

## P R E F A C E .

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On completing this 1st Volume of the Journal of the *Dombay Branch of the Royal Asiatic Society*, it becomes the duty of the present Editor to briefly notice how far the Transactions of the Society have contributed to extend our knowledge on subjects of oriental research, more particularly connected with the Antiquities, Philology, Geography, and History of Western India. While this Society was instituted twenty years subsequently to that of Calcutta, and its field of investigation was necessarily more limited, it derived a healthy activity, from the accomplished character and talents of its President, Sir James Mackintosh, who, combining kindness of manner, extensive literary acquirements, and much soundness of judgment, was singularly adapted to promote the views of a Society which, on his arrival in India, had entered into generous competition, in oriental research, with its elder sister of Calcutta. With all the ardent love of knowledge characterizing Sir Willam Jones, but, without his oriental acquirements, Sir James Mackintosh successfully promoted the objects of the Society, by encouraging all, possessing opportunities of obtaining information, to collect and record it: and in doing so, gave an impulse to its labours that enabled it to obtain valuable materials for its volumes: for, as Sir John Malcolm says of him, "The labours of an individual can effect little, but the genius that can stimulate and direct numbers, can effect every thing." Three quarto volumes published by this Society, commencing with the year 1804, and terminating with that of 1821, met with a most liberal

and distinguished reception, among the Literati of England and the Continent ; and are now so much in request, as a standard work for libraries, that, from the small impression originally printed, the volumes are now with difficulty procurable. Under these circumstances the Society has resolved, as may be seen by reference to its proceedings, that a new edition of the work, in three volumes octavo, with a quarto volume of plates, shall be published, in London, by Messrs. Longman & Co., provided the names of an hundred subscribers be procurable.

Soon after the institution of the Royal Asiatic Society of Great Britain and Ireland, the labours of the then Literary Society of Bombay merged in those of the now Parent Institution, agreeably to the resolutions, moved by the Honorable the President, Sir John Malcolm, and unanimously agreed to at a special meeting of the Society, held on Wednesday the 5th December 1827.

*1st.* That this Society deems it extremely desirable, that measures should be adopted without delay for opening a communication with the Royal Asiatic Society of Great Britain and Ireland, and soliciting the formation of a connexion with that body, in order to give greater efficiency to the Literary and Scientific pursuits of this Society, and in the hope of contributing by such an alliance to the more effectual promotion of the common cause in which the two associations are engaged.

*2nd.* That it be referred to the consideration of a Special Committee, to report for the information of the Society, on the best method of accomplishing such an union.

From this period to 1841 all literary communications, forwarded by members to the Bombay Society, were transmitted home ; and have been published in the Transactions of the Parent Institution, or in the pages of its quarterly octavo Journal. But in ceasing to act independently, by the publication of

the literary labours of its members, the Bombay Society discovered that it had lost the greater part of its activity and usefulness; while the Societies of Bengal and Madras were extending the bounds of oriental knowledge by the separate publication of their Transactions. At a general meeting of the Society, held on the 10th of February 1841, it was unanimously carried,—That a Quarterly Journal, in connection with this Society, on the plan of those published under the auspices of the Asiatic Society of Bengal, and the Madras Branch of the Royal Asiatic Society, be established, and that Mr. Orlebar, the Secretary, be requested to undertake the duty of Editor; and that the Society take upon itself the pecuniary responsibility for one year, and furnish a copy to each of its members in India.

In conformity with this resolution, the two first numbers of the present volume were published under Professor Orlebar's superintendence: but the state of his health obliging him to leave India for England, in May 1842, he was succeeded by the late lamented Secretary Dr. John Grant Malcolmson; who, with all the natural zeal and intelligence of his character, laboured unweariedly to elevate the character of the Society's Journal, to establish its museum, to arrange its library, and reconstruct its catalogue. Any lengthened eulogium on the character of this estimable individual would be here misplaced and is unnecessary: since the record of his merits, in reference to the Society, will be best seen in the Resolution it has adopted, "that with a view of perpetuating his memory, the Society do accord yearly a gold medal, to be designated, 'the Malcolmson Medal,' to the author of the best paper presented to the Society on the Natural History and Literature of India, points on which the late lamented Secretary evinced the deepest interest."

We are yet far from having exhausted subjects of oriental research in regard to India; and the more we extend our investi-

gation, into the languages, antiquities, and history of the neighbouring countries, we will find them replete with matter of curiosity and interest. The origin of a *Semitic* alphabet, kindred with the *Palmyrine* and *Sassanian* writing, and adapted to a language of the *Sanskrit* family, as seen on the Bactrian coins and the inscriptions from *Shah Baz Ghari*, in the Yeusaf Zai country, affords matter for much ingenious reflection and investigation: and the *Hamaiyarie* inscriptions, found in the Southern coast of Arabia, connected as they are with the history of the opposite coast of *Axum* and *Ethiopia*, are equally subjects of deep curiosity. Success has already, I hope, attended both investigations: and translations of the inscription lately sent from Aden, by Captain Haines, and of those obtained, from *Mareb* or *Saba*, by the late Dr. Mackell, will appear in an early number of the Journal: which, with the assistance of friends, and the encouragement of the Society, the Editor hopes he will be able to regularly publish quarterly.

*Bombay, 30th June, 1844.*

ART. I. — An Essay on the Vernacular Literature of the Marathas, by the Rev. Dr. Stevenson .....	1
— II. — Dr. Nicholson on the Island of Perim.....	10
— III. — Note on the discovery of Fossil Bones of Mammalia in Kattia- war, by Captain Fulljames .....	30
— IV. — Coutto's Decade VII.—Book III.—Chap. X. Of the famous Island of Salsette at Bassein, and of its won- derful Pagoda called Canari; and of the great labyrinth which this Island contains. Communicated by the Rev. W. K. Fletcher .....	34
— V. — Coutto's Decade VII.—Book II.—Chap. XI. Of the very remarkable and stupendous Pagoda of Elephanta. Communicated by the Rev. W. K. Fletcher.....	40
Meteorological Observations for 21st April, May, and June.	49, 50, 51

# JOURNAL

OF THE

## BOMBAY

### BRANCH ROYAL ASIATIC SOCIETY.

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JULY—1841.

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ART. I.—*An Essay on the Vernacular Literature of the Marathas, by the Reverend DR. STEVENSON.*

The Marathas have been long famed throughout India for their warlike prowess and martial deeds; and their history has been written not only by natives of the country, but has been deemed worthy of being transmitted to posterity in a distinct work in our own language. It has, however, I fear, been by all, except a few, generally supposed that they were destitute of any vernacular literature; in fact, that the nation which, issuing from the Deccan, rolled back the tide of Mahomedan conquest, gave laws to the Emperor of Delhi, and disputed the sovereignty of India with our countrymen, was little better than a horde of barbarians. The literature of the Marathas cannot indeed be compared with that of European nations, but they are by no means so far behind in literary matters as has often been supposed. The Brahminical portion of them can vie in their acquaintance with the common stores of Sanscrit literature with the Brahmins of most provinces in India: nor have there been wanting instances—as in the case of Sridhara, who wrote comments on the Bhagavat—of writers who have added their contributions to the general treasury. The Marathas have, besides, a literature of their own written in a dialect called the Pracrit. This Pracrit, as will fully appear from the specimens afterwards to be given, is nothing but the present spoken language in an antique dress, and without any of the modern additions to the language introduced by the Mahomedans. People, indeed, in familiar conversations, call all the spoken languages of India Pracrit; but this dialect, which was probably that used by their fathers three or

four centuries ago, is so named by way of eminence. The basis of the Pracrit, as of all the languages of Northern India, seems at first to be entirely Sanscrit; but I have given reasons elsewhere for believing, and hope soon to be able to prove by a fuller induction, that there is another aboriginal language of India, different from the Sanscrit, which has united with the language of the Brahmins in forming the different dialects now spoken in Hindustan, and in the island of Ceylon. However this may be, it is in this Pracrit that most of the literary works in repute among the Marathas are written. It is also in similar antiquated dialects of Hindavi, Telugu, Canadi, Tamil, Singhalese, &c., that literary works in other provinces of India are chiefly written, just as if modern English writers were to adopt the phraseology and style of Spencer and Chaucer. It is a singular fact also, and illustrative of a general principle developed in other parts of the world, that almost without exception all these Pracrit works are written in verse. Notwithstanding, however, this predilection for the antique, and love of poetic measures, the stirring events connected with the rise of the Maratha empire, and progress of the arms of their confederacy, excited men to write who could not be confined by such trammels. The soldier and the statesman in retirement committed their facts and observations to paper in the same style that they had been in the habit of rehearsing their own exploits, or those of their patron leader, to the select circle of friends; hence the origin of the historical treatises called Bokhars, written in the language at present spoken by the Marathas. The substance of these Bokhars having been extracted by Grant Duff in his history of the Marathas, and my partial acquaintance with them having led me to form the idea, that in a literary point of view they are of an inferior order, abounding in dry details, and making too free a use of Persian and Arabic words to serve as models of style, I shall not here notice them any farther. Most of them, I believe, have a place in the Mackenzie collection of manuscripts, and will supply materials for those who wish to make more extended and minute historical researches. It is to the Pracrit literature, then, that on the present occasion we will confine our attention; it is to this that we must mainly have recourse for the history of mind among the Marathas. This is the source also whence the present style of Maratha composition must be improved, and a purely Indian Maratha introduced without superfluous foreign additions.

It is a singular fact, that most of the authors among the Marathas who have written in the vernacular tongue have been Vaishnavas, and by far the greater proportion Bandho Vaishnavas. There is not a single Saiva author among them of any eminence ; and yet four-fifths of the Brahmins, and others who cultivate literature, are votaries of Siva. This does not arise from any inferiority of genius, but from contempt of the vernacular languages in the Saivas, and, like the schoolmen of the middle ages in Europe, their esteeming no modern dialect either worthy or capable of conveying to posterity the truths of religion and philosophy. The liberal feeling of the Bandho Vaishnavas, on the contrary, has excited them to make an effort to communicate their ideas to the people in a language intelligible to all, and to break down the barriers which for ages had debarred the populace from all access to any more knowledge than a man's particular spiritual guide could or would communicate. They accordingly are the fathers of Maratha literature ; and the most distinguished literary characters that have appeared in Maharashtra have belonged to their sect.

The oldest Pracrit writer, whose name and writings have come down to posterity, is Nama ; usually called Nam Deva. He is said to have been a foundling, and to have been brought up in the family of a tailor, whose profession he followed in after life. Nama, as we have already seen, was one of the first disciples of Pundalika,\* who established an ecclesiastic Hinduism at Pandharpur about the beginning of the 14th century of our era. His writings consist of moral and religious precepts delivered in metrical poems called Abhanyas.

The Abhany is a trochaic ode, the verses of which consist of four, three, or two feet ; every two lines rhyming with one another, and consisting generally of from four to thirty lines. This kind of verse is regulated by the accent of the words, as in English and other European languages, and not by the length of the syllables, as in Sanscrit, Greek, and Latin.

Nama carried out his theories into practice so far as to have his household instructed in those branches of knowledge with which he himself was acquainted. One of his female slaves, Zana Bai, became herself an authoress, and some of her Abhanyas have been handed down to posterity. Although but a slave girl, she was a virtuous

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\* Pundalika is probably a name of Vishnu adopted by that half Brahmijical, half Buddhist sage. It is probably the same word as Pundarekaby, under which name also he is occasionally mentioned, and which is undoubtedly a name of Vishnu.



woman, nor do even the Saiva Brahmins accuse her of the want of any of the proprieties of her sex, although put in possession of an instrument they profess to deem dangerous in the hands of a female.

The example of Zana Bai was followed by Mukta-bai, the sister of Dnanoba, of whom more particular mention will afterwards be made. Some of her Abhanys also are preserved. The following, an ode displaying no mean talent and acuteness, is a favourable specimen of her style of composition. In reading it, it is to be kept in mind that its end is to show the superiority of divine knowledge to ritual observances :—

१ शिवानी गायत्री विष्णुनी संध्य ब्रम्हीयासीं विद्या पाठ केली

२ स्नान संध्यानेम साही शास्त्रें पुराणें ब्रम्हीयासीं विद्यादान  
संकल्पिलें

३ जपतप विद्या मार्ग सांगाव्याकारणें याग आणि यज्ञ  
संकल्पिलें

४ माझीया प्रेमाचेंस्वयेंची सोवळें सर्व भूर्तीं केलीं पुज्य हो

५ सकल तिर्थांचा ब्रम्हा आधिकारी पुज्यल्याविण शरीरीं  
शुध नव्हें

६ जाणोनी जाणीव ठेवियेले वर्म मग कर्म सांगितलें

७ आधी मुंज्य बंधन विष्णूने ब्रम्हीयासीं मग तीन्ही कर्में  
त्यासीं बांधियेलीं

८ म्हणे मुक्तबाई जाणोनी जाणावें वर्म मग तें नाव कर्म कोण

“ Siva taught Brahma the Gayatri, and Vishnu taught him the daily prayers. They then instructed Brahma in the ceremonial of bathing, with the accompanying prayers ; and also in the six shastras, and puranas. For making him an adept in the performance of austerities and all ritual observances, they also initiated him into the way of performing the different kinds of sacrifice. But if divine love dwell in my breast, I am necessarily pure, and all creation subject to me. And how should my body be free from ceremonial defilement, unless I reverence Brahma, who is lord of all the holy places? To know what may be known was laid down as the thing essential ;

“ afterwards works were enjoined. First Vishnu initiated Brahma into science, and then imposed on him the three kinds of ceremonial works. To know what may be known is the essential thing. What means then that term works ?”

Thus inquires Mukta-bai Dnanoba, one of the most celebrated Pracrit writers, who was a fellow disciple with Nama of Pundalika. His father was by birth a Brahmin, but soon after his marriage, before he had any family, became a Sanyasi, and bid adieu to the world. The head Sanyasi of the establishment at Benares, whither he had gone, shortly after, in his way to visit the holy places in the south, stopped at Alandi near *Punah*, the residence of the young Sanyasi's wife, whom he saw performing her worship with great intensity of mind. Without knowing her, or the state in which she was left, he gave her a blessing, promising her four children. An explanation ensued, the result of which was, that the old Sanyasi started immediately for Benares, and sent back his brother to his wife. The Brahmins would however neither receive him nor his children into caste, till Dnanoba and his brothers had convinced all the learned men at Paithan that he and his brothers were under the special protection of the deity. Dnanoba composed not only Abhanys, but a commentary also on the Bhagavat-Gita for the sake of those who did not understand the Sanscrit ; a work in great repute among the Marathas, but now in some places as difficult to understand as the original. He and his two brothers Sopaudeva and Nivrittee were reckoned incarnations of Vishnu, Brahma, and Siva ; and their sister the incarnation of Brahma.

All of them were authors, but Dnanoba by his superior glory has obscured the splendour of all the rest. The date of the Commentary on the Gita mentioned above is Salivahana Salea 1212. A. D. 1290. If then we allow fifteen years to have elapsed since the introduction of the Eclectic system of Pandharpur,—only a reasonable time to permit matters to proceed so far as to give birth to such a work,—the rise of the Bandho Vaishnavas may be dated a quarter of a century earlier than we ventured to do in a former paper, and so we may assign their origin to the last quarter of the thirteenth, instead of the beginning of the fourteenth century of our era. The above mentioned date I have ascertained from two or three different manuscripts, all of which agree ; and as it comes so near my former computation from the genealogy of Sridhar's family, con-

tained in another work, I think considerable confidence may be placed on it.\*

From this time onward, such moral odes as we have already described seem to have been produced by several authors, some of whose names have been handed down to posterity. One of them, Atmanayaka, a collection of whose Abhanyas I have seen, was a Mahar,—a class of people, who, though not properly outcastes, are not permitted to have any communication even with the lowest caste into which regular Hindus are divided, and are either the descendants of the aboriginal inhabitants who were not received into the Hindu association, or of persons who, at some later period, had been expelled from society.

