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THE

MADRAS JOURNAL

OF

LITERATURE AND SCIENCE,

PUBLISHED UNDER THE AUSPICES

OF THE

MADRAS LITERARY SOCIETY

AND

AUXILIARY OF THE ROYAL ASIATIC SOCIETY.

VOL. VIII.

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No. 20—*July* 1838.

I.—*Third Report of Progress made in the Examination of the* MACKENZIE MSS., *with an Abstract Account of the Works examined.*—*By the Rev.* WILLIAM TAYLOR, *Member of the Madras Literary Society, &c.*

To the Secretary to the Asiatic Department, Madras Lit. Soc. and Auxiliary Royal Asiatic Society.

SIR,—Accompanying is my Third Report of Progress in examining and collating the Mackenzie Manuscripts, made up to the end of March last, which I beg leave to forward for the information of the Committee of Papers of the Literary Society.

To the best of my knowledge, and allowing for any possible over sight, the whole of the documents in the Malayalam language have now been examined and reported on; though there still remain various papers, in other languages, relating to the same locality.

A third volume of restored Manuscripts corresponds with this section of my general report.

I have the honour to be, Sir,
Your most obedient servant,
W. TAYLOR.

MADRAS, *May* 5, 1838.

A :—TAMIL.

a. Palm-leaf Manuscripts.

1. *Sacara Cadha* and *Kerala desa kaifeyat*, or the story of *Sacara* and account of the *Kerala* country.

This manuscript begins with a reference to the legend of *Sacara* (more fully narrated in the *Mahabharata*). A general allusion is herein made for the purpose of noting the effects of the inundation produced by the Ganges, in which *Sacara* had only a remote instrumentality. In consequence of the great overflow of waters, the country south of *Gokernam* was submerged, and the *Brahmans* took refuge on the hill, or mountain, named *Mahendira*. There they besought *Parasu Rama*, by the power of his virtue, to effect a restoration of the submerged land from the sea. *Parasu Rama* obtained a grant in consequence of his desire; and, standing at *Gokernam*, threw his celebrated axe as far southward as he could, and from that extent the sea retreated. The *Brahmans* were located therein, and received a promise from *Parasu Rama* of his appearing whenever they should think on him for the purpose of recalling him. He specially charged them to owe no fealty, and to pay no tax, to any king. However, the *Brahmans* disobeyed him; and, among other things, by calling in a king from the *Pandiya* country. *Parasu Rama* retreated to *Mahendira*; and was not again seen by them. The narrative afterwards notices the rule of *Cheruman Perumal*. He in vain endeavoured to take one of the fortresses belonging to the *Rayer's* country; and was mortified at his disappointment. *Parasu Rama* was invoked, and came to *Cheruman Perumal*, and embassies were sent to *Câsi*; but the whole did not effect any special result; and *Perumal*, finding his government weak, divided the country among eighteen chiefs, and retired. The power thenceforward came chiefly into the hands of the *Calicut raja*; but not without strifes and wars with his neighbours around. The latter part of the document is chiefly occupied with the account of an international strife; and it closes with a singular caution, to the learned, not to make known its contents to the vulgar.

REMARK.—The manuscript is written on eleven rather large palm-leaves, of moderately recent appearance, nevertheless insects have begun the work of destruction; and, here and there, a word is eaten away. It must be noted for restoration so soon as more urgent matter, in this way, is disposed of. As to the contents, they have in the early portion much resemblance to the *Kerala Ulpatti*; nevertheless the two statements on the whole are distinct: I think this MS. important to be compared with that, and some of its parts are perhaps more valuable than the *Kerala Ulpatti*. Like that document I think this one merits translation, as affording materials towards a digested account of the *Malayalam* country.

2. *Purúrava-raja Cathai*, or the tale of king *Pururava*.—No. 53.—Countermark 12.

This is a sort of romance grounded on some ancient legends concerning *Purúrava*, the son of *Budha* and *Ila*; but drawn out, by the addition of many apparently fictitious incidents, into a tale of the class termed *Upa-jnána*; in which the hero and heroine usually suffer great loss and damage, through the malice of *Sani*, regent of the planet Saturn; and, after passing through extreme distress and degradation, at length come forth to renovated, and increased, prosperity and happiness. It seems to be a somewhat favourite mode of writing among the *Hindus*. With the exception of some few matters at the commencement, there are incidents scattered through the tale calculated to interest and amuse; regarded as fictitious views of life and manners, very different from those of western people; but there is nothing of historical value; at least to the best of my judgment. A reference may be made to the notice, in a following page, of a Telugu poem, bearing a similar title with this one, and founded on the same early legend, though differing widely in details. The Telugu work is the superior one in point of composition. This Tamil work is in very ordinary prose. The manuscript is complete; but very much damaged by insects. Not wishing to let it pass out of my hands in that condition; and, at the same time, not thinking it worth restoring on paper, I have had it recopied on new palm-leaves, in which condition, with moderate care, it may long be preserved in the collection. In any series of *Hindu* romances it would merit a place. An expectation that it might possibly contain historical details, led to its examination at so early a period of the present enquiries.

3. *Jaina Panchamarca Ulpatti*, or an account of the five (irregular) systems among the *Jainas*. No. 173.—Countermark 1074.

A manuscript of ten palm-leaves, in Tamil and *Grant'ha* characters

mingled, after the *Jaina* fashion. It is complete: a few of the palm-leaves are damaged.

It commences with a reference to *Chandra-gupta* (contemporary with Alexander the great) whom the *Jainas* (as I apprehend improperly) class among the votaries of their system. *Chandra-gupta* had sixteen different dreams; each one indicative of evil, degradation, or corrupt ascendancy. He sought the explanation from a *Jaina* sage, who from them predicted, a decline of the power of the *Cshetriyas* with degradation, and divisions, in the *Jaina* credence. *Chandra-gupta* abdicated his throne in favour of his son *Simhasena*, and became an initiated disciple in the *Jaina* ascetic order. His preceptor was *Bhadrabahu*, who from the crying of a child prognosticated twelve years of famine; and, in consequence, assembling his associates, and followers, the whole company emigrated towards the south. In the midst of a deep forest, and at a certain hill, a celestial voice directed them to halt, and reside there; whereupon they took up their abode in the caves of the hill. After some time *Bhadrabahu* died there. *Chandra-gupta*, now a *muni*, or sage, attended to his funeral rites. His successor appears to have been *Visatácharya*, and the site of residence became the *Chola* country. In consequence of famine, the common people, or householders invited the ascetics no longer to live in the wilds, but to come among them, and reside in the fanes; when the people would minister to them support. To this request the ascetics consented. One of them while going out for alms, frightened a woman, causing a miscarriage; on which incident the people founded an entreaty to the ascetics to wear white garments *(Swétámbara)* by doing which an innovation was produced, and the *Swétámbara* sect was formed. After the famine the whole company returned towards the north, and with an intervening incident by the way, in which, *Chandra-gupta* had a share, the whole of the tribe returned to *Patali-putra (Palibothra)* in the *Saoviraskhtira* country; before mentioned as the capital town of *Chandra-gupta*. Here a discussion arose about the wearing of the white garments, ending at length in the formal establishment of the usage as a distinct class.* Out of them proceeded a class termed *Yavaniyam*, who were unclothed ascetics: they taught some opposite tenets, relative to prescribed fasts, and to prohibited periods of journeying. Out of these arose a class who rejected the carrying of the peacock-fan and water-cup, whence they obtained the name of *Nishpinjam*; by which they became designated as a third sect, or subdivision. These three were established in the *Cali-yuga* year 160. This is now 2320 years ago, as shewn by a *sloca* or poetical stanza. About forty years later *Dravida-ácharya*, opposed *Pujaya-pata-svámi* (head ascetic); and, introducing various innovations, formed the *Drávidam*, as a fourth subdivision. The fifth class arose out of the alleged circumstance of a teacher, supposed to be dead, arising re-animated from the funeral pile. According to the regulations of the system, a dead body should be halted half-way to the burning ground, and carefully examined as to the possession of life, or otherwise. If then re-animated, such a one would be received; but one arising re-animated from the funeral pile, must depart the country. This person did not obey the rule; but assembling some people around him, established an additional and apparently much more lax system, termed *Cashta-sangham*. In this way "five worthless systems" were formed, differing from the *mula-sangham*, or original assembly.

* Among minor tenets one was, their holding the possibility of women obtaining *mocshem* (or beatitude), whence it would appear that the other *Jainas* denied that possibility.

REMARK.—The date in this book is most valuable, as it agrees with other researches; harmonizes with an alleged interpolation by *Brahmans* of some eight or nine hundred years; and brings the commencement of the *Cali-yuga* to some time near 500 A. C. On the correct fixing of the beginning of that era very much depends. This book further yields written evidence as to the coming of the *Jaina* system from *Mágadha* into the *Peninsula*: heretofore inferred by me as probable, from more general data, and analogies. *Chandra-gupta* is probably introduced by licence of authorship; and the predictions ascribed to him were most probably put into that shape by way of ornament.

The name of *Chandra-gupta* may be understood as loosely applied to one of his descendants; and the *Páli* work, entitled *Mahawanso*, states that a prince of that dynasty assumed the sacerdotal office among the votaries of *Buddha*, and became instrumental in the extensive dissemination of the system.

As a whole this brief document seems to me valuable: it adds an item or two of additional evidence to other documents; and if any others are translated this manuscript ought perhaps to be of the number selected for that purpose. Meantime it has been restored on paper.

The manuscript is entered in the Des. Cat. vol. 1. p. 161, as follows:

"XL. *Panchamarca Utpatti.*

Palm-leaves, Tamil character. The origin of the five sectarial divisions of the *Jainas*."

4. *Jaina-kudiyirukira-ur-kaifeyat*, or an account of the villages inhabited by *Jainas*.—No. 223.—Countermark 1076.

This imperfect manuscript contains a list of places in the country adjacent to Conjeveram and Madras, which are dwelt in by the remnants of the *Jaina* population; formerly predominant in the same general locality. Some towns or villages are described as having fanes, and some as being without them. Some of the fanes are used in the public exercise of the religious system of the *Jainas*, and some are not so used.

REMARK.—This manuscript wants seven palm-leaves at the beginning, and is not complete at the end. It is by consequence a mere fragment; and what remains is almost destroyed by insects. Should the leaves wanting hereafter be met with the whole may be attempted to be restored, as a remaining record of the recent state of a religious system gone to ruin and decay, under the prevalence and patronage of *Brahmanism*; consequent to the *Vijayanagaram* conquest of the Peninsula.

In the Des. Cat. vol. I. p. 162, there is a brief entry of a MS. corresponding in subject with this one; but as the title is somewhat different, I am not quite certain whether it be, or be not, the same.

5. *Nigandu* or Dictionary.

This book attracted attention from its appearing to be very old. It must indeed have been written, a great many years since, yet the writing and leaves are in good preservation. It had no mark or title, save a random one affixed to it, by a servant at the College. On examination it proved to be an incomplete copy of the *Nigandu*, a dictionary in metre of Tamil synonyma usually ascribed to learned *Jainas*. It wants two leaves at the beginning; four leaves in the middle: and thirty-three leaves towards the end. It is a common school book.

6. *Marana Gantaca*, or astrological indications of death.—No. 70.—Countermark 231.

This is an astrological work. It is in good order; but is not complete at the end. Vide Des. Cat. vol. I. p. 255. art. IV.

7. *Bhasma Murai*.—No. 80.—Countermark 245.

7½. *Ibid.*—No. 81.—Countermark 246.

Two copies of a medical work, on various medicinal preparations, ascribed to *Agastyar*. The entire work is large, and valued by the native doctors. Both of these copies are incomplete. They each contain some recipes, regarded as valuable; but, as having no bearing on the special objects of the present researches, I pass them by, as well as the preceding number, without enlarging. Vide Des. Cat. vol. I, page 258, art. III.

8. *Mathana-giri raja Cathai*, or the story of the king of *Mathana* mountain.—No. 164.—Countermark 149.

This book, on examination, proved to be an incomplete manuscript; the subject of which is a series of tales, upon a plan somewhat similar to the Arabian Nights' Entertainment. Out of the twelve tales, a part of five only are contained in this copy. It is by consequence passed by, with this brief mention; restoration, or abstract, being superfluous.

It is entered in Des. Cat. vol. I, p. 222, art. XXVI.

9. *Tribhuvana-koil St'hala purana*, or legend of the fane of *Tribhuvana*.

This MS. is only a very brief sketch of the legend of the said place near to *Chitambaram*. The legend was delivered by *Nareda* to *Mantata*. The 33 crores of celestials had their fear of the *Asuras* removed here. An account of the different *tirt'has* or pools is given. A reference is made to *Hiranya-casipu*, and the *Nara-singha-avatara*; and *Vishnu*, in that form, is stated to have done homage at this *Saiva* fane. A reference is afterwards made to *Kulottunga Cholan*; his conquests and endowments of this fane, and other places. He built a palace at this place. The writer states that his time permitted him to give only a very brief abstract.

NOTE.—The MS. is written in a scrawling hand, covering much space with little matter. It is complete, and in good order. It claims no further notice than what is here given. It is entered in Des. Cat. vol. I. p. 172, art. XXIII.

10. *Pandya-rajakal-purana Charitra*, or ancient narrative of Pandiyan kings.—No. 107.—Countermark 71.

This manuscript, in the former portion, is a very brief outline abstract of matters contained in the Madura *St'hala-purana;* needless here to be repeated. It comes down from *Kulasec'hara*, with the usual list of fabulous circumstances, to *Kirta Pandiyan* and the *Manu's* flood (as alleged) in his reign. The restoration of the place under *Kirti-pushana Pandiyan*, is then narrated, conformably to the aforesaid *Purana;* and the abstract is continued down to *Kuna-Pandiyan*, and the impaling of the *Bauddhas*, with the account of which, and with a few further unimportant particulars, the *St'hala-purána* ends.

This manuscript then proceeds thus: "In the *Cali-yugam* the kings agreeing with this age" (that is, as I suppose, not fabulous or extraordinary) "are according to the following detail:"

1. Soma Sundara.
2. Carpura Sundara.
3. Cumara Sec'hara.
4. Cumara Sundara.
5. Sundara Raja.
6. Sanmuc'ha Raja.
7. Meru Suntara.
8. Indra Varma.
9. Chandra Kulatipa.
10. Mina Kethana.
11. Mina Dhvaja.
12. Margatha Dhvaja.
13. Martanda.
14. Kuvalaiyánanta.
15. Kunaliya.
16. Satru Vigara.
17. Satru Sangara.
18. Vira Varma.
19. Vira bagu.
20. Vaculáparana.
21. Vajra Singhu.
22. Varuna Kulottunga.
23. Adi-vira-rama.
24. Kulaverdd'hana.

The first inroad of Mahomedans under one herein named *Múlla* is then mentioned, and their being expelled by a *Hindu raja*, from the north, named *Camanan*. It then states that one of the offspring of the *Pandiya* race, named *Soma Sec'hara*, who had before fled to the westward, collected forces by the aid of the *Malayalam*, and Mysore, *rajas;* and, having subdued the greater part of the kingdom, the late conqueror of the Mahomedans *Camanan* yielded up to *Sóma-sec'hara* the country, and retired. The race from *Soma-sec'hara* is then continued thus:

25. Soma Sundara.
26. Raja-raja.
27. Raja Kunjira.
28. Raja Sec'hara.
29. Rama Varma.
30. Varata Raja.
31. Cumara Singhu.
32. Bima-sena.
33. Pratapa-raja.
34. Vara-guna.
35. Cumara Chandra.
36. Vara tunga.
37. Kulottunga.
38. Chandra Sec'hara.

The last, it is here said, had no offspring, and therefore adopted *Visvanatha nayak* who ruled by permission of the *Rayer*. His race is then given, in the usual order, down to *Bangaru Tirumali nayak;* but without any other details than simply a list of names.

REMARKS.—The manuscript was considerably injured by insects, and I therefore had it restored upon paper.

The ancient *Pandiya* history having become a subject of some useful discussion, adapted to sift out the truth, is a circumstance, which perhaps invests the above brief document with more consequence than otherwise would belong to it. In the Des. Cat. vol. I. p. 196. art. vii. the entry occurs "*Pandiya-rajakal, a* paper, *b* palm-leaves." The MS. above abstracted is the palm-leaf copy. This was translated by me a considerable time since, and not then having had such acquaintance with the Des. Catalogue as I have since obtained, I could not tell how to reconcile the discordancy that was discovered, and waited till I should meet with the other copy. This I have lately done. It is the document adverted to, next in order to this one; and is quite another work, differing in title, in size, and in contents. How the two could have been classed together, as two copies of the same work, I do not presume to determine. Suffice it to state, that the abstract given in the Des. Cat. is entirely deduced from the large paper manuscript, and that the contents of the preceding palm-leaf MS. are silently passed by.

It may be noted that in neither of these two documents is there any mention of a *Marava* conquest, and ascendancy over the *Pandiya* kingdom. The document (or more than one, if there be more) having such mention, will be discussed in due order.

Allowing for some preceding kings, the list given of those in the *Cali yuga* offers a point of observation. Professor Wilson in an appendix to his sketch of *Pandiyan* History, published in the Journal of the Royal Asiatic Society, in the midst of a condescending notice of my 1st vol. of Or. Hist. MSS. seemed fully disposed to reject altogether the evidence of the "Supplementary Manuscript" contained in that volume; because, as he stated, it differed in the names of *Pandiyan* kings, from all other manuscripts; and this statement being accompanied with an imposing list of authorities attached to the sketch, might seem to render it conclusive. Here, however, is at least one other manuscript, which contains the same evidence as the Supplementary Manuscript. Allowing (as both MSS. do) for some preceding kings, and beginning with *Soma-Sundara*, the list of names is the same in both documents; with a variation only as to the twentieth, herein named

Vaculaparana, and in the Supplementary MS. *Macudavardanen.* In other respects, as to names and number of names, down to *Chandra Sec'hara*, the last of the legitimate *Pandiyans*, both authorities accord. Let this circumstance not be forgotten, whenever the history of the *Pandiya* dynasty is attempted to be finally adjusted.

It is my growing conviction, that the Madura *St'hala-Purana* is very little better than a tissue of falsehood, got up with a view to veil the truth, and mingling a few real incidents with its marvels, to render the compound palatable. From this opinion, not hastily formed, I do not think I shall have future occasion to depart; and, if such be the true state of the question, then whatever has been done towards elucidating the earlier portion of *Pandiyan* history will require extensive correction. For almost all documents borrow from that *Purana*, or follow its statements; and, such being the case, any multiplicity of evidence loses value, and cannot be depended on, if the original authority itself be not authentic.

b. MANUSCRIPT BOOKS.

Manuscript book, No. 6—Countermark 70.

Pandiya-raja-Kuladiya-purana-Charitra, or an account of the most early dynasty of the royal *Pandiya*-race.

This is a large sized book, composed of country-paper, roughly written in several differing hand writings. It contains a selection of stories from the Madura *St'hala Purana*, transmitted in five different portions from Madura to Colonel Mackenzie, at an early period of his researches; and these five portions are bound together in the book in the transposed order 3, 2, 1, 4, 5. On examining them, in their proper order, it was found that all the tales are derived from the contents of the *St'hala Purana*; but not including the whole, and coming down only to the formation of the Madura College.

From memoranda (I think in the Colonel's hand-writing) it appears that these portions began to come into his hands in December 1809, and were immediately handed over to one *Streeneevasiah* to be translated; the last portion* is marked as received 12th January 1810, and as translated March 1810, while No. 3 was translated 23d September

* Which contains matter relative to the Madura College.

1810, and No. 4 in November 1810; thus shewing that information concerning the College was earliest sought.

In general, the writing remains legible; but the paper is somewhat damaged by insects. All the matter is however sufficiently detailed in my abstract of the Madura *St'hala Purana* published in vol. I, Or. Hist. MSS. It has seemed to me, by consequence, useless to incur the expense and labour of restoring this book, which can offer nothing new. I examined it with attention, from conjecturing that the title of the book might be confounded with another termed *Pandiya-rajakal*, and from wishing to ascertain if matter ascribed to the *Pandiya-rajakal* was herein contained. (See notice of palm-leaf MSS. No 107. countermark 71 going before). My opinion of the Madura *St'hala Purana*, and by consequence of these stories taken from it, will there appear: at the same time not denying a foundation of truth in some of them; for there doubtless are real incidents recorded, though irrecoverably clouded by *Saiva* intolerance, fiction, and fable.

By comparing the titles of this, and the preceding MS. it will appear, that the mistake which led to a confounding the two together in the Des. Cat. may possibly have turned on the word *Kuladiya*, which is a compound of the Sanscrit words *cula* a race, and *ádi* a beginning. The first syllable of the former word may have been confounded with the Tamil plural *kal* in *rajakal*, kings. I offer the conjecture simply as a probable solution.

Manuscript book, No. 1.—Countermark 755.

Section 1. Account of *Chitamburam* (or Chillambram) in the *Chóla* country.

This is a *St'hala Mahàtmya*, or legend of the *Saiva*-fane.

Some stanzas extracted from different *St'hala Puranas*, in praise of *Siva*, are prefixed.

The purport of several *adhyáyas*, or sections of the legend, is briefly intimated: the contents of the tenth are more fully given. The former sections relate to *Siva's* assuming the form of a mendicant, tempting the *rishis*, or ascetics, of the neighbouring village, and also to *Patanjali*, a *rishi*, half man, and the lower part a serpent; whose story is closely connected with the place. The tenth narrates a transformation of himself by *Siva*, first into an old man, and then into a young one. Such tales, at first, appear to offer singular specimens of Brah-

manical fatuity; but, occasionally at least, they ve[illegible] facts, by a covering of enigma, or symbol. Some more *slocas* fr[illegible] are given.

The legend of *Vyàcra-puram* or (tiger-town) near *Chilambaram*.

A *Vedar*, instructed by a Brahman, paid homage to *Siva*, and was beatified. *Sira* tells *Vishnu* that this place is chief of all places of pilgrimage; and mentions certain wonders, among the gods, occasioned by bathing in the sacred pool. *Vishnu* tells certain ascetics that *Chilambaram* is the first of all sacred places, and charges them to reside there. Various other marvels, arising from bathing at this place, are narrated. There is a tale of *Siva* contending with *Cali*, in dancing; and *Cali*, being vanquished in the trial of skill, received permission to drive away all other evil demons from the neighbourhood, and to reside as sole guardian. A specification is given of the peculiar benefits arising from bathing here, in the *Ardra-nacshetra* (or sixth section of the lunar-orbit).

Some stanzas selected from various Tamil poets follow; the object being to magnify the god at *Chilambaram*, and the place itself, above all other gods, or places: asserting the latter to be truly the earthly *Cailasa*. Such stanzas in themselves are curious, and may be usefully employed, time and occasion serving.

There follows an *agavel*, or poem of the easier kind of versification, in which is narrated an observable incident, to the following effect:

The wheels of the car of the tutelary goddess, on a festival occasion, sunk deep into the ground in consequence of its humidity; so that the car could not be moved. In this predicament the *Chola*-king (name not mentioned), and all his attendants, were under the necessity of fasting, so long as the car continued immoveable. During the painful suspense, a *Brahman*-woman became possessed by the spirit of *Cáli*, and announced aloud, that the sacrifice of a youth of sixteen years of age was required; when the car would move. Such a youth was sought after, and one named *Vira Perumal* was found, who agreed to become a sacrifice: rejecting the offer of wealth, he required that his relatives who came to do homage, in the fane of the goddess, should always have the privilege of doing so first, and in preference to all other persons; moreover that a statue of the youth himself should be placed in a conspicuous part of the fane. These conditions being complied with, the youth laid himself under one of the wheels of the car, which then passed over him, and crushed him to death, as an offering to the goddess of the shrine.

Section 2. Account of the fanes at *Ariyatur Udiyar-palliam*, and *Turiayur*.

Prefixed is a lengthened enumeration of grants of lands, groves, and reservoirs, made to the fanes at those three places.

Detail of the fane of *Nilivana-isvara* at *Tirupanchili* in the district of *Turaiyur*.

It is an ancient place, but the *St'hala-purána*, and other documents, were lost. Mention of grants given, and re-called, by the chiefs of *Turaiyur-palliyam*. The Nabob continued whatever grants he found to be actually in force. The Honourable Company acted in the same manner.

Copy of an inscription at *Ténùr*, in the district of *Turaiyùr*.

Dated in Sal. Sac. 1621, Cal. Y. 4808; gift of a village and two or three groves to the tutelary goddess *Camacshi* of *Ténùr*, by a female named *Camachi*, the daughter of *Vasapa-reddi*, the chief of *Turaiyur*.

Detail of the fane of *Nandikesvara-svami* at *Tenur*.

The legend of the place is to be found in the tenth section (*adhyaya*) of the *Scanda-puranam*. The book was in the house of one *Bhascara-guru*; but was lost during public commotions.

Tradition states, that the early endowments were derived from *Chola* kings. More lately a grant of *Callatur* and of its lands were made by *Camachi*, wife of *Nallapu-reddi*, to the Brahmans of the place.

Detail of the *Tirupattur*-fane. *Brahma* came here, and paid homage to *Siva*, when the images obtained the name of *Brahma puri-isvara*, and *isvari*. He paid homage here, in order to obtain the power of creating. *Subrahmanya* paid homage to remove the guilt of *Brahmahatti* caused by killing *Padmasura*. Tradition states that the *Chacravertis* made gifts to the place. Unknown kings had five walls built around the fane. Tradition states, that seven villages specified, were given to the fane; but there are now no vouchers to that effect. Some inscriptions in the *Ayinar* fane having become much obliterated, they cannot be correctly copied. From Sal. Sac. 1464 to 1696, certain grants were made, including six villages and two groves. Concerning these grants there are details.

Detail of the fane at *Uttatur*, in the district of *Turaiyur*.

The account is put into the mouth of *Suta rishi*, who states that he delivers it as it was narrated by *Nandikesvara* to *Sanat-Cumara*. It has five remarkable points, which assimilate it to be the five lettered symbol of the *Saivas*. The praises of the place are then stated, according

to figures of speech customary with the *Saivas*. Great benefits arise from any act of homage. After *Siva* had cut off one of *Brahma's* heads, to humble the latter's pride, the said *Brahma* did penance at this place, and bathed in a reservoir, which thence acquired the name of *Brahma-tirt'ha*. In consequence of *Brahma's* so humbling himself, *Siva* restored to him his power, and office, of creating; and directed him to build certain fanes, and *mantapas*, or porches. Many kings endowed these places, which afterwards went to ruin. In Sal. Sac. 1316, the third of the (northern) dynasty (at Madura) *Kistnapa-nayaker* gave grants, which continued down to the time of *Runga-Kistna-Mutthu-Virapa-nayaker*, and consisted of *Uttatur* and *Mottan-guri*, villages. In the disturbances caused by Chunda Saheb, and the Mahomedans, many records and inscriptions were destroyed. The measures of lands, belonging to the fane, are stated.

The *St'hala Mahatmya* of *Uttatur*.

The origin of the place is traced up to the time of *Rama*, who returning from his conquest of *Ravana*, received at this place the congratulation, and benediction of *Valmica*, and other *rishis*. The image here worshipped is called *Cotanda-Rama-svami* (or the *bow-holding-Rama*); but the inscriptions, books, &c., perished many years ago. Some matters are mentioned, by tradition; and, chiefly, that the place had an endowment of two hundred pagodas annually, appropriated to it from the revenues of the before mentioned *Saiva* fane, by order of the English government.

Detail of the fane of *Chelli-ammen*. This is the fane of a local goddess deriving its means of support from the before mentioned endowed *Saiva* fane. The worshippers, at this place, make their bed of thorns and brambles, and repose on them, as an act of penance.

Detail of the fane of *Cotanda-Rama-svami* at *Ariyalur*.

The former wilderness was cleared by a *Marava*-man named *Rama-upulala-Marava-rayen*; in doing which six images were dug up; and by directions received in a dream, a fane was built for their reception, which the said *Marava* endowed by presenting to it the village called *Yerra-cudi*, producing an annual revenue of four hundred pagodas.

Further particulars concerning *Chitambaram*.

A detail of the tradition of the legend from *Siva*, originally, down through various sages of repute in *Hindu* annals.

It is the residence of *Sabha nat'ha*. There is an immense mountain beneath the place, and under the earth. All the celestials pay homage to the form of *Siva* therein found. A *muni* received there the gift of climbing trees to avoid tigers, without trouble, and also the gift of hav-

ing eyes in his feet. *Siva* destroyed the penance of the sages in the *Tarugavanam*, and lowered their insolence. The dancing of *Siva* at *Chitambaram*, at the request of *Vishnu* and others. Gifts to a sage named *Vyacrama*, and to another named *Patanjali*; the former a man-tiger, the latter half-human, half serpentine. Three thousand Brahmans were called hither by order of *Brahma* to attend a sacrifice. Reference to events in the period of the fifth *Manu*. A king named *Sinha-varma* son of the fifth *Manu*, being diseased, abdicated in favour of his brother; and came on pilgrimage to the south. He first came to Conjeveram, which was a forest. Proceeding thence he met a *Vedar* (wild hunter), whom he took as a guide, and who on coming to *Chitambaram*, was frightened at the sight of the man-tiger, and semi-snake; but, receding, he told *Sinha-varma*, and then left him to find his way. The said king there lost his white leprosy, and acquired a golden-coloured form. He had a vision of the god: and was then dismissed, being directed to go and perform the funeral obsequies for his deceased father, to install his younger brother, and then to bring with him the afore-mentioned three thousand Brahmans to this place. The said king (now called *Hiranya-varma* from his golden form) returned; and assembled the three thousand *Brahmans* at their residence in *Antara-vedi*; who, with sacrificial implements and other necessaries, were mounted on as many conveyances; the king bringing some of his relatives, and some treasure with him. The Brahmans were counted every day; but on reaching *Chitambaram*, one was found to be missing. On searching for the lost person, and his conveyance, a celestial voice was heard, directing to discontinue the search; for that the said voice, or *Siva*, was the person in question, who had accompanied the Brahmans, and was one of them, as also that, with the exception of a few peculiar immunities specified, the Brahmans [illegible] the same with himself. The king then esteemed the *Brahmans* the same as *Siva* himself. He was crowned at *Chitambaram* by *Vyacrama-rishi*. The king next [illegible] all fanes, and sacred buildings restored, by the aid of *Visvacarma*; and the *Brahmans* were located in three thousand dwellings, built for them, with all needful appurtenances. The construction of the particular halls in the fane is then specified. There are four *Puranas* written on this subject.

So far is the *St'hala Mahatmya*, or legend.

There is then a reference to an inscription dated in Sal. Sac. 1515, in which it appears to be recorded that many kings repaired, or ornamented, the fane. By reference to other inscriptions it appears (according to the book) that kings of the locality made many other dona-

tions to the fane from Sal. Sac. 1516, down to S. S. 1607. From 1608, down to 1678, or seventy years, during the rule of the Nabob at Cuddapah, all things at this place were involved in trouble by the Mahomedans; and there was no public exercise at this place, of the *Saiva* religion. The *Brahmans* lived on alms which they sought as mendicants. The French had an unsettled rule of one year; but the fane was still supported by alms. The Mahomedan Nabob succeeding acted, during twenty years, as the Cuddapah ruler had before done. In S. S. 1706, the troubles occasioned by Hyder Ali arose, and lasted during four years. In S. S. 1710 (A. D. 1788), under the ascendancy of the English Company the fane was well provided for. In S. S. 1711, during Mahomed Ali's government, for six years, all things were again in disorder; and the *Brahmans* subsisted by begging. From that time forwards, whether under the English, or Nabob, the festivals and ceremonies of the fane had provision made for them.

A specification follows of the various processions, and the ceremony observed in each of them.

There are now, on the establishment of the fane, 225 Brahmans, officiating in courses and receiving their share of the revenues. With them fifteen subordinate assistants, eight faithful watchers, and twenty other persons, musicians, *danseuses*, and the like attendants.

The preceding matters were written down, as the result of enquiries made of the officiating Brahmans, concerning the earliest antiquities of the place. (Applicable to the portion headed "further particulars, &c.").

A short statement follows, the purport of which is, that in the time of the deluge, the image of *Sabhapati (Siva)* was taken away, and cast into a tree, of which it at length formed a part; and, by certain mystic sounds, and an appearance of the god in vision, was discovered by the three thousand Brahmans, on their first coming to the place. During a certain period of rule of the *Bhonsla-race* at Tanjore, this image remained at *Tiruvarur*, and at a later period was deposited at *Chitamburam*.

Section 3. The genealogy of the chief of *Nadava-curuchi*.

This account contains the usual particulars of such papers, relative to the southern Poligars; but with some matters in this one, of rather special interest. The leading facts are, that the ancestors of the line

emigrated from *Kiluvai Kundiyan* fort; fought with the *Kallars*, or thievish tribe of the south, and acquired a principality, given to them by the *Pandiya* king. During a hunting excursion, a tiger suddenly sprang from its covert, and attacked the party, of which the *Pandiyan* king was one. The Poligar of this line killed the tiger, and was rewarded by the distinguishing emblem of a tiger-skin under his saddle; a token of distinction and honour. After a succession of nine following chiefs the *Pandiyan* king demanded a wife from their tribe: the reply to which demand was, that their tribe could not intermarry with the descendants of the lunar race *(Chandravamsa)*. The *Pandiyan* king came to make war against their tribe; in consequence of which they abandoned their estate, and came to *Sundara-pandiya-puram*, where they had much trouble with the *Kallars*, whom they exterminated; and were confirmed in possession of the said town by the *Rayer*, from the north. Seven generations resided there. Thence they retired before an invading force, which would seem to have been Mahomedan. They fought with *Kallars* in the *Vira-singhu-nadu*, and overcame them. They were sent for by a king, who is termed *Vicrama-pandiyan*, and again *Paracrama-pandiyan* (the latter name being titular), who gave it in charge to them to exterminate the *Kallars*, promising them the country subdued as a reward. These people immediately after are termed *Curumbars* (shewing, by the way, that these *Kallars* or *Curumbars*, a tribe having affinity with the *Maravas*, were not aboriginally *Hindus*, but a part of the extensive people belonging originally to the Peninsula, of whose extermination by Hindu colonists we have so many vestiges in the papers of this collection). They accomplished the task of slaughter, committed to them, until no *Kallars* remained: they received the town of *Nadava-curuchi*, with a surrounding dependency in the midst of the *Kallar* country, as their reward. Here they carried on cultivation. They afterwards received another commission against the *Kallars* of the *Curumbur-nad*; whom they subdued; and assumed the district, that belonged to those people. They next rendered a service to *Kulaes-c'hara* (the Madura king) by rescuing a large number of cattle which had been seized by the ruler at *Kayatá'ttur*, who was at war with the Madura prince. For this service they received distinction, and additional lands. After three generations the mention occurs of the *Kartakal*, or northern viceroys; and of the appointment of chiefs to guard the bastions of the fort, which took place under the first of those viceroys: the chief of this district was one of those so appointed. Except the building of an *agraharam* at *Sundara-pandiya-puram*, nothing occurs, till the ascendancy of the Mahomedans

in the *Pandiyan* country; from whom this tribe received an additional village with dependencies. A few names of the genealogy occur, coming down to the writer, who terms himself the twenty-ninth in succession to the chieftainship.

REMARK.—Few of the accounts of the southern Poligars, go up to so high a period of past time as this one. Taking the twenty-nine successions, to the chieftainship, at the usual average of thirty-three years to a generation, this would carry up the early portion of this account to about A. D. 800 which accords tolerably well, with the known period of the accession of the first of the northern viceroys of Madura; that is about Sal. Sac. 1480 or A. D. 1558. There is a want of dates, and of the names of *Pandiyan* kings, in the early portion of the narrative, which is to be regretted; but the most important fact throughout is the extermination of the aboriginal *Curumbars* by this tribe, adding to the evidences on that subject already afforded; and shewing that the *Hindus*, as colonists, wherever they came exterminated the earlier possessors of the soil, and were not themselves Aborigines, as we Europeans, for a long time, supposed. As adding an item of evidence in proof of this great, and leading fact, I am of opinion that this paper merits a full, and circumstantial, translation.

Section 4. Account of *Caveri patnam* (situated on the ancient debouchure of the *Caveri*-river).

No exact date can be given; but, from various reasons stated in the paper, the origin of the place is fixed at about nine hundred years ago, that is *circiter* A. D. 900. For four hundred years it is stated to have been in a flourishing condition, and to have covered, both in length and breadth, about ten miles each way (perhaps somewhat exaggerated, even allowing for the mode of building towns in the east). One portion of its site is now submerged by the sea. There is a family of merchants very distinguished at this place, whose history involves many ancient matters connected with this town, and as such is given to the following purport.

A string of salutations to gods and poets, with a mention of distinguished *Saiva*-fanes, introduces a reference to *Vara-guna-pandiyan*, tracing (erroneously I imagine) the derivation of the name to that king's declining to eat rice, the food offered to the god, and substituting for his own diet, the grain called *Varacu* (Paspalum frumentaceum). This *Varaguna* (or *Varacuna*) *Pandiyan*, having by accident

[illegible]ed a *Brahman* became afflicted with *Brahma-hatti*; and, under the influence of that evil, neglected his kingdom: the *Chola* king took advantage of the opportunity to invade the *Pandiyan* kingdom; but the latter under the special favour of *Siva*, not only repelled the invasion, but conquered the *Chola* kingdom; and ruled over it, as well as his own. He also got quit of his afflictive visitation, at a fane in the *Chola* country. Other particulars of his devoteeship are given (a little singular in their way); and then the bearing of this preface appears, in as much as the god favoured *Varaguna* with a sight of all the special fanes of *Siva*, in vision, and afterwards the celestials chose the one at *Caveri-patnam* as being of special importance.

At this town there were sixty thousand inhabitants, of one tribe, engaged in commerce; who were accustomed to eat together indiscriminately. The chief of this people was *Vengada chetty*, entitled *Patnapillay*. He had eight thousand ships, or vessels of his own, and had brought to him, as his wife's dower, another thousand, or nine thousand in all. With these he traded to *Irza* (probably Ceylon); and other neighbouring islands. While thus occupied, the following circumstance occurred. At the fane of *Maratapa-svami* the head Brahman was unable to get married, from a want of means to defray the attendant expenses. The god appeared, in vision, and told him to sell the image in the fane, which the Brahman declined doing. The god then assumed the form of a young lad, of the merchant tribe, and the Brahman took this lad and offered to sell him, as a slave, to *Vengada-chetty*; who, asking how he a *Brahman* could have a child of that tribe at his disposal, the *Brahman told a story to serve* the purpose; and meantime, a seemingly valuable jewel was brought, and offered in sale to the said *Vengada*. All thought the jewel valuable; but the lad found many faults, which led to a discussion; and the event proving the lad to be in the right, *Vengada* was induced to purchase him, at the price demanded by the *Brahman*. Some time after a thousand ships were to be dispatched, of which 500 belonged to *Vengada*, and 500 to the other people of the place: upon some deliberation the lad, named after the god *Maratapa*, was sent in charge of the chief man's part of the convoy. On going to *Candidesam* (Ceylon) the other traders all bartered their goods, and laded their vessels advantageously with a return freight; but *Maratapa*, after selling his merchandize, expended the proceeds on the fane of *Subrahmanya*, and his attendants in that island. When the others were about returning they called *Maratapa* to accompany them; who laded his vessel (or vessels, for the sense in this respect is not clear) with *vrattis*, or fuel made of cow-dung in dried cakes. He was laugh-

ed at for this proceeding; and the merchant fleet put to sea on their return. On the voyage a tempest arose in which great trouble was experienced; and, after a few days, the people were obliged to put into some port, or to land on some shore, not specified. By reason of delay, the fuel on board the other ships was expended; and the crews now solicited the lad *Maratapa* to sell his *vrattis* to them. He replied that he had not brought mere *vrattis;* for that inside of them gold-dust was concealed. Being pressed by hunger they urged him to sell the fuel, consenting to seal up one cake and preserve it, and to pay him for all the rest at the rate of its value; to be ascertained after they should reach home. He consented; and, the engagement being made, he sold his *vrattis;* and the purchasers, cooking their food therewith, rejoiced at this deliverance; praised their preserver, and blamed themselves for laughing at him, before leaving the island. The sequel was that, on arriving at home, *Maratapa* was treated worse than he had been by the people of the ships; but, on bringing the matter to a test, the quantity of gold dust was found equal to many lakhs of money; the people of the town were impoverished, and *Vengada* master of the slave became enriched, to a very great degree. *Vengada*, and his wife gave the lad manumission, in the story, mythologically accounted for. The pair became very proud, in consequence of their great wealth. The god now assumed the guise of a mendicant; and, by a device employed, caused an entire change in the merchant's views. He became endued with what the document terms *spiritual folly*, under the influence of which he gave away all his wealth to people around; and, abandoning his house, became a half-naked ascetic. On this subject several things in the native taste are added; evidently by way of ornament to the writer's narrative: the sequel is the only thing here claiming notice. The god had promised him beatification at *Tiruvarur*. He accordingly went thither; and passed his time with the cow-herds at that place. It was his custom to cause them to bury him, by day, up to the shoulders, leaving only his neck and head above ground; and then to take him up at night. Regarding him as an idiot, they amused themselves, by striking him on the head and neck. One day, towards evening, all their cows took a sudden alarm, and ran away home to their stalls, the cow-herds following them; forgetting the half buried ascetic. The next morning, remembering his case, they all ran to the spot, and found his head and shoulders transformed into an emblem of *Siva*. Perceiving then the fault they had committed in striking a person identified with the god, they killed themselves on the spot: so at least says the narrative.

Account of the destruction of the place.

The foundation of the town of *Caveri-patnam* is ascribed to an astrologer's advice; who, on calculating the nativity of a merchant, named *Vengada*, prognosticated his attaining great wealth, by commerce; and, by the astrologer's advice, the foundations of a commercial town were laid, and carried forward; the said astrologer directing the people when to work at propitious hours. The town subsequently became extremely wealthy; so much so that ornamental parts of the houses were made of gold and silver. There was not a beggar in the place. In this state of things the god, disguised as a mendicant, passed through the town blowing a conch. The people, not used to any thing of the kind, came to the doors; and, being unaccustomed to the usual mode of alms-giving, they offered to the mendicant, gold, jewels, and the like. The god was displeased at not receiving rice; and, as the document states, destroyed the mouth of the *Caveri*, and with it the town: a part of which is submerged by the sea.

Some other matter follows, in which the writer, a servant of Col. Mackenzie, seems to give his own opinion on the subject. The matter therein requiring notice are that a Brahman dug up great treasure from a part of the site of the said town, which he used in the endowment of a fane; that Amersingh a *raja* of Tanjore, by advice of his minister had the site of the town partially explored, when blocks of blackstone, and other marks of a town, were discovered, but that the search was discontinued; that in the Rayer's time about 400 years ago, *Tirumala-rayer* erected many buildings on, or near, the site, with fanes and the like matters, the said buildings being in Negapatam, Nagore, and the neighbourhood.

Remark.—This paper was in a very confused state of transposition in the book copied from; causing considerable trouble to get it into order. The document seems to me to be of more than ordinary consequence. The observable points are:

1. The existence of a very large and flourishing town at the ancient *debouchure* of the *Caveri*-river.

2. The extensive commerce carried on by sea, gold dust being a part of the commodities.

3. The alteration of the former mouth of the *Caveri*; the destruction of the town; and the overwhelming of at least a part of it by the sea.

On each of these points a disquisition might be written. For the present I leave each point noted only as a memorandum. Time and circumstances permitting I have further remarks to offer.

Section 5. Account of the chieftains of *Torayur*.

A communication to Col. Mackenzie from *Vijaya-Vencatachellum-Rediyar*, Zemindar of the capital town of *Torayur* (otherwise written *Turaiyur*).

In reply to enquiries concerning the origin of this place, and of the ruling family, particulars are stated to the following general effect:

In Sal. Sac. 1103, or 618 years ago, the ancestors of the writer were located in the Nellore district at *Pallavoté*; at which time the neighbourhood of *Torayur* to the north of the Coleroon river was greatly infested by robbers. *Crishna-rayer** at that period was engaged in fighting against the Mahomedans. The ancestors of this zemindar, who were named *Anar-redi* and *Sura-redi*, were warlike, and courageous, men; and, as their district was subject to the above mentioned prince, they were called out on military service, which was successful. The *Rayer* sent the above two chieftains to subdue the *Kallars* in the district of *Torayur*; which they by degrees effected; and received the district of *Torayur*, made over to them by a copper-plate inscription from the Rayer. But the grant, and other vouchers of honours conferred by Madura rulers down to *Tirumala-nayaker* were lost, during the great period of commotion. Some successive chiefs are mentioned. *Linga-redi*, the then chief, had a share in the war against Tanjore, as subordinate to *Chokanatha* of Trichinopoly. Subsequently the *Kallars* ravaged the country even to the gates of the fort (of the capital), when the chief of *Torayur* had it given him in charge to reduce them to order. Revenue matters, and the succession of chiefs follow. In the time of *Minacshi-ammal*, and *Bangaru Tirumala-nayaka* some *Chenju* people from the mountains, a class of *Vedars*, under their chief, made an incursion even to the gates of Trichinopoly; and the chiefs of this *palliyam* of *Torayur* being sent against them, took their chief prisoner. They received some distinction in consequence. Down to that period the country of *Torayur* had been possessed on condition of military service, in free tenure, without interruption. Chunda Sahib imposed tribute, to the extent of 1,500 rupees annually. The Nizam gave them five villages in free tenure. The writer mentions the succession of his father, and of himself. The incursion by Hyder Ali noted. He (the writer) was summoned to Trichinopoly, and assisted against Hyder; receiving thanks from Colonel Nixon, and Mr. Sullivan, who gave him a document assuring possession of his district, in free tenure. Certain distinctions were accorded, on the chief's entering the fort; among the rest, a salute of thirteen guns. He had a share in the war against Tippu Sultan. What follows relates to the seizure of the *palliyam* by the Nabob, and a discussion as to the right of succession, which the English government determined in favour of the writer of the statement, the existing zemindar. The tribute paid appears to have been a tenth of the produce.

* The most famous prince of this name lived about 200 years later than the period indicated by the above dates.

The boundaries of the *palliyam* are given, by which it would seem to have extended 80 miles from east to west; and 40 miles from south to north, being in effect a large county, and more than any feudal baron in England ever possessed.

Section 6. Notice of various dynasties of kings.

Names of the *Chera* kings.

A stanza from the *Nigandu*. It appears that the title of *Cheran* was applied to the rajas of Travancore (*Tiru-vanchi*) of Coorg, and of the Malayala country proper.

Names of the *Chola* kings.

A stanza from the *Nigandu*, containing epithets of *Chola* kings, distinguished into those of *Uriyur*, and *Chola* (that is Tanjore); the former being ancient, the latter modern.

Names of the *Pandiya* kings.

A stanza from the same:—the explanation distinguishes between the Madura kings and the *Pandiyan* kings, perhaps referring to the two dynasties.

There follows a statement in brief of the four ages, kings, *avataras*, in the usual vague manner. And then commences a list of the *Chola*-kings in the following order:

Uttunga.	Arintavu.
Kulottunga.	Uriyur Cholan.
Rajendra.	Chengrani.
Tirumudi Kanda.	Manalanta.
Kari Kala.	Manuniti kandan.

and other names like these, shewing an artificial construction, since they are merely compounded epithet: in all 33 are specified. *Salivahana* is said to have ruled 80 years, subsequent to them. *Daeshana-rajas* (names not specified), ruled 650 years. The *Yaduva* race came

next in Sal. Sac. 730, the beginning of their rule. The following names of that race are specified :

Sri ranga Yadava	25	years	S. S.	755
Vira narayana Yadava	23	"	"	778
Omana Yadava	20	"	"	799
Tirn Vencata Yadava	22	"	"	821
Perankani Yadava	15	"	"	836
Kanda gopala Yadava	23	"	"	851
Narasingha Yavada	13	"	"	882
Cambali Yadava	15	"	"	887
Bukhana Yadava	22	"	"	909
Vira Narasingha Yadava	12	"	"	921
Immudi Narasingha	8	"	"	929
Oya Yadava Yadava	12	"	"	941
Sri hari Yadava	9	"	"	950
Vasudeva Yadava	12	"	"	962
Tiruvathi Yadava	15	"	"	977
Kadiji Yadava.	14	"	"	991
Raya Vamsa Yadava				
Bhujanga raja	12	"	"	1003
Saluva Narraya Yadava	10	"	"	1013

In all eighteen successions to the *Yadava* dynasty.

Rulers at Orangal, or Warankal.

Pratapa rudra	58	years	S. S.	1071
Ballala rayen	87	"	"	1158
Anuvema reddi	77	"	"	1235

Vijayanagaram rulers.

Bukha rayen	14	years	S. S.	1249
Hari-hara rayen	14	"	"	1263
Vijaya bukha rayen	13	"	"	1276
Kasaki, Gaja deva rayen	8	"	"	1284
Rama deva rayen	7	"	"	1291
Viru pac'shi rayen	5	"	"	1296
Mallicarjuna rayen	7	"	"	1303
Rama Chandra rayen	9	"	"	1312
Saluva gada rayen	7	"	"	1319
Deva rayen	15	"	"	1334
Ganda Yadava	5	"	"	1339
Cumara Camba Yadava rayen	4	"	"	1343

Saluva gada	7	years	S. S.	1350
Saluva Narasinha rayen	49	"	"	1399
Immudi Tirma rayen	11	"	"	1410
Vira Narasinha	21	"	"	1431
Crishna deva rayen	20	"	"	1451
Achyuta deva rayen	13	"	"	1464
Sada Siva rayen	22	"	"	1486
Tirumala deva rayen	8	"	"	1494
Sri-rangha deva rayen	14	"	"	1508

(Abrupt break) vide section, 6½ (over leaf).

Section 7. The genealogy of *Anangaru-ácharya*, the warden of the fane of *Srirangham.*

This is a narration, at some length, of internal matters, within the said fane of well known celebrity. It offers only occasional references to matters connected with *Chola* kings, and their government. Among these *Crimi-kanda-chola* is mentioned as having acted treacherously towards the place ; and his son *Kulottunga-chalan*, to repair the fault, made large donations. Other references are not so distinct, as to names. The chief subject of the narrative is a detail of strifes, and struggles, for power, between two rival factions, within the fane ; so that it often required kingly influence to be interposed to adjust the differences ; and these were for example, which leader should have the right of putting a crown on the head of the idol, during the performance of certain ceremonies, and which leader of the two factions should have the right *first* to dip his hand in the sacred *tirt'ha*, or pool : in the latter case, it was determined that both leaders should dip their hands in the *tirt'ha* precisely at the same time. The inter-mural strife, seems to have been handed down from one generation to another. Taken altogether the narrative exhibits a state of things within the structure in question, very different indeed from the almost Arcadian portrait drawn by Mr. Orme in his history : guided rather by his imagination, than by real knowledge. As the fanciful portrait has been often copied, and multiplied, it may be as well to know that it was unreal.

After the foregoing document, and connected with it, there follows copy of a decision, or decree by the Nabob (name not specified) concerning the two objects of contention, before adverted to ; that is to say the right of *first* taking up water from the *tirt'ha* (or pool), and the

right of placing the crown on the head of the idol: verbal depositions of persons employed in the service of the fane are introduced into the decree; the result of which is, on the whole, most favourable to the claims of the *Anangaru*, whose genealogy, and other matters, are related in the preceding paper.

I have not given a minute abstract of the tissue of strife, nor specified the abuse which the writer sometimes heaps on individuals of the faction, opposed to his own. My impression is, that the document may be of use, in fixing some chronological periods; but, to this end, it will require to be compared with other documents which are yet to be examined.

Section 6½. Account of the *Chola*, *Chera*, and *Pandiya* kings, copied from a document in possession of one named *Cali-cavi-rayen* of *Punturi*, in the Coimbatore province.

This paper states the *Cholas* to be of the *Surya-vamsa* (or solar-race) and deduces the family from *Choliya*; and it makes the incarnation of the illusive Cow, and the tale connected therewith,* to have occurred in his time. Thence a genealogy is given, containing a list of forty-eight names; being those that usually occur, with some others, not commonly mentioned.

There follow other names of kings in the *Cali-yuga*, of "human form;" that is not of extraordinary (or fabulous) kind. Eighteen are specified; but these names appear as much compounded of Sanscrit epithets as the foregoing; and I hold names so compounded in great dubitation, as not likely to have been proper names of kings, in a Tamil country: a remark which, by the way, applies also to other genealogies. The extinction of the *Chola*-race is ascribed to a dispute between the then king and the poet *Camban*. The *Venpa* or stanza by which the latter commemorated the circumstance is given; the substance of it being, that there are two kinds of arrows, one real, such as the king had shot against *Camban*, and another metaphorical, even bitter words, with which *Camban* tells the king he will extirpate his race. The real case however was, that the king killed the son of *Camban*, and *Camban* in revenge killed the king's son. The king then shot at *Camban*; and the latter, escaping with his life, returned the compliment by his verses.

Some following kings, not of the race, assumed the cognomen of *Chola*, and reigned some years. The bounds of the *Chola* kingdom are added.

* Vide Second Report.

A list of the *Chera*-kings.

Of these thirty of divine order, or class, are specified; and of the human, or common, kind, in the *Cali-yuga*, twenty others; the last of these, named *Sundara-murti*, was taken alive to *Cailasa*, or translated. The boundaries of the *Chera*-country are given; and the term *Congu-desam* is used as synonymous with *Chera-desam*.

On going away* the aforesaid king devolved his authority on his minister. In consequence the rulers of that land did not ride, as usual, in a palanquin; but with their legs hanging outside, as if expecting the king's return, and in order to be promptly ready to salute him on his coming.

The Pandiya race.

Of these seventy-two, of divine order, are specified; and of those of human form in the *Cali-yuga*, twelve names are given, commencing with *Soma-Sundara*. The 12th is here called *Kodankol*, "crooked," or "inequitable, sceptre," a mere epithet. In his time the town of Madura with the exception of the herdsmens' street was burnt down; owing to the revenge of a Chetty's wife, whose husband, the king had ordered to be decapitated, in consequence of his publicly offering for sale an ankle-ring, which had been stolen from the female apartments of the palace. It is stated that, in the conflagration, the king's race entirely perished.

The son of a Brahman, by a common woman, which son was named *Chandra-kula-tipa Pandiyan* ("the Pandiyan, the light of the lunar-line," a mere artificial title) ruled. Fifteen other names then follow, conformably to the secondary list in the *Pandiya-rajakal* before quoted.

In the reign of *Kula-verddhana* the Mahomedans came, and taking the place overthrew the fanes, &c. The king unable to resist, fled to the west country. The *Pandiya-desam* was in Mahomedan disorder. A multitude of troops came from the *Carnata*-country, and drove away the Mahomedans; whereupon the *Carnata*-chief re-called *Soma-sec'hara* of the *Pandiya* race, and restored the government to him. Sixteen other names are given (most of them the same as those contained in the list above referred to), down to *Chandra Sec'hara*, and *Chandra Cumara*; in whose time the *Chola* invasion took place, leading to an appeal to the Rayer, who sent *Nagama Nayaker*, and this latter is here said to have killed *Chandra-Cumara* otherwise called *Sundara-Cumara*.

