purpose of watering the adjacent plantations at the required period, to which the water is led by narrow channels from the river, and often filled by the freshes, as it happened this year.

immediately fields of pasturage, he dug up some roots, which I took at Surat for the *Nardus Indica*, and said : This gives the grass, and likewise in some degree a manure to the plantation. On minuter inspection, I found that the greatest part of these roots were dry, and tended to decay, which I have not the least doubt but that they make a considerable *succedaneum* for manuring the ground to the different remainings of the grain that is intersown betwixt the cotton. Having found the man so intelligible in his profession, I asked him on what he chiefly relies for the produce of fine cotton, who gave me the following information :—That it depends in a great measure on the planter, who should be well acquainted with the nature of the soil, and appropriate each of these cottons on its requisite place. For example, that the yellow sort should be sown on a black clay, and the red in a sandy soil ; for if he should not understand culture, and ~~contra place its manure of it would~~ produce any considerable quantity, nor the same fineness. The yellow sort, which requires a moistness almost during the whole period of vegetation, would be restrained by the immense heat that the sand possesses, whereas the same is so requisite for the red, its progress would be restrained by the coolness of the black clay. Very often, added he, the ablest farmer ~~cannot produce fine fibres, if he has not a sufficient district to vary the plantations :~~ in this case, for want of land to concede for pasturage, he must plant on one field constantly, which by that means becomes poor, and unfit for any proper vegetation, especially where they have not the convenience of supplying it with a sufficient quantity of water in the required period.

All these plantations consist of a heavy black clay, and so calculated with the division of the pasturage fields, adaptedly to their respective districts, that none lays a longer period unoccupied than is usually allotted them.

Sunday 25th, I made an excursion to Burka and Tarapoor, where the inhabitants of the Jumbooseer Purganah have their cotton and indigo plantations. The soil of this district is composed of sand, and a light yellow clay.

The cotton cultivated here consists of the red species, which is so divided and attended, agreeable to the method of the other districts that I have visited. When the plantations were cultivated, the planters gathered in the wool, which is to my idea superior to that I have seen gathered at Ungulla. I obtained some of it from one of the

planters, which is marked in the cotton package with No. 3. The indigo was partly intersown with cotton, and on some plantations with Bajery, Joary, and other grain. The lines were divided about 16 inches from each other, in which the cotton shrubs stood pretty thick, and the abovementioned grain scattered between; without the least regularity. I understood from the planter that they suffer the indigo to grow for two seasons, and commonly have three crops a year. The first crop was already cut, and the second, on the lower plantation, just cutting. The third is the inferior, and is not cut before the hot season sets in. On my way to the tent, I was met by one of my sepoy whom I had left as a guard. He told me, that since my absence several hundreds of horsemen came from the Ahmood road, and as they crossed the river, he saw the Czokydar, from the pass riding on horseback, accompanied by two hackerymen, as fast as they could, for ~~some distance~~ ~~in consequence~~, he took them for Grassias, who inhabit the other side of the Myhie, and they took and carried everything that they could take hold of into the cotton plantations; but as they were going for the rest of the articles, they saw them just crossed the Dahder, and making over the cotton fields straight towards the tent; but to save themselves, and fearing that I might be likewise in their way, they divided themselves in search of me. I made immediately the shortest way for the tent, resolved to defend my property; but being still the distance of three miles from the place, I had little hopes left for the recovery. I climbed one of the trees, which are planted in the midst of every plantation, for the purpose of guarding the sparrows from the grain, and saw a great number of horsemen in the environs where my tent was situated, near to a fire, which proved, on my arrival, the tent, as likewise the hackery, with all other articles gone. As there was not so much of it in the fire, I concluded that they were carried away by them. I next proceeded to the plantation, where the sepoy concealed my papers and a writing box, with some seeds and dried specimens, which I found fortunately entire, and proceeded with it directly for Ahmood. Just as I had crossed the river, we heard a noise from the planters, which commonly warns travellers by loud exclamations, if they observe in the districts some suspicious horsemen, and soon after we saw a gang of horsemen making after us, who, I suppose, were seeking after me; but being convinced that every one of them must be killed before they could cross the river. I

kept my ground as the only advantage I could have over them, and ordered four of the guards to conceal themselves in the cotton plantation, which laid close to the river, and fire at them if they attempted crossing it, and I kept the rest, with my interpreter, close to the hollow road which leads from Ahmood to the river. When they were within reach of our firearms, and as the fire came from different quarters, they could not guess the number of men I had. They retired, in consequence, on a rising ground close to the mosque; but as the firing began again from those who were concealed in the cotton plantation, they abandoned their design, and followed the other party by the road where the tent was formerly pitched. One of my men, who climbed a tree to look if their intention was not to cross the river at Hanley, reported that he counted 48 horsemen, and three horses running singly behind them, the riders of which we conjectured were killed or wounded. As every one of my people was a loser of something or other on this occasion, they requested of me to permit them to cross the river, and to carry with me the wounded, if there were any, so as to restore their loss by their ransom; but as it drew towards the evening, I thought it prudent not to grant them this indulgence, and we proceeded to Ahmood. On my arrival, I found to my great surprize, that the Rajah, with all his chief attendants, left that place for Cambay a few hours previous to my arrival at the town, and the cause was described to me, that these Grassias have plundered all the villages belonging to him, and having passed those belonging to the Mahrattas unmolested, he conjectured that it was contrived by the Peshwa. In consequence, he left the place for Cambay. Having now no place left for refuge, and not knowing the motives positively for the Rajah's so hasty departure, and having not so much as a change of clothes left in consequence, I took the shortest resolution of following the Rajah to Cambay. I hired a convoy of Coolys, which reside in every village, to give protection, and by the assistance of fishermen I crossed the rivers Dahder and Myhie, the bed of which is 7 miles broad at Dewan. Although this town consists entirely of robbers, here I was free from any apprehension of being detained, by having taken protection from them, and which they strictly keep, not to molest any person who puts a confidence in them. Previous to my setting out from Ahmood, I gave strict orders to my people not to hint of this unfortunate day on the road, fearing that some of

these Coolys might have been concerned with the party ; and fortunate it was that I did so, for as soon as I came to the town, a report was brought that a European had killed several Coolys, as they attacked him at Jumboseer ; but my people having agreed that I was just coming from Surat with dispatches for Cambay, and having crossed the Myhie at such an unusual hour, they threw off their suspicion of me, and soon after another report arrived at the Czoky, that the people did not belong to their district. They did not then ask so much how it happened, which made me guess that death often happens with them on such occasions.

At day-break I took another convoy from here of 26 archers, and proceeded to Catona, the first village belonging to the Nabob of Cambay, about 3 coss from the town of Dewan. Being now in a place where I had less to fear from an invasion of Beels or ~~Chingins~~ and the Patel of the village inviting me to his bungalow, where I and my people went to rest, and after a short refreshment marched in the afternoon to Calumser, the second village belonging to the Nabob of Cambay, where I took my abode at Hossesrete, a Mogul and acquaintance of Mr. Holford's, the Resident at Cambay, who shewed me every attention possible.

The following day I took my leave of the hospitable Mogul, and proceeded for Cambay, where I arrived at noon. The country, as soon as I crossed the river Myhie, began to change its fertile soil, and the beautiful luxurious growth which is so common on the other side. From Dewan to Catona, I met on all the road hardly 200 acres of land which were cultivated, and these are the property of people who are disabled by age from pursuing their Cooly practice. The soil is partly a black clay, and partly a rough sand. The country is as level as that about Ahmoood, and the neighbouring districts. The crops of the cultivated lands were already gathered in, which consisted chiefly of Bajery. Although the soil in some places is fit for cotton, there is not a single shrub in the whole district. From Catona to half the way to Cambay, the country terminates in uneven ground, and is cultivated only in the environs of the village with Joary, Bajery, and a grain that is called in the country language Moong, Thuer, and Crood, and these are only cultivated in this district. The former two were already cut, and the stumps left

to decay for manure. The rest of the grain began to ripen, and on some fields the grain was cut. The soil is a rough sand, and rather unfavourable for culture; but as they have their choice every year of as many acres of land as they please, and are able to cultivate, they have tolerable good crops, especially Bajery, which requires a sandy soil; but the most part of the country to the eastward of Calmeer, as far as my eye could reach, was not cultivated nor inhabited.

Cambay is situated on an eminence, facing the entrance of the Myhie, and was formerly famous for different manufactures of cloth, which was exported for Mocca, Indian and African markets, as likewise for polishing cornelians, and making of indigo, which articles were likewise exported for those markets, and China. The cornelian being chiefly exported for Mocca, derived its name in England after that city, but they are, properly, Guzerat stones.* The stone is dug ~~on the Narbadah, on the borders~~ of the Cooly (Rajpepla) Country, and imported to Broach, where it is prepared in the sun and in fire, and wherein it opens the various colours.† From Broach it is exported to Cambay, where it is polished, adapted for the different markets. Those for seals are exported for Europe and Mocca; those for China in the shape of a pearl, and of the size of a pistol ball. ~~The octagons are exported for the Guinea Coast, and Mozambique.~~ The polishing being monopolized by the Company's brokers, the precise price of this trade is not known to any person but themselves; and as it is their particular interest to conceal the art, they will not suffer any person to visit the polishing-places, of which there are a great many. The other article which Cambay exports is indigo, which they cultivate here, but of late the indigo makers adulterate it so much with other ingredients, that no merchant will buy any quantity. Salt and tobacco are the only principal articles that they export to some advantage, especially for the Surat and Bombay market, which consume the greatest part, with their subordinate settlements. The city is built in a semicircle, and at the north-west side surrounded by a ditch, and a double wall, with several towers, which are not able to bear the weight of a 6-pounder. The ditch is likewise out of repair, and the walls so dilapidated, that a horseman is able to ride in and out through the different openings. Mr. Holford informed me that this town, twenty years ago, was next to

* Is not the Akeek or Agate called Mocca Stone? They come from Cubbut Winge or Punge (Kupperwunje);

† Are they not prepared on the spot?

Ahmedabad on this part of India ; but at present it is nothing else but a heap of ruins—the houses either deserted, or so pining in decay, that there is not a single house, except the English factory, and those belonging to the Company's brokers, worth looking on ; all pulled down by the late Nabob's orders, when the poor inhabitants were not able to discharge their exorbitant taxes, that he had laid on them. Even the large Mosque, which belonged formerly to the community, who were not able to pay the Nabob's demand, was confiscated, and appropriated for the Nabob's storehouse. I went to see it to-day, accompanied by Lieutenant Ross and Mr. Lane. It is built of stone, about 94 paces square on both sides, with four walks and 16 capullæ, which are supported by four square pillars. At the head of the building is a high steeple erected, which I conjecture is about 1,600 feet high. It measures at the bottom 42 feet in diameter, and gradually decreases as it advances in the height. ~~About the middle~~ are apartments dedicated to the head Gassings,* who reside there by turns ; but as it is cracked at different places, and hangs considerably at one side, occasioned either by an earthquake or the fault in building, the dwelling must be not very pleasant to the Gassing whose turn is to reside there. ~~On one of the extremities~~ are apartments built of white marble, which the Nabob's women inhabit for their Harem, and which, as there is not a single stone in all the districts that I have visited, must have been built at an immense expense. In the midst of the Mosque court-yard is a well, and a small tank with fresh water, and the only one in the whole town where the water is not brackish. The city of Cambay is situated considerably higher than the Gulph, so that at every spring tide the water is filtered through the earth, and fills every tank and well in the town with brackish water. The eastern parts of Cambay are considerably higher, and have many wells of good water, from whence the town is supplied. However, merchants who can afford, have large reservoirs built for saving the rain-water during the rainy season, which commonly lasts them from one period to another ; and as their religion commands the Gentoos, who are the richest merchants here, to wash their corps several times a day, they are in want of a quantity of water, and by these reservoirs they save the Pakoly hire, which is here very expensive.

* Gosaan must be meant ; but how came these to be in a Mahomedan mosque ? There must be a mistake here.

As I was desirous to see the polishing of the cornelian, Mr. Holford represented to the Company's brokers that Thursday 29th. I could not do them any injury by seeing, for being a Physician, in which quality I travelled, I would not give myself further concern about it. This had such good effect, that the brokers set on to work all their hands, and I saw it in all its different branches. The cornelian is the same that is found in Lithuania. The rough stone, as I have before observed, is put into the fire, where it receives the different colours, and becomes very brittle. The first thing they do is to bring the stone near the form for the intended purpose, which is done by boys, who hammer it off against a horizontal piece of iron, with buffalo-horned hammers. In this they are so skilful, that they are able to strike the minutest part of the stone with the greatest exactness. Next is to give the first polish, which is done on a hard sandstone, turned by a man by means of two leather straps, whilst the other is polishing it from the first roughness. Then he gives it to the next, whose business is to refine, and lastly to the third, who finishes it, by correcting the angles, or any other fault that he finds. Over each of these polishing-stones, which vary in their compactness peculiar to the separate kinds requiring polishing, they have suspended jars with water, in the bottom of which there are small cavities, whence the water drops gradually on the stone, during the time the man is employed. Each of these three polishers pursue their own branch, and are totally unacquainted with the next. They are usually chosen from the boys I have above observed, and introduced according to their skill to the different branches. The drilling or perforating the cornelian is quite a different branch from the rest, to which the people are brought up from their youth. This is performed by a diamond, which is set in iron, and secured immoveable, to which the proposed object is applied, and drilled in the same manner as our turners do in Europe. Each of these perforators receive two rupees per day, which are astonishing wages in this country.

To-day I and Mr. Holford made an excursion to the cotton plantation, which belongs to a village under the English protection, the inhabitants of which injured their neighbours, by letting their cattle feed in the adjacent indigo fields. The damage was very trivial, but as the villagers would not reconcile the injury, the planter sent them a usual

Friday 30th.

friendly warning, that if they did not recompense the injury in two days, he would destroy a part of their cotton. However, the villagers little regarded it; in consequence, he was as good as his word, and destroyed them a considerable district of land, by cutting down the bushes. With this, however, he was not contented, and left them another warning on one of the shrubs, which was written in the Sunsurate* language, that he hoped they would give him a speedier redress, if not he would do them every damage he could. As this came to-day before Mr. Holford, who is convinced of the obstinacy of the inhabitants this country possess, some of whom would lose all they were worth rather than yield to another they think below their notice, he went to-day to settle the dispute, which he accomplished, being thoroughly acquainted with the language and manners, by a few words, and both parties went away satisfied. Mr. Holford informed me that the inhabitants of the ~~country~~ ~~plantations~~ themselves clandestinely of their neighbours, but always give them a few days before a warning,† with the damage they intend to do them, and if no one has been noticed by his adversary, they go often so far as to kill him, and then they are satisfied. All these plantations are situated remarkably high, and the soil consists of a rough sand. The cotton was of a red species, and of tolerable texture, which the inhabitants began to gather in; but they do not cultivate a sufficient quantity to answer their demands, and they are commonly supplied from Dolera and Pitlad. They sow their cotton in the beginning of the rains, and manure the ground with cowdung. There are but few plantations in the neighbourhood of Cambay, which are not cultivated yearly, consequently it never can do well for cotton; and as they are able to purchase it better and cheaper from their neighbours, they cultivate the land with different grain, which they bring to greater advantage. The planters are chiefly Hindoos, and are more diligent in culture than the Moguls, of which there are but few who have any estates under their immediate care; and as they are fond of idleness, they lend it out to the former, who make the best of it, by their knowledge of improvement, which they commonly manure either with cowdung or fish, of which there is great plenty in every tank, and the Gulph.

* Qy. Sanakrit?

† These warnings are commonly written once, and are usually placed on a conspicuous place in the adversary's plantation, where he may easily discover them.

The 1st of December Mr. Holford, having obtained permission from the Brahmins to visit a statue, which was concealed from the Moguls on their first invasion of this country, and is kept to this day in a cave as a memorandum, to which the Hindoos pay high adoration, in consequence I went to see it, accompanied by Captain Torin, and Lieutenants Ross and Maclean. This cave, over which is since a Bramin house erected, stands situated on an eminence in the town, not far from the English factory, into which we were guided by the assistance of flambeaux and lights. The statue represents a young woman sitting cross-legged, crowned with two crowns, and a sphere, round the head cobra capello snakes, besides a numerous attendance of people, lions, and elephants. It is hewn out of a solid piece of white marble, about 17 feet high and 12 broad, and is placed in a subterraneous apartment, about 14 feet square; the depth I can't conjecture less than 200 feet, where neither light nor air can come to it. Being a piece of work that does the maker credit, I began to take a drawing of it, but the immense heat, occasioned both by the flambeaux and obstruction of air, made me desist from my enterprize, and abandon the cave. However, on the second descent, I accomplished it, as is represented in Figure 1.

To-day I made an excursion to the Cambay hills, so called by the Natives, on account of the uneven ground, but there are no real hills within 50 miles of Cambay. I found this district covered with a small bulbous root, which was just in flower, by which I took it for a new *Panacra-tium*. The soil is an entire sand, and uncultivated. The roots, specimens of the flowers, and a drawing of it, is marked with No. 6. The roots are marked under the same number, Chest No. 5. The town of Cambay being formerly famous for good Cattyware horses, Captain Torin had been sent round by the Government of Madras to purchase some for their Cavalry; but being disappointed by the extreme change that this country is reduced of late, he was advised by Mr. Holford to go to the Cattyware country, as the only place where he might get any. He accepted this advice, and proposed to go through a part of Brodra Purganah. My intention being likewise to visit the Brodra plantations, and the neighbouring districts, and having seen the whole state of Ahmoed cotton, which does not change in culture till the rains sets in again, I purchased a horse, a

tent, and other necessary particulars, from Mr. Holford, and having dispatched two pattamars with a paquet for England, under the care of Mr. Boddam, we set out on the 4th for

Tuesday 4th. Dolca,* a large town about three days' journey from Brodra, and two to the NE. of Cambay, situated on the borders of the Sabermatty river. At noon we arrived at Padra,† where we refreshed, and in the evening we arrived at Rasbora, the last village belonging to the Nabob of Cambay, and pitched our tents close to a battery of swivel guns, which is erected to keep off the encroachment of the Cattys from his territory. The soil, beginning from Cambay, to the plain of Padra, is an entire sand, and little cultivated, to change its desolate appearance, and the soil resembles that about Kerwan and Parolly. It is commonly cultivated with gram and wheat, the only two grains which still stood in the field. ~~Here and there are likewise cotton plantations, but in a~~ very poor state: the shrubs are very short, a scanty crop, and coarse cotton. I dug the ground in several places, and have found the soil at a foot's depth but little moist, which is undoubtedly owing to that element that the wool is so poor. The shrubs are exactly so divided in lines as those in the other Purganah, and the lower plantations interspersed with the rice stamps. ~~From Padra to Kelle and Barsora, the soil consists of a heavy black clay, and cultivated everywhere with wheat. The planters that weeded the plantation told me, that the next rainy season they intend to sow this plantation with cotton. From Barsora to Rasbon, within a quarter of a mile from the river, the soil consists of a lighter clay, and fully impregnated with the Nardus roots. The inland side was chiefly occupied with cotton of the yellow species. It grew prodigiously luxuriant, and covered with blossom.~~

The next morning we crossed the river Sabermatty, which is nearly one mile broad, and so clear that a rupee
Wednesday 5th. may be discovered at a fathom's depth. On the declivity of the banks, which are remarkably high, I looked for pebbles, but found none, and I am apt to imagine that there is none in all these districts that I have visited—at least I could not find any at those places where they are usually found.

* Quite in a different direction from Brodra.

† A Nabob village, about 7 coss from Cambay.

The banks consisted partly of three different layers, and partly of two. The first stratum was for 15 yards of an entire black clay, the next for as many of a mixture of sand, clay, and black earth, and the third of an entire rough sand. At other places, it consisted only of the two latter strata, and the country, as far as the banks did not vary, was considerably lower. By this, I conjecture that all these sandy and argillaceous plantations in the Ahmood and Jumbo-seer Purganah were once covered, like the rest, with a black stratum, and were only gradually carried off by torrents and freshes from the inland countries, and rivers, and the soil either replaced on the neighbouring districts, or followed with the stream. On the borders on this side of the river stood a village surrounded by a mud wall, the property of Fatessing. Here we took 40 men with matchlocks to convoy us to Dolca, and paid each of them one rupee and a quarter. ~~On coming~~ to Angully, about 4 coss from Cararee, we were asked if we did not meet with some Cattys on the road, who left the watering-place about an hour ago, and proceeded towards the river. However, though we had not seen them, Captain Torin, for the better security, hired on his own account 20 additional men, and we came unmolested to Pysawater village, about 2 coss from Dolca, where we rested during the greatest heat of the day. One of the Rajahs (Jamedars), whose name is Shermia, being made acquainted by Mr. Holford, previous to our setting out, of our coming here, sent 50 horsemen to meet us, and he waited for our reception at the place he had appointed for our abode, and received us agreeable to the country custom, namely he ordered to each of our men provisions, the cattle and guards not excepted.

The following day we repaid him the visit; and on going away, I presented him with a fowling-piece, and Captain Thursday 6th. Torin with a pair of pocket pistols. In return, he gave to Captain Torin a horse, and for me a large ox for a Pakoly* (Pukkalee). This ox was larger than any I ever have seen in Europe, snow white, with prodigious large horns, and a large hump on his back. Of these there is a great variety, and only peculiar to this country. The next day I went to the Durbar,† and asked him permission to gather plants in his territories, to which he had no objection; but as it is inconsiderable in the environs of the

* Pakoly signifies a leather bag for water, carried either by an ox or a buffalo.

† Governor's residence.

town, he advised me to go to the head Hindoo Rajah, to whom the greatest part of this district belongs. On my return home, Captain Torin, who was at the two other Rajahs', to ask permission to buy up horses in their respective districts, informed me that the head Rajah was unwell, and having heard that a Doctor came with him, requested that he would tell me to come and see him. As I had no presents left but a pair of pistols, which I intended to retain for Fatessing until I came to Brodra, this was happy news to me. In consequence, I sent my interpreter to the Durbar, acquainting the Rajah that I would wait on him agreeable to his request, who, after many pertinent questions, asked my interpreter if I had besides my horses any other conveyance, and being answered in the negative, he sent for me his Palankin, accompanied with a large retinue of Arabs, their trustiest people that they have in their service. This disorder being nothing more than an ~~intermitting fever, occasioned by the mildness of~~ the season, and being by experience confident of the immediate effects the bark has on the country-people, I promised him that he should be better in a few days. As soon as he heard these words, in rapture he took hold of my hand, and said that if I restored him to his former state ~~he would give anything I could desire of him.~~ I then ~~took~~ directly the liberty of asking he would speak to the next Rajah to grant me the liberty in his territory to search for plants and medical herbs; on which he immediately dispatched a messenger to him, and in the evening I obtained a general permission to go wherever I pleased; but likewise, I was cautioned to be on my guard of the Cattys, who often drive their cattle away, even from the town gates.

The country we had passed the day before yesterday, beginning from the Sabermatty to this place, is more level and open than any I have yet seen. The soil is a light black clay, as that in many districts in the Occliseer and Jumboseer Purganah. The grain is in a greater forwardness of vegetation and industry of culture than that in the Cambay territory. The road on both sides is lined with cotton plantations, which are of the yellow species, and full of blossom. The divisions of the shrubs, and lines, is exactly the same as it is in the other Purganah, and intersown with Bajery. Besides cotton, the fields, as far as the eye could reach, were cultivated with wheat, barley, and gram, which grew prodigiously luxuriant, and were interspersed with pasturage, which formed a view superior to any I

have seen in the best cultivated country, and I may venture to say even in England. Between Angully and Pycawapi, as we were riding over the pasturage fields, the grass on which grows to an immense height, we started many hundreds of antelopes, which are of the species which have screwed horns; and as no person disturbs them here, they are so tame that we might have shot as many as we pleased. Wild hogs are likewise in plenty, and of an uncommon size, besides jackals and hyenas, which are the same as I have seen in Africa. Of birds we saw only three different species, a green and red Psittacus, a new species of a bird that is called Miner, and great clouds of little birds, which are peculiar only to this Purganah, and are distinguished in Surat and Bombay by the name of Ahmedabad birds. They feed chiefly on grass seeds, and fly in incredible numbers.

~~Both of us having now~~ received permission to visit the districts of

Dolca, in consequence, early the next morning I and Captain Torin made an excursion to Dowlat,*

Friday 7th.

I with a view of seeing their cotton and indigo plantations, and Captain Torin in hopes of getting some horses. On the road we met with numerous women who gathered the dew of the grain, called by the inhabitants Chana,† or gram, by spreading white calico cloths over the offspring, which was about 2 feet high, and so drained it out into small hand-jars. They told me, that in a short period it becomes an acid, which they use instead of vinegar, and that it makes a pleasant beverage in the hot season, when mixed with water; as likewise they used it as an antidote for the venom of pernicious snakes, of which there is a great number in the wet season. I tasted the dew, but found it of no particular taste, except rather softer than common water, as it is peculiar to the dew. I have often seen this pulse grown in the other Purganah, as likewise about Gadzora. They sow it after the Bajery is gathered in of the cotton plantation, but have never observed that the inhabitants made any use of it, or gathered it. The grain is sown in narrow furrows, not unlike our field pease, and grows to the height of 3 feet. I understand that it is yearly sown by itself, in the month of November. The soil was of a light clay, but I have seen it in all

* A village belonging to the head Hindoo Rajah, about 7 miles from Dolca.

† *Cicer arietinum*.

soils and situations. It ripens in January and February, and it is chiefly appropriated for horses' food.

We arrived at Dowlat by ten, where Captain Torin remained, and engaged to wait my return. In consequence, I proceeded to the indigo plantations, which are situated near the river Sabermatty, and found the planters cutting the second crop of indigo about 13 inches from the ground. Higher up the river the indigo was already cut, and sprouted very luxuriantly for the third crop, which they cut for the last time in the end of February. Some of these fields are pretty moist; which I suppose, as there was little water in the river, that they were watered from a large tank, which was situated close to it; but as the interior fields were likewise wet, and there is not a single reservoir within a quarter of a mile, I could not form myself the least idea how they perform it. The cotton plantations were of the red species, and stood prodigiously fine in blossom. In the intermediate places Bajery was intersown, which began to ripen, and in some indigo districts, which were of a sandy nature, it was perfectly ripe, and the planters were employed in gathering of it in. The soil of the cotton plantations were not unlike the second stratum of the banks of the Sabermatty at Carara, but seemingly very fertile.

Being now at least 8 leagues from Dowlat, and having still a long journey before me from thence, I therefore was obliged to abandon the indigo plantations, without being able to inform myself thoroughly of their culture, proceeded to Dowlat, where I found Captain Torin surrounded by numbers of fine horses, but they were so extremely dear, that he was not able to purchase one of them. On our way back to Dolca, he told me that all these horse-dealers were Cattys, and that they pay the Rajah thirteen rupees on selling one of their horses, and as Captain Torin likewise engaged with Shermia to pay four rupees a head, I promised myself, that so long as he stays at Dolca, I shall not be molested by the inhabitants.

On our return to the town, I went to see my patient, whom I found to my greatest hope remarkably better, and who received me more like his brother than a stranger. The fits that he had so violent were now to him hardly perceptible, and he took no more than eight ounces of bark. I told him that I made an excursion to the river, where I found a few plants, and that I intended to go there again the following day, in hopes of finding more worth the journeys in this climate, so fatiguing to an European; in conse-

quence, I wished to fix my tent thereabouts, and reside there for a few days. This, however, he did not approve; saying that I should be carried off by the Cattys the first night that I should sleep out of the town; but as I persisted in my request, he at last granted me it, and gave me a Czopdare (Chobdar), or mace-bearer, who he told me would be as good a protection to me as if he had been with me himself, which convinced me that the reluctance in granting me the residence at Dowlat was a real concern for my safety.

In the evening I took my leave of him, and the next morning I set out for Dowlat, where I arrived at noon, and Saturday 8th. pitched my tent close to the village. No sooner

I got myself arranged, than I had a great crowd of people about my tent, with different diseases; but as I had lost all my medicines and instruments, and had no more with me but what I got spared by Mrs. Holford, in consequence they were discharged with a consolation until I should receive my medicines from Bombay, respecting which I had wrote to Dr. Scott. Most of these people were attacked by agues, which in this low country, in setting in of the cold season, makes great havock amongst the helpless wretches, for they have no medicines of any kind, and their Esquiers, who are the physicians, are totally unacquainted with diseases, and only pretend to cure them by charms and imposture. Very often the constitution gets the better of the disease, which is then attributed to the power of the charm; but when the reverse, it is said that nothing would have cured the distemper, because God interfered, and would have it so. The small-pox makes likewise a great havock amongst them; but the worst is a kind of serophulous and infectious disease of the skin, which peels it off gradually, so that they are in time as white as an European. I have seen them in different stages. At first it commonly begins about their neck and legs; very teazing; the patient, however, enjoys his health for a long time. In the second, the whole body is covered with scabs, a contraction of their legs, and motionless. In the third, a fetid expectoration, with the loss of hair and nails, not unlike the venereal disease. I ventured to give to one of these people some mercury at Cambay, but as my stay there was but very short, I could not observe what effect it had on him; but during the period that I attended him the disease seemed to alleviate very fast. The venereal disease, though it is very frequent amongst them, appears but slight to those who conform

paid him on this occasion he was remarkably satisfied, and we parted intimately, I to my tent, and they directly over the fields. They were all well clad in silk quilted jackets and trowsers, and prodigious large turbans. My interpreter, having asked who and what they were of the Czopdare, informed me that they were Cattys, and allies to the Rajah, who guard his territory from the allied party to the two other, and said that they would have plundered us had we met with them, and which these to which we spoke would do the same had they met with the inhabitants or confederates belonging to the other party. This cautioned me not to put a strong confidence in the Czopdare, whom I have found only serviceable when we fall in with his allied party; but if the reverse, he is under the necessity of taking my protection. I found him, however, otherwise very conducive on going out, as likewise, in procuring provisions, and ~~Coolies in which he was~~ particularly obeyed, and feared by the inhabitants.

At daybreak I set out to Morga or Botodra garden, about 3 coss from Dowlat, where my people told me were several
 Sunday 9th. exotic trees and flowers, as likewise a large building, ~~which no person was living near the foundation~~ of it. The garden is remarkably large, and is pleasantly situated on the banks of the Sabermatty, interspersed with channels, tanks, and bathing-places. This large building is situated in the midst of it, surrounded by a spacious channel, and planted with the Thuja, and Cupressus Orientalis. It is constructed after the model of the Apollo temples, and no less than 178 paces in circumference. The cupola is supported by 32 pillars; between each of them, in the wall, figures of different sizes are hewn out of the solid stone, which represent their gods, and different ceremonies. One of these I took on paper, which is rather monstrous, representing the god Bhrama,* with seven hands, which is just placed over the entrance of the hall; but the principal figures are dilapidated by the Moguls, on the first invasion of this country. As the doorkeeper was absent in Dolca, I was not able to see the inside of the temple, which I understand has many tanks and fine apartments of white marble. The garden is laid out after the Indian stile, namely in straight walks, interspersed with limes, oranges, figs, and the Nyctanthes; also Sambac, which

* The figure, and one of the pillars, are marked with Nos. 5 and 7.

they call Moagry, as likewise with the *Jasminum officinale*. They line the hedges, and from the flowers they extract a powerful oil, with which the females anoint their hair. Next to the garden I met with a small plantation of *Bixa* trees, which they cultivate for a red and a yellow dye. They were just in blossom, which is white, and so plentiful, that the shrubs, which grow from 15 to 20 feet, appeared at a distance like new whitewashed pillows. They belong to the class Polyandria, order Monogynia. The empalement consists of five round petals, folded over each other. It has no calyx, except three knots, which are placed close to the germen.* The germen is globular, and woolly. The style is longer than the stamina, with an incurvate simple summit. The stamina are numerous, very long, and a ovate yellow anthere. The pericarpium consists of a eclinate divalvular elastic capsula, and numerous oblong pointed seeds, which are incrusted with a reddish substance, which they chiefly use in dyeing their scarlet turbans. The roots and leaves of this plant produce, likewise, a yellow dye, which, when combined with that of the seeds, becomes near the Nankeen colour of China, and the colour is lasting. As they export this dye to China, with a great advantage, it leads me to suppose that the Chinese dye their Nankeen with the extract of this shrub. They are planted in straight lines, about 10 feet from each other, and were watered from a well that was situated in rising ground in the midst of every plantation. The soil of this district consists of a yellowish clay. *I understand that at Humaly village, about 10 coss from Brodra, large plantations are laid out with nothing else but these shrubs. The seeds are sown for a new plantation in a separate ground, from whence the shrubs are afterwards transplanted into the plantation in the beginning of the rains. About the garden I met with many hundreds of peacocks. As they are worshipped by the Hindoos, no person dares to disturb them: they propagate very numerous. They are likewise suffered to feed on grain, without being hindered by the planters.

The antelopes, however, do them considerable damage in the cotton plantations, against which they are obliged to keep guards and fires in the night round the plantations. This, however, has very little effect on the old ones, who are accustomed to this illumination. On my return to Dowlat, I found the Rajah's eldest son in my tent.

* *Bixa Orellana*.

who came to take me out to his new sandalwood plantation, and brought with him two bottles of that dew which I have above observed, and attributed many different qualities to it, but especially that against the venom of snakes. Although it was fresh off the plant, it has a particular mineral acid peculiar to itself. I compared that which I had gathered a few days ago, which had likewise already acquired a mineral acid, but not quite so powerful. Being rather too late in the day to visit the sandalwood plantations, he deferred it to the next, when he promised to be with me early in the morning. Agreeable to the country custom, I ordered his people provisions, and he drank (although he classed himself amongst the first class of Gentoos) several glasses of strong spirit of wine, in which I used to preserve my insects: I must, however, add that he did this only in mine and the interpreter's presence, and on going ~~way, he said that he would not have done it if he had not previously~~ it a good confidence in me, that I would not tell of the transaction. We parted in the evening, and early the next morning he sent me an apology, that he was not able to come himself, but that I was at liberty to go there, and take with me from thence what I pleased.