Some time, also, after Dnanoba, another famous writer, called Eknath, flourished. I have not seen any of his larger works, and cannot determine more nearly the particular time at which he lived. His most celebrated work is a translation of a portion of the Bhagavat. He was a Bandho Vishnava, and got into difficulties with the Brahmins about his caste, on account of the attention he paid to a religious Mahar in supplying him with food as he passed his house on a journey. He wrote also Abhanyas, some of which reflect very severely on idolatry; and remind the scripture reader of some passages of the old Testament; and the classical student of Horace's delicate satire on Priapus. Some of his lines on the subject were quoted in a former paper. His preceptor, Janardan, was also an author; but of his writings few have come down to posterity.

Sridhar, a learned Brahmin who commented on the Bhagavat, and of the same religious profession, is the next author of eminence that appeared among the Marathas. His most famous works were a life of the Pandavas; a life of Ram; and a life of Krishna; called respectively the Pandava-pratapt, the Ramvijaya, and the Harivijaya. The last mentioned work was finished Sal. Shaka 1493; so that the author must have flourished rather after the middle of the fifteenth century of our era. If Sridhar had any higher object than mere literary fame, he probably intended to propagate the tenets of his sect, and the name of Pandurang, by associating them with the popular legends current among the Hindus. The following description of the

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\* The author of the *Bakti Vijaya*, a historical record of the sages formerly mentioned, makes Nama Dnanoba and Kabir cotemporaries; but no dependance can be placed on what he delivers in regard to the date of events that happened long previous to his own time, and the genealogy above referred to, which he has preserved, is a much more certain guide.

God Siva was no doubt intended to throw covert ridicule on him and his worship. It is introduced as spoken by the mothers of Krishna to frighten the infant deity into propriety while puling, because she would not fetch down the moon to him for a plaything. It is as follows :—

पुढति लोलणी घाली घननिल माता म्हणे आलारे बागुल  
 महा भयासुर विकराळ पांच तोंडें त्यासीं  
 त्याचे माथां जटाचे भार तृतीय नयनी वैज्ञानर  
 शिरीं झुळ झुळ वाहे नीर भयंकर महा योगी  
 चंद्रकळा तयाचे शिरीं निळकंट कडांग करीं  
 भस्म चर्चिलें शरीरीं गजचर्म पांघुरला  
 नेसलासे व्याघ्रांबर गळा मनुष्य रुंडाचे हार  
 सर्वांगी वेष्टिले फणीवर दशा भुजा मिरवती  
 त्यासी देखताचि छलिजे कां तूं उठोन पळिजे  
 कृष्णा तूं उगलाचि निजे योगी बाहेर उभा आहे  
 योगी तो काळाचाहि काळ क्रोधी जैसा वडवानळ  
 मुष्टी तिन्हेंब्रम्हाडें सकळ धरूनीया रगडिपै

“ After this Krishna lay rolling on the floor. His mother then called out—Holloa ! what a terrible mis-shapen fright is that standing at the door ; the monster has got five heads, and a long pigtail hanging down his back ; he has got a third eye, which sends forth flames, and there is a continual dripping of water from his head. A fearful ascetic I declare ! The moon is glaring on his forehead, and he has a blue throat ; he has parched grain in his hand, and his body all covered with ashes ; he has an elephant’s skin for a mantle, and a tiger’s hide wrapped round his loins. The very sight of him is tormenting ! Up Krishna, flee in silence and hide yourself ! The yogi is standing outside red with rage as fire, a very devil of devils ; he seems as if he would cram all the three worlds into his fist, and make off with them !”

The metre of the above specimen is that in which most of Sridhar’s works are composed, and is called the Vovi. It is a loose Trochaic, arranged in stanzas of four lines ; of which the three first rhyme with one another, while the fourth does not. Each line has four feet, but the inherent short vowel of the different letters is expressed, or suppressed, just as the verse requires.

The next Pracrit writer of eminence is Tuka Ram ; the contemporary of the great Sivaji, and the Kaber of the Marathas. Tuka spares neither Brahmin nor Gosain, but lashes all with his unsparing ridicule. The influence of his works among the middle classes of the community is greater than that of all the Shastras and Purans put together, and his writings have been mainly instrumental in preserving among the Marathas some rational motives on the subject of religion and morality, notwithstanding all the attempts of bigotted Brahmins to render them the passive slaves of an inane and seductive ceremonial. He, however, was the last writer of Abhanys in ridicule of superstition. The Saiva Brahmins under the Peshvas soon monopolized all power and influence, and it did not suit their policy to unsettle people's minds in reference to subjects on a belief in which so many of their caste depended for a livelihood, and therefore future authors were obliged to pursue a different course. The original of the lines in ridicule of the Gosains, a paraphrase of which was formerly given, is as follows :—

आम्ही गोसावी जालों भाई आम्ही टाकिली सर्व काई  
पाटिल हो मठी बांधून द्यावी भांग तमाखु पुरवावी  
आमची भुंगुत चालवावी येकसीषिन सेवेसी द्यावी  
तुका म्हणे ऐसें जोग जैसें सिमग्याचें सोंग

“ Brother—we have become a Gosain and abandoned everything,  
Patel—build us here a Chapel, bring plenty of bang and tobacco,  
Provide daily food for me, and send a sister to serve me.  
Tuka said, that such devotion resembled the mask worn at the Saturnalia.”

The justice of these lines will appear evident to every one who remembers that at Puna there is a suburb containing many splendid temples and commodious mansions, all built by the Gosains from the profit of their merchandise ; and that it is inhabited by families of their profession, whose only mark of ascetism is the yellow colour of their garments.

Ramdas, the spiritual guide of Sivaji, may be mentioned, also, as a Pracrit author : he composed a dialogue on the Hindu religion, called Das-Bodh, for the instruction of his illustrious pupil. He was born S. Shaka 1530, and died 1603, or A. D. 1681.

Vaman, a writer also belonging to the same era, possesses a good deal of fame as a Pracrit writer : he translated a part of the Bhagavat, and composed other treatises illustrative of the Hindu religion. He

wrote in the Sama Shoka, a sloka constructed according to the common rules applicable to Sanscrit compositions, and also having the two, three, or four last syllables of one line rhyming with an equal number of the preceding.

After Vaman comes Moro-Pant, the most popular of all the Pracrit writers with the Brahmins. Though a Vishnava, he was a Bhagavat, or liberal Vishnava, and wrote poems in honour of other gods, as well as of Vishnu. His verses are generally written in the Arya measure, in which the time of every line is the same ; counting a long syllable two times, and a short syllable one. His works are very voluminous : he wrote in imitation of the Ramayana and Bharata, as well as on miscellaneous subjects. It is said that he was first a clerk, and sat up a whole night to find out an error of two annas (three-pence) which had taken place in the annual accounts of his employer : his master or his wife—for here accounts differ—represented to him, that if a similar intensity of mind were directed towards divine things, he would rise to the highest rank in a future world. From that day he abandoned the world, and devoted himself to religion ; but instead of idling away his time like most who adopt the Vairagya, he employed himself in composing the above mentioned works.

Amrit Rao was a contemporary of Moro-Pant's. Both flourished in the reign of Bolaji Visvanath, usually called Nana Saheb, who founded the Peshva dynasty at Puna in the beginning of the eighteenth century of our era (A. D. 1712). He wrote in what are called Padas, long lines of about 60 syllables, but as I have not seen any of his works, I cannot give any particular description of them.

The same remark is applicable to the works of Ram Joshi of Solapur, who flourished in the reign of the first Baji Rao, a generation later than the preceding author ; and to those of Anand Phandi, who wrote songs and hymns in praise of the second Baji Rao and Bapu Gokla, in the beginning of the present century. There are several other names of considerable note among the Marathas, as Raghunath Pandit, Sadasiva Mamkesvar ; and some poets are alive even at the present time, though none of equal fame with those we have mentioned. Relative to all of these our limits will not permit me to be more particular. The Bhakta Vijaya by Makunda Rao we formerly noticed.

The songs composed in praise of modern heroes, and of the fair sex, I am told, would form a large collection if brought all together,

and vie in the figure hyperbole with similar compositions in any other nation. One which I accidentally saw demonstrated to the satisfaction of the author and his admirers, that nothing could stand before woman ; and that not only had great and learned men fallen before her, but even Gods and Rishis. Such compositions are called *Lavanya*, and form, with other things, an important index to the national mind. All the descriptions given by Ward and other Christian writers of the licentiousness of many Hindu customs and religious rites are flattery compared with the exposures made by these unblushing native painters, who boldly approach subjects and ideas from which the mind of a European instinctively turns away, and which, indeed, could not be expressed in our language. I am fully aware of the imperfection of this sketch of *Pracrit* literature. If, however, I should be instrumental in paving the way to future inquirers, my great end will have been gained. I should wish to see the attention of learned natives directed to a selection of some of the best of the pieces abovementioned, for the purpose of having two or three volumes accurately printed, with an index of difficult words for the sake of beginners. The study of these authors would improve the style of *Maratha* composition, which is in danger at present, from an almost exclusive attention to foreign literature. To a learned native the English is needful to open up to him a storehouse of ideas ; but the *Pracrit* must be studied in order that he may be able to diffuse beneficially among his countrymen the knowledge he has acquired.

## II.—*Dr. Nicholson on the Island of Perim.*

Dr. Nicholson, Civil Surgeon at Surat, having permitted the following valuable paper on the Island of Perim to be published in the *Journal of the Bombay Branch of the Royal Asiatic Society*, it will be useful to insert all the information yet before the public on this most interesting subject. This information is as yet very scanty, but when it is known that it is so, there is no reason to fear that this rich field of research will be much longer neglected. The interest excited in all parts of the civilized world by the recent discoveries in the fossil remains of the Sub-Himalayan regions, give an additional importance to the history of those found in our own neighbourhood, and a strong inducement to spare no pains to identify and describe the fossils, and to compare them with those illustrated in so admirable a

manner by Dr. Falconer and Captain Cautly, and Lieuts. Baker and Durand in Bengal, and by Dr. Buckland and Mr. Clift in England.

In anticipation of the importance to Science which these remains are likely to attain when better known, it may be worth while to mention the dates of the various communications on this subject that have appeared. The first discovery of fossil bones in North Western India was made by Dr. C. Lush, of the Bombay Army, and is noticed in a paper entitled "Geological Notes on the Northern Conkan and a small portion of Guzerat and Kattywar," published in the Journal of the Asiatic Society of Bengal, No. 60, December 1836. This paper was received by the Bombay Medical and Physical Society in May of the same year, and was communicated to the Calcutta Journal on the 17th August following, in a letter from Dr. Morehead, the Secretary, to Mr. James Prinsep, the conclusion of which is as follows:—"I am further directed by the Committee to request, that in the event of Dr. Lush's paper not being adapted for the pages of your Journal, you will be kind enough to return it to me, that the Committee may adopt other measures for giving publicity to the interesting facts which it contains, and the merit of the discovery of which rests solely with Dr. Lush." The part of Dr. Lush's paper in which he announced this discovery, together with Baron Hugel's note (who, it will be observed, did not visit the Island,) and Mr. Fulljames' interesting paper, both published in the Journal of the Asiatic Society of Bengal for June 1836, constitute the whole of the information we possess on Perim. Baron Hugel also forwarded a communication (now first published) to the Secretary to the Bombay Asiatic Society in June 1836, together with a collection of specimens. The specimens are not of great value, but the collection will soon be increased by other contributions. Valuable collections have already been presented to the Calcutta Museum, and sent to Europe, by Baron Hugel, Mr. Fulljames, and others, and a few are in possession of the Geographical Society and of private individuals here.

JOHN G. MALCOLMSON.

*Extract from Dr. Lush's paper on the Geology of the Northern Conkan.—Journal of the Asiatic Society of Bengal, December, 1836, pages 768, 769.*

"The next point at which I found conglomerate rock was at Gogo in Kattywar, where masses of rock containing shells are dug out from



the beach, the upper portions having been carried away by the encroachments of the sea. This information will, I hope, be soon traced up by the South Eastern to the Western coast of Kattywar. I before observed that the rocks at Baunagar are trap. Now these conglomerates appear to contain fragments of a great variety of mountain rocks, always excepting trap. This circumstance affords suspicion that the trap was thrown up subsequently to the deposit of the conglomerates. I say merely suspicion, as I know of no evidence of upheaving, nor the nature of the strata at the points of junction. Those between Gogo and Baunagar are either obliterated by extensive degradation, or concealed by deposits of mud.

“The island of Perim, in the Gulf of Cambay, afforded me a better opportunity of examining the conglomerate than the denuded beach of Gogo.

“Perim is about three miles in circumference. About half the island, proceeding round the Western side towards the Southernmost point, consists of strata of conglomerate rock, much acted upon, but forming cliffs in several parts to a height of about 30 feet above the sea, the upper strata being of compact sandstone,—all perfectly horizontal. The conglomerate contains shells and other fossils, some undoubted bones, &c., which have been forwarded for identification to Calcutta.

“Fine sand, partly from the decomposition of these rocks, but chiefly, perhaps, thrown up by the tides from the opposite coast, appears to have been blown by the South-west monsoon so as to form dunes of very singular aspect, mostly rounded at the top. In one place a sand-hill has a quadrangular platform-like summit. These sand-mounts seem to have formed a barrier to the farther encroachments of the sea. There is a valley to the Eastern side of the island, partly in turf, and some part cultivated open to the sea, where one may walk with a firm footing, while the sandy dunes of the higher level give way in every direction.”

“Proceeding from the south point towards the Eastward (the open valley), layers of Kankar are met with below the sandstone: beyond this is a low cliff of sand,—the valley completing the circuit.

“In the hope that some of our members stationed in Guzerat will carry on the investigation of the fossils, not only of Perim, but of other parts of the formation in Kattywar, I have hastened to lay before them this imperfect sketch, without waiting for a report on the

nature of the fossils found, or presuming myself to offer any opinion, or to draw a conclusion on that part of the subject."

*"Discovery of Fossil Bones in Perim Island in the Cambay Gulph."*  
(Reprinted from the *Journal of the Calcutta Asiatic Society*, May 1836.)

"The following notice of the interesting discovery of this new deposit of fossil bones has been obligingly communicated to me in a letter from the Baron Hugel, dated at Bombay, the 17th April. Although its publication anticipates the arrival of the specimens themselves, it would be an injustice to Science and to Dr. Lush to delay for a moment so important an announcement. The acknowledgements of the Society are due, both to the discoverer, and to the Baron Hugel, for the preference given to our museum for their preservation. I hope the circumstance may lead to fresh exertions in the valley of the Nurbudda, where doubtless much still remains to be explored.—  
J. PRINSEP, *Secretary*.

"You will receive shortly a few fossil bones from Perim Island in the Cambay Gulph. Dr. Lush has the merit to have found them, but without exploring them at all. I had no time to go over from Surat where Dr. Lush showed me them. I requested him to send them to you through Mr. Wathen. One is an imperfect bone of a mastodon or elephant, another the head of a boar unknown, and one belonging, I think, to a '*Rongeur*'; but what induces me particularly to wish them at Calcutta, is, that there is a horn in its matrix, which, connected as these fossils must necessarily be with those of the Nurbudda, might belong to that species of *Bos* mentioned in your *Journal*: it is decidedly not of a Buffalo. I was so anxious to reach Bombay that I could not possibly go to Perim myself. I did however manage to send a boat over, and I received yesterday 41 pieces of fossil bones: the greater part belonging to the *Mastodon latidens*, of which the teeth in a perfect state did not leave any doubt; some of the bones are of an immense size, one fractured piece of the tusk measuring from the centre to the outside of the circle  $5\frac{1}{2}$ , which gives  $10\frac{1}{2}$  inches diameter, or 34 inches in circumference: some of them are in the same hard matrix you will see imbedding the horn; some evidently rolled by the sea. There are some curious teeth among the fragments I possess, and two triangular shaped pieces similar to the horn of a rhinoceros: the teeth are however too large to belong to

that animal ; I may perhaps send the most curious specimens round to you ; but I am at this moment too much pleased with my discovery to part with them. It appears that the island abounds with fossils, and it is a clear proof either that the Nurbudda must have found only lately its way to the Cambay Gulph, or that some other revolution must have separated that little Island from Kattywar. Having no opportunity to leave this for either Persia or the Cape, I may still perhaps be able to go to Perim and Gogo, to trace the fossils on the main land of the Peninsula." "HUGEL."