* This statement appears to be only another version of the story of *Cheruman Perumal* going to Mecca, after dividing his dominions among his dependents.

The Rayer in consequence devolved the *Pandiya* kingdom on *Visva-nat'ha Nayak*, who settled the country. His dynasty follows, in the usual course, down to *Mangamal*, and the subsequent strifes. All things subsequently fell into Mahomedan disorder.

A list of the *Palliya-carers* connected with the last dynasty of the Madura kingdom is added; also a list of forts.

REMARK.—This last paper would seem to belong to a foregoing section. It is a document of importance, from the useful hint which it gives about kings of *divine* and *human* order; and from harmonizing in all essential points, in the *Pandiyan*-history, with the *Pandiya-rajakal*, and "Supplementary Manuscript;" adding a few details not contained in either of them. It is therefore an independent testimony; and a THIRD attestation to the list of kings, contained in the Supplementary Manuscript, rejected by Professor Wilson, because unsupported, as alleged, by any other document. This decree was a little too hasty; and the importance of full, and patient, investigation, before forming any decision, becomes apparent, if not imperative.

Section 8. The *St'hala purana* of the fane of *Subrahmanya* at *Utiyur*, in the talook of *Cangaiyam*, in the district of *Dharapuram*.

This legend was written by the head Brahman of the place; who states, that the like contents were engraven on copper-plates, which were lost in times of disturbance. In the legend there is nothing of consequence. One of the divine alchymists endeavoured to turn the mountain into gold; and all the alchymical elements needful for such a result are contained, in the said mountain, on which the fane is built. There is little else capable of being noted.

Legend of a *Saiva*-fane in the talook of *Cangaiyam*, and town of *Natta-kadai*.

The fane commemorates a fabulous victory of *Subrahmanya* over *Suran*. The account is brief, and inane. The copper-plates containing particulars, were lost in times of public commotion.

General Remark on MS. Book, No. 1—Countermark 755.

It would seem probable, from the number, that this book was among the earliest portions of the materials collected by Colonel Mackenzie. It is written on country paper, partially damaged by insects, and some of the documents were written with pale ink, which is greatly faded; affording the first indication leading to a re-copying of the contents in a more permanent form. These contents are of very differing value; some portions being worthless, and some of consequence. In the paper about *Chittambaram* the leading fact of a migration of three thousand Brahmans, from the north, to this place is important; and, from the way in which it is repeated, confirmed, and connected, with the very existence of that chief fane, of the *Chola* country proper, I have no doubt of its substantive authenticity. It adds an item to the otherwise existing evidence to the fact, that the Brahmans were originally *foreigners* in the Peninsula. In the accounts of the Poligars herein noticed, there are some historical gleanings to be gathered. The notice of the great commercial town at the ancient mouth of the *Caveri*, is most valuable. I have long had in contemplation a disquisition (1) on the early relations of India with Sumatra, Java, Ceylon, and the neighbourhood (2) on a great geographical change of form in the Sinus Gangeticus, or Bay of Bengal, and all adjacent localities, especially those south of *Madras*; and (3) on the great geographical changes, yet to be anticipated. The paper in question will assist that disquisition, whenever my leisure may be sufficient to allow me to fill up, and amplify my plan. The list of *Yadava*-kings, and the document obtained from *Cali-cavi-rayen* of Coimbatore are also very valuable. The latter explains an obscure passage in the *Pandiya-rajakal*, about kings adapted to this *Cali-yuga* age; and will help, in any general digest, in the needful work of reducing the accounts of the *Pandiya* kingdom to something like authenticity.

On the whole the pains and trouble which this book has required are not regretted.

Manuscript book, No. 11.—Countermark 765.

Section 1. Account of *Candapa-raja* of Mailapur (St. Thomé), connected with a legend concerning St. Thomas.

This is a legend stated to be translated by one named *Nanapracasam*, from a Latin manuscript. It does not bear great internal marks of authenticity; and in all probability is merely a Roman Catholic legend. It was translated by me, as a curiosity; and the translation was printed in a number of the South Indian Christian Repository. To that translation it may be sufficient, in the present place, simply to refer.

Section 2. Notice of the race of *Cavalapa Nayar* of *Naduvali*.

This paper, though in the Tamil language, relates to the Malayalam country. It begins with an account of the offspring of a *Brahman* by a *Chandála* woman, which child was thrown into a river, and taken out at some distance by a *Brahman* woman, who after some time discovered the child to be a *Chandala*. Various families are then adverted to; and also a variety of local customs. The mention follows of the generations of the race of *Cavalapa Nayar* not well admitting of abstract.

REMARK.—The said *Nayar* I am informed resided near *Palgatcheri*, and his family consists of various subdivisions: the paper may therefore be of local interest and importance; though, seemingly, not of consequence in any general point of view.

Section 3. Account of *Puthupatnam*, near Sadras.

In the 2301st year of the *Cali yuga* there were two *Racshasas* named *Chaturangan*, and *Balarangan*, who were very powerful, and lived in *Chaturanga patnam* (Sadras). These cleared the forest from *Mailapur*, as far as to *Cudalur* (Cuddalore), and destroyed the wild beasts. *Mavali Chacraverti* is traditionally said to have been their descendant. A legend follows, designed to fix the locality of the account of *Mabali* to this neighbourhood; but the incidents differ from the usual narrative, as for example in the *Bhagavata*. The *Jainas* afterwards had an ascendency in this neighbourhood; and seventy-two families built the town called *Puthupatnam* (or Newtown), from being then newly built. Seventy-two head men among them rode in palankeens (a mark formerly of high distinction). A chief to the north of them, fought with them. He was named *Purushottama-prabhu*. After much loss, on both sides, he was taken and killed, by being fed with rice without salt. In consequence of the cruelties of the war a town received the name of *Kodavupatnam* (derived from a word denoting cruelty). It is then (absurdly) stated, that they fought against *Sanatcumara*; and being denounced by that royal sage, a mud-shower descended and destroyed their towns, and the sea overflowed them. Thus from *Mailapur* to *Cudalur*, "not one stone upon another,"* now remains of their habitations.

Section 4. Account of the *Vedar*, of the Wynaad district.

* This phrase is employed in the manuscript. The overflowing of the sea is to be specially noted. The circumstance is mentioned in other papers.

These were wild and naked savages, who "after the flood" increased and lived by hunting. They were very ignorant, even of the existence of any god. In later times, kings of the country, perceiving them to be people free from guile, took them into service, fed and clothed them, employed them to destroy wild beasts; and, at length, as soldiers. The *Vedars* ultimately built for themselves a fort in the Wynaad country, and ruled over some extent of territory, but their town was subsequently taken and incorporated within the jurisdiction of the Malayalam country. They were certainly a useful people in clearing the country of ferocious animals.

NOTE.—This paper may be compared with one abstracted in my Second Report, B.—Malayalam, MS. Book, No. 3, Sec. xi. It also further illustrates the extensive existence in the Southern Peninsula of an aboriginal people, differing from the Hindus.

Section 5. Account of the *Manradiyar of Immudi-patnam*.

This is a notice of a *palliya-cara* of modern origin. The head of the race was named *Manradi*. The chiefs of this district were employed against the *Kallars*, or thieves, another name for the *Curumbars* or *Vedars*; and subsequently, in the wars with Tippo-Sultan, they rendered essential services.

Formerly the *Curumbars* kept herds and flocks in this neighbourhood, whence their town was called *Pattipulam*. Other names were given. Certain old coins have been found there. Remains of their fort appear. Roman coins have been found there. The people had a town on the sea shore, for the purpose of trading. There is a large stone inscription, said to have been engraved by the *Curumbars*: but now illegible; unless perhaps by the keen eye sight of very young persons. There were certain large jars containing bones, which some years ago, after being examined, were cast into the sea.

NOTE.—There is no title to this article, and the locality is doubtful.

A notice of the *Villar*, *Irular*, and other rude tribes. Among them the *Yanadi-tribe* are civilized, in some degree and like other people; but the others are in the rudest possible state. A chief of *Palcad* (Paulgatcherry), in consequence of an association formed with them, was driven from his tribe.

NOTE.—This is another trace of the singular people before adverted to in the neighbourhood of *Sri-hari-cotta*; and part of the probable Aborigines of the country.

Section 6. Account of the *Pánta-curzis* at *Paduvur.*

This locality was formerly in possession of the *Jainas*, as is visible from the remains of their *Bastis*, or fanes. They were destroyed by the Brahmans in the time of *Adondai*; and some embraced the Brahmanical system. They had the custom of putting their old people, when very infirm, into vessels of baked earth, and leaving them to die. From this custom, the paper deduces the origin of the *Panta-curzis**. There is an inscription; but the letters are become illegible.

Section 7. Account of the *Curumbars*. The ancestors of these people were engaged in the great war of the *Pandavas*. Their descendants were afterwards dispersed in various places. These were *Jainas*. A proverb is current concerning them (from a particular incident) that their eyes are on their shoulders. From a custom common among them of having their heads shaved on the death of one of their number, they were massacred in one day by barbers. The place is called *Narambur*. A detail of their forts twelve in number is given.

A *Sanniyasi* who had seen a book written by the *Curumbar*, states, that they were numerous and powerful before the time of *Adondai* and of the *Jaina* religion. Various other matters concerning them are rather doubtfully mentioned; but it is stated, that they certainly held power as late as the time of *Crishna-Rayer*; when, in consequence of their pride, the *Vellazhas* engaged the barbers to massacre them; and, besides, the troops of *Crishna-Rayer*, along with those of the *Wiyaivar* poligars, further destroyed them.

NOTE.—The massacre of the *Curumbars*, in one day, was noted in the abstract of a preceding paper.—*See Second Report.*

GENERAL REMARK.—This book is a collection of traditionary statements by one of the agents of Colonel Mackenzie. Some of the contents previously occurred in documents before examined. Being injured, and written in pale ink, the book was restored. In cases wherein the contents harmonize, in substance, with those of other books, the agreement in testimony may be considered as affording additional evidence to the points in question.

* See Second Report.—Paper on the *Panta Curzis*.

Manuscript book, No. 50.—Countermark 1019.

Section 2. Apparently intended to continue copies of inscriptions from *Chillambram* has been left blank.

ABSTRACT OF INSCRIPTIONS.

Section 3. Inscriptions at *Carur* and *Darapuram* in the Coimbatore province.

No. 1. Gift of the revenues of a certain district (reserving the rights of a more ancient fane), to the *Brahmans* of *Agnesvarer* fane, in the 12th year of some one's reign—name not appearing.

No. 2. Gift of a village called *Chenu-padu* to the same fane, free of all tax or incumbrance, in the 12th year of some one's reign—name supposed to have been illegible.

No. 3. Dated in the 17th year of *Sri-vira Pandiya-dever*, gift of certain proportions of revenue towards the celebration of the April festival of the same fane.

No. 4. Inscription in the *Vaishnava* fane of *Varada-raja*, in the same town of *Carur*, gift of land; the name of *Kulottunga Chola-dever* appears, but without connection, and there is no date.

No. 5. Gift by *Crishna-rayer* of the village called *Neruvur* to *Rama-linga-sastri*: the inscription is in the Canarese language. No date.

No. 6. This inscription is of considerable length and celebrates the praises of a *Chola* king, whose name is nevertheless not mentioned. It is in inflated poetical language; and its purport is to commemorate a gift of some revenue on land, to the aforesaid fane of *Varada-raja* at *Carur*. The names of several persons are recorded as witnesses. There is no date; but it serves to give an additional attestation to the fact of a *Chola* conquest of the ancient *Conga-desam*, or Coimbatore district.

No. 7. Dated in the 9th year of *Rajendra-dever*, gift of a piece of land; recorded in the porch of the aforesaid fane.

No. 8. Dated in the 23d year of *Kulottunga Chola* "the decapitator of the Pandiyan, and possessor of *Carur*": donation of a piece of land.

No. 9. Gift of a village and a tank, to endow a choultry at *Carur*, built by *Cavetti Nayaker*, *Bodi Nayaker*, and two other Poligars, in

the time of *Choka Ranga Nayaker* (king of Madura); the endowme[illegible] intended to feed *Brahmans.*

No. 10. Dated in the 9th year of *Rajendra-chola-dever*, gift of land to the fane of *Tiruvanali-maha-dever.*

No. 11. Gift to the same fane of a village called *Cutta Nallur*, by certain heads of villages. No date.

No. 12. Dated in the 24th year of *Vira-chola-dever*, gift of *Aticha-mangalam* (a village), to *Tiruvanali* fane, as before.

No. 13. Dated in the 24th year of *Rajendra-dever*, gift of a piece of land.

No. 14. Dated in the 3d year of *Vicrama-chola-dever*, gift of money annually to defray the expense attendant on bringing an image of *Vishnu* in procession to a place near the fane of *Tiruvanali-esvarer.*

No. 15. Gift to the fane of *Pashupati-isvarer* by *Minacshi-nayaker*, of a garden for growing the *vilva* leaves, used in adorning the image. No date.

No. 16. Dated in the 15th year of *Sri-vira Pandiya-dever*, gift of a village to provide for the expenses attendant on two yearly festivals in the months of November and December.

No. 17. Dated in the 6th year of *Sundara Pandiyan*, gift from certain servants of the monarchy, forming an agreement among various castes to bestow a revenue for repairing and ornamenting the fane of *Tiruvanali* with lofty turrets.

No. 18. Dated in the 25th year of *Silpi-nattunga-cholan*, gift of a village called *Vira-chola nallur*, to the aforesaid fane.

No. 19. Gift of fifty *veli* (each five cawnies) of land, by six individuals, to a *Vaishnava* fane. No date.

No. 20. Dated in the 24th year of *Raja-raja-dever.* Signed by three individuals who gave sixty gold (huns) to the fane of *Tiruvanil-leyal-Nayanar*, at *Carur.*

No. 21. Inscription on the door-way of the porch, under the tower. Dated in the twenty-fifth year of *Kulottunga-cholan*, "the ruler of *Iram*, *Madura*, and *Carur*." Gift of land to the above-mentioned fane at *Carur.*

No. 22. In the porch of *Vyacrapuresvara* at *Puligur* in the district of *Carur.* Dated in the thirty-eighth year of *Tribhuvana-dever*, gift by *Chethu-rayer-dever* of land to the said fane at *Puliyur.*

No. 23. On the north side of the same fane, gift of land, by whom does not appear.

No. 24. In the fane of *Muvirapaud-esvara* at *Mukanna-curichi.*

[illegible]virtuous donation of *Ranga Crishnapa-nayaker* of the race of *Vis-*[illegible]*na-nayaker* (a compliment paid to him). It records the gift of certain leading men in consequence of an intermarriage, so that they gave a certain annual tax on their possessions to the said fane, and unitedly bore the expense of excavating a large reservoir of water, made over as temple property.

No. 25. At *Nanriyur*, of the district of *Carur* in the fane of *Subrahmanya.*

Gift of a village to the said fane by certain chief men of the place.

No. 26. On the fane of *Pushpavana-svami* at *Veda-mangalam* in *Carur* district.

Dated in the sixth of *Vira Pandiya dever.* Gift of land to the fane by the town's people.

No. 27. On the fane of *Meyporal-natha-svami* at *Arava-curichi* in *Carur.*

Dated in the seventh year of *Konerimaikondan*, gift of land with its trees, well, &c., to the fane, by certain villagers whose signatures are attached.

No. 28. Commemoration of a grant written on palm-leaves, giving a tax, or tribute, from several villages mentioned, to the head Brahmans of certain fanes, also specified; from one *Ramen* (who the said *Ramen* was, does not appear, but his authority must have been of considerable extent).

No. 29. In the fane of *Virapari Dandes-vara-dever*, at *Dwaracapuram.*

Gift of land by votaries of the god; but the whole cannot be made out, as the copy of the inscription is incomplete.

No. 30. Gift to *Meyporul nayanar* of *Dwaracapuram*, and two other villages, but of what (from the incompleteness of the copy), does not appear.

No. 31. In the fane of *Muni-muttisvara svami* in little *Darapuram.* Dated in the nineteenth year of *Vira Rajendra dever.* Gift of land free of all tax, to the said fane.

[In this place there is a chasm, occasioned by some leaves having been cut out of the book: the remains of which leaves are visible. A loss of six inscriptions is thereby occasioned].

No. 38. Commemorates the taking down a wooden *mantapa* (or porch) belonging to the fane of *koduvayil-nagesvara-svami*, and rebuilding it with substantial materials.

No. 39. On the south side of the fane of *Jeyankondesvara* of *Natta-*[illegible]*raiyur* in *Darapuram* district.

Gift of certain revenues, from villages specified, to the said fane, from *Nullatambi-karundan*, and another person. Dated in Cal. Yug. 4722. Sal. Sac. 1543.

No. 40. Dated in the first year of *Vicrama-chola-dever* gift of a piece of land to the village fane of *Velur*.

No. 41. Dated in the ninth year of *Vicra-chola-dever*, gift of a water reservoir, and some land, to the village fane of *Nattur*.

No. 42. Dated in the fifth year of the reign of *Vira-Pandiya-dever*, and in the 1402nd year of the reign of *Saccai* (or *Salicahana*), gift by three persons, whose names are subscribed, of a reservoir of water and the land around it, fertilized thereby, to the god and goddess of *Vijayamangalam*, of the *Peruniuri* talook in the district of Coimbatore.

NOTE.—This inscription if the dates can be depended upon, is important; because it fixes the date of a *Pandiyan* king's accession to the throne in A. D. 1475. Very soon after that time the power came into the hands of the northern viceroys from *Vijayanagaram*. By consequence this *Vira Pandiya*, must either be *Vira-Chandra-sec'hara Pandiyan*, the last of that dynasty, or else one of the five illegitimate *Pandiyans*, who contested the kingdom with the northern lords. The ascending series, upwards from that period, may be the safest process, to come at the *Pandiya* line, with any thing like satisfaction as to the result.

No. 43. Dated nearly in the reign of *Vira-vallala-dever*, gift by the people of *Tirupa-nattar* to the above fane, of the village of *Raghuta-Raya-vellur*, with all its revenues; the bounds of the said grant being marked out by stone pillars bearing the *Trisula* or tridental mark, of the *Vaishnavas*.

No. 44. Dated in the fifth year of *Vira-Chola-dever*, and in the reign of *Saccai* 1044, by the *Vallalan* named *Bella-calai* to the village fane of *Nattam*; a gift of land to supply the expense of public festivals.

NOTE.—This inscription is also valuable, as (if accurate) it fixes the accession of *Vira-Chola* to A. D. 1117. From this date, in the ascending series, and following the best accounts of the *Chola* dynasty, its commencement must be fixed posterior to the beginning of the Christian era.

No. 45. Dated in the reign of *Vira-vallala-dever*, gift by the people of *Tirupa-nattu* of (something, letters gone), and a water-reservoir to a fane at *Vijayamangalam*. At the foot the date of Sal. Sac. 1244. (A. D. 1322-3).

No. 46. Gift by *Hari-rayer* son of *Deva-rayer* of the village of *Alambadai*, to the god and goddess of a fane in the *Parvati-casba* of the *Canga* talook, and *Dharapur* district.

[The inscription is described as being written in Lebbi-Tamil, differing from the proper (or perhaps modern) Tamil characters].

No. 47. Gift by the same. The inscription is incomplete. [There follows some Telugu, in Tamil characters, from which it appears that the gift is of some land, and to an officiating hierophant, by *Chokan atha-nayak* of Madura. By consequence this must be a distinct inscription, wanting the beginning and there follows a chasm down to No. 51. *Notandum est*].

No. 51. Dated in the 21st year of *Vira-Chola-dever*, gift of land; but the inscription is not complete.

No. 52. Dated in the same year of the same; a gift of land, to a fane.

No. 53. The *Sacai* date partially obliterated: it appears to be a gift from some Mahratta chief, since the name of *Bhosala* occurs; but there are many breaks in the sense, so as not to admit of a generally connected meaning.

No. 54. Dated Sal. Sac. 1607, gift of a piece of land at *Puttur* to the Brahmans of *Chaturvedamangalam*, by a local chief.

No. 55. Dated in the 21st year of *Vicrama-Chola*, gift of land, by two persons named *Tribhuvana-sinha-deven*, and *Chottaya Cholan*, to a fane.

No. 56. Imperfect—no intelligible meaning.

No. 57. No date—a gift of land.

No. 58. Dated in the 6th year of *Sundara Pandiyan*; gift of land to a fane, by two persons whose names are subscribed.

No. 59. No date; gift of land by four persons whose names are subscribed.

No. 60. Gift of a village—no date.

No. 61. Gift of land—no date.

No. 62. Gift of a village—no date.

No. 63. Gift of land, free of tax, by three persons, whose names are subscribed—no date.

No. 64. Gift by two persons of a village, to a fane.

No. 65. Dated in the 4th year of the rule of *Laduka-nat'ha-dever*, gift of land by two persons.

No. 66. Gift of a village by some of the people, in the time of an agent of *Malicarjuna-rayer*, whose name is not properly written.

No. 67. The same name of *Malicarjuna* appears, and the date of

Sal. Sac. 1172, but there is space for a figure which would define the 100, and make it probably more. Gift of land to a fane bearing the name of *Kulottunga-isvarer.*

No. 68. Dated in the 8th year of *Vira-pandiya-dever*, gift of land by *Vira-Rajendra-Soma-Chakraverti*, who subscribes his name.

No. 69. Dated in the 24th year of *Vira-pandiya-dever*, gift of a reservoir and of as much land as it fertilized, to a fane, by three persons; the aforesaid *Rajendra-Soma* being one of them.

No. 70. Gift of a portion of the proceeds of land to a fane.

No. 71. Dated in Sal. Sac. 1421, gift by a merchant, who had purchased land from the owner, and formed a garden therein; the proceeds of which he gave in perpetuity to a fane.

No. 72. Dated in *Cali-yuga* 4633, gift by a merchant, of three reservoirs, and the land fertilized thereby, to a fane established by *Agastya.*

No. 73. Gift by *Vira raja-deven* in the third year of his rule, of a village with a reservoir, and the land fertilized thereby to a fane.

No. 74. Dated *Cali-yuga* 4632, gift by *Pala-raja-udiyar*, a subject of *Achyuta Rayer*, of land to a fane.

No. 75. Date *Cali-yuga* 4432. Gift of land by *Vira-bagu-dever.* (It is added in a note that in two fanes near *Alaga-mali*, there are many inscriptions, of which nothing could be made out, whether from antiquity, or from unknown characters, is not stated).

No. 76. Dated in the 8th year of *Vira-rajendra-dever.* Gift of money to the *Pandaram*, or treasury of a fane.

No. 77. Dated in *Vira-Rajendra-dever's* rule, eighteenth year: similar to the preceding.

No. 78. Dated in the 231 year of *Sundara-pandiya-dever*, money given, but the connexion of language is lost.

No. 79. Gift of rice, and oil, to a fane.

No. 80. Dated in Sal. Sac. 1621, gift of three reservoirs, and land fertilized thereby, by *Natha Mutali* of *Chidambaram*, the manager of *Rama paiyen* (general of *Tirumala Nayak* of Madura).

No. 81. Dated in *Cali-sagartam* 1667, gift of lands to an *agraharam*, the giver's name does not appear; but from the contents he would seem to have been cotemporary with *Vicrama Chola.* The inscription relates to *Chatur-veda-mangalam*, and the copy is not complete owing to a leaf having been torn out of the book.....

..... a fragment only of No. 85, owing to the same cause follows; which seems to relate to some donation to a fane.

Notandum. Nos. 82, 83, and 84, are entirely wanting.

No. 86. Gift of money to two *Vaishnava* fanes; no date or other particular of any interest.

No. 87. Gift of two waste pieces of land, to a fane, to be cultivated for its benefit; no date, or name of donor.

No. 88. Dated in the 25th year of *Vira-Narayana.* Gift of a village to the fane of *Cariyur* on the *Caveri*, for certain ceremonial commemorations of the donor's birth-day.

No. 89. Dated in the second year of *Sundara-Pandiyan.* Gift by heads of a district of a piece of land to a fane.

No. 90. Gift of a certain poll-tax by heads of a district, to a fane; dated in the 15th year of *Cesava Parama.*

No. 91. Dated in the 7th year of the reign of *Sundara Pandiyan*, gift of reservoirs, and lands watered thereby, by villagers, to a fane.

No. 92. Gift of land to a female slave of a fane, in the time of *Vijaya-Ranga-Choka-natha-nayaker*, by whom does not appear; part of the original inscription having perished.

No. 93. Dated in the 2d year of *Vira-Pandiya-dever.* Gift by a person of *Vengambur* named *Sundara Pandiyan*, of a piece of land to a fane.

No. 94. Inscription on a *Jaina* fane at *Tingulur* in the estate of *Sirapuram*, in the *Perunturi* district of *Coyamhur.* Dated in the 4th year of the reign of *Vicrama-chola-dever.* It is so imperfect as to be further unintelligible.

No. 95. In like manner unintelligible.

No. 96. A few lines—the name of *Vira-Vallala-dever.* Gift of *Aricana-nallur* the giver must have been among the *Vallala* kings of the *Jaina* persuasion.

No. 97. Gift of land by *Vira-Rajendra-dever* to a fane. No date.

No. 98. Dated in the 5th year of *Vicrama-chola-dever.* Gift of a garden and well, to a fane, by whom not stated.

No. 99. Gift of money by artificers, and of land, by a person (name not legible), to a fane.

No. 100. Gift of a proportion of rice-grain, to a fane, apparently by two persons, whose names are subscribed.

No. 101. Dated in the 20th year of *Vicrama-chola-dever*, gift of money by two persons, to a fane.

No. 102. Dated in the 4th year of *Vira-Rajendra-dever*, gift by an individual of money to maintain a constant light in a fane.

No. 103. Dated in the 21st year of *Vira-raja-dever*, gift of a piece of land, bought for the purpose, to a fane; by the villagers united.

No. 104. Dated in the 6th of *Sri-vicrama-chola-dever*, gift by *Utiyasernigha-dever* of money to maintain a constant light in a fane.

No. 105. Gift of a piece of land to a fane, as it would appear, by *Kulottunga-cholan*: but the sense of the inscription is not perfectly clear.

No. 106. Gift of land to maintain a constant light in the fane of *Apramesvara* (an unusual name) by people on the south bank (of the *Careri* ?). Dated in the reign simply of *Hari-hari-rayer.*

No. 107. Gift of a village, with its revenue, by people of the south bank, to a fane. A severe denunciation is pronounced on any who may alienate the charity.

A few incomplete lines commemorate the gift of two-twentieths, of a certain land, in consequence of the death of *Karta-rayan-Pandiya-Cholan*; inalienably bestowed.

No. 108. Gift by *Vira-Nanja-raja-Udiyar* of a piece of land to a fane, in full right.

No. 109. Gift by *Sri-Vira-Vallala-dever* of five-twentieths of a certain portion of land to a fane.

No. 110. Dated in the 16th year of the reign of *Vira-Rajendra-dever*: the name of *Apramesvara* appears, but the matter breaks off abruptly.

No. 111. Dated in *Sagaptam* 1421, in the time of a feudal chief; gift of a portion of land.

No. 112. Gift of a piece of land in *Cali-yuga** *Sagaptam* 1330 by *Athiyapa-candan* to a fane.

No. 113. Gift of a piece of land to a fane by an individual, who subscribes his name.

No. 114. Gift of a village to a fane, by villagers united; dated *Sagaptam* 1262.

No. 115. Gift of a piece of land by *Virapa-nayak* and others, to a fane; dated *Cali-yuga* 1501.

No. 116. The name *Srico-viravicodeki* 20th year of reign appears in *Grant'ha* letters; what follows is in Tamil; but incomplete, so as to leave no clear meaning.

No. 117. Gift of a piece of land by the people of *Punturai*, to two fanes; one *Saiva*, one *Vaishnava*; dated *Sagaptam* 1449.

No. 118. Dated in the 20th year of *Vira-Pandiya-dever*, who has the superadded titles of *Ko-vira Cesari-paramana Tribhavana Chacravertti*: gift by the people of *Puntarai* of a village to a fane.

No. 119. Gift of a reservoir, and fields, by an individual who subscribes his name, to two goddesses, forms of *Durga.*

* Most probably an error for Sal.° Sac. 1330.

No. 120. Gift of village to a fane; the name of the donor not clearly legible.

No. 121. Dated in the 21st year of *Vira-Rajendra-dever*, gift of a portion of grain, to a fane; by three persons, names subscribed.

No. 122. Inscription in a *Jaina basti*, or fane, in *Vijaya-mangala*, of the *Coyambutur* district, gift of a village and reservoir by the people of the district.

No. 123. Gift of land by *Sri Savunta-raja* to two fanes, one *Saiva*, and one *Vaishnava*. Also gift by villagers at *Vijaya-mangalam* to a fane.

(Here there is a chasm, by reason of seven leaves cut out of the book, whence the copy is made, or from p. 117 to 130 inclusive. A loss of five inscriptions is occasioned thereby, and they must have been of considerable length; probably of importance). *Notandum est.*

No. 128. Dated in the 14th year of *Vira Pandiya-dever*, gift of a portion of revenue from cultivation by two persons, who subscribe their names.

No. 129. Dated in the 8th year of *Sri Pandiya-dever*, the inscription is stated to be subscribed by several persons, but the purpose of the record does not clearly appear.

No. 130. Dated in the 15th year of the reign of *Vira-raja-dever*, gift by a merchant of something (not legible) for the purpose of feeding pilgrims, and others who come to visit a fane. (There are breaks in the sense arising from the illegibility of the original copy).

No. 131. In the Canarese language, Telugu character, dated in Sal. Sac. 1678, Cal. Yug. 4857, in the reign of the *Maha-svami Crishna-rayer-udiyar* of the line of *Pravada-deva-rayer*, ruling in *Sriranga-patnam*, the capital of Mysore; gift of lands to the fane of *Sri Sancara-isvara-svami*, by one who subscribes his name, as *Ratha Sancaraiyan*, whose family seem to have been of consequence in the Coimbatore country. The inscription is complete: the date recent, being A. D. 1756.

No. 132. A merchant gave some land, which he had bought for the purpose, to a fane; to be cultivated, and the revenue so applied: in Sal. Sac. 1421.

No. 133. Dated in Sal. Sac. 1431, gift in money by a merchant named *Othuva Nanjaiyan* to a fane.

No. 134. Dated in Sal. Sac. 1429, gift of interest on money to a fane, by a merchant.

No. 135. Gift to a temple, by some cultivators; but of what does not intelligibly appear.

No. 136. Dated in the 8th year of *Vira-rajendra-dever*, gift of oil for the use of a fane, by a district chief.

No. 137. Dated in the 21st year of *Sundara-Pandiya-dever*, a merchant named *Perumal*, received from *Arzagiya-Pandiya-dever*, 220 pagodas, and gave it (to what purpose not stated, the letters of the inscription having become effaced).

No. 138. Dated Sagaptam 1460. One named *Lingana-Udiyat-dever*, had a reservoir excavated, and divided the produce of cultivation fertilized by the water of the said reservoir, into two portions reserving one part for himself, and giving one part to the fane of *Avanasi* village.

No. 139. Nothing more legible, than part of a preparatory title.

No. 140. Gift to the fane of *Avanasi*, of a village in free tenure, (letters of inscription much defaced).

No. 141. An inscription copied from one in the possession of the accountant of the village of *Avanasi*, commemorating a tax on commodities given to the fane of that town, with a full and minute specification of the different articles and the rate fixed on each one—the gift of one named *Malliyan*, a manager of *Sicca-dever-raja-udiyar*. Dated in Sal. Sac. 1617. Cal. Yug. 4795.

No. 142. An inscription on the fane of *Kodesvara-svami* in *Nadavehery*, gift of an entire village—more not legible.

No. 143. Gift in free tenure of a reservoir and field; to the same fane: more illegible.

(*Notandum.* Here follows another chasm, occasioned by the cutting out and abstracting of eight leaves, on which from the remaining numbers the inscriptions from 144 to 148 inclusive, or five inscriptions, are lost: these must have been of considerable length).

No. 148. Two villagers gave annually a portion of grain to a fane.

No. 149. Gift of a piece of land to a fane (letters much defaced—more not legible).

No. 150. Dated in the 3d year of *Sundara-dever*, gift of grain annually (letters defaced).

No. 151. Gift of grain (letters defaced).

No. 152. Gift, by *Uttama-cholan*, of land to the fane of *Tirumuragunmaha-dever* (letters defaced).

No. 153. Dated in the tenth year of *Sundara-pandiya-dever*, a person bought a piece of ground, for a flower garden, to raise flowers for the service of the fane of *Uttamesvara-svami* in *Perumanalur*.

No. 154. Dated in the 19th of *Sundara-pandiya-dever*: a merchant bought a piece of land, to form a flower garden, for the same fane.

No. 155. Dated in the 15th year of *Vira-pandiya-dever*, two villagers gave a yearly present, in money, for a particular service in a fane.

No. 156. Gift, by a merchant, to maintain a constant light in a fane.

No. 157. Dated in the 22d year of *Vira-pandiya-dever*; two villagers gave some land to Brahmans.

No. 158. Dated in the 8th year of *Sundara-pandiya-dever*; some villagers engage to give annually a portion of grain, to a fane.

No. 159. Dated in the 4th year of *Vira-rajendra-dever* a gift to maintain a light in the fane of *Uttamesvarer*.

No. 160. Gift of a village, free of tax, to the people belonging to it, by a ruler; a part of whose prefatory title only is legible.

No. 161. Dated in the 7th year of *Vira-pandiya-dever* gift of money to a Brahman; who in consequence engaged for himself and his successors, to represent the donor in the services of the fane.

No. 162. (In the Telugu language) copy of an inscription on copper. Dated in Sal. Sac. 1579: commemorates a gift of land for cultivation to a Brahman named *Varadaiyengar*, from one named *Massagarmi-varu*.

No. 163. (In the Canarese language). Dated in Sal. Sac. 1684, (A. D. 1752) the contents of an inscription on copper in possession of certain official persons (whose names are mentioned) under *Sri-crishna-raja-udiyar* of Mysore of the race of *Pravuda deva-rayer*. The purport is to commemorate a gift of land to a fane, which was purchased by two persons, whose names are specified; together with the sum which each one contributed.

No. 164. Copy of a letter to Hyder Ali from *Srinivasaiyah*. This letter consists of revenue details, relative to villages mentioned, and specifies sums paid (or payable) into the Nabob's treasury. It is written in the Canarese language.

No. 165. Dated in the 3d year of *Vira-dever*. It commemorates a renunciation of taxation, on the looms of weavers, the amount of taxation to go to the fane of *Amaravadangesvara-svami*, of old *Pariyur*.

No. 166. Incomplete, the sense breaking off abruptly; but it contains the title, *Svasta-sriman Pratapa Chacraverti-Bhosala-Bhuja-Vala-Vira-Vallala-dever*, and the name of *Pariyur* of the Conjeveram country, and seems to intimate a gift by *Chettiyappen-udiyar* a leading man among the *Vallala* chiefs. (These, from other documents, it is known governed parts of the said country before its subjugation by *Crishna-rayer* of *Vijayanagaram*).

No. 167. Dated in the 21st year of *Vira-Pandiya-dever.* Gift from a person (name partly obliterated) to maintain a constant lamp in a fane.

No. 168. Gift of a reservoir; the proceeds of the land fertilized thereby to go to a fane; other particulars, as to donor, &c. do not appear.

No. 169. Dated in the reign of *Vira-Pandiya-deva-raja*, the *Sagaptam* era is defaced. Gift of a village to the fane of *Puriyur*, in the Conjeveram country.

No. 170. (Beneath the preceding inscription). Dated in the 11th year of *Vira-Pandiya-dever.* Gift of two villages to the fane of *Pariyur* of the Conjeveram district, by *Periya deven.*

No. 171. A copper-plate inscription in the possession of *Uma-Mahesvara-sastri* in the *agraharam* (alms-house) at *Satiya-mangalam*, written in the *Canada-lebbi* character.

Dated in Sal. Sac. 1682. (A. D. 1760) in the time of *Crishna-raja-udiyar*, king of Mysore, of the race of *Pravuda-rayer.* It relates to the purchase of *Colatur*, with seven subordinate villages, for a price specified; the revenues apparently to go to the maintenance of three residents in the said alms-house, that is *Uma-mahesvara-sastri, Suba-sastri*, and *Venkatesvara.*

No. 172. Canarese inscription on copper-plate, in the possession of *Yajnya-sastri*, son of *Suba-dicshadar*, of the aforesaid alms-house, dated in Sal. Sac. 1684, in the time of *Crishna-raja-udiyar*, of Mysore; and relates to revenue, or income, arising from certain villages which are specified.

No. 173. Copy of inscription in the *Canada-lebbi* character, in possession of *Srinivasácharya* son of *Cuppacharya* in the alms-house at *Satya-mangalam* aforesaid.

Dated in Sal. Sac. 1684, relates to certain pecuniary advantages given to *Cuppacharya*, the father of the person holding the grant from *Crishna raja-udiyar*, the then ruler of Mysore.

Manuscript book, No. 26.—Countermark 780.

Section 1. Account of *Appaiya-nayak*, the chief of *Cannivadi.*

The ancestors of the tribe were servants of the *Rayer* in Sal. Sac. 1325 or *Cali-yuga* 4504. As the Mahomedans were plundering the

country, and committing great excesses, and as the *Pandiya-desam* was comparatively wild and uninhabited, they determined on emigrating thither, and accordingly came to a place termed *Kuttulupai*, sixty miles distant from the *Caveri*, and as many from Madura. There were three brothers, one of whom waited on the *Pandiyan.* A tutelary goddess in the shape of a stone (carried in their basket) appeared in vision, and gave instructions. A similar vision having appeared to the *Pandiyan* king, he at once granted their request of being located near to the *Varaha* hill. Soon after the appeal of *Chandra Sec'hara Pandiya* to the *Rayer* occurred. This tribe became connected with *Nagama-nayak;* and he afterwards consigned to them a district of which they were to clear the *Vedars* and *Kallars*, by exterminating them. In particular a small chief, who had built a fort, was taken, and had his head cut off, by *Appaiya-nayak*, who received the country ruled by that chief as a reward. His successor was concerned in the matters connected with *Visvanatha-nayak;* and was appointed one of the guardians of the bastions of the new fort; having charge of the 62d bastion. The opposition of five illegitimate sons of the late *Pandiya* king, could not be overcome by *Ariya-nayaka*, the general of *Visvanatha*, so that the king went in person. The head of one of the opposing chiefs was cut off, by the chief of this *palliyam.* In order to put an end to bloodshed, the Madura king engaged in single combat with the champion of the remaining four, and came off victorious. After some successions of chiefs, a town was built as the chief town of the *palliyam*, or district. Some local details: under orders from *Visvanatha*, the chief exterminated certain *Vedars*, and took possession of their district; clearing the country and building a fane to *Ayanar*; placing an image therein and appointing *pusaris*, or *sudra* attendants. In the time of the same chief, a Mysore invasion took place; for details of which, and for a translation of the remaining portion of the manuscript, see Or. Hist. MSS. vol. 2, p. 169, *et seq.*

Section 2. Account of *Bodi-nayak palliyacarer*, or chieftain of the district of *Siva-rama-kulam.*

Their ancestors were rulers in the district of Gooty. In consequence of the Mahomedan conquest, the people every where emigrated to the [illegible]th, and the heads of this tribe among the rest. They came to the [illegible]rth side of the *Vaigai* river, where ten families subject to the

Malayala rulers resided. At that time the *Pandiya* king had taken refuge in the *Malayala* country, and he gave the strangers leave to settle. The date of *Saka-nayaka*, head of the tribe, is placed in Sal. Sac. 1258, (A. D. 1336) and by consequence the Mahomedan irruption was the *first* that occurred. His rule was 37 years.

Raja nayak	41	years.
Choka nayak	26	"
Mutta-vengara-nayak	19	"
Boda-mutta-nayak	18	"
Raju-nayak	11	"
Chaku-muttu-nayak	9	"
Sila-bodi-nayak	14	"

In his time a champion, among the Mahomedans, challenged the people of the *Rayer's* dominion to find a champion to meet him. *Bodi-nayak*, hearing of the circumstance, went to the north; fought with, and killed the Mahomedan; and in consequence received great honours, and distinctions. He ruled 22 years.

His son *Bangaru muttu-nayak* ruled twenty-six years, and was one among the chiefs, summoned to take charge of the bastions of the Madura fort, the 60th being allotted to him. Some details of successors with a few unimportant circumstances are added. From a mythological incident it appears, by the way, that the Madura ruler considered this chief as the first of his "adopted children." In the time of the Honourable Company this district was one of the "assumed *palliyams*," during the collectorate of Mr. Hurdis.

Section 3. Genealogy of *Rama-bhadra-nayak* of *Periyaculam.*

Bhadra-nayak, the first of the race, was a servant of *Cottiya Nagama-nayak*, employed in the collection of tribute. When the said *Nagama* went on pilgrimage to Benares in consequence of having no offspring, *Bhadra-nayak* acted as his deputy; having charge of all his public duties, and rendering an account of them to the *Rayer*. Some time after a son named *Visvanatha-nayak* was born to *Nagama-nayak*. Subsequently the invasion of the *Pandiya* country by *Vira Sec'hara Cholan*, and the appeal of *Chandra Sec'hara Pandiyan* to the *Rayer* occurred. The *Rayer* sent *Nagama-nayak* to repel the *Cholan*, and to reinstate the *Pandiyan Nagama*, took *Bhadra-nayak* with him; and, after the required service was completed, gave *Bhadra-nayak* charge of collecting

the revenue of the country. Here (and *bene notandum est*) *Chandra Sec'hara* is introduced as addressing *Nagama-nayak* in a speech, the purport of which is, that five illegitimate sons of his grandfather who had taken to themselves the title of the *Pancha Pandavas* (or five *Pandavas*) and were possessors of *Kayáttaitur* with the neighbourhood, had given him great trouble, and would continue to do so, if he held the kingdom; that therefore he wished to devolve the charge on *Nagama-nayak*, and if the latter gave him, from the revenue of the country, enough to find him food and clothing he would be content. *Nagama-nayak* in consequence assumed the country. (This of course is an *ex-parte* statement, in the native manner). In consequence of that assumption, it is immediately after added, *Chandra-Sec'hara* again went and complained to the *Rayer*, of the conduct of the general in usurping the country. The *Rayer* held a council, and in great anger enquired which of his chiefs, would go and bring the rebel *Nagama* to his presence. When all besides were silent, *Visvanatha* aforesaid offered himself for the duty. *Nagama-nayak* had taken the precaution to dispatch his confidential servant *Bhadra-nayak* along with the complaining prince, in order to see that in consequence of the complaint, he (*Nagama-nayak*) might suffer no damage, in the good opinion of the *Rayer*. This *Bhadra-nayak* accompanied *Visvanatha-nayak* on the expedition against the latter's father, and was sent on before, with the intimation that it was desirable for the father to yield peaceably to the son's commission; lest loss of life might, by any possibility, occur. *Nagama*, replied, that he had not usurped the country, but that it had been made over to him by *Chandra-Sec'hara*. The consequence was an engagement between the armies of father and son, in which the latter took the former prisoner; and, having him put in fetters, carried him safely to the presence of the *Rayer*; who was much surprised at this fidelity to himself, so great as to prevail over filial affection, and as a reward appointed *Visvanatha-nayak* (as viceroy) to the Madura kingdom.

Visvanatha-nayak gave to *Bhdura nayak* the office of fouzdar (or military chief, and collector of revenue). Some time after the *Cambam-Cudalur* country (or district) which was tributary to the palace, having been taken by the *Chola*-king, no longer paid tribute. In consequence *Visvanatha-nayak*, assembled all his fouzdars (the term used in this MS.) and went on a military expedition against *Cambam*. On this service *Rama Bhadra* offered, with his own people, to storm the fort; and received from *Visvanatha* betel-leaf and arecanut, as a pledge of his engaging to do so. He accordingly entered the fort by storm; receiving a cut in the cheek, and putting the people withinside to the sword, he

hoisted a flag in token of being in possession. *Visvanatha*, from the nature of the service, feared that the commander must have fallen, and sent some troops after him; who returned stating, that the chief survived, being wounded, and had beaten the drum of victory. Subsequently when the army had returned to a place called *Periyaculam*, *Visvanatha* rewarded *Rama Bhadra* by a grant of land; and about the same time told him, that from his age he was no longer fit for military service; giving his command to his younger brother named *Cumara-nayak*, and making a grant to *Bhadra nayak* of a *palliyam* or country, on the north bank of the river (*Caveri* or *Vaigi*) not far from *Varaha-giri*, in consequence of his long and confidential services. The district acquired the name of the *Vadacarai* (or north bank) *palliyam*. The gift is dated in Sal. Sac. 1356 (which must be too early). Its chief had one of the bastions, of the new fort, confided to his charge.

Rama Bhadra it is stated, continued twenty years in the possession of his fief before his death. *Visvanatha* deplored his death as that of the most faithful servant of his capital; and, sending for *Cumara-nayak* younger brother of the deceased, directed him to install *Machi-nayak*, in the possession of the *palliyam*. *Machi-nayak*, son of the old chief, was only five years of age, and therefore *Visvanatha* directed his uncle to manage matters for him till he came of age. Meantime *Visvanatha* died. *Machi-nayak* ruled 25 years. He had no son, and the son of his uncle succeeded to the chieftainship. Other successions are noted. Nothing particular occurred till the reign of *Tirumala-nayak* of Madura, when all the chiefs being assembled on a festival occasion, *Tirumala-nayak*, prescribed as an exercise of skill, that the different chiefs should shoot an arrow over the sacred pool of a fane of *Marriyamma*. The *Palliya-carer* of the *Vadacarai* then named *Machi-nayak* alone succeeded in doing so; and acquired much praise, with a valuable present as a reward. Being desired to ask what he most wished for, he requested a few additional villages to his own *palliyam*, and his wish was granted. In the expedition against *Sadaica* the rebellious *Setupati*, this chief had a part, and received praises and presents for his conduct during the war, which had ended in the capture of the rebellious prince. This chief ruled fifty-six years, and had no son. *Narrayna-nayak* his paternal uncle succeeded. He was engaged in the war against Tanjore under *Choka-natha-nayak*. He ruled thirty-five years; and, his son being very young, the late chief's wife, mother of the child, ruled ten years. *Cumara-Rama-bhadra-nayak* succeeded on being old enough to do so. *Vijaya ranga choku-natha* of Madura sent *Narrayanpa-nayak* on some errand (not specified) to the Din-

digul province, who summoned the chiefs of the Dindigul province to meet him. When they were assembled *Rama-Bhadra* "from relationship to the ruling prince at the capital" had the privilege of being seated on a level with the envoy. While so seated, *Kendama-nayak* came, and did obeisance; when *Rama-Bhadra* kindly addressing him, told him to rise. *Kendama-nayak*, whose obeisance was intended for the envoy, kept this expression in mind; and, considering that it implied an assumed superiority, took the first practicable occasion to invade the district of *Rama-Bhadra*; in doing which he cut off the head of *Rama-Bhadra*, and took, from his district, the village of *Kudivilaru*. The chief so slain ruled twenty-one years; and, as he had never married *Condama-nayak* his cousin succeeded, and ruled thirty-five years. His son *Nagama-nayak* ruled fifty years. His son was *Vencata-svami-nayak*, who had ruled twenty years when the account was written.

Section 4. Genealogy of *Kendama-nayak* a feudal chieftain of Madura.

The origin of this chief is traced up as high as Sal. Sac. 1342, (A. D. 1420), when the progenitor of the race accompanied some others to the Madura country. One of the number was a *Tambiran*, or ascetic, who seems to have been the same with the chief of *Tavasi-Medu*, heretofore noticed. The whole appear to have been merely humble colonists, until the time of *Nagama-nayak*, when directions to clear a certain district were transmitted to the head of this race, who received at the same time a feudal estate. The chief of the district had charge of one of the bastions of the Madura fort. In the war against the five illegitimate sons of the *Pandiyan*, who had built five forts at *Kayattatur*, and other places, the chief of this district had a share.

[In this place the document abruptly ends; being, of course, very incomplete].

Section 5. Notice of a copper plate inscription relative to buried treasure, at *Cunatur*, near *Madurantaca*.

On a hill, near the above town, to the east of *Madurantaca* there is an *Aluvar* fane, in which a *Sudra-pusâri* was one day surprised by a box falling from the roof of the old building; on opening which, was found, among other things, a copper-plate inscription directing to a

spot where treasure was concealed. On making enquiry, the *pusari* was told that a *Sanniyasi* had dug up treasure there, and taken it away. He was shewn a large hole; and, on wishing to examine it, was frightened by the ill omen of a cat crossing his path; on which account, being apprehensive for of his life, he desisted.

There is an old place in the said village where, by common report, treasure is buried. The writer states, that an order to the Collector of the district to give authority to consult the copper-plate inscription, and make a search, is all that is required.

NOTE.—The government may follow the indication given, if judged to be of any importance. No mere native will think of examining such places, without first offering a human sacrifice to *Càli*; and the time for such kind of sacrifices, in this part of the country, is gone by. This paper was copied merely to complete the restoration of the book, which is damaged by insects, has loose sheets, and was in some places, scarcely legible.

GENERAL REMARK.—From the account of each of these feudal chieftains there is something to be gleaned; but that of *Appaiya Nayak*, and that of *Rama-Bhadra*, are of special importance. Having translated and printed portions of the former account, I judged it expedient here to give the connexion in the early part in the present abstract. The account of *Rama-Bhadra* throws great light on the transfer of the *Pandiyan* kingdom to the northern dynasty; and it affords an instance of the way in which such local records may clear up difficulties. In the numerous documents, on the above-mentioned transfer, which have passed under my view, it is uniformly stated, that the five *Pandavas* of *Kayattatur* were illegitimate sons of the (or a) *Pandiyan* king; while other documents asserted that *Chandra Sec'hara* had no offspring, and in consequence thereof adopted *Visvanatha Nayak*; and others, that these were his sons. I could not reconcile the discordancy; but by the account of *Bhadra-nayak*, the matter is made plain. The "five *Pandavas*" of *Kayattatur*, were sons of a *Pandiyan* king; but that king was the grandfather of *Chandra Sec'hara*. All on that point is now clear. And, when the transfer of a large kingdom is in question, the incident is of some consequence. Let me again add, that it is by patient investigation, and careful research, that we must work our way in developing *Hindu* history; not by crude conjectures, or hasty assumptions.

B:—TELUGU.

a. Palm-leaf Manuscripts.

1—*Singhala-dwipa Cadha*; or a narrative relating to Ceylon. No. 124.—Countermark 328.

In the time of the government of *Pedda Crishnapa Nayadu* son of *Visvanatha Nayanigaru* over the *Pandiya* country, the feudal chieftain, named *Tumbichi-nayadu* built a fort in *Paramagudi*, and thence with the people under him, made various forays on surrounding places, plundering and ravaging at his discretion, alike in the *Pandiya*, and *Chola*, countries. On receiving a cautionary prohibition from *Pedda Crishnapa-nayadu*, the ruler of the *Pandiya* country he treated it with contempt, and continued his course of plunder. The *Pandiya* ruler sent some troops to take his fort and kill him. In consequence *Tumbichi-nayadu*, his younger brother,* and his brother-in-law assembled their adherents, and fought obstinately in self-defence. The *Pandiya*-ruler sent continually increasing numbers of troops against them. Many chiefs, and people, fell on both sides, among the rest the *Dalacarta* (or general) of the *Pandiya* troops named *Pedda Cesava-panayadu* was killed by *Tumbichi-nayadu*, and the son of the former, *Chinna Cesavapa-nayadu*, stimulated by a desire of revenging the death of his father, solicited and received, the office of general, and went with thirteen chieftains whose names are given, 18,000 troops, and six pieces of ordnance, to the site of war. He succeeded in capturing the fort, and taking *Tumbichi* prisoner; cut off his head; and sent it to *Pedda Crishnapa-nayadu*, the viceroy at Madura. In consequence the latter confirmed the son in his father's office of general. The fort of *Tumbichi* was dismantled, and rased to the ground. The two wives of *Tumbichi-nayadu* brought their two children, and placed them at the feet of *Pedda Crishnapa*, with the deepest expressions of sorrow. The king relenting, extended favour towards them; and bestowed on the two children the village of *Pambur* in free gift for their maintenance, and placed them as custodes, or wardens, of *Paramagudi*.

After these things *Pedda Crishnapa-nayadu*, heard that the king of *Candi* having taken offence at the death of his friend *Tumbichi-nayadu*, had spoken injuriously, and contemptuously, concerning himself, the Madura ruler. Being incensed thereby he levied troops, and directed them

* In Telugu *Tambudu*, in Tamil *Tambi*, a younger brother.

against Ceylon under the orders of fifty-two* of his feudal chieftains, placing himself at the head of the whole. He embarked his army at the place termed *Nara pashana* (or the nine-stones, being the alleged remains of *Rama's* bridge) and landed with them on Ceylon at *Manatira*. A message was then sent to the capital, demanding homage and tribute, which message was rejected. The king of *Candi* sent forty thousand troops to oppose the invasion under the orders of four *Mantiris*, and eight (*Deselu* or *Desanathalu*) subordinate chiefs. The *Candi* troops halted at *Puttalam*, and *Chinna-Cesava* with a few other chiefs and twenty-thousand troops, advanced a little in front, and attacked the *Candian* army; when a pitched battle, attended with great slaughter ensued, the Madura general having the advantage; he took two of the *Mantiris*, and five of the *Deselu* prisoners, whom he delivered to the Madura ruler. The latter treated them and the other prisoners humanely, separating the wounded from the whole, in different tents and having the former attended to and their wounds dressed; while all the prisoners were supplied with clothes and provisions. This treatment induced the captive ministers, and chiefs, to consult together, when they agreed that *Tumbichi-nayadu* had received only merited treatment, and resolved on trying to effect a reconciliation. They requested to be carried before the Madura ruler; and, being permitted to appear in his presence, they requested, that all their wounded countrymen might be sent back to their homes. This petition was readily granted. They desired another audience, the next day, and then the two *Mantiris* desired, that accompanied by two envoys, they might be sent to *Candi*: the whole of the chiefs engaging that if this embassy failed of effect, they would with their districts, and people, recognize an allegiance to the Madura prince. Leave being granted they proceeded to *Candi*, and first stated the matter to the prime minister (there being four *Mantiris* in all): he approved their counsel; and strengthened with his opinion they represented to the king of *Candi*, that his own people were rude and untrained, and unable to cope with the invaders; who were well-trained and disciplined soldiers, accustomed to warfare. The king refused to listen to them, or recognize any superior. They returned unsuccessful, and then offered their allegiance and services to the Madura prince, who declined to make use of them in fighting; but directed them to remain in the rear of his troops, and after the expected battle he would give them an answer. The king of *Candi* assembled sixty thousand troops of his

* The entire number of subordinate feudal chiefs to Madura was seventy two.

own people, and ten thousand Caffres, and at their head, advanced to the combat. The manuscript here contains details of various skirmishes and stockade fighting; in the midst of which the Madura king came up to the support of his vanguard, with all his troops and a general engagement ensued, which was sanguinary. The two kings were visible on either side, each on his elephant. Eight thousand of the Caffres fell fighting, and also many out of the sixty thousand Singhalese: the rest fled, the chief minister was deterred from flight by a sense of honour and shame; and, being wounded, was taken prisoner. The king of *Candi*, with ten of his near relatives, now mounted on horseback, and being resolved on selling their lives, killed a great many people; till at length the king alone remained in consequence of the other ten having been captured, and of an order, from the Madura chief, not to kill the *Candi* king, but to take him prisoner. The Madura general *Chinna-Cesava* stopped the *Candi* ruler in his work of destruction, parrying his blows, without returning them; until being severely wounded in the arm he rode up to the elephant of the Madura prince and shewed his wounds. The *Candi* king followed; and, biting his own hand with rage at the sight of his rival, struck at him, and cut his elephant on the trunk, at which the animal became terrified and receded. The other king now gave up further forbearance, and from his howdah shot the king of *Candi* with an arrow; who thus received what is esteemed an honourable death, from the hand of his peer.