I accepted ~~the offer and set out immediately to Ramazy,~~ about 10 coss* from here, where the plantations are situated, Monday 10th. and in the evening we arrived at the village. On the road we started again a great number of peacocks, which were just out of brood, and followed by swarms of young ones, which I understand eat as well as the best turkeys. About 3 miles from Dowlat, and within the same distance of Ramazy, the land was uncultivated, and overgrown with high grass, which was in some places burned down, and in some just ploughed, and sown with wheat and barley. I understand from the man who was sent by the Rajah as my guide, that these villagers have more ground than they are able to cultivate; in consequence they suffer it to lay for pasturage during a certain period, which is sometimes two and three years, when they ploughed it again, and cultivated it with cotton; and as they are not able to consume the grass, nor bring it to a profitable market, they set those fields on fire, and burn it down every year at the period when the dews are most powerful, which is this and the following month, by which means ashes is washed down into

* A coss is equal to $1\frac{1}{2}$ English mile in Guserat.

the crevisses, and manures the ground until it is cultivated with cotton. The soil is the same as that in the Ahmood and Occliseer Purganah, except that it is rather lighter, and readily divides itself when dry, which I ascribe to the alkaline salt that it receives from the ashes, and tenders the compactness of the clay, for on digging in the ground below the layer where the ashes is not able to penetrate, the soil consists of the same texture like that in the other Purganah. As soon as my people were able to go out on account of the cold, that affects them more than the coldest winter does us in Europe, I proceeded to the sandalwood plantations, which lay close to the river Sabermatty, about 2 miles from the village. By the account I had from the overseer, their extent is 3 coss in length, and one and a half broad. They are but newly began, and the thickest which came to my sight did not exceed 9 inches in diameter. He told me that the Rajah got the seeds the ~~war before~~ ~~in~~ ~~the~~ ~~country~~, and that since, his son Tippoo endeavoured to destroy them by means of the Cattys, who received a sum of money from him, but to no purpose. The chief use they make of the wood is to burn with their deceased relations. Even the poorest of them purchase a few ounces in addition to the ~~pile to burn their deceased friend~~. The soil of these plantations, as far as I have been in, consists of an entire hard and rough sand, not unlike the third stratum which I have above observed on the banks of the Sabermatty at Carare. I am almost confident that the two uppermost were carried off by the heavy torrents, which have passed here formerly, either from the river or the inland side. As there are still marks of weeds left on the branches, I may therefore give credit to the superintendent, who told me that the water rises sometimes in the rainy season so high that all the guard houses, which are artificially raised at the head of every plantation, are often overflown, and the people obliged to retire to the chief Czokys, which are erected for that purpose on the borders as far as the plantation extends; but as the nature of the tree requires a great deal of water, the plantations are here purposely chosen, as the most eligible place for it. The tree he told me flowered all the year round, and the best seeds ripen in the hot season, which is May, June, and July. It is then sown immediately in small furrows at the distance of 16 feet, and where it is suffered to grow without interruption until it comes to maturity. The sandal is the heart of the tree, which enlarges every year from the centre, till it becomes

a settled stem. They then call it ripe. For this they allow ten years, and after the expiration of this period it is cut down. Every plantation has an encompassment of a narrow ditch, and in the centre a well, from whence the vegetation is supplied with water in the cold and hot season. On one of the side-stones of the wall the date of the plantation is engraved, that they might positively know the limited period. Even their recruited trees have their respective number of years when they were replanted. They are yearly enlarged, as they get seeds, so that they have trees of every growth, and in constant perfection. The height of these were about 40 feet, and so gradually decreased till two, which were sown last hot season. When the plant is grown to that height, they have then no further care with it, than to water and clear the bushes of the superficial branches for the form of the tree. Nine of the plantations were recently turned ~~which I understand they perform~~ with the plough, and level the ground so even that the whole plantation receives an equal share of water. Where the land is unequal, they intersect the plantation with a narrow bank, and have additional wells or channels cut from the head well, by which the water is guided to the intended division. At Ahmoed I met ~~with many such banks in the cotton plantations, where the ground was cultivated, but not a single well,~~ which leads me to suppose that they are intended for the interception of rains. The sandal tree is the whole year green, and in vegetation, and grows to the height of 50 feet, and 2 in diameter. The flower is very minute, and belongs to the class Tetrandria, order Monogynia. The calyx is monophyllous, with four reflexed acuminate lacinie; petals 4, inserted into the calyx, very minute, upright, and oval; the germen sub-rotund, with a short upright style, and a globular moist stygma; stamina 4, upright, the height of the petals; anthere ovate; nectaria 4, intersected between each of the stamina, resembling a leaf upright, and always moist. The pericarpium is a dry berry, and the vegetating fructification covered with a thin brittle shell.

In the afternoon Captain Torin came to see me at Dowlat, and informed me that he intended to go to Lymree, where he hoped to get the horses cheaper. In consequence, having seen the whole state of the cotton in this Purgannah, which does not vary in the least respect till it is gathered, and being desirous to see the Cattyware plantations, of which the Portuguese Padri spoke so highly, I asked

Captain Torin if he had any objection to my going with him. He said he had none; in consequence, I made immediate preparation, and the following day I left Dowlat for Dolca.

Yesterday and this day we spent in reviewing the environs of the town, which the numerous magnificent tanks and ruinous Mosques indicate that this place has been in former times in a flourishing state. One of these tanks, which is situated on the Mogul burying ground, extends for near 2 miles, and about one and a half broad, surrounded quite to the bottom, which I dare say was constructed with great expense and labour. In the middle of the left side of the entrance are remainings of a sluice, and a channel is cut from the Sabermatty, by which this tank was supplied with pure water. On the opposite side is likewise a remaining of a subterraneous conduit, by which the superfluity of water, and the effluvia, are carried off. ~~On the~~ ~~extremity~~ ~~stand~~ small Mosques, with benches, where the people usually rested. At the head stands a large building, likewise of the same stone, 410 paces long, and 34 broad. The height I can't conjecture less, which is built into an arch, than 200 feet. In the middle of the inside of the wall is a pulpit built to which are 15 narrow steps, on which lamps are placed, and burned by the poor Moguls, who have the only remaining indulgence from the Hindoos. At one of the extremities is a partition, with large windows, and by the narrow figured grates, which are hewn dextrously out of the stone wall, it leads me to suppose that this part has been assigned for the women when they attended the Mosque. On the ground are many inscriptions in the Persian language, which we took for tombstones of their head people, and by which my interpreter has computed that they are 2,083 (before Islam) years old. The next tank is rather smaller, but exactly so encompassed with steps like the former. In the centre, on an island, stands a temple, not unlike that I have seen at Margo. It is supported by 18 pillars, as it is represented in Figure 7. To this temple is a stone bridge built, 16 feet above water. But all these tanks and buildings are entirely neglected, and suffered to decay.

Dolca is the property of Fatessing, bordering on the east to Brodra Purganah, and one day's journey from Ahmedabad. The adjacent districts are farmed out to two Rajahs, who are his relations. They have an equal territory, and each pays him yearly seven lacs of

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rupees. Shermia, the Mogul, has his own territory, and pays to him as an acknowledgment of his superiority one lac per year. The town is very extensive, and is surrounded to the SW. with a brick wall. The NE. side has several deep tanks, which answer both for the use of the town and its defence. They export the red dye and indigo, which is the best in the Guzerat, and the first sort sells at Rs. 60 per mohn, and the second at Rs. 50. I have taken a specimen of each, which is enumerated in the mineral collection. They export likewise tobacco, grain of different sorts, and cotton, to Ahmedabad, Surat, Bombay, and the inland districts, which are deficient in these articles. In return they take sugar, opium, cocoanuts, fine cloth, salt from Mitampoor and Cambay, and the rest is ready cash. Horses and black cattle might be got here in any quantity, and pretty moderate, if a man is qualified in the country language, and customs; Captain Torin candidly saying he might attribute his ill-success here to the want of these two material accomplishments. The horses are tall, and might be called well made, was it not for their short necks, which are rather shorter in proportion to the rest of their body. The black cattle is of different kinds. The large white ox, with the prodigious hump on his back, and horns, they train chiefly for Hackerys, and ~~commonly~~ such a trained ox sells at Rs. 60. The second is a smaller sort, which they train to the plough. The third are used for carriage of goods. Of these there are a great variety, and are considered the most useful amongst them all. The last is the buffalo, which they nurse for the quantity of milk which this animal yields, and they commonly anoint their skins once a month with oil, that the immense heat which prevails here in the hot season might not scorch them. They rear likewise sheep, which are of the species that have long flapping ears, and prominent heads. Of wild animals, the royal tyger is met in the high grass fields, of which I saw the skins, and coverings for the Rajah's estate horses. Besides these species, there is a great many tyger cats, and another species with short legs, and remarkably bulky, and not spotted, but striped like the zebra. The fourth is the cheeta, which is about the size of a large mastiff, which they train for hunting the antelopes; jackals, foxes, hyenas, and wolves are in great swarms. Carcasses of cattle are cleared, for they never enter a carcass, but expose it on a particular place close to the town, which in this sultry climate renders the air and living very

unhealthy. Besides these abovementioned, antelopes and wild hogs are innumerable in every district and direction. On the former the Moguls chiefly maintain themselves, but never touch the latter. However, the lower class of Hindoos are not so scrupulous about it, and make a great dainty of it. Of birds there are a great many species. The colomb, which is a bird of passage, and only visits this part in the time of wheat and barley, has the pre-eminence, but so shy that I was never able to get within shot of them. They usually fly in great flocks, and make a continual noise in the air. They are considerably larger than a turkey, and by the account I had, they are of a light blue colour. Of the Falco Milvus there is likewise a great abundance, which clear the ground of the effuvia, and some of them are so daring, that they often darted after our victuals whilst we were at meals. Of reptiles, there is but few in this season; they usually make their ~~immense~~ appearance in the rains. Of the ignana, the Waygry or bird-catchers (hunters) brought one of an enormous size. One of them measured no less than 9 feet 4 inches, and of which the country-people make a great dainty.

In the evening I took my leave of Shermia Shetor Mah, and the friendly Rajah, ~~who almost had recovered.~~ He gave me a letter of introduction to the Rajah of Mitampoor, and parted with me as if I was one of his family.

Early the next morning we set out for Lymree, and came in the evening to Rajapoor, a large village, belonging to Thursday 13th. Shermia, where we took our abode for this night. The country between Dolca and Rajapoor is but poorly inhabited, and we past only three villages in our whole day's journey. The country is as champaign and destitute of wood as that I had visited. Between Rajapoor, the road and the plantations were totally overflown by the spring tide, which left the salt water behind on the low places, and at the distance of 10 miles we saw either a large salt lake, or river, bearing west of us, as we proceeded to the NNE. *As no European except ourselves* had ever visited this part of the country, I wished much to determine what it actually was,† but being rather late in the afternoon, and the road remarkably bad, we were obliged to our mutual regret to abandon our design.

* Captain Hawkins, in General Goddard's time.

† Probably vapour. I have known wagers made upon this appearance of water.

None of our guards could inform me further than that the country was monthly overflown at the high springs ; I therefore conjecture that this district must have some communication with the Gulph of Cambay. The cotton fields, although they were overflown, seemed to thrive remarkably well, and the water was positively salt. This was the first plantation of cotton which the Ahmoorders left off cultivating. The cotton shrubs were at the distance of 2 feet from each other, and the division of the lines at 4 feet ; they were intersown with grain, which began just to come up. The soil was a mixture of clay with white hard particles, and which appeared to take part of some kind of mineral ; but having been deprived of my blow-pipe and other apparatus at Gadzora, I could not well determine of what it consisted. The people here were remarkably well clothed, the generality of them in silk, and they were better made than any ~~I had yet seen in India~~. They were tall, fairer, and seemingly healthier, than in the other Purganah. As the country did not appear much cultivated or inhabited, various were our conjectures of their finery, and we suspected them to be one of the pillaging party belonging to Shermia. The night came on, and they left our tents for their respective dwellings, and soon after they were gone we found our conjecture not ill grounded, for no sooner we made preparation for our rest, than the chief of the guards, who was given me by the Rajah, came up to Captain Torin's Parvoo, and told him to advise us to be on our guard for this night, for notwithstanding we were in Shermia's village, his people was of a bad cast. This convinced us, and confirmed the mace-bearer's intelligence concerning Shermia's concern with the Cattys. Whilst we were in this place, I made several inquiries respecting the supposed lake or river at Chara Chary, but none could give me satisfactory intelligence.

At daybreak we left Rajapoor, with intention to proceed to Lymree ; but about noon, to our greatest surprize, fell several heavy showers of rain, which hindered our proceeding, and we were compelled to stay at Mitampoor, a small town belonging to the Rajah of Mitampoor, and a relation to that of Dolca, about 9 coss from Rajapoor. Not being provided with a present, I sent by my interpreter the letter of introduction which I had to him from the Rajah of Dolca, with a promise that I would wait on him on my way back. However, he came himself, on the receipt of the letter, to our tents, and

complimented us that we would stay with him a few days; but we declined his kind offer, with determination of proceeding to Lymree on the following morning. He then ordered, both for my and Captain Torin's guards provisions, and for us he ordered some milk, and a sheep, which he, however, requested we would not kill till evening, to avoid offence from the common people. As we chiefly lived on milk ever since we left Cambay, this was a great dainty to us, and in return for it Captain Torin presented him with a fine dagger.

The next morning he visited us again, and asked if he could be of any service to us, as likewise if we would permit him to send some salt to Lymree under our convey, to which we willingly for our own sakes consented, and after many complimentary ceremonies which they use in parting with a stranger, we set out ~~at noon~~ ^{at Mitamnoon} and took his commodities, which we packed up in sacks, and carried by asses and small bullocks, in all amounting to 572 heads. This consisted of 23 archers, and a few matchlockers, and ours of 18, greatest part with matchlocks; so that we travelled through this beautiful but dangerous country without any apprehension of being tested. By noon, on our approach to Tadnap, the first village belonging to the Rajah of Lymree, on the border of the Cattyware country, an alarm was given from a high observatory by firing a gun, and all the cattle was immediately with the greatest precipitation driven towards the village. Mahomet Joan, a Mogul gentleman, who accompanied Captain Torin from Cambay, perceiving this, conjectured that the village mistook us for Cattys. In consequence, he dispatched to them one of Captain Torin's horsemen, acquainting them who we were, by which means we entered the village without hindrance. All the villages on the borders of the Cattyware country are surrounded by a strong mud wall, in which there are partitions or loopholes for the musquetry, so that they are not easily approached by horsemen. In the midst extends a high observatory, commonly built of wood, and covered with a roof of thatched grass, to keep off both the violent heat and the rains from the watchmen, who sit on the look-out day and night; and in case of the approach of an enemy, the signal is given from them that the cattle may be driven in time to the village, and the farmers repair to their arms for their relief, if they are overpowered by a sudden attack. I am told that

they train the cattle so well, that in case of a sudden surprize, before assistance can be given them, they encompass the keeper, and protect him and themselves by his command from the assailants, till they are succoured by the villagers. Having refreshed here, and being told that we had not much to fear from the Cattys in this Purganah, in consequence we left our baggage to the care of the guards, and proceeded towards Lymree, which is distant 15 miles. The country, beginning from Mitampoor, is exactly the same as that in the other Purganah—all downs, without a single tree or shrub, except those that are planted about their Pagodas or tanks, and these are chiefly of the *Ficus religiosa*. From Rajapoor to Mitampoor are only two villages. The first is called Surka, and the other Bendar, both belonging to the Rajah of Mitampoor. About Surka the land is but little cultivated, but whatever there is, it looks remarkably luxuriant. The cotton shrubs were about 4 feet high, and began to blossom. They were intersminated with rice, Bajery, and Joary. Many fields were just sown with wheat, barley, and gram, which came up prodigiously thick and strong. The soil is of the same composition as that about Rajapoor. From Bendar to Mitampoor, and the villages belonging to this district, Tunagare and Onagare, the country, as far as the eye ~~is cultivated with cotton, except here and there a pasturage~~ field. The cotton was the most luxuriant I have yet seen. The villages were artificially risen above the rest of the ground, which leads me to suppose that the country must be overflown in the rainy season. The plantations in the lower grounds were still overflown, and the higher districts so swampy, that a person could not venture into them. The grain which was intersown stood very fine, and indicated that the soil, though it looked very much against, possesses some particularities which are favourable to it. The road, beginning from Mitampoor, is on both sides lined with hedges of the *Euphorbia*, as many plantations are distinguished by this fence, which shades the road from the extreme heat, and makes the journeys at this season as pleasant as in Europe. From Tadnap to the town of Ongalar, for about 4 miles, the land begins to change its fertile appearance. From Ongalar for about 6 miles, towards Lymree, this desolate appearance of the country still continued. From the village called Nanky we discovered a river, which is either a branch of the Sabermatty, or the same that passes by Dowlat, and it is rather broader than it is at the former place. It beared from us west about 5 miles

distance. At sunset we arrived at the gates of Lymree, where we were detained until the Rajah's orders came for our release. At the Dubare gate we were met by the young Rajah, who is of the same age with the Rajah of Ahmood, to whom we delivered our respective letters, and we were guided to a large hall, where our letters were read by one of his secretaries, after which he presented us with Betel, and to our people he ordered provisions. In the mean time he caused one of his store-houses to be cleared for our abode. As he never saw a European before, he was so *delighted* with our persons, that he sent for all his relations to come and look at us. About midnight we took our leave of them, and we proceeded to our allotted habitation, which swarmed with rats of an enormous size. However, as we had no rest for three nights, and fatigued with the journey, we slept very sound, but Captain Torin, who paid the Rajah a visit in a full dress, had the ~~misfortune of finding all his hair eat up~~ wherever there was an ointment of pomatum, that he was under the necessity of cutting it close to his head. About nine the Rajah sent us a message that he would come and see us, and no sooner he withdrew than we heard the trumpet sounding, announcing his approach. He came with a large retinue of horse, and himself rode an elephant. We received him at the entrance, and he seated himself on a rich carpet, which was brought for that purpose. After the usual refreshment of Betel, I presented him with a pair of pistols which I reserved for Fatessing, and Captain Torin with a gold watch. He seemed much pleased with the former, but as he never saw a watch before, he knew but little of the value, and esteemed it accordingly, although it cost 20 times as much. Captain Torin, having observed that he was unacquainted with this new finery, endeavoured to explain to him the use of it, and showed him how to wind it up; and having turned the chain several times round, he gave it to the Rajah to accomplish, but unfortunately the young man's hands were never used to such tender work, and by his ignorance he broke the chain. However, as he heard that the rest was gold, he then but little minded the use of the watch. As he prepared for his return, without the least hint of reply to our yesterday's request, I took the freedom of asking if he had given orders that I should not be detained at the gates, to which he replied in the affirmative, and requested us to come and see him the following day. Captain Torin likewise renewed his request, with whom he agreed at Rs. 4 for the purchase of the horses, and we

parted to our mutual satisfaction. In a short time after his departure, a messenger came for Captain Torin's Parvoo,* who was a Hindoo, and who on his return brought us a message from the Rajah, that as the Rajah had heard that the Europeans chiefly maintain themselves by meat and poultry, of which there is none in his territory, but that he would take care that we should be furnished daily with good milk and butter. This was certainly a poor consolation to us; but as we succeeded in the main point, we did not much mind how we fared.

As it rained all the morning, we were not able to repay him the desired visit at the appointed hour, but waited on
 Monday 17th. him in the afternoon. After the usual salutation, we were seated at his left, and in a short period the intended return presents were brought, which consisted of, a turban, and a fine piece of ~~bafta~~ ^{bafta} ~~which~~ ^{have} been dressed in the country clothes ever since I lost my European clothing, he presented me with a turban, and to Captain Torin he gave the bafta, both articles manufactured here, but likewise both not adequate to the presents he received from us. On our going away, the remains of the Betel and Areca were sent ~~after us~~ ^{after us}, which we understood signified that the Rajah made us welcome to his territory. In the afternoon, it rained so hard that it poured through the tiling as through a sieve; in consequence, as soon as it cleared up, we erected our tents in the yard, where we felt less both by inundation and the rats, which destroyed everything that came in their way.

As no horses came to town, Captain Torin accompanied me to
 Tuesday 18th. Synapoor, about 8 miles to the NW. of Lymree, where I understood that the best cotton is cultivated. He remained at the village, and I went further up the country, where the plantations are situated. The district, which is considered as the best for the cotton, contains about 200 acres of land, and the cotton was in as high a state as that I had seen at Mitampoor. The situation of this district is close to the river, and it was almost overflown by the late freshes, which must have made great havock in the inland country. From one of these plantations one of my guards brought me a full-grown child, which was not much offensive, but rather disfigured by birds. I conjectured that it

* A Native English writer.

was left by the freshes. Higher up the river I found a great deal more of the effluvia, which laid bare on the ground, and which rendered the air very noxious. The cotton is of the species that is cultivated at Mitampoor. The lines and the cotton shrubs are divided at the distance of 4 feet, and in the intermediate places the planters began to transplant the rice, as I had observed at Tanna. The rest of the ground was either sown with Bajery, or a grain which is called in the country language Carcas. I am told by the planters that this cotton has been sown in the beginning of the rains, and that it usually ripens in April and May. On my asking what they used for manure, they answered me, like in the other Purganah, that the remaining corn stumps were sufficiently adequate to raise the vegetation. The soil consists of the same composition as that at Rajapoor, and exactly so divided with pasturage fields as about Dolca and the Jumboser Purganah, ~~and the districts of Unglla.~~ On my return to Synapoor, I found that Captain Torin had purchased two horses at Rs. 200 each, which were of the same breed as those at Dolca, but rather more vicious and unbroken. On our way from here to the town, we met with several hundreds of Faquiers encamped in a plain near the river side, ~~with their wives and children.~~ They were all powdered alike with cowdung ashes. Several of them walked quietly stark naked, without the least regard to decency. They were all armed with sabres, and some had matchlocks. Their baggage was carried by tattoos (ponies), asses, and a species of their small cows, which I saw at Dolca, which serve them at the same time for milk, and the carriage of their utensils. I understand that they are vagrants, wandering from one city to another, and maintain themselves by begging. Although they carry firearms against the Cattys, it often happens that they are guilty of the same crime, and it is worse to fall in with them, for, as they are afraid of being noticed, they never give quarter.

To-day my interpreter informed me that the Rajah proposed sending a detachment of horse against the Cattys, who made some encroachments on the desert side of his territory. As it was but one day's journey, I went to the Rajah, and asked his permission to accompany them, and to see his territory; to which he gladly consented, and I set out with this party the following morning at daybreak.

In the dusk of the evening we came to Bassnatt, the last village to

the westward of his territory, from whence the cattle was driven away. On the opposite side of the river stands the Catty village. The river is about one mile broad, and passable on a horse. As soon as we arrived at Bassnatt, the pass of the river was immediately stopped, and cut off from the communication between these two places. By the time that the horses received their food, the spy who was sent by the Chief to the opposite side returned, and reported that most of the Cattys were intoxicated, and the rest asleep. In consequence, he came to me, desiring I would remain in the village, and wait his return. He then, dividing one of his party higher up the river, the second to cross it on cots, supported by earthen jars, and with the third division he silently approached the opposite side, and at half way waited for the appointed signal from the men who crossed the river on cots, which they the least expected it. As soon as the signal was given that they were in their entrenchments, the Chief crossed the river in full speed, with his attendants, and took every soul that dwelt in the village, without firing a single shot. The inhabitants of Bassnatt crossed the river at the same time, and having bound every person they took, they were taken over to this side, into a court yard, which was encompassed by a high wall, where the females were untied, and, to my great surprize, both sexes remarkably well treated.

The next morning the Chief came over with 428 horses, 314 prisoners, and the plunder which he made there.

Friday 21st. As he could not bring them to Lymree without incurring a great risk, he despatched two messengers to the Rajah for a reinforcement, which arrived the following evening, accompanied by Captain Torin, and the Rajah. As I was desirous to see the desert part of Lymree, the Chief gave me an additional guard of 20 men, and I proceeded about 10 miles to the NW. from this, where the desert begins, which is at the distance of 3 miles, and I understand that it continues for about 50 foss, or 120 miles. The whole district which I have visited, and which could not be less than 13 miles, consists of a loose sand, not unlike the third stratum of the Sabermatty, and the sandalwood plantations of Dolca. All this desert part belongs to Lymree, and higher up I understand they have mines, but of what kind I never was able to learn. By the appearance of the country, it seems that this desert

land has been formerly a large river, the course of which was gradually stopped by the rapidity of the currents, which form large banks at the entrance, and deprive it of its source. Should my conjectures have any authority, I declare that no place would be so advantageous for trade to the inland country and the Gulph of the Guzerat, where I think this river originates, than the town of Lymree. Here I have found the following plants: four species of a *Didymamia angiosperma*, which seemed to me of a new genus. One of them, which is marked with No. 3, although it was vegetating, the stalks and leaves were to appearance quite dry and decayed. The second, a *Rhamnus*, which grows to a bush, and about the height of 3 feet, the fruit of which has a pleasant acid. The third, an *Octandria monogynia*, which seemed to me likewise of a new genus. No. 4 a bulbous root, but without flowers. Both the roots and the stalks of the disflowered flowers have ~~the appearance of the *Amaryllis Orientalis*, which I have found on the Coast of Caffraria.~~ The leaf, however, differs entirely, which leads me to suppose that it is of a new species. The roots are marked under No. 1 in the Bulbous Chest No. 5. These are all the plants that came to my sight; and the adjacent country, ~~Lymree, is as destitute of wood as that in the other districts.~~ In the evening I returned to Bassnatt, and the next morning we proceeded to Lymree, where we arrived about midnight. From Lymree to Bassnatt came to my sight no less than 23 villages. The country next to the Sabermatty is cultivated with cotton in like manner as about the town, and intermixed with Bajery and Joary. The grain was sown in the beginning of the rains, and ripens in May. The shrubs were advanced to the height of 5 feet, and began to blossom, which is of a prodigious large size, not unlike the *Gossypium arboreum* on the Coast of Guinea. The soil is everywhere the same as that about Lymree. About half way to Bassnatt, I met with some quarry pits, from whence they supply the other Purganah with stones of every size, and export at the season when the river is filled by the rains. *

Having now seen the whole state of cotton at Lymree, I made preparation for Mitampoor, and the next morning, Sunday 23rd. having taken my leave of the Rajah, I set out on my journey, where I arrived in the dusk of the evening. The town of Lymree is situated close to the Sabermatty, which

passes it at the NE. extremity, and directs its course to the westward, through the midst of the Cattyware country. Captain Reynolds, who is employed by the Company in surveying the Mahratta dominions, has laid it down in his charts; but by the authentic account that I had from the inhabitants, they never saw a European before our arrival, and by the intelligence I had from Mr. Holford, they are not to be depended upon, because he never went further than the Cambay territory, and a part of Pitlad.

The only European* that has been before at Dolca is Captain Hawkins, from the Bengal Establishment, who came round for the purchase of horses. Mr. Crawford Bruce, the present Land Paymaster of Bombay, had likewise made excursions from Ahmedabad, when that place was in the English possession, but as he did not think at that time that the English would ever give up this beautiful and profitable country, ~~he made in consequence~~ no particular remarks on it.

Mr. Holford, the resident at Cambay, employed a Bramin of the name of Sudanande Bramin† in the survey of the inland countries, and he himself made several excursions towards the Subermatty, but was always repulsed ~~and defeated in his design by the Cattys.~~

The river at the town gates is about a quarter of a mile broad, and the greater part of the year dry. The town is about 5 miles in circumference, built in a square, and surrounded by a thick wall of stone. The wall has sixteen towers, two at each of the two entrances of the town; and the rest are divided, without any regularity, at all sides of the wall. Eight of these towers mounted eight iron guns, which were cast in their place. On the inside of the wall is a rampart, for the musquetry, not unlike that of Broach and Cambay, with divisions, and a breastwork, by which they are well protected from their assailants. The ditch which encompasses the walls is about 40 feet broad, and 30 deep, and is usually filled in the rainy season by the communication which it has with the river. The Rajah maintains a constant army of 13,000 men, the greatest part horsemen, and the rest matchlockers, but they are all undisciplined. They are only paid in the hot and cold season, and the greatest part

* Many had been there.

† Bramine Sudanande constructed his map by desire of Mr. Holford's predecessor.

of the infantry is paid off in the rains, which they call Barsaty. The horsemen receive half pay during the rainy period, which is Rs. 20 per month, out of which they must find both themselves and their horses, which are their own property, and which they may dispose of at pleasure. Their arms are a large spear, a sabre, and for a defence they carry a target of bamboo. This is remarkably light, and answers the purpose of a metal one, with which the Chiefs distinguish themselves. The infantry consist chiefly of matchlockers, but there are likewise a great many who have got English Tower musquets, which they purchase at Surat from the merchants, who bring them from Bombay, and sell them again at an exorbitant price to the country powers. In the Dubare we saw six 9-pounders, with his majesty's broad arrow on them, but I never was able to learn where they got them from. The manufactory of Lymree is nothing else but cloth, which ~~is made of the same~~ is superior to Broach, and supply it with thread which is called Paginy. The cloth is exported for Surat, Mocca, India, and the interior parts of the country. Their cotton is chiefly exported by water to Broach and Surat. In return they take printed goods, manufactured silk, timber, and salt; but the balance is always in their favour, which they take in ready cash. The Mitampoor Rajah furnishes them with salt, for which they pay likewise in ready money. The inhabitants are remarkably fair, and well made; quite a different race from those about Bombay—at least the climate makes them look quite a different sort of people. The men are resolute and bony, and both sexes are richly ornamented with gold and silver. The men wore in this season white quilted gowns, and their women printed cloth, which they wear agreeable to the custom of the other Purganahs. Their ornaments consist of thick gold bracelets, which they wear round their arms, legs, and the neck. Besides these, they have large rings, of the same metal, stuck in their ears and nostrils.* They pride themselves in particular on the last ornament, which is hung with different trinkets, to heighten their beauty, but this disfigures them rather to a European taste and idea. The town and the country hereabouts is very populous, and remarkably clean. There is nothing seen of the least effluvia in the streets, as it is to be met in Bombay, which is daily before daylight cleared into the river. Their houses are

* Criterion of married women.

like the rest in India, consisting of two stories, which is called a bungalow,* and are commonly covered with earthen tiles. In their courtyard they have usually a tank, which is planted with the *Nyctanthes sambac*, *Ipomoea bona nox*, and the *Polyanthes tuberosa*, of which they are remarkably fond. The floor and the walls are commonly whitewashed by a composition of burnt oyster shells and *chunam*, which has, when polished, a bright shining look, and keeps likewise, in the hot season, the apartments very cool. I do not know how healthy this town is in the other seasons, but during my stay here I heard daily in every quarter mournful songs, which are performed here by hired women on funeral occasions; as likewise every morning, on going out into the fields, I observed on the banks of the Sabermatty more bodies burned than I thought the town could afford to loose, which I attributed to the present cold and rainy season. I had to my sorrow daily a great many sick people before the gates, but could not relieve them for want of medicines. Their cattle are the same as in the other districts, but the buffaloes are remarkably fierce, of which there are a great many wild towards the desert country, and often attack travellers in large herds, that the inhabitants in their defence are under the necessity of shooting them, though their religious laws do not permit, and severely punish for killing an ox or a cow. Antelopes are by thousands in every direction, and foxes, jackals, and hyenas innumerable. I saw several skins of lions, but did not see one alive, and of which I understand there are an abundance where I have been in the way to Bassnatt. Of tygers I saw several, and the Rajah has two of them chained, of an enormous size. They are, however, very fierce, and will not admit any person else but their own keeper, who had almost as fierce a look as the tygers themselves. On inquiry, I understand that they never molest travellers, nor the cattle, but chiefly maintain themselves on antelopes. Those which the Rajah keeps are fed on the dead carcasses by the lowest cast of people, which they distinguish by the name of *Hallakore* or *Sudar*, who likewise feed on dead animals, and are so despised by the Hindoos that they never will enter a house where such a person is employed, neither will they permit them to dwell in the town, although they take their money without aversion, for the ground that is allotted to them, without the gates. Birds of

* The name generally applied by Europeans to a temporary building.

plumage are here but few ; ducks are in plenty, almost in every tank. There is one species of ducks which rest and nest on trees. I shot often some of them from the mango and tamarind trees. They are not unlike a widgeon in point of plumage and taste, but considerably larger, and have a black comb of a cartilaginous substance placed over the promontory of their bill. This is a bird of passage, and usually comes here in the rainy season. On the borders of the river and salt lakes a species of a pelican and flamingos are innumerable, but so shy that I never was able to come within shot of them. Reptiles of great variety swarm everywhere, and many inhabitants fall a sacrifice to their venomous bites. There was not a day passed but myself or my people killed some of them in the tent. The antidote for the bite is cutting immediately the part out, and they give to the unfortunate person copiously to drink some of that above-mentioned acid, ~~which they gather here with that view, as in Dolca.~~ They have likewise a stone, which their Paquics make them believe is found in the head of the cobra de capello. They apply it to the wound, and to which they ascribe a great many successful performances in extracting the poison. I saw several of these stones, which are all alike. ~~Their size is of a large horse-bean, oval, and opaque.~~ I tried it with aqua fortis and acids, but I could not find the least tendency that it took to either calcareous or silicious earth ; and I am led to imagine that it is a kind of a composition combined with some sort of gum, for although it is very hard and compact, it readily sticks to the skin. Being desirous of tracing the origin of this wonder, I opened several of the cobra, but have never found anything similar to that pretended stone ; but as many of the inhabitants confirmed this intelligence of its speedy efficacy of subduing the venom, I am of opinion that it only cures those bites which were occasioned by innocuous snakes, and which might have been cured without any application at all.

As it rained very hard on my arrival at Mitampoor, the Rajah gave me one of his houses for my abode, and ordered for my people and guards provisions ; likewise he sent for me a dozen of fowls, and other necessaries, as milk and butter, which they make equal to Europe. This country fowls are prodigiously large, and are called by the Europeans colomb fowls. They breed them now about Surat in abundance, and commonly send them to Bombay, where they meet with a good market. Some of them are so large, that they are often

mistaken by strangers for turkeys. As during the whole time of my stay we fared upon milk, I forwarded half the number of these fowls by the return of my guard, which I thought would be very acceptable to Captain Torin; for although we heard the Rajah eat daily mutton, we were so closely watched, that none could be purchased or dressed in the town. Here is another species of a smaller kind, which, when roasted or boiled, the bones turned coal black, and the Bombay connoisseurs, of whom there are not a few, allow that it is the best flavored. I examined several of them in a natural state, and found the periosteum as if injected with blood.

Having provided myself with a present at Lymree, consisting of a shawl, I waited the following morning on the
 Monday 24th. Rajah, and presented him with it. In the meantime, I asked his permission to go to Tanapoor, where the finest cotton is produced, which he immediately granted me; and the weather being fine, he accompanied me to the village, which is situated on a rising ground to the NW., about 6 miles from the town. This was what I ardently wished for, for the people behaved rather unruly on our first passing here: I hoped that the Rajah's association with me would have checked them for any future insults. It rained, however, unfortunately, so hard, that he did not go further than the village, and I was disappointed in my views for to-day. The next morning I acquainted him that I wished to pitch my tent there, to which he had no objection. In consequence, I lost no time, and set out directly for the districts, and in the midst I erected my tent on a rising ground, that are artificially risen in every plantation, from whence the planters keep off the birds from the grain at the period when it ripens.

The number of these plantations that produce the fine cotton are seven, each containing about 30 acres of land, and divided by narrow plains of grass fields; likewise each of them is encompassed by a bank, for the purpose of saving the rain water, and to hinder it from flowing away till the cotton has its requisite quantity.

The cotton is of the same kind as that about Rajapoor and Lymree, and had been sown in the beginning of the rains. By the farmers' account, they cultivate the cotton on these plantations successfully for four years, and after the expiration of that period they suffer it to lay for pasturage for two years, when they begin to cultivate afresh. These shrubs were about 3 feet high, but still

under water, and unoccupied with any grain, which I understand is rice, which they usually interplant, and do not serve themselves with further manure, but the remaining stumps.

The nature of the soil is the same as that in other districts about this Purganah.

To-day I made an excursion to Urwara, a village about 5 miles to the northward from hence, where I was told the cotton is as fine as these plantations, and the produce considerably larger. I found them situated on a low plain, and exactly so divided in two sets as at Tanapoor, and embanked by earth. The shrubs on some plantations were so small, and under water, that I could hardly discern them. I asked the planter, who drained off the water from a plantation where the seeds had not come up yet, how it happened that their cotton is so backward in growth ~~as the other plantations and districts, who informed me to the following purport. That these plantations were occupied but twenty days ago, after the fall of the heaviest rains, and it is yearly sown in these low plantations at the same period : that the seeds might not be destroyed by inundation, occasioned by the heavy freshes and rains that overflow this low district, in consequence he drained it off from this, fearing that the seeds would suffer if the rains should not subside soon ; and added, that as the cotton requires moisture at the period when it begins to bud, we assist the vegetation from these reservoirs, which are filled by the freshes.~~

Each of these plantations was likewise separated by a narrow plain of a grass field, which are in the middle hollowed, for the design of deducting the superficial quantity of water from a plantation at the period when it hinders the vegetation ; as well, these fields are, from the first cultivation, so calculated and constructed on a gradual descent towards the conduit, the deduct is performed by simply opening one of the banks, and heaped up again when the planter thinks proper.

Here I found the real cause why I met with such different kinds of growth in one district, and on the same soil ; which likewise accounted for the different reports I had in respect of sowing the cotton at such various periods : by which it proves that every one of them has candidly informed me ; but as no reason was assigned for such doing, I thought them imposing on me.

The ponds and basons have no particular situation about the

plantation, which are, I observe, chosen on places where the freshes have the most influence, that they might be filled in good time by the desired affluence. Some of them are situated close to the plantation, some in the midst of it, and some at a great distance, on rising grounds, which are calculated the most eligible for watering.