"Since the above was set in type, and just before striking off the sheet, I have been favoured with the subjoined information from a new correspondent, Lieut. Fulljames, which I hasten to make known through this Journal, while I venture to assure him of the thanks of the Society for his projected exertions to enrich its Museum. Who will not become an enthusiast amid such discoveries ? It is but four years since the existence of strata containing fossil bones was denied in India, or at least supposed to be confined to Assam and Ava. We are proud to think that this Journal has been in some measure the humble means of stimulating the search which has been thus crowned with success in so many quarters.—ED.

"On my arrival in this part of the country in the month of April, I heard a report that some bones turned into stones, as the natives called them, had been discovered on the Island of Perim in the Gulph of Cambay, and in latitude  $21^{\circ} 39'$ .

"I lost no time in going there to see if the report of fossil remains was correct, and although I do not pretend to be a geologist or know much about fossil osteology, still I consider my labours most amply repaid, by my first visit to the Island, for I obtained a most perfect specimen of the teeth of the mastodon ; one also that I think belongs to the palaeotherium ; and the femur, vertebræ and many other bones belonging to mammiferous animals now extinct.

"Being well aware from the perusal of your scientific Journal, how highly, and I might say justly, remains of this sort are prized, I shall take the liberty of forwarding to the Society for their acceptance a box containing specimens of these fossil remains.

"The formation in which they were discovered is a tertiary conglomerate, composed of nodules of sand-stone, indurated clay and a small proportion of silex cemented together by a yellow clay ; most of the fossil remains have been exposed to view, by the sea having washed

off the upper part of the matrix, but still they are firmly attached to the rock, and the only way they were to be obtained, without breaking, was by stone-cutters carefully working all round them ; large quantities of petrified wood were lying about in every direction.

“ The following is a list of the strata as they appeared to me, commencing from the surface, viz.

1st.—Loose sand and earth.

2nd.—Conglomerate, composed of sandstone, clay and silex.

3rd.—Yellow and whitish clay, with nodules of sandstone.

4th.—Conglomerate as before.

5th.—Siliceous sandstone with a few fossils. (Calcareous—Ed.)

6th.—Conglomerate.

7th.—Indurated clay more or less compact.

8th.—Conglomerate, in which the best, and I may say, nearly the whole of the fossil remains have been discovered.

“ The deepest strata of conglomerate are about 3 feet, but they generally do not run more than 18 inches to 2 feet, and for the most part lie horizontal. On the Western side of the island however, the strata are much disturbed, being fractured, and dipping at an acute angle to the East ; on the Southern end of the island sandstone appears below the fossil stratum of conglomerate, dipping to the North at an angle of 25 degrees.

“ There is a tradition among the inhabitants of Gogo, that the island of Perim was formerly joined to the main land by means of a stone bridge, which has, in the course of time, been destroyed ; remains of some buildings are still to be seen, running into the sea in the shape of piers, &c. It must have been a very stupendous undertaking, for there is a channel now between the land and the island, of the depth of 75 fathoms and nearly 500 yards in width.\*

“ On the island there are the remains of a considerable fort, and buildings of Hindoo architecture, for I observed in an old temple that had tumbled down, the broken figure of Budha rudely sculptured in a sitting posture ; also the remains of a large tank, wall and *bauli*. Among the other curiosities of the island are two elephants cut out in the rock ; they are covered now by the sea except at very low water ; one is finished, and I should say, measured about 10 feet long by 8 or 9 feet high. Capital fresh water is procurable on the island, 20 feet below the surface ; it is found below the stratum of sandstone.

\* See Extract from Mr. Lumsden's letter, page 25.

“ I will here enumerate the varieties of specimens of fossil remains, which I think have been found :—Teeth of mammoth ; ditto mastodon, palæotherium, hippopotamus or rhinoceros, and a number of other smaller animals. The head of some large saurian animal ; part of a tortoise ; ditto of elephant’s tusks. Femurs ; vertebæ ; and other large bones ; one shell in siliceous sandstone, and the half of a deer’s foot. With this vast variety before me, it requires a person much better qualified than myself in the art to say to what particular animals the different specimens belong, and I therefore forward them with the hopes of hearing the opinion of the scientific in Calcutta.

“ It has occurred to me, on reading over the Journal for August 1834, that the conglomerate in which the fossil remains in the valley of the Nurbudda have been discovered, is very nearly similar to that in which the Perim fossils are found ; and if my conjectures are correct, we shall be able to trace the formation along the whole line of the Nurbudda valley, and the greater part of the Kattywar coast. Should such be the case, and I have but little doubt in my own mind that it will be so, what a vast field has thus been thrown open for discovery and research ; I still hope to see my conjectures fulfilled with regard to finding Coal in the Rajpipla or Kattywar ranges of hills before the lapse of many years.

“ Not wishing to take the credit to myself of having been the first person to discover these remains, I should mention that I believe Dr. Lush was the first ; he having, I understand, found a tusk of some animal on the Island.

“ During a second visit to the Island, I was accompanied by three other gentlemen, who have most kindly given me permission to forward any part of the specimens so obtained, that I think may be acceptable.

“ Doubtless on further research and on breaking up the stratum, more perfect specimens of bones will be discovered ; for I must mention that all those sent were covered at high water, the highest point of the island not being above 60 feet higher than high water mark : the length of the island is about  $1\frac{1}{2}$  miles to 2 miles, and in breadth  $\frac{1}{2}$  to  $\frac{3}{4}$  mile ; large sand hills are formed on the South-west side, and it is inhabited by about 12 houses of coolies, who cultivate bajri there during the monsoon. A light-house has been established there for some years, and kept up by the Government, of which a serang and five lascars have charge ; the expenses are defrayed by levying a duty on all boats passing.

“ Should I be able to make any further discoveries, either in fossil remains or as to the formation of the Kattywar hills, I shall trouble you with a further communication ; that is to say, should you consider the present worthy of occupying any part of the pages of your interesting Journal.

“ GEORGE FULLJAMES.”

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*Extract from a letter from Baron Hugel, to the Secretary to the Bombay Asiatic Society, dated 5th June 1836.*

“ I received the other day from Mr. Williams, Political Commissioner for Guzerat, a collection of fossil bones from Perim Island, from which place I requested his having the kindness to procure me some, as I was at Surat with him, when Dr. Lush brought from thence a few specimens of petrified bones. The collection he sent me consisted of 44 pieces, and as I think that the Asiatic Society at Bombay would not object to give a little place to some of them, as the highly interesting fact of the mass of fossil remains in that little Island is worth a closer investigation, I take the liberty of sending 25 pieces to you. I think that when placed in the rooms they will most likely induce travellers in that direction to collect more of them. I have numbered them and made a little description of them, which is however a very superficial one :—the immense quantities of fossil remains found lately in different places in India would make it very desirable that a gentleman at Bombay would take up this highly interesting study ; many extinct and entirely new genera of quadrupeds have been discovered, some of which have not even left a representative existing in the world in a living state. I am confident that great discoveries could be made at Perim, which, as a little Island (*now*), offers a highly interesting fact in the possession of these fossils : I anticipate that they will be found in Kattywar too, and the Island may have been formed either by an earthquake or by a separation from the main land through a rush of water.

“ I am sorry that my time then did not allow me to inspect the Island myself, and I regret that even now I am obliged to break off without being able to enter more fully on the subject.

“ Believe me, my dear Sir, with my best wishes for your health and happiness in this part of the world,

“ Yours very truly,

“ HUGEL.”

5th June 1836.

*List of Fossil bones from Perim Island in the Gulph of Cambay :*

1, 2, 3, 4 and 5, Pieces of the Tusks of Mastodon (*Gigas Elephas lati-dens*) : having found too the teeth of the animal on the same spot, there can be no doubt of the animal. Those pieces must have been a long time exposed to the tide and ebb, as they are partly perforated by a kind of serpula.

6.—Bone of the foreleg (the lower joint) of Mastodon gigas.

7.—Fragment of the bone of the leg of the same animal.

8.—Fragment of the shoulder blade bone of the same.

9.—Vertebræ of ditto ? (N. B. at all events of a smaller individual.)

10.—Fragments of the skull of the same.

11-14.—Shapeless fragments.

15.—A very singular formed fragment like petrified wood.

16.—Shapeless bone with a singular shining substance on it : in the matrix is contained a black substance like Umbra.

17.—Here a fragment of a petrified tusk is a second time petrified : the calcareous fossil is surrounded by a hard sandstone.

18 } Most likely fragments of bones of Mastodon, the matrix  
19 } singularly marked and perforated by the above mentioned  
20 } serpula.

21 }  
22 } Pieces of a large ruminant. I think the bones easily referred  
23 } to this genus through comparative anatomy (Bos, I think).  
24 }

25.—Pieces of the horn of a stag (*Cervus*).

My own collection contains fragments of Rhinoceros, and larger fragments of Stag (*Cervus*), and of the horn bone of Bos.

This gives till now only four kinds of animals : two Ruminants and two Pachydarmita. One jaw with teeth in my possession is new to me."

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*A Description of the Island of Perim,*

*With a few Remarks on its Geological Formation. By Dr.*

*Nicholson, Bombay Establishment.*

This Island lies at the Western side of the Gulph of Cambay, at the distance of about  $2\frac{1}{2}$  miles from the coast of Kattywar, in 21-35 of North Latitude, and 72-26 of East Longitude. It extends in length from North-West to South-East about one mile and a half, and the greatest breadth is short of a quarter of a mile.

The greatest part of it is covered with hillocks of sand, as will be seen by a reference to the plan of its surface (No. 1) ; leaving in the centre and extending to the Eastern side, only a few acres of light cultivable soil, consisting of a mixture of vegetable earth and sea sand ; and I think there is little doubt, but this patch of soil on which the natives grow a little Badjree during the monsoon, in the course of a few years more will be entirely overwhelmed in the continually encroaching sea of sand.

The sand hills are from 10 to 50 feet in height (forming a sort of amphitheatre inclosing on all sides but the East the few acres of cultivated lands) ; they are blown up in long undulated ridges in a direction from West to East, and in consequence of owing their elevation to the prevalence of strong Westerly winds, they are steeper at the Eastern extremity than to windward :—the ridges are separated by little windroads or valleys, sometimes reaching right through the sand ; but in general sloping up gradually towards the East, and, like the hillocks, terminate abruptly.

The tops of the hills are covered with the species of *asclepias* common to sand tracts in other parts of India, which, together with a few neem trees, whose flattened tops serve the natives as store houses for their straw, one or two goond trees and some bear bushes, and a group of mangroves on the Eastern shore, compose the list of Perim's trees.

Pea-fowl wander among the hills, living chiefly on the berries of the *asclepias* ; there are also some bastard florikan, with the common shore birds.

On the Western side of the Island stands the light house, from the top of which the plans accompanying these notes were taken ; at the foot is a small Bungalow for the accommodation of visitors : both are situated on the South-West corner of a ruined fort, the remains of which extend right across the Island ; in the middle of this, on a sand hill, stands the village of Perim, consisting of about a dozen huts, built on the edge of a large square built tank, now nearly filled up with drifted sand. The Fort (of which the West face and gateway to the height of several feet are still standing, and the ruins on the East side are quite discernible) has had the largest half of its space from the West side buried deep in the sand hills. That there must have been some accumulation of sand on the Western side at the time this Fort was erected is quite evident, as, for the purpose of strengthening the walls, stone slabs set on edge and ten or twelve feet long, are in-



serted, at every five or six feet, into the wall at one end, while the other is buried in the sand ridge inside. The places where these stones have been cut out are visible all over the shore, and the stones consist of the conglomerate or breccia containing the fossil remains found here : there are also two monolith elephants (one of them in ruins, the other standing) on the beach, cut out of a stratum of the same breccia, which were probably meant to ornament the gateway of the fort ; at least the natives have a tradition attributing these as well as the other works of former days on the Island to a common origin. They say that Makra Goil, a giant of the Kattywar tribe, or family of Goil, fled hither on some disturbance taking place in that country, towards the end of the thirteenth century, that he erected the Fort just mentioned, and was afterwards slain by Tohruck Shah, king of Delhi, and was canonized by his countrymen ;\* who, in order to prove that he really was a giant, point out his Tomb at Gogo above 17 feet long, in the form of a common Mussulman grave ; but unfortunately for the credit of their tale they forgot that the giant would in all probability be a little more corpulent than an ordinary sized man, for which only they allowed in the breadth of the tomb.

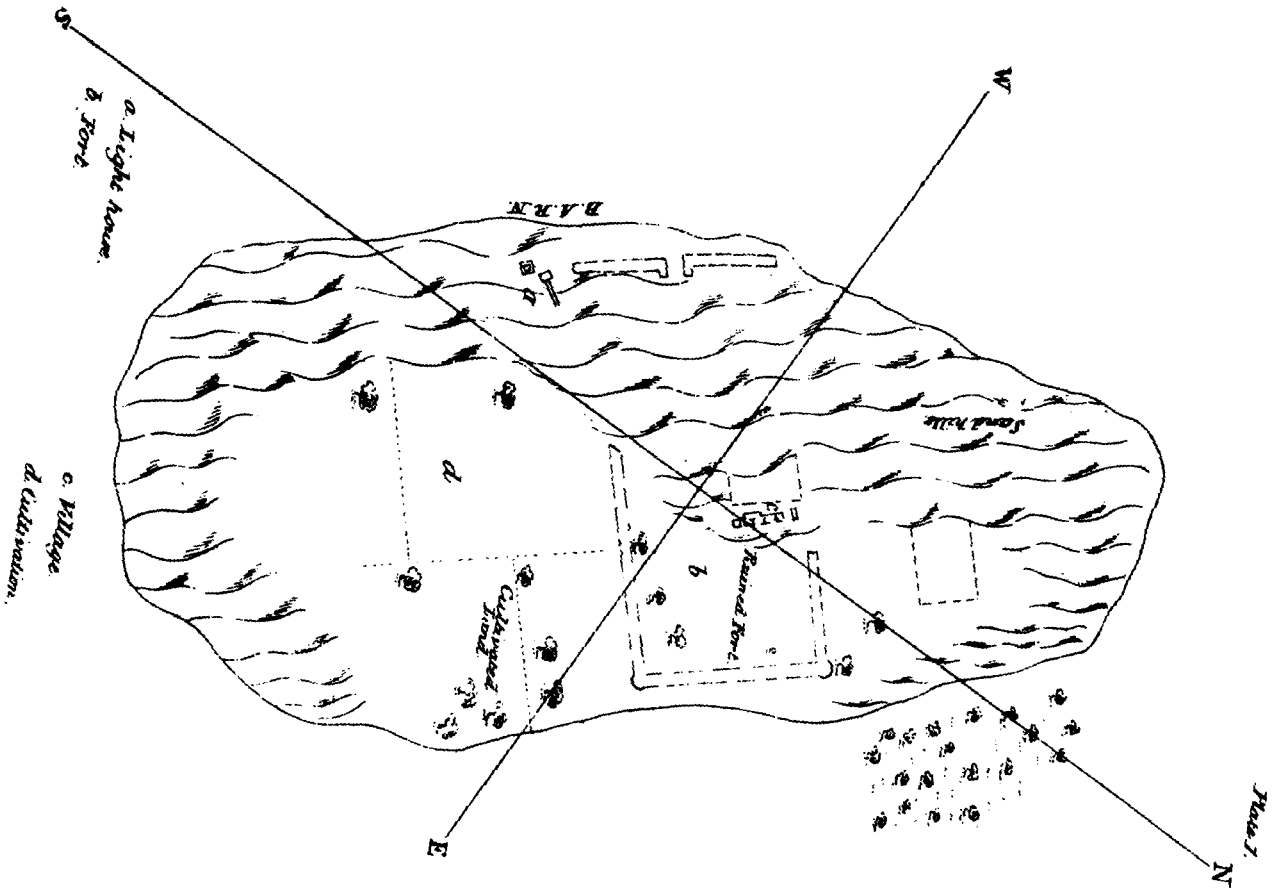
From the light house, Luckagam Lohara, on the point of the North bank of the Nurbudda, bears E. N. E. distant about fourteen miles.