The king of *Candi* being a crowned head, his dead body was respectfully placed on his elephant, and sent to the capital, to receive the usual funeral rites. The other king, at the request of many of the people, advanced to the capital and remained there three days. He sent the late king's family and household, inclusive of children, to a town called *Aura mgom*, in former times the site of royal residence, (probably *Anuradhapur*) where they were supplied with all necessaries. He then placed his brother-in-law named *Vijaya Gopala-nayadu* as his viceroy over Ceylon. The king afterwards set out on his return; and, bestowing largesses on various fanes (which are enumerated) by the way, in order to expiate the slaughter of the war, he came back to Madura. On a representation from the *Mantiris*, and others, that it was customary in Ceylon to regard the king as a god, and to pay him divine honours, the Madura king complied with their request to be so considered. He besides regulated the tribute to be received; and was obeyed both by the Ceylon viceroy, and (as the MS. states) by the *Malayala* king, named *Rama raja*.

The MS. then makes a rapid transit down to later times; and the mode of expression implies that the account was written by one or more of the descendants of the Madura princes during their exile at *Vellaiswarchi*, subsequent to the Mahomedan troubles. There are some statements concerning inter-marriages with Ceylon, and connected negotiations.

REMARK.—This palm-leaf manuscript is in extremely good order, as regards preservation, and legibility of writing; but it wants the concluding portion. The whole is complete down to the end of the forty-eighth leaf, and the remainder is deficient. Probably the whole would only consist of three or four more leaves; and the interest of the narrative may be considered as ending with the mention of the tribute regulations as to Ceylon. Restoration is not needed; and the preceding abstract is so full as almost to supersede translation; which nevertheless, as the document possesses considerable interest, might still be desirable.

In editing and translating the *Carnataca*-dynasty,* I felt desirous of further details concerning *Tumbichi-Nayada*, which this manuscript supplies; the two accounts† agree, except in one unimportant particular, and thereby confirm the authenticity of that circumstance, which is besides alluded to in the family records of various Poligars, some of which have been reported on. In the *Carnataca* dynasty there is no mention of the invasion of Ceylon; nor do I remember allusions to it in the accounts of the Poligars or feudal chiefs; but the matter must be kept in mind, with the view of obtaining such corroboration. The narrative in this manuscript is too particular, as to names, places, and circumstantials, to be a mere invention; and being given by descendants of *Pedda-Crishnapa*, the Madura prince, they probably had family records, or authentic tradition, for their guide. I have no doubt that confirmation of the general fact, of such an invasion and conquest of Ceylon, is obtainable from papers in the collection; if the same really occurred.

The manuscript is entered in the Des. Cat. vol. I p. 313, to the following purport:

* Or. His. MSS. vol. 2.

† The varying orthography of the names are dialectical; the one MS. being Tamil, the other Telugu.

" xv. *Sinhala-Dwipa raja Katha.*

' Account of a war between *Krishnapa-Nayak* of Madura, and *Tumbi-Nayak*, here called king of Ceylon, but who appears to have been only a petty Polygar of Tinnevelli or Ramnad, who was defeated and deposed by the second of the Madura *Nayaks, Periya Krishnapa.*"

It is almost superfluous to observe, that this loose, and imperfect, notice is quite inaccurate.

2. Trichinopoly *Dorala-Purvottaram*, or ancient record of the rulers at Trichinopoly. No. 123.—Countermark 327.

This is an erroneous title inscribed on the cover of the book. On a palm-leaf title page inside, of much more recent appearance than the work itself, it is stated to be a genealogy of the *Tondaman*, in an easy kind of verse, which is a correct definition.

Indra coming down to earth, on a hunting excursion, had some children by a human female. Among these children one was named *Tiruma*; from whom proceeded the following sons in direct descent:

		Kinkini.
Navana.	Tiruma.	Dandaca.
Tiruma.	Navana.	Tiruma.
Navana.	Pachchacya.	Padmapta.
Pachchacya.	Navana.	Pachchaya.
Dandaca.	Pachchacya.	
Navana.		

The son of the last mentioned was *Raya Prabhu*. In his time *Srirangha-rayer* made inroads on various surrounding districts; but on coming hither *Raya-prabhu* easily captured him. Of the descendants of this chief was the distinguished *Raghu natha dripadi*. His reputation reaching the ears of *Vijaya Raghava* (king of Tanjore) the latter sent for him, and made him one of the king's captains. After sometime he relinquished this employ and conquered a *palliyam* (or district), and while ruling therein, the *Setupati* heard of him, and cemented a friendship with him. *Raghu-natha* subdued various refractory chiefs, subordinate to the *Setupati*, and put one named *Deva Mallanu* in prison. Subsequently, at the request of *Ranga-kistna-pa*, king of Trichinopoly and Madura, *Raghu-natha*, went [illegible] the refractory Poligar of *Nagalapuram*, and took his fort by [illegible]prise. For this service he received an additional grant of land in

free gift. He afterwards greatly distinguished himself in the service of the king of Trichinopoly; terrifying the troops of the Tanjore king, and overcoming various rebellious Poligars. The Tanjore king sent a son of the *Setupati* against him, whom he repulsed. His son was *Tiru-malla raja*, whose son was *Vijaya Raghu-natha*. This last conquered *Ananta rao*, a Mahratta chief, who came with ten thousand cavalry*. He also overcame *Chanda Khan*, and *Badde Singh*, who commanded a hundred thousand horse: acquiring thus the title of a second *Padshah*, and being esteemed by those who ruled in the *Pandiya* country as their life, by his people as the light of his race, he ruled with celebrity, as the *Tondaman Raghu-natha*, with other titles.

There follows a poem, of a different kind of metre from the preceding, being a panegyric on the said *Raghu-natha*. There are also two palm-leaves, containing stanzas in praise of *Rama Chandra*.

NOTE.—This manuscript is in sufficiently good order, and does not require restoration. The leading document is noticed with tolerable accuracy in Des. Cat. vol. 1, p. 312. art. XIV.

3. *Pururava-Charitra*, or legend of *Pururava*, No. 49, Countermark 390.

By *Appaiya Mantiri*, son of *Ganaparti rayana Mantiri*.

This is a poem in a difficult species of versification; two palm-leaves are wanting in the midst. The principal subject is the birth of *Pururava*, the son of *Budha* and *Ila*, and the birth of *Ayu*, the son of *Pururava* by *Urvasi*, one of the females of *Indra's* world. The birth of *Agastya*, and *Drona*, are introduced as a part of the narrative. *Ila* is herein said to be the daughter of *Vaivasvata*, obtained by means of a great sacrifice, and on *Vaivasvata* expressing disappointment, and dissatisfaction, at the birth of a daughter, *Vasishta* changed the sex of *Ila*: but *Ilen*, intruding on a forbidden domain, again became a woman, and was married to *Budha*. Along with these leading points, there is a filling up of gross matter; according to the *Hindu* taste. The legendary points are found in various portions of *Hindu* literature; and this work is only the clothing of those early fragments in a poetical, and popular, style. This manuscript therefore is of little consequence; except as a poem.

* These two statements are amusing; at the same time they serve to show how Hindus write history.

OBSERVATION.—Something like a confused idea of the legend seems to have been possessed by the Greeks and Romans; but what is more remarkable is, that in the fragments of *Sanconiathon* the same legend, with the name of *Ila*, is given as a part of Phœnician history. This subject merits full investigation. The present is not the proper place to follow out the clue; but whenever successfully pursued, a part of the veil that yet hangs over very early *Hindu* history will be drawn aside.

The MS. is briefly entered in Des. Cat. vol. 1, p. 333, art. XLIV.

4. *Zupali Vencatadri Vansavali*, or the genealogy of the family of *Vencatadri*. No. 136—Countermark 356.

This title induced an examination of the contents; but though the document contains a brief statement of the ancestry of the writer's patron *Vencatadri*, a small zemindar, yet that is merely introductory, and by way of panegyric. The proper title of the work is *Chandrica Parinaya*; and it is merely a poetical account of the marriage of *Chandrica*, quite irrelevant to the object of the present researches. The writer *Bala Sarasvati*, was a poet of eminence; and mentions his intention partly to be to give some exemplifications of recondite refinements in Telugu prosody, and metre. As such, the book would be very acceptable to *Andhra*-poets. It is however not complete; containing only the first chapter, and two leaves of the second.

It is correctly entered in the Des. Cat. vol. 1, p. 322, article XV., under the proper title of "*Chandrika Parinaya*."

5. *Balayana Raya Charitra*, or an account of king *Balayana*. No. 56.—Countermark 492.

The title *Charitra*, meaning properly an authentic narrative, induced me to look at this document; but the word may also denote a mere work of fiction; which is the character of this manuscript. It is a *Saiva* poem, of the *Jangama* class, claiming no abstract. It is com- [illegible] and in very good order.

[illegible] is entered in Des. Cat. vol. 1, p. 319, article VI.

6. *Cátama-raju Charitra*, or the story of king *Cátama*. No. 58.—Countermark 315.

This poem, of inferior construction, narrates a petty war between *Siddhi-raju* chief of Nellore, and *Cátama-raju*, chief of certain herdsmen, who refused a claim of tribute from the former, which led to a war; the incidents of which are narrated in a style of exaggeration, and hyperbole. The final defeat of the Nellore chief is alleged to have been caused by the cows belonging to *Cátama* and his adherents. The class of *Chacliyas* (or tanners, and sandal-makers), also bore a conspicuous share in the circumstances of this border struggle.

REMARK.—The manuscript is complete, and in tolerable good order; one or two places being slightly touched by insects. It is not of high consequence; being on a level with ordinary border-minstrelsy; and the struggle narrated might be compared to that between Dutch-boers and Caffres, in the interior of Africa. The *Chaclyas* of Madras are said to sing it about the streets, to the honour of their tribe. Its literary claims are very low.

The book is entered in the Des. Cat. vol. I. p. 304. art. VI. Some pains appear to have been bestowed on it; and the entry is correct.

7. *Nanja-raja Charitra*, or the story of *Nanja-raja*. No. 90.—Countermark 386.

A manuscript in tolerably good preservation, but not complete at the end. On examination, it proved to contain the subject of a poetical drama, in plainer prose. The drama itself exists; and merely celebrates the marriage of a king, whose capital was Seringapatam, in the Mysore country.

It is entered in the Des. Cat. vol. I. p. 332. art. XL.

8. *Bhadra-raja Charitra*. No. 79—Countermark (wanting) the story of *Bhadra-raja*.

This is an incomplete manuscript. The commencement is given, though the numbering of the palm-leaves, shews that foregoing leaves are wanting, either of introductory matter, or of some other subject. Four *adhâyas*, or chapters, are complete, and the fifth unfinished; leaving it quite uncertain how much may be wanting. It is a poetical romance by *Vencatácharya*, and contains the fictitious adventures of *Bhadra-rekudu*, born to *Bhadra-raja* in consequence of the merit of a sacrifice, and so called from having a mark on his hand: he was also

called *Pancha-mantrudu*, from having five ministers. His town was called *Sobana-puram* at *Bhadráchellum* in *Telingana*; and his acquisition of that principality is ascribed to the merit of *Bhadra* in a former birth, as a general of *Rama-chandra*, in superintending a sacrifice. The locality of *Bhadráchellum* is real: the filling up of matter is only encomiastic, in the extravagant way customary to *Brahmans*, not scrupulous about truth, when eulogising their patrons. *Bhadra-rekudu*, the king's son, is made to be a great conqueror, and supernatural machinery is brought into operation; but the manuscript, besides being incomplete, has no claim to serious notice in the investigation of history.

The MS. is entered in the Des. Cat. vol. I, p. 321, art. VII.

b. Manuscript Books.

Manuscript book, No. 49—Countermark 739.

Section I. Account of *Mavámalur*, in the Nellore district.

Thirteen hundred years ago this neighbourhood was an entire forest; that is to say in Sal. Sac. 424. A person named *Mahimalu* or *Maválamu* (both names appear) in consequence of the oppression of *Vencata Bhascara Rao*, a petty ruler, emigrated from the *Pakanadu*, and *Mahimalu* is alluded to in the account, as "our ancestor." He came to the neighbourhood of *Pongur*; and remained there six months, protected by the *Boyi* and *Muttrathi* tribes. But the emigrating family being large, they built another village, consisting at first only of four or five mud huts. It was called *Mavamalur*, after the name of the head of the family. Acquiring wealth, he called hither other families; and, the village being enlarged, he attended to its regulation. A *Brahman* named *Vencana*, who had accompanied him from the first, in his emigration, was fixed by him as village accountant. The younger brother of *Mavalamu* from some disagreement, left him, and built another village to the north-east, which he called *Nandi-varam*. This person called *Nandi-Reddi* had two sons, named *Ramaiya*, and *Bhimaiya*, one of whom was a cow-herd, and the other a shepherd. Both of these formed distinct hamlets, called *Bhima-varam*, and *Ramaiya-palli*. The former becoming "spiritually enlightened" resolved not to eat without having a god; and accordingly built a *Saiva*-fane, the image of which received the name *Bhima lingesvara*. After his death the build-

ing went to ruin; but vestiges of it remain. The aforesaid *Nandi-varum* appointed *Vencana*, the *Brahman*, accountant both of his own villages, and his some' villages. The descendants of that *Brahman* have continued to be hereditary accountants. In Sal. Sac. 1139, the chief, of the *Vellagotivaru*, named *Vencatapati Nayadu*, built a fane to *Sri Venagopala-svami*. Subsequently people from other places came hither, and built eight villages around. In the *Suc'hila* year, a famine occurred: and these villages became entirely desolate.

When *Crishna-rayalu* conquered the *Gajapati* prince, he placed three persons, named *Laka-raja*, *Chittama-raju*, and *Narrayana-raju* in possession of the fort of *Maramalur*, each of which persons, formed a district called after his own name. After their death the management was in the hands of people appointed by the Sircar (Mahomedans supposed) under the *Udiya-giri-jaghir*, and so it continues to the present time. The names of subsequent headmen are all Mahomedan; down to the English rule, wherein the name of Mr. Travers, as Collector, appears.

There follow very minute details of villages, fanes, reservoirs, groves, classes and numbers of trees.

REMARK.—This short paper illustrates the mode in which the Peninsula, in different portions of it, was originally peopled; and details of this kind go to make up the history of the peninsula. To my own knowledge, the same process of population has been going on down to the present day. I am acquainted with an individual, at some short distance from Madras, who occupies precisely the position herein ascribed to *Mahimala*; and around that same neighbourhood there are waste lands of great extent, sufficient to allow of the formation and peopling of many villages.

NOTE.—The writing of the document being rough, and faded, I have had it re-copied; only omitting the minute details at the close.

Section 2. Account of the village of *Rapur*.

About 524 years ago, this place was wild and uninhabited: the *Diwan* of the *Gajapati* had the jungle cleared; and, by permission of the *Sircar* established a village which he called *Rapur*. Some villages were built by other persons. A *Brahman* was named as accountant; and his descendants held the office. When the *Chola raja* came hither (allusion to the *Chola* conquest), the office was sold to a person under the *Chola* ruler. The fort was built by *Pedda Cumara*.

Yachama Nayadu of the *Vellugotivaru* race, who excavated three water reservoirs: he also built some fanes. The accountants built a shrine to the tutelary goddess, which alone now continues. One named *Tubaki Crishnapa-nayadu* came from the west (see the *Carnataca-rajakal*, sec. 8) and plundered; when one *Vijnam Khan* fought with, and took, him prisoner. The names of two or three Mahomedan rulers follow, down to the assumption of the district by the Honourable Company.

REMARK.—In this paper there are a few historical allusions; probably of some use. The paper of the document being worm-eaten, has been restored; omitting minor details, as in the case of the last document.

Section 3. Account of *Cota*, a village district.

The formation of the village is dated in Sal. Sac. 513, and ascribed to the accountants of *Tondaman Chakraverti*. Some *Jainas* from the neighbourhood engaged in cultivation. The *Brahmans* were accountants. One named *Mukantesvara* governed. His son was *Ralotira*. His younger brother was *Manotira*. Then *Nandana-chakraverti*. Next the *Jainas* from the Conjeveram country. Then the *Chola-raja*. Next *Amboji-raju*. Then *Siddhi-raju*. Then *Anavema-reddi*. At the request of the people, owing to the dread of robbers, he appointed one named *Chittetu Bodana-lingama-nayadu* as a guardian of the town and neighbourhood.

Subsequently when *Narasimha-deva-rayer* ruled, a dispute arose between the *Brahmans* and the *Jainas*; and many of the *Jainas* were killed. The remains of their class emigrated towards the south. In the time of *Crishna-rayer* a man excavated a water reservoir. Fanes were built by different people. The government came into the hands of the *Ravilavar*, by whom the population was increased. *Timma-nayadu* built a village, called by his own name; and brought some merchants to the place. Others built villages; and, after a few transitions of power, the rule came into possession of the Nellore chieftain. A few minor details as before.

NOTE.—For similar reasons, as in the foregoing, this paper has been copied; omitting the details at the close.

Section 4. Account of the *Svarna-muc'hi* (or golden-faced) river.

Merely a short legend, ascribing the origin of the river to *Agastya.*

Section 5. Account of *Talpa-giri*, a hill so called in *Telingana.*

An incomplete legend ascribing the origin of the hill to the anger of *Vishnu* against *Adi-seshan*; in consequence of which anger *Vishnu* denounced on the latter the penalty of coming to earth, and doing penance in the shape of a mountain; accomplished at this place. (The mark remains of a leaf having been cut out).

NOTE.—This paper, especially as being incomplete, appears to be worthless.

Section 6. "Some account of the *Mukanti-raja*, ancient prince of the *Telinga* country."

This is a legendary fable of the origin of the race of the *Mukanti-rajas.* A *Brahman* going to *Casi* on pilgrimage took with him his daughter; who, in a certain wilderness, refused to proceed further, being infatuated by a local *Numen*, residing in an ant-hill. The *Brahman* left his daughter in charge of the *Irular*, a wild race of people. The woman was delivered of a child, the offspring of the said *Numen*; which child had three eyes, whence the name of *Mukandesrarer* (or the three-eyed *Siva*) borne by the said child. It resided in the ant-hill; and a cow came every evening to the place, whence the child issued forth, and milked the cow, by which means it was supported. The owner, among the wild *Irular*, watched the cow, in order to discover who stole the milk, and, on perceiving the operation, he wounded the child with a sword, producing blood from its head. The child lifted up the vessel containing the milk which it had drawn, and poured the same over the wound.....

REMARK.—Here the account stops, so as to leave it uncertain whether the writer of it neglected to proceed further, or whether the remainder has been cut out from the book. Upon the whole, as there are blank leaves following, and not written on, I should incline to the former opinion. A good account of the *Mukanti-rajas* is desirable; and may perhaps be met with among these papers. The present one disappoints expectation. It however exhibits the fabulous (or symbolical) origin of the race; and, in some respects, greatly resembles an account in this collection concerning the illegitimate son of *Kulottunga-cholan*; which being in other portions, described in language not enigmatical, shews a twofold mode of writing among natives, one being plain, the other highly metaphorical. The latter is employed in the present fragment; and its chief use is to add another item of testimony to the fact of wild tribes existing in the Peninsula, not being *Hindus.* The *Irular* are one of the five tribes of the kind, specified, in the abstract of a paper in my first report, see 1st Rep. art. B. MS. book, No. 31—sec. 3, and alluded to in various subsequent papers. I have not thought the present document suitable to be restored, as being a mere fragment.

Section 7. Account of *Puligaddapapa Narasinha*, of *Nizampatnam*, in the Northern Circars.

The head of the tribe of the above name being a young man, previously well taught in learning, had a strong curiosity inducing him to visit, and see, the metropolis of *Vijayanagaram.* By the way, being fatigued, he laid himself down to repose in the heat of the sun, when a hooded-serpent came forth from its hole, and shaded his head. The *Rayer* passing by, on a hunting excursion, saw the man so situated; and, concluding him to be highly endowed, with natural and acquired abilities, took him to his court, and gave him employ. Subsequently in the time of *Rama-rayalu*, when the Mahomedan confederation against him had ended in his defeat and death; Ibrahim Padshah, gave in fief to the said person, and to his three sons, the districts of *Udyagiri*, *Nizampatnam*, and *Sarvapalli.* His three sons, were *Mallapa*, *Nandi*, and *Vira*, holding the districts in the order of the names. The subordinates of the descendants of *Mollapa* and *Vira* rebelled, and burnt down the houses of their lords, with all the inhabitants. Subsequently the three districts were united under the descendants of *Nandi-raja.* The French ruled for some short time over the country; and the districts came under the English. A few revenue particulars are added.

REMARK.—The little mixture of fable at the beginning of this paper is of common kind, and the remainder is evidently historical. This document happens to be written on Europe paper, with good ink; and will last for the sake of reference, if need be, for a considerable period.

Section 8. Account of the *Vellugotivaru.*

This paper, being of rather more than ordinary consequence, was restored, and bound up in the 2d vol. An abstract of its contents was also given in the 2d Report, see article C. MS. book No. 49, sec. 8.

The whole of this book has now been examined, part of sections, 1, 2 and 3, with the whole of sec. 8, are restored, and sec. 7, is left, subject to future reference.

Manuscript book, No. 33—Countermark 787.

(Section 1 to 5 were adverted to in the last report).

Section 6. Detail of caves and sculptures at *Mavaliveram*, (or the seven pagodas near Sadras).

A leaf is torn out, or cut out, at the commencement of the document; it may have contained introductory matter.

There follows a catalogue of the caves, and sculptures, minutely particularized, beginning from the north side; whence it is stated that Lord Clive took away an image. The whole is explained on the principle of being a sculptured representation of persons and things, alluded to in the poem of the *Mahabhorata*, according to the account usually given of them by the *Cicerone-Brahman* who usually attends on visitors. The account is meagre and inane. Certain parts might be of use, in forming a guide to visitors of these singular remains. The document gives evidence of the rapid encroachment of the sea, since at the time of its being written by C. Laeshmaiya in 1803, the walls of a fane on the edge of the sea were visible, which ceased to be the case in 1826, when I last saw the place.

NOTE.—Though not of much consequence; yet, upon the whole, I have judged it expedient to have the paper re-copied.

Section 7. Account of the fane of *Tiru-vencata-natha*, in *Velu-mala-palliyapat*, in the Madura district.

Brief legend of a hill fane, going up to the time of *Ucrama Pandiyan* who took refuge there, from an invasion of the *Chola-raja*. A shrine was built on the spot: afterwards entirely re-built by the Poligar-chief of the district, in comparatively modern times. The paper seems to be of very little consequence.

Section 8. Account of a fane of *Subrahmanya* in the same district.

Legend of a fane built by the same chief, in consequence of a dream: the river, close by, is fabled to have issued out of the *Camandala*, or ordinary drinking vessel, made use of by the *rishi Agastya*.

[Immediately after a leaf seems to have been cut out].

Section 9. Legendary account of *Mávalipuram* in the Arcot district.

In early times one named *Mallesudu* ruled here prosperously; but from refusing to feed a *Brahman*, and mocking him, he was, by the said *Brahman*, caused to be metamorphosed into an alligator. A *rishi*, named *Pundarica*, going to pluck a lotos flower from the tank wherein the alligator was, it laid hold of him, and the *rishi* drew the alligator, on the bank. The king thus obtained release, and went to *Swerga*: the *rishi* thought to present the flower to *Vishnu*; but the sea refusing to give him way, he occupied himself in baling out the sea; and, while so occupied, *Vishnu*, in the shape of an aged *Brahman*, approached, and asked for boiled rice. After some explanation he engaged to do the *rishi's* work, while the latter should go to prepare rice. By taking up a single handful of water, the sea retreated an Indian mile (1¼ English); and when the *rishi* returned he found the *Brahman* reposing, in the manner in which statues of *Vishnu* are sometimes represented. He now recognized the god; and a fane was built by him over the spot. This was kept in order, by many later persons. Before the said incarnation of *Vishnu*, the place was called *Mallapuri* and *Mallapuri-cshetram*, from the before-mentioned *Mallesudu*. In subsequent times the name was altered to *Mahavalipuram*. Those ignorant of the *Sthala puranam* hence inferred that *Maha Bali Chacraverti* ruled here, and hence called the place *Mahabalipuram*, and some term it *Mavalipuram*. Both of these names are erroneous; and are known to be so from the local *puranam*. This is included in the *Brahmanda-purana*, from the 93d *adhyaya* to the 100th inclusive. The names of the subsequent rulers are unknown to any one.

But, in the *Cali-yuga*, *Singhama Nayadu* the zemindar of the *Vellugotivaru* race, seems to have ruled here. In that time, during a famine, many artificers resorted hither, and wrought on the mountain a variety of works, during two or three years. Ignorant people term these

things the work of *Visvacarma*; but (says the writer) the marks of the chisel remaining, disprove that opinion. Besides *Singhama Nayadu* built a palace, on the hill; of which a few fragments now only remain.

NOTE.—Though there are marks of good sense in this paper, yet it does not afford full satisfaction. The retreat of the sea in early ages, if really narrated in the *Brahmanda puranam*, is an important fact. The clue directing to the *Vellugotiaru* race, as the rulers here, though not positively asserted, yet may be perhaps at some time followed out to certainty. An account of the said race was before given: vide 2d Report.

In that document however there is nothing positively to authenticate the above statement. They are stated to have made extensive conquests to the south.

Section 10. Legendary account of *Covalam* (Covelong, near Madras).

Under this section are included a few disjointed fragments, some without beginning, others without being completed, confused and disarranged, in binding up the book. As far as order can be elicited, the following is an abstract of the contents.

The *Sthala Mahatmya* of *Covalam*. In the *Krita Yuga* (or first age) this was a residence of *rishis*. The daughter of a *rishi*, performed severe penance until she was seventy years of age; when *Nareda* told her she could not attain beatification without being married; on which account she wedded *Cálava-maha-muni*, by whom in one night she had three hundred and sixty daughters; the whole of these being an incarnation of *Lacshmi* the wife of *Vishnu*, who, on this account, appeared to *Cálava muni*; and, giving him such gifts as he required, the said *Vishnu*, as *Varaha swami*, married the whole of these females.

[The apparent monstrosity of this symbolical passage is resolvable into an astronomical enigma, concerning the days of the year).

Account of *Covalam*.

As *Vishnu* in the form of *Varaha-swami* married *Lacshmi* in the persons of the 360 daughters of *Calava*, so in the tank, or lake, a daughter was born named *Comalavali-nachiyar*. Hence that tank acquired the name of *Comala-nauchalu*. This daughter again married *Varaha-swami*. Since, in the earliest age, the said god was wedded every day, the place acquired the name of *Nitya-calyánam*, or the daily wedding.

As in this town *Comalavali* was born, the place was called *Comala*, which the Tamil people ignorantly term *Covala*.

* * * * *

This is a place of no known origin (*anáthi-St'halam*). In ancient times it was a town of a *kadam* (or 10 miles). It may have contained five or six fanes, but the three called *Comalam*, *Tiruvadam*, and *Mallapuram* (the seven pagodas) are known to have belonged to it, as probably one town. But, going to ruin, it became a wilderness; and so it continues to be still.

NOTE.—*Calava* is a derivation from *Cala*, or *time*. The marrying the daughter i the recommencing another year. *Vishnu*, in a mystic sense, is (like *Zeus*) the firmament. *Vishnu*, as *Varaha*, may point to the *Varaha-Calpa*, or great period of time so called. In this way the *Brahmans* have constructed their Egyptian hieroglyphics, or Chaldean fables; and, by means of them, mystified the people, and led them into the crude personifications, and vulgarities, of a low, and disgusting idolatry.

The *tradition* of a large town having existed in the neighbourhood, is worth keeping in memory.

Mahomedan Account.

Anciently this place was a *Shahar*, or great town, with many suburban adjuncts. In those times there were *Hindu rajas*, to whom some few Mahomedans rendered obedience. This was in Hejira 1218, or Fusly 1214. (In these dates there must be some error).

In the times when the Mahomedans served the *Hindus*, some persons committed the dead body of a disciple, enclosed in an ark with a writing, to the sea (at what place not specified). The writing directed the Mahomedans of the place, wherever the ark should be cast on shore, to inter the body with great respect, build a tomb and render homage there; the ark came ashore at Covelong, and was taken up by the Mahomedans, by whom the prescribed duties were carefully rendered. In process of time it attracted great veneration, and in the days of the Nabob Sadatulla Khan, the simple tomb was turned into a mosque, and a fort also was built * * * *. Another mosque built by a devotee which had gone to decay was rebuilt and endowed by Sadatulla Khan. A fort, which afterwards belonged to the French, was taken by Mr. Close (afterwards Sir Barry Close) and dismantled. This was forty years since. Much salt is produced in this neighbourhood. There was a mint here in the time of Sadatulla-Khan; discontinued for thirty years.

* * * * *

The state of Covelom eighty-five years since. It was a wilderness. There were four householders resident. Mya Sahib in the time of Sa[illegible] datulla-Khan, being one of his partizans, came hither, and formed the neighbourhood into a Cashbah, building a fort and town. He fixed a mint; built four ships; made post regulations, and called the place Sada-bander, after the name of the Nabob. He died after governing for seventeen years. In his time a European, named *Ban-padi Dora*, (Van.....dorp) came hither: he called a minister from St. Thomé; and built a church. He formed a mint, and stamped money. He went to Bengal, and did not return. The minister remained, and died here. Another minister came from Cochin; and, as the former church was gone to decay, he began another one; but was prevented finishing it, by Hyder's irruption, on which account he went to the town (Madras). Mention of the different Nabobs. In the time of *Anaverdhi-Khan*, a partizan of his commenced the second fort, which Sheikh Nizam Din completed. It was captured by the French.

Fragment (without beginning) concerning the *Saiva* fane of *Tiru-Kazhi-kundam* near to Covelong.

Parvati performed penance in the neighbourhood. *Siva* resided at *Veda-giri*. When destroying the *racshasas*, he perspired ten millions of drops, each of which became a *Rudra* (a destroyer). The *Racshasas* being destroyed, these ten millions did penance in the south-east quarter, and afterwards obtained beatification. There is some fable, in connexion with which the name of *Sura-guru Chacraverti*, as king of *Mavalipuram* is mentioned.

The *Vaishnavas* destroyed the fane, and the legend, through hatred; in return for which the *Saivas* destroyed the *Vaishnavas'* fane. Since that time there is no *Vaishnava* fane in this place. *Siva* here married *Parvati* anew. In proof that *Indra* performed penance here, is the fact that, once every five or six years, the hill is struck by lightning; yet the fane receives no damage. There is some fable about vultures, as children of *Casyapa*, whence the place derives its name. A *Jaina* named *Appaji Nayanar*, having been cured here of a disease, procured some privileges for the place, from the Chingleput zillah, through a sanction from the Nabob. *Tattacharyar*, of the court of *Crishna Rayer*, built a tower and porch. Some other buildings are mentioned, and the writing abruptly breaks off without conclusion.

Observation.—Regretting the state of the sections concerning Covelong, it has nevertheless seemed to be advisable to have the papers relating to the seven pagodas, and these fragments (in the

same order as abstracted) re-copied; by way of record for reference, if need be. At the same time the abstracts (with the sole exception of the catalogue of caves and sculptures) are sufficiently full for every needful purpose; and, guaranteed by the copies for reference, may be used as safely as if they were full translations.

As regards the fragment its chief use is to add an item of evidence to the proofs, otherwise in existence, that the aboriginal inhabitants of the Peninsula termed *Racshasas* were exterminated, or driven away by colonies of *Hindus*. The recurrence of so many vestiges, in places and in documents so widely distinct, and different, cannot be without a foundation in the certainty of historical truth.

C:—MALAYALAM.

Manuscript book, No. 5.—Countermark 899.

Section 1. Account of *Malapura-coya* in the *Vettata-nad*, or district.

No ancient books except the Koran. The writer derives his authority from Jaini Mahomed in *Ponani* village. The amount of information conveyed amounts to little or nothing, except with reference to a few religions, or local, customs. They have no inscriptions.

Section 2. Account of the *Valluva-nad*, or *Angadi-puram*, *rajas*. in *Malayála*.

The capital was established by *Cheruman Perumal*. The younger brother succeeds on the death of a preceding king. They have no inscriptions, or records; the latter perished in the period of disturbance.

Section 3. Notice of the *Panikar*, a tribe of astrologers.

They refer their instruction in astrology to the precepts of *Subrahmanya*. The origin of the class is derived from *Tuluva*, with fabulous accompaniments; by which it appears, that their class originated from a *Brahman* and a woman of lower tribe. They state that they

were appointed by authority, accounted divine, to be astrological guides to the *Sudra* class. In the English heading of the section, in the original book, the section is said to contain "explanations of astronomical tables;" but nothing answering to such an index appears.

There follows copy of a letter, or order, from Thomas Warden, Esq. directing all, whom it might concern, to give assistance and information to *Vitala-Nurrayana*, the gomasteh of Colonel Mackenzie, concerning the antiquities of the country. The different kinds of documents, books, inscriptions, and ; the like, are specified ; by way of explaining the kind of matters regarded as desiderata.

Section 4. Account of *Alaven Cadari* of Calicut.

This person received his fief, and authority, from the *Samudri-raja* (title of the Calicut *raja*, by the Portuguese spelt Zamorin). There is nothing in the paper, except a mention of revenue-proceeds, from rice cultivation.

Section 5. Account received from one named *Coya Vetil Coya*, an inhabitant of Calicut.

According to this person's statement, the ancestors of his tribe came with some banners, or distinctions, by way of the sea, in a ship or bark, from China-*Kribala*; and, in consequence of rendering essential services to the *Samudri-raja* of Calicut, the class received from him distinguishing immunities and banners.

There is nothing further of any importance. I find, on enquiry, that the class of people referred to are most probably Chinese; as my informant says they are the same kind of people with the Chinese at Madras; except that the former do not wear the long queues, which the Chinese regard as tokens of honour. By consequence the people in question may be Malays, or other persons, from the eastern islands.

Section 6. Notice from the chief of a tribe of Mahomedans, his name being *Condavetti Takiyakal-tangal*.

The writer says his ancestor came from *Paniveli* (Panwell), on the coast opposite to Bombay. The people of *Malayalam* received him as

their religious teacher, and guide. He made many additional disciples. Tippu Sultan gave some endowments, which have been continued by the Honourable Company. There is nothing further of the slightest consequence.

Section 7. Account received from Syed Ali Coya, the *Cadri* (or Cazi) of the mosque at *Tiruvarangadi*, in the taloobs of *Vettata-nad*, and *Vera-nad*.

They have no ancient books, or records. The writer professes to give only what he had heard. *Cheruman Perumal* adopted the Mahomedan system, and went to Mecca; whence he brought with him ten families to return to *Malayalam*; but he fell sick of a fever at the *Shahar* (a town) where the ship had stopped in the passage; and, as the fever threatened to be fatal, he charged those people to go to *Malayalam* and disseminate their religion there. They objected that they were strangers to the country ; in consequence of which he gave them letters of introduction. After his death they came to *Codugnalur* (Cranganore ?) and delivered the letters to the chief at that place. The *Parapa-raya*, by his order gave them *Tiruvarangadi* (a bazar street) for their residence. They are bound to present a Nuzzar, to a certain fixed amount, on the accession of every new chief, as an acknowledgment of fealty and homage, discontinued (at the time of writing) since seventy years.

Section 8. Answers to enquiries received from the *Nambadi* chiefs at *Cavitta-nàd*.

They received their lands from *Parasu Rama*. No inscriptions. They are subordinate to the Calicut, and Cochin, *rajas*. Under them are 1,600 *Nayars*. They give a fabulous account of the origin of their tribe. Of their tribe there are three chiefs, *Vengna-natta-raja*, *Vedatara-nadu-vari*, and the writer the *Nambadi* of the *Calti-nada-Padinyare* district. The *Vengna-natta-raja* was adopted as ruler from their tribe, when the lineal ruler of that place had no offspring: it occurred about seven hundred years previously to these answers having been written. In consequence of some family discord the *Padinyare* district was divided, and so continues. In a defect of posterity the offspring of a female of the race, by a *Namburi Brahman*, succeeded ;

and the descendants are numerous. The race was at different times under the *Neddi-iripa* (Calicut) *raja*, and the *Perumba tapa* (Cochin) rajas: at the time of writing they were under the Calicut *raja*. They have no inscriptions: these were destroyed when fires burnt down their houses.

Section 9. Answers received from the *Cammatti*, or gold coiners, of the *Cusbah* of Calicut.

No ancient books. They came originally from the *Chola-desam*, and received employment as legal coiners from the Calicut *raja*, as they have heard by tradition. They retain no copy of the original order. They make the coin called the new *Vira-rayen*: four households are so employed.

Section 10. Result of enquiries of certain persons named *Musata*, at *Rama-natha-karai*.

Parasu Rama appointed all things at first, in *Tuluva* and *Kerala* divisions respectively: there were thirty-two village districts. Some reason is stated for the *Brahmans* being considered to be of an inferior order. Mention of a distinguished *Brahman*. There is nothing further of any consequence.

Section 11. Result of enquiries from a *Namburipád*, or superior *Brahman* of *Cuvittalur*.

The usual reference to *Parasu-Rama*: there is nothing in the section, beyond a statement of some local customs.

Section 12. Account received from *Pumuli Namburi-pád*, of *Cuvitta* district.

All books, or records, have been lost. Except a reference to *Parasu-Rama*, nothing is mentioned as to early times; and nothing, beyond local matters, of later date.

Section 13. Legendary account of *Paniyur Cshetram* in the district of *Cuvitta-nád*.

Parasu-Rama, after forming the *Malayalam* country, went to the *Goduveri* river, and invited the *Brahmans* to come to the new country; but they refused, except there were a river, and a *Varaha-svami*. *Parasu-Rama* by penance supplied these things; and then the *Brahmans* came to *Malayalam*. They are subject to the *Venáttira-raja* of *Tirvanandra-puram* (or *Trivanderam*); that is, the Travancore *raja*.

Section 14. Account received from the *Brahman* of *Vengnattur* of *Cuvitta-nad* district.

No inscriptions; and nothing further than a mention of the number of *Nayars* in the district, and some matters of revenue.

Section 15. Replies received from *Sancara-Potuval* of *Sancara-narrayana-cshetram* in the *Vettata-nad* district.

No inscriptions. Does not know where the *Kerala Ulpatti*, in *Sanscrit*, can be had: the *Bhavishyotra-purana* exists; but does not know where. All books perished in times of disturbance, in *Malayalam*. At *Rama-natti-karai* a *Pariya*, acquired great power, and the *Samudri-raja* (of *Calicut*) promised his district to any one who would kill him. *Parachatta-vetta-nayar* did so, and became chief of the district. The respondent is ignorant of ancient occurrences; but specifies some matters relative to existing chiefs.

Section 16. Replies received from the *Brahman* at *Cudalur*, in *Cuvitta-nad* district.

Parasu-Rama formed the *Malayalam* country. Reference for better information to the *Brahmans* at *Arrhavam-cheri* termed *Tambirarkal*: and to the *Scanda-puranam*. Nothing further of the slightest consequence.

Section 17. Replies from five *Brahmans* of *Paniyur*, in *Cuvitta-nad* district.

Inscriptions and records perished in the disturbances, caused by Tippu-Sultan. Much uncertainty expressed as to antiquity. Some explanations as to the opposing sects of *Saivas* and *Vaishnavas*. Some similar details; and a reference to two kings named *Kokatti-raja*, and *Cheriya-Perumal*, who fought with each other; when the former killed the latter, and received from the *Brahmans* the country of the slain chief. Reference to *Cheruman-Perumal* who ruled 36 years; and introduced the *Bauddhas* (Mahomedans): other matters relating to local customs.

NOTE.—This paper seems to be rather more important, than most of the others in this manuscript; but the matter has been to a prevailing degree anticipated by preceding documents. A reference to this paper in connexion with them, would be desirable.

Section 18. Replies to enquiries from the *Tirumana-cheri-raja* of the *Cutitta-nâd* district.

He is connected with the *Paniyur Brahmans*. He describes the chiefs subordinate to him; the mode of appointment to the succession, and of receiving authority from him. He enters into statistic, and revenue details; and after stating that his country has become impoverished, seeks for a relaxed tribute, and favour, from the Honourable Company.

NOTE.—The contents are too minute to admit of abstract. The document appears to be of some importance for reference.

REMARK.—The index, prefixed to this book, was found to be not quite accurate. The contents are not of very high interest; but they have been re-copied, partly because of the fragile material, chiefly China paper, on which they were written. We may gather from them, that the *Malayalam* country is perhaps more destitute of authentic records, than any other portion of the Indian Peninsula.

Manuscript book, No. 7.—Countermark 900.

(The following is a brief paper in the *Malayalam* language and character: the greater portion of the contents of the book is in Tamil, and Telugu).

Description of Funeral Ceremonies.

A brief introduction in Tamil, describes the preparation for funeral

rites of any chief, or great man, consisting of cocoa-nuts, rice, &c. The subject is continued in the *Malayalam* language. The funeral rites are conducted during fourteen days; and the proceedings of these days are specified. The persons who ought to assist; the presents proper to be given; the lighting of lamps, and other matters, connected with the subject. The whole is stated to be a complete description.

NOTE.—This is the only *Malayalam* document in the abovementioned book; and it has been thought advisable, to arrange it with the other papers in the same language.

Manuscript book, No. 4.—Countermark 897.

Section 1. Rules of granting lands for sale and mortgage, in the *Malayalam* country. This is the only section in the book in the *Malayalam* language. Each para. is followed by a translation in Telugu.

Para. 1. Relates to the *Ubaiya-pattolai*, or to a grant of land, with the proviso of receiving a certain portion annually of rice-grain in return.

Para. 2. Relates to mortgage of land, redeemable within a certain period; and, if not redeemed, becoming the possession of the mortgagee.

Para. 3. Provides for six months, in case of need, claimed by the mortgager over the stipulated time, within which to effect a redemption of his property.

Para. 4. Relates to *Jamma-panaiola-caruna*, wherein a sum of money is paid down to secure an annuity, or certain rate of interest, from generation to generation; or as long as the depositor shall have any posterity.

Para. 5. Relates to the absolute sale of land, for a settled price of purchase.

Para. 6. Relates to a mortgage of land, without interest on the principal sum; the land to revert to the mortgager, on repayment of the principal borrowed.

Para. 7. Provides an indemnification to the temporary proprietor, for the improvements which he may have made during the time the land was in his possession; the amount to be determined by four competent persons.

NOTE.—The above document being of consequence, in any account of *Malayalam*, was copied from the book wherein it was found, and classed with the other *Malayalam* papers.

Addendum.—Inserted in MS. book, No. 5, there is a neatly written paper in the Arabic language, the contents of which relate to the number of Mahomedan mosques, in the Malayalam country; with a specification of the persons in charge, the income, and similar matters. This paper may remain just as it is; the ink being imperishable, and the paper uninjured.

Immediately following, and at the close of the book, are three sketches of *Bauddhist* shrines, and one of a sacred tree of the *Bauddhas*, which I readily recognize as a distant prototype of Wilford's crosses, in the Asiatic Researches; guaranteed by which, his imagination identified the *Banddhists* with Christians. All the imagination, even of Wilford himself, must have been required to accomplish any such identification.

D:—MAHRATTA.

Manuscript book, No. 19.—Countermark 931.

Section 1. Account of *Sivaji-raja* a *Mahratta* prince.

This is a panegyrical poem, in praise of *Sivaji*; containing of course much of hyperbole and flattery. I have had a copy of it made, merely as a record; as it may be worth consulting, should any one take the trouble to write a biographical account of that successful chieftain. There is also a duplicate copy in the book.

Section 2. Account of the five tribes of *Mahratta Brahmans.*

This paper contains a specification of the *Pancha-dravida*, being according to this authority, *Maharashtira*, *Carnata*, *Telingana*, *Tamil*, *Gujerat*. The names of the five tribes of *Mahratta Brahmans*, are, 1 *Mahrattira*, 2 *Deshasta*, 3 *Conganasta*, 4 *Carâdi*, 5 *Chittapavan*. An account is given of their occupations. The first class, are sepoys, troopers, schoolmasters, doctors, mendicants. The second are said to

receive their name from quitting their country; and have similar occupations. The third have their name from being born in the country formed by *Parasu-Rama*. The 4th or *Carâdi Brahmans* are of the *Sacti* class, or worshippers of the supposed female-creative energy. They professed hospitably to receive *Telinga-Brahmans*, and then in the festival of *Nava-rattiri* (or Dasra) by stratagem cut off their heads in the fanes of *Devi* (or *Durga*). They had an idea that if they did this, for twelve successive festivals, they would acquire great wealth, and power. This practice was put a stop to by *Nana Sahib*; at least so as to make the practice become comparatively unfrequent. They disguise themselves; and in *Poonah*, as also in some other places, professing great hospitality, they mingle poison with the food of their guests; and thus offer them as a sacrifice to *Devi*. The 5th class derive their name from a legend connected with *Parasu-Rama*; they are worshippers of the *Sacti*. They marry females from the other four classes; but do not give their children in marriage to those classes.

REMARK.—This paper being badly written in pale ink, and on paper torn in several places, it was restored. It is a singular and remarkable document, especially with reference to the *Carâdi* class, whose practices appear to have been, and still to be, characterised by the deepest atrocity.

Section 3. Account of the battle of Panniput by Ragonauth Row *Yadava.*

This is an account of that remarkable battle; and, with other particulars, contains a detail of persons killed in the engagement. It is in a good state of preservation; and by consequence has not been recopied.

Section 4. Account of *Raghoji-Bhosala*, the ruler of Nagpore.

Mention is made of the ancestry of the chief in question, from the time of *Sivaji*, and his brethren. *Raghoji-Bhosala* was sent by the Nizam to the south; where he captured Arcot, and subsequently returned to Nagpore. Some further details are given of his warfare with another chief named *Makoji*, and there is the promise of sending a further account.

NOTE.—This document is in good preservation; and, relating to

times, and matters, already treated on by various historians, it does not seem, in this place, to demand further attention. It is very brief.

Account of *Anagundi.*

(Not sectionized in the table of contents at the beginning of the book).

Crishna-Rayalu ruled over the whole of the country, south of the *Nirmathi* (Nerbudda) river. He had a hundred thousand troops. A subordinate viceroy of *Anagundi*, ruling over twenty cosses of land, and having charge of the elephants of *Crishna-Rayalu*, was ordered by the latter to quit *Anagundi*. Two *Gossavas* (mendicants) pleaded on his behalf, representing his charity and virtues; but *Crishna-Rayalu* was inexorable. The *Gossava* taught *Crishna-Rayalu* some moral instructions; but being imperatively ordered to quit, he denounced on *Crishna Rayer* the doom of being childless, and without a direct successor, which accordingly occurred.

Subsequently while *Rama-Rayalu* was ruling, a Mahomedan *fakir*, came and bathed in a sacred-pool; and, being taken while doing so, was carried before the ruler, at whose command the *fakir* himself, and two others of his class, were beaten, and allowed to escape barely with life. They went to Delhi (a word often loosely used for Mahomedan power) and represented that if *Vijayanagaram* were not taken, the Delhi ruler was no Mussulman. In consequence of this incident, preparations were made to go against *Vijayanagara*; which was captured. The successors of that race, held a petty sovereignty over *Anagundi*; and, in the time of Tippu-Sultan, the descendant, then alive, retired to Sholapore.

NOTE.—This brief paper, being in good preservation, does not need to be restored.

Section 5. Account of the Mahratta prince *Sahu-raja.*

The paper commences with a reference to the time of *Acbar*, who fought with *Unda Singh*, and overcame him; and contains some notice of affairs downwards. The paper has in it details of transactions, connected with Mr. Elphinstone's proceedings at Poonah; which ended in the war against the Peishwah, and the conquest of his dominions.

NOTE.—The document is in good preservation.

Section 6. Account of the war of *Saddobah* (correctly *Sada Siva Bavu*) at *Curucsheiram*, near Delhi.

This document relates to war between the Mahrattas and Mahomedans; the former under *Sada Siva Bavu* and *Visvasa-Ravu*; and the latter under *Abdali*. In these wars the Mahratta chiefs, commanders under the king at Poonah, had the advantage; made extensive conquests; and levied tribute over many countries. The whole of the details are, I conceive of importance in any historical account of the Mahrattas. The document is in good preservation; and, by consequence, can be at any time referred to either for information, or full translation.

Manuscript book, No. 2.—Countermark 914.

Account of *Baboji Bhosala* of the race of *Pratapa Bhosala*, and ruler over *Hingani*, *Devudvar*, *Baroda*, and *Poonah*.

This is a book containing details, at considerable length, concerning the above race; and of a kind adapted to afford considerable aid to any historian, either of the *Mahrattas* in particular, or of those general matters in modern times wherein the *Mahrattas* took a part. The book is written in ink not liable to fade; and the paper is entirely uninjured. It can therefore be at any time consulted; either for reference, or full translation. Any lengthened abstract from me seems not to be required; the necessity being obviated by preceding details in other books.

Paper-roll, No. 9—Countermark 921, Mahratta *Bakheer* or account of the Mahrattas.

This is a roll of country paper bearing the above number, and native title. Inside it is labelled, "Account of *Shaha-raja*, a Mahratta prince and his victory."

On examination it was found to relate to the war between the Mahrattas and the Moghuls. The Delhi Padshah received information from *Gujerat*, that the Mahrattas were forming combinations against

him, which led to an embassy of enquiry; but the Mahrattas denied the truth of the allegation. A war was the consequence, attended with various alternations on either side; but at length *Shahu-raja* was thoroughly humbled, and reduced to the necessity of giving one of his daughters in marriage to the conqueror.

So much, with intermediate matters, can be made out; but the document is so greatly injured by insects, leaving sometimes only a word or two legible in a line, that any connected restoration of this document is not practicable; and it has of necessity been passed by as *irrecoverable*. Perhaps another copy of the document may yet be met with in the collection.

Another roll without number or mark.

This roll is in a still worse condition, and like the last *irrecoverable*. From such portions as remain legible it is found to relate to Poonah affairs and the wresting a dominion from the power of the Mahomedans. The origin of the *Colapur-raja* is given. He distinguished himself in fighting against Guzerat; and received the fief of *Colapur* with a district, and the title of *Cshetriya-Putra*.

The word *Colapur* has been written on the roll, by way of distinguishing it from others.

Manuscript book, No. 21.—Countermark 933.

This book, according to the index prefixed, ought to contain six sections of matter, calculated to be highly interesting, relating to *Bijapur*; to *Deva-giri*, and *Rama-raja* its ruler; to *Nasica*, and other places esteemed sacred; and to Poonah. However from great carelessness, or ignorance, in the *Muchi*, or native binder, and from want of previous good arrangement and superintendence on the part probably of Colonel Mackenzie's servants, the different papers have been mingled together, with the utmost confusion; and parts of the different sections are wanting. The result is, a book without connexion, or order: in some papers the beginning is wanting, in others the middle; in others the end; perhaps to be hereafter met with bound up, after the like fashion, in some other compendium. Considerable pains was taken with this book, before it could be definitely determined how the confusion had occurred; till at length casually observing an English num-

ber of paging in pale ink, a clue was obtained. The pages it was found had all been so marked; but the binder not knowing how to read English numbers, had made the transposition before stated. This negligence is to be regretted; particularly on account of *Deva-giri*. Nearly the whole of the fragments were read over; and it was perceived that a legendary history of *Deva-giri*, embodying some tales from the *Puranas*, and apparently some points, or facts, of real history, must have been contained in the section referring to that subject. The like remark, in a lower degree, seemed to apply to the other sections. The result is, the necessarily setting aside this book, for the present, as *irrecoverable*. It is much damaged; but must be left as found; unless the discovery of some other book, containing the pages wanting in this one, should hereafter render the present loss remediable.

The book is entered in Des. Cat. vol. 2. p. cxv. art. xxi. the sections being copied from the English headings of the book; giving some idea of what ought to be its contents, had the book not been mutilated.

Manuscript book. The numbers, and English heading, destroyed.

A romance of the *rajas* of *Bharatapur*.

This book was found to be in so wretched a plight, that, as in one or two preceding cases, it became necessary to submit it to the process of restoration as far as practicable, before its contents could be fully appreciated; which seemed the more desirable, as the beginning of the Mahratta promised to yield an account of the rajas of *Bharatapur* (or the famous Bhurtpoor). The process of restoration, though not complete, yet has been so far effectual as to preserve the general sense unimpaired.

The perusal however has led to the impression that it is not a historical document, but a romance, under the guise of a historical veil. Its object seems to have been to offer moral instructions (according to *Hindu* notions of morals) to the children of kings; warning them of dangers to be shunned, or evils to be avoided, under the inviting form of narrative. In this respect, and so far, only, it is like the Telemachus of Fenelon; but not in a too closely drawn resemblance. Such being the case, an abstract of particulars does not seem to be called for. Among *Hindu* romances, translated and edited, it might find a place; but that is not my task. The incidents, in their tone and bear-

ing, savour of a very early stage of society, occasionally assimilating, in manner, to some of the tales of the *Mahabharata*; and differing from any thing pertaining to the more modern localities of the Peninsula.

The book was copied by *Narrayana-Rao*, one of Colonel Mackenzie's servants, from another one in possession of *Nana-Sancara* at Poonah, and the copy so made is dated August 23, 1806. At some subsequent period, the white ants seem to have fed on it with little mercy.

Manuscript book, No. 20.—Countermark 932.

Section 4. Account of the *rajas* of Gujerat; with some details of its towns, and their dependencies.