The method of conveying it from a nigh distance is performed by a communication of two narrow banks, by which the water is laid into the intended plantation. This conduit is suffered to stand till the cotton is gathered in, and after this period demolished, that they might not hinder the course of the freshes to the neighbouring plantations. From the distant basons, the water is led in troughs made of earthen tilings, that are constructed temporally on a moderate descent to the proposed field.

No grain was yet intersown, but in the neighbourhood large fields of rice were fit for transplantation which, by the information of the farmer, will be transplanted as soon as the plantations are sufficiently drained of water. The higher fields were all occupied with Bajery, and the cotton stood prodigiously fine. On those plantations where the cotton was suffered to grow for the second crop, the shrubs began to blossom, and promising a plentiful crop.

For my return to my dwelling, I chose another road, and have met with a district that was entirely overflown by salt water from the last high springs, and although the water stands commonly eight or nine days, the cotton shrubs stood prodigiously fine, without the least seeming injury; and the villagers shewed me some wool of the last season, which was superior to any I have seen.

I cannot possibly account for this strange phenomenon further than that it must be owing to the plant, which is peculiar to salt water grounds, like many other vegetables that thrive solely in salt marshes. I took a specimen of the soil, that consists of smaller particles of that white substance, than in the other districts which I have visited to-day; which is either occasioned by the saline body, that dissolves them, or by the more frequent ploughing of the ground, because these plantations are successively occupied with cotton and with rice, which likewise thrives remarkably well.

The specimen of the soil is enumerated under No. 6 in the Mineral Collection.

On my arrival at the tent, I found my two Pattemars returned, whom I had sent from Cambay to Bombay. They brought me a

letter from Dr. Scott, but no answer to the letter I addressed the Governor with. Dr. Scott informed me that as Mr. Boddam's intention is to return to Europe by the *General Elliot*, that I should not likely accomplish my request if I did not come personally. In consequence, as the *General Elliot* was the last ship for Europe this season by which I could consign my packet, and having lost all hopes of reimbursement from Bombay, if I did not proceed previous to Mr. Boddam's departure, without which I could by no means accomplish the requisite time for my stay in this country, I therefore lost no time, but made preparation for Bombay. Immediately I despatched a messenger to Captain Torin, informing him with my resolution, likewise requesting that he would send me my collection I left at Lymree for my better security, which I obtained the next evening, accompanied by 26 horses, which he requested I would take charge of for Bombay ~~in my conveyance~~. As it conduced to the speeding of my journey, I was very glad of this charge.

The following morning, having taken a guard from here, I mounted them on these horses, and sent Captain Torin's horsekeepers to Lymree. Having taken my leave Saturday 29th. ~~of the Rajah, I gave me two Hackerys of his own accord,~~ to carry my baggage and collection, I proceeded on my journey, and in the evening I arrived at Rajapoor.

The inhabitants of Mitampoor export both cotton and salt, but have no manufactures of any great consequence, except some coarse printings, which they export to the Cattyware country. The cotton is brought on Hackerys to the Sabermatty, from whence they export it in large Bettilahs to Broach, Surat, and Deman. The best of the cotton sells here at Rs. 42 a candy or 23 mohn, the inferior at Rs. 30.

The salt-pans are situated on the NW. of Mitampoor, but they are in this season totally overflown, and unprofitable till the rains are over. The salt is exported on asses (of which here are many thousands), and the small species of the horned cattle. Each of these carries in sacks to the amount of 300 weight, and undertake journeys as far as Delhy. The people who attend them are both their guards and keepers; each of them has either a bow, or spear, or a matchlock. The merchant whose property the caravan belongs to, attends it commonly himself, and travels in a covered Hackery, which is drawn by four large bullocks, accompanied by some horse-

men, with spears. The baggage and tents are carried on camels, which may be got here at Rs. 40 apiece. Such caravan has the appearance of a small army, and I am told that they are very courageous in defending their property if attacked by the Cattys.

They take nothing in return but ready money, which is transmitted them by bills on Shroffs or bankers, either here or at Lymree and Ahmedabad, who are remarkably rich in this country. The balance is usually made up to either party in specie, which is transmitted to them by a trusty messenger, that is called here Hircarah, who travels only in the night-time, and being from their youth acquainted with the roads of the country, they are seldom attacked by robbers.

The town of Mitampoor is about 5 miles in circumference, risen artificially, like the rest of the villages, on a rising ground, and very populous; partly surrounded by a sand wall, and partly with brick. Tanks and deep wells are here numerous in every direction, which is the only article that the Gentoos lay out their money to advantage for; otherwise they squander it away in empty show and pomp on their children's wedding dress, which commonly occurs in this and the two following months, which they reckon the most fortunate in the whole year. ~~To outshine in show on their wedding they are so eager, that often I am informed they waste away everything they are worth.~~

Sunday the 30th, early in the morning I left Rajapoor, and ~~arrived~~ arrived at Dolca in the evening. I took my residence again at the old Rajah's, who received me with great kindness. Next I visited Shermia, who likewise made me welcome to his house, and requested me to spend a few days with him, before I left this place; but being desirous to proceed to Bombay with speed, I was under the necessity of declining his friendly offer. Here I ordered my interpreter to make particular inquiries about the mines in the desert, but in vain; they either would not or could not tell: even the Rajah himself was totally unacquainted with his neighbouring district, and heard everything of Lymree with the greatest astonishment, by the idea he formed himself of the strength of Lymree fortification. It is not to be wondered at that the Ahmooders and the inhabitants of Jumboseer did not cultivate this country cotton to their satisfaction, for the only cause that they were unacquainted with the mode of culture which this species requires, and the immense change in the period this cotton ripens.

In the Ahmoed Purganah and the neighbouring districts the rains subsided in the beginning of October; here we had daily heavy showers of rain, which I understand last sometimes a considerable time longer.

Their cotton ripens in December and January, the coldest season in the year, and at Lymree in the hottest, which assists the vegetation till the period of gathering it.

I observed during my stay at Ahmoed, that daily the delicate pericarpiums were checked by the immense cold, that hindered them in their progress of vegetation, which was the cause of their decay; and the rest fell an easy prey to the vermin. I hardly can think that ever they made a distinction between a high and a low plantation; for if they had paid the same attention, I have not the least doubt but that they might have had the same crops and fineness with which these districts distinguish themselves.

Having discharged yesterday my guard to Rajapoor, I ~~went~~ Monday 31st. day of the Rajah 32 men, to conduct me to the river, who, however, would not accept of anything for them, saying that I should always be looked on by him and his family as one of their best friends. In the afternoon, I took my leave of him, and Shermia, and proceeded to Cambay. In the evening, I crossed the Sabermatty, and spent the night under the Nabob's redoubt, which was considerably strengthened since my first passing here, on account of the Cattys that made a formidable incursion into the Nabob's territory, and drove all the cattle away to the opposite side, where they are always secured. They, however, never drive the plunder away into their country; but as soon as they have crossed the river they make an encampment, and the inhabitants from the opposite side are at liberty to purchase their cattle again from them at a rupee per head.

The wheat and barley fields were now coming to maturity, and the gram gathered in. I purchased a quantity of it for the West Indies, which is marked under No. 4 in the Grain Collection. The cotton on the other side was in a perfect flourishing state, and on many high plantations the wool began to discover itself.

At daybreak, having hired here 22 men for my guard, I proceeded to Cambay, where I arrived at noon. Being New Year's Day, Mr. Holford, who conforms himself in every respect to the country customs, ordered

1788, January.
Tuesday 1st.

all my people a dinner prepared, after which I discharged them back to Babara.

The following day Mr. Holford prevailed on the Nabob to spare me some fishermen to pilot me over the river
 Wednesday 2nd. Myhie. In consequence, in the evening I took my leave of Cambay, and spent the night without the gates, to be at hand as soon as the tide is out.

About 4 o'clock in the morning the tide began to retire, and in half an hour's time, we set out in full speed to the other
 Thursday 3rd. side, where we arrived at six, and just in time before it returns.

The river Myhie is here at high-water 12 miles broad, and very dangerous to cross, on account of the current, that enters here with such violence that everything overtaken by it is hurried into the stream; likewise on that account ~~no boat anchors in the Gulph for fear of being overset by its rapidity, or carried up the river, where it is either dashed against the banks, or taken by the Coolys, who inhabit all that upper part. Boats destined here usually arrive at the beginning of high springs, which leave them dry close to the town. During the period of these high springs, they are obliged to unload and load again their cargo, or else they are not able to proceed until the next lift. The rise of the water is reckoned here at that period from 13 to 15 feet.~~

At 2 miles from the river I passed a Mosque, which is situated close to the road, and which serves the fishermen as a token to guide themselves by in crossing the river, in which direction it shallows.

On my arrival at Sarood, I delivered the letter I had from Mr. Holford to the Rajah; in consequence he ordered for my people immediately provisions, and made me a present of a sheep and six fowls, in hopes, as I conjectured, to get a present in return; but having not a single article to give him, he was contented with a promise until my return to this Purganah.

As I could not get to-day a single Hackery to carry my tent and collection, they being still at market at Jumboseer, I was obliged to spend here that night. One of his sons, of which he has no less than thirteen, invited me to accompany him on a hunting party, that was to be performed by a tyger for antelopes. I was at first quite astonished at such an uncommon invitation, but soon my apprehension was removed by my interpreter, who informed me that the Rajah

is not one of these Gentoos that scorn to kill an animal which Providence has created for their maintenance. In consequence I accepted the offer.

The intended tyger (cheeta), of which he had two, was put in a covered Hackery, in which we likewise placed ourselves, and gently set out towards the cotton plantations, which were situated all along the river. About 2 miles from the town, we came to a large pond, where hundreds of antelopes were encamped. As soon as we came within 300 yards of them, the cover of the Hackery was taken away by the driver, and the tyger let loose, who set out towards the herd with such velocity, which may be easier conceived than I can describe, and knocked five of them down with his paw as a cat would have done to a mouse, without the least stoppage. Next he set out for the rest, that were scattered about the fields; but having missed two, ~~as soon as he passed them, he quietly returned to the Hackery, where he waited till the people brought the antelopes,~~ which the intestines were given to him. They call this species of tyger *Czetar*, and they make them so tame that every stranger may with confidence approach them. I saw at Mr. Griffiths's likewise two of them, ~~who suffered the dog to eat the milk out of the same cup with himself, when they were brought into the bungalow at the breakfasting hour.~~

Having heard of a farmer at *Somny* that this small Purganak cultivates good cotton, I made the most minute inquiries where they were situated, and was shewn the whole district, which consisted of five villages, two at *Sarood*, and the rest, divided at a short distance from each other, towards the Myhie, which are called *Tuttoor*, *Kurban*, *Pundja*, *Orod*, and *Haloon*. The three former cultivate the best cotton, which is of the yellow sort. The plantations are close arranged to the river side, and on the higher grounds the wool was gathered in everywhere, but in the lower places it began only to pod. The planters were busily employed in watering their plantations from just such embanked tanks as those I have seen at *Tanapoor*. The planters told me that this was the first time that they watered it, and that they should perform it again before the cotton is gathered in. The soil of these plantations consists of a heavy black clay. Where the cotton was already gathered in I saw many such embanked basons; but as they were dry, I suppose they had been exhausted for the vegetation of the cotton. The farmer informed me that

the tanks were filled by the freshes, if they rise so high over the stupendous banks of the Myhie, and then they have fine crops of cotton; but in case of the reverse, that this Purganah does not produce anything further than barley, gram, and wheat, which are chiefly nourished by the dews that fall in the cold season,—these often in such small degrees that it does not compensate the trouble of cultivating it.

In the evening I took my leave of the Rajah, and early the next morning I set out for the direct road to Jumboseer. Friday 4th. between Urwara and Utoor, two villages at the distance of 2 miles from each other, belonging to Jumboseer. I met with many hundreds of monkeys, which were feeding near a tank on the fruit of the *Ficus religiosa*, and so tame that they came and eat the grain out of the people's hands. They are of an immense size, ~~gray~~. ~~I believe they~~ have no particular time for breeding, and breed like the rest of their species, all the year round. Some of them were half grown, some not above a couple of months old, and some were sucking the old ones, and very common two of them at a time.

~~The soil of this district was sandy, and cultivated with red cotton,~~ which was everywhere ripe for gathering. About eleven I arrived at Jumboseer, where I was stopped at the gates to shew my pass; but having none, I sent my interpreter to the Pundit, acquainting him that I was the same man that staid some time ago at Gadzora, with which I knew he must have been acquainted; and soon after an order was brought, that I was at liberty to enter the town, and that he should be glad to see me. As I lost already a great deal of time at Sarood in waiting for Hackerys, I sent again to him with an apology, that I would wait on him on my return, and requested he would give me a guard of 15 men and two Hackerys to conduct me to Ahmoode; with which he complied, and I proceeded, after a refreshment of a little milk, towards the Dahder.

The town of Jumboseer is about 3 miles in circumference, situated in a plain, like the town of Ahmoode, partly surrounded by a brick wall, and partly by a mud, and the rest is much demolished by the rains. The high streets which I passed had elegant houses. Some were no less than three story high, and very neat in regard of cleanliness. The town swarmed with people; and although I was dressed in country clothes, and wore whiskers, they knew well that I

was a European, calling to me from almost every quarter in English, "How do you do, Sir?" and "Wont you stay with us the night, and we will give you everything you wish for?" They said this with such an assured countenance, that I believe they meant it honestly.

At the SW. extremity of the town, I passed a street where none but indigo-makers lived: if I may form a judgment by the marks of their profession with which every man in the street was bedaubed with, it must be one of their chief articles of trade here.

About 12 o'clock I crossed the Dahder, and at two I came to Ahmood; but the young Rajah, not having yet settled his dispute with the Mahrattas, kept still at Cambay. However, one of his headmen, who transacted the business for him, received me with great cordiality, and ordered a dinner to be prepared for me and my guards. ~~Having still so much to do, I could not visit those plantations at the river's side, before the people's dinner was ready, I rode out to~~ three large basons of water, which I took on my first arrival here as places hollowed by the rapidity of the stream; but having seen since those of Tanapoor, I began to judge of them in quite a different light, and found them according to my conjectures ~~as they had been~~ in them considerably lessened, and there were still recent marks on the plantations that they were lately watered from; which convinced me that all these varieties of tanks, pools, basons, and ditches that I met with, were designed for the nourishment of cotton, at the period required.

On the higher grounds and sandy plantations, the women were busily employed in collecting in the wool of the red sort, that was sown two seasons ago, which seemed to me finer than the yellow, but to my idea not of so compact and heavy staple. This species differs likewise in the seeds from the two other sorts, which is grass green, and I am told the cattle are much more fond of it. Where this species has been out on my arrival here, it has now formed a very stout shrub, and on some plantations the planters began again to crop the delicate branches, which they told me is intended for the last time; but the most were already accomplished. I dug into the ground, and found it pretty moist; but there was no more water in the well, by which I suppose this plantation received its last allowance of water.

The following day, having taken a guard from here, I proceeded

on my journey. At noon I arrived at Padra, and about 3 o'clock in the afternoon I crossed the Buky, which contained hardly 5 feet of water, and in the evening I came to Tam village, where I staid that night, and the following day at noon I arrived at Broach.

Between Ahmood and Broach are nine villages, five to the Buky, and four from the river to Broach, which are the following: the first five, to the Buky, are named Burka, Tanza, Tomay, Padra, and Killod. From the Buky, Dadra, Diroll, Tam, and Centuria; which are divided almost equally at the distance of 3 coss, but likewise the most of them are not placed in the chart, and those that are have no existence on the land, neither the roads nor the windings of the river have the same. The latter might have changed their course by the ~~choice of Major Turner had visited this district, but the former never change theirs in this country, for no sooner the rains set in than travelling is at an end, and never resumes till the roads are perfectly dry, and fit for carriages; therefore they could not be altered by choice of a good road, the plan would not have~~ ~~been~~ ~~executed~~ if they attempted it. It is unquestionable that Major Turner, when Lieutenant, has visited these districts, and sketched them, but only with some exactness about the places where the English were in possession of, chiefly about the towns, where he travelled in safety. As for the rest, by Mr. Atkins and Mr. Holford's account, they were sketched when Mr. Turner travelled in haste on horseback with some attendants, and laid down the country as it appeared from a distance, especially the towns and villages, which have generally a form of a straight line, for instance as about Kerwan.

The divisions of the different Purganahs are likewise very indifferently assigned, for many villages belong to Ahmood which are laid down in the Broach Purganah, and so the same with the Brodra and Jambooser districts.

The town of Gadzora, although it is in these Purganahs the first for elegant houses and magnificent buildings, is not so much as named. The country is certainly populous, but half the villages have not the existence on land which are laid down, especially about Padra.

The cotton everywhere here began to ripen and to be gathered in, except a few plantations on this side of the Buky, that were just

Howering, which I ascribe to the freshes that have kept this low district a considerable time under water, and delayed the culture. They were of the yellow species, and covered with blossom. The district is very low, consisting, as in other neighbouring places, of a heavy black clay.

On my arrival at Broach, I did not stop at the town, but sent my interpreter to the Pundit, to ask his permission to cross the river, which he immediately granted, and gave me, according to my request, 15 Arabs with matchlocks to protect me to Occliseer, where I arrived in the evening, and staid the night.

Next morning, having discharged my Broach convoy, and hired a new one of 20 men, I left Occliseer by sunrise Monday 7th. for the Czoky.

~~Last night we had a heavy dew attended by a severer cold than I had yet felt in India, and in every indent of cattle the dew was frozen the thickness of the tenth part of an inch. The cotton plantations, however, seemed not to have suffered in the least degree, and flourished tolerably well. On all plantations the cotton began to discover itself out of the elastic period, but none had been gathered yet.~~ However, they were guarded like in the other districts by the overseers, who ride armed with spears on horseback round the cotton fields day and night, that neither the farmer can take a small quantity of his own field, until the Czoky or the due to the Governor is taken from him, nor the Beels dare approach without some hazard.

At noon I arrived at the Czoky, where I was obliged to change my convoy again, and in the dusk of the evening I came to Surat.

The custom of changing the convoys in every district is the chief requisite of the head people, who keep Sepoys and Coolys for that purpose. Each of these districts observe with the minutest exactness that the other does not go further than his territory extends; and they keep this agreement with such strictness, that as soon as the one party comes to the extremity of their respective district, they give the whole trust to their neighbours; and so on throughout the whole country. This may likewise account in some measure for the extreme ignorance they have of one another's territory and wealth.

Immediately on my arrival at Surat, I waited on Mr. Griffiths, who informed me that the Surat fleet would not sail again these fifteen days, but if I wished to go overland, he would endeavour to

get me some introductions to the Chief of Parnera fort and the Governor of Bassein, which two places I must pass on my route, the following day. I obtained these introductions, likewise some passes to the Czokys, which are placed on every winding of the road; and as Mr. Griffiths told me that they would expect some presents on my arrival at those two places, I purchased a shawl for Rs. 75, and a pair of pocket pistols for the Governor of Bassein.

In the evening, having taken my leave of Mr. Griffiths, I proceeded early the next morning on my journey. About
 Wednesday 9th. noon I arrived at Nusary, a large village, distant 17 miles from Surat, and in the afternoon I crossed Basura river, which is about half a mile broad, and brackish, distant from Surat 14 miles. Here I refreshed myself and the cattle at a Czoky, and in the evening I arrived at Gaundevee, likewise a large village, ~~the second from Surat, belonging to~~ the Mahrattas, and chiefly inhabited by Parsie weavers.

I pitched my tent under a Baniam tree, and asked the Patel of the village for some milk, which he granted me, but in the mean time placed two guards, to take notice that no meat should be eaten either
 by me or by any other people.

As I wished to take some information in their art of weaving, I staid here till eight, in hopes of seeing it. In consequence, I repaired to the place, with my interpreter, where the weaver cast lived; but to my regret, I have been told that they had some feasts, on which account they will not work for these two days. I then proceeded on my journey for Butsar, the last town which the Parsies inhabit on this coast.

Between Nusary and Gaundevee are two rivers, by the name of Nascary and Basura; the former is passable on foot at low-water. The country so far as the first river is level, the soil consisting of a heavy black clay, but no wood.

The rice and Bajery was already cut. The only grain that I met vegetating was the Sesamum, of which seeds they extract an oil, which they burn, and a species of Crotalaria, of which they make cordage. The Crotalaria was sown very thick, and grew to the height of 10 feet, remarkably straight and slender. I understand that it was sown in the beginning of November, after the other grain had been gathered in.

Although the soil is very favourable about Gaundevee, I saw but

little culture: the greatest part of this district, as far as the eye could reach, is one field of high pasturage.

On coming to the river Bame, I found the tide in, which had overflowed a great part of the country, so that the wooden bridge which is built across to the town was quite useless. The boundaries were all demolished by the last year's freshes, and not repaired yet, on which account all the fine plains of this district were under water, and for this year uncultivated, by which many inhabitants fell a sacrifice to the inattention of the Mahratta Government to their interest.

I therefore pitched my tent on a rising ground close to the water side, and as there are no boats to cross over, I sent one of my people who could swim, to the town, to get some provisions and fresh water, who crossed it in a very short period; but as none of the inhabitants would venture over, ~~it was not possible to bring anything of consequence, both for us and the cattle, and therefore staid there that night, which~~ was rather a hardship, not so much for us, but our cattle, who had not a drop of water since the morning, and had travelled 23 miles in his hot region.

At daybreak we ventured to wade over, ~~but it was quite impracticable, on account of the deep mud, that was above~~ our knees. Fortunately the Sepoys found out a man who was acquainted with the river, who swam over, and conducted us about 5 miles up the country, where we crossed with no great trouble. Being now nearly 6 miles to the eastward of Walsar, I would not lose so much time as to go for refreshment to the town, and proceeded by a bye-road to Sonwary, a small village situated near a river of the same name, which I crossed, with the assistance of fishermen, by noon. After having refreshed, and hired a new convoy, I set out again on my journey to Parnera.

About 2 miles from Sonwary I left the fine fruitful country behind me, and came gradually into a hilly one, where the Czokys of the Mahrattas were innumerable, and at every place they examined me minutely.

The soil is here manifestly worse than any I have seen in India, — an entire sand, without the least verdure: the inland mountains seemed to be covered with high trees, but without underwood.

About a mile from Parnera I crossed the first fresh-water river, about half a mile broad, and in some places 4 feet deep. The water,

as the rains were over in October, came down the hills with great rapidity, by which I conjecture that it has a communication with many springs of a considerable district of land.

The soil consists here of a light yellow clay, covered with a high grass, and here and there young sprouts of teakwood trees, which were sown two years ago, for the better conveyance to the sea side.

About four in the afternoon, I came to the foot of the mountain whereupon the Parnera fort is situated, to the Commandant of which I had an introductory letter from Mr. Griffiths. Approaching the village, I was met by 13 Mahratta horse, who immediately conducted me to the chief Czoky, where they desired to know who I was. Having told them that I had a letter for the Commandant, one of them, who seemed to have some authority over the rest, put my name down on paper, and despatched a horseman with it to the fort. In a short time after ~~one of the head~~ people came down with a retinue of Sepoys, and acquainted me that the Commandant wished to have the letter I brought to him from Surat. Accordingly I gave it, with which he departed, and brought me a message back that the Commandant would have been glad to have seen me at the fort, but ~~having received orders from Poona~~ not to admit Europeans there, he would come down himself and see me. In the mean time, he caused the Patel of the village to give my people and cattle provisions, and likewise everything else that I desired.

At sunset he came down with a large retinue of horse, attended, according to the country custom, by a tom-tom and a trumpet, to my tent. After the usual ceremonies, he made inquiries about my taking this route in preference to Deman. I answered him candidly my motives, and having shewn him some dried specimens and drawings of flowers, he seemed satisfied. I presented him with the shawl, and requested of him a pass, that I might not be detained so often at the guard houses, which he promised me that he would either bring himself, or would send his headman with it. After a refreshment of Betel he departed.

The following morning, I waited till 9 o'clock, but no passes arrived. In consequence, I wished to send my Saturday 12th. interpreter to him for them, as likewise to take leave for me; but this indulgence was not granted him by the two horsemen, who were encamped close to my tent, and relieved every two hours during the night. However, one of them

rode up the hill, and brought with him the man who came for the letter yesterday, and who delivered me the passes, accompanied with an apology for the Commandant not coming himself, on account of his religion, which did not permit him to go out so early abroad, until he had washed his corpse. I accepted the apology with my taking leave of him, and ascribed the strictness of his religion merely to a piece of policy, to avoid the customary return of a present.

The fort of Parnera is situated on a high barren mountain, which is steep on every side, and almost inaccessible to an enemy. I understand that it has only one entrance, on the NW. side, and a narrow winding road, only broad enough for a Hackery to carry up provisions. It seemed to me from an opposite hill, distant about one mile, that the fort is built on a triangle; but I could not discern a single gun that it had mounted, although I could distinguish the people and smaller objects remarkably well.

The valley between these two hills has been, by the remaining stumps, cultivated with rice and Bajery; but all the neighbouring hills were quite barren, and destitute of verdure.

From the next adjoining high hill, I could plainly distinguish the smoke which I observed on my going to sea the first time to Surat; and by the account that I had from my guards, that they remembered it so continually from their youth, it leads me therefore to think that it must be part of a volcano.

At noon I came to Mandewy, a small village about 5 coss from Parnera, situated in a plain between two stupendous hills, which were likewise barren, where I refreshed; and in the evening I reached Corally, a village on a high level mountain, from whence I could plainly discern the sea. The soil here had a better appearance, the interior mountains presenting a continual forest, and the valleys overgrown with grass. The whole district which I passed to-day abounded with ant-hills, large and neat, built of clay, not unlike those on the Coast of Guinea, but considerably larger. I measured some of them to 38 feet high, and 45 in circuit. The winding passages were so hollowed in the pyramid, that no rain could ever affect their habitations. I demolished several, in hopes of seeing the constructors of this wonderful edifice, but none came to my sight; and my people informed me that they only inhabit in the rainy reason.

At daybreak I proceeded to Morally, distant about 5 coss from this place. The country to the eastward of this district is one continued ridge of high mountains, by which appearance I judged of finding myself in the latitude of St. John. About 3 coss from Corally I came to a beautiful fall of water, which was hard frozen in small basons, and this was the third glaciation that I met with in India.

About 2 coss further I came to another such a fall, but here it formed already a river, and at some places 3 feet of water. On the banks I found a species of *Eranthemum*, with large blue flowers, and many other plants, which I dug up, but mostly out of flower. The country abounded with teakwood trees of a prodigious size. I measured several that were 4 feet in diameter; the highest I could not conjecture less than 80 feet. This tree forms no crown like other trees, but grows perpendicularly, like a pyramid, with a few straggling branches ~~which set on gradually as the tree increases in height.~~ The timber is chiefly used for building ships, which I am told is superior to the best oak; likewise that it has such particularities possessed by nature, that it keeps the iron from corroding, which is not unlike the sandalwood, that keeps off the rust from iron by my own experience. The soil is here a heavy clay, and they seem to thrive best in rocky situations. I have gathered here about half a bushel of seeds, which I think will be a great acquisition to the West India Islands. One of my people told me, who has seen plantations of the teakwood tree in the Cooly country, that the seeds are sown in the latter end of the hot season, and after this nothing is further required than to clear the tree of the superficial lateral branches; but care should be taken that the leading branch is not damaged, for in this case it never will come to anything more than a deformed shrub.

The *Pewn* tree, so called by the Natives, grows in moist places, and rather to a higher size than the former, and is chiefly appropriated for masts, which purpose I understand it answers remarkably well. By the obnoxious offensive flowers, I took it for the *Sterculia foetida** of Linnaeus. Both these trees are felled in the cold season, when they are out of vegetation. The seeds are enumerated amongst the collection with Nos. 1, 2.

* He evidently rightly alludes to the *Sterculia foetida*, or Bastard Poon. The true Poon (*Calycacion*, a tree of a family quite different) is unknown in the Northern Konkan.—*Editor*.

At noon I came to Morally, and in the evening to Czyhtacary, a village 4 coss from the former, where I staid that night; and early the next morning, Monday 14th. having taken a guide to shew us the road,—which was entirely overgrown by not being frequented, and we lost a great deal of time in search for it; as likewise very often we were wrongly advised by the Czoky keepers, who, I believe, by way of mirth, wilfully have done it,—I proceeded to Mattacary. These Czokys begaa to be now innumerable, at every turn of the road and pass throughout the country, inhabited or uninhabited. Their dwellings consist of a small thatched hut of grass, where they live with their families during the hot and cold season, and are at liberty to cultivate the land for their maintenance. Their business is to give an alarm to the neighbouring provinces, which is performed with great speed by their horses, ~~which they keep for that purpose.~~ They intercept and examine passengers, and on the least suspicion ~~they~~ ^{they} bind him, and conduct him to the first village, from whence he is transported to the Chief of the district, who examines him with the greatest strictness. I was desired to shew my pass at every place; but I believe ~~the most of them are illiterate,~~ for I very often presented them with my own Gentoo scribbling, although it had no connexion with a pass, and they returned me it after a pretended perusal, that it was a very good Perwana or pass.

Their arms consist of a sabre or spear, and a matchlock-piece, which serves them chiefly as a defence against tygers, which are numerous in these mountainous woody countries, and there was not a day that we had not started several of them.

For about 4 coss from Czyhtacary, the country inland is as mountainous as about Morally; but here the hills gradually decreased, and at noon I found myself quite at the bottom of them, in a fine level country again: Here I crossed the river Nalgol, which is brackish, about a quarter of a mile broad; and 3 coss hence I crossed in a boat the Czyhtacary, which is about a good mile broad, and which I understand extends itself a considerable way inland. In the evening I reached Mattacary village, where I staid that night.

About these two rivers, the soil is a light black earth, chiefly overgrown by a wild sugarcane, that grows very luxuriant, with which my people loaded themselves.

On a rising ground, I found an Æschynomene, with large purple

flowers, which I took at first sight as a change occasioned either by the cold or the heat, but on minute examination of these flowers that were not quite open, it proved natural. The seeds are marked No. 7.

By the spontaneous growth of different vegetables, the inland country seemed to possess the same fertile soil. I understood from one of my people, who past this way in the rainy season to Deman, a Portuguese settlement, that the Mattacary overflows a district of land for a whole day's journey, and the current is so rapid that many Patewalas are yearly lost in crossing it: for that reason the Surat Chief and merchants send usually two, at a time to Bombay.

Having been informed that there was no village from here within

13 coss, I set out on my journey as soon as day was
 Tuesday 15th. ~~decried,~~ and reached Kelny village in the dusk of
 the evening. About 5 coss from the village I left;

I crossed the river Kelny, which ~~passes through~~ the midst of a plain
 and fertile country; but the inland hills seemed all like yellow paint-
 ed, without the least verdure.

On both sides of the river are large groves of wild brab trees, or Borassus fibelliformis, and the Corypha umbraculifera, of which ~~they draw the toddy, for when the inhabitants of Kelny and Mattacary come daily here, and carry some hundreds of Hackerys of juice away.~~ Although the trees are so frequently tapped, they did not seem to suffer in their vegetation.

This village is situated in a plain, not far from the river Denu, and chiefly inhabited by fishermen. The district within 8 miles was cultivated with rice, yams, turmaric, and here and there interspersed with sugarcane plantations.

The soil seemed very favourable for the latter especially, which grew on some plantations to 15 feet high, and proportionable thickness. The district where they are situated is considerably lower than the rest of the country. Near the river side they were embanked to the height of 3 feet, and watered from a well, which was situated in the middle of the plantation. The canes were planted thick, in straight furrows, about 5 feet each line from another. The intermediate vacuities were occupied with the Musa (for which Bassein is famous), Caryca, and the borders were planted with Psidium pomiferum, Tamarindus, and Punica, which enclosed and shaded the plantations both from the extreme heat and the land wind, by which both the vegetable and animal economy suffers in this country.

The Punica in India has a sexpartite pericanthium. It is not eight years ago that they have begun cultivating sugarcane in this district; but they have made in that short period such progress, that Bassein not only supplies their own great demand with this article, with which they were formerly served by the Dutch at an immense price, but likewise begin already to export it to Bombay and Surat markets. They have, however, not yet the art of refining it.

Close to the river stands a small fort, and a church, the only remains of the Portuguese. Of the fort they make a toll-house, and of the church a stable, wherein the cattle is driven by passengers that pass this way, and when overtaken by the night.

The different images on the altars are, however, not the least damaged; but although the Gentoos hold them in the real value, they request, on the entry of a stranger, not to molest or destroy them.

In the morning, as I proceeded towards the river, I was stopped by one of the custom house officers, and was demanded, for my horse and two hackerys, Rs. 12. In consequence I sent my interpreter to the Jamedar of the fort, with a complaint of such an exorbitant demand; but was answered that it was no more than what everybody pays on crossing it. I was therefore obliged to comply with his demand. However, as my interpreter, on paying the money, told them that I had particular letters to the Governor of Bassein, to whom I should undoubtedly complain about this imposition, two rupees were sent me back, with an apology from the Jamedar, that he made a mistake, for which he requested my pardon.

At noon I arrived at Danda, a village about 3 coss from the river Denu; and in the evening I came to Dantora, a large village, situated near a river of the same name, where I staid that night.

Next morning, as soon as I could get fishermen to pilot me over the river, I set out on my journey, and in the afternoon I arrived at Bassein, which is 7 coss distant from Dantora.

The country from the Denu river is one garden of sugarcanes, interspersed with rice plantations, which were cleared two months ago. The soil is everywhere fertile, and of the same consistence as about Dunda, and the sugarcane rather more vigorous in growth than at the former plantations.

The river Tantara, not being embanked, overflows a considerable

distance of land, and is only passable at low-water, when its breadth decreases to a mile and a half. On the other side stands a Mahratta Czoky, where I was obliged to pay the same price for crossing it as at Danda, and this was the seventeenth river that I crossed since I left Surat.

This part of the Mahratta country, which is called Concan, is upon the whole rather fertile than barren, and though the soil of the hills is hard and strong, yet it produces the finest teakwood. The valleys are commonly moist, occasioned by the rains that collect in them, and they are covered with high grass and Pewn trees, with some underwood, but of little variety. Although this country is so fertile, and has a superfluity of fresh water in every direction the whole year round, it is but poorly inhabited and tilled. On all my route I did not meet more than thirteen villages, and the generality of them, especially in the mountains, ~~did not consist~~ of more than ~~several families~~, seemingly pining in poverty, and destitute of every comfort of life.

These inhabitants of the mountains are quite a different race of people to appearance: they are of a darker complexion than those about Surat, ~~which is due to the~~ violent heat that prevails here in the hot season; for though the nights were beyond expectation cold, the thermometer was never less in the day than 89°. They are very slender, but remarkably active, and seemed by their advanced age, by which many distinguished themselves, to enjoy a good state of health. Their language differs entirely from that spoken either at Surat or the more distant parts of the Guzerat, so that my interpreter found as great a difficulty to make himself understood as myself.

Their religion is a species of Gentoo, but they eat everything besides oxen meat. In some of these villages I observed heads of cattle, which are the only riches they have, and of such a moderate price that I might have purchased as many as I pleased at a rupee per head. They are likewise of the same species as in the Guzerat, with hunched backs, but only miniatures comparing them with those that are to be met with commonly at Dolca and Lymree. Of sheep they had likewise some, and they were the first that I saw in India with long wool, which was as soft and white as the finest Guzerat cotton.

The inhabitants make their winter covering from this wool; and although they were made up together of a thick texture, yet

remarkably light in proportion. I am rather surprized that nobody either at Surat or Bombay took notice of such a valuable article, and introduced it into their settlements, which might in time become a great article of trade; but it seems that neither philosophical curiosity nor commercial industry have found their abode here.

On my entering Bassein town, which lies on the land side behind the fort, I was conducted under a guard house, where the Patel resided. As soon as I was lodged here, I sent my interpreter with the letter I had from Mr. Griffiths to the Governor, who was likewise conducted with the same formality under a guard to the Durbar. On the perusal of the letter, he sent orders to the Patel to give my people provisions, as likewise me a part of the Czoky, and everything else I desired. As there was not a single place in the neighbourhood that was not either under water, or so swampy that ~~must have destroyed the best constitution in twenty-four hours,~~ I was very glad of my quarters.