Gogo in Kuttiawar N. W. by N., distant about 8 miles.

The South Western point of Kuttiawar S. W. by S.

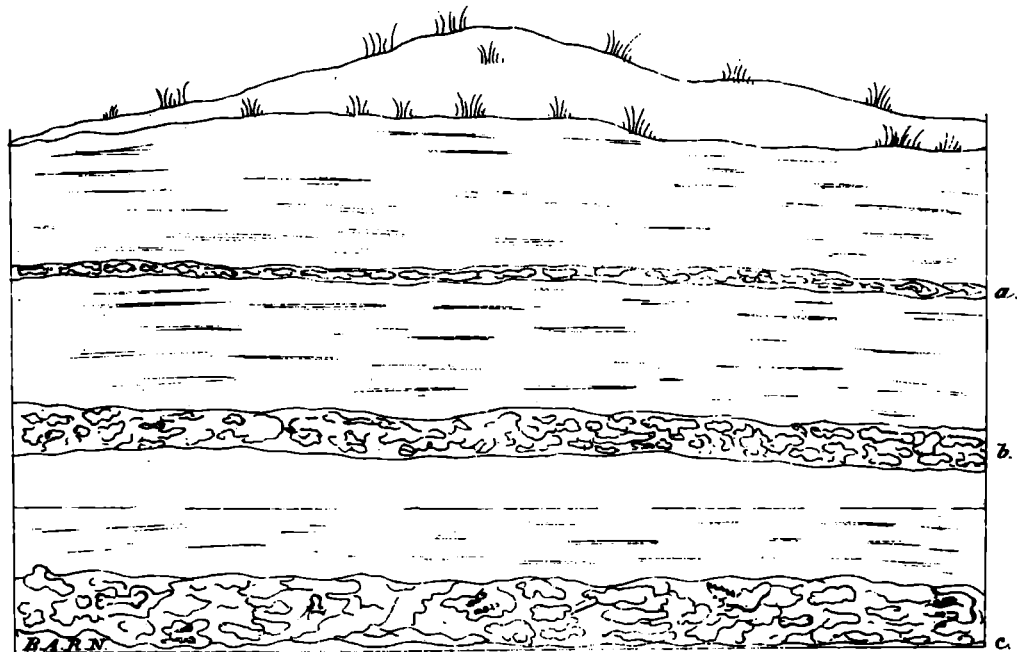
This Island consists of alternate strata of recent sand-stone and conglomerate or breccia, as shewn at the Southern extremity of it, which ends in a cliff made by the action of the sea, with its ruins forming a sort of talus at the foot of it. The upper strata are very pliable, and consist merely of compact sand with thin layers of hardish sand-stone imbedded (see plan 2nd). By looking at the low water plan of the Island (No. 3rd), it will be seen that at the ebb tide a narrow slip of shore is uncovered at the Northern extremity, from which gradually increasing in breadth it extends on each side and expands in a pyriform manner at the Southern end, where the shore left by the tide extends about half a mile from the land. If a line be drawn South West from the light house, and another due East across the shores, the space included on the South sides of these lines is that occupied by the alternate strata of conglomerate, best denominated ossiferous breccia and sand-stone, and in this formation are found the nume-

\* See extract from Mr. Lumaden's letter, page 25.

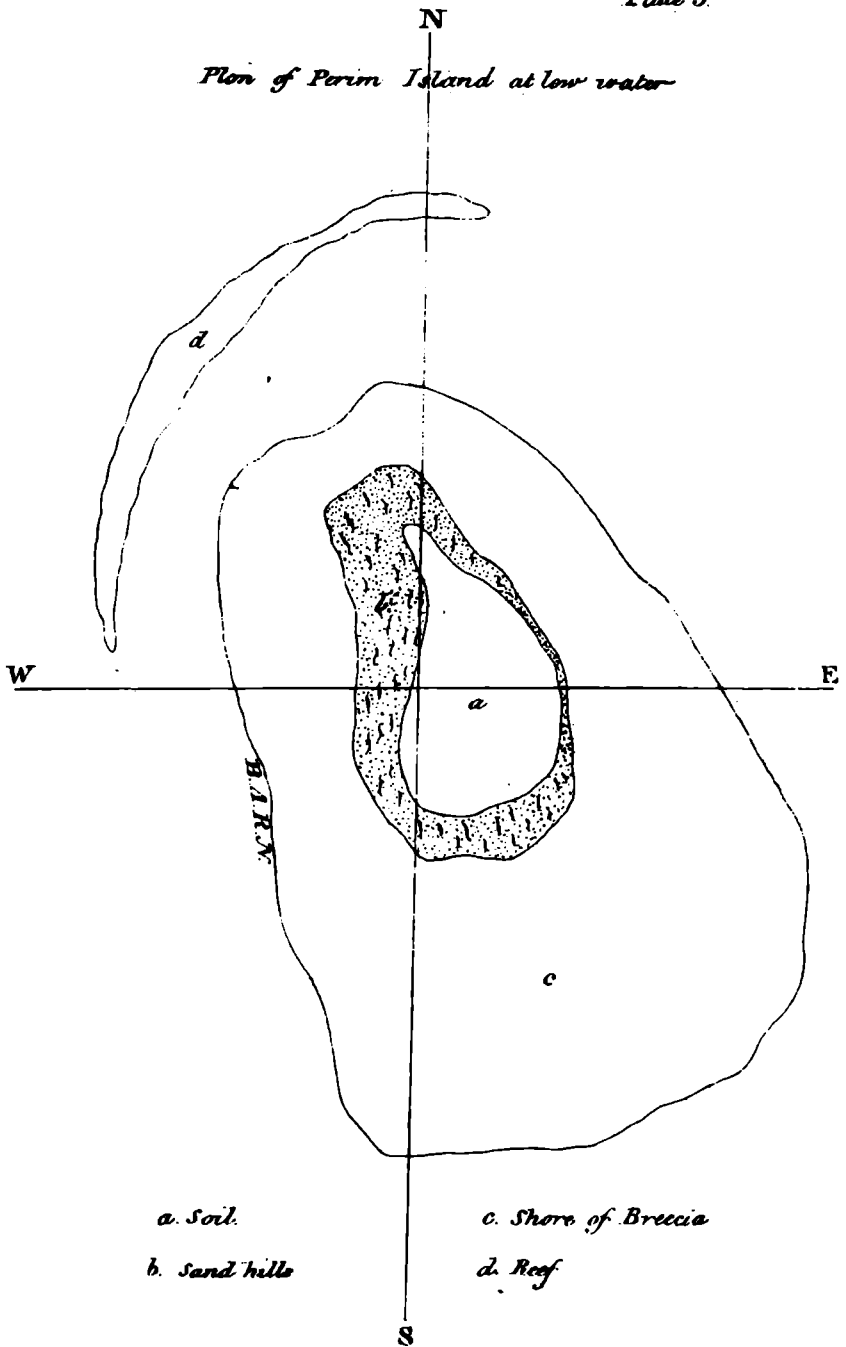


a. b. c. Breccia.

3



*Plan of Perim Island at low water*



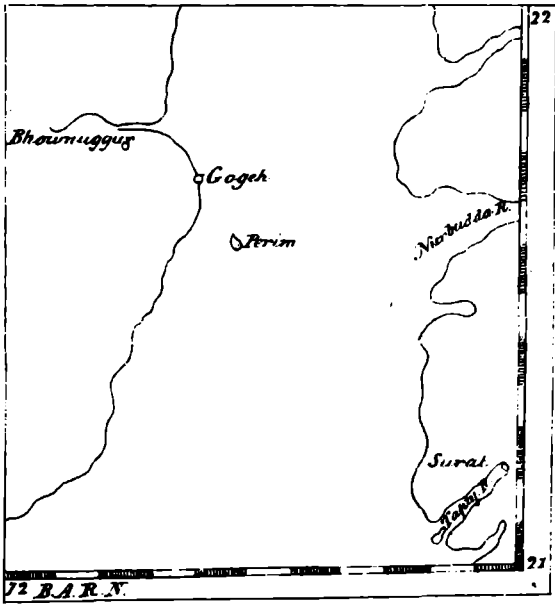
*a. Soil.*

*b. Sand hills*

*c. Shore of Breccia*

*d. Reef*

*Plate 4.*



rous fossils of terrestrial animals, which have of late directed attention to this little Island ; and as the matrix is much softer and more yielding than the included fossils, the latter are gradually denuded by the action of the sea, and are easily discovered by their glossy black surface, in contrast with the brown calcareous earth in which they are embedded. This matrix contains besides numerous spheroids of compact sand stone (varying in size from that of a pea to that of a large orange), few angular fragments and numerous teeth of various animals. I have only discovered one oyster shell, and no human bones.

Mr. Lumsden kindly allowed me to have possession, for some time, of a large collection of these fossils, and in all probability the largest collection that can ever be made at one time, as it is the harvest of the great length of time that must have elapsed, while the sea slowly released these fossils from the stony bed in which they had been inclosed ages before ; during which three strata of the same breccia (superincumbent) have been entirely washed away, as well as several of the sand stone already described.

The fossils just mentioned were found on the surface of the rocks quite black and polished by friction, having none of the calcareous earth adhering to them, when attention was first drawn to these curious products of the Islet. Now they must be assiduously sought for, and then quarried out of a tolerably hard rock. In the collection there were the skull and upper jaws of a Mammoth (*Elephas primigenius*), or *Mostodon* ; the lower jaws apparently of the Hippopotamus, the entire skull of a species of deer or antelope ; a fresh water turtle, and many enormous teeth, and other bones.

The surface of the ossiferous rock is every where broken into large holes, as if the subjacent stratum had been wasted away beneath and the rock fallen in, and in these hollows the fossils are often found.

We might form a tolerably correct estimate of the degree of waste to which this breccia is subject in a given time, could we place any reliance on the tradition which assigns the origin of the two monolith elephants on the shore to the before mentioned Makra Goil ; one of them has been broken to pieces, either by the hand of man in search of treasure or by the violence of the sea in the course of its everlasting work of destruction, but the other still stands, nearly perfect, and but little corroded : it appears to be in the act of kneeling on the body of a man.

On the Eastern and South-Eastern part of the shore, are also

found large masses of petrified wood, all of which appear to have been rolled and transported hither from a distance; yet this worn appearance might result from the disinterring operation of the sea in the same manner as with the fossil bones, but I could discover none of it imbedded in the rock.

It may be as well to remark here, that during each monsoon immense quantities of drift wood, as well as numbers of human and other bodies, are cast ashore on the Island; and are often partially or entirely buried in the sand and mud by the agent which landed them, and are then swept off again; many of them in all probability to add to new deposits of a similar nature to that just described, which doubtless are in continual progress of formation—nor is it at all improbable that hereafter, human remains may be found in these new deposits, mingled with the fossil remains of species long since past away from the living ranks of nature. I am led to this remark, because at present the fossils after being relieved from their bed of breccia are washed off the rocks together with recent organic and inorganic matter of all descriptions, and perhaps in this way we may account for the apparent anomaly, when, though rarely, the bones and exuvie of extinct species are found promiscuously with recent ones in formations considered as subsequent to this disappearance of the former.

I have met with a breccia very similar to that of Perim in a very distant part of the world, but differing materially from that in the quantity of bones contained in it, so as to constitute it a real bone breccia. While making the tour of *Sicily* in 1836, my friend Mr. Goodwin, of Palermo, British Consul General in that Island, directed my attention to the cave of Santo Ciro under Monte Grifone, in which the bone breccia is deposited; and as it is in some measure connected with our subject, I shall quote the opinion of Dr. T. Christie on the formations in this cavern, and on those of Syracuse:—"There can be no doubt that the extinct quadrupeds existed at a period long posterior to that in which the Mediterranean began to be inhabited by its present species of mollusks, radiata and zoophytes; and before the last great convulsion, which raised a great part of Sicily above the level of the sea, the smooth water-worn surface of the cave of Santo Ciro, and of some of those at Syracuse, and the numerous holes left by perforating marine mollusks (lithodomi), force upon us the conclusion that these caves were long under the surface of the sea, and that

at a period long posterior to the formation of the lime-stone beds containing shells of existing species, for we find these beds at Santo Ciro below the bone breccia, and at Syracuse they actually form the cliffs in which these caves are situated; not only however were these caves long under the sea, but they continued so for a great length of time after the bone breccia had been deposited in them,—of which we have ample evidence both in the cave of Santo Ciro and in those of Syracuse. In the former we find distinct traces of stratification in the breccia, and above it is a thick bed of clay containing a few bones which could only have been deposited by tranquil water. In the breccia of the latter, we have still more positive proofs, for in it we find sea shells, and its surface has been worn down by the waves and has been perforated by marine animals, and since that period these caves have been all raised up above the level of the sea into their present positions.”

The cave of Santo Ciro (which I frequently visited) is situated about two miles to the South East of the City of Palermo in the scarp-ed Northern face of Monte Grifone, and immediately above the monastery from which it borrows its name, about 180 feet above the level of the sea, which is now distant nearly two miles on the North; and it does not appear that the relative situation of sea and land have been perceptibly altered, within the period of authentic history, although the natives have a legend that the sea or rather a fresh water lake, in ancient times, covered nearly all the interjacent flat between the cave and the sea which now forms part of the plain of Palermo. This lake called *Movdolced*, much reduced in size, still occupies a large space, but is gradually being filled up by a vegetable moss or bog like growth, and becoming dry land.

As I believe that hitherto no attempt at an explanation of the formation at Perim has been made, and having formed some conjectures on the subject I do not think it can be productive of any harm to state them, nor however erroneous these views may hereafter prove to be, can they be detrimental to the researches of others more conversant with the science of Geology and therefore more competent to describe.

By looking at the Chart No. 4, it will be observed that Perim is nearly opposite to the mouth of a very large river, the *Nurbudda*; to this river in particular, together with the other streams emptying themselves into the Gulph of Cambay, I am inclined to attribute these deposits of ossiferous breccia.



As it is probable that the mainland of India, in common with other parts of the world, prior to the existence of man, was inhabited by many species of animals now no longer existing ; and as the extensive alluvial deposits found on each side of the Nurbudda and other rivers prove to us that the country through which they flow must in the course of ages have had its surface considerably raised by the agency of these waters alone independent of any other cause, we may imagine that the floods that occurred in remote times, were, from the extent of surface they then covered, and the greater rapidity of their currents from the greater declivity of their courses, of a much more destructive nature than they are at present, and would therefore bring down occasionally large quantities of the materials necessary for forming the breccia of Perim, and which they would discharge into the Gulph of Cambay, then of course much deeper. Thus one stratum of breccia would be formed after a great storm or inundation, and in the interim between the subsidence of this and the occurrence of another stratum of muddy sand forming the stone which alternates with the breccia, would be thrown down.

There are at present three strata of breccia having beds of sand stone between them, and increasing in thickness the lower they lie in the cliff, at the Southern extremity of the island, and a fourth cropping out, on the shore from beneath white sandstone, much exceeding any of the higher ones in thickness and spreading over a large extent of shore. It is out of this layer that the two elephants' figures on the shore have been cut, and they are above five feet thick ; while the uppermost layer of breccia is not above three inches thick and gradually gets thinner till it disappears towards the West. Taking it for a moment for granted that my theory of their origin is correct, the difference in the size of the strata is easily accounted for in this manner :— when there was a greater depth of water, a large quantity of matter would be borne along and the deposits be less.