In the three first ages the province of Gujerat was merely the residence of ascetics, or a wilderness. About the year 515 of the *Cali-yuga* one named *Deva-rishi* came from *Uttaravanam*, where he had dwelt a long time; and he regarded this country as one well adapted for his residence. After completing his term of penance, he placed on the spot, where he had dwelt, an image called *Somesvara*; he also constructed five or six villages of straw-huts, and went away. Subsequently a gymnosophist, named *Bhairava-nat'ha*, came and resided there; and after a time also went away. The place was called *Devatayali*. At a subsequent period one named *Gambira-sena* was desirous of being chosen king of *Jaipur*, but being disappointed by the people chusing *Sura-sena* one of his relatives, he retired under great vexation, and taking a few followers with him, went to Gujerat in the year 670, and resided at the aforesaid *Deva-tayali*. A son was born to him there, in the year 720. His son *Vira-sena*, as soon as he became 12 years of age, began to collect troops, and to carry on incursions all around. His proceedings came to the ears of the ruler at *Hastinapuri*, who sent troops against him; which plundered the country. One of the neighbouring chiefs, named *Gana-mani*, being about to sack his town, the wife of *Vira-Sena*, then near the time of parturition, escaped to a distance; and in a wilderness, near the town of *Ranuca-pur*, was delivered of a son. A learned poet, of the *Jaina* class, having occasion to pass through that wilderness, heard the cries of the mother and child, and, after fully learning the nature of the case, took both to *Ranuca-pur*. This town was inhabited by *Jainas*, who commiserating the situation of mother and child, gave them support and protection for five

years. They then sent both herself and child away; assigning as the cause, that should the ruler of *Hastinapuri* (the enemy of her husband), hear of the child being there, he would manifest great displeasure against the people of that town. She thereupon, in great distress, returned to the same wilderness as before; where she continued till her son was eighteen years of age: who then gathered around him 500 *Bauddhas*, and plundered on all sides. While so engaged, he succeeded in capturing an escort that was conveying 50 lakhs of money to the treasury of the *Hastinapuri*-monarch. After this capture he considered it no longer suitable to remain in his former obscure station. He negociated for a wife; and obtained the daughter of *Jey-singh of Stravunagudi*, who gave with her a magnificent marriage portion; the details of which are mentioned. As *Jey-singh* had no male descendant, he caused his son-in-law to be anointed as his successor; who greatly strengthened himself, and took several towns, the names of which are given, from his father's enemy, the monarch of *Hastinapuri*. He ruled 70 years; dying in the year 800 (*Cali-yuga?*). His son was *Vira-sena* who ruled 50 years. The descendants of this last continued to rule during a period of 856 years. Subsequently the country was conquered by *Bakhti-singh* of *Patanavil*, who resided in Bombay; and thence extended an authority over many neighbouring countries. After 30 years rule he died, and his son ruled in his stead; previously forming a marriage alliance with the daughter of the king of *Surapur*. He afterwards repudiated her, and married another wife. After some intermediate events, the country was conquered by the king of *Ananta-pur*, a *Jaina* king. At this period *Ahmed-i-juj* came from Arabia, with 125 thousand troops, and conquered the country. Disputes between the *Mahomedans* and *Jaines*, on religious points of difference, ensued. The Mahomedan restored the country to the former *Jaina* king, and retired. Another Mahomedan, named Sultan *Ajam-ud-jah*, came and fought with the *Jaina* king for seven months, killing the said king. The kingdom became Mahomedan in 1200 *Sac*; when the town of *Patanavili* was changed into *Pir-Patanam*. The conqueror afterwards put all the female household of the late king to death. The Mahomedan religion was established by him, as that of the country. It is stated that the town is now called *Delhi* (which implies something wrong). Here follows, in the manuscript, a detail of towns [illegible] dependencies; carrying up a reference to the origin of them, from [illegible]me when the country was throughout a wilderness. At the time [illegible]n the account was written *Gujerat* was under the rule of the Peishwa *Baji-rao*, son of *Rághonatha*. The account was written at

the desire of Major Mackenzie on July 24th, 1806, in *Mula Multan* by *Appadi Mesur.*

NOTE.—If authentic, the aforesaid document seems to be of some value. The book whence it was taken was greatly damaged; and, in consequence, this paper was re-copied. It may merit full translation.

Manuscript book, No. 39.—Countermark 951.

Reports of *Ananta-rao*, and *Narrayan rao*, for the years 1805 and 1806.

This book, as intimated by the above heading, contains communications made to Colonel Mackenzie, by two of his agents, who travelled through the Mahratta country; whose names occasionally appear on other documents transmitted. As such they were only of interest to the Colonel at the time. Being written on country paper, this book is greatly damaged, by white-ants, towards the end; but the nature of the contents renders any restoration of them unnecessary.

Manuscript book, No. 40.—Countermark 952.

Reports of *Ananta-rao*, and *Narrayan-rao*, for the years 1806 and 1807.

A continuation of the preceding journals written on French paper; and in remarkably good preservation. The contents, for the reason above intimated, do not require to be abstracted. The book will last for a long time; with only common care.

Mahratta *Bakheer.*—No. 34.

"Account of the battle of *Gajendra*, a large elephant, against an alligator in the former age: at the conclusion of the battle, the former was protected by *Vishnu*, the latter, was slain."

A roll like the preceding, complete; but damaged in several places by insects. The above title, copied from the heading of contents, is possibly quite sufficient. A similar legend is still commemorated at Conjeveram; both in records, and in public processions. In its origin it may have been allegorical; but, if so, we want the clue to the explication. It may help towards finding it, perhaps, if a brief outline be given.

A king named *Indra-dyuma*, becoming weary of royalty, devolved his crown on his son, and retired to a desert to perform penance. While so occupied, *Agastya* came that way; and, enquiring into his circumstances, received from the *ascetic* no answer. In consequence *Agastya* denounced on him the doom of becoming an elephant. The ascetic alarmed, made excuses for his ignorance, and asked when the spell would be broken. The other replied, that it would be by means of an alligator, the same being an imprisoned chorister of *Indra's* world; and, till then, the ascetic, metamorphosed, would be king of elephants. In the course of time a battle of a thousand years occurred, between the elephant and an alligator; ending in a dissolution of the spell by which both had been bound.

The name of *Indradyuma* occurs, I believe, among the early *Gajapati* princes (or elephant lords): there may, by consequence, be some allegory; but not, as it seems to me, of sufficient consequence to demand further notice.

Mahratta *Bakheer*—No. 37.

Account of *Nala-raja.*

A small roll of paper, very much eaten away, so as to be irrecoverably damaged; but not causing any loss, as there are versions enough of the tale of *Nala*, all founded on the interesting episode concerning him in the *Mahabharata*: either directly, or intermediately, through the *Naishadha*, a Sanscrit poem on the same subject. Elegant versions of the latter exist, both in Tamil and Telugu.

E:—SANSCRIT.

Manuscript book, No. 25—Countermark 937.

Balbund Character.

Thirty-two stories of *Vicrama-Raja.*

This is a version of these common and popular tales (which are sufficiently well known) in the *Pracrit* of the *Maharashtira-desam*, or Central India. The language is prevailingly Sanscrit, yet of an ordi-

nary kind, and partaking largely of the Mahratta idiom, and grammar, so as to form a middle dialect between the two. The book does not require to be abstracted, as these tales are found in every language; and as printed versions of some of them have heretofore appeared; for instance in the publications of the Royal Asiatic Society: an abstract also of a Telugu work, on the same subject, was published by me in the 1st vol. Or. Hist. MSS.

This book is slightly damaged; but not so as in any degree to affect its legibility. It is written with permanent ink; and its restoration, by consequence, is not required.

CONCLUSION.

The third part, or section, of my general report here ends; and without any need of repeating observations already made, within it, I trust, as a whole, it is sufficient, taken in connexion with preceding portions, to show, that the Mackenzie collection contains, at least some, really valuable matter; and, that as affording materials even for the dignity of history, it cannot be justly, and laudably, despised.

MADRAS, *March* 31, 1838.

II.—*Topographical Report on the Neilgherries.—By Surgeon* DEBURGH BIRCH, M. D. *Superintending Medical Officer.*

Ootacamund is situated in a basin near the summit of the Neilgherries in N. Lat. 11° 25′ and Long. 76° 45′. The hills immediately above this basin are the highest, which have yet been measured in this part of the chain of mountains, which separates the Malabar Coast from the Carnatic. Of these the highest point is named Dodabet, which is 8,760 feet above the level of the sea, and 1,360 feet above the level of the lake, formed by a large dam, which confines the waters flowing from the surrounding elevations, which are partially covered with beautiful woods, from whence the streams proceed.

These groves are usually formed on the converging sides of two adjoining hills, and consist of forest trees, mixed with brush-wood,

chiefly a kind of bramble or rapsberry, which grows so thickly as to be generally quite impenetrable; but it is remarkable that this brush-wood does not extend beyond the borders of the groves, which are as well defined as if they were carefully trimmed in a park. The trees are not deciduous, but of a nature different from those of the plains, in as much as they are not constructed for the resistance of such heat as those in the low country. They are generally of very bright colours, umbrageous and abounding in long slender branches. No fætid or unwholesome vapours arise from their vicinity, and some, as the *Michelia* and *Rhododendron*, are covered with beautiful white or red flowers. Few, however, are good for building, as the wood is not close, and readily cracks and warps.

The very general distribution of well defined woods and groves gives to the hills a park like appearance, which takes away from their wildness, without diminishing their grandeur. Their extent may be stated at fifty miles in length, from the bottom of the Coonoor pass in the east, to the bottom of the Koondah *ghat* in the west; and their width, from the Segoor pass in the north to Loondapully in the south, twenty-five miles. Various modes of approach are now opened by the different *ghats;* the principal and most frequented of which are Coonoor and Goodaloor; the former is wide and in good order, and practicable for wheeled carriages. The other *ghats*, at the Koondahs, Segoor and Kotagherry, are not yet in good condition, but shortly will be, under the hands of the Sappers. The *ghats* are as follows—Coonoor, leading from Motapolliam in the Coimbatore district by a gradual ascent of fifteen miles, is 6,000 feet above the level of the sea at the top, and is ten miles from Ootacamund, which distance is over a good road in the cold climate; whereas the road below from six miles from the top is through a thick bamboo jungle.

Goodaloor is at the foot of the *ghat* leading to Neddoobetta, six miles in length, rising rapidly a height of 3,500, in the course of which the rise in the road is sometimes one foot in three, which renders this pass impracticable to loaded carts; this is one of the approaches from Mysore and the Malabar Coast by Manantoddy, and the roads below pass through dense jungles infested with elephants, and peculiarly productive of fatal intermittent and remittent fevers, which [illegible]n alone be avoided by passing through them during the day, as de[illegible] in them, even for a single night, almost invariably is attended with [illegible]l consequences to Europeans. To obviate this risk, travellers are obliged to have bearers stationed half way in the jungle, to relieve those which carry them, coming or going; and the bearers themselves

return to their own stations, whence they came on the same day, as neither those from above will advance into the low country, nor those from below go up the hills. This particularly obtains with respect to the jungle between Mysore and Goodalore, which is called the Karkaree jungle.

The pass which rises from Seejoor is now in progress, and will approach Ootacamund by Kulhutty, or "stony shepherds walk." The ascent is fifteen miles in length to Ootacamund, and is very gradual At the foot of this *ghat* there is a tremendous ravine, the sides being 900 feet high and almost perpendicular, and the span upwards of 2000 feet, but a practicable way is being made to the bed of the Moyar river, which runs at the bottom of this great chasm. The advantage in this route is to do away with the necessity of going to Neddobetta, which, although in the cold climate of the hills, and approachable by a good road, is 17 miles from Ootacamund, nine miles of which distance will be saved by the Seejoor pass, as travellers will thereby be able to reach Goondelpett, on the Mysore road from Ootacamund, in one day, and will also avoid much of the dangerous jungle on the Karkaree line. Nevertheless, occasionally this line will be impassible when the Moyar river is flooded, to which it is very liable during the south-west monsoons.

The Koondah *ghat* is thirty miles from Ootacamund on the road to Calicut, over a very good road for palankeens, bullocks and horses, but not for carts. The summit of the pass is 6000 feet above the level of the sea, and the descent is rapid, through thick jungle, which covers the whole visible plain below, and is infested with elephants, and other wild beasts, which have not yet been scared by the frequency of travellers. The road, having traversed twenty miles through dense forests, reaches the Baypoor river, which runs into the sea at Baypoor, and offers an easy and speedy mode of access to Calicut, as a boat is soon carried down the stream, so that it would be possible to proceed from Cisparey, at the top of the pass, to Calicut, in one day, although it would require much longer to ascend the *ghat*, as it would be unsafe to venture into the forests when the sun was not up. This approach, therefore, will not be frequented until the bungalows at the top and bottom of the pass be completed. But, when once established, it will be of great value to travellers coming from Bombay and the Malabar Coast as it will enable them to reach a cold climate from the sea shore in thirty six hours.

The pass to Kotagherry is now but little used, as that place is less frequented by invalids, since the withdrawal of a Commissioned Medical officer, those only going there, after trial of Ootacamund, who have been recommended by their medical advisers to do so. Hence it happens that the pass has fallen into disuse. The descent, however, is gradual, and might be made quite as good as the Coonoor pass, as it has the advantage of being but little incumbered with jungles.

The prevailing winds here are those of the north-east and south-west monsoons. The former begins usually in October, and continues until March, when the wind shifts to the south and east, or is variable until June, when the south-west blows steadily. The north-east is usually ushered in with three weeks rain, when it is succeeded by clear cold weather and frost at night; but in the day time, in the heat of the sun, the thermometer rises to 75° or 80° of Fahrenheit, and falls during the night sometimes to 28°. The coldness of the air and its excessive dryness, which is often so great as to give no deposition on the hygrometer, wither most of the more delicate plants such as grasses, willows and garden vegetables; but the large trees do not appear to suffer; while some thrive, as the *Rhododendron*, which then puts forth its brilliant carnation flowers.

The south-west monsoon, which prevails from the beginning of June until the beginning of October, is usually a very wet season, and the air is generally saturated with moisture, as indicated by the hygrometer; for, during the intervals of showers, a thick mist usually passes over the hills, by whose gloom and damp the grass springs forth luxuriantly, and clothes them, to their very summits, with a brilliant verdure, which is truly of an emerald hue, when illumined with the bright beams of the sun, at such intervals as the breaking clouds permit his rays to pass. At the commencement of this monsoon the wind blows very strong from the south-west, so as sometimes to be a storm or hurricane, blowing down trees and blasting vegetation, as was the case in June 1836.

In the neighbourhood of Ootacamund, there is open ground enough for locating troops, but few spots sufficiently level for the ordinary duties of parade, unless for light infantry; but at twenty miles distance, on the road to the Koondah *ghat*, there is an excellent level, called the long valley, which is about five miles in length from east to [illegible] and a quarter to half a mile or a mile in width from north to [illegible] Through it runs a good stream of excellent water, and the hills on [illegible]orth and south give great shelter from the winds, which, during the south-west monsoons, must be very piercing. On the plain there is ample room for six thousand men, and it would be a valuable depôt

for European Infantry and foot Artillery, indeed it would be well suited for the cantonment of all the Europeans now stationed at St. Thomas' Mount, Arnee, Trichinopoly and Cannanore. Materials for building barracks are on the spot, or close at hand, as the jungle on the road to Calicut, at the foot of the pass, is full of fine teak, and lime is procurable below; bricks are easily made on the site of the building, as the adjoining woods supply fuel to burn them.

The ground will admit of all military exercises, and can be kept dry in wet weather by judicious draining. The position is a commanding one, for, the roads being good and quite practicable now for baggage, as well as troops, as far as Matipolliam in Coimbatore, a force could march from the long valley to the most distant part of the hills adjoining the low country in four days, and a body of troops could reach the seacoast by the Koondah *ghat* and the Beypore river in three days.

As a station for troops it is of great value, and would serve to renovate the worn constitutions of men very long in India, or to preserve the health of a new regiment uninjured. I speak of regiments, not of individual soldiers; for I am convinced that no climate will be beneficial to the detached and idle soldier, although the salubrious climate of the hills would, I am confident, be a blessing to the well employed soldier, under the control of his own commanding officer in the society of his comrades. But were a brigade formed of the two branches of European Infantry and foot Artillery, then it would be practicable to allow men sick or convalescent from other regiments to join, doing duty when they should be able; and after having performed all the ordinary duties of a soldier to the satisfaction of the commanding officer, they might, with the consent of the Surgeon, return to their own corps. The formation of a brigade at the place which I have indicated, strikes every visitor versed in military affairs at the first sight of this valley, and I mention it as a means of effectually converting it into a preservative and restorative of health, without which military control and occupation, every system for renovating the exhausted frames of soldiers must and will fail. The expense of buildings would, in less than ten years, be completely reimbursed, by the saving of life among the men, whose comfort and health would be promoted by the measure. The only draw-back to this site is the long duration of the rain, as it is more under the influence of the south-west monsoon than the eastern side of these hills. Near [illegible]gherry, there is a ridge on which two regiments of Infantry, or [illegible] thousand men, could be placed, and have level ground enough for parades and other military exercises, but the supply of water is not quite

so close at hand as in the long valley, the stream being at the base of the ridge, at a distance of two hundred yards down the slope. This ground is generally dry and the situation pleasant, being neither so cold nor so wet as that of the long valley, but it is cultivated ground, the property of the resident Burghers, who occupy the opposite ridge across the stream; whereas the long valley is an unoccupied spot; rarely trod by man. The climate of the former I consider preferable, but the localities of the latter are superior. Both might be tried; as the one is as close to Coimbatore, as the other is to Calicut. By Europeans the means of subsistence might be obtained as cheaply, or cheaper, than in the low country; because, oxen, goats and poultry thrive on the hills every where, and sheep do well at Kotagherry, and the finest vegetables can be cultivated. Thus a certain number of troops can be kept in health, and an efficient sanatorium established at two or three points of these hills, and many more I doubt not could be found by diligent search, and it only remains to be considered, whether, in case of emergency, these men would be better fitted for active employment in the low country, than if they had always remained as they are at present—to which, as far as my experience enables me to speak, I should say that men in vigorous health would, notwithstanding the great change of climate from cold and bracing to hot and debilitating, be more capable of physical exertion than others, who, though in some greater degree inured to heat, have suffered from its effects, as it is obvious they must all suffer more or less who have been so exposed. This is my answer to the latter part of the first query, because there can be no wholesome effect on the health of the invalid soldier without discipline, and there can be no discipline of any value without the regular duty of a regiment or brigade, and the establishment of such on the hills I conceive to be a further means of keeping those well who have not been sick, and thus diminishing expence by saving life, and adding to the efficiency and happiness of the troops, and still further as a consequence consolidating our power.

On the Neilgherries there are but few rivers, and no lakes except the artificial one at Ootacamund. For about a circle of ten miles round Ootacamund the hills are rounded and not very lofty, appearing like the billows of a troubled ocean in a calm succeeding a storm; the ground undulating rather equally in obtuse angles, each elevation being from two to three hundred feet from the general plateau. Down these slopes little slender streams ooze out, and the intervening valleys receive them, but, as they have neither weight nor velocity sufficient to cut out a channel for themselves, the valleys are usually swampy,

but no offensive odour proceeds from them. Where these valleys join others at favourable inclinations the water is carried off, and forms rills and brooks, which by long and tortuous courses reach the Pykarree river, which runs from south to north at the base of the Koondahs. Proceeding westward twelve miles or more, the hills are more abrupt, sharp, precipitous and lofty, the valleys deeper and narrower and have more streams which are fed by numerous cascades from the tall sides of the hills. The Pykarree river is the chief drain of the western range, and carries the collected waters down to the Moyar river, passing by Seegoor. Thus no great accumulation of water can take place, and no evil to the hill country would in all probability follow if it were retained. There are no wells, but reservoirs are often formed where springs rise. The climate is decidedly salubrious to those who do not expose themselves too much to the sun or to the rain, and who have no confirmed organic disease, which, perhaps, if hepatic, no intertropical climate can remove, but even to them it frequently gives that relief which cannot be obtained in the low country. Benefit is chiefly derived by children, who thrive here as well as in Europe, and by those who suffer only from general debility in the low country, to whom it is indeed a solace. At the same time rheumatic and gouty persons are effectually relieved, and obstinate intermittents, even of monthly intervals, are cured. Hepatic disease is less certain, because the degree of its advancement is not precisely determinable, and where progress in organic deterioration has been made, the climate, particularly in the dry months, from December to April, does not agree with it, and indeed must often be supposed to cause or at least favour the rapid formation of abscess—most probably arising from the stoppage of the drain of perspiration.

Dysentric complaints, if unconnected with hepatic disease, do well here in the dry weather, and even if the affection of the liver be but slight, and more of the nature of congestion than inflammation, unattended by organic alteration, recovery is by no means hopeless.

Cutaneous diseases, the consequence of debility in the low country, also do well here, but their progress is slow, and I am of opinion slower than at sea, but with time and care here they finally recover.

Of the therapeutic means adopted for the recovery of invalids who resort to the hills for health, there are few more beneficial, and yet so little attended to, as warm clothing, the chief part of which is flannel worn next the skin. The sick man, the valetudinarian, and the healthy man, also (who visits the hills for pleasure), all alike find the benefit of flannel, which, when worn from the neck to the soles of the feet,

maintains that equal warmth of the surface, which is so necessary to health. It preserves the sick and the valetudinarian from the severe cold, of the ill effects of which they are so susceptible, and serves to maintain that moisture of the skin, which is checked, almost to suppression, by the rapid transition from the great heat of the plains to the cold of the mountains. It is owing principally, if not solely, to this cause, that hepatic complaints so frequently deteriorate; the repulsion of the fluids from the smaller vessels and capillaries, forcing them inwards, and producing congestion, which has a tendency to inflammation of the parenchyma, and the formation of abscess, especially where there has been inflammation of that organ, or a tendency to it in the low country. The same check to perspiration sometimes produces ephemeral fever, to which even those who reside are subject, more or less, according to their attention to clothing, of which the chief point is flannel in contact with the skin, as generally and uniformly as possible, the comfort and benefit of which no outward covering can supply.

The highest degree to which the thermometer rises is to be found at the sun's declension, about half past two P. M. when it often is as high as ninety degrees of Fahrenheit, on walls which reflect the heat, although from the freshness of the breeze it gives no such impression to the feelings, unless the person be in a position where radiation is interrupted by houses or other objects. The lowest degree of temperature yet observed is sixteen of Fahrenheit, or sixteen degrees below the freezing point. Both these extremes may occur in the same twenty-four hours, if the atmosphere be perfectly clear and dry and no cloud visible, under which circumstances the cold will be great, because radiation is unimpeded; and in the valleys, therefore, the temperature is at the lowest, of which there can be little doubt, as was lately experienced in a tent near Makoruty peak in the Koondah, in which the water in a tumbler on a table, inside the tent, was converted into a mass of ice, and the mercury in the thermometer which was hanging on the tent pole fell to 20 of Fahrenheit; so that outside, and in a still lower situation, it most probably would have fallen four or five degrees below that. A question has been raised as to the reason of this. I should say that, in the first place, on the withdrawal of the sun's rays, the heated air from the valleys ascends, and the moist and cold air falls into them; that, therefore, below, the air is sensibly colder, and also contains much more moisture, which humidity is very favourable to the further abstraction of caloric; while it is also less disturbed than the

air above, by being surrounded by the adjacent hills, which also is highly favourable to the formation of ice, in masses or hoar-frost; whereas the air at the summits of the hills, being constantly agitated by strong currents, and partially warmed by the risen heat from the valleys, but especially from being quite dry, whereby the moisture necessary to the formation of hoar-frost must be evaporated; offers, as far as I can judge, a fair explanation of the great fall of temperature in the valleys and the formation there of ice and hoar-frost, while there are hardly any on the hills above.

The medium temperature is very equable, and in a good house does not vary five degrees, on an average, in the whole twenty four hours; so that delicate persons can command a temperature more even throughout the year than at any other place, perhaps, in the world. The average of seven years is as follows:—

Mean temperature about 2 P. M.	63°	2′
Do. do. sun rise	49°	3′
Do. do. for the whole month for seven years	56°	2½′

In a strong wind in March, when the sky was quite clear, the thermometer in a room without a fire stood at 64, and fell to 63 when exposed to the sun outside, where a strong and dry easterly wind was blowing.

The soil is diluvial being chiefly lateritious, or of dark clay (very productive), lying on laterite, with sufficient intervening quartoze and lateritious gravel to drain it. The whole formation of the hills is primitive, consisting of granite overlaid with laterite, and the above mentioned clay, and feldspathic porcelain clay, all producing abundance of grass, through the continued moisture of the monsoons, and the consequent protection from the sun by the clouds, the which when withdrawn, the whole face of the previously verdant hills is changed to a dusky brown. The generally low degree of temperature, and the powerful currents of wind, which constantly blow, would prevent or greatly diminish the bad effects of noxious exhalations, if there be any; but, as far as two years experience enables me to judge, I believe that there are none, as persons have passed nights in tents in various parts of the hills without having suffered the least inconvenience therefrom.

The water is excellent, as most granitic waters are, being almost chemically pure. A thermal spring is said to be in the distant Koondahs, but I have not seen it, and my avocations will not admit of much exploration.

The vegetable products are numerous and novel, but as yet none have been found to possess any properties adapted for medicine or commerce, except the holly (*Berberis*) the wood of which is of a bright yellow and gives a good dye of the same colour. It grows very generally all over the hills, but it is small and stunted, and would barely repay the expense of a gathering and carriage. Of fruits there is the wild raspberry, which grows luxuriantly in most of the woods, and a species of *Myrtus*, which produces a wholesome fruit, in flavour and pulp resembling the English gooseberry, but enveloped in a skin like that of a peach. The Brazil cherry and peaches have been successfully introduced, but, generally speaking, no progress has been made in the cultivation of European fruit trees, although in the culinary department of horticulture the success has been very marked. Potatoes, peas, beans, cabbage, cauliflower, beet, carrots, turnips, celery, lettuce, grow very well and of good quality. Attempts have been made to raise gram, both chenna and coolty, but ineffectually. Barley thrives, and oats partially. The latter produces little grain, but an enormous stalk, five or six feet high, and proportionally thick, and which if cut will grow again from the same root, so as to afford excellent fodder for cattle, as also does the blade of the kind of millet which the natives of the hills chiefly live on.

The indigenous grasses are coarse and rank, and not good for horses, although the cattle do not suffer from feeding on them. Owing to this, and the coolness and humidity of the climate, through the greater part of the year, sheep languish very soon, and cannot with every care be fattened by grazing alone; but goats, which have been introduced only about eight years, do as well here as below. Horses fall off in flesh on their first arrival, but never in spirit, which seems to be increased by the bracing air; after a few months they get into good condition, if due attention be paid to warm clothing and comfortable housing.

The minerals are chiefly granite, quartz, felspar, porcelain clay, and laterite—some of these contain garnets, but none of any value. The laterite is the most valuable, as it can occasionally be used for building, when it is superficial, as then it can be wrought with little trouble while newly exposed.

There is only one small barrack at Ootacamund, capable of containing a detachment of sepoys, sent here from Coimbatore to guard the public office, which is the treasury, police, and post office.

The jail is a large building consisting of three large rooms and one small one with closed verandahs on both sides. Its length is north and south, its front to the east and its back to the west. Being injudi-

ciously placed on the top on a hill, it is exposed to the full force of both monsoons, especially the south-west.

The prisoners in general are very healthy, although their work of necessity exposes them to great vicissitudes of weather, and they are ill provided with clothing to resist the cold; their being sentenced to imprisonment here is considered a great hardship and additional punishment. There is no court here, but they are all sent from the adjoining zillahs of Coimbatore and Calicut. Each man is provided with two cumblies, one of which he wears while at work and the other is reserved for his return to wrap himself in dry. The hours of work are from seven in the morning to four in the evening, with an hours rest at noon. Their occupation is to mend the roads and bridges, and make new ones whenever required within the limits of the cantonment.

They have lately completed a choultry near the bazaar, for the accommodation of native travellers, who heretofore have been obliged to seek shelter where they could find it, and consequently many unfortunate coolies have lost their lives from exposure to the cold, which is intense at night, in both monsoons, when acting on the almost naked bodies of poor people who have perhaps the same morning been in the scorching heat of the Carnatic, and have had but little food during their tiresome journey up the pass. This choultry is large and inclosed on three sides, having a good space in the centre for bullocks and carts, and as long as it stands will be of great benefit to those who have no other place of shelter in a climate where it is so greatly needed.

The bazaar at Ootacamund is generally well supplied with all the produce of the low country, at fair prices, and also with all the culinary vegetables before mentioned. Bread has hitherto been made of wheat grown in the low country, and leavened with the fermented juice of the palm-tree, but wheat is now beginning to be generally cultivated, and the quantity produced equals the demand for the supply of bread to the inhabitants. No corn has been yet made, or at least applied to the purpose of leavening bread, although there can be no doubt that malting and brewing might be carried on profitably from November to March and June to September, at least nine months in the year, during which, in a well built house, the thermometer would never rise to 70° of Fahrenheit. The hop, I feel confident, could be cultivated in various places, as there are sites with every aspect, and every degree of elevation and difference of temperature, which would insure success in many parts of the hills, and if brewing were thus undertaken by persons having capital enough to build the requisite houses, and set the business going on a sufficiently extensive scale,

there can be little doubt of its success, and thus furnishing good beer, which would be an invaluable gift to the European soldier, who might then be able to purchase a wholesome beverage to refresh himself, without intoxication and disease. This matter alone is of such importance, that it would be worth making an effort to prove the practicability of the point, by obtaining from England a brewing machine, and some hops. A brewing machine of a few gallons can be tried, which would suffice for an experiment, and barley in abundance is to be had on the hills. The barley which is grown is of a poor kind in appearance, each grain seeming to consist of two very slender cylindrical bodies, in close contact, with their extremities pointed and joined into one—not like the European species which merely is a segment of an elliptical body, with an indentation or small furrow on the flat side. Whether the hill barley be as good for malting, I cannot tell, as it would require a simultaneous trial of both, and that also might be done with little cost. Machinery could be constructed to boil *in vacuo*, and to cool also *in vacuo*, and the latter is, in point of expense, the more important consideration, for by a comparatively small sum expended on iron tubes of large calibre, the cooling pans, the greatest cost of brew-houses, could in a great measure, if not altogether, be saved.

The only public hospital at Ootacamund is that near the barracks. It was formerly used as a Lock hospital, but within the last three years has been applied to its present use. It is a small building, 51 feet long by 12 wide, situated in a sheltered spot in a horse-shoe shaped valley, at the base of the hill on which the jail stands, and is quite protected from the winds in every direction, as in front it looks at another hill, on which the dispensary is placed, and can accommodate 25 patients; there are 10 beds which are put up as required, but, if the place be crowded, the patients can lie on the floor, which is well boarded and dry.

The patients are such of the sepoys of the guard as may be sick at any time, the palankeen bearers, and any other persons whatever who need assistance, and the last are commonly coolies who are ill of fever caught by delaying in the jungles on their way up; or persons who meet with accidents. This place, small though it be, is sufficient for the present demand, and is of great value, particularly for those who have no house, or place where they could be attended; separated as they are from their relatives when they come up the hills.

The dispensary is situated on a hill near the public office. In this, and nearly all the other public buildings at Ootacamund, a grave error

was committed, in placing them on the summits of hills, where they are exposed to the violence and humidity of the monsoons, and the searching cold of the dry winds, and where a supply of water is only to be obtained by laborious carriage from the valleys below, or from some distant stream; as if the object were to find a centre for a panorama, rather than a convenient and agreeable site for building.

The medium temperature throughout the year, on an average of seven years, being not more than 56 of Fahrenheit in the house; and beneficial exercise being taken in the open air on horseback, without any risk of injury from the sun, from four to six daily, and at any time in a covered vehicle; the fact that European clothing and flannel can and ought to be worn constantly; and that the comfort and cheerfulness of a fireside assimilates the condition of the visitor to that which constitutes so much of the pleasure of existence to an European in his native land; and above all the inestimable advantage of refreshing sleep, in a pure and cold atmosphere, by which an unaccustomed source of renovation is nightly afforded to the exhausted frame of the invalid; form altogether a multitude of propitious circumstances, the amount of which is as large, as the enjoyment of them is advantageous. A result of this temperature is the more wholesome state of animal food, previous to its final preparation for the table. Meat will keep, in the colder and drier season, fourteen days, and longer, before cooking; therefore all that *vis insita* which renders meat recently killed unpalatable and unwholesome, is totally destroyed, and the fibres become delicate, and the juices lose the tendency to fermentation and acridity, which are such impediments to digestion; and here again the enfeebled assimilating powers of the invalid find an essential help, which in vain is to be sought for in less elevated regions within the tropics. Here are to be had the two luxuries *par excellence*, which were said to be as hard to find in the East Indies as the philosopher's stone, namely, cold air and cold water, and both in a state of the greatest purity.

Kotagherry and Dimhutty are within one mile of each other, about seventeen miles from Ootacamund, to the east. The former is 835 feet lower than the lake of Ootacamund, and overlooks the plains of Coimbatore. The thermometer is usually six degrees higher than at Ootacamund, and the weather there generally is milder and drier, as it gets but little of the south-west monsoon, and therefore frequently agrees better with invalids, soon after their first arrival, than Ootacamund, which many find too cold. Some who although resident here some time, have complained of indigestion, arising from torpidity of the liver, find much benefit from a change to a less cold temperature, where the

ion of the skin is greater; and often, for the same reason, it is of use in those obstinate intermittents, which have lunar intervals, either at the full or change of the moon. The change of climate, even on the hills, frequently breaks the habit, and the patient rapidly recovers. The houses are few, but good, and usually afford sufficient accommodation for those who require a change, as it is only a station supplemental to Ootacamund, since the withdrawal of the Surgeon from it.

Dimhutty is to the north of Kotagherry, and is situated in a pleasant valley, surrounded on every direction by hills of moderate height, by which it is sheltered from the strong winds, and much rain and mist, which are attracted and condensed upon their summits. It is about 250 feet lower than Kotagherry, and in every respect warmer, but the air is merely mild and balmy and not sultry. There are at Dimhutty six small thatched bungalows, and a house of two stories having a terraced roof, which are let at low prices to sick officers. There is a nice garden, and fine lawn-like piece of ground, bounded by a handsome wood adjoining, and the surrounding knolls are highly cultivated, so that this establishment is very picturesque as well as salubrious, and affords a pleasing, economical, and wholesome variety of residence to the seeker after health. Neither place, in other respects, either as to geological character, or mineral or vegetable products, differs much from Ootacamund, and what has been stated regarding it will apply to them.

Coonoor.—Is not a station, but as it once was the place of encampment of the Sappers, it cannot pass unnoticed. In geological structure it resembles the other places, and its vegetable products are alike. It is however only just at the summit of the *ghat*, which is covered with thick jungle, and, being only 6000 feet high, is sometimes feverish, and therefore objectionable as a station, although as far as external feeling is concerned, it is in the main as agreeable as the other places mentioned above.

The native population of the Neilgherries consists of four descriptions of persons, namely, Todars, Koters, Burghers and Currumbers.

The first and last are the fewest in numbers; the Todars are com-d to be about eight hundred, and the Currumbers cannot be more, most probably are less, which cannot decidedly be ascertained g to the little intercourse which exists between them and the revenue servants, and the other inhabitants.

The Todars are a tall athletic race, having fine open countenances with aquiline noses, jet black hair, which curls in ringlets, but is not worn long, or at least much longer than by the Europeans. Their heads have no other covering, as they never wear a turban or other protection against the elements. Their only garment is a long wide cloth, with a blue or red edging, which is thrown over the left shoulder and thence round the body, leaving the right arm free and bare, in the manner of a Roman toga. Men and women are dressed alike, excepting that the women have their arms decorated with very heavy brass bangles. They have no ornaments on their heads, or in the ears or noses. There are no marriage ceremonies among them, but they live pretty much as the Nairs of Travancore; one woman being allotted to several men, which practice is said to owe its origin to female infanticide, the cause of which barbarous custom is not by any means apparent, as their means of living do not seem to be limited, nor their habits extravagant or expensive.

The eldest brother of a family applies for a young girl to her mother, and, on consent being obtained, two buffaloes are given by the father of the girl as a provision for her; the bridegroom also gives her a few buffaloes, according to his circumstances. Afterwards the bridegroom, followed by all his brothers, conducts her home. About the approach of the period of maturity, the brothers take the girl into the woods, where the marriage is consummated by all of them. Afterwards, some rice is boiled, of which they all partake, when they return home together, and she lives with them as a wife. Women are allowed promiscuous intercourse with the caste, receiving a piece of cloth of one and a half rupee value from each. The more presents she receives, the more respect and regard are shown her, and she is highly esteemed in the tribe.

When a woman is in labour, she is supported by two women to the nearest wood or bush, and after delivery word is sent to one of her gallants whom she likes best, who carries the child in his hands, followed by the mother, to the distance of a mile, where a temporary hut is erected, in which they remain for the space of a month. During this time he is in attendance, and cooks *sawmay* rice (a species of millet) for her. At the expiration of the above period they return home. No medicines are given in case of sickness, the child is bathed every [illegible] or fourth day in warm water, and the mother's milk is the only nourishment or medicine it receives.

Buffaloes form the property of the Todars, who all live in little communities, not exceeding a dozen persons, and their habitations are

usually six feet high, and six feet wide, being curious oblong huts, formed of bamboos, bent into long, narrow gothic arches, covered neatly with thick thatch, and closed at both ends with wicker work of bamboo, and plastered over with mud; in one end there is a small opening, close to the ground, not quite two feet high, and fifteen inches wide, through which the inhabitants creep; three or four huts form the little hamlet or *mund* as it is called, usually placed in a highly picturesque and luxuriant spot, affording shelter to themselves, and food for their cattle. In each *mund* there is a separate hut of a better structure and materials, and larger size, than the others, devoted to their religious rites; but in none of them is there any idol or symbol which they worship. In some of the *munds* these temples (if for want of a better epithet they may be so called), are not in form of a gothic arch, but are conical, rising to the height of fifteen or twenty feet, and are like other temples insulated by a strong stone wall, three or four feet high. These conical buildings differ in no wise in their interior from the others. What the nature of their religion or superstition is, as yet has not been satisfactorily ascertained; the only ceremony I have ever witnessed is a funeral, or sacrifice to the manes of their deceased relatives. This ceremony is observed during four or five days after the death of a person. The corpse is kept in the house, and all the Todars, men and women, who are invited, assemble from all quarters in the morning, at the temple of the *mund* where the family of the defunct resides, bringing with them *sawmay* rice, jaggery, ghee, and buffaloes; the latter are only brought by near relations, and are killed, with six or eight buffaloes of the deceased, round his body—the carcasses are afterwards divided between the Koters and Currumbers. During the whole time the corpse is kept, much dancing with music takes place, and continual lamentation is kept up by the women relatives, who moan and sob, but do not express their [illegible] in [illegible]ate words. To all a liberal allowance of boiled ri[illegible] and [illegible] distributed; the people sit in groups, and the young [illegible] the provisions to them. Sometimes a patriarchal old man [illegible] to go round the assembly, where he is warmly received, and the women being seated bow their heads to him, and he places a foot on their foreheads, as a friendly recognition.

In the afternoon, several active young men select and seize six to a dozen buffaloes, from the herds grazing around, and [illegible] them into a circular inclosure, with repeated blows of huge clubs made for the purpose; and when they are in they beat them [illegible] if they die, after which the Koters, who are always in attendance on such occasions, cut up the

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carcasses and devour them. Before the body is burned, a lock of hair and a nail are cut off, and brought into a new hut, where the widow is left; if he had no wife, his son remains there, but, if he be not inclined, one of his relations lives in it for a month. During this time a collection of grain, &c. is made from all the villages. When the month expires, the hair and nail are taken to the funeral pile, accompanied by Koters, music, dancing and singing, and, having laid them on the spot where the body was burned, they dance round for some time, and then all the buffaloes intended for this sacrifice are driven into the woods. Several of the men follow them with large clubs, and beat them cruelly on their backs, and when severely injured they are brought back to the pile and their heads cut off. The Koters and Currumbers, as on all occasions of the kind, divide the carcasses among themselves. The majority of the buffaloes sacrificed on the above occasions are the property of the deceased, the remainder are presented by their relatives, as a mark of respect. These ceremonies being performed they shave their heads, and cook the rice, &c. which had been previously collected, and after partaking of them return home.

The Todars live on ghee, milk and a small grain, which they do not cultivate, but receive as lords of the soil from the Burghers, who pay this tribute partly from old custom, but chiefly through fear of enchantment, which they imagine the Todars to exercise over them, and to their detriment, if they do not give what is thus expected of them. The Todars deny that they eat animal food, but there is reason to doubt this assertion. On one occasion, when looking into one of these conical temples, in company with two other gentlemen, I saw a calf's head roasting in the embers of a small wood fire, and there is every reason to think that a people, who have some ideas of Hindooism, would not defile their temple in such a way, if they did not gratify their palates with animal food. As far as it was possible to judge by the gestures of the Todar who found us examining the place, he certainly was not pleased at first, but afterwards he laughed good humoredly at our discovery.

A bachelor is selected as a priest, to whom a piece of cloth of the value of two fanams, and a certain number of buffaloes, are given, also a monthly allowance of grain. He is to remain at the principal temple of the district, without approaching any house or *mund*. After some stay there, in a state of celibacy, should he be inclined to leave it, he is allowed to do so, and another is substituted in his room; if he be desirous to have a son he may adopt one of his brother's children.

The poorer class serve those who are in good circumstances, and live upon their earnings, added to what they receive from the Burghers as tribute. They never serve any but their own caste.

In sickness no medicines are administered, and no salt is made use of except on particular days.

The Burghers are the husbandmen of the hills, and are diligent in tilling the ground, from which they raise barley, the poppy, the amaranthus, and the grain which they furnish the Todars. They have buffaloes, oxen, and goats, in abundance, and live on their milk and ghee, and the grain above mentioned, which they grind into meal, and eat mixed with water, which forms a thick dough. They eat no animal food. Having a supply of meal they can travel without difficulty; as when hungry they have nothing more to do than to sit down by one of the brooks of water, with which the hills abound, and make a satisfactory repast. Their houses are of a different shape and materials from those of the Todars, whose dwellings are separate huts, while those of the Burghers resemble the better kinds of cottages in the low country, having walls generally made of stone and mud, and good thatched roofs. The Burghers' houses, however, are not separate tenements in distinct enclosures, but a line of dwellings under one roof, and divided by party walls, which do not always reach to the top of the roofs inside. Sometimes there are two or three or more lines, forming streets. The sites of these villages, although not so picturesque as those of the Todar *munds*, are always good in an agricultural point of view, and often pretty. Some gently swelling knoll, or tolerably level spot, on which they can cultivate their best crops, with the aid of manure from their herds, which graze on the adjacent hills and valleys, whose rapidly declining sides forbid, or give little encouragement to the use of the plough, on account of the devastating force of the rain and torrents, which pour down them, carrying away all plants whose roots are not well fixed in firm soil, such as cultivated ground never is. The Burghers marry, and have each man his wife, as in the low country, but they are said to confine their intermarriages very much to their own relations, and that to a degree prohibited among Europeans. They are generally a healthy, but not a robust, race, and are extremely filthy in their persons and practices.

In the season for cultivating the ground, a Currumber is sent for, who sacrifices a lamb in the field, and afterwards holds the plough for a short distance. At the commencement of harvest, the Currumber is also present, and reaps the first handful of grain, for which he receives a portion of the produce.

When a young man wishes to enter the marriage state, his parents engage a young girl, previous to her reaching the age of maturity, and, on obtaining the consent of her parents, give a dowry of from 12 to 50 Rupees, some grain, and four seers of ghee. The girl is then brought into the midst of their friends, who assemble under a pandal in front of the house, and after pouring a quantity of water on her head, accompanied by Koter's music, the mother of the bridegroom, tying a row of silver beads about the neck of the bride, pronounces her to be her daughter-in-law. On a Sunday, Monday, Wednesday, or Friday, the bride is taken to the husband's house, and given to him under a similar pandal, and her parents wash their hands in token of having relinquished her. The married couple do not live together till after she arrives at maturity. Should it happen that a young woman comes to the age of puberty on a Tuesday, Thursday or Saturday, she is put without the dwelling, in a hut built for the purpose, where she remains for a month; but if on other days, she remains out only three days.

If a woman be brought to bed of her first child in the decrease of the moon, she remains in a hut prepared for this event till the next decrease of the moon, but should her confinement occur in the increase of the moon, she then remains there only till the decrease. In her second and following confinements, she remains in the hut but three days. No medicine is given, and her food consists of *sawmay* rice and mullagatunny. The infant is bathed every third day in warm water, and anointed over with butter. No medicine is administered if sick.

Should a woman wish to be separated from her husband, she quits him, leaving her children behind; if she be then pregnant, she nurses the child until it is weaned, when it is delivered to the father, to whom a double dowry is given by her second husband, in failure of which all the children she may have by the latter are to be given to the former husband. Should a man wish to part with his wife, he is at liberty to marry another woman of the caste; but if he does so without the consent of his wife, she retains the children, and receives a portion of his earnings for her and their maintenance. In the event of his dying, she may be married by her brother-in-law, under whose protection the children are to be placed if she desires to live apart.

When a child under one month old dies, it is buried without ceremony by the neighbours, but if older, a message is sent to all their friends and relations. The body is put in a cage, covered over with weeds and cloths of different colours, and two or three buffaloes, and one or two cows, are driven round it; after which both men and women spend the day and night in dancing to music performed by the

Koters, and the following day the body is taken out of the village, and burned with such cloths and jewels as may be on it; the third day the pile is extinguished with water, the jewels taken from the ashes, and the bones buried. The relatives of the deceased shave their heads, and after taking refreshments in the house, separate. On whatever day the death may have occurred, Monday is fixed upon for the performance of the second ceremony; when the friends and relations of the deceased assemble together in a house built for the purpose. A quantity of rice, boiled with *avaray*, or country beans, is first placed in the middle of the floor, and then on the top of the roof, after which it is thrown away; the people then wash themselves, and return to the house of the deceased, and partake of refreshments. Within six years after the second ceremony, the relations of the deceased perform the third ceremony, called *munmalla*, which is always celebrated in the month of March, and commences on a Monday. The day being appointed, and the articles required collected, viz. rice, dhal, ghee, curry stuff, opium and tobacco, all their friends are invited, and assemble in a house built at the expense of the community for this purpose, in which all the above articles are placed. A cage is built in front of the house, and covered over with cloths of various colours, so as to be four times as showy as those used at the first ceremony. All the people, men, women and children, enjoy themselves in eating, dancing and singing, till the following Monday, when the cage is destroyed.

The annual ceremony to their *Mahalingum*, or idol, is performed in the season for reaping. The temple is thatched anew, the walls and floor are cleaned and repaired on Sunday, and on the following Monday the Currumber of the district is sent for to reap a handful of the produce, which is hung in front of the temple, and some water, in which some bark from a tree had been soaked, is poured on the idol. Plantains and flowers are then offered up, with prayers, to preserve them from sickness. Afterwards, should sickness occur, no medicines are used.

Their children are never taught to read or write any language. One man, from having frequented gentlemen's houses, has learned from the servants to read, write, and speak the tamil language.

Their clothing in general consists of coarse thick white cotton cloth. The men have a piece of cloth for the head, another for the body, and a lungooty; the women wear a kind of petticoat of the same stuff, which extends from above the breast down to the knees, and is suspended by a string. They wash their own cloths, but they never appear clean. A few of them eat mutton, but beef is never made use of. The Burgher caste consists of three or four grades, who do not intermarry, but their habits, ceremonies, &c. are much the same.

The Koters are the artizans of the hills, and have a celebrity with the people in the low country as manufacturers of mamoties, and other iron tools of a coarse kind. In their habits they resemble the Burghers, but are still more filthy and offensive in their persons; this is ascribed to the use of carrion as food, as they claim all carcasses of dead animals for their perquisite, in addition to which they indulge in the use of opium. Their houses are built like those of the Burghers, and they cultivate a small portion of land adjoining their villages, for their own use alone. Their temples are like those of the Todars, only that the ends of the edifice are not closed, and therefore they resemble an open shed, in which there is no image or symbol of worship. In one Koter village I observed the secure way in which they stored their grain, which is also known in other parts of the east. The grain is put into a vault, excavated in the ground near the house, which is about eight feet deep and twelve or fourteen feet in diameter. The entrance being a hole in the top, just wide enough to admit a man with ease. In one village there is a large stone, on which there is a rude carving of lines, to which they ascribe the power of healing sore legs, by merely placing the sore spot on the stone. The history of this carving they could not give any account of, more than of themselves, in which respect all the inhabitants of the hills are equally deficient, as they are all ignorant of letters, and have no symbols to record or convey their ideas. All that they could say of the lines was that they were carved long ago, by some very clever men, and they expressed great astonishment that a copy could be taken.

Their dead are burned with the same ceremonies as those of the Burghers, with regard to dancing, singing, &c. Should the deceased have been in good circumstances, a cow is sacrificed in front of the body, and afterwards all his cattle are made to graze round it. Without reference to the month in which a death occurs, December is fixed for the performance of another ceremony, in which month the appointed day is made known to all the people, who come with *sawmay* rice, and such things as can be obtained from the villages. The near relatives bring one or two buffaloes, or as many as they can afford, together with the rice; all these are taken to a wood, with much noise of music, singing and dancing. On their arrival at the place they kill the buffaloes, and put on new cloths, and the men and women dance; they then dress their rice and beef, eat and return to their dwellings.

The annual festival in honour of their idol is celebrated in the month of February, and on the day appointed they collect together, bringing

sawmay rice with them, which is boiled in front of the temple, and offered with other articles to their idol, with much dancing, singing, and music, which is continued for two days. A piece of tobacco is given to each person present.

The customs of marriage, divorce, &c., are the same as those of the Burghers. Those in lower circumstances are in a state of servitude, and are employed in cutting wood, making charcoal, &c.

The Currumbers are fewest in number, and smallest in stature, of all the hill people. Of them little is known, and at the utmost little is to be said. They are quite secluded from the rest of mankind, dwelling in holes and caverns in the sides of the mountains, deriving a precarious and wretched subsistence from some ill-cultivated spots near their dens, from the animals which they may catch or destroy, and from presents received from the Todars and Burghers for assisting at their ceremonies. They are of a stunted form, apparently the effect of bad food and lodging; as for raiment they have none, but a scanty rag about their loins. Their heads are covered with thick matted hair, of a dingy colour from exposure, as they wear nothing on them. It would appear that they are weak and harmless, although the other three classes of people ascribe great magical power to them, and therefore hold them in great terror and hatred, so that it has been said that the others shut up a party of the Currumbers, on one occasion, in a cave, and burnt them in it to avenge themselves of some supposed evil power, exercised by these poor troglodytes on them or their cattle.

No marriage ceremonies are practised. A man persuades a woman, or induces her (as is supposed) by magic, to run away with him into some secret place, where they live together for a month or two, or till she becomes pregnant, when they either return to their people or wander about. They seldom speak to strangers, but never live near them. When a child is born it is washed in cold water, and the mother in warm, after which she takes some boiled rice and some indigenous roots. All those who die under one year old are buried, but if older are burned. When a head Currumber dies, a buffalo is given by the Burghers of the district, and sacrificed in front of the body, which is covered with new cloth, and a plantain tree stump is set up in the front, round which all the people dance. After committing the body to the flames, they cook and eat the buffalo and then disperse.

From the entire want of records among the hill people, it is impossible to ascertain with exactness what is in general their length of life, but it is supposed that a few of the Todars have attained the age of ninety, or even an hundred years, and in one or two instances a new

set of teeth (it is said) has appeared after that period. The habits of the other castes, particularly the excessive use of opium, prevent their attaining to any great age.

When smallpox prevails in any of the tribes, those who have had the disease attend on those who are infected. Rice and water are all that is given. Should a case terminate fatally the body is burned, and after one month the bones are taken out and the usual ceremonies of their respective caste are performed, as if the deceased had then died of any other illness.

The Todar's God, called in their language *Treathavur*, is the one worshipped when the smallpox breaks out.

When they are apprehensive of a failure of rain in the monsoon, the whole of the tribes join in worshipping their God, called *Keerah*, for success in elk hunting, and if fortunate they return home rejoicing in the hope that there will be a sufficiency of it; but if the chase proves unsuccessful, they despair of any rain falling that season.

Of wild animals on the hills there are several kinds. The royal tiger, the cheetah, the wild-dog and jackal, all of which may be considered beasts of prey. The three first have been scared away from the residences of Europeans, and their vicinity, but they are found in the distant woods and ravines. The last grows bolder on acquaintance. The wild-dogs hunt their prey in packs, and are fierce. A small animal, resembling the lynx, has been seen, and also some large cats. There are of deer kind, the large elk, which is as tall as a horse. The munjak, or jungle sheep, as it is popularly called. The chamois, or an animal more closely resembling it than any other known species, and, lastly, the spotted deer. Hares also are numerous, and are larger and much finer in fur and flesh than those of the low country. The birds are of different kinds. The largest are the vulture, a black eagle, three or four species of kites and falcons, owls of the largest kind, whose plumage is of tawny brown, eyes brilliant amber, and head possessing egrets. The jungle-fowl, a species of gullies approaches the pheasant more than the domestic fowl, both in plumage and figure; the hen of this species is decidedly like the hen of game or fighting fowl in Europe.

In the cold months, or from December to March, there are woodcocks and snipes in abundance, which migrate afterwards. The green plover also is found in the marshes, and abundance of quails in every thicket. Of the smaller birds there are many kinds, the most remarkable of which is the blackbird (*Turdus Merula*), distinguished by his song; the bulbul, the averdevat, the bee-eater, the hoopoo, a large kind of martin, and abundance of crows.

Of reptiles, there are frogs of two kinds, one amphibious, inhabiting chiefly the land, having scarcely any web between its claws, and the other apparently limited to the land, and dwelling much in trees, the extremities of whose toes are provided with a sucker, with which it can attach itself to any surface however perpendicular or smooth, as a pane of glass. This frog makes a loud, sharp, metallic sound, like the blow of a small hammer on an anvil. This sound is often taken for the note of a bird, and is not disagreeable. There are but two kind of snakes usually seen, a pea-green, slender snake, about two feet in length, and an inch in circumference; and a short thick snake, about a foot long, resembling a large worm, enveloped in scutæ; its head and tail resemble each other being round and blunt. Neither kind have venomous fangs. Of insects, there are not many of any kind; the hills are free from all the ant-tribe, black, white, and red; a solitary musquito is sometimes seen, but it is rarely in motion, and appears as if it had been carried by the wind, and, being numbed by the cold, rests on a pane of glass, where it may sometimes enjoy the warmth of the sun. Occasionally the flying glow-worm illuminates the night with its phosphorescent lamp. Fleas are numerous in houses, but may be looked on more as the produce of dogs, which are admitted to the houses, than the indigenous produce of the place.

There are no diseases peculiar to the Neilgherries, and very few ordinary complaints originate on the hills. Among the prisoners in the jail, ephemeral fever arises, from exposure to cold and wet, when out working, and consists merely in heat of skin, quick pulse, and head-ache, which are easily relieved by an emetic and aperient, and avoidance of the exciting causes. Chicken-pox appeared among the convicts, and after running a mild course of six days they recovered; only one symptom appeared which is not noticed in medical works, viz. pustules on the tongue, protruding, like enormous red papillæ, through a thick white coat of fur on the surface. When this disease appeared in the jail, it was also epidemic among the natives in the station. No smallpox, measles, or scarlatina, have appeared since my arrival, nor are recorded as having been seen previously. Vaccination is performed from virus obtained in the adjoining zillah of Coimbatore, because it cannot be maintained here, as there are no vaccinators on the hills. Two instances of bilious remittent fever are recorded as having occurred at Kotagherry, without previous exposure to malaria in the low country, one about seven years ago, and the other this year; both cases were fatal. In the latter there were at first regular paroxysms, with distinct intermissions, but after the third day there was no inter-

mission, and the exacerbations were attended with delirium. The liver appeared to have been primarily affected, and notwithstanding the most unremitting attention by local bleeding, blistering, and various kinds of counter-irritation, with the most varied exhibition of mercury, combined and otherwise, no impression could be made on the liver, or its secretions, which were dark green or black, until latterly, when they became bright yellow, but without odour. The exciting cause of this, upon the minutest enquiry, was found to be a cold blast of wind, to which the patient had been exposed for about ten minutes. I would look upon this rather as an exception, than tending to establish the fact that Kotagherry is usually productive of bilious remittent fever. The ordinary effect of a cold blast of wind, if the person be long exposed to it, is to produce congestion of the liver, unattended with fever. This is not an uncommon ailment on the hills, and perhaps may be said to be the only complaint properly belonging to the climate, which may in some respects be calculated to produce it, because during the day the heat of the sun is often great, and a person exposed to it would have the superficial vessels much excited; and then, after sunset, the temperature falls very rapidly, perhaps so much as 40 degrees.