The next morning about 10 I waited on him at the Durbar, and presented him with the pair of pistols that were designed for him. In return he presented me with a silver-mounted sabre; ~~but the metal was the only~~

Friday 18th. value on the whole, for the iron was so bad, that on bending it the curve remained, as if it had been leaden.

He did not inquire either of me or my interpreter the motives of my coming overland, but sent some of his Parvoos to examine my people whilst I was with him, with a promise of the first place if they would discover what I was doing on my journey, and whether I took any sketches of the forts or country, or wrote down any remarks; but as I took great care to be as much on my guard towards my people as I had been with the inhabitants, they answered them candidly to their best knowledge. I asked him for a boat to Bombay, and permission to cross the river; to which he replied, that all the boats were fishing, and that he was sorry that he could not accommodate me with one to-day; but early the next I should have one. After the usual refreshment of Betel, which they present to a stranger on going away, I took my leave for the apartment allotted me, where I found two men with spears posted close to my door. I asked the Patel, who had been accustomed to the English during their possession of this place, and spoke the language well, what these two men signified; to which he answered that the Governor is

such a suspicious man, and fears that, coming overland, my intention was to observe the addition that had been made to the fortifications since the last war,—in consequence he posted them here to prevent my going out of the district ; and added that there were boats in plenty at the river's side, but as the road leads to them at the side where the English breached the wall, and where the addition is since made, he apprehends that, being daylight, I might see it ; and as I brought him a letter of distinction, and made him a present, he avoids affronting me by blindfolding my eyes, as he does to the people dependent on the English when they pass this way, and are led to or from the town blindfolded : therefore, to remain on good terms, he gave orders that a boat should be got ready before daybreak, which was done accordingly. In the evening he sent me his Parvoo with two passes, one to the beach, and the second to the superintendent of the boats, who is a fisherman, to give me leave to hire one, and proceed ~~when I please~~.

The Parvoo who brought the passes asked me for a fee that on these occasions is customary. I therefore presented him with four rupees, which he however rejected, saying that he gave so much to his servant ~~when he was in humour~~. I therefore, to moderate the haughtiness with which he refused it, disappointed him in his scheme, by keeping the money. He went away immediately, no doubt to relate the story to his master, and I saw nothing more of him.

After this transaction, we went all to rest. About midnight the Patel came to my hovel, where I slept, which had neither light nor air, except what came by the door, and acquainted me that the time of my departure was expired—of which, as may be easily conceived, I was very glad ; and in a short period he conducted me round the fortification to the beach, where I was kept till 8 o'clock.

On delivery of these passes to each of these respective men, I was obliged to pay* to the first one nine rupees, and three to the second, who gave me leave to take the boat, and the boatman would not take me to Bombay unless I paid him Rs. 43, which was, by the Patel's account, eight rupees more than the common price of the country, and which I conjectured was either done by the interest of the Parvoo, or the Governor himself : so taking it in the whole, the Guzerat country, although it abounds with robbers, a person travels in with less trouble, and loses his property but when he is unguarded ;

but here they practise pillaging as their privilege openly, and compel you to answer their demand according to their pleasure.

The wind and the tide being in our favour, we landed about two o'clock at Mahim, and as it was just dinner time, I
 Saturday 19th. was invited by Mr. Freeman, the Custom Master of that place, to take part of it, where I understood that Mr. Boddam left Bombay the 9th for Europe. This intelligence was certainly a great disappointment to me, having made such a great and fatiguing journey for nothing: however, as there were several imperial vessels bound for Europe, I thought that I could prevail on one of the Captains to take charge of my collection.

In the afternoon I left Mahim; the evening I arrived at Bombay, and took my abode for that night at Dr. Scott's.

As the settling of my affairs required time till I brought them to
 Sunday 20th. ~~conclusion, and the tavern was remarkably expensive to live in, I therefore~~ ~~at a house~~ where I might live according to my circumstances.

By the 27th, having get some clothing made, I waited on Mr. Ramsay, who superseded Mr. Boddam, to whom I
 Monday 28th. ~~represented my state, and the necessity of asking~~ him for some money. He however told me that he could do nothing without the Council, and advised me to write to the Board about it; in consequence, as I could not proceed again to the country which I was ordered to view, and stay the requisite time for the observation of the culture, I wrote to the Board, and requested them to credit me a sum to the amount of Rs. 10,000, till I could get reimbursements from my employers in Europe.

The 2nd of February I received a letter from Mr. Page, their Secretary, that in reply to the letter I addressed to
 1788, February. the Board the 28th last, he was ordered to transmit
 Saturday 2nd. to me a copy of the second and third paragraphs of the Honorable Company's Orders respecting my expedition, and that they do not think themselves authorized to advance me a further sum.

The third paragraph of the Company's Orders comprized that they were directed to give me such assistance as may best tend to the security of my person in the country where I am ordered to carry on my pursuits.

In justice to Mr. Griffiths, I must say that he wished to assist me

to the utmost of his power, and he gave me letters to Broach country, and through the Mahratta country: the first to Mr. Smith, the Resident of Broach, besides a private introduction of what he had seen of me during my stay at Surat,—which were so ill observed, that I was more hindered than assisted in my expedition, and no notice has been taken when I made a complaint about his behaviour to me;—the second to Mr. Holford, the Resident at Cambay. Although I obtained every civility I could require from him, he could, however, do no further for me than in his Purganah, and then I was under the necessity of making presents on every occasion.

In the other Purganah that I visited, I had no assistance from Bombay, which, truly saying, would have been of *no consequence*, if I had not made presents, and got myself friends by medical assistance. As for the security of my person, Mr. Griffiths was so kind as to give me of his own accord 17 Nabob's horsemen for a ~~protection of Broach, which, however,~~ cost me as much as if I had hired them. This was the first and the last time that I received such protection, and which I considered as a private favour done to me by Mr. Griffiths.

~~The 16th of February, the Princess Royal, a Company's ship,~~ having anchored at Bombay on her passage to Europe, I took the opportunity of consigning a box with my collection to the care of the Governor in Council, as I have been caused to do in my instructions, and requested that it might be forwarded agreeable to the direction. In the mean time, I requested of them to send me an introduction to the Pundit of Broach, that I might examine the environs unmolested. However, 20 days having past, and I had not received an answer to my letter, in consequence I waited on Mr. Page for information, if I had hopes left in obtaining it, who promised me that he would represent it to the Board. I waited till the 15th of March; but not having received it, I thought that any further request would be as little regarded as all the former were.

I therefore, having got credit by the only interest of Dr. Scott, at Dady Naserwangie's for Rs. 17,000, I defrayed my contracted debts, and having provided myself with different presents and other requisites, I hired a boat, and proceeded the 17th of March to Cambay.

During my stay here, on passing the Grove Bridge one day, I

observed fishermen to fish in the lake which lays on the land side close to the bridge, by which I conjecture that there must be some communication with the sea through it; and on examination I found several openings, through which the water filtered very spontaneously, and this at once accounted for the fish that are found in the rice plantations in the rainy season. Next, to confirm my hypothesis, I made daily excursions to the Parell fields, and took their height, with that of the lake, and on accomplishing, I found that the water is 2 feet lower than the plantations; therefore, allowing only 2 feet of water during the monsoon, which, however, rises considerably higher, fish will be found everywhere on these grounds which have the communication, and are on the level with the lake.

The 18th I overtook the Surat fleet about Bassein, and the 23rd I was abreast of St. John, where I saw the smoke

1788, March.

Tuesday 18th,
25th.

~~is in the same situation.~~

Tuesday 25th we anchored at the ~~place~~ which is at this time of the year as smooth as a millpond.

The next morning, the tide being in our favour, we set sail, and the 27th we came to ~~Gongwa, Pochee (or Fakker?)~~ village opposite Cambay, waiting for the return of the tide.

At four in the afternoon the tide began to lift, and we set sail for the opposite side; but as we were nearly half our way, the wind suddenly shifted, and we were obliged to return to the same place, where we but a few hours ago laid at anchor.

The next day the wind continuing still from the same quarter, I therefore set out early in the morning towards the Sarod cotton plantations, which were chiefly in the higher grounds cleared of cotton; on the lower plantations it came just to perfection, and gathered in.

As I began to be a judge in the qualities of the wool, I compared these two sorts together, and found those on the lower fields considerably superior to those of the higher, in which I was confirmed by the gatherers.

I asked the man who superintends over the people the cause, and his opinion for the wool being finer in the lower grounds, who gave me a judicious intelligence, not unlike that at Urwara Mitanga Purganah: that the cotton is sown in the end of the rains, that it

might not be destroyed by inundation ; consequently in all these fields it ripens a month later than the rest, which are on elevated situations ; and having the advantage of the most powerful dews, which refresh the pods, and promote vegetation, the wool gets not only compact and finer, but likewise produces a greater crop.

The higher grounds, on which the cotton ripens in the cold season, are likewise not without some advantage. The dews falling on the wool, that discovers itself by the elasticity of the capsula, bleaches it by the assistance of the sun, and contributes in some measure to its fineness ; but where they have not the conveniency of water to support it in the period when the pod begins to swell, the crop is but poor, and inferior in quality to those that have either a succour by the freshes, or are situated lower, where the rains may have more influence.

~~In the evening I returned to the boat, and the next day, as the wind blew from the same quarter with great~~
 Saturday 29th. violence, and not likely to change till the next change of the moon, in consequence I set out for Sarood, leaving my chief articles in the villagers' care. In the evening I came to ~~Sarood~~, where I pitched my tent under a Banian tree, close to a Faquier's cottage. As soon as I was settled, I sent my interpreter to the Rajah, informing him of my arrival, and that I would wait on him ; but as he had some strangers with him, he requested I would delay the intended visit until the following day ; at the same time he ordered provisions for my people.

The following day I went to see him, and on my return, I presented him with a pair of pistols, and asked his leave to examine the different districts of his territory, which he granted me. In the mean time, he advised me to be on my guard of the Gratia, that often invade his territory : as to his people, he would send orders to let me pass unmolested. He likewise gave me a man to serve me as the macebearer and provider did at Dolca.

✓ I visited the indigo plantations, which are situated in a low swampy district not far from Letoor (Tetoor) village.
 Monday 31st.

The indigo they were cutting has been suffered to grow for two seasons, of which they had this year four crops ; and this was the last, of a good size, and proportionable quantity.

Some fields, that were not yet advanced to the proper height for cutting, were watered from ponds, which are situated close to the river side, near the plantation: this they perform by simply opening one of the banks, and lead it in temporary channels to the intended plantation.

Higher up the river I met with a plantation, on which the last crop was suffered to grow for seeds, and likewise watered in the manner as those I left just now.

They are generally assisted in vegetation about this time of the year; when the hot season sets in, and the dews have ceased, for fear the scorching heat might overtake the last crop, and destroy it.

I understand that they usually sow the indigo in the beginning of the rains, and suffer it to grow for two seasons. The first crop is cut in the end of the rains, and the last about this period. The land then lays unemployed ~~and does not ripen when it is sown entirely~~ with Bajery and Joary, which ripens in October. After the grain is gathered in, they plough the land immediately, and sow it with wheat or barley, that is totally nourished by the dews, and ripens in the beginning of February.

Then these plantations are laid aside till their turn comes again to be tilled with cotton, which occurs on the expiration of two seasons.

Tuesday the 1st of April I made an excursion to Urly and Qnlar plantations, which are likewise situated on the borders of the Myhie, and which are divided, as the indigo plantations, with basons of water. The cotton was already gathered in, and the planters were busily employed in taking up the shrubs, and formed them in faggots for fuel.

Higher up the river, towards Dewan, I met with several plantations that were situated very low, and the cotton gathered in, which was as fine as that I had seen collected a few days ago. I purchased some of it for a specimen, which is enumerated in the collection of cotton.

The soil is here considerably lighter,—not unlike that I have observed in the Dolca Purganah; which is unquestionably owing to their burning always the grass which they are not able to consume, the ashes of which is conducive to render the heavy clay tender, and by which the earth is enabled to attract a greater quantity of dew for its nourishment.

The cotton of these plantations and district is of the yellow species, and always sown in the end of the rains.

Having now seen the whole district of this Purganah, which is level and destitute of wood, like its neighbourhood, I took my leave of the Rajah, and having hired 20 men for my guard, I directed my course direct over the plains to Onlar, where I had formerly my tent pitched.

In the afternoon I arrived at Gadzora, where I was received by the Subedar with the same hospitality as before. He ordered immediately provisions for my people, the guards not excepted, and insisted on my staying the night with him, which I did; and the next morning, having taken protection from him, I proceeded to Onlar district, where the fine red cotton is cultivated, and where I found the planters employed in gathering the few straggling pods of cotton which had ripened ~~in the crop, and which they are at liberty to appropriate for their own use; likewise they were cutting the thin branches, that were formed since first reduction.~~ The plantations that were already accomplished they watered from three large ponds, which I took on ~~my first stay, and which were dug by the freshes, and which the planters were not able, or they thought not equivalent to their trouble of levelling;~~ but now I found that they were purposely constructed, and that with great industry, to facilitate the watering of their districts.

The most of these ponds are situated close to the Dahder and the Myhie, and are embanked above the banks of the river. Some of them were formerly creeks of the river, which they separated by a high wall from the immediate communication with the stream. In the midst of these walls is a sliding sluice, which is opened at the time when the freshes rise, and they shut them again as soon as they have a sufficient quantity of water. From each of these reservoirs are narrow channels made, with the level of the district, by which the water is led under the earth to the most remote plantation. Each of these channels has its respective sluice, which is hid in the encompassment of the reservoirs, and only discernible at the time when the planters are employed in watering the cotton. As the water comes beneath the mark of the conduit, which was the case with some of these, they have temporary wheels erected, with suspended pots, which are turned by a man exactly in the same manner as I have seen at Parolly

village, which empty the water into the conduit. By this means they are able to water a plantation of 12 acres of land in the space of five hours, with the greatest ease; and truly saying, they take it *more for amusement than labour*. [?]

Being now late in the day, I directed my mind in search of a safe place where I could spend the night; and in going a few miles up the river, I met with a lawn of fine grass, encompassed by a large bason, which was emptied of water, and dry. In the midst of it I pitched my tent, and spent the night unmolested.

Next morning, having left eight trusty people with my baggage, I proceeded with the rest to the neighbourhood of Ungulla, where I found the plantations entirely gathered of cotton.

The shrubs of the two years' crop were taken up by the roots, and formed into ~~bags~~ like those at Sarood, and left to dry.

The cotton of the lower plantations were ~~seen~~ plucked by the females of the remaining wool. I understand that those that were planted last season will be suffered to grow for another crop, and intersown with Bajery, Joary, and rice. After the grain is gathered in, the land is ploughed, and ~~sown~~ with wheat and barley, and after that period occupied with indigo.

On my return to the tent, which was late in the night, my people informed me that they saw 22 horsemen from a tree. In consequence, they immediately struck the tent to the bottom, and in the mean time kept themselves ready to act on the defensive; but they passed it within 300 yards in full gallop,—seemingly they had not noticed us. As I conjectured that they must have had intelligence of my being in this district again, we spent the night watching, and at daybreak I made my best way for Hanky and Ahmood.

About Hanky those red cotton shrubs, which I found on my first arrival here at the height of 3 feet, were now advanced to 6 feet, and very bushy. The most of them were in flower; but this the planters who cleared the shrubs of dry wood did not seem to think much of, as the hot season daily advanced, which drained all the moistness the wool contains, and which is so requisite to softening and lengthening it. The reservoirs were all dry, but the fields were still pretty wet, which were watered the last time, by the planters' account, eight days ago.

In the evening I arrived at Ahmood, and pitched my tent at the

old place. No sooner the Rajah heard of my arrival, than he came to meet me with a transport of joy on seeing me in his territory again. As soon as he had finished telling me his adventures since my seeing him last, which he settled by acknowledging the Mahrattas his superiors, and engaged to pay them one lack of rupees a year, he invited to me to the Durbar, where he treated me with a supper dressed in the Moorish stile : it consisted of dishes which are called Pillow, Kabob, and Cadzery.

Pillow is made of a boiled fowl, with rice, highly seasoned with cinnamon, cardamom, mace, and ghee, or melted butter.

Kabob is either made of minced fowl or mutton, seasoned with assafetida, garlic, capzicum, and fried in ghee. This dish they generally prefer to any of the rest, and usually make it up in the shape of a large bullet.

Cadzery consists of different sorts of broken pulse, boiled up ~~together with rice, so as to preserve every particle distinct,~~ to which is added a yellow tinge with the Currama root. All these dishes are remarkably well calculated for this climate, but the quantity of ghee which they make use of does not well agree with a ~~European constitution.~~

After supper he introduced a beverage of opium diluted in water, which was the horridest treat a man could invent. They, however, drank it as we do wine (in much smaller quantity), and to my great surprize, it seemed that it had but little effect on them. All these opium-drinkers are, at forty, the most miserable creatures the world supports : they are either hectic, or so nervous and spasmodic that they are hardly able to outcrawl a snail.

They have, however, a convinced idea of its bad qualities, and in consequence said, " We would leave it off if we could ; but on cessation for a little while, we found ourselves so much relaxed, and should perish if we had not recourse to it again."

After midnight we parted, and he gave me 14 men to conduct me to the tents.

Next morning I made an excursion to Parawana village, where the red cotton plantations are situated.

Sunday 6th. The two years' cotton fields were a month ago gathered in, the land ploughed, and resown with wheat, which was chiefly collected in ; and these plantations are suffered now to lay for pasturage fields.

The meadows were turned and prepared by a machine which is drawn by a buffalo, for the next year's cotton. This machine is very simple. It consists of an octangular piece or log of wood, about 4 feet long and 2 feet in diameter, at the bottom of which a plough-share is fixed, as is represented in Figure 2, mark *b*, by which the grass is turned up at the depth of 8 inches, and exposed, during the hot season, to the air, by which all the Nardus roots are destroyed, and serve in some measure to manure the ground. All these fields are full of the Nardus roots, which produce a powerful smell when ploughed up. They call it Mooth, and use it against the venom of snakes, as likewise in farriery. Whole ship-loads might be got here for a trivial sum, if it should prove an article of trade.

These fields that are turned in this season are again ploughed in the beginning of the rains, and occupied with red cotton.

~~As nothing was now left for my observation till next August, I went, on my return, to the Rajah, and took leave of him, who treated with me very tenderly, and accompanied me to Cundza village, on the opposite side of his territory.~~

In the evening, ~~having crossed the Dahder, I came to Tuttrawa,~~ a large village belonging to the ~~Jumboseer district, where I spent that night.~~

The following morning, having discharged my Ahmood guard, and hired here 15 archers, I proceeded to Gongwa,

Tuesday 8th. where I arrived in the evening, and found every article I deposited in the head Faquier's care in the manner I left them.

The land from the Dahder as far as Morally village consists everywhere of the same soil, partly cultivated with indigo, but the greatest part with cotton, of which the wool was cleared. Every plantation was embanked with earth, and this year's red cotton shrubs were as luxuriant in growth as those about Hanky, and tillaged likewise in the same manner.

The meadows which were intended for the next year's cotton were either ploughed or turned exactly, with such a machine as those in the Ahmood district. I am rather surprized how Major Turner could lay down so many villages, or else there must be a great alteration since he visited this country. I passed to-day and yesterday through the whole he lays down, but have not been so fortunate as to see the half, and those I passed are not laid down—at least their situation on

the land is quite different. This is evident by the breadth of the river Myhie, and the situation of Cambay town, which lays considerably higher up the Gulph to the westward, that he has never visited this part himself; and which confirms the intelligence I had from Mr. Holford.

About six in the evening, the tide began to lift, and we made preparation to set sail for Cambay. The anchor was Wednesday 9th. so imbedded that we purchased it with great difficulty, and we lost a great deal of time. As we were within 4 miles of the town, the tide ebbed with such rapidity that we were left dry in half an hour's time. Our situation was now very dangerous; for as the return of the tide, which enters the Gulph with the same force and velocity, would unavoidably overset us, in consequence I took out of her the best of my articles, and waded over the mud, with some of my people ~~to the town~~, where we arrived ~~at midnight~~. No sooner the tide ebbed again, than we heard a gun fired, and some blue-lights burning as a signal of distress, but none of the idle Moguls would give her assistance; and to aggravate the misfortune, Mr. Holford was ~~on a party of pleasure at Surat~~. I ~~had~~ recourse to the Company's brokers, who requested the Nabob to send out some fishermen for her relief, which he did accordingly, and as the flood retired, they freed her from the surrounded mud, wherein she plunged already, and at high-water bought her safe to the landing-place.

The boats that are left in the Gulph here are in danger of being usually overset by the force of the tide, or of being plunged gradually into the unfathomable mud, so that in a short period they are quite irrecoverable, which would have been the case with this had she laid a few hours longer in that situation. There are many high banks in the Gulph, but as they shift almost every month from place to place, a description of their present situation would be needless.

Next morning I waited on the Nabob, and thanked him for his assistance; and in the afternoon I made an excursion Thursday 10th. to their tobacco plantations, which are situated to the NW., 5 miles from the town. The country hereabouts tends to uneven ground, as that about Calmeer. The soil is partly a light white clay, but the greatest part consists of a soft sand. The tobacco plant is of the same species as that cultivated

in the West Indies. The seed is sown under cover in baskets, as soon as the first rain has fallen, from whence they transplant it about 3 feet from each other. Two months after these plants were set, the tops, except those which were intended for seeds, are cut off, so as to give to the leaf a more vigorous growth. The leaves begin to turn yellow about October, and are plucked off as they ripen, and are suspended in shady places to dry. Those that are plucked at this time of the year are the lateral shoots, which are taken off as they arrive to a tolerable size, and are laid into barley straw, where they acquire the yellow colour, when they are dried like the former. They besprinkle them with a kind of syrup, not unlike treacle, which is extracted from the juice of the *Borassus* and *Corypha*, which gives them a particular flavour, and by the moistness, they are enabled to spread them in small packages in their natural form, and press them lastly down between two tables by the help of stones, in which state they are exported to Surat and Bombay markets.

As the tobacco sucks all the fecundity out of the earth, they choose yearly new pasturage fields, of which, as the country is not well inhabited, they have as many as they please. After the tobacco is collected, they till these plantations with wheat and barley. After these are gathered in, they cultivate them with the red cotton only for one season, when they let it lay for four years as pasturage ground, and after that period begin to cultivate again with tobacco.

The price of tobacco is likewise monopolized by the Company's brokers, therefore it is not well known to any person but themselves. The Nabob is entitled to the half of every produce, but commonly leaves the poor farmer only the fourth part. The Nabob's part is always taken direct from the field, which the farmer is obliged to bring to the appointed place. On the import of any article to the town, he pays the tenth part, and if he exports it again unsold, he pays likewise the same, so that he has but a poor compensation for his labour; and this is the only cause that the country is so deserted of its former rich inhabitants.

In the afternoon I went to the Nabob, to take my leave, who, though he was always jealous of the excursions I made, he now parted very friendly. As often as I went out anywhere, he sent usually a party after me, who picked everything up that I did. The cause of it was described to me, both by the Company's brokers and Mr. Holford, that the inhabitants are prepossessed with such ideas

that there are many plants which possess metallic properties, which makes them conjecture that I came here for the purpose of finding them out; in consequence all these plants that they picked up were sent to a Brahmin, who is an alchemist, and who analyzed them respectively.

Early in the morning I proceeded to Dolca, and in the evening I arrived at Rahbera, and staid there the night, and Saturday 12th. the principal part of the next day, on account of the great heat, which began to be insufferable. In the evening I crossed the Sabermatty, and having hired 25 men at Carere village, I travelled during the night.

At daybreak I came to Dolca, where I pitched my tent near a tank, for the convenience of water. In the mean Monday 14th. time I sent my interpreter to acquaint the Rajah of my arrival, who on his ~~return~~ brought me the intelligence that he (the Rajah) went to Brodra with the yearly rent, but his son would come and see me. Accordingly he came in a short time after, and received me with the same friendship as before. For my people he ordered provisions, and did not part till late in the night.

~~As I was desirous of seeing the manufactories of Ahmedabad, I waited on him this morning, requesting he would obtain permission of the Governor of that place that I might be at liberty to visit that town, and presented him with a pair of pistols; but in this he could not gratify my wishes: however, he advised me to write to his father about it, or wait till his return.~~

Accordingly I embraced the former, and dispatched immediately a Patewala to Brodra, with two letters, one to Fatessing, and the other to the Rajah, respecting Ahmedabad; as likewise to send me an introduction to Fatessing, that I might travel in his territory unmolested.

The 19th I received the answer, that on his return he would endeavour to obtain the permission; but as he did not propose returning till the next month, I therefore, Saturday 19th. not to lose time, made preparations for Mitampoor Purganah.

To-day I intended to make an excursion to Dowlat, and towards the river, to see to what period the cotton is advanced since my departure from hence; but a sultry hot wind arose about 2 o'clock from the NE., on Sunday 20th.

which account the young Rajah advised me not to go out of my tent, for fear of being overtaken by it, which the inhabitants avoid like the *small-pox*, and shut themselves up in their houses as long as the wind lasts from that quarter. It continued from four in the afternoon with such violence that the ropes of my tent gave way several times. During that period the thermometer was never under 116° , which, combined with the offensiveness from the carcasses that lay everywhere, rendered living truly troublesome.

As soon as it ceased, I sent my interpreter to the young Rajah for a guard and two Hackerys, which he ordered instantly. I then struck my tent, and set out in the dusk of the evening to Dowlat.

Previous to my setting out, the Rajah sent orders to the Patel of the village to give me every accommodation I wished; but I was in more need of water to moisten the tent, that began to be everywhere scarce ~~than food~~. ~~The tanks in which they wash were now totally corrupted and stagnant, and having no art of carrying~~ is occasioned by it, it is everywhere remarkably unhealthy. I usually boiled the water previous to drinking of it, but after it had stood a couple of hours it was as much impregnated with vermin as before. Even the fruits that are now in season, as mangoes, jacks, and oranges, were entirely overrun as soon as they were taken from the tree, and had laid a few hours.

About midnight I came to Dowlat. The headman lodged me and my people in a bungalow, and by the order the young Rajah had sent him, he had a supper prepared for the guard, and rest of the people.

The next morning at daybreak I set out towards the plantations that are situated near the river side, which were
 Monday 21st. chiefly on the higher grounds gathered of cotton, and on the lower the cotton began to disclose itself, which the planters collected in, and which was occasioned by the immense heat which of late prevailed here; but the wool was by no means so fine as the planters had reason to expect.

Those fields that lay close to the river's banks were watered from a bason that was hollowed in the river since my first arrival, the pods began to swell, and this is the period when the cotton requires assistance for its vegetation.

The last crop of indigo was everywhere cut, except those fields which were reserved for seeds, and these began to ripen. All grain, without exception, was collected in, and the pasturage fields which are

intended for the next year's cotton were turned by such a machine as they performed with in the other districts.

About ten the hot wind set in again as yesterday, and every soul quitted their work immediately, and repaired to their temporary huts, which are constructed of a species of *Juncus* (Qy. Jowass?—*Hedysarum* Albaji) which is enumerated on the Hortus Siccus, and the *Tamarix*, that grows spontaneously everywhere on the banks of the Sabermatty. The huts are very low, and always chosen either in a creek of the river, or in a district of their plantations where the cotton grows highest, which protects them from the violence of the heat, and the power of the wind. The entrance to these huts is commonly to the SW., and if the heat is too violent, they usually moisten it with the water out of the river, which renders the air tolerable. I spent in one of them the greatest part of the day while the heat lasted, and found it by far cooler than the tent, although ~~the house~~ was constantly watered, and more screened from the immediate force of the wind.

In my way back to Dowlat I chose a different road from that I came here, in hopes of meeting something that I had not seen; but ~~the only thing in point of culture~~, except that additional grass fields were burned down since my first visiting this district, which will be cultivated with the yellow cotton. On a small island in the river I found a group of trees with aggregate flowers, belonging to the class Polyandria, order Monogynia. The common Perianth, monophyllous, and oblong, with a plain marked receptacle; the style erect, very long; the stigma clavate exsert out of the impalement; the corolla monophyllous, with the limb quinquepartite, and acuminate reflect segment; the filaments very short, capillæ inserted between the segment of the corolla; the anther sagitate, the seeds columnare; the flower violet, and remarkably fragrant. The specimens and a living plant are marked under No. 1, Chest No. 3. At the declivities of the banks I found a new *Barleria*, with large white flowers. The specimens and living plant are marked under No. 15, Chest No. 3. Likewise *Cyperus*, which is very fragrant, from which the inhabitants extract a fragrant oil, and anoint themselves on wedding ceremonies.

To-day I made an excursion to *Botodra* garden, and found the seeds of the red dye (*Bixa orillana*) in full perfection; but the overseer would not part with a grain until I had an order from the Rajah. The leaves

Tuesday 22nd.

of all these shrubs had been stripped three weeks ago, and began to sprout out again very luxuriantly. By the account I had from the overseers, they are gathered four times a year; the first about the beginning of September, and the rest successively every three months during the season. The art of extracting the dye, he told me, was done in the same manner as with indigo: the dye of the seeds is taken off by rain water, in which it is suffered to soak for two months, to which they add a certain quantity of gum arabic, and combine it with the yellowish dye of the extract of the roots and leaves. After it is formed into small cakes, they export it to China, and the neighbouring markets. The price of it is per candy, that is 22 mohn, Rs. 2,700; and if sold or bought in a smaller quantity, the price is considerably higher. I understand that the plantations yield 16 candies a year, but of late the quality is far inferior to what it has been, ~~occasioned by the seed that there is for it, of which they take advantage, and adulterate it with different ingredients,~~ especially the yellow drupaceous seeds, that is cultivated in the Mahratta country, and a kind of a flower that they call Kissury,* which is imported from the Rajpoot country.

On my return to Dowlat I dispatched a messenger to Dolca, with a request to the Rajah for a little of these seeds, which he ordered the next day to be given to me. In consequence I sent my interpreter to the superintendent of the plantation, who brought with him a pretty quantity, which is marked in the Seeds Collection with No. 15.

In the afternoon I set out for Margatty village, where they cultivate a species of Carthamus, which the inhabitants of Broach use the flower of for dyeing the scarlet turbans. The seeds were sown very thick, in narrow furrows, about 20 inches each of the lines from each other. I understand that it is usually sown in the beginning of the rains, and in a short period after it begins to flower without cessation till the height of the hot season. They gather it every day as the flower opens, and keep it in constant moisture as long as there is any vegetation in it, and the well water lasts. The soil consists of a light clay, which they manure yearly with cowdung. The method of their manure with dung is by far superior and essential, to my idea, to anything I have ever seen of this kind in Europe. They

* The farina covering seeds of the Roulera tinctoria.

collect the dung during the whole year into a cistern, constructed for that purpose in the earth, and keep it under water till the period of ploughing the field, when they carry the ingredients, which are very fluid, in a large butt, which is fixed on a carriage, to the intended plantation, and water it with the assistance of a wooden cullender, which is fixed in the bottom of the butt, which the planter opens on his arrival at the field, and proceeds with the buffaloes throughout the plantation, till he thinks it adequate. The rain, that commonly succeeds the same or the following day, washes it down into the fissures, by which means not a single particle of the sublime salt is lost, which usually in Europe is scorched by the heat and the air, or frozen away by the immense cold.

Neither are they so precipitate in manuring their grounds as we are in Europe, but wait until the last extremity, when the seeds should be put into the ground, that the volatility the dung possesses, and the ~~vegetation~~ ^{strongly} requires, might not escape.

I obtained from the overseer a pretty quantity of seeds, which is marked under No. 14.

The adjacent plantations were cultivated with Piper longum, which grew ~~in a tank that was situated in the midst of the plantation.~~ ^{in a light soil as the Carthamus,} and watered from a tank that was situated in the midst of the plantation. I understand that it usually ripens in the month of August, when it is collected and dried in shady places. The quantity this Purganah produces I am informed is but inconsiderable, and they are only able to furnish the neighbouring markets. The price is Rs. 29 per mohn. In my return to Dowlat, I met near a rivulet a number of birds which are called by the Natives Collumb. I had the good fortune to shoot one of them, and took a drawing, which is marked with No. 1. The bird, when upright, is as large as an ostrich, remarkably swift, and watchful. The colour of them is a light blue, marked with a carmine patch on the crown of its head. This is a bird of passage, and commonly arrives here in the cold season, when the wheat and barley ripens, and immediately retires as soon as the grain is collected in. The Gentoos, I understand, are very fond of this bird, on account of its fine flavour, which was (truly saying) the finest meat I ever eat.

* In a hedge I met with a plant which the inhabitants call Lach

* There must be a mistake here.

Racher,* the gum of which they use in dyeing their leather red. I understand that the inhabitants of Junegare have large plantations of this plant, and export it to all parts of India. It had but a few flowers, which were well shaped; but all the parts of fructification destroyed by an ant, which build their nest in the leaf. The seed is marked No. 16, Dolca Purganah.

The following day I quitted this place, and found on the road, in the hedges, the following plants:—a Gardenia, the seeds of which are marked in the Catalogue with Thursday 24th. No. 8; a species of a Capparis, No. 10; and a Cassia, No. 19. All grew in sandy places.

The hot wind blew again to-day with such violence that every bit of the skin that was exposed to it went off as if it was scalded. As I passed the bazar, I met with several dead corpses that were carried to their respective houses, which were overpowered by the wind, and dropped down dead. ~~This is here, and that nobody thought much of it!~~ They are at first taken with a violent griping in their bowels, and vomiting of bile, which carries them off instantly. The medicines they prescribe for this dreadful distemper consist of a combination of sal-ammoniac, opium, ~~and the salt that is marked with No. 1 in the Mineral Collection.~~ This is dissolved in water, and given to drink. As soon as it is alleviated, they give to their patient a strong decoction of Nardus roots, combined with opium; about the quantity of each they do not scruple much, and even prescribe for every constitution and age the same dose.

The 26th, having taken my leave of the young Rajah, and Shermia the principal Jamedar, I set out in the Saturday 26th. evening for Mitampoor, and travelled the whole night till 8 o'clock the next morning, when I pitched my tent close to a tank, which are numerous in this Purganah, and constructed purposely for travellers, and for the refreshment of their cattle, and I staid here during the greatest heat of the day.

As I was desirous to determine from whence the water originate which we saw on our passing the first time this district, and being not much out of my way, I left the road to Mitampoor to the northward, and directed my route to the westward.

* Lac-ke-jhar, taken from one of the many trees on which it is found, must be meant.—*Editor.*

In the evening I past a small plantation of shrubs, from whose kernels the inhabitants extract a sweet oil. It was situated in a low sandy district, not far from Onagare village. They were planted promiscuously, and grew to the height of 16 feet, but totally destitute of leaves. On the ground I found some ripe seeds,* which are marked with No. 18, Dolca Purganah.

As we passed the high grass fields, we started several animals that made a hideous noise, not unlike that of a tyger. About midnight we came to a salt-water river, which was not passable. In consequence I made a halt here, in hopes of some rest, but was hindered by the continual noise that surrounded us of these animals. As we thought ourselves pretty safe from the Cattys, we made a fire, by which means the noise gradually abated, and we had a tolerable rest.

At daybreak we crossed the river, which at low-water is nearly half a mile broad, and in many places 5 feet water. ~~My boat~~ ~~about six~~ I came to Purtuware, a village belonging to the Mitampoor Rajah, situated on an artificial risen ground, for the conveniency of attending the salt-pans, from whence I could plainly discern the sea. The villagers told me that ~~the~~ ~~very~~ ~~high~~ ~~spring~~, when the country is overflown, the inhabitants of Baonegar send their boats for salt here, and at the same period the Mitampoors export their cotton to Broach and Surat.