In our own era many destructive floods have occurred in different parts of the world somewhat calculated to corroborate the idea here advanced, such as that in Java, mentioned by Raffles in 1699 and another 1821 ; that in Scotland in 1829 ; and those which occasionally occur in all countries, the rivers of which are periodically liable to floods.

The breccia being formed, in order to cause Perim to emerge from the bosom of the sea, and thus display the works that have been car-

ried on in her depths, we need only have recourse to the agency of some internal convulsion of the earth by which so many parts of the world have been heaved up, and some even in our own time; and perhaps some traces of such a convulsion may be recognised in the shape of a deep fosse or canal extending midway up the channel between Perim and Kattywar past Gogo to the mouth of the Baunagar river. In this canal the water is from thirty to forty fathoms deep, though on each side of it the depth is only twelve fathoms, which is the general depth of the Gulph of Cam bay.

I regret that there was no opportunity for me to examine the shores on each side of the Gulph, but several masses of conglomerate, something like that of Perim, were lying about at Gogo.

I have never heard of strata of ossiferous breccia having been noticed in any part of the world, alternating so regularly with other strata as those of Perim; and I have no doubt that many and valuable facts might be elicited from a scientific examination of this Island, particularly with regard to extinct races of animals,—the remains of which might be found to predominate in the lower strata, and gradually giving place to more recent species in the middle strata till they disappear altogether in the highest. A discovery of this nature on one spot would certainly tend to throw considerable light upon the history of these animals which have ceased to exist in the world, and thus add an important step to that branch of Geological Science.

Of course a discovery of this kind can only be looked for, if it should be found that the breccia has been deposited in the different strata at long intervals of time.

At the bottom of the hill on which the light-house stands, there is a well, to examine which I eagerly hastened, under the idea that, being sunk through the rock, it would afford a view to some depth of the structure of the island, but its interior was sheathed in masonry.

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*Extract from a letter dated Surat, January 4th, 1841, from J. Grant Lumsden, Esqr., Bombay Civil Service.*

“THE island of Perim is on the Katiawar side of the Gulf of Cambay, distant from the main land about 3 to 3½ miles, and from the port of Gogo about 7. Lieutenant R. Ethersey's recent survey and chart of the Gulf, makes the latitude of the light-house on this island 21° 35' 22". I had no means of ascertaining the exact longitude, but a map of Cary places it in 72° 26' E. The island itself lies in a N. W. by

N. by E., S. E. by S. direction. It is about six miles in circumference ; in length rather more than two and a half, in a right line between the two extreme points, exclusive of the reefs. A great part of the Island is covered by a continuous range of Sand Hills, resting on a scanty bed of black soil. While these hillocks appear to form a barrier against the sea along the whole of its Western face, and are continually encroaching on that side from the drift occasioned by the prevalent winds in the fair season, the eastern side of the Island is comparatively free from sand, and its soil affords a scanty subsistence to villagers who visit it from the neighbouring main land at the conclusion of every monsoon, and reside there until the approach of the next rainy season. When I visited the Island, I found no traces of cultivation, as not a single shower of rain had fallen during the monsoon of 1840. Peafowl are found among the low brushwood on the sand hills. I took the following bearings from the light-house.

The port of Gogo in Katiawar bore N. W. half N., distant about 7 miles.

The extreme western point of the coast of Katiawar, visible on a clear day, bore S. W. by south.

Luckee-gaom Loharra, or the Northern head-land of the Broach river on the Eastern shore of the Gulf, bore E. N. E. Whilst anchored in 9 fathoms clear of the bar at the entrance of this river (the Nurbudda,) the ebb spring tide during its greatest velocity ran past, as well as I could judge, about five miles an hour.

I mention these bearings, because I have heard it supposed that the fossil remains of Perim, which have only been discovered on the Island in one direction, had originally been carried out to sea by the stream of the Broach or other rivers, and left by the force of the tide upon the strata in which they are now found imbedded. I believe that these strata are what are called conglomerates, resting on a coarse sand stone, which forms the basis of the Island, and of the neighbouring reefs. The reefs in question are composed entirely of this conglomerate, and being very flat, are laid bare by the receding spring tides to a considerable distance, especially in a direction South, and S. by E. from the light-house. In this latter direction they extend seaward for at least two miles, from the base of a low bluff in which the Island itself here terminates. It is upon this part of the reef, which also sweeps round the Island in a South West direction, that the fossils are discovered, and as yet upon no other. Here too, fossilwood

is found in great quantities, as well as animal remains. The bluff above mentioned exposes distinct horizontal strata of conglomerate, supporting the black soil of the Island, and lying over beds of sand stone. At its foot are detached masses of both of these rocks mingled indiscriminately. It is said (by the serang) that the reefs are continually encroaching on the Island at this point, not from the violence of the spring tides which cover it at intervals, but by the action of the heavy rains during a favorable monsoon, by cutting through the bluff and detaching masses of the conglomerate and sand stone, which are afterwards removed by the tide. Here and there on the reef itself, shelving masses of sand stone appear to have forced their way from beneath the superincumbent platform of that composition of which the reef is composed, and which I have called conglomerate. This appearance is found to occur chiefly in the immediate proximity of the Island. One of the specimens which I have sent, and which will be easily distinguished, conveys a very fair idea of the appearance of the fossils as they are found lying upon this reef; some of them have a high natural polish, others appear as if corroded by long exposure, and partially destroyed by the force of running water. It would appear, that to the same power we owe their slow exhumation, as they are occasionally discovered entirely embedded in the rock. But if this is the fact, I shall presently give some reasons, when I allude to certain legends related of this Island and its former masters, to prove how slowly this process of the wear and tear of the sea must be carried on.

The first legend to which I shall allude relates, that Perim was formerly joined to the neighbouring Coast of Katiawar. This belief, which is a very prevalent one among the maritime population in the neighbourhood, and may have originated in the existence of numerous and very intricate reefs which the ebb of the tide discloses between Perim and the main, especially in the direction of the port of Gogo. But the Serang in charge of the Light on Perim gave me information, which it may be useful to repeat in connection with this legend. The nearest part of the Katiawar coast lies about due West from the lighthouse, leaving a channel between three and four miles in width. This channel on either side is shallow, the water never beyond eleven fathoms over a rocky bottom, every where rising into reefs and ridges, which exhibit the same formation as the Perim flat reefs already described. Towards the centre of the channel, however, the soundings

deepen suddenly to 35 fathoms, with a *bottom of stiff yellow clay*. Through this extraordinary pit or nulla at the bottom of the channel, the tide runs with very great velocity. This depth of water equals what is found in any part of the Gulf of Cambay, between the coasts of Katiawar and of Goozerat. It shoals abruptly, I was informed, at either extremity of the pit or nulla to 14 fathoms, one extremity (as pointed out to me by the Serang) bearing from W. by S. to W. S. W. from the light-house, the other about W. N. W. From the latter a channel is traced by soundings, which passing by Gogo, leads to the entrance of Bhowuggur river, about 19 miles\* to the northward of Perim, and which is well known to the Perim men, and to the fishermen and mariners navigating the Gogo coasting craft, by the name of the former river. It even bears that name to the spot where, as indicated by the soundings, it terminates in the abrupt descent of the pit or nulla which I have attempted to describe. It is right to add, that this information rests exclusively on the authority of the Serang in charge of the Perim light; but he is a sharp and clever man, well acquainted with the depths of the water in the Gulf, and not very likely to be in error.

The second legend might lead one to surmise that some alteration had taken place in the level of the reefs of Perim Island, since the end of the 13th or commencement of the 14th century, or that the sea has been in reality gradually encroaching on the land since that period. The greater part of the Island has been surrounded by a rough fortification, containing within its area many traces of Tanks and other large buildings, the masonry of which is now entirely in ruins. Tradition universally ascribes these works to a powerful Rajpoot chief, named Mackra Goil, an ancestor of the present Thakore of Bhowuggur. The truth of this is confirmed by the historical researches of the late Colonel Walker, Resident of Baroda, regarding the origin, ancestry, and actions of the principal Katiawar chiefs. It appears that Mackra Goil retired to the Island of Perim, where he built the fort alluded to about the close of the 13th century, and that he was slain in battle by the troops of the first Tougluck † or Togrulshah of the Kulgean ‡ dynasty of Delhi about the year 1300. These buildings are constructed entirely of blocks of the same conglomerate and sandstone found in such quantities on the island. It is evident that the neigh-

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\* This distance I think rather underrated.

† The first Touchluck-Ghlapeldeen.

‡ See Ayeen Akbery, Vol. I., page 94, Table 4.

bouring reefs, which must have furnished the former material, have been quarried in many places, and large angular blocks are met with, which look as if they had almost been chiselled the preceding day. Especially on that part of the reef where the organic remains are principally discovered are these indications numerous, but most frequently are they close to the low water mark spring tides, and of course it is only during these tides that the spot I mean to indicate can be visited. Here, then, at a part of the reef bearing from the light-house South and by East, and distant from it more than two miles, near to *low water mark spring tides*, are two large stone Elephants, cut with their pedestals out of the solid rock, and which have never been moved apparently from the spot where they were first worked: a sketch of one of them was made while standing on the other (which is close by) by Dr. Nicholson, a rough copy of which, with its dimensions,\* I have the pleasure of sending you. Though exposed to the fury of the sea for the last five centuries, *unless the level of the reef has been lowered within that time*, or the height of the water-level has been raised, it is still but little the worse for wear. The other is broken, and is not so perfect. I think we have some grounds for placing faith in the tradition that these, as well as the other traces of man's abode upon the island of Perim, are to be attributed to Mackra Goil. The fort was destroyed after his death; and who so likely to be the author of such works as the only sovereign who ever resided upon the island? I am not aware that any person of consequence has since resided there, with the exception of a great Surat merchant who retired there for a short time about 80 years ago, to escape from the tyranny of the reigning Nawab. Legend, besides, is not unfrequently a good substitute for authentic history in this country. The memory of facts is preserved, though wrapped up in fable. But, where collateral proof is not wanting, as in the present instance, we are warranted in reposing some confidence on a general belief, which neither draws upon our credulity, nor is altogether unattested by documentary evidence. But whether to Mackra Goil, or to some other person, these relics of other times are due, it is clear that either they have wonderfully survived the fury of the tides and monsoon tempests for five centuries, or that the level of the reef is not the same as it was

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	feet.	Inches.
* Length from head to tail.....	7	6
Breadth of back.....	4	6
Height from forefoot to shoulder.....	6	$\frac{1}{2}$

when they were cut out of it. If the former, it is strange that a spot should be selected for these and other works (for traces of the chisel are clearly visible in many parts adjoining, and two blocks of several tons weight are shaped into angular forms and lying near); it is singular, I repeat, that such a spot should be selected, which is only uncovered twice during the 24 hours, and at the period of spring tides.

The best time for discovering good specimens of these fossil remains at Perim is during the monsoon. At that time a trusty agent might be very successful. Heavy rains then wash away the thick deposits of mud left on the reef by the tides, which makes the search for fossils during the dry season difficult, and success precarious."

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*Note on the discovery of Fossil Bones of Mammalia in Katiawar, by Captain Fulljames.*

CONSIDERING that the Island of Perim had once formed part of the main land of Goelwaur, a district of Katiawar, and that there was every probability of fossil remains being discovered on the Coast, if not inland also, I took the first opportunity in my power of ascertaining this interesting fact, and it is with much pleasure that I am able to state that fossil remains are not only to be found along the Coast as far as Gopnat Point, but some distance in the interior also.

In the month of May 1837, I examined the coast from Gogo as far as the mouth of the Setroonjee river, which takes its rise among the hills to the Westward; its chief source is from a hill called "Seetroonjee ke phar," hence the name of the river; but now better known as "Pallytana," from its famous Shravuck temples.

At the village of Thulsar, 5 cos to the south of Gogo, I found some few fossil remains, though chiefly in a very imperfect state, being greatly decomposed, and bared from the matrix by long exposure to the action of the sea and atmosphere. The swell during the South West Monsoon is particularly heavy on this coast, while the devastating effects of a strong tide must greatly assist in the work of destruction. Persons who have not visited the Gulf of Cambay during spring tides can form very little conception of the irresistible force of the first rush of the tide, but if you can imagine a wall of water, three or four feet perpendicular in height, and extending across the Gulf as far as the eye can reach, approaching you at the rate of twelve miles an hour, and with a noise that cannot fail to give you notice, if it does not alarm you,

you may then have some conception of its power. A boat to be caught in this, broadside on, is certain destruction, and many boats as well as lives are yearly lost by this destructive agent.

The strata on the coast at Thulsar is similar to that in which the fossil remains on Perim are found, though perhaps not quite so compact or hard, but lying horizontal as at Perim. In the small hills around Thulsar the same conglomerate occur, but from exposure to the atmosphere, without the effects of the sea and tide, it has become very hard; large fragments are found close to the village, and inland as far as I went. From the appearance of the country, and these small rounded Hills, generally of a conical form, I should be inclined to attribute their formation to volcanic agency.

At the village of Moorhund, a few miles inland, the formation is the same; these Hills are generally bare of Jungle, while in the valleys between, very dense jungle exists, chiefly the "Kakra" or Bastard Teak tree, and the Bher bush, and such like, with abundance of grass, and in most seasons water. In a nullah at the bottom of one of these hills I discovered a large bed of Fuller's earth, which the natives use for whitewashing their houses; it is also sold as an article of medicine, it being considered by the natives extremely beneficial to ladies in the family way, and is generally used by them.

While hunting in these Jungles some years back, I remember crossing one of these conical hills which was quite bare, and covered with a soil resembling very fine ash dust that had been suddenly quenched with water, and made the same noise under the horse's feet when going over it; and on my last tour tried to find this hill but was not successful.

Between the villages of Lekurka and Kutherpoor still following the Coast, trap rock appears about one mile inland; between the villages of Sooshea and Mannar, a soft conglomerate rock appears similar to the Thulsar strata. In the bed of a large nullah to the South of the village of Mannar, trap rock again appears. At Chotah Gopnat Point, which projects some distance into the Gulf from the general form of the Coast, the strata is similar in all respects to the Perim formations, and here I found the most perfect specimens of fossil remains that I discovered on the Coast; and had I been able to spend a sufficient time here, I have no doubt but that I should have been amply awarded.

From thence to a village near Tullajah, a trap rock again appears,



jungle disappearing, and where not under cultivation, yielding a scanty grass. Cotton and Badgree are grown; the latter is particularly fine in these Districts.

The village of Tullajah is situated on the Southern bank of the Seetronjee Nuddee, and near the foot of a conical Hill, on the top of which is a pagoda; to the N. W. a range of Hills runs away to the Westward, all of trap formation. This conical Hill from a distance particularly strikes the eyes, appearing as a large Pyramid rising out of the plain. The hill in question has been in olden times a place of great strength: the remains of a wall and gateway are still to be seen, and some old iron guns are still lying about. The Temple is now the only secure place, a strong stone wall is built round it, but evidently of recent date; the rock on which this Temple is built looks like a large mass of bloodstone.

The lower part of the hill rests on Basalt; about midway laterite appears, in which strata are the evident remains of its having in former years been the refuge or abode of some Brahminical sect: the caverns and excavations with which the hill abounds are numerous, chiefly facing the Northern and Western sides of the Hill. There is one large room measuring 29 paces by 23 paces in height; it is about 20 feet with a flat roof; this has originally been supported by four large square Pillars, as may be seen by the marks in the ceiling, and also on the floor. There are numerous others, but much smaller, some of them have been used for cooking, some for sleeping rooms, but by far the greatest proportion are reservoirs holding the purest rain water, and small channels are cut all over the hill for conveying the rain water into these reservoirs as in the caves of Canary near Bombay. Not an ornament or an inscription of any kind could I discover, though I hunted long and diligently for them; still some other person may be more fortunate, and I really think it worth the while of any person who can spare the time to explore them.