Few places, it must be admitted, can advance so many negative proofs of salubrity, as here are advanced with respect to the hills. In looking over the return of sick among the prisoners in four years, there are but 23 deaths in 1677 cases, of all kinds, or less than one and a half per cent; or, taking the average number of prisoners at all times in the jail at 105, 5¼ per cent per annum; and of these casualties ten of them were pulmonary complaints contracted in the low country, and fatally terminated here in the cold weather, the sharp air rapidly accelerating their progress. The fatal cases of fever were also contracted in the low country. Dysentery rarely originates here, notwithstanding all the wet; so much the contrary, that I have never known an instance of it, except in two children of the same family, and severe dysenteries have been cured here, which in any moist climate in the low country most probably would not have recovered. The fatal cases of anasarca were in persons of exhausted constitutions, advanced in years, who, having been previously always accustomed to the heat of the plains, could not be acclimatized, and sunk under their ailments. It will, therefore, be plain, on consideration even of these unfavourable instances, that little blame attaches to this climate in the production of these casualties, the unhealthy condition and fatal tendency having previously existed. Of the truth of this no stronger proof can be given, than the robust frames of the prisoners who at present are in the

jail, who are all fit for hard labour, and rarely need any medical aid, but for accidents, chiefly slight wounds, or ephemeral fevers, usually called colds, which they catch from exposure to heat, cold, damp and wet, often all in succession in the same day. Although the cold of the climate is severely felt by the prisoners, who on their first arrival complain bitterly of it, and deem it a great hardship to be sent here, yet it is not injurious to their health but on the contrary conducive to it; and I think that, whatever may be averred about the severity of confinement and prison discipline, and its destructive effects elsewhere, this jail is a happy exception, and that it will bear a comparison, in point of salubrity, with that of any other place in the world.

The worst form of disease to be met with on the hills, and to which the climate seems to be very favourable is the formation of abscess in a liver already diseased, and in this respect perhaps exceeds the low country; in as much as the cold, whether dry or moist, acting unfavourably on the skin, and repelling perspiration, deprives the patient of a salutary check upon the unhealthy internal action. This may be considered a special and unfavourable effect of the climate, but I would limit it to those instances, wherein the liver has previously been engaged, and a tendency to disorder plainly manifested.

The returns of sick in whole numbers shew the following results :—	Admitted.	Cured.	Relieved.	No better.	Europe.	Transferred	Died.	Remaining.
Sick of the Madras Establishment from Feb. 1824 to June 1837 inclusive.	445	295	46	15	50	0	19	20
European soldiers at the depôt from May 1830 to June 1834 when it was discontinued.	171	108	25	26	0	0	12	0
Native sick of all classes including the prisoners in the jail from 1st Jan. 1826 to to 30 June 1837 inclusive.	3152	3079	0	0	0	24	45	4
Total....	3768	3482	71	41	50	24	76	24

The mortality here exhibited is but a small fraction above 2 per cent of all diseases, many of which were very dangerous. Among the officers two thirds were cured of serious complaints, for which, in all

probability, they would have been forced to proceed to the Cape of Good Hope or Europe, but were cured by a timely resort to this place; and it is on this account that the hills are so valuable, the climate being calculated to check the beginnings of most Indian complaints, more particularly that general debility and depression, without serious disease of any particular organ.

Here I would observe that the value of the Neilgherries will never be duly appreciated, until the means of coming to them be improved. I particularly allude to good roads and conveyances, which, if properly established, would allow invalids to travel at the rate of eight or ten miles an hour, in easy carriages, and thus admit of all who most require it coming here for a portion of every year, particularly the hotter months. In short to enable all within a circle, whose radius is six hundred miles to come here without difficulty at the rate of a hundred miles per diem. The benefit of such a plan would be immense, particularly to the Madras and Bombay army, to whom such an extended tract of coast is open. Steam vessels might readily ply from Calcutta and Bombay to Calicut, and thence the Koondahs are but fifty miles from the sea shore. The roads to the various points on the Coromandel and Malabar Coast being improved, and steamers for coast communication being established, the foregoing plan will not be a chimera, but a means of relaxation from the fatigues of duty, and renovation of the impaired frames of many who cannot afford to return to Europe, and who are compelled to drag on a listless and unprofitable existence in the uncongenial climate of the low country.

The Population in the Neilgherry Tulook Zillah of Malabar.

Castes.	Men.	Women.	Total.
Todars	264	163	427
Burghers	1992	1979	3971
Do. Lingavunders	163	186	349
Do. Betteth Aroovers	92	104	196
Do. Cunnakers	90	87	177
Do. Toriers	89	85	174
Do. Buders	9	12	21
Currumbers	60	48	108
Kotars	138	162	300
	2897	2826	5723
Belonging to the district of Malabar			1964
Total of population on the Neilgherries			7687

The Number and Caste of the Population in Paringanaad on the Neilgherry Hills in the District of Coimbatore.

Castes.	Males.	Females.	Total.
Burghers	606	628	1234
Bettud* Horavars	21	23	44
Sevachars†	152	127	279
Todavars	30	21	51
Khotars	96	101	197
Joriers	69	67	136
Currumbers	12	11	23
Total			1964

* Are said to be originally descendants of Bramins. They are cultivators of the soil and considered to be of a higher caste than other tribes on the hills. It is said that they receive in marriage females of other castes, but they do not give their daughters in marriage to other tribes. They are not, however, Bramins like those of the low country.

† Are likewise a tribe who gain their livelihood by husbandry; they are said to be *Lingum Cuttiet*, or people who tie around their arms the *Lingum*, made of brass, silver or other metal (according as the condition of the individual may permit), said to contain the figure of Siva, to whose sect they belong, and to no other.

The following names of places, as well as the names of the Todars, would show that the Neilgherries have belonged to, and been peopled by, the inhabitants of Salem, Coimbatore, and Mysore, and not Malabar.

Names of the hills, bearing the names of "gherry" in the districts of Salem and Coimbatore, and in the Mysore territories.

In Salem.	*In Coimbatore.*	*In Mysore.*
Sunkergherry	Neelgherry	Madagherry.
Kristnagherry	Vellyangherry	Garoodagherry.
Soolagherry	Cheekragherry	Hymagherry.
Ankoosygherry	Sevagherry	Rutnagherry.
Neilagherry	Sadooragherry	Ramagherry.
Mailagherry		Bylagherry.
Ratnagherry		Yaudavagherry.
Yalagherry		Hemagherry.
Paulagherry		

Names of the Todars.

Men.	*Women.*
Thathie.	Salomy.
Ponnul.	Billivany.
Kheshthooven.	Bozvany.
Puckoory heshi.	Bozmy.
Thakoosh.	Khushkoovany.

Names of the Todars.

Men.	*Women.*
Ponkoot.	Billithoovy.
Hemmoodooven.	Billimetchy.
Moorkalen.	Ponthurgh.
Ponnaven.	Ponbelly.
Pazjaven.	Ponpoof.
Thollaven.	Pongaar.
Poodrary.	Ponpareh.

Supplementary Note.—It may seem absurd to speak of a velocity of travelling, such as I have stated to be necessary to render the Neilgherries available to their full extent, but I see no such insurmountable difficulty in the matter. The mode of travelling which I propose is in carriages moved by steam, such as now are commonly used in England on ordinary roads, particularly in and about London, where steam engines perform the work of horses, travelling with ease from fifteen to twenty miles an hour on ordinary roads—not railroads. If good roads were made through India, ten miles in the hour at least might be accomplished, which would effect all that is here desired. That such means of locomotion are required is obvious, because experience shews plainly that horses cannot long maintain the requisite rapid pace in the heat of the sun; whereas steam engines would work as well in a hot as in a cold climate.

If great trunk roads were constructed, traversing the country in the most populous parts, through large stations, and maintained by moderate tolls, a new era would arise in intercommunication, as well for the purposes of commerce, as for travelling; but this is not likely to be done, unless there be established an independent administration of roads and bridges, which would proceed on a steady and uniform plan, not thwarted by subordinate functionaries, whose local and partial views must continually interfere with any comprehensive scheme. By opening a good road, practicable for fast travelling, such as I mention, from Madras through Salem and Paulghaut to the head of the back water at Chowghaut, two objects would be attained; namely, a rapid and easy approach to the hills, and to the most favourable point on the Malabar Coast for holding a communication with the Red Sea. The best station in Southern India on that Coast, is a place named Porca or Porcaud, between Cochin and Quilon, in N. Lat. 9-20 and E. Long. 76-23—at which there is a bank of soft mud, which affords safe riding to any vessel which may anchor inside it. The bank is about a mile from the shore, and is so soft that a ship can pass right *through* it, and get into smooth water. The slimy nature of the bank is such, that it acts on the water like oil; and though it be ever so rough outside, it immediately becomes smooth on passing over the bank. Access

is to be had to Porcaud from Chowghaut by the back water, which extends all along the coast from the latter place to Quilon and Trevandrum. It is the only point (except Goa) between Bombay and Cape Comorin, which can be approached with safety in the south-west monsoon. Porcaud is in 9-20 N. Lat., and Babelmandel in 12-38 N. L.; the former is consequently 3 degrees 18 miles to the south of the latter, and in the south-west moonsoon favourably placed for making a voyage to the Red Sea, the entrance to which is 2875 miles to the west of it—twelve days sailing at the rate of ten miles an hour, or fourteen days and a half at eight miles per hour. In returning it would be necessary to proceed to the south, near the line, in the south-west monsoon; but, during the north-east monsoon, the wind would be fair. This plan offers the most feasible prospect of success to the Madras presidency, in any attempt to establish an independent communication with the Red Sea for itself; because the quantity of fuel, required for the voyage from Porcaud to Babelmandel, would not be double the necessary supply to reach Cape Comorin alone, if the vessel started from Madras. In the absence of mineral coal a substitute might be made of charcoal and oil with cow-dung and clay, all of which are to be had abundantly in the woody tracts of Travancore. A composition of the foregoing is capable of producing and maintaining an intense heat. The inland communication with Madras would also, in a commercial point of view, be of immense importance, when it is considered that the carriage of a single cart-load of goods two hundred miles, costs as much as the freight of the same quantity taken to England on board a ship. Travellers could reach the foot of the hills from Madras in covered carriages, moved by steam, in 48 hours, including all stoppages, and in four, or even three days, the steamer stationed at Porcaud. Steam carriages for common roads can be easily brought from England, and their power of progression proved to ocular demonstration on the Mount Road at Madras. Roads equally good can be made elsewhere, even through cotton ground, by digging into the substratum, and taking up the white soil which is found below the surface (probably feldspathic clay), which being laid on the line of road a foot thick, makes a firm mass, able to bear any weight that may be passed over it. Such I am informed is the case in Coimbatore, and I suppose could be adopted elsewhere, and roads thus made on a soil usually the most troublesome from its friability in dry weather, and softness in wet weather, to be the very best for expedition, owing to its general level character.—From a military point of view this rapidity of intercourse is the very key to security, as it enables the ruling authorities to work out the great maxim of Napoleon that "the art of war consists in bringing the greatest force on any given point."

HORARY *Observations of the Thermometer, dry and wet bulb of the Barometer from* 6 A. M. 21*st September* 1835, *to* 6 P. M. 22*d do. made at Ootacamund above the sea* 7,500 *feet.*

1835. September	Thermometer. Of the Air.	Thermometer. With wet bulb.	Barometer.	Thermom. attached.	Daniell's Hygrometer. Temperature of the air.	Dew point.	Difference.	Weight in grs. of the vapour in the space of a cubic foot of the atmosphere.
21st 6 A. M.	53.	54.	23.202	57.	54.	52.	2	4.430
7	56.	55.	.202	58.	56.	55.	1	4.9002
8	59.	57.	.200	60.	59.	57.	2	5.2144
9	61.5	58.	.204	61.	61.5	56.	5½	5.0328
10	63.	58.	.212	62.	63.	58.	5	5.3491
11	63.5	58.	.220	62.	63.5	58.	5½	5.3439
12	66.	59.¼	.210	63.	66.	59.	7	5.4028
1 P. M.	66.5	61.	.208	64.	66.	60.	6	5.6194
2	66.	60.	.200	63.	64.	59.	5	5.5156
3	65.5	58.	.194	63.	64.	59.	5	5.5156
4	61.	57.	.188	61.	61.	57.	4	5.1939
5	60.	56.	.178	60.	60.	55.	5	4.8616
6	59.	56.	.176	60.	59.	55.	4	4.8713
7	57.	55.	.172	60.	57.	55.	2	4.8905
8	57.	54.	.186	61.	57.	55.	2	4.8905
9	56.	55.	.218	62.	Dew point not visible on account of the darkness of the air—was however saturated.	With moisture, as it was rainy and misty during these hours.		4.9002
10	55.	53.	.220	62.				4.5336
11	53.	52.	.220	61.				4.4591
12	54.	52.	.218	62.				4.4591
22d 1 A. M.	53.	52.	.218	62.				4.4591
2	53.	52.	.218	64.				4.4591
3	53.	51.5	.204	64.				4.8858
4	53.	51.	.180	64.				4.3031
5	53.	50.5	.180	64.				4.2417
Mean of the 24 hours.	58.2	55.3	23.201	61.8				
6	52.	51.	.184	60.	55.	49.	6	4.0194
7	53.5	52.	.178	59.	54.	50.	4	4.1615
8	58.	54.5	.180	59.	59.	54.	5	4.7240
9	61.	55.	.180	61.	61.	57.	4	5.1939
10	64.	57.	.180	63.	64.	55.	9	4.8636
11	63.5	59.	.188	63.	63.	58.	5	5.3491
12	62.	58.5	.190	63.	62.	58.	4	5.3596
1 P. M.	63.	59.	.186	63.	63.	59.	4	5.5263
2	65.	59.5	.170	64.	64.	59.	5	5.5156
3	61.5	58.	.160	62.	61.5	58.	3½	5.3649
4	59.	57.	.158	61.	59.	55.	4	4.8713
5	59.5	57.	.160	62.	59.	55.	4	4.8713
6	58.	56.	.150	61.	56.	55.	1	4.9002

Daniell's Hygrometer, Pluviometer, Winds, Weather and Clouds, on the Neilgherry Hills, in Lat. N. 11° 25′—*Lon. E.* 76° 45—*height*

Winds. Direction.	Winds. Force.	Pluviometer Inches.	Pluviometer 100ths.	Weather—Remarks.
East.	Very light.	.....	.....	Sky overcast, thick black clouds (cumulo-strati) mist on the mountain tops.
"	"	.....	.....	do. cloudy and hazy.
"	"	.....	.....	do. do. sunshine at times.
"	"	.....	.....	Mist gone, partial cloudy sky (cumuli) do.
E.N.E.	Light.	.....	.....	do. do. do. do.
"	"	.....	.....	Cloudy (cumuli) with portion of bright sky.
"	Fresh.	.....	.....	Very cloudy (cuni.)—no sunshine.
"	"	.....	.....	Thick clouds partially (cumuli) thunder and lightning—bright sunshine.
"	Light.	.....	.....	do. do. do. do.
"	"	.....	.....	do. do. do. do.
"	"	.....	.....	do. do. do. thunder.
"	"	.....	.....	do. do. cuni and lightning.
"	"	.....	.....	do. do. do. do. do.
"	"	.....	.06	Dark cloudy night, thunder, lightning, & rain.
"	Calm.	.....	.08	do. do. do. do.
"	"	.....	.06	do. do. do. do.
"	"	.....	.04	do. do. do. do.
"	"	.....	.....	Cloudy and very dark.
"	"	.....	.....	do. do.
"	"	.....	.....	do. do.
"	"	.....	.....	Heavy clouds (cumuli).
			.24	
"	"	.....	.....	Thin watery clouds (cuni) otherwise clear.
"	"	.....	.....	do. do. do. do.
"	"	.....	.....	do. do. do. do.
[illegible]	"	.....	.....	do. do. do. do.
[illegible]	Light.	.....	.....	do. do. do, do.
[illegible]	"	.....	.....	do. do. do. do.
[illegible]	"	.....	.04	Dark clouds (cumuli) showery—thunder and lightning.
"	"	.....	.....	do. do. nimbi—showery.
"	Calm.	.....	.....	Thick heavy clouds, the horizon clear.
"	"	.....	.20	do. do. rain
"	"	.....	.08	do. do. do.
"	"	.....	.....	Cloudy (strati) fine.
"	"	.....	.....	do. do.

HORARY *Observations of the Thermometer dry and wet bulb; of the* [illegible] *from* 6 A. M. *21st December* 1835, *to* 6 P. M. *22d do. made at Ootacamund* [illegible] *E.* 76°, 45—*Height above the sea,* 7,500 *feet.*

1835. December	Ther. Of the air.	Ther. With wet bulb.	Barometer.	Ther. attached.	Daniell's Hygrometer. Temperature of the air.	Dew point.	Difference.	Weight in grs. of the vapour in the space of a cubic foot of the atmosphere.
21st 6 A. M.	49.	42.	23.135	50.	No indication of dew with the inclosed thermometer at 16°.	.....	....	.....
7	51.	42.	.134	50.		.....	....	.....
8	54.	41.	.130	51.		.....	....	.....
9	55.	42.	.130	52.		.....	....	.....
10	56.	42.	.130	52.		.....	....	.....
11	58.	42.	.130	52.		.....	....	.....
12	60.	42.	.130	52.		.....	....	.....
1 P. M.	61.	42.	.136	53.		.....	....	.....
2	61.	41.	.140	53.		.....	....	.....
3	60.	42.	.132	53.		.....	....	.....
4	59.	41.	.134	52.		.....	....	.....
5	57.	39.	.128	52.		.....	....	.....
6	53.	40.	.128	52.		.....	....	.....
7	51.	36.	.126	52.		.....	....	.....
8	51.	36.	.132	52.		.....	....	.....
9	51.	37.	.138	52.		.....	....	.....
10	51.	36.	.138	52.		.....	....	.....
11	50.	35.	.138	52.		.....	....	.....
12	50.	35.	.138	51.		.....	....	.....
22d 1 A. M.	49.	36.	.140	51.		.....	....	.....
2	49.	36.	.138	51.		.....	....	.....
3	48.	35.	.136	50.		.....	....	.....
4	47.	36.	.136	50.		.....	....	.....
5	45.	35.	.138	49.		.....	....	.....
Mean of the 24 hours.	53.1°	38.8°	23. 135	51.5°				
6	47.	35.	.138	49.	No indication of dew with the inclosed thermometer at 20°.	.....	....	.....
7	50.	35.	.140	51.		.....	....	.....
8	53.	38.	.138	51.		.....	....	.....
9	55.	39.	.140	51.		.....	....	.....
10	57.	40.	.140	51.		.....	....	.....
11	59.	41.	.138	53.		.....	....	.....
12	60.	41.	.138	53.		.....	....	.....
1 P. M.	60.	41.	.138	53.		.....	....	.....
2	60.	43.	.138	53.		.....	....	.....
3	60.	43.	.138	54.		.....	....	.....
4	58.	47.	.134	54.	58.	44...	14..	.....
5	55.	40.	.132	54.	55.	25....	30..	.....
6	51.	41.	.132	54.	.....	.....	....	.....

[illegible]*eter, Daniell's Hygrometer, Pluviometer—Winds, Weather and Clouds,* [illegible]*nd on the Neilgherry Hills in Latitude N.* 11°, 25—*Longitude*

Winds. Direction.	Winds. Force.	Pluviometer Inches.	Pluviometer 100 ths.	Weather—Remarks.			
East.	Fresh.	.....	.....	Fine clear, cold, and very dry wind—[Not a cloud to be seen.			
"	"	.....	.....				
"	"	.....	.....				
"	"	.....	.....				
"	"	.....	.....				
"	"	.....	.....				
"	"	.....	.....				
"	"	.....	.....				
"	"	.....	.....	do.	do.	do.	do.
"	"	.....	.....				
"	"	.....	.....				
"	"	.....	.....				
"	"	.....	.....				
"	"	.....	.....				
"	"	.....	.....				
"	"	.....	.....				
"	"	.....	.....				
"	"	.....	.....				
"	"	.....	.....				
"	"	.....	.....	do.	do.	do.	do.
"	"	.....	.....				
"	"	.....	.....				
"	"	.....	.....				
"	"	.....	.....				
"	"	.....	.....				
E by N	lighter	.....	.....	do.	do.	do.	do.
"	"	.....	.....				
"	"	.....	.....				
"	"	.....	.....				
[illegible]	"	.....	.....				
[illegible]	light.	.....	.....				
[illegible]	"	.....	.....				
[illegible]	"	.....	.....				
S E	"	.....	.....				
E S E	"	.....	.....	do.	do.	do.	do.
"	"	.....	.....				

HORARY *Observations of the Thermometer, dry and wet bulb; of the Ba[illegible] from* 6 A.M. 21*st March* 1836, *to* 6 P.M. 22*d do. made at Ootacamund. Height above the sea,* 7,500 *feet.*

1836. March	Thermometer. Of the Air.	Thermometer. With wet bulb.	Barometer.	Thermom. attached.	Daniell's Hygrometer. Temperature of the air.	Dew point.	Difference.	Weight in grs. of the vapour in the space of a cubic foot of the atmosphere.
21st, 6 A.M.	50.	48.	23.468	56.	50.	46.	4.	.....
7	53.	48.	.478	57.	53.	44.	9.	.....
8	56.	51.	.482	57.	56.	43.	13.	.....
9	60.	52.	.480	57.	No indication at 38°			.....
10	61.	53.	.482	58.	.....	.....	....	.....
11	62.	52.	.486	59.	62.	42.	20.	.....
12	64.	54.	.500	61.				
1 P.M.	65.	55.	.500	61.	.....	.....	....	.....
2	65.	56.	.494	61.	65.	55.	10.	.....
3	65.	56.	.500	62.	65.	46.	19.	.....
4	62.	54.	.500	62.	.....	.....	....	.....
5	62.	54.	500	61.	62.	46.	16	.....
6	60.	54.	.500	60.	62.	46.	16.	.....
7	59.	54.	.500	61.	60.	52.	8.	.....
8	58.	53.	.500	60.	.....	.....	....	.....
9	57.	51.	.500	60.	.....	.....	....	.....
10	56.	51.	.500	60.	.....	.....	....	.....
11	56.	51.	.500	60.	.....	.....	....	.....
12	55.	51.	.500	60.	.....	.....	....	.....
22d, 1 A.M.	52.	51.	.520	59.	.....	.....	....	.....
2	51.	48.	.520	58.	.....	.....	....	.....
3	49.	48.	.520	57.	.....	.....	....	.....
4	49.	49.	.520	56.	49.	48.	1.	.....
5	51.	51.	.500	56.	49.	48.	1.	.....
					52.	43.	4.	.....
Mean of the 24 hours.	57.4	51.8	23.498	59.1				
6	52.	51.	.490	57.	52.	50.	2.	.....
7	54.	52.	.490	57.	54.	49.	5.	.....
8	57.	53.	.478	57.	57.	53.	4.	.....
9	59.	53.	.474	57.	59.	45.	14.	.....
10	62.	53.	.480	60.	62.	41.	21.	.....
11	65.	54.	.490	62.	66.	46.	20.	.....
12	66.	55.	.490	62.	64.	49.	15.	.....
1 P.M.	66.	54.	.490	61.	66.	44.	22.	.....
2	67.	55.	.492	61.	67.	44.	23.	.....
3	68.	54.	.480	60.	68.	44.	24.	.....
4	66.	53.	.480	60.	66.	44.	22.	.....
5	64.	52.	.470	60.	64.	43.	21.	.....
6	59.	52.	.468	60.	59.	40.	19.	.....

[illegible] *Daniell's Hygrometer, Pluviometer—winds, weather, and clouds on the Neilgherry Hills, in Latitude N.* 11° 25', *Longitude E.* 76° 45',

Winds. Direction.	Winds. Force.	Pluviometer. Inches.	Pluviometer. 100ths.	Weather—Remarks.
E.N.E.	Light.	No rain fell during the 36 hours.	.....	Sky clear and cloudless.
"	"		.....	do. do.
"	"		.....	do. do.
N.E.	Fresh.		.....	do. do.
"	"		.....	Scattered small clouds.
"	"		.....	Thick clouds in the eastward, rest of the sky clear with scattered clouds—cumuli.
"	"		.....	do. do. do. do.
N.	"		.....	Sky overcast.
NbyW	"		.....	do. distant thunder—cumulo-strati to the westward.
"	"		.....	do. do. do. all kinds of clouds.
"	Light.		.....	do. do. do.
NNW	"		.....	Thick cumuli to the eastward—nimbi.
E.byS.	"		.....	do. do. do. do.
"	"		.....	do. do. do. do.
"	"		.....	Clear
"	"		.....	do. lightning in the east
"	"		.....	do. do. do.
"	"		.....	do. do. do.
"	"		.....	do. do. do.
"	"		.....	Sky clear—bright star light.
"	"		.....	do. do. do.
"	"		.....	do. do. do.
"	"		.....	Clear above—hazy and cloudy in the east.
"	"		.....	Hazy—clouds moving on the tops of the hills.
E.	Light.		.....	Hazy all over the sky.
"	"		.....	do.
"	"		.....	Clear.
"	"		.....	Clear above—cumuli all round the horizon.
"	Fresh.		....	do. do. do do.
"	"		.....	Sky partially overcast—wind cold.
[illegible]	"		.....	do. do. do,
[illegible]	"		.....	do. with heavy cumuli and nimbi.
[illegible]	"		.....	Sky clearer—cumuli and strati.
[illegible]	"		.....	do. do. do.
[illegible]	"		.....	do. do. do.
[illegible]	"		.....	Cirro-strati.
"	"		.....	do.

HORARY *Observations of the Thermometer, dry and wet bulb; of the Barometer, Daniell's Hygrometer, Pluviometer, winds, weather and clouds, from* 6 A. M. 21*st June* 1836, *to* 6 P. M. 22*d do. made at Ootacamund on the Neilgherry Hills, in Lat. N.* 11° 25′—*Lon. E.* 76° 45—*height above the sea* 7.500 *feet.*

1836. June	Thermometer. Of the air.	Thermometer. With wet bulb.	Barometer.	Thermom. attached.	Daniell's Hygrometer. Temperature of the air.	Daniell's Hygrometer. Dew point.	Daniell's Hygrometer. Difference.	Daniell's Hygrometer. Weight in grs. of the vapour in the space of a cubic foot of the atmosphere.	Winds. Direction.	Winds. Force.	Pluviometer Inches.	Pluviometer 100ths.	Weather—Remarks.
21st 6 A. M.	53.	54.	23.046	58.	53.	52.	1.	.....	West.	Fresh.	.....	.....	Heaven overcast, cumulo-stratus, thick mist on the mountain tops, driving mist at times,
7	54.	54.	.042	58.	54.	52.	2.	.....	"	"	.....	.....	
8	55.	54.	.040	58.	55.	53.	2.	.....	"	"	.....	.....	
9	56.	56.	.038	58.	56.	53.	3.	.....	"	"	.....	.....	
10	59.	57.	.040	59.	59.	53.	6.	.....	"	"	.....	.....	Strati, sun out at times, a few drops of rain.
11	60.	56.	.038	60.	60.	55.	5.	.....	"	"	.....	.....	
12	60.	58.	.040	60.	60.	53.	7.	.....	"	"	.....	.....	
1 P. M.	60.	56.	.042	60.	60.	55.	5.	.....	WS W	"	.....	.04	Cumulo-strati, mist, a few drops of rain.
2	60.	55.	.040	60.	60.	55.	5.	.....	"	"	.....	.02	do. a little sun shine at times—slight shower.
3	58.	55.	.038	60.	58.	56.	2.	.....	"	"	.....	.....	
4	57.	55.	.038	60.	57.	56.	1.	.....	"	"	.....	.....	
5	56.	54.	.040	59.	56.	54.	2.	.....	"	"	.....	.....	Cloudy and misty.
6	54.	54.	.040	59.	.....	.....	....	.....	"	"	.....	.....	
7	54.	53.	.040	59.	.....	.....	....	.....	"	"	.....	.....	Rain, thick clouds and wind boisterous.
8	54.	53.	.042	58.	.....	.....	....	.....	"	"	.....	.....	
9	54.	53.	.042	58.	.....	.....	....	.....	"	Hard.	.....	.....	Thundering—drifting mist and drizzling—Nimbi.
10	53.	53.	.042	58.	.....	.....	....	.....	"	"	....	.05	
11	53.	53.	.044	58.	.....	.....	....	.....	"	"	.....	.06	
12	52.	52.	.048	58.	.....	.....	....	.....	"	"	.....	.04	
22d 1 A. M.	52.	52.	.048	58.	.....	.....	....	.....	"	"	.....	.02	
2	52.	52.	.048	57.	.....	.....	....	.....	"	"	.....	.04	
3	52.	51.	.048	56.	.....	.....	....	.....	"	"	.....	.02	
4	52.	52.	.048	57.	.....	.....	....	.....	"	"	.....	.02	
5	53.	52.	.046	57.	.....	.....	....	.....	"	"	.....	.02	
Mean of the 24 hours.	55.1	54.	23.042	58.5								.37	
6	53.	53.	.048	58.	.....	.....	....	.....	.....	.....	.....	.02	
7	54.	54.	.038	58.	Saturated with moisture.				Very.	Hard.	.....	.01	Cumilo-strati, mist, drizzling rain, boisterous wind.
8	55.	54.	.030	58.	.....	.....	....	.....	.....	.....	.....	.01	
9	56.	55.	.028	58.	.....	.....	....	.....	.....	.....	.....	.04	Blinks of sun shine.
10	56.	56.	.022	59.	56.	56.	....	.....	.....	.....	.....	.05	Drizzling rain.
11	55.	55.	.024	58.	.....	.....	....	.....	.....	.....	.....	.02	
12	56.	55.	.026	59.	56.	56.	....	.....	.....	.....	.....	.02	
1 P. M.	55.	55.	.028	58.	55.	55.	....	.....	.....	.....	.....	.02	
2	54.	54.	.026	58.	.....	.....	....	.....	.....	.....	.....	.06	
3	53.	53.	.032	58.	.....	.....	....	.....	.....	.....	.....	.04	
4	53.	53.	.010	57.	.....	.....	....	.....	.....	.....	.....		
5	53.	53.	.010	57.	.....	.....	....	.....	.....	.....	.....		
6	53.	53.	.010	57.	.....	.....	....	.....	.....	.....	.....		

Abstract of Horary Meteorological Observations, *on the 21st and 22d Sept., 21st and 22d Dec.* 1835—*21st and 22d March, 21st and 22d June* 1836, *at Ootacamund.*

Means of 24 hours observations. From 6 A. M. 21st. To 6 A. M. 22d.	Thermometer. Temparature.	Thermometer. Wet bulb.	Thermometer. Difference.	Barometer.	With thermometer attached.	Daniell's Hygrometer. Temperature of the air.	Daniell's Hygrometer. Dew point.	Daniell's Hygrometer. Difference.	Daniell's Hygrometer. Moisture.	Pluviometer. Inches.	Pluviometer. 100ths.	Winds and Weather.
1835 Sept.	58°.2	55°.3	2°.9	23.201	61.8	60.8	.....	.....	.....	0	24	East by west—heavy clouds.
„ Dec.	53.1	38.8	14.3	23.135	51.5	No indication with the enclosed thermometer as low as 16° of 9 observations.				0	0	A part half fresh, then light, clear.
1836 Mar.	57.4	51.8	5.6	23.498	59.1	59.5	.....	.....	.....	0	0	N. E.N.W. cloudy & variable, hazy.
„ June.	55.1	54.0	1.1	23.042	58.5	57.4	.....	.....	.....	0	37	West—W. S. W. mist, rain.
Mean for the four months.	55.9¼	49.9¼	5.9¼	23.219	57.7	..	..	..	..	..	61	

Abstract of Meteorological Observations *made at Ootacamund on the Neilgherry Hills, from the 1st June 1829, to the 31st May 1836, inclusive—Latitude North* 11° 25′—*Longitude E.* 76° 45′—*Height above the Sea* 7,500 *feet.*

Names of the Months.	Mean Temperature from the 1st June 1829, to 31st May 1830, inclusive. Mean temperature about 2 P. M.	Mean temperature about sun-rise.	Mean temperature for the whole month.	Extreme range of Ther. From	Extreme range of Ther. To	Rain Pluviometer. Inches.	Rain Pluviometer. 100ths.	Mean Temperature from the 1st June 1830, to 31st May 1831, inclusive. Mean temperature about 2 P. M.	Mean temperature about sun-rise.	Mean temperature for the whole month.	Extreme range of Ther. From	Extreme range of Ther. To	Rain Pluviometer. Inches.	Rain Pluviometer. 100ths.	Mean Temperature from the 1st June 1831, to 31st May 1832, inclusive. Mean temperature about 2 P. M.	Mean temperature about sun rise.	Mean temperature for the whole month.	Extreme range of Ther. From	Extreme range of Ther. To	Rain Pluviometer. Inches.	Rain Pluviometer. 100ths.
June	58.9	53.7	56.3	51.	65.	9	88	61.3	54.7	58.	53.	69.	8	25	60.3	53.1	56.8	50.	63.	3	44
July.....	60.7	52.7	56.7	46.	68.	5	34	61.4	53.2	57.3	48.	66.	5	05	60.1	52.	56.	48.	65.	1	69
August.....	60.3	52.6	56.4	48.	66.	6	11	61.4	52.7	57.	50.	67.	4	78	60.8	50.8	55.8	48.	65.	3	82
September...	62.7	52.8	57.7	49.	65.	4	21	62.3	52.7	57.5	47.	64.	1	29	59.6	51.2	55.3	48.	63.	10	32
October.....	60.3	52.	56.1	47.	65.	10	77	62.1	53.8	57.9	49.	66.	17	45	58.9	50.6	54.7	44.	62.	6	98
November ..	58.5	46.9	52.7	40.	62.	1	64	57.1	48.3	52.7	39.	62.	2	76	58.1	48.4	53.	46.	61.	9	15
December...	60.4	47.6	54.	31.	65.	4	73	58.3	45.7	52.	38.	62.	2	72	57.1	44.	50.4	39.	59.	0	49
January.....	61.6	43.2	52.4	38.	66.	0	0	60.4	41.6	51.	36.	63.	0	0	62.6	40.2	51.2	31.	60.	0	0
February.....	62.7	45.8	54.2	42.	67.	0	35	62.	46.7	54.3	40.	67.	1	53	63.2	43.2	52.8	32.	66.	0	0
March.....	66.	52.4	59.2	49.	71.	1	14	63.2	48.8	56.	42.	69.	1	17	66.	46.	55.9	42.	69.	1	78
April.....	65.4	54.1	59.7	48.	71.	5	73	65.3	52.7	59.	50.	69.	3	46	67.1	50.	58.8	46.	71.	2	24
May.....	63.6	54.6	59.1	52.	69.	8	88	66.	55.4	60.	54.	70.	4	50	67.5	53.4	60.4	52.	73.	5	02
Annual Mean.	61°.8	50°.7	56°.2			58	78	61.7	50.5	56.1			52	96	61.7	48.6	55.1	44	93.		

ABSTRACT *of* METEOROLOGICAL OBSERVATIONS *made at Ootacamund on the Neilgherry Hills, from the* 1*st June* 1829, *to the* 31*st May* 1836, *inclusive—Latitude North* 11° 25′—*Longitude E.* 76° 45′—*Height above the Sea* 7,500 *feet.*

Name of the Months.	Mean Temperature from the 1st June 1832, to 31st May 1833, inclusive.							Mean Temperature from the 1st June 1833, to 31st May 1834, inclusive.							Mean Temperature from the 1st June 1834, to 31st May 1835, inclusive.						
	Mean temperature about 2 P. M.	Mean temperature about sun rise.	Mean temperature for the whole month.	Extreme range of Ther.		Rain Pluviometer.		Mean temperature about 2 P. M.	Mean temperature about sun rise.	Mean temperature for the whole month.	Extreme range of Ther.		Rain Pluviometer.		Mean temperature about 2 P. M.	Mean temperature about sun rise.	Mean temperature for the whole month.	Extreme range of Ther.		Rain Pluviometer.	
				From	To	Inches.	100ths.				From	To	Inches.	100ths.				From	To	Inches.	100ths.
June	61.6	52.7	56.9	50.	71.5	4	44	64.6	53.	58.8	49.	71.	5	18	62.	53.7	57.8	50.	68.	10	32
July	57.6	51.5	54.9	48.	65.	5	01	61.	52.5	56.8	51.	65.	2	69	60.4	53.3	56.8	52.	67.	6	05
August	60.2	50.8	55 5	48.	66.	1	31	64.4	51.4	57.9	47.	68.	4	28	60.	52.1	56.1	49.	66.	9	35
September	61.3	50.8	55.7	48.	66.	9	62	62.5	53.4	57.9	50.	69.	4	18	62.6	52.1	57.4	50.	66·	7	07
October	61.9	51.4	56.1	40.	67.	3	89	63.4	52.2	57.8	48.	68.	8	98	62.6	48.8	55.7	36.	65.	3	91
November	62.3	46.6	53·5	38.	66.	0	53	62.5	49.	55.7	43.	65.	5	48	62.	46.4	54.2	39.	65.	4	63
December	62.	45.6	53.8	0	0	0	0	63.1	43.8	53.3	37.	69.	0	66	59.8	38.4	49.1	29.	61.	0	50
January	64.4	41.3	53.1	0	0	0	0	64.8	42.	53.3	38.	68.	0	0	62.6	40.8	51.7	32.	66.	1	61
February	67.4	46.2	56.8	0	0	0	0	65.9	45.3	55.6	40.	68.	0	14	64.6	38.	51.3	32.	68.	0	0
March	71.9	50.9	61.3	48.	76.	0	0	68.8	50.1	59.4	48.	74.	1	76	68.8	43.2	56.	39.	72.	0	85
April	68.2	54.3	60.7	49.	75.	4	62	68.8	52.5	60.6	49.	73.	1	76	65.2	49.2	57.	43.	68.	10	21
May	67.3	54.8	60.2	52.	74.	7	62	71.8	55 2	63.5	48.	76.	3	82	68.	52.	60.	48.	71.	5	41
Annual Mean	63.8	49.7	56.5			37	04	65.2	50.1	57.6			38	39	63.2	47.4	55.3			59	91

ABSTRACT *of* METEOROLOGICAL OBSERVATIONS *made at Ootacamund on the Neilghery Hills, from the* 1*st June* 1829, *to the* 31*st May* 1836, *inclusive—Latitude North* 11° 25′—*Longitude E.* 76° 45′—*Height above the Sea* 7,500 *feet.*

Names of the Months.	Mean Temperature from the 1st June 1835, to 31st May 1836, inclusive.							Mean Temperature & Quantity of Rain—The mean of 7 years from 1st June 1829 to 31st May 1836.							Prevailing Winds for each Month—The Mean of seven years.
	Mean temperature about 2 P. M.	Mean temperature about sun rise.	Mean temperature for the whole month.	Extreme range of Ther.		Rain Pluviometer.		Mean temperature about 2 P. M.	Mean temperature about sun-rise.	Mean temperature for the whole month in 7 years.			Rain		Winds.
				From	To	Inches.	100ths.						Inches.	100ths.	
June	62.	50.4	56.2	68.	46.	4	08	61.5	53.	57.2			6	51	South westerly.
July	63.4	50.	56.6	71.	46.	2	70	60.9	52.2	56.5			4	08	do.
August	64.2	50.6	56.2	68.	46.	6	26	61.6	51.6	56.6			5	13	Westerly.
September	65.3	50.8	56.8	72.	46.	9	29	62.3	52.	57.1			6	57	SW. NW. NE. SE. variable.
October	65.	50.2	56.8	68.	43.	6	21	62.	52.5	57.2			8	31	North easterly—variable from [SE.
November	63.4	46.1	54.6	67.	39.	4	60	60.5	47.4	53.9			4	11	Easterly.
December	62.1	44.8	53.1	65.	33.	0	92	60.4	44.3	52.3			1	43	do. NE.
January	63.8	36.1	50.4	67.	31.	0	0	62.9	40.7	51.8			0	2[illegible]	do. do.
February	63.8	39.8	51.9	67.	36.	0	75	64.2	43.4	53.8			0	39	do. do.
March	66.4	45.8	56	70.	38.	0	07	67.3	48.2	57.8			0	97	do. do.
April	70.6	53.2	61.	76.	50.	1	51	67.2	5[illegible].3	59.8			4	22	SE. E. NE.
May	69.6	55.8	61.8	75.	52.	5	55	67.9	54.3	61.6			5	83	SW. N. variable.
Annual Mean	64.9	47.8	56.			41	94	63.2	49.3	56.2 1/16			47	78	

III.—*Description of the Valley of Sondur.*—*By* Lieut. NEWBOLD.

Geographical Position and Extent.—This state, though situated in the heart of the *Balaghat* territories ceded to the British by the Nizam in 1800, remained long under the Mahratta government—a singular instance on a small scale of the imperium in imperio. It comprehends a valley about twenty miles long, by from one to eight in breadth, girt in by a cordon of hills, which completely isolate it from the surrounding territory, and situated about twenty-five miles (travelling distance) to the west of Bellary. In shape the valley is elliptical, having a direction to the south-east: the north-western extremity of the cordon rests on the right bank of the Tumbuddra near Hospett. To the south lies the taluk of Gudicotta—on the east, the *Hovin Hudgully* and part of Gudicotta—on the west and south-west it is flanked by that of Kumply, and part of Mysore. The valley is entered by four principal passes. The eastern pass is termed *Bima Gundi*; the western, *Obla Gundi* or *Cunnaway hully;* the northern, *Ramal Gundi*, and the southern *Nowluty*. The first alone is practicable for loaded bandies, the rest may be traversed by bullocks, elephants and camels—the northern pass is dangerous to the solitary traveller being infested by tigers. Troops of pilgrims to the hill shrine of *Jumbunat* frequent it with impunity at the time of the annual *Jatra*.

Besides these four passes are two others less known, at the south-east and south-west angles of the southern extremity—the first leading by *Mullapur* to the *Arin Mudga* tank—the last by the *Comarswami* pagoda to *Somahully*, *Tonshghirri*, *Hirrahal*, and Bellary.

Produce.—The whole of that part of the valley that fell under my observation presented a nearly uninterrupted sheet of cultivation, most luxuriant on the banks of the rivulets; by which, with numerous wells and the tank at Sivapur near the centre of the vale, it is irrigated. The soil is principally mussub, and produces

Juari.	Holcus sorghum.
Bajra.	Holcus spicatus.
Kungoni.	Pannicum italicum.
Sanwa chauwal.	Pannicum frumentaceum.
Gunna.	Saccharum officinale.
Lussun.	Allium sativum.
Pyaz.	Allium cepa.

Tumbaku.	Nicotiana tabacum.
Ganja.	Cannabis sativa.
Pan.	Piper betel.
Dal.	Cytisus cajan.
Bullur.	Dolichos Lablab.
Mhung.	Phaseolus Mungo.
Lobey.	Dolichos catjang.
Kulti.	Glycine tomentosa.
Raggi.	Cynosurus coracanus.

No table rice is grown; nor is salt produced. The fruits are figs, plantains, limes, and wood-apples. A considerable quantity of coarse sugar is manufactured from the sugar-cane. The jungle clothing the hill sides in part supplies Bellary with firewood, a little timber and small bamboos; while the rocks furnish large quantities of iron ore. This is chiefly smelted at a small place called *Dharrampur* near the entrance of the *Oblagundi* pass. The furnaces are made of clay and do not differ in construction from those usually employed in Mysore and other parts of India. The ore, reduced to a coarse powder, is put in with the charcoal through a funnel-shaped aperture at the top: there is a vent at the bottom, to allow of the extrication of the fused mass, into which, during the process of smelting, are inserted the nozzles of a large double leathern bellows passing into a clay tube communicating with the interior of the furnace, the aperture of which is luted up preparatory to working the bellows. Each furnace, of which I saw four, can be filled four times during the day, producing about 2 maunds and 4 seers of metal per diem or about 750 maunds per annum, the average price of which is 674 rupees 12 annas. The amount realized in the first year scarcely repaid the expence of outlay: but now, I am assured it brings a profit to the contractor of about 200 rupees per annum, and promises much more. The following items for the material requisite for a native mining speculation will astonish the European miner by their simplicity and cheapness:—

	R.	A.	P.
Price of 8 buffaloes, 6 to bring charcoal, 2 ore	56	0	0
saddles, gunny bags, &c. for buffaloes	7	0	0
8 hatchets to cut wood for charcoal	7	0	0
4 sets of bellows	21	0	0
anvil	10	8	0
hammers	25	0	0
Rent to sircar	63	0	0
Yearly hire to 1 carpenter			

	R.	A.	P.
Yearly hire to 4 hammermen	126	0	0
do. to 1 furnace-man	42	0	0
do. 6 coolies to bring charcoal	126	0	0
do. 1 man to select and bring ore	21	0	0
do. 1 man to break ore to powder	21	0	0
do. 1 head man	31	8	0
Total	567	8	0

The furnace is made by the coolies of clay, and costs nothing but the price of the labour expended. After the first outlay there is no expence beyond the payment of the contract money to the sircar, the hire of coolies, &c. and occasional repair of bellows and tools. In the western parts of Mysore, where the ore is granular and collected from the sand in beds of streams, I found that it was paid for by the smelter at a fixed price per basket, which appears a better plan than hiring coolies for the purpose. The iron of Sondur is sent to Bellary, Adoni, and other places in the ceded districts, and sells in the Bellary bazar at from 1¼ to 2 rupees per maund.

History.—In order to place the political history of this little valley in as full and correct a point of view as practicable, I have deemed the following prefatory abstract of the annals of the Mahratta empire, of which it was long a fief, as a necessary preliminary.

Little certain is known regarding the origin of the Mahrattas: two centuries have hardly passed since they first appeared as prominent characters on the great military theatre of the Deccan, and scarcely half that period since they attained the zenith of a power that extended from the gates of Delhi to Cape Comorin. They are alluded to in the old Hindu records as inhabiting a tract of country to the north-west quarter of the Deccan, termed "*Maharashtra*," supposed to extend from Guzerat to *Gondwâneh*, and are said to have originally come from *Rajputana*. Although the Mahrattas are unquestionably an ancient race, it ought not to be matter of much surprize that the nation should have remained so long unheard of, when we consider the peculiar classification of the inhabitants of India, of whom there are still many tribes and castes, whose names by far the greater proportion of Europeans have never heard pronounced, and that the good fortune or transcendant ability of a single individual will often exalt the οἱ πολλοί of his caste from utter insignificance and obscurity into a conspicuous place among their brethren, and afford

them in the pages of history a local habitation and a name. Another cause may have operated in keeping the Mahrattas unknown, viz. the apathy of contemporary Mahomedan historians to most matters connected with the Hindus.

The illustrious individual, to whom the mass of the tribe owes its extraordinary elevation, was an officer in the service of the Mahomedan king of *Bijapur*, named *Sivaji Bhonslah*, son of *Shaji Bhonslah*, an officer in the army of the emperor *Shah Jehan*, and grandson of *Málcji*, a soldier of fortune under the *Nizam Shahi* dynasty of Ahmednugger. This celebrated chief, the founder of the Mahratta empire, according to Mr. Orme, drew his lineage from the Rajahs of Chitore, who boast their descent from Porus, and are esteemed the most ancient of Hindu princes and the noblest of the Rajput tribes.* Among the Mackenzie MSS. is one in Mahratti †, giving an account of the kings of the four ages, and especially of the Mahratta kings of *Satarah*, in which it is stated that the *Bhonslah Vamsah* family ruled for 1330 years, and that the emperors of Delhi protected the *Maharashteras*, and gave them lands to the southward of the Nerbudda river. Before *Sivaji*, however, it must be stated that several Mahratta leaders held high appointments

* Captain Clunes gives the following legendary account of the origin of the Bhonslah family. "Bapoo Raoul reigned at Chitoor, in Rajpootana, in the year 134 of the Christian era. The twenty third king of his race had two sons, Bharatsee and Bheemsee. The latter attached himself to the brother-in-law of the Prithee Raj Chohan of Delhi, and obtained permission to possess himself of Nepaul. He promoted the worship of Ghooruknath Mahadeo, the tutelar deity of the country, and with him originated the name of Ghoorka. The Rajpoot tribe, called Bheemsee, still exists in Nepaul. A chief of this family is said to have returned to Rajpootana, in 1442, and assuming the title of Raja, with him originated the states of Doongurpoor named Banswara. The thirteenth ruler of this race, at Doongurpoor, named Abheesee and styled the Maha Rana, left the government to his sister's son, in prejudice of his own children. One of the latter, named Sujunsee, came to the Deccan, and entered the service of the king of Beejapoor, who conferred upon him the district of Modhul, comprising 84 villages with the title of Raja. Sujunsee had four sons. Bajee Raja, in whose line descended the Modhulkur estate: the second died without a family; and from Woluhsye is the Kapseekur Ghorparay; Sugajee, the youngest, had a son, named Bhosajee, from whom is derived all the Bhonslays: he had ten sons; the eldest settled at Deoolgaom near Patus, and originated the line of the great Swajee: second, at Hingnee, probably Hingungaom; third, at Bherdee; fourth, at Sawuntwaree, where his descendants have continued to rule; fifth, at Wawee, out of which family the father of the present Raja of Satara was adopted: sixth at Moongy, better known as Moongy-Pytan: seventh at Shumboo Mahadeo: eighth, at Boregaom: ninth, Jeentee (Hyderabad road); and the tenth at Khunwutta, out of which family the present Raja of Kolapoor's father was adopted. The reader will recognize the descendants of most of these families, at the present day, hovering about the place where their progenitors settled."

† Vide the Rev. Mr. Taylor's 1st Report on the Mackenzie MSS. letter D.—*Journal.*

in the armies of the emperors of Delhi, and in those of the five Mahomedan kings who ruled the Deccan, viz. the monarchs of Bijapur, Golconda, Ahmednugger, Bider, and Berar.

Sivaji was born in 1627 A. D. and died in 1680: he rapidly acquired influence enough in the army to gain a considerable portion of it over to his own cause, and proceeding to the mountainous country near the western ghauts established himself at Rairi or Raigurh, a strong fortress in the province of Aurungabad, situate on a stupendous rock between Poona and Fort Victoria. Here he erected the standard of independence, to which numbers of discontented and ambitious soldiers of his own caste flocked, and set at defiance the efforts of Aurungzebe and the Mussulman princes of the Deccan to expel them, or check his and their daring and extensive forays. He took *Satarah*, the subsequent capital of the Mahratta empire, in 1651, from the king of *Bijapúr*—penetrated to the south as far as the fortress of Ginjee, in which he left a garrison, and subdued the greater part of the Carnatic and Balaghat territories. The *Satárah* princes of his line have the family name *Bhonslah*, and the titles *Srimant Maharaja*, and *Chaterpati*.

Sumbaji his son succeeded in 1680 A. D. and after a life of continual warfare fell into the hands of his father's deadly foe, Aurungzebe, by whom he was put to a painful and cruel death in 1689.

His half brother *Ram Raj* succeeded and died in 1700.

Sivaji son of *Ram Raj* succeeded but died in 1708.

A son of *Sumbaji* succeeded *Ram Raj*, named *Saho* or *Shaoji*, in 1708. In 1719, this prince obtained the *chouth* or one-fourth of the total revenues of the six *subahs* into which Aurungzebe had nominally divided the Deccan. This politic and cold blooded monarch died in 1707: towards the stormy close of his reign, the Mahrattas had turned the intestine broils of the kingdom to their own advantage, and had greatly increased in power and extent of territory. *Shaoji* fixed his capital at *Satarah* and had for his treasurer *Balaji Wishwanath*, the father of Baji Row, the first of the *Peshwas* of Poona. Holkar and Scindia in 1720 commanded parties of horse in *Shao's* armies. The former was a shepherd and the latter rose from a very subordinate station in life.

During the commencement of *Shao's* reign, the Mahratta empire was in the plenitude of its might, but even then the *Mene Mene Tekel Upharsin* was written in indelible characters on the wall, and before the decease of this monarch, which took place A. D. 1740, his kingdom was broken up, and its strength departed. The three great chiefs just alluded to and other vassals of the empire virtually threw off the yoke of dependance, and divided their sovereign's dominions among

them leaving him and his family the empty pageantry of royalty, but in reality kept them as state prisoners at *Satarah*. Holkar established himself at Indore—Scindia at Oojein, and finally in 1810 at Gualior in the province of Agra,—*Baji Row* at Poona—*Ragoji Bhonslah* at Nagpore—*Pillaji Gaicowar*, originally the potail of an insignificant village, at Baroda, and a descendant of the great *Sivaji* at *Kolapur*.

Such was the remarkable dismemberment of the Mahratta empire, an event most worthy of record, even in the fitful history of the east in whose pages whole dynasties spring up and are swept away—empires are erected and vanish as if touched by the magic wand of a capricious enchanter, with a rapidity alike sudden and monitory.

The royal family remained at *Satarah* receiving empty homage from their vassal *Baji Row* and the succeeding *Peshwas* of Poona who usurped all real power. The progress of the Mahratta arms continued to advance, until the severe check experienced in the plain of Paniput near Delhi, A. D. 1761, where they lost upwards of half a million in killed and wounded in a signal defeat sustained at the hands of *Ahmed* Shah, chief of *Cabul*. Following their retrograde march from Hindustan we find them, from 1768 to 1799, south of the Kistnah in contact with Hyder, Tippoo, and the English, sometimes as allies—sometimes as enemies. In 1803-4 and 5 the power of Nagpur, Oojein and Indore, which had prostrated that of Poona, was paralyzed by Lake and Wellesley at the battles of Delhi, Laswari, Assaye and Argaum; and politically annihilated under the Marquis of Hastings' administration in 1817-18 by the actions of Khirki, Mahidpur and Nagpur. On the 19th February 1818 the *Peshwa's* power received the *coup de grace* at the affair of Ashta where *Gokla*, his general, was defeated by general Smith, and slain. On the 11th of the ensuing April the descendant of *Sivaji* was placed on the throne of his ancestors at *Satarah* by the British commissioners. His present dominions are indeed insignificant when compared with the magnificent empire of his fore-fathers, and even they are held in subordination to the British government, and a resident, with power to interfere in the internal management of the country, maintained at his court. His territory is bounded on the north by the streams of the Bima nad Nira—on the south by the Kistnah and Warna rivers—to the east by *Bijapur* and the territory of the Nizám, and on the west by the Western Ghats; it comprehends an area of about 7,943 square miles.