In the afternoon I proceeded to their salt-pans, which lay two miles to the eastward of the village. Their extent Tuesday 29th. is nearly three miles, and about one and a half broad. Each of the proprietors has his pan encompassed by a bank, and hollowed about 15 feet below the surface of the earth. The whole district is likewise strongly embanked by the community with that earth that is dug out of the pit, that the force of the freshes and strong tides might not destroy the pans.

At the first lift of the high spring, each of these villagers repairs to his respective pan, and makes an inlet in the high bank to admit the water, which is shut again as soon as the pans are filled; and this I understand is accomplished at two ebbing tides.

The pit is levelled very even into square beds, wherein the salt

* Qy. *Jatropha curcas*?

settles. Between each of these beds is a narrow risen path, from whence they assemble it together, without deranging the pan.

Every year, at the beginning of the rains, they dig out two feet of the first stratum, and level it again to the former height with a heavy clay, which is brought here on Hackerys at the distance of three miles.

This layer of earth is then boiled in earthen jars: of this they extract the alkali, that is marked with No. 8, (the qualities of it I have already mentioned in the Dolca Purganah,) and export it to Surat to a great advantage, from whence it is carried to the China and Bengal markets. As they have no repositories for this article, they heap it up in the shape of a sugar-loaf, which acquires such an incrustation during the hot season, when chiefly the greatest part of the salt is collected, that the hardest rain has no effect upon it. The price of the salt is here 28 pice, 50 pice to a rupee. The alkali is sold at Rs. 4 a mohn.

At daybreak I set out for Mitampoor, where I arrived in the afternoon. Having erected my tent, I waited on the Wednesday 30th. Bajah, who rejoiced at my arrival, and ordered for my guards and people provisions; for me he ordered a sheep to be carried to the tent, but having given up animal food since the hot season set in, none of my people dared eat it. In consequence I sent it to him back again.

In the evening he ordered some dancing girls to be called, who played and sang till midnight. These dancing women were usually hired on particular occasions, especially on the arrival of their friends, which is considered amongst the country-people a still greater honour than to be presented with opium.

The band consisted of two sets, six in each. They were richly adorned with different trinkets, clothed in silk and the finest bafta. As soon as the first of these sets retire, the second resumes their place. The performance of the dance is by slow motions of their feet, accompanied by singing, and different attitudes of their body and hands: all this is, however, so simple, that I am surprized how Europeans in the different settlements find such a great pleasure in it.

The music that attends on this occasion consists of a tom-tom (a hand drum), and a guitar, besides some rattling shells made of silver, to which the female singers keep an exact time; and this is the only

thing in the whole that may be applauded. Why they distinguish them by the name of dancing girls I can't form to myself the least idea, for they hardly move four paces from the place they had first began.

The 2nd of May I took permission of the Rajah to examine his territory,—however, with an intention of settling myself for a time at Tanapoor; but that no suspicion might be formed of the object in view, I made first a tour to Narbudka village, about 3 coss to the westward of Mitampoor.

1788, May.
Friday 2nd. The following day I visited their cotton plantations, which were lately overflowed by the high springs. The cotton shrubs were however as lucrative as if they had been watered from a fresh pond; the cotton began to fall already out of the pericarpium, which the inhabitants gathered in, and which was as the best I have seen.

The intermediate vacuities were planted with rice, which was on the high grounds cut; on the lower they began cutting it, and cleared the grain of the husks by oxen. The place where they clean it is levelled next the village with a heavy clay, which renders it as hard as a pavement, on which the grain is laid down in a circle, and trod by four or six oxen. After the grain is cleaned, they put it up in the form of a hay mow, and fascine it round with fascines of wheat or barley straw, so compact that neither the rain nor the antelopes can do them damage.

The rice is quite a different species from that which is sown in the other Purganah. It grows to a higher size, and the produce is considerably more abundant, but not of such a fine grain as the former. The husk of it is black, and only peculiar to salt marshes, from whence it derives its name of Charachaly Paddy, or black marsh Paddy or rice. I purchased of it a bag full, which I think will be a great addition to those districts in the West Indies which are encroached by the tides. They sow and transplant it in the same manner as that in the cotton plantations.

The soil consists of a light clay intermixed with the abovementioned white substance, which I found by assistance of a blow-pipe a combination of zeolite with calcareous earth, but the latter makes the greatest part of the composition.

I made an excursion to Ludwagy, a village about 5 coss to the

Monday 5th. eastward of this, which is likewise so situated on such artificial rising ground. The cotton plantations were exactly so overflowed by the tide as about Narbudka, and the wool gathered in. The soil is the same as those plantations I visited yesterday. The specimens of the soil are marked in the collection with No. 2.

Two miles from this village to the NE. I met with a plantation of large trees, which the inhabitants call Lym-ka-Jaar.* They yield a bitterish gum in great abundance, which I understand the silk dyers use in every preparation of their colours; likewise it is given to lying-in women in small quantities, and the bark in intermittents. The tree flowers only in the hot season, when likewise the greater part of the gum is gathered.

The flower is white, answering the genus of a Melia. The tree grows to the height of 30 feet, and about two in diameter. The Gentoos worship this tree, and then ~~perform the same ceremonies round it every morning, as they usually do in the other Purganah about the Ficus religiosa.~~ The leaves are of a powerful bitter, and they use a strong decoction of it with great success in intermittents, and which I usually drank for my liver complaint, and found myself much relieved by it.

The soil is a red heavy clay. The seeds specimen, and gum, are marked with No. 8. The gum sells from Rs. 20 to Rs. 34 per mohn.

Having provided myself with a stock of this cotton, which is marked with No. 12, I took an additional guard

Thursday 8th. from this place, and set out for Tanapoor in the evening, where I arrived early the next morning. I pitched my tent on the spot which I had first occupied, between the cotton plantations, the cotton of which began to ripen. I dug into the ground, and found it still pretty moist.

The next day I visited the lower ground, the pods of which began to swell, and the grain that is enumerated in the collection, and called Borota, was collected in.

Saturday 10th. From the 11th to the 20th I made daily excursions to some of those districts where I was told the cotton distinguishes itself, but nothing was done in them until the 23rd, when they began to collect the wool of the higher grounds,

* Azadirachta Indica.

which lasted till the 29th. The cotton of this district is marked with No. 21.

I pitched my tent close to the lower plantations, the only ones still vegetating, but nothing was likewise done in them till the 5th of June.

Saturday 31st.

At daybreak, some of the planters came towards the tent with some implements, on which occasion we were alarmed, as they came at such an unusual time.

1788, June.

Thursday 5th.

We took them for Beels, but found they were planters, who chose the cool of the morning to water their plantations. I followed them immediately, and found them watering all their plantations, which were latest in the season. They were advanced to the period of ripening, when I have everywhere observed that they assisted the vegetation, and this is the only period that the cotton requires its chief moistness, ~~that the fibres might not be checked in their growth by the immense heat which prevails at this time of the year, and which watering this species of cotton is so much in need of.~~

After they had accomplished their watering, they repaired the ramparts of the ponds, and ploughed the intended lawn for the next year's cotton.

The 7th I obtained a letter from the Rajah of Dolca, that he endeavoured to the utmost to obtain me permission of visiting Ahmedabad, but could not obtain it, on account that the Governor of the place had been gone for his health, and religious motives, to bathe in the Narbedah, and was not expected to return for some months; and his temporary successor did not think himself empowered to admit me to the town.

Saturday 7th.

All my hopes of observing the different branches of weaving in silks and cottons, with which that town distinguishes itself, were now frustrated. I had now no place left where I might inform myself in that branch of art except Broach and Lymree. I therefore, as Lymree furnishes Broach with their chief articles, determined to proceed to that place as soon as I had collected a sufficient quantity of cotton seeds.

In the afternoon the Rajah came to me at the tent, and staid till late in the night. He brought with him several medical dried herbs, which he had obtained from Junegare, but they were so damaged

during the journey that there was no possibility to distinguish their class. The seed of them is enumerated in the Seeds Collection, No. 1.

From this day to the 12th I went myself into the plantations, and brought with me as much cotton as I could conveniently bring away (for fear of being observed by

Friday 13th. some of my people, or the villagers), which is marked with No. 11, and proceeded on the 13th to Mitampoor. On the road I met with several high trees, which on examination I found species of *Mimosa*. Some of them I measured were from 4 to 5 feet in girth, and from 20 to 23 to the branches, with little diminution in the size. The flowers are the prettiest of all the *Mimosas* I have seen: they grow in large clusters; the stamina are above an inch long, grass green, with a minute black anther. The seeds specimen and three living plants,* are marked with No. 7, Chest No. 1.

On my arrival at the town, the Rajah again ordered provisions for my people; and as there was no possibility of living in the tent for the immense heat that began to set in, he ordered one of his granaries to be cleared for my residence. I spent the night in the tent, and the following day took my quarters in the granary.

To-day I dispatched a letter to the Rajah of Lymree, acquainting him of my intention to visit him; and the following

Sunday 15th. morning, having recommended my collection to the Rajah's care, I took a protection of 25 men, and in the evening proceeded to Lymree.

Having travelled the whole night, I came to the town about four in the morning, and being confident that none of us would obtain any rest if we proceeded for the day, in consequence I pitched the tent near the Sabermatty, and rested during the greatest heat of the day. About three I proceeded on my journey, and came just in time to Lymree before the gates were shut. I immediately waited on the young Rajah, whom I found married since my first visiting this Purganah. He received me with the same friendship as before, and presented me with opium, which he never did before. As I was rather surprized at such an uncommon treat, he explained it to me, that his religion does not permit taking any prolific narcotics until

* Qy. *Acacia serissa*?—Editor.

they are united (*i. e.* previous to marriage). For my people he ordered provisions, and on my request he permitted me to take up my residence in one of the towers, where I did not much suffer by the hot winds, which were obstructed by the high buildings of the town.

To-day one of the Rajah's head people came to see me, and brought with him a Faquier with a private disease, who, however, would not own the infection, but ascribed it to the great quantity of capzicum, that he was so fond of. Round the ulcers he had some yellow cotton twisted, which, saying the truth, attracted my attention more than his disease. I asked him where he got it, to which he replied, that coming from Junegare, he plucked some of it from a plantation, to cover the parts from the flies, which in this season are numerous there. As I was desirous to have some quantity of it, I promised ~~to send him the cure on condition he would procure me a certain~~ quantity; in the mean time, I ascribed to it different virtues, that they might not form any suspicion. In consequence, as he was not able to go himself, he prevailed on one of his companions to return ~~and send me some leaves, flowers, cotton, and seed, according to my~~ injunction. He set out the following morning, and I undertook the cure.

My interpreter, on his return from his dinner, informed me, that shortly after I left Lymree Captain Torin used one of the horsekeepers which he had hired here very ill, which was greatly disapproved by the Rajah and his people, and advised me to keep within the walls, for fear that some of the injured relations should revenge it. This was melancholy news to me, especially now, as the whole success in view depended on the good will of the inhabitants.

To ingratiate myself with the injured, I sent for him to-day, and asked if he would serve me during the stay I should make here; to which, instead of their usual calm reply, he pointed me out his nose and head, which were certainly shockingly broken, and exclaimed that he had never been so ill-used before, even by his own cast, and positively rejected my good offer. However, by the influence of one of the Rajah's people, who was present, and who came with the view of obtaining some liquor, he was soon calmed, and engaged himself in my service.

Having now nothing to fear, I proceeded the following day to Serapoor, where I have above mentioned the fine cotton grows, which the planters gathered in. As there was no other method for obtaining it but by an immediate boldness, I therefore addressed myself to the owner, with a promise of a reward if he would spare me a little, alleging that I wanted it for some medical purpose. Accordingly, after binding me to secrecy, which was what I wished, he gave me the quantity that is marked No. 8, and promised me some seeds as soon as the cotton is cleared off.

Having now both specimen seeds, with the greatest part of the culture, I now directed my view for carding, spinning, and weaving it. To-day I sent my interpreter to inquire and find out at what part of the town the weavers and carders resided; who ~~Saturday, 21st gave me on his return a very unsatisfactory report: that this branch is entirely performed~~

who can't be seen by any other person than their own cast. I therefore directed him to bring me a machine; but in this I was likewise disappointed, and the cause has been ascribed to me the superstition with which the women are prepossessed, that they could never spin so well if their work came to the sight of strangers. However they did not scruple selling it, of which I could have purchased any quantity; but to part with their implements they would not on any account.

About noon the Rajah sent me a messenger that he would come and see me. Accordingly he came with a retinue of his friends, and in the afternoon he proposed an excursion over the river, which I accepted. About 3 miles from the river two tents were erected for his reception, where we alighted, and took a refreshment of Betel, which they take with such a great combination of chunam, that it destroys both their teeth and lungs.

In the adjacent tent I discovered some women. Amongst them I understood was his wife, who had been desirous of seeing me, and on whose account the party was introduced.

On our return, we passed a large stone building. I directed my route towards it, but the Rajah's headman prevented me, saying that it was nothing worth seeing, and rode on to the town. I accompanied him to the Durbar, from whence I returned to my quarters. My interpreter, who had particular orders to inquire what this

building signified, brought me the intelligence that it was the Mint, likewise the place where they burn and boil an earth which is brought from the deserts, from which they extract a fossil, which they call Charga Car, and which the silversmiths make use of in their workmanship. I conjectured directly that it must be borax, except that it was not so refined as that I have seen in the collection of minerals of Dr. Jacquin, Botanical Professor at Vienna. Having recollected that he was not positive where it originates, or what it really was composed of, but it being needless to attempt going there myself, I took this method of sending my interpreter there to bring me some of the earth, and the best description he could of the apparatus for composing it, who brought me the following. That the earth is dug about four days' journey from here, in the end of the rains, from whence it is brought here in boats, and is decomposed in that house, ~~which is as hot as he expressed it, as the place here at Surat.~~ The only apparatus which they shewed him was a large hollowed plate of copper, about 15 feet square, placed over a square fire-place, on which they lay the earth of borax, and chunam it over, that neither the air can come to it, nor the heat go out of it. At the bottom is an opening, by which, when it becomes by this action of fire in a fluid state, it is led by a copper conduit into a reservoir of water, which is likewise placed on a fire-place, and is kept during the refinement in constant boiling, and wherein it acquires its solid body, in which state it is exported to Surat, Bombay, and the inland counties. The price of it is here Rs. 6 per mohn. He brought with him a small quantity of the earth when refined, and some borax in its finest state, which is placed under Nos. 4, 5, but could not get the earth in its natural condition, which they said was totally refined.

Three days being now expired, during which period I had sent him to the weavers, but he always brought me an excuse of some kind,—either they were feasting, or their mother or relation died; and lastly, they were gone to wash their corpse in the Narbedah; so that I never was able to find one at home, and began to conjecture that there must be more than common feasting or burning their relations in these excuses,—in consequence I took the shortest expedient of finding it out, and asked him directly, and insisted to tell me immediately the cause, for the Gentoos will never give you a positive answer, though they are very well acquainted with the subject. He then told me

that having understood they were constant at work, he supposed that it was the Rajah's orders that they should deny themselves. As any other measure I might use on this occasion, for keeping me so long in suspense, might only aggravate the contest, in consequence, instead of a discharge, I offered him a reward if he would find means to conduct me to them in disguise, or purchase me the different machines for the different and respective branches. In this, however, I did not succeed. He then proposed that he should order on his own account a fine piece of cloth to be woven, and at the period when it was almost finished to leave the place instantly, by which means he would be able to purchase the whole belonging apparatus, under the pretence of getting it finished at any other place, and the rest would come of itself. I thought this a prudent step; for as the weaving monopolized the cloth would become useless to the weaver, ~~in consequence he would be compelled on that emergency to part with all the belonging implements; I therefore concluded that the~~ finest piece might be finished, and the following day he brought me the intelligence that he had made an agreement with the weaver for Rs. 40, who would set on to work immediately.

In the evening my Faquier arrived with the yellow cotton, but he brought me a disproportionable quantity to what I desired of him, and instead made it up by a large bunch of leaves, thinking that the medical virtue was only peculiar to the leaf. I shewed this cotton to people who were connoisseurs, and inquired if they ever saw it grow, who affirmed that they had, but never saw it; therefore it gives me but an imperfect idea of its true existence till trial, for they are the greatest impostors I ever knew. He told me that it grew in a sandy soil, and bears a red flower in the proper season.

The cotton is pretty fine, and exactly of the colour that is extracted at Dolca, by which I suppose it was adulterated; but on examination I found it natural.

The leaves and pods are considerably smaller in proportion to the other three species, but exactly so divided. He likewise told me, when he passed the plantation five months ago, the shrubs were not above 2 feet, and which at this period were entirely gathered in. He had a piece of cloth made of this cotton, which he purchased at Junegare. I tried it in hot water, and found the water not tinged in the smallest degree. The specimen and seeds are marked with Nos. 9 and 10.

To-day I made an excursion to Synapoor, where my people reported they cleared the cotton of seeds.

Tuesday 24th. The machine by which they clear the seeds of cotton is about $4\frac{1}{2}$ feet high, and 3 broad. It consists of two leaden cylinders, not unlike the round rollers used by the clarks [?] in England, about 2 inches in diameter, which are so closely placed over each other, that only the cotton passes through the fissures, and the seeds remain on the other side, as is represented in Figure 1.

This is commonly performed by three women, two of whom turn the two cylinders contrary-wise by a plain winch, and the third's business is to place the cotton to them, and keep it clear of seeds. This is executed with such dexterity and readiness, that one of these sets are able to clear four bales of cotton a day. I purchased some seeds, which are marked No. 8.

~~A great part of this is manufactured here, with which they supply both foreign and the inland markets, which have either not the conveniency or art of weaving. The rest is either exported in thread or in bales to Broach, Ahmedabad, Surat, and Cambay, of which they make their fine cloths. The wool is generally exported from Broach to Bombay, and I am credibly informed sold there for Ahmoed cotton. During my last stay at Bombay, all the English imperial ships took for their cargo cotton which was sold to them as Ahmoed produce; I therefore may give credit to the above intelligence, when I reflect how such a small Purganah, even taking it with Jumboscer and Broach, can supply their own demand, and answer the immense call there is for it both for the India, China, English, and French markets.~~

I observed to-day, when they were embaling the cotton, if they adulterate it with any ingredient, as it is reported in Bombay; but in justice to the inhabitants, I must say that they paid a particular attention that nothing impure was communicated; in which state they deliver it to Broach, where the cotton is adulterated with their own inferior sorts, and that of Baongar, Brodra, and Dolca, to make it resemble that of Ahmoed, which is first mixed together, as I am informed, and then passed again through the cylinders, by means of which it is so intermixed that the ablest connoisseurs mistake it for the original. To this adulteration the merchant has nothing to say, and is very glad to obtain it in that manner. But the same, on

Shanagar
 1st do
 2d do

coming to Surat, is adulterated by Europeans in such a manner, that all this which was sent from here of late on our Company's account to China lies unsold, and for which they paid the contractor a most exorbitant price, who gained unlawfully, by the information I had here, no less than £25,000 sterling.

As the method of adulterating was not secretly enough performed, it was of course immediately communicated by the agents to their correspondents here, that they might likewise adulterate it, and send it in that manner to Broach.

The method the well known contractor for that cotton practised was, by the account that I have had from a merchant here, as follows:— He purchased a large quantity of old cotton seeds, which is sold publicly in the bazar, as food for the cattle; then, opening the bales, he intermixed a certain quantity of it, with some other rubbish, and closed it in the first state in which he delivered the contracted quantity to the respective commanders on ~~the Company's~~ account for China. The Chinese, who opened and examined every bale, found the imposition, that cheated both them and the owners, and left it on the factors' hands, in which state it lies, I believe, to this day.

As this is the only considerable article ~~that the Chinese take of~~ late, besides opium, in exchange from the Company, I would advise them to employ an inhabitant in preference to an European, who takes but one moderate profit, and is able, by the knowledge of these Parganahs, to furnish them with cotton from the shrub. It must not be, however, a Bombay inhabitant, for they are as ill informed of this country as the Europeans themselves.

The finest cotton sells here at Rs. 60 per candy, or 22 mohns; the lowest from Rs. 40 to Rs. 50. The candy contains 22 mohns, equal to 784 lbs., 900 English weight. On my return from the fields, I found the Rajah in my encompassment, overlooking the specimens I had exposed to the sun. I had not seen him these several days. He brought with him an ivory club, made by his subjects, and gave me to understand that such a one is never presented but to people he had an esteem for, and which he requested I would make use of whenever I was in want of something from his subjects, and which should be given to me without delay. This piece of authority would certainly have been of great use to me in the object in view; but I knew too well that it was only a complimentary friendship. I thanked him, however, and accepted in the value he gave it to me,

and out of compliment to him I used to wear it whenever I went out. It is marked No. 6.

In the evening flat cakes of Bajery were brought from the Durbar, which were impregnated with assafoetida. These he likewise presented me as a token of his everlasting friendship, and, in a short time after he left me.

Assafoetida, I am informed, is a great luxury of the Guzerats, which is presented to strangers like opium. There are two species of that gum, which are distinguished by Hing and Hingra. The first is imported from Persia, and sold here to a great advantage; the latter is extracted in the Rajpeela country; likewise a great quantity of it is brought from Junegare, and sold here at Rs. 230 per mohn. This sort is more powerful and valued than the former.

Having been informed that the cloth could not be finished these ten days, I therefore resolved not to be quite idle during that period,—to make an ~~excursion~~ ~~to the Lyree~~ deserts, and get some earth of borax if possible. In consequence, my interpreter, having got me a proper conductor, I recommended my collection, and the rest of my articles to the Rajah's care, and having taken a protection of 20 ~~men from him~~ proceeded the following evening to Stradawen, about 10 coss from Lymree, belonging to the district of Lymree, and 5 coss from the proper road, where I arrived the following morning.

Here I discharged my Lymree guard, with the pretence that I had no further occasion for them during my stay in this place, and as soon as they were gone, I rested during the greatest heat of the day, and in the evening, having taken a fresh guard, and twelve Pakolys of fresh water, the guide directed us to the southward of this village. About midnight we came to the river Sabermatty, which being very shallow, we crossed with little difficulty. About daybreak we saw a number of horses making towards us, but as we advanced towards them, deviating from the right road, they immediately avoided us, directing their course to the westward, where I understand they have a large village on the borders of the Sabermatty, and where the cattle from Aradawan is commonly driven.

I continued my course till 9 o'clock, and pitched my tent on a declivity of a heap of earth, which I took by the continuance of the ridge as a boundary of a former river; but on the opposite side, where I expected

Saturday 28th.

to see another of the same kind, I could not discern; not the least verdure of any sort in the whole district which I had passed. Here we rested during the heat of the day, which was intolerable, accompanied by heavy gusts of wind, that carried the hot sand before it, so that we were obliged to shut ourselves in the tent. About five the wind abated, and I made an excursion up the bank. I had not gone 200 yards before we started an animal, which resembled in every respect a lion, but it ran with such swiftness that none of us marked him. The people which I had from Aradawan knew it well, and told me that there are many about these villages, and do them considerable damage amongst the cattle. He was about the size of a mastiff, but larger in bulk. They distinguished him by the name of Waag Ardy and Waag Rheel, which signifies a tyger that inhabits the plain.

On one of the banks I found a prickly Capparis without leaves, but beautiful scarlet flowers.* The fruit is about the size of a large cherry, of a pleasant acid, which my people gathered and eat; they called it Caryllhudge. The seeds are marked with No. 3.

In the neighbourhood I met with a Pistacia, which answered the Terbinthus†; a new Solanum, No. 4; a Cucumis, No. 2; a Mimosa, No. 5; and a plant which my people called Adra, No. 13.

In the cool of the evening we proceeded on our journey over the sandy plains, which became, as we advanced, gradually looser, of sand, and by which we were hindered making any great progress in our march.

At sunrise we found ourselves again near the river Sabermatty, from whence my guide told me we had no more than 4 coss to go. In consequence, we continued our course along the banks of the river for the length of 3 miles, and then turned to the westward, which brought us to a Hackery road, that leads to the place where the earth is dug. About nine we came to the pit, that swarmed with foxes. I shot several of them, and preserved a skin for a specimen. They are very small, not exceeding the bigness of a house cat, but remarkably swift.

I pitched the tent for the conveniency of water close to the pits, which contained since the rains a great deal of water, and in the afternoon descended into the pit, but was compelled to desist, on account of a grumbling noise we heard of some animal.

* Capparis aphylla.

† Qy. Amyris commiphora?

I then proceeded to the next, which lay at a little distance, and sent some armed men down, who reported that they heard nothing, but that the greatest part of the pit is under water. I then ventured down, and got some of that earth which is marked No. 1.

I visited next several of them, but found them everywhere of the same construction. None that I have visited exceeded 15 feet in depth; they were chiefly overflowed by a brackish water, which is either philtered from the sea, or acquired that body from some salinity that the earth possesses; but as none, as I have above observed, exceeds the usual depth, I am led to think that, as the sea is not above two days' journey from here, the water is philtered. My people who drank of it were seized with vomiting and purging, but no further bad effects attended it; many of them drank it afterwards with that intention.

~~They dig this earth without any order, and by appearance never~~
~~take any precaution, for as they have not the art of support-~~
~~ing it, they take this precaution for fear of being covered by it. The~~
beds of these pits are of two kinds: the first is a clay, intermixed with sand, to the depth of 2 feet; the next a heavy clay, of which they ~~extract~~ the borax. The depth of this latter I could not well determine, on account of the water; however, in some places they had dug it to the depth of 10 feet, where the water was shallow. I dug in the ground, and found it, as far as the water permitted me, to consist of the same nature. Here and there were scattered large pieces of zeolite; five of them were so large that eight men were not able to move them from the place. I hammered several pieces off, which are marked No. 7. About the pits I found two sorts more, which possess less calcareous earth, and which are marked Nos. 8, 9.

In the morning, as my people took their usual meal, they saw the animal which made such a mournful noise, creeping slowly round the encompassment of the pit. One of the Sepoys fired at, and killed it, which proved an ant-bear. He measured when upright 4 feet 3 inches. About the neck the hair was a foot long, and as black as jet on the breast. He had a white pouch in the shape of a heart, and smelt exactly like an ant's nest.

The following day I proposed to go beyond the pits, to trace the source of the supposed river; but on examining the Pakoys, I found but one day's water in them, which was not a sufficient quantity for our return

Monday 30th.

to Aradawan. I therefore quitted the place immediately, and proceeded along the banks of the river. About 4 coss from the pits I found a group of palm trees, which grew higher than any I have seen: some were no less than 3 feet in diameter; the height I could not conjecture less than 50 feet. They spread large lateral branches, not unlike the *Bubon macedo*; the fruit they bore was just in season, about the size of a walnut, covered with a reddish pulp, which had an agreeable tartness, and which contained two semi-rotund kernels. Every tree was surrounded by many hundreds of green pigeons, which fed on them: my people called them *Lylla corbuta* (*Neela cubbooter*), and shot many of them. They swallowed the nuts entire, and I found several that were not yet digested. This is the prettiest pigeon I saw: it is larger than any we have in Europe, and beautifully variegated with green and yellow plumage.

~~I dug up these young palms, and took two branches of the fructification, which are marked with No. 11, Chest No. 1.~~

Higher up I met with some decayed stocks, resembling that of a bulbous root. I dug into the ground, and had the satisfaction to find that they were so, but to my regret none in flower. In the neighbourhood I met with a smaller sort, that little differed in shape. I marked them differently, with Nos. 2 and 4, Chest No. 5, but probably they are of the same species. Some of the convoy that remained at the palms gathering the fruit, now came up; and seeing me digging up the roots, advised me to desist, and throw the rest away, on account of their poisonous quality. I am informed by them that the inhabitants of Aradawan catch the antelopes by poisoning them; likewise they catch their fish in the creeks of the rivers by throwing some of these roots where they chiefly assemble. To ensnare the antelopes they have small ponds about 10 feet square close to their village, to which they convey fresh water, and throw in a few of these roots, and watch the animals, when they refresh, on horseback; and as soon as the antelope has drank of the water, they pursue him till he drops; then, clearing him immediately of the intestines, they make use of the rest, without further apprehension of being poisoned.

The heat became now intolerable, but as I wished to see the most of this country, I continued my course till dark. The whole country was marked with different tracks of animals, and covered with the bones of antelopes; but none came to my sight except the latter, and

these I am surprized how they can subsist, for there is not the least verdure of any kind.

As we were now not far from the district which the Cattys occupy, we spent the night chiefly on our guard.

At daybreak we set out again with a quick pace, and at the distance of 3 coss we came to a river, which sourced from the westward, about half a mile broad, but contained in the midst not above 4 feet of brackish water.

1788, July.
Tuesday 1st.

Our course from the pits to the river was SE., but about 2 coss from here we fell in with a Hackery road which directed to SW., and continued so with little variation to Aradawan.

About the banks of the river I met with numerous lizards, which had a pendulum of different colours before the girget [qy. gullet?]. They leaped from us at an astonishing distance, and at first sight, by the reflection of the sun, they appeared in the air as so many butterflies. This membrane ~~they were able to direct any way they choose~~, and my people, that were familiar with them, called it Witagirget, or a flying lizard, and maintained that, by the assistance of this pendulum, in a breeze of wind, they fly to a great distance. They flew certainly further than I could conceive or credit, but whether this was done by the aid of this sail I will not take upon me to affirm. As it was of such a curious nature, I took an exact drawing, and preserved one in spirit, which is marked with No. 7.

Five coss to the westward of the river we crossed a narrow branch of the Subermatty, where the face of the country began to change its desolate appearance. Close to its banks lay several plantations of cotton, which still vegetated, the wool of which was as good as that about Lymree. I gathered some of it, merely for a specimen, to shew that in every district where the plantations are situated near a river, or have the assistance of water by means of wells, the cotton is commonly superior to those that are situated on higher grounds, and have not the conveniency of water. The soil is a heavy clay, intermixed in a small degree with some minute particles of zeolite. The specimen of cotton is marked in the Cotton Collection under No. 22.

Two miles from this plantation I came, about 4 o'clock in the afternoon, to Hariwaybutya, the first village since I left the pits, and the only one in a district which is above 40 English miles.

The greater part of this country is quite destitute of verdure and water, which commodity merchants' caravans are obliged to carry

with them if they travel in this time of the year; but usually they set out to the opposite side at the end of the rains, namely as soon as the roads are fit for camels, when they are, I understand, from the people that attend, supplied both with water and verdure, on the banks of the rivers, which, by the account I had, are very numerous in their route.

All the plants that I met with on the banks of the two rivers amounted only to 23 different species, which are enumerated in the Seeds Collection.

The soil they grow in consisted of a rough sand.

Having refreshed here with my people, I proceeded for better security to Aradawan, where I arrived in the dusk of the evening.

The following day, having taken a fresh convoy from here, I made my best way for Lymree. Within a mile of ~~Wednesday 2nd~~ the town I met with Fatessing's army, consisting chiefly of horse, ~~which collect the revenues from~~ this district and the Cattyware country. The chief leader rode up to me, and inquired who I was; and having been told, he expressed a desire of having me with him. This would have been a fine opportunity to explore the Cattyware country; ~~but as the rainy~~ season was so nigh at hand in the southern Purganah, I was obliged to decline his good offer.

I understand that Fatessing sends yearly an army of 20,000 horse to the inland districts, without which he could not obtain a single Badam; and as they are often repulsed by the Cattys, or cut off from every necessary of life, therefore the motion of this army is very quick, and performed at different periods of the year, that they might not notice them in their approach (very often they execute it in the midst of the rainy season); for no sooner the Cattys have intelligence than they retire to the mountains, which are inaccessible, and burn everything down as they go on, purposely to distress their pursuers, and even poison, with the juice of the Euphorbia, the tanks and wells, by which many people are lost yearly. On my arrival I waited on the Rajah, who was desirous of knowing every part of the country I visited, which I thought proper not to conceal, and told him candidly my excursion; after which he hastily asked my interpreter if I had been farther than the pits, and being told in the negative, he seemed to be pacified. I took care to let him see what I gathered in the plant way, and after some Betel, we parted as friendly as ever before.

By the anxiety with which he asked my interpreter, it seems that there must be some mines of consequence in that direction; but all inquiries I made respecting them were ineffectual.

The 4th of July, my Moonshce having informed me that the cloth is by four yards finished, and that it was the time now for me to leave the place, consequently I made Friday 4th. to-day the last excursion to the river, in hopes of seeing something done in the plantations; but have noticed nothing new. The planters began now to clear the ground of the shrubs, and appropriated them in the same manner for fuel as in the other Purgannah. Likewise the pasture fields were turned by exactly such a machine, and in those that were newly appropriated for meadows the grass was suffered to grow for seeds, by which a grass field is speedily established in this country. The seeds of this grass are marked No. 17.

~~As the river is now in a low state~~ As the river is now in a low state, I directed my course back to the town round the northern extremity of the wall. Passing the borders of the river, I observed a smoke that issued out of several reservoirs, and on a near approach I found many people bathing, and washing their cloathing in hot water. On inquiry, I found that all this district is one hot well, wherein almost every family in the town has a small reservoir; but the only season they can make use of them is the present one, when the river is shallow, and till the rains, when they chunam it over again, and secure it, that the currents might not destroy the encompassment. In some of these reservoirs, which were at the depth of 12 feet, the water was remarkably hot, but in the shallow it was perfectly endurable. The inhabitants use this water in small quantity as a cathartic. I tasted it, but found it quite tasteless; for want of proper analyzing instruments I could not well determine what it contained, or ran upon.

In the afternoon, I took my leave of the Rajah, who expressed some sorrow on my sudden departure. He gave me a letter to the Rajah of Baonagar, in case I should like to visit the hills in his territory, which are covered, by his account, with different medical herbs. This convinced me that he truly credited my searching for plants, and having taken from him a guard of 25 men, we parted in the evening.

In the mean time my interpreter went for the cloth, but staid so long at the weaver's, which led me to suppose that the weaver

contested with him about the apparatus. In consequence I left the town immediately, and dispatched a messenger to acquaint him that I had done so. This had the desired effect, and he directly obtained the cloth, with the belonging tools, except a square roller, on which the cloth was rolled, which was too heavy for carrying away.

As I was desirous to know how the place was constructed wherein the cloth was woven, he gave me the following intelligence:—That the weaving room was situated under the first disk, which are commonly level with the street, wherein neither much light nor air could come, except that by which they breathe, and this opening was perpendicularly constructed. The largeness of the room was with the extent of the house, and illuminated by lamps, by which they wove and spun. The cause of it he ascribed to me that the thread is better distinguished by the light of fire than that of the day; likewise that the air would break the thread, which requires a constant equal moisture to be woven so fine.

The looms were extended not above 5 inches from the ground, which were kept moist by means of fluid cowdung, with which they besmear the ground, several times a day. The weaver at the head has a seat made, suitable to the loom, in the ground, and wove with a silver shuttle. The thread he had twisted in equal quantity round a short withé, which was kept constantly in the horse sperm. The women spun the cotton on wheels, turned by a plain winch by the spinner herself, who moistened her fingers in the same composition.

The art of fine spinning and weaving, by his account, which I think very just, depends on the wheels and shuttles, which are never changed since their youth, to which they accustom themselves, and are solely guided by it. They likewise never undertake a separate branch, either spinning or weaving coarse or fine; but every one minds his own, to which he was brought up, by which the feeling of the wool, and the throw of the shuttle, becomes to them so familiar, that hardly once in a hundred they break the thread.

This may likewise account for the silver shuttles, which are but little diminished in weight during the weaver's life, with which he begins and closes it.

The coarser cloth is woven by wooden ones, chosen for the compactness of grain from the wood of the Mimosa Nilotica, which are considerably larger than those made use of in England, and commonly last them a couple of years, when the weaver lays one of them aside.

The new one is then constructed within a grain of the former weight, that he might not deviate in the throw to which he was accustomed, and which otherwise would make an amazing alteration in the progress and quality.

As the weaver could not spare him the silver shuttles, he gave him two wooden ones, which the ablest English weaver could make nothing of until he was accustomed to it, and I am confident would soon give the preference to this country method, and approve their skilful observations.