The Seetronjee Nuddee takes its rise in the Seetronjee ke phar, and falls into the Gulf of Cambay above Gopnat Point; this hill or mountain is better known as the "Pallytana Hill," on which so many splendid Shravuck Temples are built and still building. The stone of which these temples are built comes from Gopnat Point, to the Southward of the Seetronjee Nuddee. It is there quarried to a vast extent, and sent in the rough to the town of Pallytana, where every stone is cut and fitted, and the Temple put

together, with the exception of cement ; it is then taken down, every stone being marked and carried by " now gunnies" or Bamboo Koolies up the Hill ; the distance they reckon to be three cos. To form some idea of the difficulty of the ascent, I should mention that two large bricks are considered a good load for a woman to take up ; chuman is taken in cloth bags, and every thing that is required for building, excepting water, which they get from Tanks or Koonds on the hill ; these temples are surrounded by a high wall, and an Arab guard is kept up for the protection of the valuables belonging to the different Temples.

At Girnar, report says there are a race of men similar to Cannibals that live in the Hills ; the same is said of Pallytana ;—at and around Pallytana lions abound, and these I rather suspect are the Cannibals.

To the West of Gogo, and near the remains of some Jain tombs, I found other fossil specimens in a similar formation to that of Perim which was being quarried for building purposes at Gogo ; the rock lies close to the surface and in thin layers, with seams of indurated clay between each. To the North of the Gogo creek, though only a few yards wide, not a sign of rock appears ; when to the South it is one continued bed. It may not be out of place here to mention, that in boring for water close to the bunder at Gogo, after passing through many different strata of conglomerate, a bed of sandstone 35 feet thick, a stiff black and bluish clay was met with, similar to the London clay, and holding balls of *Septaria* ; this clay was never passed through, though the bore was carried to a depth of three hundred and fifty-six feet.\*

At Chumaree, about twenty miles from Gogo, and lying North West, some conical Granite Hills rise out of the plain composed of large boulders, heaped one above another ;—these Hills diminish in size, from the N. W. to the S. E. A soft fine grained sandstone appears below these Granite boulders, the hills themselves dip from the West to East, the last scarcely appearing anything more than a mound of earth. To the South of these there is an extensive salt plain, with numerous small nullahs all falling into the Bhownuggur creek.

GEO. FULLJAMES.

June 8th 1841.

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\* Compare this important fact with that mentioned in Mr. Lumsden's letter, of the bottom of the deep channel between Perim and Kattiawar being composed of a stiff yellow clay, while the shallow edges of this singular " pit" is composed of the fossiliferous conglomerate.

## COUTTO'S DECADE VII.—BOOK III.—CHAP. X.

*Of the famous Island of Salsette at Bassein, and of its wonderful Pagoda called Canari ; and of the great Labyrinth which this Island contains.*

*Communicated by the Revd. W. K. FLETCHER.*

THE City of Bassein is the largest, and comprehends more Territory than all the others of India, because towards the East it extends to the Forts of Assarim and Manora, which are about eight leagues, and contains rich Villages yielding great revenue. Towards the North it extends to the River of Agacain, and towards the South to the River of Bombay, or even a little further to another arm which is called Carania, as it makes between the one and the other a small Island in which we have a Castle of that name. The River which surrounds the Island of Salsette has two branches ; that to the North is the River which runs along the City of Bassein, and continues its course to the South in several windings ; and about half way, in a place distant about three leagues, the Portuguese established a Colony called Tannah, which is the residence of about sixty Portuguese, who possess in that Island their Villages, which are very productive. Here the River has two very narrow passages, and a person can ford it at low water from the Country of the Moors to the Island of Salsette ; near these passages there are two Castles seated on a rock over the water to defend this pass. The river then continues its progress to the West about three leagues, and forms the beautiful Harbour of Bombay, which extends itself to the sea more than half a league in breadth, where all the Ships from Portugal and other Countries ride in from its good soundings, having no sand bank nor any other impediments ; and before it reaches the sea it extends one arm towards the South, which makes the Island of Caranja, and another towards the North which is the Island of Bandora. From this mouth of the Bombay river it directs its course to the North Coast about four leagues until it enters the Harbour of Bassein, and leaves the Island of Salsette on the sea side, which is reckoned to be fifteen leagues in circumference, and two in breadth.

In the centre of this Island there exists that wonderful Pagoda of Canari, thus called from its being supposed to have been the work of the Canaras. It is constructed at the foot of a great Hill of Stone of light grey color ; there is a beautiful Hall at its entrance, and in the yard that leads to the front back door, there are two human

figures engraved on the same stone, twice as big as the Giants exhibited on the Procession of the Corpus Christi Feast in Lisbon, so beautiful, elegant, and so well executed, that even in Silver they could not be better wrought and made with such perfection. The front door has some cisterns hewn out of the same rock, which receive the rain water, and it is so cold in the summer, that there is no hand that can bear it. From the foot to the top of the Hill there are more than three thousand small rooms like cells, cut out of the same rock in the shape of snail shells, and each of them has a cistern with the same water at the door ; and what is more to be wondered at is, that there is an aqueduct constructed so ingeniously, that it passes through all the three thousand apartments, receives all the water from that Hill, and supplies it to the cisterns that are at the doors of the rooms.

This Pagoda was inhabited by many Joguees, who lived there on the alms that were given them by the people of the Villages. The Chief of them was a hundred and fifty years old, whom the Priests of St. Francis, who first came to the City of Bassein, made a Christian, and called him Paulo Raposo. They also baptized another Joguee, by the name of Colete, who had more reputation than Paulo Raposo, and was named Francisco da Santa Maria. He lived afterwards as a good Christian, to the great satisfaction of these Priests, became an Evangelical Preacher, and converted several of his Brothers, and other heathens. This man lived after his conversion five years, and it may be said according to Similo, that he did not live more than those five years. The first Priest who resided in this Island, and converted these Joguees, was called Fre Antonio de Porto, of the order of Menorites, — a person of virtuous and exemplary life, who penetrated into all the secrets of this Island, which were many.

In this said Pagoda, called Canari, was consecrated a Church dedicated to St. Michael, and while he stayed there, he was informed of the novel, wonderful, and intricate labyrinth not to be compared to any in the World ; and as an account of it will be entertaining, I shall give a brief relation of it.

During the residence of the Revd. Fre Antonio de Porto in the Church of St. Michael, he was told by the Christian whom he had converted, that there was a labyrinth in that Hill whose end had never been traced, and it was moreover stated that it extended as far as Cambay. The Priest, desirous of getting in to see this wonder and

the magnitude of this work about which so much was said, took one of his companions, and collected twenty persons with arms and matchlocks to defend themselves against wild beasts ; and some servants to carry the necessary provisions for the journey, viz. water, rice, biscuits, vegetables, &c. and some oil for the torches, which were taken to light the place, in order that they might see their way through ; and they also took three persons, provided with bundles of strong ropes for the purpose of laying alongside of their way as they proceeded, as was done by those who entered the labyrinth of Crete. Thus prepared, they entered the caves by an entrance about four fathoms in breadth, where they placed a large stone, to which they fastened the point of the ropes. They travelled through the caves for seven days without any interruption, through places some of them wide and others narrow, which were hollowed in the rock, and on each side they saw small chambers like those in the Pagoda above mentioned, each of which had at their entrance a cistern, but no one could say whether these cisterns contained any water, or how they could receive any, for in all these passages they could not discover any hole, crevice, or any thing which could throw any light on the subject. The upper part of the building was cut out of the same rock, and the walls on each side of these roads were done on the same way. The priest seeing that they had expended seven days without being able to find any opening, and that the provisions and water had been almost consumed, thought it necessary to return, taking for his clue the rope, without knowing in these windings whether he was proceeding up or down, or what course they were stirring, as they had no compass for their guidance.

As I was talking with some old Hindoos about it, they asserted that through that road a person could go to Cambay and even the country of the Moghuls and the Town of Agra, and that this road in former times was much used and frequented, of which mention is made in the Books of ancient Hindoos, that there are numerous roads like this, constructed under ground in several parts of Cambay, and the Deckan, and that beyond doubt this road was the work of that powerful Hindoo king called Bimilamenta, who above one thousand and three hundred years since had ruled over the East, from Bisnagur or Bengal to the Moghuls' Country, and even Ormuz. It is recorded in their books, that he lived three hundred years, and reigned more than one hundred. The natives in all their narratives mix many fables and fictions in order to give honorable origin to their Monarchs, as

we have frequently said ; they accordingly assert that Bimilamenta was a Hindoo, a wise man, and gifted with good sense, and was a native of Magor, Cedepur, and Patan, where he was leading a religious life, and to whom it is said appeared an idol of ancient Hindoos, called Ambani, and it revealed to him many treasures and delivered to him several laws, which he was required to cause to be observed by those Hindoos who lived without them, wandering in the deserts like brutes, to maintain them in proper order, and unite them in one common tie and interest. This he accordingly did, built for them Towns, formed Villages, and established colonies, and he was chosen by them as their King. The munificence of this man, recorded in history, is astonishing. It is affirmed that he made these labyrinths, and caused an immense number of Pagodas to be built with admirable art, and that those of Canari and Elephanta were his works. While I was writing on this subject, some wealthy Banian Merchants of Cambay, who have dealings at Goa, called on me, and having spoken to them about it, they replied that it was all true ; adding that they had read the Books which treat of this subject, and that they with their own eyes had seen also some celebrated Pagodas in the Deccan, Cambay and Magor, built by this king, and on the gates of each of them there was an inscription which ran thus—" This Pagoda was ordered to be built by the king Bimilamenta," which they read several times, and if it be so, the stone over the Gate of the Pagoda of Elephanta, which was sent to king D. John III. had no doubt these words, though no one could be found to decipher them. It is written also, that he caused many beautiful tanks to be excavated, and some of them so large, that they might be called great lakes, with which all these countries abound : and to some of them peculiar virtue is ascribed, such as the one in midway between Bassein and Agassain, where the Church of Nossa Senhora dos Remedios stands, in which the Priests of the order of St. Domingos reside. This Lady has performed so many wonders and miracles, that all the Walls of the Church are covered with pictures representing them. In front of this church is the Tank to which they attribute so great a virtue, that they affirm that any person that gets into it will be healed of any complaint they may have, and the Priests watch it with so great care, that they never allow any Hindoo to approach it, for fear of their performing any superstitious ceremonies.

To return now to the labyrinth—having seen that these priests travelled through it seven days without taking any rest, except at dinner

and sleeping hours, they must have travelled at least six leagues every day, which in seven days would amount to forty-two leagues ; it appears to me therefore, that what the Hindoos say—that it reaches as far as Cambay—may be true, because the Island of Salsette at most is only four leagues long, and the labyrinth is in the centre of the Island. To say that the roads could have many windings, and be so intricate as to make them spend seven days, is impossible : the Island (as I said) being very small and narrow. Be that, however, as it may, the cause of its not being known is the great apathy and want of curiosity on the part of our Portuguese Nation. To this day no Vice Roy or Governor of Bassein, or any other person, has taken means to ascertain these secrets which it is so desirable to know. This would not have happened with any Foreign Nation, who are so much more wise and curious than we, not only as regards things like these, but others of less importance, which they do not leave alone until they are sifted to the bottom. This work may certainly be reckoned one of the wonders—and perhaps the greatest in the world.

In the Island of Salsette there was also another Pagoda called Manapazer, which is also cut out of solid rocks, in which lived a Joguee, very famous amongst them, called Ratemnar, who had with him fifty Joguees, whom the inhabitants of those Villages maintained : and the Priest Fre Antonio de Porto being informed of it, went to him ; but the Joguees of that Island had so great a fear of him, that no sooner they saw him than they left the Pagoda and went away to the interior. This flight cannot be ascribed but to some Divine Power which they found the Almighty had bestowed on his servant, for no human being could frighten fifty men when they saw only two Friars clad in sacks, and bearing no weapon with which they could offend them. The Priest entered the Pagoda, converted it into a Temple dedicated to Nossa Sra. de Piedade. A Royal College was subsequently established for the Island of Salsette for the reception and education of the children of all the people converted to Christianity, to which the king D. Joao granted the revenue and property formerly belonging to the Pagoda, and it is now administered by the Priests of the order of St. Francis.

Having spoken to some very old Christians, and those first that were converted by the Priest Fre Antonio de Porto, and having seen the House of Manapazer, one of them who was said to be more than an hundred and twenty years of age, and who spoke well the Portuguese

language, could write and read, and was reading the *Flos Sanctorum* and the *Lives of Saints*, assured me that there was no doubt that the Canari Pagoda was ordered to be made by the Father of the Prince St. Josaphat, whom Barlao converted to the Christian Faith, with the view of shutting him up there in consequence of his Astrologers having foretold that the Prince would profess the Christian religion. Thus his birth and life, according to their scriptures, as to this day the Hindoos recite in their songs, corresponds so much to that of St. Josaphat as we have in his Legends, that I was surprised at what they related to me of him ; and as an account of it will not be uninteresting, I shall detail it here as briefly as possible.

It is written in their books, that a king who reigned in all the East (and I think this king must be the same called Bimilamenta of whom I have already spoken, and is said to have ordered the Pagoda of Canari to be built) had a very beautiful son, who the Astrologers, in consequence of the day on which he was born, foretold would become a Saint, and despise the kingdom of his father, and turn a Joguee.

The Father with this news became very uneasy, and wishing to avert it, ordered him, as soon as the child was weaned, to be shut up in a Palace which he had caused to be made for the purpose, of admirable workmanship, well enclosed and guarded, that he might not have any communication except with persons appointed by the king, and that he might never see things that could occasion him any pain, grief, or sorrow. There he remained till the age of eighteen, when he requested his Father's permission to see the Cities and Towns, which was accordingly granted. And as he was proceeding surrounded by his domestics, he saw a lame man walking with a crutch, and having asked what it was, they replied that it was common in the world to have maimed people, lame, blind, and with other defects of this nature. On the second occasion when he went out, he met a very old and decrepid man leaning upon a staff, and trembling ; and the Prince, struck with this sight, enquired what it was, they answered, that it was in consequence of the man having lived a great many years. Another day he met a corpse going to be buried, accompanied by the children of the deceased lamenting the death of their Father, and his attendants having told him what it was, " how," said he, " I and all of us will thus die ?" they having replied that it was the common lot of men, because all were born to die, he was seized with melancholy, and while this idea was preying on his imagination, it is said he saw a Joguee, who having held



a conversation with him, persuaded him to despise the world and to lead a solitary life. And as he was uneasy and had more liberty, he contrived means to disappear and wander through the world. About the manner in which he made his disappearance many things are said, mixed with fables, as is customary with the Hindoos on all such occasions.

This Prince, they say, went to the Island of Ceylon, taking with him a great number of Joguees, who were his disciples, and he fixed his abode in that Mountain which is called Adam's peak, where he lived many years leading a holy life. And being about to quit that place, his disciples, who were to remain behind, requested him to leave them some token to preserve his memory. He accordingly is said to have pressed his foot against a stone, and left his footprint on it as if it were some soft wax, which is worshipped and respected for that of our Father Adam, and is held by all in great veneration, as I have mentioned in chapter XX. of Book VI. of my V. Decade, wherein I give an account of this footstep very circumstantially, and show how this Island of Ceylon is the Tapobrana of Ptolomeus, and in which I detail many curiosities, such as no author has treated of. This person is called in their scriptures by many different names, but the chief is Drama Rayo, and subsequently when they took him for a Saint, they called him Buden, that is to say, Wise; for whom all the Hindoo people throughout all India have erected many costly and magnificent Pagodas, and in their Legends a great many wonders are related of him, which I omit merely not to tire my readers.

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COUTTO'S DECADE VII.—BOOK III.—CHAP. XI.