The states of Holkar, Scindia and the Bhonslah are still under the government of chiefs of these families, though in great measure deprived of political influence and the means of doing injury by the assumption

on the part of the British Government, in 1818, of most of their strong holds and territories, paying tribute; and by the maintenance of subsidiary forces and British residents at their capitals. With *Janoki Row Scindia*, the present chief of Gualior, who is in great measure independent, our political relations are merely those of friendship and mutual alliance:—with Hurry Row Holkar of Indore, an alliance offensive and defensive; Holkar holding himself feudatory to the British Government, and liable to be called upon when required to render assistance. *Ragoji Bhonslah* of Nagpur has a right to claim assistance from the British Government against foreign and domestic enemies; the latter exercising in the meantime an influence amounting to control in its external relations and interior economy. Baroda is still in quiet possession of the Guicowar, *Sivaji Row*, under protection of the British Government, which is bound to render military protection against foreign invasion and internal rebellion. The Guicowar exercises his own discretion in the interior administration of his country. Our relations with *Kolapur*, a small Mahratta state in the province of *Bijapur*, governed by one of the Bhonslah family, are similar to those of *Satarah*, coming under the head of "Protected States." All the possessions of the ex-*Peshwa* have been subject to British dominion since their cession in June 1818. The ex-*Peshwa* enjoys a pension of eight lacs of rupees per annum, and resides at a holy place, called *Baitur*, in Hindustan.

Having so far attempted to give an outline of the past and present state of Mahratta power, I shall proceed without further delay to the history of the little state of Sondur, interesting as being the domain of one of the most ancient of the Mahratta families, viz. that of the *Ghorpara*, and from its having so long maintained its integrity, though holding a singularly insulated position in the heart of a foreign territory.

The *Ghorpara* family, it is said, was originally identical with that of the *Bhonslah* of *Satarah* and *Nagpur*, and derived its name from the circumstance of one of the family's having scaled the walls of a fortress in the Kokan by seizing the tail of a *Ghorpar*, or Iguana, which was crawling up the side and thus ascended the parapet, and surprized the garrison. This legend was given me by the chief himself, as well as the following list of his ancestors, who bore the title of *Hindu Row*, *Ghorpara*, and subsequently that of *Munalakat Madar Sinapati*:

Maloji Row	Ghorpara.
Biroji Row	do.
Sidhoji Row	do.

Mora or Morari Row	Ghorpara.
Siva Row	do.
Sidhoji Row	do.
Siva Row	do.

The first of these is said to have been the chief alluded to in the legend, and was an officer in the king of *Bijapur's* army. *Biroji*, his son, entered the service of the *Maharaja* of *Satarah*, and was the first of the family who had the title of *Hindu Row*. According to the *Tazkirat al Bilad*, a Persian MS. history, *Biroji* had the management of the affairs of the *Bala* and *Pain* ghats, and held the pergunnah of *Gujander*, *Ghur* as a maintenance. To him succeeded *Sidhoji* his son, the third on the list, who was invested by *Sivaji's* successor *Sumbaji* with the title of *Sinapati** or generalissimo of the Mahratta army. *Sidhoji* among other exploits took Sondur from the *Beders* and is the first Mahratta chief who settled there. Previous to this recorded event it is supposed that *Sondur* had, from a remote period, formed an integral part of the great Hindu empire of *Bijanugger*; and that, after its overthrow by the four Mahomedan sovereigns of the Deccan, viz. those of *Golconda*, *Bijapur*, *Ahmednugger* and *Kalberga*, or *Bider*, in 1564, it lapsed into the grasp of the Poligars of the *Beder* caste,† though nominally under the Mahomedan sovereign of *Bijapur*.

Sidhoji died about 1715 leaving a widow *Sik Bai*, and, according to the *Tazkirat al Bilad*, four children. To Doulet Row, the eldest she gave the *jaghire* of his father viz. *Gujanderghur*—to *Gopal Row* the taluk of *Sondur*—*Morari Row*, or *Mora Row*, and *Bhojung Row* were made *Bakshis* (commanders) in her army.‡ *Morari* and *Siva Row* were both distinguished by their exploits in the Carnatic and their struggles with Hyder. The former figures in history as one of the most enterprising characters of the stirring age in which he lived (Vide Orme vol. 1). It does not appear that *Morari Row* disturbed his brother *Gopal* in the possession of *Sondur*, but established himself at Gooty, one of the naturally strongest hill fortresses in Southern India, and added the present citadel to the old poligar fort. He was besieged

* Sinapati is a compound Sanscrit word, Sina signifying an army and Pat or Pati, a lord or master.

† A considerable portion of the population of Sondur at present is of this warlike caste.

‡ In 1740 both Morari Row and his brother Gopal Row of Sondur were called upon their sovereign Shao to join his armies under Ragoji Bhonslah about to undertake the successful campaign in which Trichinopoly fell and Chunder Sahib was taken prisoner to Satarah. It does not appear that the latter obeyed this summons as we find the former his younger brother, claiming the title of Sinapati or head of the Mahratta army.

in this stronghold between 1776 and 1779 by Hyder. The fortress was taken by treachery after a long and gallant resistance—*Morari* was made prisoner—thrown into the dungeons of *Copaldrug*, and never more heard of. In this campaign, Hyder made himself master of *Chittledrug*, *Raidrug*, *Harponhully*, and also of *Sondur*, which fell after an ineffectual resistance: what became of its chief *Gopal Row* elder brother of the gallant *Morari*, I cannot trace. Hyder determined to secure his possession by building a fort in the valley near the entrance of the principal pass, which is said to have been completed by his son Tippoo, who left a strong garrison there under a *killidar*.

Siva Row, the son of *Gopal Row*, was slain in battle about 1785, in a vain attempt to recover his patrimony, leaving a son named *Sidhoji* under the guardianship of his uncle *Vencat Row*. *Vencat Row* succeeded in expelling Tippoo's troops about 1790, but, dreading the tiger monarch's resentment, did not reside in *Sondur* until after the fall of Seringapatam in 1799. In 1801 we find *Vencat Row** alluded to by Sir Thomas Munro† as harbouring at Sondur most of the adherents of the noted *Dhondia Waug*, "the King of the world," who had escaped the rapid waters of the Malpurba into which about 5,000 of them had been driven by Colonel Wellesley in September 1800.

When *Vencat Row* went to take possession of Sondur in 1799, the *Peshwa*, *Baji Row*, as Sir T. Munro states, issued a *sunnud* granting the jaghire to *Jeswunt Row Ghorpara*, a distinguished officer in Scindia's army, and subsequently ambassador from that chief to Colonel Wellesley: he sent a copy of the *sunnud* to *Sondur* to Vencat Row, stating his wish that means might be taken to prevent discussions in their families. *Vencat Row*, dreading the power of the *Peshwa*, took the hint, and sending for *Narsing Row*, *Yeswunt's* second son, in 1804, presented him with a salary of 100 pagodas a month, which on the pretext of his caballing, was discontinued in 1808. *Jeswunt Row*, aware that the *Peshwa* had nominally given away what he had not legal power to do, gave up the jaghire of which he had never taken possession to *Baji Row* in exchange for some other grants.

* *Sidhoji* his ward died in 1796, without issue, on which *Vencat Row* proposed that one of the sons of *Doulet Row*, half brother of *Morari Row*, should be adopted by the widow: this was refused, as also a similar application to *Yeswunt Row*, a distinguished member of the *Ghorpara* family about to be alluded to. The latter however permitted his younger brother *Kundi Row's* son, the present chief, to be adopted; which was accordingly done.

† See his life by Gleig, letter to Colonel Wellesley, vol. i. p. 351.

It is said that as at 1790 Hyder Ali obtained the of Sondur from Tippoo & granted it as a jaghire to the Sri Comaraswami placing it contrary

according to Captain Duff;* the British Government approved of the transaction and promised, at the time the transfer was made, to put the *Peshwa* in possession of *Sondur*, but various causes prevented the fulfilment of the engagement until October 1817. Previous to this however, in 1815, the *Peshwa* made an insidious attempt to take possession of the jaghire, under pretext of a pilgrimage to the celebrated shrine of *Comarswami*, attended by a vast train of followers. He was escorted through the Company's territory by a regiment of native infantry under command of Lieut. Col. Steele.

The present chief, *Siva Row* son of *Kundi Row*, who had been thrown into prison by the *Peshwa* at Poona and subsequently fell at the battle of Ashta in 1818, was at this time in quiet possession of the valley; and, perfectly aware of *Baji Row's* intentions, had prepared for his reception by arming and barricading all the passes leading into the valley.

The *Peshwa* was not permitted to enter, but compelled to pursue a circuitous route and ascend the cordon of hills on the southern extremity, of which the temple is situated by a steep path leading from *Antapur* in the taluk of Bellary. *Baji Row* after a hasty visit to the temple returned to Poona.

Two years after this the great Mahratta confederacy against the British power was entered into; in which the *Peshwa*, *Scindia*, *Holkar*, and the *Bhonslah* of Nagpur played such prominent parts. Shortly previous to this, the *Peshwa* repeatedly urged the British Resident at Poona, the Hon'ble Mr. Elphinstone, in conformity with the stipulations of the treaty of Bassein, to assist him with troops in the reduction of several small rebellious states and particularly that of *Sondur*. This no doubt was part of a plot concocted by the weak Peshwa (who had, for some time past, entertained smouldering feelings of deep hatred against the British Government and its representative, which soon burst forth into an undisguised flame), to weaken either the military force; or, in event of non-compliance, to throw upon the British authorities the odium of breaking the conditions of the treaty and being the guilty causes of the meditated rupture.

Colonel, afterwards Sir T. Munro, who was at this time with the reserve of Brigadier General Pritzler's force at Darwar, was instructed accordingly by Mr. Elphinstone to march to *Sondur* and compel the chief to obedience. Crossing the Tumbuddra at Humpsagur he

* Duff's History of the Mahrattas, vol. iii. p. 411.

arrived with the force at the barrier of the western pass leading into the valley of Sondur on the 27th October 1817; where he was met by the present chief Siva Row, with a few attendants, who conducted him through the pass to the fort, on the glacis of which he delivered up the keys, throwing himself on the protection of the British Government. I cannot resist giving Colonel Munro's interesting description of his interview with this descendant of a long line in his own simple graphic language. He thus writes to Mr. Elphinstone from Tamberhilli, 1st November 1817.

"My letters of the 27th and 31st October will have informed you of the quiet surrender of Sondur by its chief Sheo Row. I wrote to him on the 18th October, apprising him of the object of my march, and offering him a jagheer of eight thousand rupees in any part of the Company's territory. I did not consider this sum as being an adequate compensation for the loss of his district, but as I was aware that many demands would be brought forward for relations and dependents, I thought it best to begin upon a low scale.

"On the 22d October, I received his answer, which expressed in a general way, that it was his wish to conform to the desires of the British Government, and stated that he would send two vakeels to treat with me. The vakeels arrived in camp on the 24th October, bringing with them a paper containing a long list of Sheo Row's demands, among which were a jagheer of twelve thousand rupees for himself, smaller ones for his brother and sister, and provision for his principal servants. I promised that he should have a jagheer of nine thousand rupees; that the vakeels should receive an allowance of fifteen star pagodas monthly, and that the other claims should be taken into consideration on my arrival at Sondur. The vakeels objected to the smallness of the jagheer; they said that their master might submit, but that he would not consent to the arrangement. They were dispatched from camp on the 25th October with my answer, and were directed to inform Sheo Row, that if he intended to submit, I should expect him to meet the detachment on the outside of the pass which leads into his valleys.

"On the 27th October, the detachment, on approaching near the pass, was met by Sheo Row, attended by a few horsemen and peons. He conducted it through the defile and barrier which defends the entrance into the valley of Sondur. On reaching the glacis of the fort, he drew up his party, and as he delivered the keys, he said, that he threw himself entirely on the protection of the British Government. He then asked leave to go away, and having obtained it, he call-

ed out to me, so as to be heard by all his followers, "Think of my situation, have some consideration for us all."

"He went through all the ceremony of surrendering his fort and abdicating the government of his little valley with a great deal of firmness and propriety; but next day when he came to my tent with his brother and a number of his old servants and dependents, to solicit some provision for them, and to make some arrangements for the removal of his family to the Company's territory, he was so agitated and distressed, that he was obliged to let his brother speak for him. It was finally settled that the two vakeels should each have an allowance of fifteen pagodas, and that his jagheer, instead of nine thousand, should be ten thousand rupees, from which he should make such allowance as he chose to his relations and followers, and that the pensions and jagheers should be granted in whatever part of the Company's possessions they might be required.

"Though I deemed it advisable to limit myself in promising a jagheer to ten thousand rupees, yet, when I consider what Sheo Row has lost, that he was as much a sovereign in his own valley as any prince in India,—that it contained a regular fort, built by Hyder and Tippoo Sultan at a great expense,—that it was besides so strong by nature, that no Mahratta power could have taken it from him,—and that he had ruled over it from his infancy, for the space of twenty-one years without interruption, I cannot think that even the twelve thousand rupees which he has demanded would be more than a very inadequate compensation for the sacrifice which he has been compelled to make."

Mr. Gleig, Sir T. Munro's biographer, remarks (vol. II. p. 12.) upon this event: "There was something more than commonly striking in the circumstance which accompanied this surrender. The chieftain, Sheo Rao, had enjoyed his principality in uncontrolled possession for upwards of twenty years, holding his little court in a formidable stone fortress which commanded the valley; and he had been repeatedly heard to declare, that sooner than submit to the tyranny of the Peishwah, he would bury himself in its ruins. Against the strength of the British empire, however, he felt that it were madness to contend, and after a severe struggle, made up his mind to submit. "He came out," says an eye-witness, "with his little court and retinue, and met the detachment in the glen which leads into his valley; and on reaching the fort, he delivered up the keys with a dignified resignation, which affected every individual who witnessed the scene."

Colonel Munro's conduct on this occasion did honour to the generosity for which the British nation of which he was the worthy repre-

sentative has even been proverbial and which has conduced so materially to her success in all external relations; and more particularly with the powers of Asia. He left the Sondur chief, it is said, to the full as much overwhelmed with gratitude at the generosity of his conqueror, as sorrowful on account of the overthrow of his own importance. —Col. Munro stationed a small garrison at Sondur, returned to Darwar, having given up command of his brigade, agreeably to instructions, to Lieutenant-Colonel Newall. Stirring events rapidly followed—the secret of the grand Mahratta confederacy was laid open—the *Peshwa* threw off the mask at Poona by the attack on the British troops at *Khirki*, and the savage attempt on the life and property of Mr. Elphinstone its talented Resident. In short, the Mahratta war of 1817 and 1818, already touched upon, had commenced.

At its close Colonel Munro recommended Sondur should be restored to *Siva Row*, which was acceded to, *Sondur* having together with the rest of the *Peshwa's* possessions been ceded to the British Government. *Siva Row* had retired to Hirrahal near Bellary after Sir Thomas Munro had taken possession of his jaghire but on the defeat of the *Peshwa* returned to *Sondur*.

Doubts have been entertained regarding *Siva Row's* right to the valley of *Sondur*, and it is even stated by Captain Grant Duff (History of the Mahrattas vol. ii. page 411) that the claims of *Jeswunt Row Ghorpara* are just. Now the matter is simply this. *Sondur* was won in battle by *Siva Row's* ancestor and confirmed to him and his heirs by his sovereign. The *Peshwa*, a vassal also of that sovereign, violates his allegiance and bestows the valley on his follower, the man who was so soon to betray him, *Jeswunt Row Ghorpara*. The latter never took possession of the gift—a proof that he did not consider his own claims just—but asked for other lands in exchange, which were bestowed. The chief of *Sondur* dies without children: his widow offers to adopt the son of *Jeswunt Row*, who was of the same family; *Jeswunt*, having previously given up his title to the jaghire to the *Peshwa*, durst not send him, but unwilling to lose the opportunity sent one of his younger brother, *Kundi Row's*, sons, the present chief, to be adopted, which was done accordingly. *Baji Row* did not discover the imposition that had been practised for some years, when he threw *Kundi Row* into prison at Poona, and under pretext of a pilgrimage to the holy shrine of Comarswami set out in 1815 to gain possession of the jaghire, either by stratagem or open violence, but returned unsuccessful.

Sir T. Munro in a public letter to Mr. Elphinstone (Life of Sir T. Munro vol. ii. page 44) after touching on this claim observes, "Whatever may be the question of right, there can be none of possession. Sheo (Siva) Row has held it during the long period of twenty-one years. He was in fact an independent prince, by the same right that so many other Mahratta chiefs have become so. He was independent before the treaty of Bassein, and can hardly, therefore, be included among the refractory vassals whom the British Government are bound by that treaty to reduce, any more than many other greater vassals, who had before that time shaken off their allegiance to the Peishwa."

Sir T. Munro, with the sympathy and generosity that ever distinguished him, when he became Governor of Madras did not forget his old friend's claims, and accordingly we find that the jaghire of Sondur was finally conferred (7th July 1826) on *Siva Row Ghorpara*, him and his heirs for ever, free of *Pesh-kush* and pecuniary demands. The entire management of the revenue and police, and the right of administering civil justice were guaranteed to him on the following conditions, viz. that he should maintain at all times faith and allegiance to the Honourable Company—their enemies to be his enemies, and their friends to be his friends; that he should assist the Honourable Company to the utmost of his power against foreign and domestic foes; to maintain a strict watch over the public peace in the jaghire; not to afford an asylum to offenders from the Company's district, but to deliver them up, or assist the Company's officers sent in pursuit of them; to cause justice to be rendered to inhabitants of the Company's district, and others who might have pecuniary claims on any of the inhabitants of *Sondur*; to hold himself responsible to the Honourable Company for the good Government of the jaghire; and should it appear that in consequence of his mis-government it be found necessary to interfere, then the Governor of Madras in Council is to take such measures as may appear just and proper for restoring order and providing for the security of the people. Such are the conditions on which Sondur is now held. The conduct of *Siva Row* during his administration of the *jaghire* has I believe been exemplary. He is about 50 years of age, spare in person, of middle height and dark complexion. He has two children, both girls. His nephew is the heir-apparent.

Chief's house and the town of Sondur.—The chief's house is situated in the town of Sondur, near the middle of the valley, between the Bimagundi and Oblagundi passes, on the banks of the Naribulla. It has no pretensions to the title of a palace or *mahal*. A narrow entrance leads from the confined street into the usual Hindu open quadrangle,

enclosed by tiled verandas, into which open passages communicating with the penetralia. The verandas are supported by rude colonnades of wooden pillars, and the walls embellished with fresco paintings in the ordinary native style.

The town itself is a large irregular heap of huts, with narrow streets in bad order, divided by the Narihulla into two parts, viz. *Sondur* proper and Chicka *Sondur*. A few Hindu temples and Mahomedan mosques are scattered over the place, but are in no wise remarkable either for size, elegance or antiquity. It receives an excellent supply of water from the rivulet, and from five good wells. It contains nineteen shops, principally those of cloth and grain merchants and three choultries. The population is estimated at about 7,500 souls, of whom about 375 are Mussulmans.

Villages and their revenue.—Besides Sondur are several other villages studding the valley and base of the hills, the principal of which are *Konepur*, *Cannaway Hully*, *Hoshully*, *Krishnapur*, and *Yettenhutty*. The latter is prettily situated near the outer entrance of the *Bima Gundi* pass. A mango and tamarind tope on the banks of the clear stream here form a cool and refreshing spot for encampment.

The villages whose revenues are devoted to the support of the famous temple of *Comarswami* are as follows:

* Commaterwoo.	Bawihully.
Nundihully.	Hemsihutty.
Subrianhully	Buswapur.
Dewarhully.	Mulla Ammunhurroo.
Mudakistnapur.	

Besides these there are two villages belonging to the Company, I was informed, situate in the Kumply and Kudlighi taluks, whose revenues go to the support of the sacred shrine—producing a total annual revenue of about 750 canteraya pagodas.

The revenues of the villages of *Dharrumpur*, where the iron ore is smelted, and *Rainsunder*, to the estimated amount of 500 rupees, go to the temple in the gorge of the western pass, consecrated to the 4th avatar of Vishnu, viz. that of *Nar-singha*, or the man-lion.

To the *Sivapur* temple, the revenue (estimated at 400 rupees) of the lands of the ruined village of *Sivagunghi* is apportioned. To that of

* Anciently according to the inscription or sassanam the revenue of the villages of Saneresihalli, Tyagadahalu, Tresihalu, Mallapura, Komply, Copula, Bamihutty, Comaranahalli and Rampur were given up by Raja Bijala Naika, in the year 641 of Salivahana, to the temple, but many of them were taken away during the Mahomedan ascendancy.

Kuma, the revenue of *Ramahully* estimated at 100 rupees—while the revenues of *Rampur*, *Narsapur*, *Hulku*, and *Yemmahutty*, 300 rupees, are set apart to maintain in episcopal dignity the three principal Swamis of the Brahmins. The revenues of the remaining villages, with the exception of *Dhumbarhully*, 100 rupees, which supports a band of dancers and jugglers called *Dhumbars*, are appropriated by the jaghiredar.

Revenue of the Chief.—The revenue of the jaghiredar is estimated by some at 20,000, and by others at 30,000, rupees per annum.

Population.—The total population of the valley of Sondur amounts to about 14 or 15,000 souls: it contains about 2,770 houses—giving on an average a little more than five inmates to each house. The larger proportion consists of Hindus, principally Lingayets, comprising the merchants and shopkeepers, *Beders*, *Mahrattas*, *Kunbis*, *Dhungars*, and a few *Rajputs*. Brahmins abound, particularly those of the *Vaishnavam* and *Smarta sects*.

Defences.—The fort of Sondur, built by Hyder and Tippoo, stands in the plain and is seen at a short distance on the right after emerging from the eastern pass. It is quadrangular, of circumscribed extent, with stone curtains about 18 or 20 feet high, surmounted by a parapet of brick-work pierced by embrasures—and protected by bastions at frequent intervals. A terre-pleine in bad repair passes along the ramparts. The gate is constructed with an approach and inner choultries in the usual Indian style. I observed a few iron guns in bad order lying on the bastions. Within the walls are a few magazines, huts still inhabited, and two large wells. A dry ditch and tolerable glacis runs round the whole. The place, except part of the parapet on the S. face, could easily be put into defensible condition against any native force, although partially commanded by a low hill a short distance from its W. face. The gorges of the eastern and western passes are defended by stone barricades with narrow gateways and commanded by rude works on the prominent points of the hills, the ridges of which are in many places crested by a low wall. Two of the works on the right of the inner side of the eastern pass are named Martanghur and Timanghur. The town itself is at some distance from the fort and entirely defenceless. The strength of the place depends on the possession of the passes.

Temple of Comara.—The famous and ancient temple of *Comara* or *Kartica Swami*, the Hindu Mars, (to circumstances from which its founding is supposed to have originated Sondur has derived the high odour of sanctity it has long enjoyed), is pleasantly situated near the bason of a ravine near the summit of the S. W. part of the cordon of hills that enclose the valley. It is nearly surrounded by the adjacent wooded heights, which support a table land of considerable extent. The ascent from the town of *Sondur*, a distance of about 6 miles, is by a steep though safe path flanking the ravine, practicable for horses, elephants, &c. The pagoda is neither large nor magnificent, but has an air of antiquity, of which its white-washed exterior and gilded *Kalas* cannot entirely divest it. The *Gopar*, a pyramidal tower over the gateway, faces to the east; on the left of the entrance is the shrine of the goddess *Parvati* consort of *Siva*: under a *Vimana* to the west is the image of her son *Comara*, the presiding deity of the place, and to the right stands the shrine of the destroyer Siva. In front of the temple is a fine spring that supplies a large quadrangular pool; flights of stone steps lead down to the water, it is held sacred by the Hindus and called the *Agusta Tirtum*. Descending this flight of steps from the pagoda, on the left is a small pyramidal shrine dedicated to the *Muni* or religious guide of *Comarswami*. At the bottom of the steps at the right angle of the well stands the shrine *Ananta Padmanu*.

In front of the *Gopar* is seen a small octangular column of hewn stone, and at its base lie three trunkless stone heads and an armless hand. The centre and largest of the heads is supposed to have erst graced the shoulders of the *Rakas* or giant *Tarkasura*, slain by *Comarswami*. The two smaller ones belonged to *Vishnu Kerma*, and *Karoincha Sura*, personages figuring in Hindu mythology.

At some distance in the jungle the guides led me to a cavern in the rock, dripping with water, and redolent of bats, regarding the great extent of which they told some tales for travellers, among which was a story of its having been the abode of him of the petrified head—the giant *Tarkasura*. I groped along one of the passages for some distance, but having no torches returned, but not without having experienced a stout resistance from the hosts of bats that rushed forth in a continued stream from the cave's murky recesses, as if resenting the unhallowed intrusion. Hard by, a delicious fount of clear water gushes through the mouth of the effigy of a cow, rudely carved in stone, falling into a small square well called the *Goi Tirtum*. Here is also a small temple to *Iswara* facing eastward; some of his emblems, the *Ling*, and sacred bull, are seen around. The following (I crave pardon from my Hindu ciceroni for curtailing it) was given me as the local legend.

"In the *Dwapar Yug* (the third or brazen age of the Hindus), existed a ferocious giant, named *Tarkasura*, whose enormities caused the whole earth to groan. His cruelties at last became so intolerable, that a number of the Deotas and other inferior deities proceeded to Kylas,* and entreated *Siva* to send his son *Comara*, whose renown as a warrior was noised over the heavens, to rid them of the monster. Their prayer was acceded to, and *Comarswami* placing himself at their head marched direct to *Tarkasura's* cave among the hills of *Sondur*. Here *Comarswami* slew the giant, and burnt his body. The head was converted into stone and bears testimony to *Comar's* prowess to this day."

The shrine of this warlike deity has long been a favourite place of pilgrimage to the Mahrattas and other classes of Hindus, and particularly to the ex-*Peshwa, Baji Row*. His last visit in 1815 was, as before mentioned, merely a cloak to his design of seizing the jaghire. During this visit, whilst seated on the lower steps of the holy well, a large stone was precipitated either accidentally or by design from the top of the steps near the *Agusta Muni*, and fractured the arm of one of Baji Row's attendants who was seated close to him. The superstitious Peshwa, taking this as a bad omen, or suspecting more probably some design upon his life, broke up his camp after three days halt and returned towards Poona. The stone is still shown lying on the margin of the well near some Lingums, and from its weight and dimensions appears to have been perfectly capable, considering the height it fell, of fracturing his Highness's skull, whatever the density. *Puja* is offered to it, but whether the sacrifice is intended to avert its wrath, or out of gratitude for having expelled the invader, I am unable to say. The offerings of the *Peshwa* on this occasion to the shrine of *Comar* were 2,000 rupees, a pair of shawls and some other articles of dress. The *Jatra* or period of pilgrimage occurs triennially—the number of pilgrims has amounted latterly to about 25 or 30,000, and the temple revenue, together with the sums collected on these occasions, is said to average from 15,000 to 20,000 rupees annually.

There is a straggling village in the neighbourhood of the temple, consisting of about 30 houses, inhabited by a few Mussulmans, Hindus, and the officials of the temple. There are other sacred places in Sondur resorted to by pilgrims, viz. *Jumbunat, Myoor, Cuptaswami, Hurri Senkram, Sivapur, Mootanum*, and the temple to *Nar-singha* in the western pass. The holy wells are the *Byrava, Bima, Bala Buddra* and *Naka Tirtum*. Pretended marks of the footsteps of *Comarswami* are shown among the rocks and jungles.

* A mountain supposed to be the favourite abode of Siva and the residence of Kuocra.

A sassanam, in the Hala Canarese character, is inscribed in the enclosure before the temple, of whose, endowment it bears testimony. It is dated in the year Parthiva and of Salivahana 641. The grant was made by a king of the Marale dynasty named Bijala Naicanu.

Geology.—The general direction and features of the Sondur range have been already touched upon. The prevailing rock met with is a chloritic slate, resembling the greenish Grauwacke slate of Britain, often highly impregnated with oxide of iron, and crested in many places with mural ridges of a ferruginous quartz rock, embracing a variety of colours from steel grey to a deep liver brown, and of different degrees of compactness. This rock often forms whole hills—always however lying above the slate. The most striking geological feature that fell under my observation was a fissure, at nearly right angles with the line of direction, running through both ranges, and forming the eastern and western passes into the valley, along the bottom of which runs a small stream to the N. E. marking the line of depression. As this fissure presents also the best section of the surrounding formation I shall attempt its description, commencing from the eastern outlet at Yettenhutty.

Bimagundi or Eastern Pass.—The pass is here of considerable width and the sides sloping and wooded: a little farther on, as they approach nearer the sides, they become steeper and the bottom of the passes encumbered with precipitated masses of the cresting rock. About the middle of the pass, intersecting it at right angles, are two singular looking rocks, nearly insulated from the chain, presenting precipitous faces in the line of the stream which runs between them. They appear at first sight to form a complete barrier across the pass. Their bases are about forty paces asunder: deep and nearly vertical fissures, in a line nearly corresponding with that of elevation, cleave the rocks on both sides of the stream. A bed of rock, harder than that which surrounds it, which has been worn away, is left projecting like an abutment from the face of the northern precipice, at the foot of which is a short talus of masses precipitated from the higher parts of the rock: these appear to have given way like the upper portions of sea worn cliffs from the abrasion of the lower and supporting rock. I examined carefully the sides of the precipices, which, being of one homogeneous rock, exhibit no marks of dislocation: about fifty feet above the bed of the stream, on a ledge of the southern rock, I picked up several water-worn pebbles; among them one or two of the chloritic

slate, which being of the lower rock once formed most probably part of the bed of an ancient and higher channel.

On the banks of the stream a conglomerate is now in progress of formation, being composed of the rounded pebbles of its bed cemented together by carbonate of lime, deposited by the stream, sand, and oxide of iron. I could trace no continuation of the rocks across the bed of the stream to indicate the work of watery erosion; moreover the silt, sand, and gravel of its bed would have hid the fissure, if any, beneath the surface. I scaled both rocks, to ascertain whether there were any traces of gravel, or other marks of the passage of water on the surface of the rocks, but none were discoverable. The fragments on the contrary were all angular. The general direction of the break across the chain, as taken from the summit of the northern rock, is S. 60° W. or nearly at right angles with that of elevation. That of the longer valleys follows the line of elevation, being S. 50° E. The laminæ of the rock are greatly inclined, dipping at an angle of 67° S. 45 W. Their direction follows the line of elevation in contorted and waving lines. The joints dip slightly to the east. A blistery hematite is found lining parts of the sides of the joints, containing small hexangular crystals of quartz, with drusy crystals covering the surface.

The mineral character of the rock at this part of the pass resembles that forming the crest of the ridge leading up to the copper mountain near Bellary, being a jaspery clay highly impregnated with iron, occurring in alternate laminæ with a cherty quartz, imbedding red striped jasper in rhomboidal and curved fragments and contorted veins, nests of decaying felspar and vesicular iron ore. Numerous tubular and cellular cavities are seen in the western surface of the rock on the north of the stream. After passing another rocky barrier of apparently disrupted rock the vale of Sondur is entered—following the course of the stream the valley is crossed to the pass leading through the opposite range called the Oblagundi.

Oblagundi or Western Pass.—By this pass the stream enters the valley from the westward. The rock composing the ridge of hills is similar in character to that already described on the eastern flank of the valley, and the fissure through it has a similar direction to that just described. The course of the stream indicates the fall of ground to be to the eastward. In the gorge of the pass, to the left of the barrier gate, in rear of the small white temple to Narsingha, the rocks rise precipitously to the apparent height of 180 feet on each side the stream, being about 10 paces asunder at the base, but gradually nearing

as they ascend. Towards the summit is a convexity in the face of the precipice on the right, and an almost corresponding depression in that of the precipice on the left, hand: a large fissure cleaves the substance of both rocks in a direction S. 20 E.

The bed of the stream as in the eastern pass is choked up by blocks, pebbles, silt and sand. These cannot have been transported any distance, as they are of the same nature as the surrounding formation, and the edges of the harder fragments but little worn. The mineral character of the rock here is similar to that of the eastern pass.

Direction of laminæ S. 20° E.
Dip of do. at 65° east.
Direction of joints S.
Dip of do. at 10° east.

It seems plausible, from a careful examination of the summit, sides, and bases of the rocks, the bed of the stream, and the face of the surrounding country, that the singular breaks through the line of elevation of these schistous ranges owe their present appearance to two modes of action, viz. separation of the rock in the first instance, and in the next to watery abrasion. It would be difficult to determine whether the former was first occasioned by volcanic convulsion, or contraction of the substance of the rock after deposit, as seen in sand stone formations. The marks of watery erosion of the stream, probably under a different former state of dynamical action, are traceable as high as 40 feet above the present bed of the stream, in the rounded pebble gravel formed upon a ledge of the rock, in the softer parts of the rock being worn away leaving the harder mass protruding like an abutment towards the stream, and from the comparatively greater number of cavities in the western face of the rock, once the receptacles of felspar or vesicular hematite, and now washed out by the stream which runs from the east. From what I could gather from the natives, the action of any present flood is insufficient to account for the presence of gravel at the height of 40 feet on the sides of the rivulet.

The precipitous disrupted appearance of the rocks at a distance from the sides of the ravine, far removed from the influence of the stream, and the corresponding faces of the rocks in the western pass, the absence of any continuous beds of rock connecting the bases of the opposite precipices, indicate the fissure not to have originated from watery erosion.

Valley of Sondur.—The space lying between the two ranges forming the vale of Sondur is a plain in which rise several small hills, with a direction generally parallel to the superior ranges on each side. Those that fell under observation were all of the chloritic slate. I do not recollect seeing them crested by the jaspery rock. Large calcareous deposits of crystalline, compact, and earthy kankar, take place on the banks of the rivulets in various situations. In this tufaceous deposit is imbedded nodular and pisiform iron ore.

Southern extremity of Range.—Passing down the valley in a S. E. direction, a range of hills, about equidistant from the two principal chains, runs down the centre: turning from them to the right the western range is ascended to the famous temple of Comarswami, by a road just practicable for elephants and camels that leads along the side of a ravine, at the bottom of which runs a rivulet having its source in the holy well of Agusta Tirtum in front of the temple on the summit. Leaving the schist at the base of the range the road lies over masses of a lateritic rock, which in this locality differs from the laterite of Malabar in being more compact and heavy, containing a larger porportion of iron, less felspar, and but little lithomarge or porcelain earth; interiorly it has not the same sectile softness which, together with the property of hardening by exposure to the atmosphere, is one of the distinguishing characteristics of the latter and renders it so advantageous for architectural purposes, nor has it the same variegated tints of purple, red, and yellow, being generally of a deep brown ferruginous hue. It assumes sometimes the appearance of a conglomerate, being a paste of clay and peroxide of iron, imbedding angular fragments of the subjacent ferruginous slate and nodular hematite, which, as well as reniform, botryoidal, and pisiform iron ore, are found in abundance.

Summit of Ridge.—This rock continues to the summit of the ridge, which it caps in tabular masses: here it assimilates more to the character of the laterite of Malabar, being perforated by both tubular and cellular cavities containing a decomposed felspar in a powdery state tinged more or less by the oxide of iron. Like limestone, it abounds in caverns—some of considerable extent. The one I visited (vide plate) was considerably below the summit of the range: at a little distance in the jungle from the path. A little beyond the entrance it branches into two shafts. These shafts are stated by the natives to extend to an incredible distance in the bowels of the mountain. The floor is covered with the filth of bats. I had it dug to the depth of 5 or 6 feet without

discovering a trace of organic remains. The earth thrown out appeared to be formed by the disintegration of the rock, and imbedded angular fragments of the lateritic stone. The summit of the ridge is a flat extensive table land, extending to the southward from the lip of the semi bason in which the Comarswami temple stands, exactly resembling the summit of the flat topped laterite hills between the western Ghats and the Indian ocean; and descending in long flat step like spurs to the plains of Mysore and the Ceded Districts. These spurs are separated by ravines of various degrees of depth and width, taking a southerly direction, giving the flat intervening sweeps of lateritic rock the appearance of so many coulees of lava flowing down from the superior ridges and spreading out in the plain below. The whole of these, as well as the rock which forms the table land on the summit, is of the lateritic rock, which in these situations approximates in character to that of Malabar and Canara. It has no appearance of stratification, but separates into thick tabular masses—no fossil remains. Large beds of kaolin occur; one near the temple is held sacred by the natives; who, from its whiteness and the legends of their priests, believe it to have been formed from the congealed milk that flowed from the bosom of Parvati the consort of Siva, who wandered on the iron stone mountains "in quest of her lost child Comarswami." They suppose it to have the miraculous property of renewing itself, and use it for making the distinguishing marks on their foreheads. The decomposing felspar and quartz in contact with the kaolin, is often seen in the form of a soft reddish or purplish shale. The kaolin itself is often coloured yellow or reddish by the oxide of iron.

At the southern base of the hills gneiss is seen alternating with mica, felspar, hornblende and quartz talcose schists, in contorted strata; with a general direction of S. 25° E. and dipping N. 45 W. at an angle of 46°. Granitic clustered masses rise from the gneiss and its associated schists, at a little distance in the plain, accompanied by dykes of greenstone. A few blocks of protogine occur in an embankment near Tonshgirri: but none were observed in situ. Fragments of a beautifully green rock (chlorite and felspar), occur in this vicinity probably from veins in the gneiss.

Northern extremity of Sondur Hills.—Such is the south eastern termination of the hills enclosing the valley. To the N. W. near Hospett the ranges approach each other, and the eastern one terminates in a mammiform hill near the walls of that place, while the western range stretches out some distance to the N. W. where it terminates on the

south bank of the Tumbuddra. The ranges are artificially connected by an embankment of earth and solid masonry thrown across the intervening valley—the work, it is said, of one of the Hindu princes of Annagundi and Bijanugger. The hills are in this vicinity ridged, their sides are hollowed out into a crescent like *cul de sac*. The western range terminates in a roundish hill, rather abrupt, on the side that faces the river. It is composed of a highly ferruginous schist and the jasperry rock already described:—the laminæ are contorted, but preserve a general direction corresponding with that of elevation, viz. N. 44 W. dipping S. 50 E. at an angle of 60°. The joints dip slightly to the east. Sharp edged fragments of the schist strew the sides and summit of the hill. On the western ascent are seen large half imbedded blocks of milky quartz, and a striated felspar with short impacted veins of hematite. Passing towards the summit my attention was attracted by observing, on setting down the compass on a large angular block of the rock, the northern pole of the needle wheel violently round to the south. On examining the block it proved to be a mass of magnetic iron ore with polarity. It has an external rusty appearance but the internal recent fracture is of a dull iron grey.

From the top of this chain there is a fine prospect of the more prominent physical features of the country. Terminating the plain to the N. E. and flanking the northern bank of the Tumbuddra river, rise the rugged granitic elevations amid which are situated the ruins of Bijanugger. To the west and S. W. stretches the plain of Huddagully, separated from Kumply by the hills on which the spectator stands. Eight or nine hundred yards to the N. W. flows the Tumbuddra—its southern bank verdant with extensive plantations of sugar-cane; while the site of the sugar furnaces is marked by numerous columns of smoke. On the opposite bank the schist again emerges from the surface in a succession of low hills soon disappearing on the plain. The level break between the foot of the hills and the river may almost be styled the pass of Hospett.

The schist is to be traced from the foot of the hills across the river bed, flanked by almost parallel dykes of a porphyritic rock with large blisted crystals of a red felspar, plates of silvery mica and nodules of semi-transparent quartz. Veins of the red felspar are here seen passing from the porphyritic masses into the substance of the schist the felspar of the former near the line of contact loses much of its crystalline transparency, becoming more opaque and compact. The schist is hardened and begomes darker, but sometimes earthy, as

stones that have been heated under certain circumstances are apt to become.

Plains flanking the Sondur Hills.—In the plains flanking the Sondur ridges the prevailing rock is gneiss, alternating with mica and hornblende schists, intersected by green stone and basaltic dykes, the general direction of whose main coulees is east and west, varying more or less to the south of west and north of east. Granite occurs in detached clusters. The basalt and this rock appear to be the lowest in the Sondur series, bursting up through the gneiss and its associated schists. The chloritic schist, crested by the jaspery rock, appears to be the uppermost; the laminæ of both these rocks are conformable with those of the gneiss. The circumstance of the schists, resembling argillaceous, lying in the upper-part of the mica schist system, has been noticed in Europe by Boué, Necker, Phillips and others.

The soil covering the plains near the hills varies from a dark coffee coloured clayey earth, to a light sandy soil. The former is highly impregnated with oxide of iron, and in some situations with carbonate of lime, and arises from the disintegration of the subjacent rock and alluvium washed by the rains from the hill sides. For a section of the soil and substrata vide plate No. 3.

Deposits of *natron* occur sparingly on the banks of some of the rivulets, and abundantly of carbonate of lime. This and the oxide of iron, which abounds every where, form the cementing ingredients of the conglomerates now seen in process of formation on the banks and beds of streams.

IV.—Notices of Books.

1.—*Reports of a Committee for investigating the Coal and Mineral resources of India.—Calcutta*—1838—pp.

At a time when the European mind in India is directed with intense eagerness to the subject of Steam communication, it will be interesting to the general reader, and, at the same time, instructive to the geologist, to learn whence is to be derived fuel for the fires that are to give us glorious light in this land of the sun, not by imparting their dusky rays to the visual orb, but by setting in motion those mighty machines, which by their velocity more than half "annihilate time and space," bringing us in near contact with the centre of human civilization in distant Europe, and thereby illumining the mind by establishing a medium for the facile interchange of thoughts on matters connected with the arts and sciences and manufactures, and all the branches of human knowledge; not to speak of the soft affections and gentle sympathies of our nature, which will be cemented and strengthened by the more free inter-communion with those we love in another division of our globe.

A committee for investigating the Coal and Mineral resources of India has lately closed its labours, and sent in a Report to the Bengal Government, a copy of which we have been favoured with. This report is an extremely able and interesting paper, and without further preface we shall proceed to make such use of it as will enable us to afford a view of the subjects of which it treats. The following letter will give a succinct view of the whole matter by way of introduction.

To

The Right Honorable
GEORGE, LORD AUCKLAND,
Governor of Bengal.

May it please your Lordship,

We have at length the honor to place before your Lordship a series of reports on the chief subject of investigation contemplated in our [illegible]ination as a Committee,—namely, the existence, extent and relative [illegible]ssibility of the beds of mineral Coal in different parts of India and [illegible] immediate applicability to the increasing demands of the steam navigation of the Ganges and its tributaries.

Our Secretary, Dr. McClelland, has the sole merit of preparing the several able and laborious abstracts which are now submitted to your Lordship is well aware of the very voluminous nature of the documents and correspondence placed in his hands; it is therefore quite unnecessary for us to apologize for the delay that has taken place in their examination, or to expatiate upon the complete and satisfactory manner in which Dr. McClelland has accomplished for us this difficult task in the midst of other, no less important avocations.

Dr. McClelland has divided his report into the following seven heads:

Section 1. General remarks.

Section 2. On the difference of level in Indian coal fields and the causes to which this may be ascribed.

The first of these treats of the various benefits conferred on a country by the development of its coal and other mineral resources, with remarks on the difference in respect of soil and produce of different provinces of our British Indian Empire. The second comprehends the geological or scientific branch of the subject, the relation of the several coal deposits to one another, and to those of other parts of the world; as evidenced by their concomitant rocks and fossil remains. And the author has illustrated his views with interesting sketches of fossil shells and wood, derived from his own researches, made when lately on deputation to Assam.

These general views are followed by more particular descriptions of the principal Indian coal fields under the heads of—

Section 3. *The Silhet Coal* district, (including the Burmese and Malay line southward.)

Section 4. *The Burdwan* and Adjai Coal districts.

Section 5. *The Palamoo* Coal field; including also the deposits of Bidjegur, Manpoor, Sohagpoor, the Nerbudda beds, Rajmahal and others known to exist, but not yet brought into use.

To these should be here added a brief memoir Section 7, on the Assam coal field drawn up by our colleague Captain Henderson; and,

Section 8. A table of the analysis of all the specimens of Indian coal, yet collected by our colleague Mr. James Prinsep. Section 6, by the Secretary, should be more properly considered a continuation of Section 2; being a notice of *the general features of Central India* with reference to the distribution of minerals, illustrated by a colou[illegible] geological Map of India, shewing the distribution of rock formati[illegible] over the whole extent of the Bengal and Agra presidencies and west [illegible] Guzerat.

To such ample and valuable reports we have nothing to add but a brief summary of our proceedings, since your Lordship did us the honor of forming us into a Committee, trusting that our services, although necessarily limited in their efficiency, by our comparative inexperience and the only mode in which we could gather information, correspondence with friends;—and by our engrossing public duties,—will notwithstanding be found sufficiently fruitful of results to justify the confidence placed in us.

With your Lordship's concurrence, our first measure was to depute a professional miner, Mr. Homfray, to survey and report on the Palamoo coal beds. The results are before Government in a full report by Mr. Homfray; and although unfavourable as far as the immediate object of supplying coal at cheaper rates to the upper depôts of the Ganges Steamers is concerned, still the correct information obtained, has amply repaid the expenditure upon this expedition.

Allotting our attention to separate fields, we at the same time proceeded to obtain practical proof of the cost of supplying coal from those of the known, but still unworked mines, which seemed to give the best promise of competition with Burdwan.

Through Mr. Erskine, of Elambazar, three or four coal seams connected with the great Burdwan basin, but situated nearer to the Adjai than to the Damooda were re-opened, and a supply of 2000 maunds brought by this river direct to the Cutwa depôt on the Hoogly river, at a cost of about four annas per maund; thus proving the advantage of this line of water communication, provided the quality of the coal (which has not yet been tried on a large scale) shall turn out equal to the average procured in the Damooda works of Ranigunge, &c.

No expense can be said to have been incurred in this experiment, since it will be paid by the produce; 2000 maunds more are stated to be ready for delivery.

Another seat of operations selected was Chirrapunjie in the Kasya hills. The quality of the coal here was known from former trials to be superior to that of Burdwan. The vein was of great thickness, easily accessible, high above the inconvenience of floods, so that almost the only expense attending the working of this mine was the carriage down the hills, and the subsequent boat conveyance. We are indebted to Mr. G. Lock for the arrangements by which we were enabled to secure and transport 1000 maunds of this Kasya coal to Dinapore, at an average cost of about 6 annas per maund, being little more than half of the cost of Burdwan coal at the same depôt. We are

happy to find that Mr. C. Brownlow, an enterprizing and practical man, lately settled at Chirrapunjie is turning his attention to the Kasyà mines. Every encouragement should, we think, be given to an establishment which promises not only to confer immense benefit on this promising district, but to be of essential service to the river steam navigation.

It is almost premature to speak of other experiments not yet in a sufficiently forward state for conclusions to be formed as to expense. Of these the Chilmari position, on the western face of the Garrow Hills, promises most favorably from its proximity to river communication. A supply thence will be procured as soon as the season permits. Mr. Homfray and Mr. Cracroft have persons now employed searching for the position most accessible and nearest to water carriage.

But with regard to this locality we would beg here to call your Lordship's attention to the earnest recommendation of Captain Jenkins, that some scientific surveyor should be deputed to examine it fully, continuing his line along the whole of the southern hills of the Assam Valley ; a series of carboniferous formations which, he assures us occur here, unequalled in extent by any elsewhere discovered in India. This recommendation has our warmest support.

With the higher parts of the Valley of Assam the successive operations of Mr. Scott, Captains Wilcox, Pemberton, Grant, and latterly of Captain Jenkins himself, and his able Assistants Lieutenant Bigge, and Mr. Bruce, as well as the recent visit of Dr. Wallich, Dr. Griffith and Dr. McClelland, have made us better acquaint ed.

The occurrence of the coal has been traced in most of the tributary streams on the south of the Brahmaputra river, as exhibited in Captain Henderson's Sketch-map. All seems to range at nearly the same distance from the main river or the central axis of the Valley, as if they formed part of the same formation, a supposition supported also by their quality, which partakes more of the nature of lignite, than of the earthy or slaty beds of Burdwan, though these seams are not wanting in association with the others.

We have requested Captain Jenkins to send down a few boat loads of the produce of such of the Assam coal fields as are most within reach, that we may be better able to judge of its absolute cost landed at Calcutta, but we hardly expect competition from this quarter yet. For the future prosperity of the Valley itself the possession of an inexhaustible store of this and other minerals, will prove an invaluable advantage.

Our attention was also directed at an early stage to the existence of coal in the Rajmahl hills, but we regret to say that a re-examination of the localities formerly pointed out by Captain Tanner at Sikrigully* or at Hurrah, has not led to any more favourable hopes from this quarter. Lieutenant Don could discover no coal at the former place, while at the latter it is extremely bad : a mere bituminous shale, small in quantity and situated below water level. The whole range of the Rajmahl hills might well deserve a fresh examination directed to this object and to that of the other mineral stores, they are reported to contain ; viz. sulphur, alum, iron, lead, &c., since Dr. Buchanan's visit was but cursory, and we are not aware of any more recent professional inspection of their resources.

During our association as a Committee, the existence of coal in other quarters of less immediate interest has been officially made known to us : Lieutenant Kittoe in Cuttack, has announced the discovery of extensive deposits situated some way up a northern branch of the Mahanadi, but he has not yet had an opportunity of visiting the spot.

Major Ouseley has continued his discoveries in the vale of the Nerbudda, where several extensive deposits are now known ; though unfortunately the navigation of the river does not yet admit of its application.

A discovery, highly curious and interesting in a scientific point of view, has also lately been made in the experimental boring in Fort William. At a depth of 400 feet below the surface, rounded fragments of coal were met with, exactly similar to the worn pebbles found in the beds of mountain streams in the vicinity of coal beds. Their quality approximates to that of the Assam coal, being of low specific gravity and highly inflammable. There can be little doubt then of coal beds existing at considerable depths below the alluvium of the delta, though no direct practical benefit is likely to ensue from the knowledge.

In conclusion, we beg leave to place collectively under your Lordship's eye a list of all the sites of coal at present known to exist on the continent of India.

Burdwan,—Ranigunje, the principal Colliery,....Discovered by Jones.
Chinakooree, the best quality of coal,....Mr. Betts.
Various other beds have been occasionally opened.
Adjai Seedpoorie, ...
Pariharpoor, ... } Opened by Mr. Erskine.

* "There seems however to be some doubt whether Lieut. Don found out the right spot for examination."

Darbadanaghat, in boring,....	By Jones.
Benares road, 149th mile stone, and other places,.....	Everest.
Hazareebagh,.....	Colonel Shelton.
Rajmahal,—Patsandeh Baghelpoor,.....	By Captain Tanner.
Skrigully,.....	
Hurra,.....	
Palamoo,—Two principal beds,.....	Discovered by Mr. A. Prinsep.
Amarath,.....	In Mr. Homfray's Survey.
Bidjegurh,—Specimens not yet seen,.....	By Mr. Highland.
Nerbudda,—Towar river,.....	Captain Ouseley, Lieut. Finnis and Dr. Spilsbury.
Hoshungabad,.....	
Jubulpoor,.....	
Sohagpore,.....	
Chanda,.....	Specimens from natives.
Warda nala,.....	
Cuttack,—Mahanadi,.....	By Lieutenant Kittoe.
Assam,—Denphapanee, near Bramakoond,	Discovered by Capt. Wilcox.
Namroop river,.....	Lieutenant Bigge and Mr. Griffiths.
Suffry or Disung river, near Rungpore,.....	Mr. Bruce.
Dhunsiree river,.....	Mr. Scott.
Jumoona river,.....	
Kossila river, near Gowahate,	
Chilmari and Doorgapoor,....	Mr. Scott.
Silhet,—Laour and other sites,.....	Mr. I. Stark 1815—Jones.
Kasya hills, Chirrapunjie,...	Mr. Furnell. Mr. Cracroft.
Sarrarim,.....	Ditto.
Manipur,—near capital,.....	Captain Pemberton.
or boundary, Gendah, on Kuenduan river,.....	Dr. Richardson.
Arracan,—Sandoway District,.....	Mr. H. Walters.
Kyook Phyoo Island,.....	Captain Foley.
Moulmein,—Anthracite at Bothoung,....	Captain Foley.
Southern India,—Travancore, Fossil seeds carbonized.....	Colonel Cullen.
Himalaya,—Kamoan lignite,.....	Captain Herbert.
Moradabad, lower range,....	Mr. Ravenshaw.
Indus,—Cutch.....	By Captain Burnes.
Peshawar,.....	

To these may be added the indications of coal discovered in boring at a depth of 400 in Calcutta and 300 feet at Goga in Gujerat.

We have the honor to subscribe ourselves, &c.

(Signed.)	W. CRACROFT,	Members of a Committee for investigating the coal and mineral resources of India.
"	JAMES H. JOHNSTON,	
"	H. B. HENDERSON,	
"	W. N. FORBES,	
"	J. PRINSEP,	
"	J. McCLELLAND, Junr. Mem. & *Secy.*	

Calcutta, 18th October, 1837.

The first section of the Report, after preliminary observations, gives a table of the sites in which coal has been found; but as one, sufficient to answer our purpose, has already been given, we content ourselves with extracting the following remarks thereupon.

"In the foregoing situations coal has been traced from Burdwan to the westward, across the Valley of Palamow, and from thence through the district of Sohagpore to Jubulpore, and the neighbourhood of Sak, and the Towa river in the Nerbudda territories, 420 miles distant from Burdwan. Observing nearly the same parallel of latitude, it is found in the province of Cutch, whilst it is extended in the same line across the centre of India to the N. E. extremity of Assam, forming a zone that stretches from 69° to 93° E. longitude, embraced in an opposite direction between the 20° and 25° N. latitude. Chanda on the Warda river, Cuttack, and Arracan being its southern boundary, whilst the Vale of Callinger west of Allahabad, the Teesta river at the base of the Sikim Mountains, and Upper Assam, form the northern limit.

"There are however, two situations in which coal has been found distinct from this extensive and well defined belt, namely, Hurdwar and Attok; the first near the source of the Ganges, and the second near that of the Indus. Although situated in the plains, yet both these situations appear to be too closely connected with the Himalaya, and too much detached from the tract now under consideration, to allow of their being considered in common with it. In the infancy of researches of this nature, for such we must as yet consider the state of our information upon the subject of coal, it would be wrong to attach exclusive importance to the peculiar distribution of the mineral just noticed, farther than to observe, that this distribution appears to be highly favourable to all those objects for which coal is desirable.

"Cutch, the extreme western limit of what here might be named the carboniferous zone, is placed in the most favourable situation for yield-

ing supplies for the navigation of the Indus, the Coast of Malabar, and the Red Sea. The Nerbudda river extends 700 miles along the very centre of this zone, and coal in three situations is already found on its banks.* The Soane, the Ganges, and the Hooghly, are each intersected by it, and the Bramaputra and probably the Irrawaddi, are extended parallel to it throughout their navigable extent.

"Now, if on the other hand, this belt had been extended from the Punjab towards the south, scarcely a navigable river but the Indus alone would in such case be approached by it, and the interests of navigation would be as little benefited by the presence of a carboniferous zone, as if the valuable production by which it is distinguished, were buried beneath the table lands of the Himalaya. It is therefore sufficiently encouraging in this early stage of the enquiry to find the general distribution of coal so favourable, nor need we, as is evident from the Attok and Hurdwar coal, despair of finding supplies available for the navigation of the northern portions of the Ganges and Indus as soon as enquiries are directed in those remote quarters to the objects here in view."