This country method of weaving would do very well in England,—the country is much more favourable, on account of its moderate climate, which in this country the weavers are obliged to moderate by artificial means; however only in large manufactories, where every one could mind his own branch, which, in the time of a year, fine spinning and weaving would become to him as familiar as the coarse cloth is to him at present. ~~English cloth, however,~~ however, will always remain as they are, if they continue to weave three or four sorts of cloth in a month. To avoid this, the weaver lives here separately from the rest of mechanics, and never interferes with his neighbour's branch, solely minding his own, and so quits it to his posterity. I am confident, if the weavers in England could be persuaded to imitate this country agreement, they would soon be convinced, and find their mutual interest in continuing in the separate branches; but royal patents must not interfere, at least not upon every trivial occasion, or for such a long duration as they are at present.

The 5th, early in the morning, I arrived at Mitampoor, and waited on the Rajah, who immediately ordered both for my people and the Lymree Rajah's guards provisions. He also ordered to each person a bason full of beverage, which is called by the inhabitants Beng. This is nothing else but a decoction of seeds, and bruised leaves and stalks of the Cannabis, which has, however, such powerful quality, that even the steam where it was served out overpowered me in a few minutes, so much that I was under the necessity of leaving the room.

They have likewise another liquor, called Mawra: this is extracted from a corolla of a flower, and not the fruit of the *Ficus religiosa*, as is imagined by Europeans in this country.

These trees grow to such a height and thickness as the *Quercus robur*, and are commonly planted in the Guzerat about the villages

on that side from whence the hot sands usually blow, which by their compactness of growth and multiplicity of leaves moderate the bad effects in some degree.

The flower is campanulate, very succulent, and drops in less than an hour's time after it is opened: it has twelve narrow divisions of oblong leaves, with twelve sagittate full of pollen antheræ, with which they are impregnated before they open, placed on very minute stamina; the perianthium is quadriphyll, with the leaves obliquely folded one over another; the germ globula very large, with a long incurvate style, and simple stigma. The pericarpium consists of a ponium, with a single flat seed. [*Bassia latifolia*.]

A mohn of these flowers sell here from one to one and a half rupee. The liquor, when pure distilled, is very pleasant, but remarkably strong: however, it is not attended with those bad effects which are ascribed to it in Bombay; but if it is adulterated with the seeds of the *Datura odorata*,* then not only ~~the seeds~~ but also the inhabitants, fall a sacrifice to its deleterious quality.

I would advise the Company to sent out orders to their settlement to inspect the common liquors more minutely, and they would not lose half the troops which they commonly do on this side of India.

The following day, having taken a guard from here, and my leave of the amicable Rajah, I proceeded in the evening
Sunday 6th. to Dolca. I travelled the whole night, and about eight the next evening I pitched my tent, at Dun-
gawary, where I rested during the greatest heat of the day.

In the evening, having changed my guard again, I set out on my journey, and came about two to Narbudah, where we halted for the sake of water. I was now only 5 coss from Dolca, but wishing to examine the small hillocks which lay to the east end of the town, I changed my road, and proceeded towards them.

About noon I pitched my tent under a large tree, which is called Burnalla jaar. The females use a decoction of its leaves for the horrid and inhuman crime of abortion. The tree grows to as great a height as the Mawra; it was full of seeds, but no flowers. The specimen, seeds, and two living plants, are marked with No. 13, Chest No. 3.

On the hillocks I found a small bulbous root, which is marked

* *Datura* is likewise the country name for this plant.

* 1788.]

No. 4, Chest No. 5, and a Nardus, with a bulbous root. The inhabitants call it *Chira*, and make a bread of its roots in scarcity of grain. It is marked in the Hortus siccus with No. 20.

The rest of this district was overgrown with the *Asclepias gigantea*, *Illebrum lanat.*, and the *Cassia* of Broach. The soil of these hills consists of a rough sand, and, by the dry appearance of the shrubs in many places, I conjecture that these hillocks are moveable by the violent winds of this season.

When I arrived here, I dispatched a messenger to Dolca, acquainting the Rajah of my arrival in his territory; who, on receiving this intelligence, immediately sent me his covered Hackery. On my arrival at the town, he received me with great cordiality, and informed me that he received intelligence, that after I left Mitampoor I died on the road to Lymree. On my leaving Dolca the last time, the complaint of my liver increasing by the sultry heat, in consequence I requested of him to send my collection and letters which I left with him to Mr. Holford, at Cambay, in case any accident should happen to me. Accordingly, on this spurious intelligence, he dispatched it accordingly twelve days ago; but the motives for ~~such a move~~ I could not well conceive.

Having resolved on visiting the plantation of Brodra before the rainy season set in, I therefore proposed to leave this place on the following day; but my generous protector solicited me to stay with him two days more, when, to convince me of his friendship he had for me, he would introduce me to a society where none but people of the first tribe are at liberty to attend, and that I may speak of them; that none but the Guzerats have that indulgence and enjoyment in the whole Hindostan. As two days made no kind of difference, and to satisfy him, I promised to stay the time.

Accordingly, the 8th of July, in the morning, he sent a covered Hackery, and provisions for my people, and in a short time after he came himself to my tent, attended by his family, and we proceeded to Margo garden, where the shrubs are cultivated for the red dye. On the road we met with more Hackerys and horses.

* * * * *

The large hall is built into an arch. In the wall are cavities, in

* Here follows a description of a meeting, the details whereof I have for decency's sake omitted.—*Editor.*

which stand the different representations of this Society, hewn out of white marble. The figures are mostly well proportioned, and ornamented with the Nymphaea flowers, and garlands of Moogry, or the Nyctanthes sambac; each of them is usually attended by numerous attendants of females, which face them, or sit before them with great gravity. At the head of the hall, in the largest cell, are their four deities, likewise hewn out of solid marble, and remarkably well executed. The cow is the supreme of them, which is ornamented about the head with garlands of various flowers. They had it yesterday adorned with the Poinciana pulcherrima, Nyctanthes sambac, the flowers of the Arundo bambo, in imitation of the Champa shrub, which does not grow in this climate, and the Nymphaea, which is likewise worshipped by the Gentoos; and this is the plant that the Europeans mistake for an onion. The next are two monkeys seated on both sides of their supreme, and holding the Coluber naga with their hands crossed ~~which is worshipped~~ by them. At the entrance are two figures hewn out of hard sandstone, representing a deity with seven heads, both dilapidated, as it is represented in Figure 56. Round about the hall are small apartments, of which I counted no less than 148. Each has a small tank of white marble, to which the water is conducted on these occasions by narrow chunamed conduits, from the garden wells, which are numerous in every direction. This tank is intended for neatness, in which the Gentoos excel almost every nation. The sofas are risen about 4 feet from the ground, brightly polished with chunam, which were covered with rich Ahmedabad carpets.

I should have been very happy to have taken these figures on paper, but the time advancing for a more important object, which I wished (seeing on my last stay at Bombay so many ships taking cotton for their cargo to Europe) to accomplish as soon as possible, and proceed, agreeably to my instructions, to England, in consequence I left, with the Rajah, this place for Dolca, where we arrived in the afternoon.

The next morning I went to him to take my leave, and requested him to favour me with a letter to Fatessing, which he did accordingly. Previous to my going, he ordered his two sons before him, and told them that he hoped they would, if I should come here again after he had left this world, look on me as one of their family, and assist me in every

Thursday 10th.

respect. Then, having given me a guard to the river of 34 men, for which he would take nothing, and a sandalwood fan to his memory, we parted affectionately. His two sons accompanied me as far as Bavera village, about 8 miles from Dolca, where we parted. About four I came to the river, which was almost dry, and as we had not a village within 6 coss, we quickened our steps, and came in the dusk of the evening to Coacha, a village in the Ahmedabad Purganah. About 3 miles from this village I saw a large wood, which my guard called Cala-jaar, or blackwood.* I therefore the following morning, having left my baggage in the village, proceeded to the place where they grow, and found the trees both in fruit and flowers. The height and thickness of this tree is about the size of a Mawra, and very much like it in the growth. The inhabitants informed me that a certain quantity of this wood is cut and buried in swampy places yearly, by which means it acquires a black hue in a few years, and is exported to ~~Surat and other~~ other coast places to a great advantage. They shewed me some pieces, which were of the same grain and colour as black ebony. It leads me therefore to suppose it is not the same tree the French possess in the Isle of Bourbon. By the flowers, it belongs to the class Cilandria, order Digynia.

The perianthium is quinquepartite, both externally and internally woolly; the leaves are acuminate, the margins turned back; the corolla ventricose, with four divisions at the bottom, surrounding the germen, with the margins of the segment turned inwards, and firmly closed at the point, without ever opening itself, and covered externally with the same lana as the flower-cup; the germen is globular, likewise woolly; the styles very short, and joined together; the stigma simple; the filaments inserted at the bottom of the calyx, round the germen; antheræ castrate, over the top of the germen very thin, resembling chips of wood, and the whole flower appears as if it had not vegetation.

The pericarpium is a pomum, containing from two to four flat seeds, like that of the Gawra and Mawra (but the former is more common), intercepted by thin laminae.

The seeds, and specimen are marked with No. 2, and placed amongst the collection of Dolca Purganah.

* *Qy.* *Diospyros Montana*, or *Teuroo*? It cannot be a *Dalbergia*, from the description of the fruit.—*Editor.*

The soil of this district consists of a heavy black clay.

In the afternoon I left this place for Sondary village, about 4 coss from hence, where I arrived in the evening. The soil is hereabouts of a rough sand, and the district little inhabited or cultivated. In this village I rested, but have not spent in all my journey such a melancholy night as here. The villagers were all in an uproar, and their women crying and lamenting, during the whole night, for their cattle, which had been driven away by the Cattys a few hours before our arrival. We saw them driving over the fields close to the road, and might easily have retaken them, but we thought in the dusk they belonged to a small village situated to the eastward of us, towards which they were driven.

At daybreak I left this place, and 3 coss from it I came to the borders of the Myhie, where I was stopped by the ~~Saturday 12th.~~ guard who guard the pass, and examined strictly. However, having shewn them ~~the letter~~ of the letter I had to Fatessing, everything was settled immediately, and I was at liberty to cross it. I waited here till the tide was out, when, by the assistance of fishermen, I passed, without loss or damage.

Wishing to visit the plantations of the red dye shrubs, I directed my course to Humaly, a village which is 4 coss distant from the river. On my arrival here, I left a few people to pitch the tent and guard the baggage, and with the rest I proceeded for the plantations, which lay about one mile from the village, all along the Myhie. I found the planters just gathering the seeds, but the leaves were already stripped. The shrubs were exactly so divided as at Margo garden, and watered from tanks and drawwells, which are situated on a rising ground on the banks of the river. The extent of these plantations, as the planters have informed me, is nearly 8 coss, or 16 miles. At the western extremity stands a village, chiefly inhabited by the planters, and Sepoys, who guard it both from the Cattys, and also are a check upon the farmers, that they might not communicate to the neighbouring Purganah. I have, however, purchased a quantity, which is marked with No. 15, from one of the guards, and might have got any quantity I pleased.

As it drew towards evening, and I was about 5 miles distant from Humaly, I made the best way to the village across the plantation. Near a well, of which there is one in every plantation, stood a large

tree of a Bauhinia. By the immense size of the leaf and purple flowers I took it for a new species : some of these leaves I measured, which were nearly a foot in diameter. The seeds and specimen are marked with No. 4. Sandy soil.

Each of these plantations is divided by a hedge of the *Justicia picta*, which forms a good and fine enclosure by its compactness of growth, and the yellow variegated leaves. In the midst is generally a draw-well, risen considerably higher than the rest of the ground, and shelving down on a gradual descent, that the earth might not feel so much in drawing up the water. It was quite dark when I came to the tent, where I found a great many inhabitants, with their children and relations, which had the small-pox, and which seemingly makes a great havock amongst the helpless in this sultry season. I dispatched them with the best advice, and the little medicine I could spare to those that were in need for which they ~~were not brought in~~ brought in return fowls, eggs, and milk,

more than I could consume with my people ; and the following day, as I was preparing to proceed on my journey, they came imploring us to stay with them a few weeks, during which period they would both supply me and my people with provisions. This was the first time in the Guzerat that I met with such hospitable villagers ; but to my regret I was under the necessity to deny them their request and good offers, and having supplied them with additional medicines, I left this hospitable place by noon for Tarary, a village on the other side of one of the branches of the *Dahder*, where I understood from them that fine cotton is cultivated. About 3 o'clock I arrived at *Sumerwara* village, distant about 8 miles from Humaly, and having refreshed here, I proceeded again on my journey. About 8 miles from this village I came to the banks of the river, which, however, deviates much from that laid down in the chart. The course is considerably further to the eastward, and about 50 paces broad. The banks at some places are to the height of 15 feet overgrown with a long grass, which is enumerated in the collection.

The village is close by the high road, and about one mile from the river, and the cotton plantations extend on both sides of the road as far as the eye can reach.

As soon as I was on this side of the river, which was very troublesome in crossing, on account of the loose sand, in which the wheels

of the Hackery were buried to their axis, I sent my collection and baggage to the village, and directed my course alongside of the banks to a plantation of high trees, which proved a new colony of *Opanus* trees.*

The country is here more level than about Humaly; the soil consists of a light yellow clay, seemingly very fertile; the cotton is of the red species, which the inhabitants call *Samul*, but it is the same species which is cultivated in the Jumboeer Purganah. The plantations are exactly so divided as in the other Purganah; the shrubs likewise at the same distance. These shrubs that were sown this season stood very bushy, to the height of 5 feet; and though the weather was sultry, they maintained their foliage, and the ground at some parts pretty moist.

The last year's were at the height of 7 feet, and remarkably branchy, which the planters tied together with a creeping plant which grows spontaneously in the ~~Euphorbia hedges, and~~ and distinguish the plantations. Two growing plants are marked under No. 2, Chest No. 2. The roots of these plants are very bitter, a decoction of which the inhabitants use with great success in intermittents. The only cause for tying the cotton branches is to give air to the grain, which should be sown between the beginning of the rains.

The planters take the same precaution in watering their plantations as in the other Purganah, for which they have either wells in the midst of their district, or such banked up tanks as about Tanapoor. All along the banks of the river are reservoirs and creeks, embanked, round which mangoes and Mawra trees are planted, both for the sake of fruits, and to strengthen the encompassment from the violence of the freshes.

The cotton begins to ripen a month before the rains have ceased, and continue a long time in the hot season; even now were many shrubs in a flowering state, the wool of which was by no means the most inferior, and although the plantation had not received water these six weeks, the soil about the roots was light, and mostly moist.

This species has certainly the advantage: if it has a peculiar soil and moderate moistness, it will flourish the greatest part of the year. It must be however observed, that it must not be sown too close, for it never will come to more than a straight stick; neither should the

* *Qy. Funnus* (*Artocarpus integrifolia*), or may be "*Tunnus*" (*Dalbergia Oojenensis*).

planters be too hasty in reaping the crop in the first year, and let it grow on, for he will have but a poor compensation for his trouble. The proper distance of the lines I would recommend from 3 to 3½ feet, according to the grain that is proposed to be intersown, and 2 feet from each other. As soon as the shrubs have obtained the height of 3 feet, they must be reduced half their growth, and so let them form gradually thicker branches, intercepting them with the knife should they meet with a soil more luxuriant than they require. By the different soils and situations which the inhabitants occupy with this species, I am led to imagine that not only on low grounds, but likewise on spots where other vegetables do not thrive, it will produce a fineness, and an adequate crop to requite the labour bestowed on them.

As the seeds tend more to contamination than the former two species, it must be therefore remarked that the ~~lower grounds~~ are not occupied with it ~~it will be in the rainy season~~; for the planter, on the end of the rains, will have to do his former labour over again, when possibly it will be too late (as the season differs almost yearly) to resow, or it will be by inundation totally destroyed. I purchased some cotton with seeds, which is superior to any cotton I have seen of this species. It is marked under No. 1, and sold here at Rs. 3½ per mohn.

Early in the morning I set out with the view to go to Brodra, but on coming to the pass of Corally, I was informed that Fatessing had been gone ten days ago to bathe in the Narbedah. I therefore dispatched the letter the Rajah of Dolca gave to me to the town, to be delivered to him on his arrival, by which means I saved both the present and time, and directed my course to Kiawara, a village 2 coss on the other side of the river from Corally.

The cotton plantations and the soil here are exactly the same as those at Terary, as likewise of the same quality. About 4 miles from this village, in a low district, they have plantations of Piper Betel, but far inferior to what I have seen at Bombay and Salsette, which is unquestionably owing to the immediate power of the sun, from which those at the former two places are screened by high cocoanut trees, of which there is not a single tree, beginning from Surat, in all the Purgauhs I have been in.

The inhabitants often try to plant them, which come up remarkably

well during the rainy season; *but no sooner the hot winds have set in than they are instantly destroyed.

Close to the Betel plantations stand a group of *Opanus** trees, through the centre of which passes a narrow branch of the Dahder, and which extends its course as far as the Beel country, where it empties itself into the Myhie.

On the banks of the river women gathered the leaves of a *Justicia*, which they use for the ringworm, by either simply bruising the leaf, or infusing it in the spirit of Mawra, and wash the scorbutic humours. The specimens are marked under No. 14, and an infusion in spirit with No. 22.

As hardly one of my people were quite free from it, I tried it immediately on them, and to my great surprize, after a few washings they totally disappeared.

~~The Europeans both in BOMBAY and SURAT are so much troubled with this infectious disorder, that they commonly prescribe a course of mercury as the only specific for it. The inhabitants there, although they live milder, have it still in a great degree, that in time they become as white as Europeans, and their skin entirely eat up by the terrible disorder. The inhabitants of Dolca usually make use of salt and mustard, but ineffectually; and in time lose both their hair and nails, though it has no connection with syphilis.~~

In the afternoon, I proceeded to Sanwary village, distant 3 coss from Kiawara, where I staid that night; and the Tuesday 15th. following morning, having been told that fine cotton is cultivated near Cullery, I directed my route towards it.

On crossing the arm of the Dahder called Carhare, I was stopped by the Czokydar from the road towards Cullery, and conducted to the Czoky of Dubhay, where everything of my baggage and collection was examined, but finding nothing of Ahmedabad manufacture, from whence they thought I came, they asked for some liquor for their trouble, and having indulged them with a bottle of arrack; I was then at liberty to proceed on my journey. The road leads within a mile of the town, which was encompassed as the Kim Cathadara Czoky, except that it has a ditch. Within a mile of the fort I crossed a narrow channel, which I understand is cut since the Europeans endeavoured taking the place, for the communication with the Carhare, by which means the ditches that encompass the town are filled.

* Vide Note, p. 148.

On my coming to Carhars river, I found nearly 5 feet of fresh water, which was in the morning almost dry; and by the purity of its taste I supposed that heavy rains had already fallen in the inland countries. In the afternoon I came to Cullery village, and pitched my tent close to and under a Mawra tree.

The soil, beginning from Sanwary, was chiefly of a light clay, and both sides of the river occupied with red cotton. Between Cullery and Dubhay, the farmers began to turn the pasturage fields, which were intended for new plantations of cotton, in hopes of getting soon some rain. My people informed me that they heard thunder last night, which is a certain prognostic of the approach of the rainy season.

The situation of these plantations is exactly as chosen in the other districts, and the growth of the shrubs the same luxury and order. I got from the villagers the best cotton this district produces, but ~~found no difference in point of quality with that of Terary.~~

The following day, as I was going to leave this place, my Moonshee informed me that a young woman was going to burn herself with her deceased husband at the river side. ~~Wednesday 16th.~~ Having often heard of this practice, but not crediting that such a horrid custom could prevail amongst such an enlightened nation and tribe of the Gentoos, I therefore repaired towards the river, where an edifice of wood, about 10 feet square and 4 feet high, was piled up, over which a canopy of split bamboos, supported by four poles, was erected. About 5 o'clock they brought the corpse on a cot, crying out with a loud voice as they approached, "Bahy Ram Rambuloo," or "Brothers, call upon the God Rama." He was laid on the edifice, and in a short period after the bride came, accompanied by young and old of her own sex, who seemed all to be in good spirits. She was dressed in new printed clothes, which, as soon as she seated herself on the pile, she began to strip herself of the ornaments, and divide them amongst the surrounding females. As I was desirous of having a memorandum of this inhuman practice, I sent my interpreter to a Brahmin, who read prayers over the deceased, to spare me a fragment of her clothes. In compliance with my request, he acquainted her with my wishes. She then, beckoning me to approach, gave me a silver ring from her finger, and desired that I would, in return, place a piece of wood on the edifice. I handed her a piece accordingly, which she laid down before her;

and having taken her leave of me and her friends, the spectators not excepted, she ordered the corpse to be handed to her, which she laid, as she sat, on her thighs. All the while the numerous Faquiers cried out, "Ram Ramey," or "Rambuloo," and waited for the signal from her to set the pile on fire. But now she seemed to fail in her courage, and began to cry afflictively. However, the women approached her, and, as my interpreter remarked to me, they gave her something in her mouth, which must have been opium; for having expostulated with her for near a quarter of an hour, she turned quite childish, and then the women retired a few paces from the pile. She then, beckoning one of the Brahmins, took with her left his right hand, and with the other she gave the token to the Faquiers, who instantly set the edifice on fire. A general noise and clamour now arose from every side, and the women poured continually oil on her with loud exclamations, that nothing could be heard from the poor sufferer, who seemed by the motion ~~of her hands and feet to disengage herself from it.~~ However, very soon the slight supporters were burned down, and she fell in the midst, a sacrifice to the flames, that consumed her in a very short period.

I asked my interpreter who could have enticed her to put such a cruel end to her existence; to which he replied that she did this in some measure of her own accord, having lived tenderly with her husband, for after the husband's death the woman has no authority; likewise by the persuasion of her relations, who are compelled to take care of her; therefore, to disengage themselves from this burthen, they usually assist in advising this sacrifice, which is taken here for a particular affection to the deceased, and religious example to the rest. But the truth of its origin is the Brahmins' and Faquiers' emoluments, by which they get a considerable share of the deceased's property, especially if there is no offspring, then they get it all. Very often, added he, the children are sacrificed to the flames with their parents, through the avarice of the religious leaders.

On the consumption of these corpses, her friends and relations retired on the bank, and having taken off their upper garments, they beat their breasts with both their hands in such a cruel manner that pieces of flesh were disengaged from the body.

After this horrid burial, I left Cullery for Ahmoed, and directed my route by way of Paraly, Ofoolah, and Satab, to see the most of the produce of this Purganah. Paraly is distant 3 coss from Cullery,

where the English army passed. Here I met again with the yellow cotton plantations, which extend as far as Otoolah, all along the river. The soil begins gradually blacker, and the situation considerably lower from the district I passed yesterday. The planters were employed in congesting their tanks at the river side, cleared the shrubs that were suffered to grow of dry wood, and burn their grass fields that were intended for immediate culture. About noon I crossed the river with a few people, which was almost filled by the freshes, and we had here yet not a drop of rain; but my baggage and collection I was obliged to send further up. In the evening I crossed the other arm of the Dahder, and took my residence at Otoolah village. Major Turner lays down this village on the Cullery side; it is however situated on the other side, in the winding of the river, where the two branches divide themselves.

About 11 o'clock in the night a violent wind arose, which lasted ~~only a few minutes, but~~ with such violence that it Thursday 17th. blew several houses and trees down in a short period. Afterwards heavy black clouds passed us, accompanied with loud explosions of thunder and lightning, but without a drop of rain.

The soil of these plantations consists of three different kinds,—partly a heavy clay, partly a light ditto, and lastly a rough sand. In the lower districts, the cotton is suffered to stay for two seasons or crops, which the planters cleared of dry wood, but of the higher grounds some were laid aside for pasturage, and some for indigo. The sandy plantations are manured with cowdung, and chiefly occupied with Bajery and the egg-plant.

The country is as level as the other districts I have visited, but likewise is destitute of wood. Here and there are hedges, which separate the plantations, mangoes, tamarinds, and mawra trees planted, of which the superfluous branches are appropriated for fuel. On one of the decayed mango trees a species of a parasitic Polypodium surrounded almost every branch. The leaves resemble an oak leaf, by which I suppose this is the Polypodium, quercifolium of Linnæus. The specimen and the living plants are marked No. 7, Chest No. 1.

I left this place for Conoor early in the morning, and about noon I arrived at the village, distant 5 coss from Otoolah. Friday 18th. On both sides of the road, there was nothing else but red cotton plantations. The soil towards the

river is a heavy black clay, but towards Ungulla a lighter ditto. the growth of the shrubs, and the employment of the farmers, was the same in the district I passed yesterday. In the afternoon I left the place for Hanky, where I arrived in the evening, and staid the night.

Next morning I made an excursion into the plantations, but found nothing done in them, but the farmers were in readiness, and waited impatiently for rain.

Saturday 19th. As the river was at this period pretty shallow, I crossed it here to save the toll at Burzadra, and came in the evening to Surbon, a large village, surrounded by a wall, as Major Turner laid it down; but did not observe that it was fortified. I am therefore convinced that he has never been himself in these plantations, and only contented himself with the intelligence his attendants pleased to communicate to him.

The following day, going to Ahmoed, I was overtaken by a smart shower of rain, ~~which lasted about an hour.~~ I made, therefore, my way for the town, and pitched my tent in the former place again. The Rajah having left Ahmoed a few days ago, to spend the rainy season where he usually does, at Cambay, his headman came immediately to see me, and ordered both for me and my guard provisions. In the evening a violent wind sprung up, accompanied with such tremendous explosions of thunder and lightning, and rain, that the cattle and horses fell several times to the ground. It lasted at intervals till next morning. However, the tent being well quilted with cotton, I did not suffer so much from the rain as from the violent heat that issued on this occasion out of the fissures of the ground. The thermometer was during all that time no less than 122°, and the earth so hot that we were obliged to lay something under our feet, for fear of being scorched. Snakes and scorpions were now innumerable, and the air swarmed with insects of various kinds.

This morning, by the advice of the Rajah's headman, who informed me that, on my last leaving Ahmoed, the Mahratta Chief was offended that I made excursions into his territory, and never came to see him, in consequence, to avoid mischief, which would be felt much by me in this period, I waited on him this afternoon. He ordered for my people directly provisions, and presented me, according to the country custom, with Betel. In return, I presented him on my

Monday 21st.

going away with a pair of pocket pistols, which I brought with me with that intention. He then requested that I would send to the Durbar for everything I desired. I thanked him for these complimentary services, in which they are as able as the skilfullest Gallican, and we parted very friendly. On my return to the tent, I recommended my collection and other articles, which I did not immediately want, to the Mogul's care, and proceeded to Kerwan, to be at hand when the planters prepare the ground. About ten I arrived at the town, and took my abode again for that night at the old friendly Patel's, who, although it was so late in the night, ordered a supper to be prepared for my guards and people. During the night we had several showers of rain, and the next morning

Tuesday 22nd. we had still more; and the exultation that every person and child expressed on this occasion may be easier conceived than described. As soon as the rain had ceased, every planter set out with the plough to the field, and I followed them to the plantations near Gorga, where the produce is the finest. They ploughed all the high plantations, which they performed with great exactness, in the following manner:

A man measured the lines out by walking at the distance of 10 yards before the plough, drawing a line by a hooked piece of wood, that scratched the earth, which the ploughman followed, and indented a furrow at the depth of 6 inches by an iron coulter, which was in the shape of an elephant's tooth, mounted into a solid piece of wood, as it is represented in Figure 3. The car, at the bottom, is hollowed on both sides into a bending, by which the furrow is widened, and the earth both pressed on the sides, and prevented from falling back and filling it. The beam the oxen or buffaloes are fastened to may be placed agreeable to their size, and the reins are passed through a hole in the upper part of the plough tail. The plough is so light, the cattle so well trained, and the earth so very brittle and mild, that it is more a play work than labour, both to the farmer and cattle.

As the furrows were made, the children, which are numerous in every family, placed the oxen two by two, at a distance of 2 feet, with such cheerfulness, that it was a pleasure to stay with them the whole day, and look at their performance. They did not cover the seeds, but left it to the first shower of rain, which filled the furrows with the turned out earth, and the plantation was as level as a table board, and looked as if nothing was performed on it.

I visited these plantations successively for three days, but the same work was performed on the higher fields; some of the lower were likewise ploughed, and sown very thick with rice, that sprung up almost instantly.

Thursday 24th. The river began to swell now very rapidly, and the planters, having accomplished ploughing the higher grounds, they employ their time in opening the ramparts of their basons and other reservoirs, that are situated in every direction on the borders and branches of the river, watching the period when they are filled, that they might shut them in time, and that the rapidity of the freshes might not damage them. This is the sixth day since the first rain has fallen: every field and hedge, that looked but a few days ago as if scorched to the heart, presented itself in full verdure, and promising a fruitful year.

To-day I made an excursion to those plantations that were sown ~~first with seed, which sprouted now spontane-~~
 Saturday 26th. ously. The planters waited only for the proper size of the rice to complete the plantation.

On my arrival at the tent, I found two women waiting for me, with a little boy, who was bit by a snake. I gave him immediately some acid of the gram, which is used as a specific for it at Dolca; but before it could have any effect on him, he died instantly. He was bit on the left toe, which swelled to a prodigious size, and the whole body turned as black as jet in a few minutes after he died. They killed the snake, and brought it to me; but it was so bruised that I found it not worth preserving. It was a species of a Coluber, very thin, about 6 inches long. They called it Jumboseer Samp, or Jumboseer snake, as only peculiar to that Purganah, and the worst of all. We killed almost daily several about the tent, of a prodigious size, but saw none of this sort. As for scorpions, there was hardly a crevice in a chest, or the tent, that did not stick full of them. This insect is the greatest plague they have, however never mortal.

Their cure for the bite is of the most singular kind I ever heard. As soon as a person is bit by a scorpion, they send instantly for a poor old woman, who chiefly maintains herself by charming off different distempers, who ties something round the injured part, accompanying it with a song of merry words, which, being sung with different attitudes of her body, puts the patient into a fit of laughter, by which means he does not feel the pain he would have felt otherwise;

and some of my people who were cured by such a charm maintained that the pain is not so lasting as when they apply other remedies.

To-day I proposed visiting the lower fields of Parmida. On going out, the clouds gathered very thick from the southward, and before ten it blew a storm, accompanied with such a deluge, that it poured through the tent as through a sieve. In the afternoon, the wind and rain abated, and we had as pleasant weather as the finest summer day in Europe.

One of the inhabitants brought me to-day again a child that was bit by a snake. Mercury being the only speedy remedy against syphilitic poison, I therefore resolved to try what effect it would have on this. I gave him immediately so much of the Cortex cinchonæ, infused in French claret, as his stomach could bear, and rubbed him over with such a quantity of ~~mercurial ointment~~ as I thought would ~~have an immediate~~ effect on the system. I ordered the parents to bring me as much bedding as they could muster, in which I kept him warm. Six hours were now passed, and he seemed in good spirits. I therefore, giving to his mother some more bark, went to rest. About midnight I rose again, and found him asleep; the pulse was now irregular, and full, which I attributed to the circulation of mercury.

About 7 o'clock in the morning he arose. I then opened the ligatures (which I tied when he was brought to me) between the two extremities of the wound, and found it dry; but in the centre, just where the bite was, loose and black. I therefore cut it out, and applied some spirits of camphire, and kept him on a mild diet. In the evening I looked at him again, and found the wound perfectly clean. I therefore checked instantly the progress the mercury had made in affecting his mouth.

The following day, previous to my going to Parmida, I again dressed the wound, and left a guard over him, that he should not go out in the air. In the evening, on my return, I found him desirous to eat, and I gave him some sago in claret.

Next morning, on inspection, I found all over his body small white bubbles, which I thought were occasioned by the heat of the mercury. I therefore purged him instantly, and in the afternoon they began to disappear.

Next day, wishing to leave this place for Jumboseer, I gave his

Wednesday 30th. mother some bark and basil ointment, with injunc-
tions to keep him warm and dry. I dressed the
wound once more, which cicatrized kindly; and left
the place about ten for Ahmoed.

The lower plantations which I went to see on the 28th were all
overflowed by the freshes: the ground where the water had retired
was covered with different ingredients left by the freshes, as hay,
straw, fish, and other putrid effluvia, which stench dreadfully, and
which undoubtedly enriches the soil and produce, which may account
for the fineness that is produced on all these low plantations. The
planters, who sowed rice on the higher grounds, informed me that
they should not plough the abovementioned plantations till the
greatest part of the rainy season is over, fearing the decay of the
seeds by inundation.

~~The yellow cotton, where it was suffered to stand from the last
year, sprouted already luxuriantly, and in immediate places the
planters ploughed with one buffalo only, and intermixed it with
Bajery and Joary.~~

In the evening I came to Corchary, but the river was so overflowed
that no fisherman would venture to carry me over.

Thursday 31st. I spent the night on the river side, and next morn-
ing, the freshes having abated considerably, I crossed
it on a cot, supported by earthen jars,—the only conveyance they have,
which is a very dangerous one. I intended to stay this night at
Ahmoed, but having been told that the Dahder is pretty shallow, in
consequence, having taken out the intended present to the Pundit of
Jumboseer, with a few other articles, I proceeded immediately for
the river. The hollow road that leads to the Dahder, for nearly a
mile, being of a heavy yellow clay, was so loosened by the few
rains, that the Hackerys could not proceed a step; in consequence,
I was under the necessity of sending them back, and hiring some
Coolys to carry my baggage to Jumboseer. We crossed the river
in pretty good time, but none of us had a dry thread on, occasioned
both by the rain that fell, and the ducking we were obliged to undergo
in crossing it, which was not a very agreeable thing to me, having
still a great deal of mercury in the system.

As soon as I found myself on the other side, I dispatched my
interpreter to the town, acquainting the Pundit with my intention of
coming there.

* In the evening I arrived at the Durbar, and was very friendly received by him, and his relation, who came from Poonah to spend the rains with him, and who informed me that he had heard at that place that a Doctor travelled in their country.

As there was no living any longer in the tent, I requested him to spare me one of his houses, which he did accordingly, and ordered directly one of his bungaloes to be cleared for my abode. For my people he ordered provisions, and after the usual refreshment of Betel, I left him for my allotted quarters.

Next morning, the atmosphere being clear, I wished to go out and examine the state of these plantations; but my interpreter dissuaded me, till the Pundit's consent was obtained, as they were more particular under

1788, August,
Friday 1st.

this Government than in the other Purganah. About ten, he sent a messenger with the information that ~~he would come and see me; accordingly he ~~came~~ soon after.~~ I offered him some Betel, but he declined taking it, asking my interpreter if I used to eat of this dish; but being informed that I kept it for the first cast of Gentoos, he then condescended to take it, and the remains, agreeable to the country custom, was given to his macebearers, and the rest of his attendants.

Having told him my motives for coming here, I showed him my collections and drawings of plants, which I made in the other Purganah, requesting his permission likewise to examine the fields in his territory. He only smiling answered that he had not the least objection, but could not comprehend that a man would come purposely in search of plants, with which he is confident that Europe abounds, and which are even preferred by his countrymen. I endeavoured then to convince him that the best medicines are natives of hot climates, from whence they are exported to Europe, and exported again to their settlements abroad. He seemed to be reconciled a little, but added that he knew Europeans very well: they generally simulate one thing, and have another in view. I then told him I did not wish to stay an hour longer in his territory, if he apprehended that I had something more material in view than collecting medical herbs, and added, that Europeans being so long in possession of this country, must know it to a step; and if they thought it worth their while keeping, they would not have made a present of it to Sindia.

This put immediately a period to his apprehension, and he told me

that I was at liberty to go where I pleased. On his going away, I presented him with a pair of pistols, which he accepted with seeming satisfaction, and which was, I believe, the only view he had of coming here.

— In the afternoon, I set out for Burka village, where I found already the plantations sown with cotton, which was growing to the height of 4 inches. The planters were now employed in cutting narrow channels, about 3 feet broad, from the river, through the midst of the meadows that separate the plantations. I understand that they are always suffered for pasturage, for the conveyance of water to the reservoirs of the interior plantations, which are levelled again as soon as the basons are filled. They performed it with such correctness that, in justice to them, their industry in culture does them great honour.