*Of the very remarkable and stupendous Pagoda of Elephanta:*

*Communicated by the Revd. W. K. FLETCHER.*

THIS remarkable and above all stupendous Pagoda of Elephanta is situated in a small Island about half a mile in circumference, which marks the Bombay River, just when it is about to enter the Sea from the Northward. It is so called, on account of a great stone Elephant in the Island, which is seen on entering the River, and is said to have been built by a Hindoo king, named Banasur, who became master of every thing from the Ganges inwards. It is affirmed (and so it appears) that immense sums of money were expended on this Pagoda, and that millions of workmen were employed on it for many years. The site of this Pagoda extends from North to South; is nearly open on all sides,

particularly to the North, East and West, and the back of this temple lies to the South. The body of the Pagoda is about eighty paces in length and sixty in breadth; it is all hewn in solid rock, and the upper roof, which is the top of the rock, is supported by fifty pillars, wrought from the same mountain, which are so arranged as to form the body of the Temple into seven naves. Each of those pillars is twenty-two spans square, and from the middle upwards is eighteen spans round. The stone of the Mountain where this Pagoda has been carved is of a grey colour, but the whole body inside, the pillars, the figures and every thing else had formerly been covered with a coat of lime mixed with bitumen and other compositions, that made the Pagoda so bright, that it looked very beautiful and was worth seeing; and not only the figures looked very beautiful, but the features and workmanship could be very distinctly perceived, so that neither in silver or wax could such figures be engraved with greater nicety, fineness or perfection.

On entering the Pagoda, to the right hand there is a chapel with a gate sixteen and a half spans broad, and fifteen and a half high. Within the chapel there are many idols, and in the middle there is one seventeen spans high, with a large and beautiful crown on the head, so nicely made, that it appears to have been painted rather than carved in stone with the chisel. This figure has eight hands and two legs; one of the right hands holds a sceptre with a snake round it like that of the Mercury. Over the top of the sceptre there are three small idols of a cubit each: one of the left hands supports in its fingers three other idols of the same size. To the left there is another large idol, with a cymitar, and over it another very large one, with the body of a man and the head of an Elephant, from which I think the Island took its name. In this idol they worship the memory of an Elephant, whom the Hindoos call *Gaves*, of whom they relate many fables; near this idol issues from the rocks a stone seat in which is seated an idol with one body and three heads, each of them having one hand except the middle one, which has two, and in the left hand holds a book. To the left of this idol there is the figure of a woman three span-high—her left hand resting on the shoulder of another small figure of a woman, and the right hand twined round another even smaller figure. Immediately above this idol there is another mounted upon the head of an Elephant, and near this another on the neck of another idol.

Two paces from the chapel towards the meridian this Pagoda begins

to widen eleven paces towards the West, thence to proceed towards the South another eleven paces, and returns again towards the West eleven paces, where there is, to the right hand, a chapel hewn in the rock seven and a half feet high and sixteen broad, with a gate twenty-six spans high. In the middle of this chapel there is an idol in a sitting posture, twelve spans high from the waist upwards, with a very curious and beautiful crown on the head. It has eight hands and two legs, and with one of its right hands and another of the left spreads over the head a canopy of the same stone, and there is above it in the air a sort of barrack, with many male and female idols one cubit each on it. In the second right hand it has a two-edged sword, and in the third a small idol hanging by the legs. The fourth right hand with a part of the arm has been broken by the frolic of the soldiers of the fleet that visited the place, as is nearly the case with everything else. In the second left hand it has a little bell, and across the shoulder a large collar of many little human heads strung together, and all hewn in the same stone and engraved on the neck itself. In the third hand it has a kettle with a small idol on it. The fourth left hand, with the arm, is broken. On both sides of this idol and throughout the chapel there are thirty small idols standing. A few paces from this chapel to the right hand, which lies to the South, there is a square room ten paces long and as many broad, hewn in the rock, and so constructed as to admit of a person walking all around it, and has a door on each side of the square; and this room is entered into by each of these doors which has a ladder of five steps, and in the middle of this chapel there is a square stone seat of twenty-four spans, where there is a figure of an idol so very dishonest that we forbear to name it. It is called by the Hindoo Linga, and is worshipped with great superstition, and it is held in such estimation that the Canarese Hindoos used to wear such figures about their neck. A Canarese king of sound principles and justice, abolished this shameful custom.

These four gates of this house, the sockets of which still exist, were never opened except once in the year, on the day of its greatest festivity, to show in what veneration they held the idol in question. At the entrance of this house there are two beautiful giants twenty-four spans high. Ten paces from the chapel going towards the meridian there is another chapel with a beautiful porch of mosaic workmanship, twenty-four feet broad and twenty-six high. In the middle there is an idol sixteen spans high, with four hands and two

legs, and one hand round another idol of a female figure. To the left of this idol there is another of equal size, and below it another small one with three heads, four hands, and two legs, and around all this chapel inside there are many other idols. From this chapel to the West there is a cistern of very excellent water, the bottom of which has never been found, as it is commonly said, and it is therefore like what is said of the fountains of Alfeo and Arethusa.

Here ends the western wall, which is that of the right hand of the body of the Pagoda. Returning, hence to the West there is a chapel very curiously worked, fourteen feet broad and eighteen long. In the middle there is an immense idol, with crossed legs and a very beautiful crown on the head, and on both sides there are many Pagodas of men and women, and some on horseback. Thence the Pagoda begins to extend towards the East, where there is another chapel like the others, and from beneath it issues an idol from the waist upwards, very large, with five faces in proportion to the body, with crowns on the heads, and twelve hands, with which it supports a stone seat, over which there is another immense idol, with one face, six hands, and two legs, having one of the right hands over the neck of a woman, also very large, sitting by him, and on each side of the idol there are others of nearly the same size, seated on the same seat; and in the body of the church there are about a hundred more idols of the figure of men and women. Proceeding thence towards the meridian, there is another chapel with a giant-like idol sitting in the middle of it, with a crown on the head, and with four hands and two legs, having on each side a large idol, one of the figure of a woman and the other of a man, besides many other idols that there are in the chapel.

Here ends the eastern wall, which is that of the left hand of the Pagoda. At the end of these two eastern and western walls of the Pagoda there are three large chapels. That in the middle which lies more to the interior is thirty feet broad and sixteen long. From the pavement of this chapel issues a body from the waist upwards of so enormous size, that it fills the whole vacuum in length and breadth of the chapel: it has three large faces, the middle one looks to the north, the second to the west, and the other to the east. Each of these faces has two hands, and on the neck two large necklaces, wrought with considerable perfection. These figures have on their heads three very beautiful crowns. The middle one, which is bigger than the others, holds in one hand a large globe, and whatever it had in the right

hand cannot be discovered, as it is all defaced. The face on the right side holds in the right hand a cobra di capello, and in the left a rose called Golfo, which are produced in large lakes. At the entrance of this chapel there are two Giants standing on each side of an idol ten spans high. The second chapel which is to the right side is nineteen feet broad, eleven long, and thirty high, and has in the middle of it an immense idol with four hands and two legs, as all the others, and a beautiful crown on the head, and above it there is another of the figure of a woman twenty spans high. Throughout the whole of this chapel there are many other small Pagodas. To the right side of this chapel there is a gate seven feet high, and five and a half broad, which communicates with a dark square chamber ten paces broad and as many long, and there is nothing in it. Turning to the other side of the middle chapel there is another twenty-three feet long, and thirty broad, having in the middle another idol twenty-two spans high, with four hands, and standing upon one leg only, with a beautiful crown on the head, which rests on that of a Bull. The ancients believed this idol to have been half man and half woman, because it has only one breast like the ancient Amazons, and has in one hand a cobra di capello, and in the other a looking-glass. In this chapel there are more than fifty idols. To the left side of this chapel there is a gate six spans high and five broad, which communicates with a room nearly square and very dark, where there is nothing to be seen. With this ends the edifice of this Pagoda, which is injured in many parts, and whatever the soldiers have spared is in such a state that it is a great pity to see thus destroyed one of the most beautiful things in the world. It is now fifty years since I went to see this extraordinary Pagoda, but as I did not enter it with that curiosity with which I might have done now, I did not remark many things that do not exist now ; but I recollect finding there a chapel, which is not seen now, open all through the front, about forty feet long, and along the Rock there was an elevated place, of the length of the House, like our altars both in breadth and height, with many remarkable things on it : among them I recollect having remarked the story of Queen Pacefac with the Bull, and an Angel with a drawn sword turning out from underneath a tree two very beautiful figures of a man and woman, both naked, as the holy Scripture represents our first ancestors, Adam and Eve.

When the Portuguese took Bassein and its dependencies, they went

to this Pagoda and removed a famous stone over the Gate which had an inscription of large and well written characters, which was sent to the king, after the Governor of India had in vain endeavoured to find out any Hindoo or Moor in the East, who could decipher them. And the king, D. John III., also used all his endeavours to the same purpose, but without any effect, and the stone thus remained there—and there is now no trace of it.

On the side of the Hill where the Pagoda stands, about two stone throws to the East, there is another Pagoda open in front, and the roof is supported by many pillars beautifully executed, of which only two now exist, and are nineteen spans high and twelve thick. This temple is forty-three paces long and thirteen wide, and at one side there is a small room most beautifully worked. There they worship the Goddess Paramisori. This Pagoda, which is now entirely destroyed, was the most stupendous work of its size.

In another hill of this little island towards the East as regards the great Pagoda nearly in the middle, there is another Pagoda which formerly admitted of an entrance by a gate which had a marble porch very curiously executed. This pagoda has a large hall and three rooms in the first, to the right hand; there is nothing now left; the second has two idols seated in a large square seat. One of these idols was called Vethala Chenday, with six hands and only one head, resting on two smaller ones on each side of it.

Both this large and the other small Pagodas are known from the writings of the Hindoos to have been the work of a Canara King called Banasur, who ordered their construction, as well as of some famous palaces near them where he resided, of which even in my time there were some marks, and many ruins of cut stones and large unburnt bricks. These palaces, or this city which is said to have been very beautiful, was called Sorbale, and the hill where the Elephant Pagoda stands, Simpdeo. A daughter of the King called Uqua, who dedicated herself in this Pagoda to perpetual virginity, lived here for many years. The ancients say that during the time of King Banasur, gold rained once for the space of three hours at Elephanta, and it was therefore called santupori, *i. e.* golden Island. I do not relate many particulars connected with the Pagoda, as they are so many that they cannot well be particularized, and will tire the readers.

COTTON CULTIVATION IN THE BOMBAY  
PRESIDENCY.

The Bombay Presidency has long exported large quantities of cotton both to Europe and to China. Some of this, usually quoted in price currents under the names of Surat and Broach, brings higher prices than any other cottons cultivated in India by the natives, and the best Surats are often quoted at prices only a little inferior to the great mass of short staple American cotton. Both brokers and manufacturers have frequently given very favourable reports on the quality of this cotton, but much of that exported from Bombay is the produce of Mahratta countries in the interior or Central India.

Attempts have long been made by the East India Company, both in the Madras and Bombay Presidencies, to improve Indian cotton. A cleaning machine was sent out, and a cotton-farm established at Rhaudaterra, as early as 1794. Foreign seeds were dispatched, instructions on the culture of cotton were distributed, and rewards offered for the improved specimens of it. But as the produce of these provinces still continued inferior to what was required by the manufacturers, cotton-farms were directed to be established in 1829; those in Guzerat were placed under the superintendence of Mr. Finey, after his decease under that of Mr. Martin, and the experimental farms in the Deccan, Candeish, and Dharwar, under Dr. Lush. The cotton grown at the several farms having been sent to England, was reported on by experienced brokers, and the results prove that the cotton of these provinces can be much improved; for though these experimental cottons had been injured in the process of cleaning, probably from inexperience in the use of the sawgin, they are described as being worth from 6½d. to 9½d. per pound. There is no doubt that in suitable soil, and with the careful culture of the Broach districts, the improved processes of American agriculture would produce still greater improvement, and at all events a greater return of cotton per acre.

Keeping in view the principle stated under the head of Bengal, it would be desirable to have the experience of the American planters extended in the Bombay presidency over as wide a surface of country as possible. The best cotton districts are widely separated from each other, and at opposite points of the Bombay territory. These are the southern Mahratta country, about 16° N. lat., where the experimental farms were established, because presenting tracts considered by

Dr. Lush well suited for the purpose. Guzerat and Cattywar are the districts where the well known superior cottons are already grown by the natives; in consequence of which these were selected as the sites of the northern experimental farms, and much favourable lands for the purpose is found between the latitudes of  $21^{\circ}$  and  $24^{\circ}$  North. This part of the country was the site of the experiments of Mr. Assistant Surgeon Gilders, in 1816-17, who, having observed the causes which led to the failure in the attempt to introduce the cultivation of Bourbon cotton into the western districts, considered the obstacles to have been exclusively of a physical nature. He at the same time stated, that both the soil and climate of the districts lying between the Subermuttee and the Myhee promised a favourable result. The cotton grown by Mr. Gilders was considered at Bombay fully equal to any produced in Bourbon, and in London as the best specimen that had been imported from Bombay raised from Bourbon seed. It sold for 15d. per lb. With so much sagacity had Mr. Gilders selected the site of his experiments, that fifteen years afterwards Dr. Burns collected seed from trees growing apparently wild. These being sown, produced plants from which the cotton was pronounced equal to the best from New Orleans. The cotton grown at Laberkowa, within two miles of Mongrole, though confined to a space of 200 beeghas, or thereabouts, is so highly valued, that on the spot it will fetch six-sevenths of a rupee per maund more than any other kind in that part of the country; yet the natives say they frequently use seed from Guzerat, or any part of the country. The superiority must, therefore, depend either upon peculiarity of soil and climate, or excellency of culture. One point only of the latter is related, but that is one of great consequence. For instance, the people are in the habit of carefully extracting the cotton alone from the pod in the field; and this is, probably, of considerable importance, as some of the American planters are of opinion, that the staple of Indian cotton is much injured after it is collected, by being allowed to heat when piled up, often for a long time, before it is cleaned.

As the poorer soils of India have been found to suit the American cottons better than the black soil, and this latter to agree with the indigenous cotton, it is desirable in the Bombay, as in the other Presidencies, to include, in the experiments, both the black and the other soils of the country. Though the cotton is good, and very abundantly produced, the chief difficulty seems to be the shortness of the sea-



son for ripening the cotton, conveying it to the outports, and shipping it before the accession of the rains. This might probably be obviated by earlier sowing; perhaps, also, by bringing forward the crop by irrigation, and for this the rivers in the northern parts of Guzerat afford great facilities. The profits attending the culture of cotton appear to be considerable, as Dr. Lush says he is "convinced that the grower and the merchant may get ample profit when the best India cottons are at 5d. per lb."—*Royle's Productive Resources of India.*

मातः ष्टं सधीमांनसोस ग्वोधानायातिम्मयाभ्रमपरिताणानुराप्रासयाः। पीयूषपृतविक्षणादिजगता

तायदासारज्ञ ॥ यकान्तेः समसमरुष्टिप्रदोतनाद्या अभिरवद्योताइवरेजिरत्रिजगतिजागत्प्रतायामषि। दासं गतस्मयदियसस्मर

Break in the Stone.