The third section of the Report treats of the geological features of that portion of India in which the coal measures occur, and of the difference of level observed therein. At Cherra Ponji a bed of coal is raised on an insulated summit 300 feet above the level of the sea; the accompanying rocks are identical in character with those having a similar relative position to other beds of coal of the same formation, whether above or below the level of the sea.

"The insulated situation of the coal measures at Cherra Ponji affords an excellent opportunity for their examination, owing to the great extent of surface which is free from soil and alluvium, so that the geologist has no obstacle to encounter but the dense vegetation peculiar to the climate.

"The great sandstone composing here as elsewhere the base of the coal measures, forms the lofty front of the mountains facing the plains.

* "By minute surveys which have been made of its course, it appears the Nerbudda is navigable for small craft from the sea to eleven miles above Tulluckwarrah, a distance of more than one hundred miles. Here comes a wild and hilly tract which extends to a distance of ninety miles, in some parts of which the breadth of the river is so diminished and its current so obstructed by rocks and shallows, that its navigation is altogether impossible. Above *Hurn-Pahl* or Deer's Leap, it is narrow and rapid, but becomes again navigable about fifteen miles below Chiculdah, and with the exception of a few places where short land carriage might be established, continues so for some distance to the eastward of Hoshingabad."—Vide Cent. Ind. vol. 1, p. 5.

The lower beds consist of a coarse conglomerate, resting on greenstone after the manner of similar conglomerates in nearly all countries in which their fundamental rocks have been observed.* When we consider that this is not merely the case with the sandstone of the Kasya mountains, but that the whole series of sandstones throughout Central India rest on the flanks of ranges of sienite, greenstone, and basalt, we cannot apply more appropriate language in elucidation of this general feature in our geology, extending as it does over an area of 1,800 geographical miles in length, and 300 in breadth, than the following remarks of De la Beche:—"As we can scarcely conceive such general and simultaneous movements in the interior strata immediately preceding the first deposit of the red sandstone series, that every point on which it reposes was convulsed and threw off fragments of rocks at the same moment; we should rather look to certain foci of disturbance for the dispersion of fragments, or the sudden elevation of lines of strata, sometimes perhaps producing ranges of mountains in accordance with the views of M. Elie de Beaumont." Had this idea resulted from observations in India, rather than in Europe, it could not have been more appropriate, or formed so as to convey a more accurate notion of the nature and connexions of our red conglomerates.

"Ascending through the series of beds of this rock in the Kasya mountains, we find the coarser strata occasionally reappear, succeeded again by the normal beds which are fine, durable, and grey coloured.

"In some places, but especially when approaching the upper third of the series, the colours become variegated, and ultimately the whole, or nearly so, assume a brick red colour. The higher strata form a barren table-land with lengthy sloping summits extending to the distance of ten miles towards the interior of the mountains.

"The limestone and coal about to be described, repose in an elevated position on either side of the adjoining summits; whether the rocks of which these last are composed, occupy a superior geognostic position with regard to the coal or not, is somewhat doubtful; but as far as it is safe to determine from inquiries of a partial nature, we may consider the sandstone from the base of the mountains to the higher peaks along their flanks as an uninterrupted series of beds, and consequently, that the coal is a newer rock than the sandstone composing adjacent summits.

"* Speaking of the porphyry on which the red conglomerates of Devonshire rest, De la Beche observes (Manual Geol. 388.)—"When however we extend our observations we find that our conglomerates are very characteristic of deposits of the same age in other parts of Britain, France, and Germany, and they most frequently though not always rest on distinct red strata."

"In the sandstone upon which the coal and limestone immediately rest at Cherra, a bed of boring shells occur composing a considerable portion of the rock in certain places. The shells were of the size and form of the Teredo navalis, but they are mineralized so unfavorably as to render it doubtful to what genus they really belonged.*

"It is here worthy of remark that the old red sandstone at the base of the coal measures at Caithness, and other parts of Britain contains fishes, none of which appear in the superincumbent beds, while at Cherra we have a sandstone bearing the character of the old red, and like it reposing on igneous rocks, and supporting beds of limestone and coal, but instead of fishes abounding in the peculiar boring shells just mentioned, not one of which could be found in the super-imposed rock, nor could one of the numerous shells of the latter be found in the subjacent rock, thus indicating both in Europe and India, that a sufficient interval of time had elapsed between the period at which the formation of the conglomerates was finished, and that at which the production of the limestone commenced, to allow of the disappearance from the seas of one class of animals, and the introduction of another. The surface of this great formation for two-thirds of the entire height of the Kasya mountains in this situation, is covered with a stratum of marine shells which lie immediately under the soil, and in places these remains are accumulated in extensive deposits of the shingle of an ancient coast.

"On the summits which intervene between the coal at Cherra, and that of Serrareem above adverted to, the sandstone is chiefly of a brick red colour, variegated in places with white. Imbedded in

"* In Dr. Buckland's paper on the fossils procured in Ava by Mr. Crawford, Geol. Tran. 2d series vol. 2. p. 387, teredines are mentioned as having been found in blocks of wood in that kingdom and of the same species as those found in London clay. Mr. Wise of Dacca has recently found fossil trees in Camilla, that remarkable tract of table-land referred to in the first paragraph of the Author's report on the physical condition of the Assam Tea Plant. (Transactions of the Agricultural Society of India, vol. 4, p. 1.) Two specimens of these trees have been brought to Calcutta by H. M. Low, Esq., one apparently calcareous, the other is siliceous, yet both were found together in the same place, so that it is to be supposed they were drifted from distinct situations. One of these fossils had been eaten by Termes and the other perforated by a kind of Teredo, the holes of which agree in every respect with those formed in recent trees in the Sunderbunds by the Teredo navalis; the trees were dicotyledinous. If they were actually found on the table-land alluded to, the fact will lead to some highly interesting inferences, but whether or not they serve to form an interesting local link between the fossils of the Cherra Ponji sandstone, and the living Teredo in the Bay of Bengal. Mr. Low has kindly undertaken to procure more information from Mr. Wise regarding the history of the fossil woods in question, which are in the meantime transferred to my friend Dr. Cantor."

the structure of this rock, the fragment of a fruit or lomentum of a leguminous plant belonging to the tribe mimosea, was found.* This fossil, like the remains of the teredinous animals already noticed, (though its form is better preserved) is converted into sandstone in no way different from the matrix, except that it was separated from it by a want of cohesion between the form and the impression. It is probable from this condition of the fossil that it may have lived at a time when the rock in which it was imbedded was forming, and been washed into waters and deposited with their sediment. Near it was found a thorny stem, such as the plant to which the fruit belonged most probably possessed, especially as the thorny species of mimoseæ producing fruit of such a size, are the most numerous of the tribe. The mimoseæ form a very general feature of the vegetation of the plains, but are rarely if ever seen on mountain summits at such an elevation as the rock in which these fragments were found. The inference consequently tends to support the indications of upheavement afforded by the marine remains so extensively distributed over the acclivities of these mountains, as well as the doctrine of Lyell as to the influence of vicissitudes in physical geography, on the distribution and existence of species. It also leads us to infer, that one feature at least of the existing vegetation of India, has survived those revolutions which have obliterated the existence of tropical forms in the present temperate regions of the earth.

"Reposing on the teredinite sandstone near Cherra, a detached accumulation of limestone with alternating beds of sandstone, coal, and shale, disposed in horizontal strata form a precipice about a hundred feet high from the base. Coal, to a thickness of fifteen feet in places occupies a middle position in these strata. A bed of loose, coarse and sharp sand, five feet deep, forms the roof of the coal, and a layer of soft sandstone, about two feet in thickness, rests directly under the soil upon a bed of clay about twenty feet deep. The clay holds an intermediate position between the roof of the coal and the superincumbent sandstone, it is of yellow colour, but dark in some places, and intersected horizontally with thin layers of gravel, coal, and an iron pyrites of little value, and in small quantity. From their softness these beds are easily, though not uniformly, acted upon by surface water, which peculiarity may have given rise to that waved appearance observed by Mr. Jones and Captain Sage in the Burdwan and Palamow coal fields.

"* We are indebted to the botanical acquirements of my friend and fellow traveller William Griffith, Esq for a right knowledge of the nature of this fossil."

"Following the section from the coal downwards, we meet with an earthy limestone which though naturally dark becomes mealy and whitish on the surface by exposure, it is perhaps the magnesian limestone of the coal measures. This bed is about four feet in thickness, and contains nests of coal, with some traces of shells; a layer of sandstone an inch in thickness divides this from a bed of ordinary compact limestone twenty feet in thickness, containing few if any shells;—an interesting circumstance when compared with the fact of the absence of fossils in limestones of similar character in Central India, a more compact and crystalline bed than the last, abounding in shells occurs. This is separated from the great sandstone, by a fine calcareous grit stone eight feet in thickness, in which only one fossil was found.

"Nummulite limestone was first brought to light at the foot of the Kasya mountains by Mr. Colebrooke in his paper on Mr. Scott's notes and specimens, which were forwarded to the Geological Society in 1824;* but the Cherra Ponji bed of shell limestone here noticed was first observed in 1832 by Mr. Cracroft,† Mr. Scott may have previously found occasional shells in the same rock in the Kasya as well as in the Garrow mountains.‡ It does not however appear that any chronological distinction has been established between the different limestones in this quarter, although the Cherra rock is distinguished as a formation from the nummulite limestone, as well by means of its fossils, as by the beds with which it is associated.

"The nummulite limestone of Terriagat, where it composes that portion of the Laour hills situated at the base of the Kasya mountains, is a compact blue rock alternating in single strata with a coarse earthy oolite of a calcareous nature.§ These appear to rest (as well as could be determined during a cursory examination while passing) on a slate

"* Geol. Transac. vol. 1, 2d series, 132." "† Jour. Asiat. Soc. vol. 1, 252."

"‡ Geol. Transac. vol. 1, 2d series, 132."

"§ Although 40 geographical miles distant from Silhet, it is named in Mr. Colebrooke's paper, Silhet limestone; but as other limestones may be found nearer Silhet, the necessity of being more definite in our allusions to localities in India is obvious. In the following vol. of the same transactions, this rock (supposing it to be the Silhet limestone) is said to be white, and also to contain in the Garrow mountains vertebræ of a fish; but unless we presume that the Revd. Dr. Buckland, the eminent author of the paper in question, identified these in Mr. Scott's specimens, and that they were overlooked by Messrs. Cliff and Webster who examined them for Colebrooke's paper, we must attribute the statement to a similar vague indication of localities as that above referred to, as we look in vain for an instance of Mr. Scott having found vertebræ of fishes in the nummulite limestone, although such were found by him in the sands and clays of the Cariari hills, as appears from the list of fossils in Colebrooke's paper."

clay composed of argillaceous blue clay with slaty layers of ferruginous matter and sandstone. The compact beds abound in nummulites, and fragments of the same rock which had been quarried somewhere in this vicinity and conveyed to Chattak for the purpose of making lime, a Turbinolopsis ocracea was found.* Now although we cannot as yet contend for the universal and contemporaneous distribution either of the same organic species or geological formations, yet as the chalk of Europe is represented in several extensive tracts of that continent by rocks which are very unlike, and especially in the Morea, by a compact nummulite limestone, and in the South of France by an oolite containing nummulites, there is no reason why, in the present state of our knowledge we should not refer our compact nummulite limestone, together with the oolite associated with it, to the cretaceous group. See Lyell, 4 ed. Vol. 4, 287-8, where the observations of MM. Boblaye and Virlet, are referred to in support of the equivalent distribution of chalk and nummulite limestone in Europe.

"In the Cherra Ponji coal no vegetable impressions have been found, but slight opportunities have been hitherto afforded of examining the adjoining shales in which they are chiefly to be expected. I found in the bed of coal at Serrareem, however, which appears to be the same formation, a large Phytolithus, or stem characteristic also of several of the independent coal formations of Europe and America; a similar fossil appears to have been also found by Voysey, in the coal of Central India;† thus, the identity of the different beds referred to, is so far confirmed.

"With the exception just mentioned, as well as the impressions of Lycopodiums and Ferns in the shales connected with Burdwan Coal, organic remains have been hitherto little noticed in Indian Coals; but when we avail ourselves of improved means of observation we find this branch of the subject no less interesting here, than it had been rendered in Europe.‡

"* A madreporite represented by a single star, the radii of which, as well as the form of the fossil, correspond with T. ocracea, represented in the Sppl. vol. Griff. Anim. King."

"† Rescar. Phys. Class. Asiat. Soc. 1832.—13."

"‡ A gentleman recently engaged in a survey of one of our coal fields exhibited a large reed which seemed to be an ordinary species of sac charum, at one of the late scientific soirees at Government House, as the plant from which coal is derived. It is however [illegible]ed on the authority of Lindley and Hutton, in their Fossil Flora, that no gramineous [illegible] has been found in a fossil state, though grasses now form a general feature of the [illegible]tation of all countries. Of 260 species of plants discovered in coal formations, 230 [illegible]ryptogamous, the remainder afford no instance of any reed, notwithstanding some doubtful appearances to the contrary, and not a single vegetable impression in the coal beds has been identified with any plant now growing on the earth."

"The microscopic discoveries of the organic tissues of plants recently made by the Revd. Mr. Reade in the ashes of English coal have induced J. W. Grant, Esq. of Calcutta to repeat those interesting observations with complete success. The ashes of Serrareem coal, as well as those afforded by several kinds from the neighbourhood of Silhet, and one variety of the Burdwan coal, display most distinct signs of organic textures; so much so, that some of the coals of very different localities may be almost identified by their ashes as having been formed from similar plants, as for instance, one variety of coal from the foot of the hills near Silhet, with another from a lofty bed on the summit of the Kasya mountains.

"With regard to the nature of the rocks in Central India associated with coal, as far as their details have been made out, there can be little question regarding their identity with the coal measures of Cherra. Franklin, after an examination of several districts, considered the sandstones of the Nerbudda to represent the new red conglomerate of Europe. The Revd. Mr. Everest on the other hand, has assigned excellent reasons for supposing those rocks to bear a closer alliance to the old red sandstone, and his views are strengthened, if not confirmed, by more recent and extended observations in a quarter better calculated to afford satisfactory results. The limestone of the same districts were considered by Captain Franklin and other writers of the same period with no better reason, to represent the lias, but Mr. Everest justly observed, that as no fossils have been found in it, the chances are that it belongs to an earlier date.* Numerous limestones are found so much alike in appearance, that it would be quite impossible to draw a line of distinction between them except by means either of their fossil contents, or their relative position to other rocks whose nature may be better understood; but where, as in the present case, such information is also deficient, we must still hesitate to adopt any decided views regarding them.

Passing over the speculations regarding the disturbing forces which have operated to produce such great changes of level as to cause the deposit, at an elevation of several thousand feet, of vegetable coal and littoral organic remains, we proceed to extract in full a description of the several coal localities.

"*Silhet Coal District.*—The existence of Coal at Burdwan has been known as early as 1804, when it was observed by the officers of a regiment marching across the district. This discovery was communicated to the late Major General Hardwicke, and although the country was at the time depending for supplies of coal on England and New Holland, no farther attention appears to have been directed to the subject until 1809, when the Military Board, having been called upon for information, appears to have reported unfavourably of the quality of the coal in question.

"* Gleanings of Science, vol. 3, page 207."

"In 1813, when the inconvenience of depending on distant sources for an article of such increasing consumption began to be felt, Mr. Colebrooke directed the attention of Government to a discovery of coal that had been made near Silhet by Mr. Stark, but which coal was shortly afterwards also condemned by the officers who were directed by the Military Board to report as to its quality. Mr. Jones was then dispatched by Government to examine the Burdwan coal on the spot, and to report the best way of rendering it available to the public works in Calcutta, but the difficulties attending the navigation of the Damuda river near the source of which the coal-field is situated, induced him to look with more confidence of success to the Silhet coal district, which he was accordingly permitted to visit.

"Mr. Jones reported from this quarter that coal-tar, beads, and amulets, had been manufactured for centuries about the neighbourhood of Laour, from coal found in the Kasya mountains, but the impracticable nature of the country, and the rude condition of the Kasya tribes, prevented his making any considerable progress in discovery; and it was not until after these mountains became subject to the protection of the British Government, that an extensive bed of coal, forming a large portion of a precipice scarcely more than a mile from Cherra Ponji was brought to public notice.*

"This coal may at any time be delivered into boats at the foot of the mountains at four annas per maund, this being the regular rate of porter hire, and from the way in which the coal occurs at Cherra, no expense is incurred in extracting it.†

"If the demand for this coal were sufficient, the expence of conveyance might be much lessened by carting it from the pit to the brow of the mountain, and for the remainder of the distance by employing

"* Journal of Asiatic Society, 1833, 252."

"† From May to September small boats can approach the base of the mountains by the Kangua river, at other seasons the Ghats are sometimes two, and at others four miles distant, but no difference of charge is made by the porters on this account—see *Journal of Asiatic Society*, vol. 111, p. 26."

"The quality of this coal is considered by Mr. J. Prinsep as 10 per cent. better than that of Burdwan."

either mules or bullocks, except at the more difficult passes where men might be stationed to receive the loads; such improvements in the mode of conveyance would imply a certain outlay in forming better roads, but even without this, Mr. G. Loch has afforded a practical proof of its value by the delivery of 1000 maunds of this coal at Dinapore including all charges, and under every existing disadvantage, for 425 Rs. being 350 Rs. less than the contract price. It is possible however that contractors may not be found ready under the present limited demand, to supply this coal at so great a reduction, and perhaps Mr. Loch's experiment will require to be repeated before the result can be considered as the scale at which the Cherra coal may be generally available. It is however to be observed that two-thirds of the expence incurred by Mr. Loch was for mere conveyance from Cherra to the foot of the mountains.

"No attempts have been recently made to find workable beds of coal nearer the foot of these mountains, although several highly favourable indications have been observed in various situations between the Patli river and Silhet, both by Mr. Stark and Mr. Jones. Even the bed from which the first boat load of coal sent from this quarter to Calcutta for trial, although situated near the foot of the mountains, and four feet in thickness is now little known.

"About two miles from the mouth of a small river which descends from the lower Tipera hills, petroleum issues from a sandstone near the bed of the stream; Mr. Jones sank to the depth of four feet into the rock, when he found it become slaty, thus indicating he says, the presence of coal, though it does not appear why he did not persevere in his excavation. He observes however, that as the place is well known, others can if necessary prosecute the search.*

"In the Patli river coal is plentifully found in rolled pieces supposed to be derived from several sources, some of the streams which enter the Patli from the Garrow mountains introduce abundant fragments, some of these are also supplied from sources much nearer the plains. Near Susung, and beyond Seripore or Cheripore, is a small rivulet in which there is a nine inch vein of coal. On the top of what Mr. Jones called the second range of mountains in Laour, but which may rather be supposed to be little more than one of the higher ranges of hills at the base of the Kasya mountains, the people who accompanied Messrs.

"* There is a small cluster of hills adjoining the place composed of sandstone, the most remarkable of which is named Arpeen, and is well known from a Mussulman Door being placed on the top. Opposite to Solagur in Laour, there is another petroleum spring, the product of which is named Otr, and is used externally in cutaneous affections."

Jones and Stark found a two feet bed of coal of good quality, but Mr. Jones was of opinion that no smaller vein than four feet would pay, and the descent he observes, was difficult.

"In the Disyung river and its tributaries, Mr. Jones states fragments of common coal are found, but in less quantity than in the rivers about Laour, so much so that fifteen persons were seven days in collecting one maund without finding the source from whence any of the pieces were introduced. It is worthy of remark, that all these indications of coal are quite independant of the Cherra bed, as no fragments were found in the Pandua river, or in any of the streams which fall from the mountain on which the Cherra coal is placed.

"In a letter addressed to W. B. Bayley Esq. Secretary to Government dated 24th April 1815, it is stated by Mr. Jones with reference to Silhet coal that Mr. Stark had found a vein seven feet six inches in thickness, which dips one inch and a quarter to a foot, thus rendering it easy to work, adding,—"the water will discharge itself *and the road to it will be good*." Mr. Jones tried a basket of this coal sent to him for the purpose, and found it of good quality, the locality however is not mentioned. In a subsequent letter dated 15th May 1815, Mr. Stark himself addressed Government direct on the subject. It would seem from his statement that the discovery was made in the mountains between *Pannatick* and *Bunsikora*, and that 250 maunds taken from two distinct veins had been sent to Calcutta with a proposal to supply the public works to any extent with the same kind at 12 annas per maund. In a more recent letter dated 10th January 1816,* Mr. Stark addresses W. H. Trant, Esq. Secretary to Government, and explicitly points out the situation of the two beds of coal above referred to. One of these was discovered by himself at *Charagow* in March 1814, and was examined by Mr. Jones the following February, but was abandoned in consequence of not having water carriage, it was alleged sufficiently near; Mr. Stark then renewed his inquiry, and found a bed of coal at *Baracharа*, which would seem to be the one described as seven feet six inches in thickness. Mr. Stark stated that he was happy to find the quality of this coal improved the deeper the excavations were carried, although what had been taken from the surface had been tried and approved of in Calcutta, so that he was led to expect that this coal

"* This letter is not in possession of the Coal Committee, but may be seen in the Reports of the Select Committee of the House of Commons. It casts a complete light on what is stated regarding the situation of the beds from which Mr. Stark sent down the first boat load of coal for trial."

would equal that brought from Europe. Having failed however to create a monopoly in his own favour, (and by the attempt excited the opposition of Mr. Jones, and Messrs. Raitt, Inglis and Co.*) the Barachara and Charagow beds were given up, and finally lost sight of by the success of Mr. Jones's mines at Burdwan.

"There can be little question as to these beds being placed much more favourably with regard to the plains than the Cherra Ponji coal, for independant of the remark that 'the road to it will be good' Mr. Jones as well as Mr. Stark had too little confidence in the disposition of the Kasya tribes to venture farther into their country than the skirts of the hills.

"Although the pyrites contained Cherragow and Barachara coals may render them unfit for fuel, still they may be employed profitably in the manufacture of the sulphate of iron and coal-tar. To obtain the first of these articles in large quantity, the brassy coal as it is called, might be exposed during the rains in a cistern built of sandstone, the sulphur will decompose the water thus accumulated and form sulphuric acid which, by acting on the iron of the decomposed pyrites will form the salt in question. Subsequent lixivation and crystallization, like the first part of the process may be performed by the natural changes of the season in India. In this way an important article in the arts and commerce of the country might be obtained almost without labour. One of the specimens of coal recently discovered by Lieutenant Vetch on the north side of Assam, contains a considerable proportion of pyrites, and would, as well as the Silhet coal referred to by Mr. Cracroft in the preceding note, answer admirably for this manufacture.

"The hills in the neighbourhood of Silhet, Mr. Jones says, afford an iron ore in thin concretions resembling cast-iron plates, what he alludes to is an oxide derived from the loose sandy materials of these hills, but being spread over a great surface and occurring in but small quantities in any particular place, it may be considered as of no great im-

"* Mr. Cracroft states "that Mr. Inglis embarked 5000 rupees in working this coal, which was dug close to the water and loaded on the boats at once: but it was not approved of on trial in Calcutta, the money was consequently lost and the speculation abandoned. The coal is highly impregnated with pyrites which renders it unfit for use in steamers.'.

"But supposing the coal discovered by Mr. Stark to be that which was afterwards worked by Mr. Inglis and disapproved of, yet still when we recollect that the Burdwan and Palamow coals were also at first condemned, it would be desirable to know something more regarding the Charagow and Barachara beds and their topography before we again cast them aside."

portance, but its value will depend in a great measure on the degree of success that may attend enquiries for coal at the foot of the mountains.

"Perhaps it was the presence of this ore that led Mr. Jones to look upon Pandua as the best situation he had seen for the establishment of iron works for the manufacture of bar, bolt, and hoop iron. The late Colonel Watson also expressed himself favourable to similar views, but seems to have formed them chiefly on the supplies of iron procurable in the interior of the mountains, but this source would also it is to be feared, be insufficient for the supply of extensive works.* The vicinity of coal, and the convenience of the situation with reference to navigable rivers, certainly render it desirable that such resources in this quarter should be fully investigated.

"The ore now in use in the interior of the Kasya mountains is procurable with considerable difficulty by washing the sands in low and inconvenient valleys in very remote situations. The method of smelting it has been briefly noticed by Mr. Cracroft, but a few additional particulars regarding a process so simple as to enable one person with ease to conduct the several occupations of working the bellows, and supplying ore and fuel at the same time, may here be interesting, particularly as the same operations as they are performed in Kemaon, require two persons for the bellows alone, and so laborious is this part of the labour, and so much exposed to heat and smoke are those engaged in it, that they are obliged to be relieved every ten or fifteen minutes.

"Over the fire (in the Kasya method) is placed a hollow cone made of clay and open at both ends, the object of which is to prevent the radiation and consequent loss of heat so inconvenient and disadvantageous in the Kemaon method. The mixture of ore and wet charcoal, in the proportion of two parts by weight of the former to one of the latter, is held in a trough at the top of the cone. The bellows are placed vertically at some distance from the fire with which they communicate by means of a horizontal pipe. The individual, by whom the several occupations already mentioned are conducted, places himself on the end of the bellows with a foot on each valve (see Mr. Cracroft's figure Plate VI, Vol. I, Prinsep's Journal) and by changing the weight of his body from side to side by an alternate rocking motion, and at the same time balancing himself as well as the bellows by means of a rope fixed below to the latter, and above to the roof, and held in one hand, while with

"* Mr. Cracroft is of opinion that iron works on a moderate scale having machinery moved by water wheels would succeed well at Cherra. The abolition of the Sanatarium in these hills it may be remarked, has seriously retarded the introduction of improvements of this nature for which there is so much scope in the Kasya mountains."

the other by means of a long shovel, he supplies the mixture of fuel and ore from the trough, but in small quantities at a time not unlike the way in which grain is supplied from the hopper of a mill. The large quantity which is thus kept in fusion compared with the small proportion in which the ore is supplied, may be supposed to facilitate reduction, and to constitute one of the chief peculiarities of the principle.

"Every two hours, or ten times during the twenty four, the iron is extracted from the fire in the form of a ball about five pounds weight, which while hot is beaten as described by Mr. Cracroft with a wooden club into a flat compact form; it is then split almost in two with a heavy iron cleaver which renders it more easily converted into bars.

"There may be five forges of this kind in the village of Serrareem, each yielding 20 lb. of iron daily, and one hundred villages in which the trade is carried on to the same extent; suppose the smelting to be continued only during the cold season, 1,650 tons of iron would be annually produced. Mr. Jones states that the iron from the mountains sold in his time (1815) at the foot of the hills for one rupee five annas per maund; but according to my enquiries in Serrareem, as well as at one of the weekly markets at Myrung where several tons of iron were exposed for sale, the price on the spot was from fourteen annas to a rupee for 20 seers, or, at the lowest, one rupee twelve annas per maund, which compared with the price stated by Mr. Jones would make a material difference, not merely in the aggregate value of the trade, but also in the profits that would result to those who might embark in such works as are recommended by Mr. Jones. Still however, the price above stated is from 14 to 26 annas per cwt. less than the average price of English pig-iron in Calcutta during 1835, so that if it could be delivered in sufficient quantity at such rate, the manufacture might be successful; the reduction of the ores found in the plain along the foot of the mountain might however make up for any deficiencies from above, and thus in the vicinity of coal, sufficient supplies of iron for works of any extent might be obtained.

"The mountain ore produces about 50 per cent. of iron, and unlike that of the Ponar valley in Kemaon it is only necessary to submit it once to the fire. A great bed of coal forms the surface on which Serrareem is erected, but unless some more profitable and convenient repositories of the ore can be found than those already employed, the use of this coal as a fuel would be little advantage; the smelting as it is at present managed, is far from being the most expensive part of the manufacture.

"From the indications afforded by the N. E. frontier, if we include under this head the coal districts of Silhet, Cherra, Arracan, and various parts of Assam in which coals have been noticed, we may safely calculate on their affording supplies not merely for the navigation of the Bramaputra to its source, but also for that of the lower parts of the Ganges as well as the Bay of Bengal.

"We learn from Captain Jenkins that the late Mr. Scott was aware of the existence of coal somewhere in the vicinity of the Caribari hills, and the Committee have recently been put in possession of the fact referred to, by the existence of two beds of good coal being detected at Doorgapore in the Garrow hills, but particulars as to the extent of the beds and the circumstances under which they occur are yet insufficiently known, so that we cannot at present venture to offer any further observations on the subject, than merely to say, that we are in daily expectation of more information from this quarter.

"*Arracan.*—Coal has been discovered at Kyuk Phyu in the Arracan district near Oogadong, close to the anchorage of ships. It was first observed by Lieutenant Foley in 1833, and afterwards described by that gentleman and Captain Margrave (vol. II. Asiat. Jour. p. 595). The quality of this coal is good, but the quantity as far as it has yet been discovered is deficient. In consequence of the impenetrable nature of the vegetation, enquiries have been conducted in the neighbourhood to a very limited extent; but as the character of the coal itself, and that of the adjoining rocks agree with the ordinary appearance of the best coal fields, favourable hopes may be entertained as to the extent and value of the indications in question; what has been supposed to be the same vein has been found in two distinct situations four miles apart.

"At Sandowy, in the same district, Lieutenant Mackintosh found coal in the Kingtellie neighbourhood; one specimen of this coal mixed up with silicious matter is said by Mr. Walters to form the substance of an entire hill (vide Jour. Asiat. Soc. II, p. 264); iron ores are also said to occur here in considerable quantity.

"*Malay.*—Of the mountains forming the Malay Peninsula situated in Lat. 4° N., Captain Low mentions that according to native report gold, tin, antimony, hot springs and coal may be found, and of the tin mines he gives a detailed report. It appears that this ore is worked from the southern extremity of the Peninsula to 15° N. Lat., 99° to 100° E. Long.; it is found in the form of stream ore. Junk Ceylon was formerly supposed to yield 500 tons of tin annually but the manufacture has now dwindled to 20 tons. The tin is produced at about half the market price.

"Captain Low says that the province of Mergui abounds with tin ore, especially to the southward; tin, and antimony also occur at Tavoy.*

"*Burdwan and Adji Coal Districts.*—The Burdwan coal district is certainly next in importance to that of Silhet, that part of it in which the Collieries are situated is 140 miles N. W. of Calcutta and is traversed by two rivers, the Damuda and the Adji; the first enters the Hoogley about 25 miles below Calcutta, and the second enters that branch of the Hoogley called Bhagarutty about 70 above that city. The point at which the Damuda forms a junction with the Hoogley is 160 miles from the site of the coal mines; whereas Cutwa, the town at which the Adji joins this river is only 110 miles from the mines, while it is 70 miles nearer the great line of navigation on the Ganges, making a difference of 120 miles in favour of the Adji compared with the Damuda, as a line of conveyance to that part of the Ganges for the navigation of which the provision of coal is now chiefly required to be made. As a drawback however from this very marked advantage, there would be a land carriage of ten miles across the country from the present mines on the Damuda to the Adji; but as these rivers extend parallel to each other for the distance of 40 miles (according to Arrowsmith's map), the most favourable portion of this space might be selected for the construction of a rail road from the present mines on the Damuda to boats on the Adji.

"The advantage of the Adji compared with the Damuda as a line of conveyance, has here only been considered with reference to coal already worked; but the assistance which the Committee is receiving from the communications of Captain Forbes with Mr. Erskine, a gentleman residing on the spot, leaves scarcely a doubt as to the existence of good workable coal close to the Adji itself; and in a letter received from Mr. E. dated 6th July 1837, four situations are pointed out in which good coal may be raised, and delivered into boats at an expense of from ¾ to ½ an anna per maund. He moreover announces the dispatch of 2,000 maunds which will be delivered at Cutwa, at the rate of 3 annas per maund including all contingent charges.†

"The first situation in which Mr. Erskine points out coal is, Mammudpore, two coss south of the Adji Ghat at Seedpoorie,—land carriage per maund ⅜ths of an anna, but this coal as it appears on the surface

"* See Glean. of Scien. 1-223 and Asiat. Res. 1829."

"† In a subsequent letter Mr. Erskine states that he had raised 4000 maunds, and that the additional 2000 maunds were also dispatched, but that he feared the expense would be 4 annas per maund, which is however only half the present contract price. For this important result the public are entirely indebted to Captain Forbes and Mr. Erskine."

of a ravine in which there is a stream of water is somewhat heavy and hard. The quality may probably improve by pursuing the vein to a distance from the surface, or by sinking a shaft, better beds may be reached.

"The second locality pointed out by Mr. Erskine, is a little to the west of the first, and 2½ coss from the same Ghat,—carriage per maund ¾ of an anna, quality better than that of the first.

"The third place, and that from which Mr. Erskine himself has been in the habit of taking coal is Pariharpore, a good deal west of the other situations and only two coss, Mr. Erskine thinks from the Damuda, and four coss in a south-westerly direction from Durbadanga, the nearest Ghat on the Adji, which is one coss above Seedpore,—carriage 1⅛ anna per maund. This is a lighter and more brittle coal than either of the others, presenting a glistening and resinous lustre, and on exposure is inclined to crumble. Mr. Erskine is also kind enough to say, that he will take an early opportunity of visiting the several situations in which the above mentioned coals occur, and will afford the Committee farther information as to the nature and extent of the several beds.

"Mr. E. says that to the eastward of Mammudpore, all traces of coal or indeed any rocks disappear, while on the contrary the quality of the mineral improves on advancing towards the west. Mr. Erskine adds, that the last time the late Mr. Jones visited Elambazar, he said that in his borings about Beerkoolthee, near the Seedpore and Durbadanga Ghats on the Adji, he had met with coal even superior to that on the Damuda, and wished much to open a mine in that situation in conjunction with the late Mr. D. Erskine.

"Upon the whole the Burdwan coal field appears to be as yet very imperfectly known; from 1817, the date of Mr. Jones's last communication, (published in the Asiatic Researches in 1829) until the present time, no communication has been made from this quarter except the interesting remarks of Mr. Erskine just quoted. Mr. Jones about the same period reported the discovery of the south east basset of this coal, about six miles from the place then established as a Colliery, so that he was induced to believe from this circumstance, that a basin of great extent containing many beds of coal exists; Colonel Shelton has recently found a rich vein of coal crossing the Benares road at Angballee, close to the 187th mile stone, which rather tends to support Mr. Jones's conjecture. It is however the eastern and northern limits of the Burdwan coal district that ought to be traced with the utmost care, these being the directions in which coal would be most desirable for purposes of navigation.

"As this is a question of much importance, it is necessary to examine the opinions of Mr. Jones regarding it; we cannot attach much weight to an assertion contained in one of his earlier reports, viz. that he did not think it necessary to prosecute his enquiries beyond the point at which the Damuda becomes unnavigable, knowing that the whole country from Jenal, to within five miles of Serampore affords coal. In proof of which he gave the following section as the result of repeated borings, but does not mention any one of the particular localities in which they were conducted. Common clay six feet,—loose sand one foot,—slate seven feet with four inch layers of sandstone twelve inches apart, containing impressions of plants,—coal and slate nine feet,—black slate two feet,—bad coal not cut three feet, = 23 feet.

"Still less can we coincide with the soundness of his reason for supposing the great line of navigation to be intersected by coal beds somewhere about the situation of Cutwa,* where he consequently thought coal might be found merely because he supposed that direction to be indicated as the course of the strata in the mines of Ranygunge. The importance of the subject, however, and the extent of Mr. Jones's local knowledge, would justify a few borings being resorted to, at certain points between Hoogley and Rajmal.

"It is to be regretted that the official authorities in Burdwan, and Mr. Jones's successors in the management of the mines in particular, should have profited so little as they appear to have done by his example, and that even occasional notices of the progress of the works he established, should since his time have been discontinued. The depth of the shafts, the direction of the galleries, and the nature of the beds through which they are excavated, would be information of the highest interest, and well calculated to bring into notice whoever might furnish such details. The practical reports of miners have at all times been received as the most valuable contributions to science, and are justly looked upon as the most estimable records of a class of facts which are second to none in importance.

"The face of the country composing the Burdwan coal districts is described by Mr. Jones as undulating, presenting a difference of level between the heights and valleys of about sixty feet. The surface is composed of a yellow clay supporting a good soil, both slightly calcareous. The clay rests on a grey sandstone that effervesces in acids, and which is seven feet in thickness; in many places where its surface is exposed a slight efflorescence of soda is found on it.

"Beneath this rock an inferior quality of coal accompanied with shale, containing the impressions of plants occurs bending over the low

hills and descending deep beneath the surface of the valleys. Below these beds good coals are found. Though wheeling in a slight degree, the beds of coal carry their line of bearing to an amazing extent (says Mr. Jones) with little variation: their breadth in a south-west direction may be supposed to extend eleven or twelve miles towards Bancora, where hornblende, sienite, and quartz, begin to appear. In a north-west direction the attendants on coal are traced for seven miles from the present works along the right bank of the Baracan river to a place called Rajkol, and in this course the coal measures are intersected by a large whin dyke running in the direction of Bishenpur.*

"The first bed of coal is reached in the Ranygunj colliery at a depth of 45 feet 3 inches, and is 1 foot 3 inches in thickness, and of inferior quality succeeded by alternate layers of coal and shale for a further depth of 3 feet 9 inches, including two thin layers of coal. Two important beds then occur the first 8 feet and the other 9, separated from each other by a thin stratum of shale. The lowest of these which is very good coal, is separated by a thin layer of sandstone containing vegetable impressions, from the sixth bed which is only 9 inches; a similar alternation introduces the seventh and lowest bed of good coal, only 3 feet below which, thirteen beds of sandstone and shale occur, containing vegetable impressions and including a thin bed of inferior coal. At the depth of 88 feet 2 inches the excavation was terminated in a bed of grey coloured hard sandstone†. This description refers to the mines in 1815, scarcely more than a year after they were first opened, since which time nothing has been communicated on the subject, but it is probable the workings have been since carried on in the 9 feet bed, 57 feet from the surface, and that no greater depth than 88 feet has been attained.

"The whole district affords rich and valuable iron ores of various kinds, and Mr. Jones after erecting temporary furnaces and forges at Sheargur, found by many experiments that immense quantities of iron can be made at little expense, but he recommends works of this kind to be conducted on a large scale by means of mills. Mr. Piddington has analysed several specimens of these ores and found them to afford an average of above 50 per cent. of iron, with a mean specific gravity of 3.265. He considers them to belong both to the red scaly and red ochre species.‡

* "Asiat. Res. 1829, p. 164."
† "See Asiatic Res. 1829, p. 167."
‡ "Asiatic Res. 1829, p. 171."

"*Palamow Coal-field.*— The coal field of Burdwan is connected by means of what would seem to be the shattered remnants of coal measures with another principal coal field in the valley of Palamow on the opposite side of the Mongir mountains, to the notice of this as next in importance we may at once proceed.

"Coal has been known to exist in Palamow still earlier than the period at which it was brought to notice at Burdwan, as appears from a spot marked coal mine on Arrowsmith's map, but it was not till after the introduction of steam navigation that the fact excited any interest, when the late Mr. A. Prinsep, then the principal civil officer of the district had the merit of first directing attention to its importance; since that period Palamow has been frequently visited by scientific and practical men, from whose reports the following particulars are gleaned.

"The coal fields of Burdwan and Palamow are separated from each other by the prolongation to the eastward of the Vindhya chain, to which they bear a similar relative position, both reposing in low hills of sandstone, the one at the southern, and the other at the northern foot of the chain.

"The valley of Palamow situated at the source of one of the great branches of the Soane, is scarcely raised at its outlet above the general level of the plains of India, but is inclined with a slight ascent to the granitic mountains by which it is surrounded, except towards the north, at which side the Caile or Palamow river joins the Soane. The length of the valley from north to south may be about 70 miles, but its breadth is much contracted by the approximation of steep granitic hills on opposite sides, between which small diversified valleys are extended laterally.

"The climate would seem to be better than that of most parts of India, and if we consider the proximity of the elevated granitic platform on the east and south, a very favourable climate might here be available for the residence of those who would engage in the enterprise of turning the mineral resources of the district to advantageous account. The lands being little adapted to the ordinary agricultural pursuits of the country, are in a great measure deserted, but the inhabitants who are peaceable and sufficiently numerous to afford the requisite number of labourers for any works that might here be established, are at the same time, ready to enter upon any new branch of industry calculated to improve their present condition.

"The Caile* or Palamow river joins the Soane at the outlet of the valley about 80 miles from the confluence of the latter river with the Ganges, and is perfectly navigable for ordinary boats during the rains to a place called Manjean, 18 miles within the valley; above this the navigation becomes more difficult in consequence of the occasional projection of rocks into the stream, but boats of 150 maunds burden can with ordinary caution ascend during the rains 22 miles higher to the village of Singra where the first coal field occurs, accompanied, according to Mr. Homfray, with a rich and inexhaustible iron ore. This coal field is however only two and a half miles long and one mile broad; the main coal which is not far from the surface is three feet eight inches thick, and though not reckoned of a quality exactly fitted for getting up steam, yet would answer admirably for the reduction of the ore with which it is associated.

"In order therefore to obtain inexhaustible supplies of coal suitable for steam navigation, it is necessary to ascend twenty miles still higher up the Caile, where a great coal field indicated by Rennell in his map of Bengal occurs, and which is supposed by Mr. Homfray to be 14 miles in length by 6 in breadth, with a workable main of good coal 3 feet 9 inches: but unfortunately the navigation of the Caile is quite obstructed by boulders from Chandoo to the coal field, a distance of 13 miles,† and the country on either side so rugged as to prohibit the possibility of forming a road at any moderate expense; and the only practicable mode of conveyance would consequently be bullocks, which on such difficult passes could, according to Mr. Homfray, only carry half the ordinary loads;‡ and for the rest of the way, i. e. from Chandoo downwards, small boats of 150 maunds with caution could traverse the river to Manjean as already stated, where large boats during the rains might receive their cargoes.

* "It is sometimes called Coile and in Arrowsmith's map Coyle, a name which in the same map is also bestowed on another neighbouring river."

† "A considerable proportion of this distance comprising a tract of two or three miles at least adjoining the coal-field appears from a map constructed by Mr. Homfray to offer no difficulties to the formation of a road."

‡ "From Chandoo in a direct line to the coal-field the distance would seem from Mr. Homfray's map to be considerably less than 13 miles and if the plain adjoining the coal-field be deducted the really difficult part of the distance would probably be much diminished; and when we recollect that good roads are made in Kemaon for instance with less important objects over mountains 7000 feet in height, it is easy to see that a ridge of hills a few hundred feet high however rugged will not form an insuperable obstacle to the useful application of the Palamow coals."

" In order to overcome the difficulties opposed to the navigation of the Caile, several expedients have been proposed. That of Captain Sage of forming a bund at Ganeah Ghat where for three miles the river is obstructed, would, if successful only have the effect of obviating a portion of the difficulty to be encountered ; for the rest he suggests the formation of a cut from the bund across the table land for the distance of 30 miles to the nearest branch of the great Pompon river, the bed of which should be levelled and locked the whole way to Futwa on the Ganges ; or, instead of the last part of the proposition, to remove by means of gunpowder the impediments to the navigation of the Caile at Manjean below the situation of the proposed bund.

" This last is certainly the more feasible plan, but before either of the modes proposed for bringing the Palamow coal into use for the navigation of the Ganges be carried into effect, it would be necessary first to know whether or not the mineral can be had in situations more accessible, if not, some ingenious plan will no doubt sooner or later be devised for bringing this coal into use.

" The lower coal field appears to have been originally a slightly inclined plane composed of sandstone, shale and coal disposed in horizontal beds in which streams have worn ravines to a depth of from 20 to 60 feet, giving to the present surface a broken and uneven aspect. On the sides of the undulations and in the ravines coal bassets are every where seen.* There would seem to be above the coal, a sandstone 38 feet in thickness intersected in the middle of its depth by a minor bed of coal and shale, beneath which, a two feet six inch bed of coal occurs ; an alternation of sandstone and shale divides this from the main coal, beneath which there is 60 feet of sandstone. The rocks associated with coal in the upper field do not appear to be very different from those which compose the lower one, except that the sandstones would seem to be finer and harder in the former ; only two beds of coal, the one three feet nine inches and the other one foot six, are given in its section by Mr. Homfray.

* " The following computation of the section has been made by Mr. Homfray from the appearances on the surface of the ravines.

Surface.

			Ft.	In.
Sandstone			20	0
Coal			1	4
Shale			0	10
Sandstone			18	0
Coal	0	10		
Stone	0	8		
Coal	1	8		
Shale			3	2
Sandstone			3	0
Coal			8	0
Shale			3	8
Sandstone			3	0
Assumed measurement			60	0

			Ft.	In.
Ironstone measures	Shale	5	0	
	Ironstone	1	0	
	Shale	4	0	
	Ironstone	0	6	
	Shale	3	6	
			14	0
Sandstone very white			12	0
Aluminous Sandstone			3	0
Quartz and beneath it granite."			12	0

" *Bidgegur.*—Mr. Heyland of Chunar has found coal in a situation about eight miles distant in a south-east direction from Bidgegur Fort, where it appears in a bed three feet in thickness at a spot about half a mile distant from an unfrequented pass called Umbiah Ghat, to which, the spot where the coal appears, bears east, and he has reason to believe it also exists at another spot half a mile west of Umbiah Ghat.

" In several situations in the bed of the Ghaugor river nearer to Bidgegur than Umbiah Mr. H. states he found an inferior coal, and he has no doubt that the best may be found in several places in this vicinity by sinking shafts.

" Captain Stewart of Chunar to whom the above information was communicated, says that the last mentioned locality was formerly noticed by himself as containing indications of coal ; should (he remarks) as appears reasonable to expect, good coal be found in this situation, no difficulty will be experienced in transmitting it to Chunar on wheeled carriages, the country presenting no material obstacle to the construction of a good road.

" Until these indications be further examined it would be premature, as has been already observed, to recommend any extensive measures to be adopted with the view of bringing the Palamow coals into use.

" *Manpur.*—At a situation still higher than that of the great coal field of Palamow, and in the same latitude but fifty miles more to the west, Captain Franklin discovered a bed of coal of good quality at a place called Manpur in the district of Singrowla, sixteen miles south of Chergur, but being situated in a mountainous country and the navigableness of the Kungher and Myrair being doubtful, the prospect of the discovery proving useful was at the time slender, still, as the locality is not much above forty miles from the great branch of the Soane opposite to Bidgegur, and coal is found on the one side at Palamow, and on the other at Sohagepore, with one of the considerable rivers above mentioned on each side, this interesting discovery of Captain Franklin ought to be kept in view.

" *Sohagepore.*—Captain Franklin on the same occasion found coal in two situations in the district of Sohagepore, still in the same parallel of latitude, but upwards of a degree and half farther west. The first situation is a few miles N. W. from Sohagepore and about an equal distance from the Soane, and the other at the confluence of the Tipan with the Soane, about thirty miles from the source of the latter,

and the same distance S. E. from Sohagepore. Two unsuccessful attempts have been made, says Captain Franklin, to get boats down the Soane from this place, the stream being obstructed with rocks in two situations below Sohagepore.

"Coal has also been found according to Captain Franklin in sinking a well at Jubalpore.

"*Towah river near Bhoorda.*—In September 1831, Lieutenant Finnis communicated to the Asiatic Society, the discovery of coal thirty-three miles south of Hoosingabad, and eight south of Bhoorda.* The coal is observable on both banks of the Bhoorna river (one of the branches of the Towah) on the west of the road going to Baitool. Ironstone is also mentioned as occurring with this coal.

"*Sakar river.*—Captain Ouseley has recently brought to light a third site of coal in the Nerbudda, of excellent quality and inexhaustible quantity, within eight miles of Chukeli and twelve or fourteen from Gorahwarah proper on the Sakar.

"What has been said in another section regarding the navigation of the Nerbudda from Baug to Hoosingabad, a distance of three degrees, may enhance the value of the two last mentioned discoveries.†

"*Rajmal.*—At Rajmal coal has been found by Captain Tanner in two situations, viz. at Sicrigully on the banks of the Ganges, and at Hurrah, twenty-five miles distant. With regard to Sicrigully this place has been recently visited by Lieutenant Don, who reports to the Committee that as far as he and Lieutenant Egerton who accompanied him, could determine no coal exists at the foot of the Mootee Jarma waterfall where it was supposed to have been observed by Captain Tanner.‡

"At Hurrah large quantities of coal has been extracted, but although we have every information relative to the working and expense of con-

* "Captain Ouseley it appears had observed it previously."

† "The distance from Hoosingabad to the Guzerat coast is 300 miles, and for two thirds of the way the Nerbudda is navigable. The principal land carriage would be between Chiculdah and Tulluckwarrah, about 90 miles, and probably with the exception of 20 miles between Taimria and Kowut, wheeled carriages might be employed."

"The mercantile effects of opening such a communication between the Nerbudda provinces and the coast as the supply of coals from the former to the latter would naturally introduce, might be an object of sufficient national importance to justify a special enquiry as to the best means by which it might be accomplished."

‡ "I am informed by Mr. C. Glas that there is a coal mine, at Sicrigully but not at the foot of the waterfall the spot visited by Lieutenant Don, but near the village of Moharegpore, in the vicinity of the waterfall Mootee Jarma."

eying this coal to the river, yet our knowledge regarding the natural circumstances under which it occurs is very defective. This is the more to be regretted as the quality of the coal is inferior, and without a more comprehensive knowledge of the district than we are possessed of at present it is impossible to come to any conclusion as to whether or not better beds of coal might be expected, and what measures would be most likely to be adopted with success.* Captain Forbes found by various experiments conducted at the Calcutta Mint on five hundred maunds of the best Hurrah coal, that nearly double the quantity compared with the Burdwan coal, was required to produce the same quantity of steam, and that it is generally unfit for smithery purposes affording an inadequate heat for welding, or even for hammering with facility, and on analysis Mr. Prinsep found it yield upwards of a fourth part in ashes.

"Mr. C. Glas, an old and intelligent resident at Boglepore, says that two and half miles south of Sercunda and fourteen miles from Rajmal, iron ore is found in the greatest abundance scattered over the surface in masses each several yards square, which might be manufactured to any extent at a trifling expense, but the quality of the iron afforded is inferior to that of English cold short iron, but he says that an ore affording a remarkably superior iron, from which he himself manufactured steel, is to be had plentifully at Misadhe and Joypore, about seventy miles south and south-west of Boglepore. The roads to the part of the district in which this ore occurs are such as to admit of the employment of wheeled carriages for its conveyance to the river side.

"The late Mr. Jones, in one of his letters observes that, in the neighbourhood of Luchmeepore, in the Boglepore zillah, lead is afforded. In another letter he states that the hills of Curruckpore, distant forty miles from Boglepore, are composed of quartz, and contain a rich vein of galena discovered by Buchanan. Perhaps the same vein is in both cases referred to. 'Very probably' he adds 'copper will be found in Dholboom near *Ragduha*,† on a nullah called Guru, that empties itself into the Subbon Reeka river.‡'

"Near Sahibgunge Mr. Glas states alum is found in such abundance as to supply the local consumption of the neighbourhood, but no trou-

* "Mr. Glas states that coal is found throughout a large tract of country in Barcoup,—it is probably the same as that discovered by Captain Tanner—a portion of this coal is said by Mr. Glas to have been recently on fire."

† "Origin."

‡ "See Asiat. Res. 1828, p. 170."

ble has been taken to procure it in a better state than that in which it appears on the surface.

" *General features of Central India with reference to the distribution of minerals.*—As general views regarding geology of India may render these reports more interesting to some, we may be excused in this place for resuming the subject, leaving economical and statistical details to be progressively supplied in future reports in which we may hope to have the aid of persons on the spot; in a field so wide and diversified, nothing short of general exertion can be expected to elicit results at once practical, without therefore making such objects an exclusive aim on the present occasion, it may not be devoid of ultimate advantage to endeavour to secure as general an interest as possible in behalf of the inquiries in which we are engaged.

" The table lands of Central India are composed of a mountain group extending from the Gulf of Cambay and the Guzerat to Mongir, where it is interrupted by the Gangetic delta in the manner already described.

" The central chain of the group is named Vindhya, it extends from 73° 30' to 88° E. longitude, chiefly under the 23° and 24° N. lat., having on its south the valley of the Nerbudda, and on the north, the table lands of Malwa.

" Two lateral ranges extend on either side of this—that of the south forming on this direction the boundary of the Nerbudda valley is named the Sautpoora range. It is connected on the east with the table lands of Chota Nagpore, and on the opposite extremity with the western Ghauts.

" The northern side of the table land of Central India strictly so called, is immediately bounded by the Chittore range which is merely separated from it by the valley of the Chumbul river, so as scarcely to be marked as a distinct physical feature. The eastern extremity of this range approaches to within a few miles of Agra, and terminates under 78° E. long. 27° N. lat. while its western extremity is connected with a south-western prolongation of the table lands in 25° N. lat. 74° E. longitude.

" There is yet the extreme northern range named Aravully, the western limit of which is intersected by the 73° E. long. a little above the 24° N. lat. from thence it extends in a N. E. direction to Delhi and Hansi in the 77° E. long. and 29° N. lat.

" Between the Chittore and the Aravully ranges the valley of Mewar is situated, Oodepore at its western, and Ajmere at the north-eastern extremity.

" The geographical importance of the Aravully or northern range of Central India has only very recently been ascertained, and we are indebted chiefly for this information to Colonel Tod.* It is connected with the Chittore range by means of the hilly country west of Oodepore, and by the hills of Rath that form the eastern boundary of the Guzerat. These latter ranges are united with the Vindhya range and the table lands of Malwa, thus connecting the three distinct systems into a single group, which seems to spread from a general centre in the Guzerat with lessening altitudes towards the Gangetic plains, except in the instance of the Vindhya range which may be said to be prolonged to Mongir where it suddenly terminates in the manner described in a former section.

" The Vindhya range is generally elevated about 1650 feet above the valley of the Nerbudda to which it presents a steep and precipitous declivity; but in an opposite direction it expands into the table lands of Malwa, the whole being formed of alternate beds of basalt and amygdaloid placed horizontally; of these beds Captain Dangerfield† reckoned fourteen; the uppermost is described as a porous decomposing rock, some of whose cells are empty, and others filled more or less with green earth, zeolites, calc-spar and crystals of quartz. The basalt in some cases, though rarely, presents the form of six-sided prisms.

" The uppermost of these beds is usually from fifteen to thirty feet thick, but the others increase in depth, the lower they are observed in the series, and the lowest bed of basalt observed is said to be 300 feet in thickness.‡

" Crossing the table lands of Malwa in a northerly direction little variation is found in the character of the beds of amygdaloid and basalt, until approaching the Chittore range where they are observed to become thinner, and finally to disappear beneath the beds of quartz and sandstone of which this range is composed. Mr. Fraser mentions a patch of limestone as occurring with the sandstone in one of the valleys at the base of the Chittore range, south of Oodepore, and the sandstone says Captain Dangerfield, extends round a short distance south of Towra to the western boundary of Malwa, resting, it would seem from him, on the basaltic rocks.