~~For my return I chose the road by Terapoor, where the indigo plantations begin, which they had ploughed only this morning, but nothing was sown yet. The indigo which has been left from the last season was already a foot high, and the red cotton plantations luxuriant in foliage.~~

The next day, the weather promising a fair continuation, I set out to those plantations which I visited yesterday at Saturday 2^d. Terapoor, where I knew the planters would be out to complete them; and according to my conjecture, they were sowing red cotton, with Bajéry and Joary, on those plantations that were ploughed yesterday. The machines they used for it are represented in Figures 10, 11, 12, which are constructed to facilitate the expedient of sowing different grains together with the cotton, and by which means it is performed with more regularity. Figure 10 *a* is a receptacle, which the grain is put into; *b* hollow bamboos, which are fixed in the bottom of the receptacle, through which the grains fall into the furrow,—their distance from each other is exactly 15 inches; *c* cordage.

Figure 11, another machine, consisting of a hollow piece of bamboo, which is covered by leather. On the top is a receptacle fixed, into which the cotton seeds are put, and dropped out into the furrow, as is represented.

Figure 12 is a plough with three staves (drawn by a single bullock), which are fixed into an octagon piece of wood, in manner that they project about a foot before the log. In the middle in each

of these shares are holes perforated, wherein Figure 10 is fixed, out of which the seeds drop gradually into the furrow. If cotton is sown with other grain, they fix Figure 11 in the midst of the shares (there is likewise a hole made for that purpose), and secures both these machines to the rings immoveable. The farmer has then nothing further to do than to direct the buffalo in a straight line, and fill the receptacles with grain. On coming to the opposite extremity of the plantations, he begins the first row at the distance of a foot, and continues his course, so that the cotton comes always at 2 feet from one another.

These plantations were sown with Bajery and Joary. Near to, and belonging to another plantation, was sown the yellow cotton, indigo, and a grain called Bawta, for which they had a smaller receptacle fixed in the cotton one. This expeditious method of sowing saves the farmer not only considerable time and trouble, but likewise it is performed ~~at a distance~~, and the grain placed with more regularity.

On coming home, the father of that boy who was bit by the snake at Kerwan met me, and brought the intelligence to my desire, that the boy was perfectly well, and the wound healed. On my entering the town, almost every person was acquainted with it, and I was surrounded by many hundreds of people, who followed me to the bungalow, and requested of me the most absurd things: some to tell them what sickness they had, although they were well; some of what disease they should die; and the rest were contented with having their pulse felt. I gave them respectively as absurd answers peculiar to the questions, however in a manner that all of them went away satisfied, of which they boasted as they went on, that they should not die so soon, and not of that distemper that was foretold them by their Faquiers.

The following day I set out for Gadzora and Onlar. About Gadzora, the planters sowed the cotton on the higher grounds, and interplanted it directly with rice, which was performed as in the other Purganah, about the distance of 6 inches from each other; and two of the lower plantations were solely sown with indigo, Joary, and Bajery.

At Onlar all the plantations were overflowed by the freshes, and nothing was done yet in them, except that all the tanks and basons,

that were constructed close to the river, were repaired from the damage they had received from the late freshes.

On my way back, passing Utur village, in one of the plantations I met with several hundreds of monkeys, that picked the grain out of the ground that was sown yesterday. As no person was in the plantation, I dispatched a man to the villagers, acquainting them with the mischief they were doing them. The planters came instantly, but it did not much signify; for no sooner had they driven them from one place, than other herds followed them within 20 yards, and picked up the grain, which was not covered yet by the rain. They are the most mischievous animals in this country, and no person dares do them harm if they are injured by them; and I am credibly informed, that if any of the Gentoos wishes to revenge an injury, they throw a handful of grain on their antagonist's house, for which, as these creatures are searching, they uncover all the tiling, which is not a very pleasant sight to the inhabitants at this time of the season.

To-day I made an excursion to the northern extremity of the town, where the indigo-makers live, in hopes of seeing their process; but to my regret, they had finished some time ago. The makers join commonly four in a set; each of these sets have three basons before his house, which are built of bricks.

The largest is about 20 feet in diameter, and 15 deep; the next about 15 in diameter, and 18 deep; the last about 12 in diameter, and 22 deep: both the latter have a communication with the first one, from whence the indigo is gradually filtered through a thick cloth, that is placed before the aperture, into the last bason, where it is suffered to settle, and from whence it is made up into small cakes, and exported, chiefly to Surat. A specimen of this indigo is marked with No. 29. The mohn sells from Rs. 40 to Rs. 50, according to its purity. The ingredients with which they adulterate the indigo are the following: the first the coal of a Cucurbita, that grows here spontaneously; the second the coal of the common Euphorbia, which they likewise use in making powder. As both these ingredients deprive the indigo of its natural red colour, they adulterate it by a red dye, called Potty, to such a degree, that it is hardly distinguished by the ablest connoisseur from the natural one. A specimen of this dye is marked with No. 28. The women likewise

tinge both their teeth and nails with this dye, but I never was able to learn of what it is made.

On my way home, I was interrupted by some people, who brought me again an unfortunate woman that was bit by a snake; but as they did not bring the snake with them, I cannot ascribe the cure to mercury, with which I treated her, in the manner I did the boy in Kerwan: by the inhabitants' account there are many whose bite is quite innocent, which might have been cured by external applications.

To-day I made an excursion to the westward of the town, where they cultivate their finest red cotton. The soil of this district, as I have before observed, consists of a sandy clay, and is chiefly occupied with that species.

The planters are employed now in ploughing all the lower plantations, and where they had accomplished it, cotton, with Bajery and Joary, were sown in the manner as about Tanapour, and I understand the method is practised in the whole ~~Dergana~~. Almost every tank and pool were already filled by such narrow conduits as about Burka, which were cut in different windings to each bason, according to the situation of the plantation from the Jumboseer bunder or landing-place.

About Curda village, and the whole Ahmoode side as far as the eye could reach, was one lake, occasioned by the late freshes, which must have made a great havock in the towns and villages that border to the sea and rivers, for there was not a single creek or a field, where the water had retired, that had not some horses or buffaloes scattered about. Two of my people maintained that they saw a Hackery with a pair of bullocks in a creek of the river; to which I may give credit, reflecting with what rapidity these freshes hurry everything before them.

On my return, I was intercepted with a heavy shower of rain; I therefore made the best of my way to the first village, and staid that night at Urona village.

The following morning, the rain still continuing, but with less violence, I set off for Jumboseer, where I arrived in the afternoon, and had the sorrow to find that the house given to me by the Pundit admitted so much water that it was impossible to stay in it. However, my interpreter was fortunate enough to obtain some wax-cloth, which we contrived to place under the tiling, by which means the rain was kept out in some degree. On the side of the river, I found a species of a

herbaceous Mimosa, that I have not seen before. It has a bright yellow flower, and covered a considerable district of land. The leaves were as sensitive as the Mimosa sensitiva; but, to my regret, none of the seeds were ripe, and no plant would thrive when transplanted. The specimens are marked with No. 10.

To-day the Pundit sent me a Sepoy who was bit by a snake. I treated him, as I did the former two, and had the satisfaction, on the expiration of six days, to restore him to his former state. As they brought me the snake, which is certainly of the poisonous tribe, I am led to believe that mercury is a specific for this venom; but it must be applied instantly over the system, for not one in a hundred survives ten hours after the bite. This snake is marked under No. 4.

From the 5th till this day we had almost a continual rain, and I was not able to get out anywhere. To-day being
 Wednesday 13th. ~~pretty moderate, I set out for Hanky and Onlar plantations, in hopes of seeing something done in~~
 the lower grounds; but they were so overflowed that nothing could be discerned but the trees that were planted in the midst of each plantation, to guard the birds from the rain.

All the high plantations near the road were already pretty high with the yellow cotton and the gram, but the farmers were dubious yet of their continuance, should the rains not cease for a few days, and wished mutually for fair weather again.

My disease in the liver increasing now daily, which was chiefly occasioned by the inclemency of the present season, and the badness of my abode, therefore, having now seen everything I could wish in point of culture, I went in the evening to the Pundit, to take my leave of him, who parted with me very amicably, and spared me one of his Chobdars, that should provide me with every accommodation during my journey in his territory.

The following day, the weather being pretty fair, I packed up my dried collection, and having left a man with my living ones at Ahmoed, I set out in the afternoon for Cambay. In the evening I arrived at Corally village, on the borders of the Myhie, where I staid the night; and early next morning, the tide being out, I crossed the Myhie in a boat to Dewan. Although we were not above half an hour in crossing it, the current

drove us in that short period about 5 miles higher up the river. The banks or boundaries of the river are here in most parts 60 feet high, but though they are so stupendous, the freshes often overflow the adjacent districts.

In the salt marshes of the river I found a *Nardus*, with a tuberoso root. It is called by the Natives *Cheryha Mooth*, as only petuliar to salt marshes. It is the most powerful of the two former. The specimens are marked in the dried collection under No. 15.

As soon as I had crossed and passed the salt marshes, which are very loose in this stream, I was met by a band of Coolys, who asked if I wanted their protection. Being well acquainted with their mode of ensnaring travellers, I took twelve of them, and made an agreement at the rate of four rupees a head to Cambay; but having no pass, I dispatched my interpreter to their Rajah for permission of conducting me through it, ~~accompanied with two bottles of strong Batavia arrack~~, which I thought would be the most acceptable to him. In consequence he sent me by one of his head men a pass, who likewise put to paper every tittle belonging to me in two copies, one of which he kept himself, and the other delivered to me. Then, having given me up to the Coolys' care, he told me that I might proceed on my journey, and not to give myself further concern about it, which should be safe delivered to me at Cambay. After some refreshment of milk, I left this place for Cambay, where I arrived in the dusk of the evening. The gate keys were, as usual at sunset, delivered to the Nabob; but having made Mr. Holford acquainted with my arrival, he obtained them instantly, and I was admitted without being examined, but my Cooly guards had not the same indulgence, and were obliged to take up their quarters in the adjacent village. On coming to the factory, I found Mr. Holford remarkably reduced by an intermittept, which are very severe in this low country, and generally subside on the decrease of the high springs, and return as rigid again on the first lift. Ill as I was, I could not refrain from smiling, seeing him sitting on a sofa, ornamented round his toes, fingers, arms, and head, with different trinkets and various ribbands, of which, as he was born in this country, he had so great an opinion, that it was needless telling him of their inefficacy. He grew soon well by the aid of the bark, which he however ascribed to this *Abra-ka-dabra*, and took care to reward the Faquier who lent him

these trinkets, one of which I obtained, which is marked in the Mineral Collection under No. 30.

As there was no possibility to resist the torrents of rain that fell in my tent, which began to decay very fast, and admitted the water like a sieve, Mr. Holford was so obliging as to prevail on the Company's Brokers to furnish me with a small house, belonging to the late Resident here. My disorder gaining ground hourly, I was therefore under the necessity of again having recourse to mercury as the only specific for this disorder before an abscess is formed; but should an abscess take place, it has in this gland as little efficacy as in all other abscesses.

To-day I was so much reduced that I recommended my collection to Mr. Holford, and letters for Europe. Being not Wednesday 20th. able to introduce the instrument myself, I caused ~~my boy to perform it, who, seeing me getting well~~ always as soon as I had used ~~it for the first time, he introduced,~~ without my knowledge, such a quantity, that the cure almost put a period to my existence. I had, however, the good fortune of mitigating it soon, and the pain of the liver ceased immediately; and, perhaps, by the imprudence of my boy got myself saved; but for want of medicines, not being able to clear myself thoroughly of mercury, I was considerably swelled up by the inclemency of the season. In consequence, I dispatched a Patewala to the Physician at Surat for some. My disorder, however, increased so rapidly, affecting my breast and head, I therefore took the shortest resolution of following him.

The 28th, having recommended to Mr. Holford the collection to be sent to Surat as soon as the boats are venturing, Thursday 28th. I took two sets of camels, and a guard of Coolys, and left Cambay about 8 o'clock in the morning. The soil of this territory being of a hard sand, I therefore was able to travel at the rate of three miles an hour, and came to Columsar before noon, where I refreshed, and in the mean time have seen a Gosaen burying alive. He was put on his feet upright in the hole, and had his head covered with an earthen jar, made for that purpose, and, being supported by two of his cast, the rest soon filled the grave. My interpreter, who likewise saw it for the first time, could not describe to me the cause of this strange burial; however, one of the Nabob's Sepoys, who had been a spectator of this ceremony, informed

me that this cast of people never bury otherwise, but added where there are no hopes of recovery.

As it was a fair day, the planters were out weeding the red cotton plantations, and on some intersowed it with Bajery and Joary. The shrubs began already to blossom, and promised a plentiful crop.

About Catona I met with a plantation which the planter occupied with the yellow sort, but by the wool, which still surrounded the seeds, it was the most inferior I have yet seen, and the planter himself owned that it could not be expected from a plantation that has a sandyish soil, and no further nourishment than that of the rain. In consequence, I asked him why he did not occupy it with the other species; to which he replied that he had tried several times, and at different times of the rainy season, but half of the seeds were always destroyed by the coolness which the soil possesses.

In the afternoon I arrived at Dewan. Mr. Holford, who took particular care of being ~~well acquainted~~ terms with every Rajah, robber or otherwise, gave me a letter to him, that I might not be detained at this place, which I forwarded to him by my interpreter, with an additional supply of a couple of bottles of arrack, who on the receipt ordered immediately his fishermen to bring me over the river; but being just high water, I was obliged to wait till the tide was out. Close to a baru, under which I took shelter, one of the Shewra cast read prayers to a large assemblage of people of both sexes, who surrounded him on every side, and there was not a single man, from the age of eighteen, that had not either a scar or an indent on some part of the body: seemingly they too often purchase very dearly the plunder that they make on their neighbours.

The Shewra was seated on an elevated place, which was richly adorned with silk of various colours, but in their way of life they are the obscenest of all the rest of the Faquier cast. They are so particular in point of abolition, that they usually have a piece of cloth tied before their mouths, for fear of killing an insect. Even the offerings to Cloacina are carefully put up into a jar, which they generally carry with them wherever they go. Likewise they never wash their corpse, like the rest of the Gentoos, but wipe it gently with a wet wiper, that no particle should fall on the earth and destroy a vermin. Though they are so indifferent in point of cleanliness, they are noticed as the first cast in this country. If they go abroad, they never take any weapon as a defence against the Cattys, like the rest of the

Faquiers, being indulged to travel unmolested. None of the other sects have the same indulgence,—even an old turban is taken from them; for that reason, they usually tie their heads with additional human hair.

About 4 o'clock the tide began to rush out. I made directly for the river, and by the assistance of a breeze which sprung up, we were carried over in a very short period, but to such a considerable distance from the landing-place that I was obliged to spend the night on the banks in a deserted Czoky, from whence the Mahrattas guard the encroachment of the Coolys.

Next day I directed my route to Ahmoed, over Gadzora and Hanky. About ten I came to Philodra, where we refreshed, and about noon we arrived at Gadzora.

Friday 29th. The day being fine, and my disorder mending as the warm weather increased, I set out in the afternoon to Onlar, to see what was done in the plantations ~~on my departure~~, and found the planters draining off the water from the higher fields into the adjacent reservoirs, by such a narrow temporary conduit as I have observed at Jumboseer.

These grounds, which were already accomplished a few days ago, were pretty dry, and commenced to be sown with cotton and Bajery, but the lower districts were still considerably under water. I found here several grasses which I have not seen before, the seeds of which are enumerated in the Seeds Collection.

The following day I proceeded to Hanky, where the inhabitants were busy in sowing the red cotton. In the afternoon I crossed the Dahder on a cot, and in the evening I arrived at Ahmoed. About Gongwa village the freshes made, in some plantations which are situated close to the river, great devastation, taking away nearly 3 feet of the ground, with the two year shrubs, and the grain that was already sown; but the planters who repaired the embankment thought not much of it, and said, as long as there are hopes of rain we are not distressed.

On my arrival at Ahmoed, I proceeded to the Rajah's encompassment, in hopes of spending the night in the Czoky; but on passing the Mahratta's Durbar I was intercepted by the Pundit, who insisted on my staying with him. Accordingly, having sent an apology to the Rajah's headman, I accepted the offer. He ordered

for my people provisions, and soon after the Rajah's headman sent them on his own accord. The Mahratta, on hearing this, requested of me not to accept it, and furiously reproached the messenger for his impudence, as he expressed it. However, having observed to him that I received many favours from them, and wished to live friendly and peaceably with every cast, he then acquiesced; but I could evidently observe that he did this with great reluctance, and that he hated the other party, though they were very attentive to him when I saw them.

The following day I crossed the narrow channel which is cut to the eastward of the town, for the conveyance of
 Sunday 31st. water to the plantations where the river has no influence, and proceeded to Gore village.

All the heavy argillaceous plantations, which were considerably lower than the rest of the districts, and usually the last in cultivation, were now ploughed and sown with ~~yellow-cotton~~, and planted with ~~rice, and exactly~~ so apportioned as in the other plantations. In one of them I had the good fortune of finding some ripe seeds of the beautiful Mimosa which is marked under No. 10.

As the water in the Carchare was pretty shallow, I crossed it at Hoha, where they sowed the red cotton on the sandy plantations, and interplanted it with a large grained Phalaris in such tufts as they perform it with the rice. The seeds of the Phalaris are marked No. 2.

On the banks of the river I found two grasses, the Aristolochia in seed, which is marked under No. 7.

On my return, I went to the Rajah's Durbar; and as there was no possibility of taking my growing collection with me, on account of the badness of the road, I therefore left it under the Rajah's headman's care, till boats were going to Surat from Jumbooseer bunder.

In the evening I took my leave of the Pundit, and early the following morning I left Ahmood. At noon I arrived
 1788, September. at Tanera, and in the evening at Killod, a village
 Monday 1st. about a mile from the Buky.

Beginning from Ahmood, on both sides of the road, as far as the eye could reach, the plantations were everywhere completed with cotton, gram, and rice. The wells were everywhere likewise filled, and the aqueducts levelled, on which, that they should not lay quite useless,

they were sown with Bajee and Myty-ke-Bajee,*—two pot-herbs, which are enumerated in the Seeds Collection.

Next day I took a guard and fishermen from this village, but on coming to the river, we found it so overflowed that

Tuesday 2nd. it was impossible to cross it, and were under the necessity of proceeding to Papatah Pass, where we crossed on such cots as in the other Purganah. As no persons but Patewalas cross the rivers at this time of the year, in consequence it is not worth the Government's while to keep boats at the passes, who leave the perquisites to the fishermen, and take a small acknowledgment from them.

The road in this district being very bad, we made but a poor progress in our journey, and I was obliged to take up my quarters at Dirval, about 3 coss from the Buky.

Early the next morning, I set out on my journey. At noon I ~~came to Centinare where I refreshed, and in the evening I arrived at Broach.~~

Wednesday 3rd. I arrived at Broach.

On this side of the river, the country being considerably lower than the opposite side, the yellow cotton that was sown last year stood prodigiously fine, and little of it was destroyed during the hot season. The planters were now employed in interplanting the rice, and some plantations were sown with Bajery, Jóary, and a grain called Crodra, which is enumerated in the Ahmood Collection, under No. 9.

Mr. Torin being the present Resident at Broach, I therefore went to the English Factory, but found him gone for the benefit of his health to Surat.

In the evening my Patewala, whom I had sent to Surat for medicines, being told that a European arrived from Cambay, came to the Factory, and brought me the desired medicines for my complaint; and the weather continuing very bad, I therefore proposed to halt here a couple of days, in hopes of seeing the screwing of cotton, with which I was not yet acquainted.

The following day I went to the river side, where the merchants have their repository of cotton, but found the screwing machine of the same construction as in the Lymree Purganah. My walk, however, was not

Thursday 4th.

* *Trigonella Fœnugrecum.*

without some recompense ; I met in the court yard a group of trees, which were planted for the sake of their berries, from which they extract an elastic gum, with which the merchants of this district close their letters. Being out of flower and seeds, Nanabay, an English cotton broker, was so kind as to prevail on the warehouse-keeper to spare me a plant, which is marked in the first chest, under No. 11.

The height of these trees was not above 20 feet, the stem about 16 inches in the girth. The wood consists of soft fibres, not unlike the bark of the *Tilia Europæa*. It flowers in the hot season, which I understand is a minute yellow. The seed is a sweet, glutinous, drupaceous, oval berry.*

To-day I requested of the broker to show me some of their fine weavings, which he did accordingly ; but to go and see them weave, he found as many excuses to disengage my mind from it as the weavers at

~~Lymree had done.~~

I purchased a piece of cloth as a specimen, to compare with the Lymree piece, for Rs. 28, which he said was the finest and dearest that Broach manufactured at present.

In the afternoon I sent my interpreter to the Pundit, for permission to cross the river, with which he immediately complied, and the following day, as there was no possibility of seeing their manufactories, I set out for Surat.

The environs of Broach, within a mile of the town, so far as the Mosque of Baravan, terminate in small hillocks, but the rest is a fine, fertile, open country. The town of Broach is divided in two parts, the Fort Town, which is situated on the highest hill hereabouts, near the river side, and the Bazar, or Market Town, which is close to the hill, in a plain to the NW. of the English Factory.

* The population is remarkable here : every street swarms with different casts,—Arabs, Moguls; and the many tribes of Gentoos, whose religion is distinguished by that of their profession, and which is always left to their posterity. * Their manufacture is cloth of various kinds, as Bafta, Daria, Czarhany. Bafta is the finest of all, coming near the muslin of Bengal ; Czarhany and Daria are the

* *Qy. Grewia Asiatica?*

striped muslins which the ladies wear in England. Duty comes near the Madras long cloth, and it is exported to different parts of India to great advantage.

The Company's broker Asseram, however, informed me that this manufacture is by no means in so flourishing a state as it was during the period of the English possession of this country. Of dyeing they have no knowledge, except trifles, as turbans, which they commonly dye with the flowers of the *Carthamus*, which is cultivated in Dolca. In the beginning the colour has a bright scarlet appearance; however, it soon changes by the power of the sun to a pale yellow.

The ingredients consist of the *Carthamus* flowers, which they call Cassumba, which makes the greatest part of the composition. The second is a kind of alkali, that comes from Lymree, which is marked with No. 16 in the Mineral Collection, to which is added lime-juice. One ounce of that alkali is taken to two pounds of Cassumba, to which ~~a pint of lime-juice is joined~~, and gently intermixed with the flowers and cold water, in which ~~the dyed~~ cloth is put for a few hours, and afterwards hung in a shady place to dry. In the mean time these ingredients are put on a gentle fire in a glazed pot, and so gently boiled up, into which the dyed cloth is dipped several times, then again hung to dry, and lastly suffered to lay twenty-four hours in the composition. After this process, it is dried in a shady place, where it receives its scarlet brightness.

A pound of Cassumba will dye a turban of 200 yards, and a half yard broad. The price of these flowers is Rs. 2 per seer. The alkali sells here at Rs. 10 per seer. Limes are here in great plenty. The coin of Broach is the same as in the neighbouring Purganah. However, a rupee when brought to Surat loses six pice in its value, but the Surat and Bombay silver coin passes for this country value. The copper coin are 56 to a rupee; as also they serve themselves with Badams, or kernels of peaches, and small almonds, which are as current as the other coin.

In the evening I arrived at Occliseef, where I staid the night, and the following day, having taken protection and fishermen from here, I crossed the Cavery, and arrived at Sunday 7th. Panoly village in the afternoon, where, being informed that fine cotton is cultivated, I staid the Monday 8th. night, and early the following day I set out for their plantations, which are situated to the eastward of Wusrawee Purganah; but they

were so overflowed that hardly the tops of the last year's plantations were to be distinguished. I understood from the Grassias that these plantations are never fit for cultivation till the beginning of next month, in consequence they let the shrubs always grow for two crops, and intersow them with the same grain as in the other Purganahs. The cotton of these plantations is of the yellow species. The soil consists of a heavy black clay.

In the afternoon, I set out for Kim Czoky, but had hardly gone a mile when it began to rain in such a violent manner that I was under the necessity of spending the night at Harsuran village. About ten the following day, the weather being more moderate, I set out again on my journey; but on coming to the Kim Cathadara, I found the river so filled that no fishermen would venture piloting me over, and I was again compelled to spend the night in a Faquier's wigwam on this side of the river.

Between the Harsuran and ~~Cassumba~~ Cassumba village, ~~on the right side, stand two large Pagodas~~ close to the road, in a Mimosa Nilotica wood, which was not laid down in the chart; neither those villages which I passed yesterday and to-day.

About midnight the water began to retire, and at break of day it hardly contained 12 feet of water. I crossed it in the afternoon, and spent the night in the Cathadara Czoky.

Early next morning I proceeded on my journey, and arrived at Surat in the evening. As I thought that the head Surgeon of the Hospital must be well acquainted with the different diseases of this country, in which I was only a novice, consequently, I went to him for advice, and represented to him my case, but especially my head and breast, which were much disordered by mercury and the inclemency of the season. I had, however, to my sorrow, the misfortune to find, by the blister that he proposed to apply to my head, that Mr. Price was not the ablest for this important situation; and being informed that by the interest of his brother, who is the head Paymaster in this district, he is appointed head Surgeon to the settlement, both for the sake of the great emoluments, as also for more immediate practice, and as I wished not to fall a sacrifice to it, I excused myself from such a cure, and patiently waited for warm weather, which daily increased, and my health speedily mended.

From the first day of my arrival here, there was hardly a day but we had more or less rain. The 28th we heard loud explosions of thunder, with a little rain, which was succeeded by large swarms of different insects, but especially the flying bugs, which, by the observation of the inhabitants, is a sure prognostic for the cessation of rain, which also proved true, and we had since not a single drop.

The 29th I visited the cotton plantations of Randler, on which the cotton began to come up, but the rice and Bajery that was interwoven and interplanted was already advanced to a considerable height. I obtained from the planters some specimens of the wool, which to my idea is as complete and fine as that of the yellow sort in the Ahmood and Jumboseer Purganah, which is evidently owing to the water which they are able to give it at the period when the cotton begins to bud, which, if hindered at that time, would tend to coarseness and brevity; as I have often observed of those shrubs which stood with a distance of water, that the capsule was pressed up by the immense heat, before the wool was half ripe, of very thin texture, short filaments, and as coarse as horse-hair. The specimen of this wool is marked, in the Cotton Collection, under No. 23.

Whilst the weather permitted me to go out, I made several excursions to some parts of the country in the neighbourhood of Surat. To-day, having passed the Gentoo Hospital, and the English Burying-ground, which I visited on account of their antiquity, and pomp of their structure, which candidly saying a dead corpse does not merit. In those times they must have been very particular about their burials, for they have not only chosen the most beautiful spot, but likewise the healthiest about Surat.

The present English Hospital is situated in the midst of the town, where hardly a fresh breath of air comes in, for want of pure circulation, which is entirely excluded by the high buildings that surround it. But as it is so decayed, and the town remarkably advantageous to the Company, they will be under the necessity of building a new one, for which purpose the abovementioned place would be the most eligible.

About these tombs I found two species of *Ipomæa*, one of which, by the immense large flowers, I believe is the *Bona nox*. The seeds are marked in the Seeds Collection with Nos. 2, 5; a *Hedysarum*,

No. 1; a Didynamia, No. 3; and a Syngenesia, marked under No. 4. I found here also the *Cleome pentaphylla* in great abundance, which Dr. Scott took for a new genus. The poorer set of inhabitants maintain themselves chiefly on this vegetable.

Some of these tombs are so ancient, that their inscriptions are totally effaced; of others of them, as the epitaphs begin likewise to decay, I took to paper, which are as follow:—

Interrogas amice lector

Quid sibi vult grandior hæc structura responsum habe;
In hoc gloriabor* satis quod alteram illam grandem continet
Superbit insuper quod una cum illa tegit generosos duos fratres

Fraterrimos.

Qui et in vivis fuerunt et etiam in mortuis sunt conjunctissimi

Alterum velis intelligas? lege alibi

Intelligas velis alterum? lego hic

Dominus Georgino Oxenden cantamus

Filius natus tertius D. Jacobi Oxenden Equitis

~~Ipsè equestris dignitate ornatus~~

Anglorum in India Persia Arabia præses

Insulæ Bombayensis Gubernator

Ab illustri Societate pro qua præsidebat et gubernabat

Ob maxima sua et repetita in eam merita

Singulari favoris et gratitudinis specimine honestatæ

Vir

Sanguinis splendore rerum usu

Fortitudine prudentia probitate

Preeminentissimus

Cum plurimorum luctu obit Julii 14^o.

Cum plurimorum frequentia sepultus est Julii 15^o.

Anno Domini 1669.

Anno Ætatis 50.

Heus Lector!

Ex magno hoc vivo vel mortuo aliquid proficias.

The second—

Hic situs est Christopherres Oxenden plorati

Exemplum vita sed vitæ morte caducæ

Intrat et exit hic inceptis animamque fiovivit†

Ille dies tantum numerare triginta valebat

Neu annos, nam raptim exigit mors rationem

Queritis o Domini quid damni vel quid habetis

Lucri vos servum socium; nos perdidit ille

Vitam sed qui contra occidat mors mihi lucrum

Exit e vita April 18, 1659.

The 'Gentoo Hospital is an institution for the infirm cattle, and

* Qy. gloriabar?

† Qy. fiovivit?

animals of every denomination, wherein they are maintained by a subscription that amounts to about two lacs of rupees. Every genus and species has its separate apartment, wherein it is nursed by proper people, who are purposely hired. Each of these subscribers is at liberty to send one cow or bullock, two monkeys, and a few of the smaller sorts, as dogs, cats, goats, even bugs, to feed them. They usually hire poor people to sleep on one of their cots, which are overrun by these insects; for they never kill them, but as they are troublesome, in consequence they send them to this Hospital, where they are nourished by these poor wretches, who may be of any cast, and which has nothing to signify in point of this religious mystery; and the lowest cast is preferred, for no high cast man must shed any blood, neither dares bleed himself if necessity requires, though they burn themselves with hot irons on the most trifling complaints and occasions. They generally use it in the liver complaints, often with success, ~~which answers in some measure instead of a blister, when applied on the first attack and stage of the disease.~~

The city of Surat is advantageously situated on the river Tappy, inhabited by different tribes of Gentoos, who are the first and richest merchants, as also a great number of Moguls, Arabs, Parsies, Jews, Armenians, and Portuguese, with which the town swarms in every quarter. Each of these tribes is engaged in some trade or other, both to the inland countries, as likewise to almost the most distant parts of the ocean.

They begin to build here ships of late from the teakwood tree, which I understand are calculated firmer than those built of oak. The situation for a dock can never be better than here. The rise and fall of water at high springs is remarkably high, and the teakwood from the opposite continent* is remarkably moderate, and calculated the best; of which I have procured some seeds, which are enumerated in the collection.

Mr. Tate built here last season a ship which holds 4,000 bales of cotton, and accomplished it in less than five months' time, with which commodity he sends her to the Isle of France, from whence they export it again to Europe.

The increase of trade increases daily so strong, that Surat not only

* Here he appears to look on Surat as an island. It is, in fact, a peninsula, or even an island, in the rainy season.—*Editor.*

pays and defrays its own great expense, but likewise furnishes Bombay from three to four lacs of rupees per year, and might be increased to twice this revenue, would they abolish monopolies, and discharge the protection of trade to the neighbouring places, which must be always a great check in commerce, and loss, of course, to the revenue.

The Government of Bombay have a marine of several vessels, mounting a few guns, which are to my idea quite useless in time of war, for the Mahrattas have twice that strength, and usually give defiance to the English marine; therefore, as they are solely calculated to protect the trade, it might be easily so contrived that the trade would protect itself, by destroying the pirates which have straggled from the opposite continent, and for the immense expense these protectors are maintained with, to construct a couple of ships of war, which could oppose those that are now building at Tippoo's expense, in time of emergency.

~~The~~ generally set out from Surat at the lift of high springs, consisting often of two hundred Bottelas. Each of these boats pays to the Commodore who has the Station, according to their size, from Rs. 12 to Rs. 28, which is the sole emolument belonging to the Commodore, as they call him, who has this Station for one year, and generally makes an immense fortune during that period. Though the honest merchants pay him this exorbitant demand, of which the Company have not a single farthing, they very often lose their merchandize under this protection, of which I was myself an eye-witness.

I should be thought, and think myself, a dangerous man to society, if I divulged a private conversation; but as the public good is concerned, and perhaps the country may be taken back at the expiration of the Charter of* my employers, I thought it my incumbent duty to enter it in my remarks and diary.

On seeing two of those abovementioned Bottelas taken by the Coolys, with which they departed without further hindrance than a short chase of the Commodore, on coming to Surat, I could not help expressing my surprise to the Commanding Officer of the boldness the Coolys have in this country, who answered me without any

* An erasure in the MS. is apparent here: can "by" have stood for "of"?—
Editor.

abridgment, that he was under necessity to let the Coolys take each trip a few of them, for if those imposters the merchants find themselves without danger, they would not pay us our due convoy money, and sail within a short distance of the main fleet. It is very true that they often practise it, for they are too well acquainted that it is the Commodore's duty to protect their goods, without imposing on them this ungenerous demand ; therefore, to my idea, this protection is not only a hindrance to trade, but also an abridgment to their employers' income. As likewise no merchant is permitted to sail without the fleet out of the harbour, when he has his cargo, though they might make a double trip, and the Custom House receive a double revenue. Such policy is practised here, but only calculated to their own advantage ; for a merchant may sail as often as he pleases, if he discharges to the Commodore the convoy money each time, although he is under the necessity of protecting himself.

The chief exports from Surat consist of cotton, mungo, ~~and~~ carpets, silks, kinkobs, Ilachu or satin, and cotton cloth. In return they take coffee, sugar, staple of various kinds, iron, copper, and ivory, for which there is here a great demand. Likewise the Dutch import yearly an immense quantity of various spices, which sell here to great advantage.

Their manufactures consist chiefly of cloth, which is, however, very coarse, which is worn by the Parsie cast. They likewise make vermilion ; but all my endeavours to find out the process were frustrated. This article is also monopolized.

The Company's revenues arise here mostly from the Custom House, and the import of opium and tobacco, which amounts, by the information I had here, to twelve lacs of rupees a year ; and in my opinion, Bombay might likewise defray its own expense, would the Government encourage the inhabitants to settle on their fruitful island, and restrain the rapid fortunes that are made under it.

The houses of Surat are built like the rest of the Indian towns, the court yards of which are exactly laid out with tanks, fountains, and flower-pots, as in the town of Lymree, to which the water is conveyed from the wells of Woodna and Catagan, which are supplied with fine spring-water from the inland country, in such an affluent manner that every house is supplied.

Though the streets are very narrow and foul, the inhabitants enjoy

a good state of health : even Europeans speedily recover of fever, when they contract it in Bombay.

The Surat Castle and the Factory are finely situated on the banks of the Tappi, but the former is so dilapidated that I fear it will not hold twenty years longer.

The Dutch, French, and Portuguese have likewise their respective factories ; but the first is the healthiest amongst them all, undoubtedly occasioned by the great cleanliness in it.

The manners and customs, so far as I have observed, are the same as in the adjacent Purganah : the Moguls, Jews, Arabs, and Armenian merchants collect commonly for the transaction of business in coffee-houses, where coffee may be had at any time of the day, and where the best Persian and Moors is spoken, and the town news and scandal related, not unlike those in the European dominions, which, to my idea, must have taken their origin in Asia.

Wednesday the 1st of October, having been informed by Mr. ~~Critch~~ that the Company's ships would not sail for Europe till next February, in consequence, wishing to inspect the fine culture of Panoly, and in the mean time to bring my collection away from Ahmoed, I proceeded the following day to the Kim Cathadara Czoky, where I arrived in the evening, and the next day at Panoly.

About the Czoky I found several new diadelphious flowers, the seeds of which are enumerated in the Seeds Collection, and the specimens in the Hortus siccus.