खयछंदतशीश्वत। र्कैन्चूवयूरतः प्रकटमुकुटानीलरत्रयूक्तप्राश्वितारतृजितनिमित्तनिमिदेधांविदिमीडंटीवर ममतरमासिंभूगणादतायदृष्टंमतिरितीत्तच

तावविघ्नकरिणादंतुतथाप्रार्थिनासाफल्यायवित्तियाफलततिंमाकंदजाधर्मिणां ॥ धृगतकंसुतसंयुतंसुज्ञातछापूतायकीनृणां। तांविश्वकही ॥

तमाः श्री अंधिकांसंस्तुग्य ॥ ४ ॥ श्रीउद्गायतगिरिराजमधिप्र। तीतसदूर्मकर्मकरणाद्यमिनांजनानां। सांनिध्यमीहीतममीगुरुमद्यनादालडाधिंप्रपचृतय

शीदशासृजैतु ॥ ५ ॥ अद्यच ॥ नानातीर्थोपयनतटीनीकाननेरम्यहर्म्येः ग्योरभूमिपतीपृथुक्तानंतासोरव्येः ॥ १ ॥ शश्वदूषाभृद। पेविपूलांराष्टवंद्यंः सु

राष्टागंश्लोदांप्रनुपमगीरीराट् रियतालंकृतिः ॥ ६ ॥ मागागर्वममर्त्यपर्यतपरांप्रीतीं तजं तस्त्वया ॥ ७ ॥ भ्राम्यं गतरिचंद्रमप्रभृतयः ग्ककनमुग्धाशयाएकीरेयतभूध ॥ ८ ॥

ग्राविजयतां यदृशनाप्राणीनां ॥ यांतीभ्रान्तीविचर्जिताः किलमहानंदं सुखश्रीजुषः ॥ ९ ॥ तत्रच ॥ गीरिस्फुरदुरुश्चिर्चिततभूरिशखादयः ॥ सपर्वमहीमास्यदंजगतिर्यं

शआगस्तहारः येदुद्भवदियांगजात्कतबलप्रमुरव्या अलंजतिंददतिनिर्मलामखिलसत्सुमुक्ता अपि ॥ १० ॥ वंशोस्मिन्यदुनायकावरपातरत्युग्राशार्चावग्लगसिद्राजकुः ॥

लं गुणोद्यविपुलं श्रीयादवख्यातीमत् ॥ अत्राभून्पमंडलीनतपदः श्रीमंडलीकः क्रमात् ॥ प्रासादं गुरुहिमपत्रततीभीयोच करं न्नेमिनः ॥ ११ ॥ नवघननृपतीस्तुदियसुनु

नवघनमहीतब्राजसमादधानः ॥ नवघनवृष्टिप्रजावतोषनवघनसारसदृग्यशान्तिरांमः ॥ १२ ॥ महीमहगद्महीपालदेवः पुत्रस्तुदियाजनिचन्द्रदेवः यदानदास्यं

सुरगधनुरन्त ॥ दुसूदानीमगमन्नयत्नं ॥ श्रीप्रभासगतामथाप्रासदक्रत् ॥ १३ ॥ खंगारनां मरीयुराज्यवृक्षे ॥ खंगारएवाजनिभूमिजानिः ॥ शृंगारकृतकुलराज्यलक्ष्म्याशृंगारप

राजगतीलतायाः ॥ १४ ॥ आसीत् श्रीजयसिंहदेवनृपतीत्यभूभांमीनिभास्वाद्रारसालराद्रैनयनोन्यायां बुधिश्वतरुक् ॥ शत्रुनासनुकुटप्रतायमहीमानमृक्षगाभृततीः

स्पर्जनो लिमणीमयूषसलिलप्रक्षालितांघ्रिद्वयः ॥ १५ ॥ दिङ्मततदनुग्माकलसिंहः शत्रुनुपगजभेदनसिंहः ॥ यत्प्रतापमभजद्यदिहस ॥ सन्मनः सरसिग्ज

कलहंसः ॥ १६ ॥ तदनुगमलगदवनग्रश्वरः समभवद्वयप्रदांबुजे ॥ भूमरतांकलयन्मलांगवान् ॥ १७ ॥ तत्पादोदयसानुम

भ्युदयसृग्राद्यत्प्रतापाद्गुता ॥ दिक्चक्रप्रसरत्करक्रीतभूमृगखरारभासुरः ॥ आसीत् श्रीमहीपालाद्रचनृपतिः निर्नाशितारीक्षमा ॥ पालाल्यु

कृततीः कुनीतितिमिरप्रध्वंसनप्रत्यलः ॥ १८ ॥ तसुत्तर्जयतिद्विषद्वरि कुलत्रागसकपंचानतः ॥ श्रीमन्मंडलीकक्षितिश्वरशिरकोटीरहीरप्रभस्य

सिधुम्फपलक्षितात्कृतगतिषन्नम्यातद्यापियत् किर्तिस्मत्यमतीत्यवाद्धिबलयवाद्धिसारचरः ॥ १९ ॥ नाल्यं द्रुयः कुतउन्नतो नरपतीः कस्याः कुताविश्वभूः

स्तंपाने कुरुतः किमत्रजतिग्नोकिंदिट् कृतः स्वामीनागसोराष्ट्राधिपतीः सुरवाचरिपुभिश्चक्रुथकीं प्रतीतः ॥ किंदकमंडलीकः ॥ क्षीतिश्वरईहा श्रीराजराजीश्रीतः ॥ २० ॥

आगलानस्तंभकूपाजयकलकलन्नस्यासुरवांभाधिगस्तुः ॥ कतुः ग्दार्गीघासाग्धरपादधिमथनसद्यसोन्नक्षणोक्तः पूर्वाद्रिः खद्रचवश्वरकिरणरुवांग्वेरिराजांगनाना

मुग्धावेधव्यदिक्षाजयतिनरपातमंडलिकस्यचाहुः ॥ २१ ॥ गारप्रत्यार्थिनावुः किमपिहचचः आचायहंतपागतां ॥ यस्याश्वीयांघ्रिघागताश्वलितमृदुरजोप्युकरांशारतेजः ॥

हत्वाभूगलाकगमनंमलिनयतितमांतकीगमतपुरस्ताद्रूपयंभुक्तामदश्राक्श्रयतनरपातमंडलिकस्यासवां ॥ २२ ॥ चातुर्थ्यवतावधसः सुरगविरत्नंद्रुमान्यत्यभुग्राद्यत्करका

पृष्टयपुषश्चक्रेयमाजन्मतः ॥ सगचतन्ययुजस्वयाकुलहादादाग्नकनिष्माततां ॥ दृष्ट्वा मंडलिकप्रभोन्नभयतास्त्रघाभविष्यन्कथं ॥ २३ ॥ इति श्रीराज्यवंशायर्णनं ॥

अथ श्रीशाणवर्णनं ॥ असिस्वस्तिनिधि श्रीयानिरचविग्रमासपदं गवधि श्रीधर्मस्य वसुधारातभवभूमालिस्फुरन्मंडनं वापि कूपतटाककानमजीनप्रासादशैवाल्यं ॥

*N. B. The above is taken from a Stone near Nimanath's Temple... The date on which is Samvat 1339, Jyeshtha, Shudh 7.*

*On another Pillar there is given the date Samvat 1333.*

*The date of this Inscription is S. 1115 Chaitra, Shudh 7, which Captain Jacob supposes a mistake for 1215 &c.'*

## METEOROLOGICAL OBSERVATIONS, BOMBAY OBSERVATORY.

These observations were made almost entirely by the two Assistants at the Observatory, SANARDHAN PANT and KERU LUXOMAN. The time is the Observatory mean time, calculated from transits of several stars observed every day. The Barometer is a standard barometer, by ADIE of Edinburgh, lent to me by Mr. G. BUIST. The detached Thermometer is by NEWMAN, of Regent Street; but little dependence can be placed on the results, on account of there being no room in the building adapted for thermometric observations. The wet bulb is a small Thermometer, which bulb has been kept wet by repeatedly dipping its bulb wrapped in cotton. The wind has been noted by the laser watch at the Lighthouse, and I am indebted to Mr. HAYMAN for being allowed to copy them.

I have added a graphical representation of the barometric curves for the 21st April, May, and June, by which the form of the curves and the period of maximum and minimum will be understood by inspection.

A. B. ORLEBAR.

21ST APRIL 1841.

Time.	Hour.	Barometer.	Thermometer.		Wet Bulb.	Winds.	REMARKS.		
			Attad.	Detad.					
A. M.	6	29.989	81.1	81.2	72.0	N. N. E.	An arc of Cumuli moving from the S. W.		
..	7	30.010	81.2	81.3	74.2	N. W.			
..	8	.024	82.6	83.0	74.0				
..	9	.034	84.9	84.0	74.6	N. N. W.			
..	9½	.037	85.2	85.2	75.0				
..	10	.030	86.0	85.7	75.0				
..	10½	.035	86.2	86.4	75.5				
..	11	.030	86.3	86.6	77.0				
..	12	.012	86.0	86.2	78.0				
P. M.	1	29.969	85.9	86.1	78.3	N. N. W.		The Cirri which predominated, gradually gave place to Rain Clouds.	
..	2	.043	86.0	86.3	78.0				
..	2½	.038	85.3	86.0	77.8				
..	3	.030	86.2	86.5	78.0				
..	3½	.024	85.8	86.0	77.8				
..	4	.012	85.0	85.4	78.0				
..	4½	.010	85.0	85.2	77.3				
..	5	.000	84.2	84.6	77.2				
..	6	.013	83.0	83.3	77.0				
..	7	*.016	82.0	82.2	76.3				
..	8	.070	82.0	82.4	76.0				
..	9	.088	82.0	82.3	76.0				
..	9½	.092	82.0	82.3	75.5	.....	Lightning to the East.		
..	10	30.000	82.2	82.4	76.0				
..	10½	.010	82.4	82.5	76.2				
..	11	.012	82.3	82.5	76.0				
..	11½	.004	82.2	82.4	75.1				
..	12	29.997	82.0	82.3	74.9				
A. M.	1	.090	82.0	82.1	75.2	S.	Lightning and thunder. } Heavy Rain.		
..	2	.013	82.0	82.1	76.0	.....			
..	3	0.004	81.6	81.3	75.0	.....	Clearing on the West.		
..	3½	.080	81.4	81.4	76.1				
..	4	.072	81.2	81.5	75.0				
..	4½	.080	80.7	81.1	76.5				
..	5	.079	80.5	80.9	70.3			W. N. W.	Overclouded by Cirri and Cumuli.
..	6	.078	80.5	80.8	70.8				
..	..	29.982	83.3	83.5	76.2		MEAN.		

\* The above is a curious example of a conflict between the South-west and North-west winds.

21st MAY 1841.

Time.	Hour.	Barometer.	Thermometer.		Wet Bulb.	Winds.	REMARKS.
			Atad.	Detad.			
A. M.	6	30-011	83-0	83-0	77-0	E. W.	} Nimbi prevalling.
..	7	053	84-0	84-1	77-3		
..	8	062	85-4	85-4	78-5		
..	9	069	86-5	86-4	78-0		
..	9½	070	87-0	86-9	78-0		
..	10	068	87-5	87-3	78-0		
..	10½	068	87-9	87-6	78-3		
..	11	073	88-0	87-9	78-5		
..	12	068	88-1	88-4	78-4		
P. M.	1	040	88-8	89-1	79-5	W.	
..	2	020	89-0	89-5	79-9		
..	2½	010	89-0	89-8	79-4		
..	3	002	89-0	89-8	80-5		
..	3½	29-998	89-0	89-5	79-9		
..	4	083	89-0	89-5	79-4		
..	4½	079	88-3	88-9	79-8		
..	5	078	88-3	88-8	79-4		
..	5½	080	87-5	88-1	79-0		
..	6	084	86-1	87-1	78-9		
..	7	30-000	85-0	86-0	78-0		
..	8	010	84-8	85-5	77-7		
..	9	020	84-5	85-2	77-5		
..	10	032	84-5	85-0	77-1		
..	10½	034	84-8	84-6	77-3	} Clear.	
..	11	028	84-0	84-6	77-3		
..	12	010	83-7	84-3	77-3		
A. M.	1	006	83-7	84-3	77-3		
..	2	011	83-5	84-7	76-9		
..	3	29-988	83-3	83-9	76-8		
..	3½	30-001	83-3	83-7	76-3		
..	4	006	83-3	83-7	76-6	} Nimbi increasing.	
..	4½	29-988	83-1	83-6	76-5		
..	5	000	83-0	83-3	76-3		
..	6	30-012	83-5	83-9	76-8		
..	..	30-018	85-8	86-3	78-3		MEAN.

21ST JUNE 1841.

Time.	Hour.	Barometer.	Thermometer.		Wet Bulb.		Sympleometer.	Atad. Thermometer.	Wind.	REMARKS.
			Atad.	Detad.	1st.	2nd.				
A. M.	6	29.968	82.2	82.3	78.0	78.8	20.78	85.3		Nilmbi prevailing throughout the whole time.
..	7	.966	83.0	83.1	77.9	78.8	.79	85.1		
..	8	.968	84.2	84.3	77.9	79.4	.80	84.3		
..	9	.946	85.6	85.6	79.0	79.9	.76	85.5		
..	9½	.950	86.0	86.0	79.4	80.0	.78	85.9		
..	10	.968	86.7	86.6	79.7	80.0	.79	86.5		
..	10½	.962	86.7	86.7	79.2	79.9	.76	86.6		
..	11	.962	86.5	86.6	79.4	80.0	.78	86.7		
..	12	.958	87.5	87.5	80.1	80.8	.79	87.5		
P. M.	1	.946	87.2	87.3	80.6	81.0	.73	87.3		
..	2	.924	85.0	85.6	79.5	80.0	.74	85.2		
..	2½	.914	84.3	85.1	78.8	79.5	.73	84.7		
..	3	.905	86.3	86.6	80.8	81.2	.70	86.2		
..	3½	.900	87.4	87.6	80.7	81.1	.66	87.3		
..	4	.895	87.7	87.9	81.1	81.8	.65	87.6		
..	4½	.882	87.0	87.4	79.7	80.2	.66	87.5		
..	5	.888	86.2	86.8	79.5	80.3	.68	86.9		
..	6	.880	84.6	85.6	79.8	80.3	.70	85.7		
..	7	.885	85.1	85.5	80.0	80.7	.70	85.5		
..	8	.891	84.7	85.3	79.9	80.4	.73	85.4		
..	9	.916	84.6	84.9	79.0	79.8	.74	84.9		
..	9½	.912	84.5	84.9	79.0	79.5	.74	85.0		
..	10	.916	84.3	84.8	78.9	79.5	.74	84.9		
..	11	.924	84.5	84.6	78.9	79.2	.76	84.6		
..	12	.915	84.3	84.5	79.0	79.3	.74	84.5	Rain.	
A. M.	1	.908	83.9	84.3	78.5	79.2	.74	84.4		
..	2	.891	83.8	84.1	79.0	79.3	.72	84.3		
..	2½	.883	83.8	84.2	79.0	79.5	.72	44.2		
..	3	.878	83.6	84.0	78.5	79.0	.72	84.0		
..	3½	.868	83.0	83.5	78.8	78.4	.72	83.6	Rain.	
..	4	.880	82.0	87.1	77.8	78.0	.74	83.2		
..	4½	.858	82.2	82.6	79.2	79.3	.72	82.9		
..	5	.868	83.0	83.3	78.9	79.4	.71	83.3		
..	5	.882	83.2	83.5	79.1	79.4	.73	83.5	Rain.	
..	..	29.909	84.9	85.2	79.5	79.7	20.731	85.2		MEAN.

## ERRATA.

The proof-sheets of the first article not having been submitted to the author, either when the paper first issued from the press, or when it was re-printed, some errors in it require to be corrected. The Sanscrit words have not the long vowel marks, but this most readers will be able to correct for themselves.

- Page 2, line 24, *et passim*, for "Bokhars," read "Bakhars,"  
,, 3, ,, 3, *et passim*, for "Bandho Vishnavas." read "Baudho-  
Vais'navas."  
,, 3, ,, 19, for "Nama;" read "Náma;"  
,, 3, ,, 25, *et passim*, for "Abhanys." read "Abhangs."  
,, 3, in note, for "Pundarekaby," read "Pundarika,"  
,, 5, line 5, the three first words should be joined to line 4.  
,, 5, ,, 6, omit "who"  
,, 5, ,, 24, read, "Sopánde<sup>v</sup>a and Nivritti"  
,, 5, ,, 29, for "Salea" read "S'aka"  
,, 7, ,, 2, for "mothers" read "mother"  
,, 8, ,, 2, for "Kaber" read "Kabír"  
,, 8, ,, 3 of the Maráthi, for "बीन" read "बीन"  
,, 9, ,, 1, for "Shoka," read "S'loka,"  
,, 9, ,, 22, for "Bolaji read "Báláji"  
,, 9, ,, 33, for "Mamkesvar," read "Mánikes'var,"