I pitched my tent at Tarwar, which surrounded a branch of a river which is not laid down in the chart, from whence they supply the plantations with fresh water at any time of the vegetation. They are so low that the greatest part is still under water, and nothing yet was done in them, though the season is so far advanced, and in the rest of the other Purganahs almost in flower.

The 10th, the water having subsided, the planters began to plough the ground, and sowed it with the yellow cotton, and a grain that is called Coodra, Bawta, Moong, Thuer, and Orood. I purchased a small quantity of each for a trial in the West Indies, which I think will be very acceptable there, if they are not already provided with it ; especially Bawta and Coodra, which yields almost in every soil a

great crop. The soil of all these plantations consists of a heavy black clay.

Having seen the last cotton sown, and obtained specimens of its produce, which is marked under Nos. 18 and 19, I proceeded to Occliseer, where I arrived in the evening.

✓ The following day I went up the river, where their cotton plantations are situated. I found them exactly so divided as those in the district I just left, and watered from such wells as those at Tanapoor. The shrubs were

about 4 feet high, and began to blossom. The soil is remarkably rich everywhere; but from this village as far as the eye could reach, towards the Rajpeela Hills, the country was uninhabited and uncultivated, on account of the Coolys and Beels, that invade this country; and having but little culture of their own, they maintain themselves by those plantations which border on them.

~~In these plantations I shot two birds: both appear to me new;—the one is as large as the Colomb of Doica, except that ~~it is smaller~~ beak. The plumage is of the same colour.~~

From the neck to half down his legs he had a bunch of black capillary filaments hanging, which were as coarse as horse-hair. For the quantity of fat that adhered to the skin, it was impossible to preserve him in this sultry climate; I therefore contented myself with a sketch, which is marked under No. 2.*

The second was almost the size of a half-grown peacock, and I am led to think it is a new species of the gender. He answered in every respect the description of one; the fanning of the tail he likewise performed like the peacock; but instead of having the seven feathers on the eranium, he has it on both sides of the neck. The inhabitants call it Carmore, which signifies a false or bastard peacock, and the English call it floriken. It is a bird of passage, and usually comes here in the rainy period. I preserved him as well as I could, marked No. 1 in the Birds Collection.

I proceeded to those plantations which lay to the NE. of the town, where I understand the cotton is as good as in the neighbouring places, and where I pitched my tent, Monday 20th. not far from the district where I had been on that abovementioned part with Mr. Smith last year.

* The Sarus.

These plantations are situated close to the banks of the Narbedah, in a low district, and always suffered to grow for two seasons or crops. Those plantations that were occupied with cotton this year, the shrubs were already advanced to the height of 4. feet, and some began to blossom. The intermediate places were sown with Bajery and Joary. The soil is of the same composition as about Panoly.

The following day I went higher up the river, and being abreast of Sookulteruth island, which is exactly so detached as Tuesday 21st. that before the town of Broach, I crossed to it in a boat purposely to see that large Banian tree that is worshipped by the Gentoos.

This tree is the *Ficus religiosa*, which it is well known strikes roots from the branches to the ground, and ascends again in the form of a tree. It is propagated by Faquiers, who solely reside in this place, that almost the whole island, which is about four miles long, and a mile broad, is covered with them.

Under one of these groups laid an old Gentoos Faquier, on a heap of ashes, which served him for a bed, and was chained by a heavy iron chain by his neck to one of the main branches, and in such, accomplished fits that the cruellest would have pitied him, seeing him in this situation, if he was not acquainted with the imposture. He was surrounded by at least sixty of his tribe, who lived with their wives and families, in little huts, which, however, were plentifully stocked with different grain, though not by their industry. Close to him was a young boy, likewise chained by the neck, who, as I was informed by the head Faquier, was begotten by a monkey, who had ravished one of the Faquiers' wives. He was about 4 feet high : all the gestures of a monkey,—speechless, hairy, and his forehead almost overgrown, as is represented in Figure 13. His complexion was rather darker than any of the women that I saw here. One of his hands was considerably shorter ; he seemed to me very weak on his legs, and walked with great caution, for fear of falling. The hair of his body, and armpits especially, was prodigiously long, but that of his head rather woolly, and tied in the centre into a bunch.

The cotton of these plantations is of the yellow sort, and likewise suffered to grow for two crops. For the convenience of watering, they have conduits cut from the river, which lead the water in a winding manner to every plantation. These channels are about

12 feet deep, and the best calculated of all the Purganahs, both for the little ground they take up, and facility of watering; for as they are 6 feet higher constructed by the earth that is dug out, the watering is performed by merely opening an inlet in the encampment.

The water, so far as the tides have influence, is salt, but further up the water is fresh, from whence the planters water their plantations by such wheels as those I have described at Kerwan. The cotton shrubs were sown here about fifteen days ago, and are already advanced to the height of 4 feet, which is the progress of vegetation in this country, where water is to be got in affluence. Those that were suffered to grow for another crop are in a plenteous bloom, and promising crop. They are all intersown with rice and Bajery, which the planters began to gather in, though the grain was sown and interplanted little more than two months ago. In my way back to the tent, I passed a whole district of land planted with nothing else but rice, which began to ripen;—the cause for it, as the planters informed me, that these grounds ~~having produced a crop of wool~~ successively, in consequence, agreeable to their mode, they sow it usually after this collection with rice, which will be cut in a few days; then the ground is ploughed and occupied immediately with barley, wheat, and gram, and then suffered to lay for pasturage for two seasons, when it is cultivated again with the yellow cotton. The soil of all these districts consists of a heavy, fertile, black clay.

The river is here about half a mile broad, and contains in most places about 12 feet of water. To the NE. of this place stand several Gentoo Pagodas, quite close to the banks, where pilgrimages are performed yearly in the hot season by Gentoos from the remotest parts of India, who bathe during that period in the river, both for the benefit of health, as also from religious motives.

I understand likewise that merchandize is exposed for sale of every denomination, and in such profusion that shops are purposely erected on both sides of the road, as far as the gates of Broach. This fair is called Dzatra, but this Dzatra is only a feint to that which recurs here once in twelve years, which the inhabitants distinguish by the name of Barotz-ka-Dzatra.

Next day I dispatched a messenger to the Pundit of Broach, to ask his permission for my crossing the Narbedah; Wednesday 22nd. to which he consented. I therefore early next morning left this place for Ahmood. In the after-

noon I crossed the river, without being detained at any of the Czokys, and came in the dusk of the evening to Dirval, where I staid for the night, and at daybreak, having taken from hence a fresh guard and eight fishermen, I proceeded towards Ahmood; but on my coming to the Buky I found it still so overflowed that I was under the necessity of retiring to Dadra.

Next morning a fisherman brought me the intelligence that the water had abated considerably, but still not sufficiently to be passed without some risque of having our baggage damaged; consequently I set out to those plantations which are situated to the eastward of this place, close to the banks of the Buky. This whole district is occupied with the yellow cotton, and watered from the river, which contains all the year round fresh water.

On the higher plantations, where the ground is slanting, and the freshes have no influence, ~~interceptions are concerted to preserve the main water, and to hinder the stream from carrying the soil away.~~

Higher up the river are five reservoirs constructed, after the Mitampoo method, which are yearly filled by the freshes, from whence the vegetation is supplied at the period agreeable to the other Purganahs. The shrubs are suffered here likewise to grow for two crops. The soil consists everywhere of a heavy black clay.*

The following morning, having been informed that the river was passable, I set out instantly for it, and crossed it without loss, and no great trouble; and in the evening I arrived at Ahmood. The Rajah, who had returned from his winter quarters, received me with equal friendship as before, and immediately ordered for my people provisions. I staid with him till after their midnight meal, and then proceeded to my tent.

The following morning I went to see my collection of living plants, which I had the satisfaction of finding in the same state as I left them. From thence I went to see the Pundit, and about noon I left Ahmood for Kerwan (to see to what period those plantations are advanced which I had seen sown the latest), where I arrived in the evening.

Early next morning I went to the district of Panoly, where I

found all the cotton in perfect blossom, and the interseminated grain to ripen. On my return to the village I was met by the parents of that boy whom I had saved from the bite of a snake. They brought me various presents for my compensation, and invited me to stay some time with them. I examined the boy's arm, and found the mouth of the wound, as far as the poison had reached, polluted, not unlike those left by syphilitic ulcers, and taints; however, the boy was very well, and almost forgot the unhappy state he was in.

Wednesday 29th, having made the last circuit round the plantations, which are situated about the arm of Kundra and the Czoky, which were in the same state as about Kerwan, I crossed the Dahder, by the assistance of fishermen, at Sarga, and proceeded to the low plantations at Canotza district, which were terribly destroyed by the rapidity of the freshes, and some plantations were just refitted by the planters, the seeds of which were destroyed by long inundation.

This is the only disadvantage with the low plantations, if they are so situated that the water in case of necessity cannot be drained off, and the inhabitants here have either not the skill of raising these grounds as the Tanapoors do, or do not mind the trouble of resowing it again. I would, however, always in preference recommend the method of Tanapoor, which is easily prevented by a high encampment, or to lower the adjacent meadow, so that it may serve for an aqueduct in case there is more water than required on the field, especially when the season is too far advanced; for no fineness can be expected when the water is dried in, by the immense heat that prevails at that period, and when this is the only time that the cotton requires to prolong its fibres.

I staid here this night, and the following morning, having crossed the river at Burzadra, I proceeded towards Hanky, to observe next for the last time the state of the red species, which, however, was just the same as last year. Some plantations which were sown last year are already in a flourishing state, and those that were sown this year, the planters began to crop down, and the rest of the lower districts, that were occupied latest, were advanced to the height of 2 feet, which the planters will begin in a short time to subdue. The Bajery and Joary on the higher grounds began rapidly to ripen, and the females were

stationed in every plantation, guarding it from the large flocks of crows, minas, and sparrows, which do considerable damage in this country to the grain. The women, at that period when the grain ripens, place themselves directly at daybreak on those trees planted for that purpose, and disperse them by loud shouting, and hardened and heated balls of earth, which they throw by a leather sling with great dexterity and exactness.

Next morning, having made another visit round the plantations, I proceeded in the afternoon to Ahmood, by the way of Jonga and Surboa, but I could not observe anything new, that I have not already seen in

culture in these districts.

On my arrival at Ahmood, I dispatched my interpreter to the Jumboseer bunder or landing-place, to hire a boat for Surat, which he however could not accomplish without the Jumboseer Pundit's permission; in consequence I wrote to him about it, who not only acquiesced, but ~~like wise~~ offered me to spend the cold season with him.

1788, November. Saturday 1st. Saturday 1st. Saturday the 1st of November I took my leave for the last time of the hospitable Rajah and the vain Mahratta Pundit, and proceeded to Yancrazy village, where all the cotton from this district is deposited, and exported for Surat and Broach.

In the afternoon I embarked with my living collection and a guard, and the following day by noon I arrived at the Surat Bar, where we waited for the return of the tide, and in the dusk of the evening I landed at Surat.

Ahmood is an extensive town, divided, as I have above observed, in two parts. The Rajah's side is the greatest, and distinguished by the name Warta, and the Mahratta's Talput.

The Rajah's name is Ugjubanga, son of the late Nabob of Cambay,* whose father died two years ago, of a private disease.

His Durbar or residence is encompassed by a brick wall, in which are openings for musquetry. On the chief gate is a small tower erected, mounting three iron guns: this is, however, more for show than any material use.

The town is beautifully situated in a plain, surrounded by the

* There must be a mistake here.

Dahder and Karchary, which come from the inland counties, and empty themselves into the sea, and not, as is imagined by Europeans, that they take their origin from the ocean, for the mouths are only enlarged by the currents, and which evidently daily widen them.

At the NE. extremity is a fine spring, which comes from the Rajpéepla Hills,* surrounded by many superb tanks and wells of fresh water, one of which is of an astonishing depth. To the bottom are steps, made of stone, and covered neatly with a chunam arch, where formerly the Nabob's women of the Harem bathed; but now it is appropriated for public use.

At the west side is a narrow channel, industriously cut from the Dahder, which leads close to the town, and serves both for a defence against horsemen, as also the town is supplied with the purity of its water, and the gardens and adjacent plantations nourished at the required period.

~~Towards the Dahder the ground is suffered to lay for pasturage, and scattered with the Mimosa Nimouca.~~

The chief inhabitants are planters of cotton. They have likewise a manufactory of cloth, but so coarse, and such a small quantity, that it is only consumed in the district, and never woven but when bespoke.

His income, by the account I had from him, amounts to six lacs of rupees a year, of which he pays, since the last dispute, one to the Mahrattas, for the acknowledgment of their superiority, to which the English on this side are as much entitled as either the Mahrattas or Fatessing,—for who is the strongest here, he gets the most; and they would not only be very acceptable to the settlement of Bombay, but likewise voluntarily paid by these harassed Rajahs and Nabobs, who often expressed to me an ardent desire to be in alliance with the English.

The 4th, the Surat fleet going, as usual at every high spring, to Bombay, but all the boats being previously engaged by the Surat military, that changed that station for Bombay, I could not get one on my own account, therefore divided my collection as well as I could in two Bottelas, which were loaded with cotton.

The following day, having been offered by Captain Sutherland,

* The Nandode Hills are meant, being the name of the chain north of the Nerbudda.—*Editor*.

who had a Commodore's ship this year for Baonegar, a passage in his boat to the Surat Bar, we embarked, the tide being in our favour, by 3 o'clock in the morning, and came to the Bar about eight. It blew, however, so hard, that he could not bring me to the boat I engaged my passage in, and I and Captain McDonald, who likewise was destined for Bombay, were obliged to go on board his ship, waiting in hopes the gale would moderate.

About four in the afternoon the tide began to ebb, but it blew still so hard that many boats were dismasted, and put back to Surat. However, as the signal was given for embarking from the Commodore of the Bombay fleet, I and Captain McDonald ventured to sea in a ferry-boat, in search of our boat, and after sailing for several hours Captain McDonald fortunately discovered her by a signal given by his detachment, and we embarked, though it risked the lives of both of us by the unskilfulness of the Tindal, who ran right ~~against her, by which~~ means the ropes got so entangled that the boat we were in was pressed down by the heavy Bottela, and began to fill. Fortunately, by the assistance of a line that was thrown to us, we leaped into her, and cutting off the cordage, we saved both us and the boat, which was at the point of sinking.

As it began to grow dark, it was not very advisable for me to venture to sea in search of my Bottela; in consequence Captain McDonald promised that if the weather permitted he would cruise for her; and I spent the night under the cover of the firmament, aboard of his Bottela.

The following day it blew more moderate, but the fleet was so straggled about, that all our endeavours for my relief was frustrated, and I was compelled to reconcile myself to the last night's situation, which was, as may be easily conceived, not very agreeable to one who had been so often tendered by frequent courses of mercury. This was, however, noticed by Captain McDonald, who generously offered me a place in his encompassment of bamboo sticks, though it only admitted his bedstead; and this was, perhaps, the first and last time that he had to, or will again invite a stranger where decency should exclude him. In justice, however, to Mrs. McDonald, she seemed not to notice the burden I occasioned in their enclosure, and ordered for my rest next to the bedstead a place to be cleared, which,

although it was but the plain-deck, in my situation it proved very acceptable; for the nights are remarkably keen at this time of the year, accompanied nightly by a heavy dew.

In the evening we found ourselves in the latitude of St. John, where I observed the smoke again, and Saturday the 8th we landed at Colaba.

The following day the whole Surat fleet anchored in the harbour, but only one of the Bottelas that I hired arrived,—

Sunday 9th. luckily, however, the one that had my living collection; but that with my baggage was either destroyed with the rest in the last gale, or taken by the Coolys, who were waiting for the fleet abreast of Bassein.

Next morning I hired a ferry-boat, and went into the harbour in search for her, but to no purpose; and I never heard or saw anything more of her.

Tuesday 11th. I waited on General Meadows, with the request to grant me and my collection ~~by the~~

Tuesday 11th. *Prince William Henry*, and having obtained a promise, in consequence, as she was not expected back from the Malabar Coast till late the next month, I packed my Guzerat collection into proper chests; and to avoid the exorbitant tavern expenses in waiting for her, I resolved to examine the islands of Elephanta and Caranjah.

Thursday the 13th, I hired a boat, and proceeded first to the island of Elephanta, which is about 6 miles distant from Bombay, and 5 miles in circumference. It is called by the Natives *Garapoor*, and derives its name of Elephanta from an elephant that is hewn in its natural size out of a solid rock. It is situated on an eminence not far from the landing-place, and faces the road towards the caves, which are hewn in the same manner as those at Salsette.

The situation whereupon the elephant is placed being very romantic, overgrown with the *Corypha* and *Areca*, I took a drawing of it, which is enumerated with No. 6.

The mouth of this cave faces the southernmost extremity of Salsette, and it is supported by eight pillars, of the same construction as those at Margo, Dolca Purganah. Likewise the figures are representing the various ceremonies of births and marriages, as at the former place, but so dilapidated by the officers of Admiral Cornish's fleet, that the

greatest part are not well to be distinguished. To preserve the rest from future destruction, the Chief of Caranjah sends here weekly a guard of eight sepoy's purposely to protect them from injury.

The Gentoos hold this place in great veneration, and those that came in pilgrimage there from the continent approached it with profound solemnity and decorum. The pressure of the immense weight that lays upon it detaches yearly a part of the hill, and demolishes this wonderful workmanship.

The soil of this island consists of a fruitful yellow clay. The inhabitants, who are but few, cultivate no more than is sufficient for their own maintenance.

The western hills are overgrown with the common Euphorbia, and beautifully diversified with fresh springs of water, and fields of high grass, the half of which is never consumed, though hay is remarkably expensive at Bombay.

The rock of these hills is soft, and appropriated in Bombay to the ~~works of the fortification~~, which is even superior to bricks. I found here several plants which I have not seen anywhere else, but very few in flower, the seeds of which are enumerated in the Seeds Collection.

Thursday the 20th of November I went across to the island of Caranjah, which is by the computation of Mr.

Thursday 20th. Whytel, the Chief of this place, 23 miles in circumference, but likewise as poorly inhabited as the former. The soil in the plains is very fertile. However, the inhabitants employ their time either in fishing, or drawing the toddy off the Corypha and Borassus flabelliformis, which they bring to a good market at Bombay.

From the 21st to the 28th I made daily excursions to some part of the island, but found not above twelve different species of plants. On one of the high hills, where a memorandum of a Mahratta fort still remains, I met with several marks of a former volcano. In the chasm I found pieces of iron ore, both solid and dephlogisticated by the action of fire, likewise two species of zeolite which adhered to the rocks, and effervescent, not unlike those at Lymree, of perporino stone, combined with small particles of zeolite, and another composition of reddish burnt substance.

The summit of the mountain has a very clear spring of water. It is hardly accountable how a spring can be formed on a stigma

which has no communication with a higher elevation, or else the water meets with a stoppage in its course, by which means it is thrown up to the fissures by the pressure, in the manner as the artificial fountains are in some parts of Europe. The water issues out of the cavity with great force continually, all the year round, and descends through many windings, till it comes to the bottom, where it is lodged in a plain, which is overgrown with several thousands of Corypha trees.

The inhabitants usually wash their linen in this fresh lake: my linen, during the stay I made here, happened to be washed likewise there, which was entirely destroyed by iron-moulds, with which the water is impregnated. I am therefore led to think that there must be a great deal of this ore in the mountain, and perhaps more valuable mines might be discovered; but no philosophical curiosity has yet found its abode here, and likely never will for any subject in natural history.

Saturday the 29th, early in the morning I set out for ~~the Bay~~ bay; but being informed that the *Prince William Henry* was not expected till the beginning of January, in consequence, as I wished to see the cotton plantations of Deccan provinces, which supply Broach with the fine thread called Gorja, I hired an armed boat, and proceeded the 1st of December to Bancoot, or Fort Victoria, a settlement belonging to the Company, about a degree to the southward of Bombay, where I arrived at noon the following day. Mr. Roberts, the Chief of this place, to whom I had an introductory letter from Mr. Adamson, the Treasurer, received me with great hospitality, and afforded me the utmost assistance in his power.

1788, December.
Monday 1st.

Next morning I went up Bancoot river to Panira village, accompanied by Mr. Lawrence, a Lieutenant, who is sent into the Sidy country on a recruiting party, where we arrived by noon. In the afternoon I proceeded to the village, which is about a mile distant from the landing-place, and found there cotton plantations situated on both sides of the inlet, which at high springs comes almost to the encompassment of the village.

The cotton is of the yellow sort, and grows very luxuriantly; it began just to bud, and promised a plentiful crop. The division of

its lines are about 8 feet from each other; between rice was planted, which had been collected in last October.

They have not here the method of watering the cotton at the period of podding as in the Guzerat, which is entirely left to the penetrating dew that falls here nightly in more abundant degree than I have experienced in this country, by which it is nourished in a requisite manner.

The soil of these plantations consists of a heavy yellow clay, which they manure with the foliage of the teakwood tree, which renders it pretty brittle, and employ it yearly with cotton, intersown with different grain, which is called Moong, Orood, Thuer, and wheat.

I went about six miles up the country, where I found several plantations I had not seen before, amongst which
 Friday 5th. was a tree that grows larger than any *Quercus* in Europe, and bore a fruit not unlike that of an *Arbutus*. The inhabitants called it New-jaar, and use it as a substitute for bread.*

~~The fruit is processed in spirits,~~ and the seeds marked with NE. Mahratta country. Heavy clay.

On my setting out this morning I forgot to take my Mahratta pass with me, for which I sent back my interpreter, and waited his return about a mile from the first village. The sun beginning to spread its power, and having waited nearly four hours, I proceeded on my journey, thinking that he would overtake me at the next village, where I refreshed; but he never came, and I followed my object.

On my return, I found him likewise absent; and being informed by Mr. Roberts' people that, having taken the pass, he immediately departed, I began to despair of his safety. In consequence, Mr. Roberts dispatched a band of sepoy and villagers to every pass and Czoky (which are here exactly so stationed as on the northern continent), in search of him, but none of the Czokydars noticed him: he therefore must have fallen a victim to a tyger, which are numerous on this coast between the village and the first Czoky.

The 7th, Mr. Roberts being likewise very ill, obtained a pass from Poonah, and permission to bathe in the wells not far
 Sunday 7th. from the town of Maar, where he had once before received great benefit by bathing in them. As I promised myself to reap some relief in my disorder, which increased

* *Nauclea cadamba*.

again daily, I proceeded with him to Dasgam, the last village belonging to the Company on the river, where we arrived in the evening.

Next day I made an excursion to the islands which are interspersed in the river, and form a most delightful appearance from the hill of Dasgam. They are chiefly occupied with cotton, which was as luxuriant as any I have seen in the Guzerat, and intersown with wheat and gram, that stood likewise high. They have not here, however, the art of gathering the dew, nor even the knowledge of its existence. I collected a bottle full of it, which proved in a few days as strong as that I had at Dolca.

Monday 8th. On the continent I shot a wild cock, and collected several seeds which I had not seen before. Those that were in flower are the following:—A species of *Eranthemum*; with a fasciculate root; a new *Justicia*, with glutinous, pale blue flowers; and a new *Areca*, with white fruit or seeds. Besides I found the marking-nut, which I think is the *Anacardium Orientale*. ~~The fruit is poisonous, and~~ used by the inhabitants in marking their linen. That species of *Morinda* of whose roots the inhabitants extract a red dye, grows here in moist places very spontaneously, the seeds of which are, with the rest, enumerated in the Seeds Collection. Heavy clay.

The wild fowl I shot when two of them were fighting together, which they performed exactly in the manner as those in Europe. Being of such beautiful plumage, I stuffed him, which is enumerated in the Birds Collection with No. 6.

From the 10th to the 13th, though very unusual here, the wind blew with such sultry power and violence from the Ghauts, which face this hill at the distance of 20 miles, that Mr. Roberts' tent was blown to rags to-day, and we were under the necessity of going down to the village for shelter.

The 15th we received intelligence from Bancoot that a large ship passed by from the southward for Bombay, which we conjectured, as she hoisted English colours, was the *Prince William Henry*; and the 17th we had it confirmed by Dr. Scott's letter to me, whom I had requested to inform me of her arrival. In consequence, I was obliged to prepare for Bombay, before permission was obtained from the Governor of Maar to bathe in the hot wells. Mr. Roberts informed me that the hot wells are situated in a plain about 4 miles from the town of Maar,

and take their source from the adjacent hills, which are totally destitute of verdure; that the water is tasteless, and usually acts, till habituated to it, as a cathartic, and then as a diaphoretic.

The country-people use this water in all diseases, both by bathing in and drinking it. In consequence, the Bombay faculty, in imitation, prescribes these waters to Europeans in every disorder, though none are acquainted with its analysis.

Dr. Scott has analyzed those at Wiseraboy, which by his account run upon copper, and prescribes the use of them in syphilitic rheumatism, when the virus is destroyed, which leaves the patient after a few bathings; likewise local disorders are destroyed by it.

The 17th I hired a boat, and in the afternoon proceeded to Bancoot, and the following day for Bombay, where I arrived Wednesday 17th. the 21st.

Bancoot, or Fort Victoria, is, as I have above observed, a degree from Bombay, and beautifully situated on a high hill at the entrance of Bancoot river. The fort, both below and above, is in as bad a situation as that at Warsere, in the island of Salsette. The Company or their servants have taken this place for the port place, Gherya. At present it is not of great use to the settlement of Bombay, for it costs them yearly above a lac of rupees, though the toll of the river and seven large villages belong to it.

The river sources from the sea, and is very broad. The soundings are, however, very uneven, from 15 fathoms to 4 feet. The Mah-rattas export from hence grain of various kinds, which pays a most exorbitant toll to the fort. This is, however, not adequate to the charges that are made here; but the Chiefs retire commonly in a few years from this place with immense sums, and it is calculated as good a post as the Councilship at Bombay.

The inhabitants are a species of Sidys, professing the Mahometan religion. They are an industrious, peaceable sort of people; and would be more so, were the oppression not so great by the Company's servants.

They begin to cultivate pepper, which grows spontaneously here; but as the demand is immediate, and so unreasonable, they begin to drop it, and cultivate the ground with other grain, which is more profitable to them.

I am credibly informed by Sir Francis Gordon, now Resident at

Calcutta, that Tippoo is very particular in regard to the latter article; which the Company purchase at a most exorbitant price. As the situation and the soil is nowhere else so peculiar in all the Company's dominions as here, for pepper, and perhaps, if tried, for cardamoms, I would recommend to them to take this place in consideration, which may, as by all appearance it indicates a particular fertility, become in a short time an important settlement to England.

The soil about Fort Victoria consists of a light fertile clay; the country on both sides is very mountainous, and almost to the marshes overgrown with high teakwood trees, and variegated by the foliage of underwood, which would have been a fine field for me if I could have been here in the rainy season; and by Mr. Lawrence's account, who traversed the whole Sidy country, the islands abound with still greater variety, amongst which there are many specifics for different diseases. The Sidy Rajah is an ally to the Company, so that the country might easily be explored by one who is acquainted with the language and customs of the country.

Though the country is one wood, the climate has no malignant disease, except the liver, and that but in a small degree.

The small-pox has, since the possession and commerce of Europeans, found its way here, and destroyed many hundreds of inhabitants. The rapid progress is, however, since Mr. Farmer's residence, remarkably abated by inoculation, who, during the period of his short stay here, inoculated above 1,300, both young and old, out of which he did not lose above two. I had this not only from himself, but also confirmed by the inhabitants, who often expressed great sorrow for his leaving this station.

Directly on my arrival at Bombay, I wrote to the Governor and Council, requesting they would grant me a passport to Europe in the *Prince William Henry*. In reply, I received an answer that the Commander of her was ordered to take both me and my collection aboard. In consequence, I waited on Captain Dundas, who informed me that he had received the foregoing day an order from this Government that he should take me on board, but without any expense to the Company. I therefore wished to know the sum for my passage. This, however, he referred to his agent, whom he empowered to settle with every passenger. I then went to Dady Naserwangie, his appointed agent, who asked of me a sum amounting to Rs. 4,000, besides that my collection should go as Company's

tonnage. As I knew that this demand came from the pressing necessity I was in to go to Europe, in consequence I went again to Captain Dundas, and represented to him my whole state and circumstances, and by the assistance of Mr. Adamson, I got it settled and agreed for Rs. 2,500, on condition that my collection should be stopp'd out of the Company's cargo. However, the following day, as Captain Dundas heard that the above sum should be paid to him by my employers in Europe, he alleged that he could not stow my collection but in the hold, where there was no access for me to them.

The 4th I went on board his ship, and finding still so much vacancy as would hold twice the quantity I had in my possession, in consequence I wrote to him concerning it. However, all my endeavours were frustrated, and I was answered that as Mr. Ramsay, the late Governor, was going in the same ship; he could not think of disgracing him with such incumbrances. Lastly, that I would set aside all my living collection, ~~if he would give me a dry~~ place for my cotton seeds; but in this I was not indulg'd neither, and saw plainly that there were pecuniary motives for not taking me.

The *Prince William Henry* being the last ship this season for Europe, I resolv'd, ill as I was, sooner to undergo all the inconveniences during the passage, than to be left behind. I had recourse again to the officer of the public department, requesting he would represent the urgent necessity I was in of proceeding to Europe to the Governor and Council, who to my sorrow answered that they were not empowered to enforce the Captain's taking me, if he alleges a deficiency in his ship. Thus I was assisted in my expedition by the Government of Bombay!

Tuesday, January 13th, the *Prince William Henry* sailed for Europe, and I had no hopes of proceeding this season but by the *Wintarton*, that was to sail on her return from Mocca; but as the length of time would have made an immense delay in the object I was sent for, and the seeds unavoidably destroyed, besides the expense attending if I waited her return, I therefore, having heard that an English ship under imperial colours was at Mahé, not far from Telichery, I hired an armed boat, and proceeded the 16th for the Malabar Coast.

The 19th I was abreast of Bancoot, and spok'd the *Narge*, a Danish

Monday 19th. Indiaman, who came from that coast, by the Commander of which I was informed that Captain Bishop, of the imperial vessel, had sailed but a few days ago for Bengal, from whence he would go to Europe. Being now totally defeated in my project; but fortunately, as this Danish ship was going to sail for Europe as soon as they had taken a cargo of cottons either at Bombay or Surat, which I thought would not be long, for Bombay was stocked with it, in consequence I returned to Bombay, and engaged and settled my passage in her, with my collection, for Rs. 3,000, one-third in ready cash, and two in bills, which I took the freedom of again addressing to the Right Honorable Lord Hawkesbury.

Having in my agreement settled with the Commander (Peter Krag) for five chests of living plants, but having only four, Mr. Bruce, the Land Paymaster of this establishment, made a present to His Majesty's Garden at Kew of one full grown *Garcinia*, which is obtained from some of the ~~Moluccan islands~~, besides several of the jack trees, and ingrafted Mazagon mangoes. One of the latter he requested I would give, if they should come home alive, to Mr. Holmes, his particular friend. Captain Douglas Richardson, who trades to the Moluccas and Macao, and who is an amateur of exotics, presented likewise a nutmeg plant, and a balm of Gilead, which are enumerated in the collection.

Captain Richardson informed me that nutmeg plants may be got at Banda from the inhabitants, both living, and in fresh seeds, for a trivial sum: if so, it would, perhaps, be a matter of some importance to the West India Islands. He never was himself on shore; in consequence he could not positively describe to me the soil they grow in, but the earth that adhered to the plants, when he obtained them from the Natives, consisted of a light black composition, in which he had them planted, and in which they seemed to thrive very well.

All the latter plants require great heat, the jack trees especially both heat and continual moistness. The jack flowers generally about this time of the year, and ripens in the hot season. The fruit being already well described by Rumphius, I have therefore only to add that there is a great variety of them. The one with a purple rind is a native of Goa, and is counted here the best, and even bears fruit on the roots under ground, where the soil is loose and tender. I have myself observed on the island of Cazanjah the setting of the flowers

under ground, which were in greater vigour than those that were exposed to the immediate air.

This tree has a white insect peculiar to itself, of which it must be cleared, for they will in a short time destroy the whole tree. The inhabitants destroy them by smoking the tree with the common Euphorbia, and besmear the stem with a kind of a red oily paint, to keep off the white-ants, which are very destructive both to vegetables and other things.

The 25th I went to the Bombay carding place, to see their method of carding, which is just the same as in all parts of the Guzerat. It consists of a solid piece of wood, about 5 feet in height, and hollowed at the one extremity about 2 inches, to keep up a horizontal balance. as it is represented in Figure 9.

From *b* to *c* the wood is round, about 4 inches in diameter, and covered with leather, round which a strong winch passes, and is twisted from ~~end to end~~. About the middle this machine is suspended upon two bamboo bows, which are tied to a curved piece of wood, chosen for that purpose, and which the carder is able to decline with ease towards the wool. By the reclining force the string takes up the wool, at which period the carder strikes it with a hammer, made of the wood of the Mimosa Nilotica, and throws it up again by the elasticity of the bows, where it disengages itself from the combined and adherent particles.

f represent a bamboo mat, upon which the carded wool is kept clean.

The 27th I put on board my collection.

The 29th the ship took her last cargo of cotton.

The 1st of February I embarked, and the following day we set sail for the Cape, where we arrived, after a great deal of bad weather, on Monday the 27th of April.

1789, February.
Sunday 1st.

Sunday the 29th I proceeded to the table-land, in hopes of getting some of the large Polypodium; but the rainy season began already to set in, and it rained and blew with such violence that it was impossible to approach the summit where they grew.

The 1st of May Mr. Mason took me out to the place, about two miles from the town, where he has his collection planted, which consists of several new plants, among which are three new Gerania, a Sticlicia, a white Hamanthus, with yellow anthers, two new Amaryllis, and seedlings of the Amaryllis Orientalis.

In the afternoon we waited on Colonel Gordon, who showed me his travels, and chart of Africa, which he intends to publish soon. He made an immense collection of fossils, amongst which are several new bitumens, and ores of various kinds.

The following day I made, with Mr. Mason, another attempt to the table-land, but have been repulsed again by the violent gusts of wind, that disengaged and rolled down the rocks into the valleys.

The 3rd, Mr. Mason gave to my care a small box with seeds, and intended to send some living plants; but as I lost a great many of my own for want of water, and the Captain was very particular respecting it, I could not well venture taking them.

In the afternoon we went to the Company's garden, which is totally planted with pot-herbs, and only a little spot, about the Governor's house, that is kept with a few indigenous plants of this country; amongst which is a large Strelitz, of that new species that I saw in Mr. Mason's collection.

In the evening I received ~~news~~ that the Captain proposed to sail the next day; in consequence, I embarked the following morning, as likewise every other passenger belonging to the ship; but it blew so hard from the table-land, that the Captain could not well venture to heave his anchors up. About midnight the wind moderated, and the following day we set sail for Europe.

The 29th June we made the island of Scilly, but meeting with contrary easterly winds, and the ship being remarkably foul, we were driven back considerably.

The 2nd of July, by the assistance of a fine breeze, we found ourselves again within sight of land, but were again repulsed by an easterly wind, that blew with great violence, though it is very uncommon at this time of the year.

The 6th we fell in with the *Dove*, of Dover, a pilot cutter. As there was no likelihood of a change in the wind until the next change of the moon, losing almost daily some of my collection, and none of us free from the scurvy, which began to make great progress in the ship, on account of the badness of the weather, and deficiency of water and fresh provisions, I engaged her to land me and my collection at the first port in England for thirty guineas. It blew, however, so hard to-day, that I could not venture removing them from on board with safety.

The 13th it fell calm; in consequence, I embraced the opportunity

for their removal, and the following day, as the wind began to lift from the same quarter, I, and Colonel McKenny, a passenger from Bombay, who likewise engaged her for landing him, embarked, and we came to Plymouth the 18th of August, about midnight.

The following day, as soon as the Custom House Officer, took charge of my collection, I landed it at the Custom House quay, and in the afternoon I removed them, by the kindness of Mr. Tolcher, the Collector of the Customs here, into one of the warmest spirit warehouses, and the 2nd of September I proceeded on my journey to London, where I arrived the 11th.