" Captain Stewart in his notes made during a journey from Mhow to Baroda, affords an interesting section of the rocks composing the western descent from the table land of Malwa to the plains of Guzerat.

* " Annals and Antiquities of Rajasthan."
† " Malcolm's Cent. Ind." ‡ " Ibid."

His observations were conducted on a more limited scale than those of the officer last mentioned, and refer merely to appearances presented on the way while proceeding with a detachment of troops on Military duty.

" The basalt and amygdaloid already described, continue during the first part of the descent to the village of Parrah where they disappear, soon after this red sandstone makes its appearance at Kaunass, felspar, porphyry, flinty and mica slates mark the junction of the igneous and sedimentary rocks, but in what position or quantity does not appear from Captain Stewart's paper,* although in his figured representation he makes the basalt and amygdaloid repose on sandstone, the reverse of what obtains, according to Captain Dangerfield, on the northern confines of Malwa.

" From Parrah, the sandstone continues for half the way to Goorah, the other half being composed of white quartz. Beneath the quartz a bed of porphyry, composed as Captain Stewart thought, of large crystals of quartz imbedded in felspar, and these ingredients, together with the addition of a little mica, or in other cases hornblende, compose the north-eastern frontier of the Guzerat, and even extend without interruption from thence to the Aravully range, 300 miles north of the position in which they were first observed by Captain Stewart, forming, in occasional conjunction with sandstone and quartz, the whole of the intermediate hills between the plains of Guzerat and the table lands of Malwa, as well as the rugged mountains which partially surround the Debur lake.

" The plains which skirt the mountains on this side of the Guzerat to the breadth of 50 or 60 miles, are composed of the peculiar granitic rocks just mentioned, occasionally passing, according to Mr. Hardy,† into granite, clay slate, and quartzose sandstone. Insulated protrusion of the same nature from the size of small hills to that of mountains, rise abruptly from the surface of these plains, such as the fortress of Champaneer, a conical elevation 2500 feet in height, and the insulated mountain of Abu, the highest point of land in Central India, placed at the western extremity of the Aravully and Chittore ranges and from which they, as well as the mountains on the eastern frontier of the Guzerat, appear to radiate as from a centre. The plains of the Guzerat for the breadth of forty miles along the coasts are formed of alluvium similar to that of the other plains of India.

* " Bombay Lit. Transac."
† " Asiat. Res."

" As far as the recent alluvium extends inland from the coasts the surface ascends but little, but from the situation at which this disappears the ascent must be so great as to render the rivers unnavigable, for we find the base of Abu, as well as that of the Aravully range, although the former is scarcely 100 miles from the run of Cutch to be 2000 feet in height, or equal to the general level of the crest of the Vindhya, this important peculiarity pointed out by Colonel Tod appears likely to account in a satisfactory way for some most interesting features in the geology of Malwa, on which subject however it would here be out of place to dwell, farther than to observe that the thinning out towards the north of the great beds of basalt and amygdaloid, of which Malwa and the Vindhya are composed, indicates the direction from whence they were derived, and will account for these rocks reposing on sandstone in the Nerbudda as well as in the Guzerat, though apparently proceeding from beneath similar rocks in the northern confines of Malwa. The great prevalence of quartz in the Chittore range described by Mr. Hardy may also be explained in the same way that similar rocks have been accounted for in the Kasya mountains.

" Mount Abu, to which there is a general inclination of all the higher points of land in Central India, is situated in 24° 38' N. lat. and 72° 45' E. long., and is 5000 feet in height. It rises abruptly from an elevated plain which slopes gradually down to the run of Cutch on the west, and the great desert on the north ; on the south-east are the table lands of Malwa, and on the north-east the Aravully mountains. If the latter were continued ten miles further to the south-east they would necessarily form a junction with Abu ; but instead of which the chain turns suddenly to the south, and passing within ten miles of Abu, forms a junction by means of the Oodipore mountains with the plateau of Malwa.

" Abu is only accessible on the south-east, its general figure is that of a cone, large enough to afford a spacious table land of many miles in extent on the summit which is, however, broken by a rugged circle of hills several hundred feet higher than any other part of the mountain except the peak of Gunoo Sikha, the centre of which is 800 feet higher than the general level ; broken ridges connect the peak with the circle of hills that surround the general summit so as to form numerous hollows, some of them dry, and under cultivation, but others forming lakes, the largest of which is two miles in circumference. We know little of the structure of this important feature in the physical geography of India ; Mr. Low, to whom we are indebted for the particulars above enumerated and who visited the mountain in 1835 in company

with the Rev. Dr. Bryce, supposes it to be composed of sienite and granite, and in some parts of a grey rock much divided by veins of quartz, and in other places a black rock capable of being highly polished prevails.

" The Aravully range extends from Mount Abu to the north-east progressively diminishing in altitude to Delhi, where rocky protrusions disappear. Near Hansi, however, in 29° N. lat. and 76° E. long. the hill of Tooham, a bold granitic mass, according to Mr. Fraser about 700 feet high though surrounded almost by plains, is sufficiently connected by low rocky ridges with the Aravully to justify its being considered as the extreme termination of the chain in this direction.* It is only under the 73° and 74° E. long. that this chain attains the elevation of 3500 feet, the summits rising however on the side of Central India form a platform two thousand feet high.

" We are not aware that Barometrical measurements have been made on the opposite side of the range, but from the Alpine character the peaks of the Aravully are said by Colonel Tod to assume when viewed from the desert, it would seem that the difference of level between the northern, compared with the southern foot of this chain must be very considerable.

" According to Colonel Tod the Aravully range is composed of granite reposing on a dark blue slate, the latter rarely appearing much above the base of the superimposed granite. The internal valleys abound in variegated slate, gneiss and sienite appear in the intervals, and the diverging ridges of Ajmere and the Chittore range are composed of quartz.

" The Aravully from Delhi to Abu, and the continuous hills forming the entire northern and western boundary of the general plateau of Central India, have been considered to belong to what geologists have named primary rocks, but a careful examination of what has been written regarding the structure of this extensive tract is sufficient to satisfy the most scrupulous mind that these formations are identical in

" * If we consider the direction of mountain chains as marking the course in which the moving forces by which they were raised extended, we shall find the Sivalik hills, recently rendered so celebrated by their imbedded fossils, will come within the Aravully zone, as the Kasya mountains have been brought within that of the Vindhya. It is also worthy of remark that the several ruined cities, which according to tradition have been destroyed by earthquakes and other volcanic causes, are found chiefly within these bands. The subterranean town discovered 23 feet beneath the alluvium of the Doab near Behut by Captain Cautley, containing Indo-Scythic coins referred by Mr. J. Prinsep, (*Jour. Asiat. Soc.* 1834, p. 43,) to the commencement of the Christian era, can hardly be accounted for otherwise than by the subsidence of the site on which it stood."

their nature with the gneiss and sienites composing the central masses of the Kasya group, the primitive character of which, there is now so much reason to doubt.

" As the general elevation of the southern base of the Aravully is higher than the summits of the Vindhya, the horizontal beds of basalt and amygdaloid of which the latter are composed would seem from their thinning towards the north of Malwa, to have been poured in the form of lava from open vents in that quarter, and that they spread from thence according to the law by which the motion of viscous fluid is regulated when exposed to a surface unequally inclined. The first flood of ejected matter would descend chiefly into valleys and in proportion as these are obliterated, the effects of succeeding eruptions would be less perceptible in depth, and a series of beds would thus be formed corresponding to that described in the southern escarpment of the Vindhya.

" The only part of the extensive tracts here noticed in which, from the information we possess, coal might be sought for is in the neighbourhood of Baug, a short distance from the banks of the Nerbudda under 22° 10' N. lat. and 74° 50' E. long. where Mr. Fraser found sandstone and limestone the same as they occur in Bundlecund,* and as the river is navigable to boats drawing little water from this point to Hoosingabad four degrees distant, where coal has been already found, the local improvement to which a discovery of coal might lead, at a situation so favourable as Baug, would render it desirable that trials should be made in that quarter, especially as iron is plentifully afforded in the same vicinity from whence it is supplied to the Indore, and neighbouring markets.

" *Carnelian.*—If these districts are defective in coal, they are however highly productive in a great variety of other minerals. The principal source of the Cambay carnelian is situated in the Rajpiplee hills, about seven miles from Ruttenpore. Dr. Copland in the first volume of the Bombay Literary Transactions, describes the mines as pits about fifty feet deep into which the workmen descend by means of ladders. A new pit is formed every season rather on account of the old one being destroyed during the rains than from their contents being exhausted. The carnelians are found in nodules from a few ounces in weight to as many pounds, and are scattered throughout a red gravelly clay in great abundance. Their colours vary originally from olive to

* " Geol. Transac. Vol. I, New Ser. 157."

milk white, but are severally changed to black, red and white by burning, which is conducted on the spot.

" *Mines of Mewar.*—'To the mines of Mewar alone,' observes Colonel Tod, 'can be attributed the resources which enabled her princes so long to struggle against superior power, and to raise those magnificent structures which would do honor to the most potent kingdoms in the west.' But we search in vain throughout his work for any specific information on the subject. 'Tin mines' he says, 'were here very productive even in silver; but the caste of miners is extinct, and political reasons during the Mogul dominion led to the concealment of such sources of wealth.' Speaking of a favorite project—the formation of a canal on the Bairass river to connect the ancient and modern capitals of Mewar, Oodipore and Chittore, he observes 'that he felt so strongly impressed with the importance of those objects that he would willingly' (though impaired in health and retired from active service) 'return to India to superintend the construction of the canal, and to open the tin mines of Jawara.

" 'Copper ore of very fine description is likewise (says Colonel Tod) abundant, and supplies the currency of the Chief of Saloombra who even coins by sufferance from the mines in his own estate. Surma or oxide of antimony is found on the western frontier; garnet, amethystine quartz, rock crystal, crysolite, and inferior emeralds are all to be found in Mewar and though Colonel Tod saw no specimens decidedly valuable, the Rana has often told him that according to tradition his native hills contain every species of mineral wealth.'

" Malcolm observes that iron ore of good quality is plentiful in the boundary hills of Mewar and Marwar* which extend to the north-west between Malwa and the Guzerat; and at Ajmere copper and lead mines are stated to have been formerly worked to some extent and with considerable profit, but during the late troubled times this work was stopped and has not since been resumed.

" Hardy on the other hand remarks that copper does not appear to be very plentiful, though it forms a constituent in most of the argillaceous slates of Mewar, and mines of it have been worked at Mandal.† There is a lead mine he thinks 12 miles south of Oodipore at the village of Jawar, probably the tin mine of Colonel Tod, the ore occurs according to Mr. Hardy in an alternation of quartz and slate; a considerable proportion of silver was said to have been found combined with this ore which was worked at one time with considerable advan-

* " Asiat. Res. Vol. XVIII, Part II, 70 " † " Ibid, 89."

tage. Iron ores he observed are very abundant, and several founderies are established for their reduction. He expresses an opinion that if the mountains in the vicinity of Oodipore were properly examined, rich mines of various kinds might be discovered.

" *Lead Mines in the Aravully.*—Mr. Fraser, in his tour from Delhi to Bombay already adverted to says, that on the way from Jhodepore to Mewar, and about 30 miles from the former, he observed in a north-west direction several low peaks, in one of which called Poonookur he was told there existed mines of lead.*

" In Terragur-hill near Ajmere, he also observes that lead mines of considerable richness occur, but want of demand prevents them from being profitable. Several additional veins of copper ore have been recently brought to notice in the vicinity of Ajmere by Captain Dixon.

" The first runs north and south four miles north-north-east of Ajmere at the village of Guera, a second vein has been opened at Rajgarh twelve miles south-south-west of the first; ten miles south of Ajmere a third vein was opened by Captain Dixon, and as the presence of copper has been detected in various other situations, he was led to the conclusion that the valley of Ajmere is traversed by veins of copper ore which run from Kishenagar to Rajgarh, a distance of 30 miles.†

" *Copper Mines of Shakawut.*—The most extensive copper mines yet noticed are those at Jingana in Shakawut lat. 28° 5' N. long. 75° 53' E. whether we estimate them according to their antiquity as evinced by the extent of the excavations, or by their value, since they are (notwithstanding the little to be expected from such resources under native management) farmed at 14,000 Rs. per annum. The reduction of the ore and the operations in the mine are conducted on very imperfect principles, but as particulars on these heads are detailed in the Gleanings of Science,‡ it is unnecessary to repeat them here.

" These last mentioned mines are situated scarcely more than 70 miles from the banks of the Jumna, and nothing but the discovery of coal in this quarter is wanting in order to render their ores of the very highest consequence.

" The structure of the Aravully range at the north-eastern extremity of which, these mines are situated, is not such as to encourage the

* " Geol. Transac. Vol. 1, New Ser. 151." † " Jour. Asiat. Soc. 1835, 583."
‡ " Vol. III. 330."

hope of finding coal in its course, but by crossing the frontier of Shakawut to the westward better prospects are afforded. About forty miles from Jhodepore, and fifty from Nagore, Mr. Fraser saw a heavy, dull, coarse red sandstone rise to the surface in small hills, which soon unite into ranges no where exceeding three or four hundred feet in height, and not very continuous.* Some of these hills are composed of the red sandstone varying from fine to coarse grained, and are evidently proved to be the strata composing the base of the desert which here on its verge rise horizontally above the general level. Those numerous fertile spots distributed every where at distances of from five to fifteen miles from each other throughout the great desert, and distinguished by a spring or oasis, appear also to owe their peculiarity to rocks which seem to be connected with the coal measures; these and the Jesulmer range of low hills composed of limestone and sandstone, might be searched for coal with a degree of confidence equal at least to the little knowledge we possess of the structure of the desert. Camels here afford such an excellent means of conveyance that researches should not be too much confined to the vicinity of coasts and rivers.

" Thus, the plains extending along the northern side of the mineral district from Ajmere to Shakawut, appear to hold out in common with other parts of the great desert, sufficient encouragement for the institution of enquiries for coal.

" Although supplies of coal in this quarter would be of no immediate use to purposes of inland navigation, yet as the Loony or salt river, which rises in the neighbouring declivities of the Aravully and enters the Run, is during certain seasons we may suppose navigable, coal might, if found in its course be readily conveyed from the desert to the Gulf of Cutch, and there be available to external navigation in case the more direct indications of the presence of supplies in Cutch itself should fail.

" From Jeypore the district in which the lateral ridges of the Aravully and Chittore ranges unite, to Mongir, a distance of nearly 800 miles, the face of the country rises gradually from the western banks of the Jumna and Ganges, thus forming the north-east aspect of the great table lands of Central India. Where the change of levels is abrupt as in the case of the hill of Tooham at Hansi in one extremity of this space, and Rajmal in the other, the rock by which it is effected is sienite, while the intermediate space is formed chiefly of sandstone

* " Geol. Transac. 1 Vol. new, 149."

graduating into quartz rock, and consequently becoming less likely to contain coal as we recede from the great rivers towards the basaltic rocks of Malwa.

" The provinces of Marwar, Bundlecund, Rewah, Chunar, and Rotas, which comprise the above space are generally composed of red sandstone, and beyond this, the little knowledge we possess regarding their structure is not unfavourable to the probability that coal exists somewhere along the base of the higher hills; it has already been noticed in sufficient quantity at Bidgegur to induce further inquiries to be made in Rotas. In Bundlecund Captain Franklin found indications of its presence in the glens of Kallinger and Adjegur, as well as at Shapur and Bejour a little more to the westward, and Captain Smith from personal acquaintance with the structure of the hills of Rewah holds out hope of researches in that quarter being attended with success.

" Coal has been found by Mr. Ravenshaw in the valleys from which the Chala and Phika issue from the mountains near Hurdwar, as well as in several intermediate streams between these rivers and the Ganges. This coal may prove of consequence in the manufacture of the metallic ores of the mountains at some future period, as well as in the navigation of the upper portion of the Ganges. Captains Herbert and Cautley also found coals on the skirts of the Himalaya, but not under circumstances to bring them at present within the object of these reports.

" According to Captain Burnes, coal occurs at Rohut in Peshwar forty miles from Attok. The specimen furnished to Mr. J. Prinsep does not appear to be a good coal, but as naptha springs are said to be found in the same vicinity, better may be expected to occur.

" *Coal at Cutch.*—In the bed of a river at Trumboo near Bhooj in the province of Cutch, 40 miles from the northern coast of the peninsula, two thin beds of coal, which vary from one to twenty inches in thickness, make their appearance in several situations as, between the village of Seesugud and Koobee, 19 miles from Mandavee close to the high road, and also at Doogapore, but the district altogether in which these beds occur is of limited extent.

" None of our coal-fields appear to have excited more interest than this, in consequence of the important objects to which supplies of coal, in so favourable a position, would necessarily contribute. Mr. Walter the resident at Bhooj, Captain Wildey, Lieutenants Clark, Jameson, and McCulloch, and more recently Captain C. W. Grant, have each report-

ed on the subject, and considerable sums have been expended in excavations without arriving at any material results.*

" Cutch has been recently described by Captain Grant as presenting three parallel ranges of mountains extending east and west. The southern range is composed of igneous rocks, probably greenstone ; the centre range appears to consist of similar granitic rocks to those on which the sandstones in other parts of India generally rest, and the northern range at the foot of which coal has been found, consists of sandstone.

" This series of formations is apparently identical with the structure of the entire range that crosses India, with slight interruption, from Cutch to Assam, and on the opposite flanks of which, our coal-fields are situated in pairs ; as for instance the Assam and Silhet coal-fields, the Palamow and Burdwan coal-fields, bearing precisely the same relative position to each other and to the mountain chain to which they belong, that the great coal-field of Northumberland and Durham on the eastern side of the Penine or English Alps, bears to that of Whitehaven at the western base of the same mountain group, or, as the great coal-field of Yorkshire and Nottingham bears to that of Manchester with regard to the same chain.

" Instances of a similar arrangement in the natural distribution of coal are not confined to the cases here adduced, but appear so universal whenever the subject has been examined,† as almost to enable us to apply inductions resulting therefrom to practical purposes in the case before us.

* " The reports of these Officers with the exception of the last are published in the *First Appendix to the Third Report of the Select Committee of the House of Commons on Indian affairs* 1831. They relate chiefly to remarks on working, the quality of the coal procured, &c. Captain Grant's report in addition to similar observations, contains a list of 54 beds of sandstones, shales, and clays, penetrated in boring to a depth of 190 feet,—*vide Prinsep's Journal, III, p.* 40."

† " In like manner the southern transition chain of Scotland separates the coal-fields of Dumfriesshire from those of the great central districts, which last are traced by Mr. Conybeare into Ireland on the one side, and a continuation of the same line extends through the north of Europe on the other. Pursuing the same views, and guided by the direction and affinities of strata, Mr. C. also traces the connexion of the coal districts of the south Western counties of England across the Channel into Brittany, where we find as might be expected, he says, the small coal-field at Litry, and farther south on the continuation of the chains that cross from Devon to the Continent are more extensive deposites of coal between Angers and Nantes. The carboniferous tract of Northern France and the Netherlands, may generally be described as extending westward from within a few miles of the Channel near Boulogne by Valenciennes, and thence along the Scheldt and Meuse, many of the coal districts of Northern Germany may, with great probability, be considered as a prolongation of it."

With reference to the important question regarding the nature of the indications of coal at Cutch which still remains in doubt, analogy derived from the most comprehensive views, would lead us to conclude that a great coal-field here exists, as well as a corresponding one somewhere in the peninsula of the Guzerat, bearing the same relative position to Cutch, that Burdwan bears to Palamow, or Silhet to Assam. The strata penetrated by Lieutenant Fulljames at Gogah during an experimental boring to a depth of 335 feet, as well as the geological remarks of Dr. Lush on the structure of the same neighbourhood appear to favour this view ; but unless the structure of the country be unfavourable, the northern coast of the Guzerat would perhaps afford a better prospect of success.

" Mr. McCulloch, one of the most intelligent officers who have inspected the Cutch coal district, is inclined to look upon the mineral it affords as an intermediate substance between peat and coal. He was led to this view mostly by the appearance of carbonised branches o trees contained in the coal, and conceived them to be lignites, which if correct would refer the deposit to certain unimportant beds of thin coal, such as occur in the northern parts of Yorkshire quite distinct from the principal, or true coal measures.

" The point on which this question must turn, since more direct operations have proved unequal to its solution is, whether the supposed branches mentioned by Mr. McCulloch are really lignites, or if they are not phytolithites, and which are characteristic of the true coal measures, in which lignites on the other hand never occur.*

" The great difference between a lignite and phytolithite, which it becomes here so essential to distinguish is, that the first is characterised either by concentric circles such as mark the annual growth of exogenous plants, or by stems consisting of fibres without circles or pith, as in endogens ; but the phytolithus of the coal measures is distinguished by its presenting only the outer form of a root or stem, together with a faint representation of a pith, without however, a trace of any thing like woody fibre in its structure.

" Most of the phytolithites present on their outer surface either circular or spiral indentations, marking the insertion of petioles, but there

* " Lignite, from its usual colour and properties, is named brown coal. It occurs in general in small isolated basins superior to chalk. In England the largest bed is found at Bovey-Tracy in Devonshire, and hence called Bovey coal. It appears also in various parts of Europe, and is used when sufficiently abundant, for fuel. The Trieste steam boat is said to be supplied with lignite raised in the island of Veglia."

is one species named P. transversus* in which these external signs are not present, and it is this which I found imbedded in the Serrareem coal. All other appearances of vegetable remains in the Cutch coal should be examined with equal care, and by this means the question as to whether it belongs to the principal coal measures or not may be determined.

" As two thin veins not workable have as yet only been found in Cutch, it is almost unnecessary to offer any remarks on the quality of their produce. Cutch coal burns too quickly, and affords too large a proportion of ashes to answer for steamers, nor does it afford sufficient heat to be used with advantage in the forge.

" With reference to what has been said regarding the distribution of coal, it would be a matter of no great surprise if, as we have traced the mineral from Upper Assam to Cutch, we should be able to resume a continuation of the same line of coal-fields ten degrees still farther west on the opposite coast of Arabia. A specimen of coal has been actually found in this direction, lying loose on the sands of the island of Sier-Beni-Yas by Dr. Gray, as if it had been washed down from a rugged ridge about 350 feet in height, which forms the centre of the island.

" Although Mr. McCulloch who had been sent to the spot was unable to find the source from whence the specimen in question came' yet his report is not such as to lead us to despair of more successful results from future inquiries either on this, or some of the adjoining islands, which the nature of his instructions prevented him from visiting.†

" As coal is often converted into ornaments and toys by uncivilized tribes unacquainted with its more important uses some traces of it in such shapes might generally be detected by observant travellers in countries where it is procurable; by this means its existence in Madagascar as well as in Africa, has been probably brought to light,‡ but in what quantity and under what circumstances is still unknown; our increasing intercourse with the Arabs in the overland route to England, may in like manner lead to similar discoveries in a quarter where coal seems to be all that is now desirable."

* " Described in the American Phil. Transac. by Mr. Steinhauer, as a cylindrical trunk transversely and closely striated without any traces of leaves or fibres, the general character like that of large earthworm; perhaps a creeping root."

† " Vide Report of Select Committee."

‡ " Hist. and Descrip. of Fossil Fuel."

Account of the Cultivation and Manufacture of Indigo, from Macfadyen's Flora of Jamaica.

" In the cultivation of the Indigo plant (*Indigofera tinctoria*), the best time, for ploughing or preparing the land, is immediately after the October rains. It has been found that sowing broad-cast succeeds better than in drills. A bushel of seed will plant from six to eight acres. In the course of a few days the young plants come up; soon after which they ought to be cleaned and moulded. As the plant grows wild in river courses and in dry gravelly situations, a soil of a similar character is found the best adapted for its cultivation. The rains ought also to be light and seasonable, and it is of importance that they should fall immediately after the young plants show themselves above ground, in order that they may be invigorated, and enabled to resist the attacks of the numerous insects to which they are, at this period of their growth, exposed. From this time little rain is required, except immediately after the branches have been cut; at these periods a shower is of great service, enabling the Plants to send out new and vigorous shoots. A wet climate indeed is not at all suited to the cultivation of the Indigo. It is true that the plant may grow luxuriantly, but the juices are watery, and the produce obtained is small in quantity, and inferior in quality. Besides, as Indigo contains an immense proportion of carbon, and, as it is a well-established fact, in Vegetable Physiology, that it is not secreted by plants in the shade, but only when they are exposed to the direct influence of the sun's rays; it is evident hat Indigo requires much and continued sunshine to render its juices rich in this principle.

" The proper period for cutting the plant is previous to flowering. The leaves at this time change from a light to a dark green, and, according to the French Indigo planters, they crack when they are squeezed. It is of importance to determine the exact time when the plant mes to this state, since the branches, if they are prematurely cut ould be deficient in the quantity of the produce, and the quality would inferior.

" The Indigo plant is retained in cultivation for a year, during which period it yields three or four cuttings. The indigo obtained from the first cutting is the greatest in quantity, and is of the finest quality. The succeeding cuttings become gradually less productive, so that one part of the first yields as much as two parts of the second cutting.

"There are several methods employed in the manufacturing of Indigo. The 1st is styled the *fermenting process*, and is that which was formerly practised in this country, when Indigo was generally cultivated. The branches having been cut by means of a sickle, are placed, with the stalk upwards, in the steeping vat, till it is nearly three parts full. This vat is a large cistern of mason work or wood, about 16 feet square. It is then filled with water, and to prevent the branches from floating, they are kept down by means of rails loaded with planks. Soon after, the fermentation commences, and goes on till, in 24 hours, the contents of the vat are so hot, that the hand cannot be retained in it. The water gradually becomes opaque, and assumes a green colour; bubbles of carbonic acid gas are emitted, and a smell, resembling that of volatile alkali, is exhaled. When the fermentation has gone on sufficiently far, the liquor must be immediately let into the second cistern: for were it to be allowed to remain after a certain time in the fermenting vat, the pigment would be spoiled; and if, on the other hand, it were drawn off too soon, much of the Indigo would be lost. This second vat, which is lower than the first, is called the battery, and is commonly in size about 12 feet square, and 4½ feet deep. Here the liquor is agitated and beaten up, to perform which a variety of machines have been invented. The best adapted for the purpose is one with paddles, resembling those of a steam-boat, put in motion by means of a horse or mule. The effect of this agitation is, that the liquor will become as if curdled, and the indigo will be observed to separate into flakes. The manufacturer ascertains when the agitation is carried sufficiently far, by examining from time to time a small portion on a white soup plate. A quantity of lime water is now added, and the blue floccules are allowed to subside. The clear water is then drawn off by plugs placed at different heights in the cistern, and the sediment is drained in sieves made of horse-hair. It is after this put into coarse linen bags, and having remained for some time suspended in the shade, is subjected to pressure in order to get rid of as much of the moisture as possible. Lastly, the Indigo, having been converted into a stiff consistent mass, is cut into small squares, and allowed to dry in the shade.

"The 2nd method of manufacturing Indigo is known by the name of the *scalding process*. It appears to be a revival of the ancient Indian mode, as practised at Ambore, and described by Col. Martine in the third volume of the Asiatic Researches. He there mentions, that the natives boil the plant in earthen pots of 18 inches diameter, till the colouring matter has been extracted: it is then removed into larger jars, and agitated by means of a bamboo, until a granulation of the

fecula takes place. A precipitant of red earth and water is then added and the fecula is allowed to subside. The clear liquid is lastly drawn off, and the Indigo is dried in small bags suspended in the shade.

"The modern process is conducted on similar principles. Large coppers are about two-thirds filled with the branches of the Indigo, which are not to be pressed down. Cold water is then added to within a few inches of the brim, and the fire is lighted and kept up rather briskly, till the liquor acquires a deep green colour. During this part of the process, the mass must be constantly stirred, otherwise the bottom will be overscalded before the surface is ready. The fire is now to be withdrawn, and the liquor passed through a haircloth into the beating vat, where it must, while still hot, be agitated in the common way for half an hour. Lime water is now to be added, and after standing for about two hours and a half, the supernatant liquor, which is of a Madeira wine colour, is to be drawn off. The rest of the process is similar to that followed in preparing common fermented Indigo.

"The advantages of the scalding over the fermenting process, are, according to Dr. Roxburgh, that:—1. The produce is larger. 2. The health of the labourers is not endangered by the noxious effluvia, as is the case in the fermenting process. 3. Much less agitation, and very little precipitant is necessary. 4. The operation may be performed several times in the course of the day. 5. The Indigo dries quickly, without acquiring a bad smell. 6. Indigo so prepared has not the flinty appearance common to fermented Indigo, but in softness and levity is equal to Spanish *flora*.

"The 3d manner of manufacturing Indigo is called the *dry process*, and is that at present followed in the large factories in the southern provinces of India. It is described at great length by Charles H. Weston, Esq., in the Quarterly Journal. According to this writer, the branches are cut early in the morning, and spread out in the sun. In the afternoon, the leaves are so dry, that they are easily separated from the branches by simply beating them with a stick. After this they are collected and closely packed in warehouses, and trodden down. As they are not immediately used, but are kept for some time, it is of importance that there be no dampness, as otherwise fermentation would issue, and their value be destroyed. When the leaves have been kept about a month, their colour is found to have changed to a pale lead colour, which afterwards passes into black. It has been ascertained, that the maximum quantity of indigo is obtained when the leaves have acquired the lead colour, and that the colouring matter is only sparingly given by the fresh green leaves, or when they have passed to the opposite extreme, and acquired the black colour.

"After the leaves have been kept a sufficient time, they are transferred to the steeping vat, which is an uncovered reservoir, built of brick work, and lined with Roman cement, or stucco prepared from burnt shells, and filled with water. They remain there for two hours, and are every now and then turned; after which, the water having acquired a fine green colour, is run off, and passed through strainers into the beating vat. Two hours may appear to be a very short time for infusing the leaves. It has been found, however, that when the process is prolonged beyond this, a partial precipitation of the Indigo takes place.

"The liquor, when in the beating vat, is agitated by paddles for about two hours, during which the fine green colour gradually darkens, and acquires a blackish blue. As soon as this last hue appears, and the froth thrown up in beating becomes more or less white, and the incipient separation of the particles of Indigo can be detected, a certain proportion of lime water is well mixed with the liquor, and the whole is allowed to settle. In the course of three hours the indigo will have fallen to the bottom, and the supernatant liquid, which ought to be of a fine Madeira colour, is allowed to run off by means of cocks, placed at different heights. The indigo is, after this, conveyed into the covered part of the laboratory, where it is spread on strained cloth, and allowed to drain.

"On the following morning, the Indigo is put into a copper, with a quantity of hot water, and fire is applied. As the mass heatens, a quantity of scum rises, which is immediately removed, and, as soon as the whole is brought to the boiling point, the fire is withdrawn. The Indigo is then again taken to the strainers, and having been again drained, it is well worked with the hands, and afterwards subjected to pressure in square boxes, in order to get rid of as much moisture as possible. In this manner large square cakes, about 2½ inches in thickness, are formed, which are subsequently divided into smaller cakes, and allowed to dry gradually in the shade.

"The boiling process, although not generally adopted, is said to improve very considerably the quality, and enhance the value of the produce.

"A beautiful yellow precipitate may be obtained, by means of acetate of lead, from the Madeira-coloured liquid, drawn off in the beating vat. This is said, by Mr. Weston, to promise to supply a great desideratum —a permanent yellow dye. Experiments are, however, wanting to confirm this.

"Indigo in the prepared state is of a rich blue colour, which varies, however, in its shade in different specimens. When pure it is light and friable; tasteless, and almost devoid of smell; of a smooth fracture; insoluble in water or alcohol, but soluble in sulphuric and nitric acids. Some varieties, such as that known among the Spaniards by the name of *flora*, is lighter than water; and the lightest is generally the purest. The analysis of M. Chevreul gives, as the composition of Indigo, a blue colouring principle called *Indigotine*, a red resin, a greenish-red matter, united to the sub-carbonate of lime, alum, silica, oxyd of iron, and some other salts. According to Dr. Ure, the ultimate constituents of pure *Indigo-blue*, are—

Carbon,	71·37
Oxygen,	14·25
Azote,	10·00
Hydrogen,	4·38
	100·00

Indigo is frequently adulterated, by gummy, resinous, and earthy substances being added to it; and its weight and purity are also affected by using lime in excess as a precipitant. Dr. Bancroft proposed, as a test to ascertain the relative values of different specimens of Indigo, to dissolve equal portions of each in sulphuric acid, so as to form the mixture known by the name of *liquid blue*, and after diluting with a certain quantity of water, to compare the shades of colour possessed by the several mixtures.

"Indigo is the most valuable and permanent of all the dye-stuffs. It is also made use of by painters in water-colours.

"The method of preparing Indigo, and of applying it to the purposes of dyeing, appear to have been very early known in India. Dr. Bancroft* has shown that the *indicum* of Pliny (lib. xxxv. c. 6.) possessed similar properties with the modern Indigo. It would appear, by a passage in Caneparius, quoted by the same author, that, in the 15th century, the Venetians were in the habit of receiving Indigo from the East by the way of Alexandria. After the discovery of the passage to India by the Cape of Good Hope, the Dutch are supposed to have been the first, about the middle of the 16th century, to import it into Europe. It was long, however, ere it came into general use as a dye, and there appears to have existed against it a very unaccountable prejudice. It was considered to be a kind of stone, and was prohibited in England during the reign of Queen Elizabeth, and also in Saxony by the Elector, who described it in his edict as a corrosive

* Philosophy of Permanent Colours, vol. 1. p. 242.

substance, and fit food only for the devil. Soon after this its importance came to be understood, and the cultivation of the plants which yield it was introduced into the West Indies, and into Mexico, and followed up with such success, that the market of Europe was for a long time principally supplied from these countries. A large proportion was furnished by Jamaica, and the remains of Indigo works may now be met with in different parts of the country. In 1672, according to Edwards, there were 60 Indigo works, producing 50,000 lbs. annually. A tax, however, of 3*s.* 6*d.* per lb. having been imposed by the British parliament, the cultivation was soon after, in a great measure, abandoned; and although the duty was soon after removed, and a bounty of sixpence per lb. offered, if imported directly into Great Britain, still it never again became general, and at present, I am not aware that it is produced in any quantity, or that there is a single Indigo work, deserving the name, in the Island. In the East Indies, on the contrary, the cultivation of late years has rapidly increased, so as to supply 3-4ths of the Indigo for the European market.

"It is to be hoped, as few articles give a more profitable return for the capital embarked, that its cultivation among us may be resumed, especially as, from the improvements in the manufacture, the unhealthy fermenting process, which was found so fatal to the labourers employed, may now be dispensed with. An attempt was made, some years ago, by the late Mr. Robert Gray, of St. George's, to introduce the cultivation on his own property in that parish; but he did not succeed, owing to the excessive rains which fall in that district during almost every period of the year. The like ill success, and from a similar cause, has attended an attempt lately made on Greenwich Hill estate, in Manchioneal. The result would be different were a proper choice of climate and soil observed, such as the plains of Vere or Liguanea, where the rains are occasional, and seldom heavy, and the soil light and open.

"The medicinal uses of the Indigo are few. A decoction of the root, used as a lotion, effectually destroys vermin, and is very generally employed for that purpose in the country. The juice of the young branches, mixed with honey, is recommended as an application in aphthæ of the mouth in children: and the Indigo, in powder, sprinkled over foul ulcers, is said to cleanse them. The disease in poultry, known by the name of *yaws*, is cured by the application of a solution of Indigo by means of a rag."—*London and Edinburgh Philosophical Magazine and Journal of Science—No.* 74—*March* 1838. pp. 263—268.

V.—*Proceedings of Societies.*

Geological Society, Nov. 15, 1837.—The reading of a paper was afterwards commenced "On the Geology of the Eastern Portion of the Great Basaltic district of India," by J. G. Malcolmson, Esq., F. G. S., of the Madras Medical Establishment.

Dec. 16, 1837.—Mr. Malcolmson's paper on the eastern portion of the Great Basaltic district of India, begun on the 15th of November, was concluded.

The principal objects of this paper are to describe the eastern boundary of the great basaltic formation of India, with its associated stratified deposits, and to arrive at a proximate conclusion respecting the age of the basalt.

Extent of Country.—The region noticed generally in the paper, is included between the 14th and 21st degrees of north latitude, and the 75th and 82d degrees of east longitude; but the districts more particularly described, are those watered by the Pennar river (lat. 14°), the pass of the Sichel hills, near Neermul (lat. 19° 18', long. 79° 33'), and the plains extending from the northern base of that chain to Nagpoor.

Physical Features of the Country.—The region forms part of the great, elevated plateau which includes all the countries to the south of the Nerbudda (lat. about 22° N.), and connects the provinces watered by the southern branches of the Ganges with the Deccan. It is traversed on the north by the Sichel or Shesha hills, locally called the Neermul range, which extends from the junction of the Wurdah and Godavery rivers (*lat.* about 18° 48', long. 80°), till lost in the gradual rise of the country near Lonar (lat. 20°, long. 76° 30'). The principal rivers which traverse the region are the Wurdah, the Godavery, the Kistnah and the Pennar. The first flows north and west of the Sichels, the second south of that chain, till its waters unite with those of the Wurdah, when it takes a south-easterly direction to the Indian ocean. The Kistnah flows nearly W. and E., between the parallels of 16° and 17°; and the Pennar traverses the southern portion of the region (lat. 14° 30'). In the part watered by the last river, a marked feature is presented in the horizontal summits of many of the ranges of hills, which appear to have been once connected, though they are now separated by extensive plains.

Geological Structure.—The formations consist of granite, gneiss, mica and hornblende slates, trap, argillaceous limestone, red sandstone, with diamond breccia, and tertiary freshwater strata. The granite forms

apparently the base of the country, and the trap penetrates all the formations, including the granite and the freshwater beds. In addition to these regular deposits are considerable accumulations of travertine and kunkur, which are scattered over the whole surface of the country.

Granite.—This rock is frequently displayed in all the rivers of southern India, and is occasionally visible as the substratum of the other formations. In the table-land of the Mysore it attains an elevation of 3000 feet above the sea. In the Deccan, between the Kistnah and the Godavery, it is traversed by greenstone dykes, sometimes porphyritic, and ranging, for the greater part, from S. by E. to N. by W., a direction not very different from that of several of the basaltic mountains in the northern part of the region; but on approaching the Godavery, from the south, the granite is penetrated by dykes, which strike N. and S. Beyond Nagpoor the granite has burst through the red sandstone, which is converted into quartz rock; and, still further north, granite veins intersect the argillaceous limestone, which has lost its stratified structure. Granite veins also penetrate the neighbouring hills of gneiss and mica slate.

Gneiss, Mica and Hornblende Slates.—These formations appear to be of limited extent. Hornblende slate was noticed by the author only in the neighbourhood of Deemdoortee, twenty miles E. of Neermul, where it contains the magnetic iron ore used in the manufacture of Damask steel. Gneiss and mica slate are mentioned only at the locality alluded to above, a few miles N. of Nagpoor.

Trap.—Mr. Malcolmson distinguishes the trap of the dykes from that which constitutes the great basaltic ranges, by the absence of olivine in the former, though it is common in the latter. The great masses of basalt are also distinguished by being amygdaloidal and more crystalline.

When *en masse* the trap overlies the granite, as well as the stratified deposits. In the form of veins it traverses the granite, limestone, and sandstone, and the freshwater strata are often imbedded or entangled in it.

In sinking a well near Hutnoor (lat. 19° 38' N., long. 78° 30' E.), seams of pure white, pulverulent limestone were found beneath layers of basalt, and calcareous depositions appear to accompany the formation almost universally. With respect to the minerals contained in the amygdaloids, Mr. Malcolmson is of opinion, that they have not been

produced either by infiltration or sublimation, but by molecular attraction, because calcareous spar is much more rare than siliceous minerals, though carbonate of lime abounds throughout the basalt.

Argillaceous Limestone.—Organic remains have not been noticed in this rock. It consists, in the lower part, of thin strata of compact blue or white limestone, and generally, in the upper, of blue, red, green and white schists, or slaty clay. Siliceous matter occurs in both the limestone and schist. Where the formation is in contact with the trap, the limestone is sometimes crystalline, and loses its stratified structure; and at the Pindee Ghat, in the Sichel Hills, the argillaceous and siliceous ingredients appear to have separated, and the latter to have collected in bands, having partly the aspect of chalcedony, and in black chert. In some districts the limestone is cavernous, and it is often penetrated by circular cavities, which, the author conceives, were formed by the extrication of gaseous fluids, in the same manner as similar cavities are now produced in the mud by the escape of carbonic acid gas.

A jointed structure, dividing the beds into rhombs, prevails in the limestone, the schist, and the overlying sandstone. The strata are often inclined, apparently the result of dislocation.

At Jumulmudagur (lat. 14° 50', long. 78° 30') the limestone contains layers of muriate of soda; and Mr. Malcolmson is of opinion, that the salt which is found in the alluvial matter, is obtained solely from this formation, as he did not discover a trace of it in the sandstone.

The limestone and shale are well displayed in the Pennar district, also between the northern foot of the Sichels and Nagpoor; and the author has no doubt that they belong to the same system of strata as the limestone of Bundelcund, described by Major Franklin*, though the red sandstone of that country is stated to underlie the limestone, while in the region examined by Mr. Malcolmson it overlies.

Red Sandstone.—This formation is distinguished by containing the breccia in which are situated the diamond mines of Golconda, on the banks of the Kistnah, and those on the banks of the Pennar. Where the sandstone rests upon the limestone schist, a gradual passage occurs. The rock is more or less compact, and its prevailing colours are red and white. The diamond breccia is considered by the author, as only a variety of the sandstone in which fragments of older rocks have been

* Geol. Trans., 2d Series, vol. iii., part i., p. 191 et seq., also Asiatic Researches, vol. xviii. p. 24, et seq. An abstract of Major Franklin's paper appeared in Phil. Mag. and Annals, N.S., vol. iv. p. 294.

imbedded. Ninety miles S. W. of Nagpoor traces of coal were noticed, and in the hill of Won (lat. 20° 6', long. nearly 79°) Mr. Malcolmson found the cast of apparently a hollow vegetable, the only trace of an organic body observed by him. The sandstone, as already noticed, partakes of the same jointed structure as the subjacent limestone. It is penetrated as well as overlaid by trap, and near Nagpoor veins of granite have converted it into quartz rock. In the district drained by the Pennar, the sandstone attains the height of 3000 feet, forming the horizontal or flat summit of the mountains; but in the same district, and at no great distance, it occurs on a level with the plain.

Tertiary Strata.—Masses and fragments of differently coloured chert, a tough, white, argillaceous stone, and a greyish blue crystalline rock, all containing freshwater shells, either project from the trap in which they are entangled, or are scattered over its surface for considerable areas in the Sichel hills. In a precipitous descent, on the northern flank, the author also noticed a horizontal bed of white limestone, 12 ft. thick, containing freshwater shells and resting on granite, but covered by basaltic debris. The organic remains, brought to Europe by the author, have been examined by Mr. James DeCarle Sowerby, and ascertained to belong to two species of Gyrogonites, two of Cypris, two of Unio, with numerous specimens of Paludinæ, Physæ, and Limneæ. The greater part are siliceous casts, but some retain their original calcareous matter. Silicified portions of palm woods, and fragments of vegetables, in a charred or carbonized state, also occur. In accounting for the different state of preservation of the shells, Mr. Malcolmson suggests, that the lime being in some instances retained, may be explained on the supposition, that the shells were perfectly dry at the time they were acted upon by the basalt.

With respect to the origin of this singular rock, the author is of opinion that the basalt, when it was irrupted, changed the features of the country, and, destroying pre-existing lakes, entangled in its substance the debris and shells which had accumulated at the bottom of the bodies of water, and converted the loose sand into chert or siliceous rock. Of the age of the formation, he does not pretend to offer a precise opinion. None of the shells have been identified with those now inhabiting the rivers of India; and he is, therefore, inclined to consider them as extinct, and to refer them to the tertiary æra.

This fossiliferous chert was noticed by the author over a surface extending 140 miles N. and S.; but shells considered to be identical with those collected by him, were found by Dr. Spilsbury, 18 miles E.

from Jubalpore (lat. 23° 45' N., long. 79° 53' E.), in a block of indurated clay, resting on basalt*; by Dr. Voysey, in the Gawilghur range (near the table-land of Jillan)†; by Dr. Spry, in a bed of limestone overlaid by trap, near Saugor‡ (lat. 24° 15' N., long. 79° E.); by Dr. Vosey, in a siliceous rock in the hills of Medcondah and Swalpigapah south of the Godavery§; also at Jirpah, N. of the sources of the Taptee (about lat. 22° N., long. 78° E.)‖.

Comparative Age of the Formations.—On this head few observations are necessary. North of Nagpoor the granite has been shown to be more recent than the sandstone. The trap in the form of veins penetrates the granite, and affects, *en masse*, the limestone and sandstone, and entangles in its substance the fossiliferous chert. If therefore, the last belongs to the tertiary period, part at least of the basalt of the Sichel hills, forming the eastern boundary of the great basaltic region of India, cannot be assigned to one more ancient. Of the age of the limestone and sandstone Mr. Malcolmson offers no positive opinion, but he objects to their being considered the equivalents of the new red sandstone and lias of England¶, because their order of superposition in the district examined by himself, is inverted, the limestone underlying the sandstone; and he only ventures to suggest, that they may belong to the older secondary, or younger transition systems.

Travertine and Kunkur.—Springs charged with carbonate of lime prevail throughout the country, and in the bed of some of the rivers, calcareous matter is so abundantly deposited as to cement the pebbles into a hard rock. "It is impossible," says the author, "to examine these accumulations without immediately perceiving the origin of the nodular limestone or kunkur, which is so extensively distributed in India."

* Journal of the Asiatic Society of Bengal, vol. ii. pp. 295 and 583.

† Asiatic Researches, vol. xviii. p. 192

‡ Journal of the Asiatic Society of Bengal, vol. ii. pp. 376. 639.

§ Asiatic Researches, vol. xviii. p. 193, and Journal of the Asiatic Society of Bengal, vol. ii. p. 304.

‖ Journal of the Asiatic Society of Bengal, vol. i. p. 247.

¶ See Major Franklin's memoir on Bundelcund, &c., in the Geol. Trans., 2d ser., vol. iii. p. 91, *et seq.*, also Asiatic Researches, vol. xviii. p. 24, *et seq.*; and Phil. Mag. and Annals, N. S., vol. iv. p. 294.

Thermal Springs and Mineral Waters.—At Kair (lat. 19° 55', long. 78° 56') and Urjunah, springs having a temperature of 87°, and charged with carbonic acid gas, issue through the limestone; and one, at the former locality, contains also a little muriate of soda, a minute quantity of sulphate of lime, and much carbonate of lime. At Byorah (lat. 17°. 57', long. 80° 20') is a spring, the temperature of which is 110°; and at Badrachellum (lat. 17° 43', long. 80° 79'), one possessing a temperature of 140°, and containing sulphuretted hydrogen, and sulphates and muriates of soda and lime.

A minute description is given of the mineral waters of the Lonar Lake, (lat. 20°, long. 76° 30') and of the natron which is deposited in a layer beneath its muddy bottom. The water of the lake is clear, its specific gravity is 1027·65, and it has no unpleasant smell; but the mud at its bottom is highly charged with sulphuretted hydrogen. The salt under the mud accumulates slowly, and is extracted only once in several years. It consists of carbonic acid 38·, soda 40·9, water 20·6, insoluble matter .5, and a trace of a sulphate; and thus corresponds in composition with the Trona, or striated soda from the Lakes of Fezzan, analyzed by Mr. R. Philips*, and approaches somewhat nearer to the equivalent numbers of the sesquicarbonate established by that analysis. The water of the Lonar lake contains, besides a little potash, muriate of soda 29 grains, sesquicarbonate of soda 4·2 nearly, and sulphate of soda ·1, in 1,000 grains of water. No lime was detected in it, nor any magnesia. The absence of the former Mr. Malcolmson says, is easily accounted for, as the sesquicarbonate of soda and the water itself precipitated the sulphate and muriate of lime, notwithstanding the mutual decomposition they undergo when in a semifluid state. In accounting for the production of the natron, he adopts the theory of Berthollet for the formation of that salt in the lakes of Egypt, viz., a mutual decomposition of the muriate of soda and carbonate of lime, when in a pasty state; but as the natron of Fezzan and the Lonar lake contains half an equivalent more of carbonic acid than can be furnished by carbonate of lime, he proposes a modification of that theory, and suggests that the carbonic acid by which the lime is held in solution in the mud, furnishes the acid, and perhaps indicates the existence of an *unstable* sesquicarbonate of that substance. "Wherever," adds the author, "I have met with natron, or obtained detailed accounts of its occurrence, muriate of soda and carbonate of lime existed in the soil,

* Journal of the Royal Institution, vol. vii. p. 294.

and the natron was found on the surface of the moist earth or mud."—*London and Edinburgh Philosophical Magazine and Journal of Science—No.* 74—*March* 1838—pp. 286—291.

Royal Society, March 22, 1838.—A paper was read, entitled, "On the Régar or Black Cotton Soil of India," by Captain Newbold, Aide-de-Camp to Brigadier-General Wilson. Communicated by S. H. Christie, Esq., M. A., Sec. R. S.

The author states that the Régar of India is found, by chemical analysis, to consist of silica, in a minute state of division, together with lime, alumina, oxide of iron, and minute portions of vegetable and animal *débris*. Hence it is usually considered as having been formed by the disintegration of trap rocks: the author, however, after examining its numerous trap dykes traversing the formation of the ceded districts, which he found invariably to decompose into a ferruginous red soil, perfectly distinct from the stratum of black régar through which the trap protrudes, was led to regard this opinion of its origin as erroneous: and from the circumstance of its forming an extensive stratum of soil covering a large portion of the peninsula of India, he believes it to be a sedimentary deposit from waters in a state of repose.

Specimens of basaltic trap and of the Régar soil were transmitted to the Society by the author, for the purpose of analysis.—*Ibid. No.* 76.—*May* 1838.—p. 430.

LITERARY INTELLIGENCE.

DR. WIGHT has commenced a work, under the title of ICONES PLANTARUM INDIÆ ORIENTALIS, which will prove more useful to the botanical student, and tend more to the advancement of the Science of Botany, than even the excellent *Illustrations*, now in the course of publication.

Three numbers of the *Icones* have appeared, each containing 20 lithographic illustrations. A number will be published monthly, until the author has expended all his materials, which are most ample, for, in addition to his own large collection of drawings and dried specimens, Dr. Wallich has liberally put at his command "the magnificent collection of drawings of East Indian Plants formed by Dr. Roxburgh." Thus, in the most convenient and the cheapest form possible, a botanical work for India will be produced, unrivalled in point of utility, and in a pictorial point of view possessing very considerable merit, especially when the disadvantages under which Dr. Wight labours are taken into consideration, and how much more than the proper province of the author he is obliged to perform himself in the execution of this work.

The 3d No. shews a very great improvement in the lithographs, over the former two, many of them being equal to anything of the kind in botanical works in Europe, and certainly superior to any that have been produced in India. We shall note the issue of this work with very great interest, and shall from time to time acquaint our readers with particulars of its progress.

METEOROLOGICAL REGISTER KEPT AT THE MADRAS OBSERVATORY, FOR THE MONTH OF APRIL, 1838.

Days.	Barometer at 10 A. M.	Barometer at 4 P. M.	Barometer at 10 P. M.	Thermometer at 10 A. M.	Thermometer at 4 P. M.	Thermometer at 10 P. M.	Rain. Sun-rise.	Rain. Sun-set.	Evaporation.	Direction of Wind. 10 A. M.	Direction of Wind. 4 P. M.	Direction of Wind. 10 P. M.	Weather. 10 A. M.	Weather. 4 P. M.	Weather. 10 P. M.	Remarks.
1838	Inch.	Inch.	Inch.	°	°	°			Inch							
Apr. 1	30,052	29,942	30,026	84,0	88,0	82,3	.....	.....	.....	N	.....	NE	Fl. cl.		Clear	Dew.
2	,036	,952	0,28	84,8	86,5	82,3	.....	.....	.....	E	E by NE	Calm	Clear	Fl. cl.	Cloudy	Lightning.
3	,030	,932	0,201	85,3	86,5	82,3	.....	.....	.....	E	E	E	Fl. cl.	Th. ha.	Clear	
4	,050	,932	29,966	84,6	88,0	82,5	.....	.....	2,961	S	SE	SE	Clear	Clear	Clear	
5	,014	,890	,956	85,7	89,8	82,6	.....	.....	.....	SE	SE	SE	Clear	Clear	Clear	
6	29,978	,880	,950	85,8	88,3	82,7	.....	.....	.....	SW	SE by SE	SE	Clear	Clear	Clear	
7	30,010	,870	,940	85,4	87,0	82,2	.....	.....	.....	SW	SE	S	Clear	Clear	Clear	
8	,010	,870	,970			82,7	.....	.....	.....	SE	S	S				
9	29,940	,814	,898	88,0	88,0	83,6	.....	.....	.....	S	S	S	Clear	Clear	Clear	Lightning.
10	,994	,874	,976	87,0	89,5	83,7	.....	.....	.....	S	S	S	Clear	Clear	Clear	
11	30,046	,890	,992	87,0	88,0	84,0	.....	.....	3,295	S	S	S	Clear	Clear	Clear	
12	,002	,850	,960	88,2	89,0	83,7	.....	.....	.....	S	SE	S	Clear	Clear	Clear	
13	,016		,972	88,3		84,0	.....	.....	.....	SW		S	Clear		Fl. cl.	
14	29,994	—	,974	88,5		84,8	.....	.....	.....	SW		S	Clear		Cloudy	Lightning.
15	,984		,966	87,8		84,3	.....	.....	.....	W		SE	Clear		Clear	
16	30,004	,886	,958	87,8	90,5	84,4	.....	.....	.....	S	SE	SE	Clear	Clear	Clear	
17	,006	,876	,960	87,2	89,6	84,3	.....	.....	.....	SW	SE	SE	Clear	Clear	Clear	
18	,000	,864	,950	86,7	88,5	83,9	.....	.....	3,238	SW	SE	SE	Clear	Clear	Clear	
19	29,976	,848	,918	86,4	88,5	83,8	.....	.....	.....	S	SE	SE	Clear	Clear	Clear	
20	,940	,814	,934	86,5	88,4	84,1	.....	.....	.....	S	S	SE	Clear	Clear	Clear	
21	,972	,860	,966	86,3	89,0	84,7	.....	.....	.....	E	E	E	Clear	Clear	Clear	
22	30,010		,978	87,3		84,0	.....	.....	0,767	E	E	E	Fl. cl.	Th. ha.	Cloudy	Thunder and lightning.
23	,070	,962	30,042	85,8	87,0	83,8	.....	.....	.....	SE	SE	SE	Cloudy	Cloudy	Clear	Lightning.
24	,050	,940	,012	86,4	87,8	84,2	.....	.....	.....	S	S	S	Fl. cl.	Clear	Clear	Do.
25	,008	,878	29,974	85,0	89,0	86,3	.....	.....	2,701	S	S	S	Clear	Clear	Clear	Do.
26	,006	,896	,990	87,5	88,0	84,4	.....	.....	.....	S	S	S	Haze	Clear	Clear	Do.
27	,016	,896	,994	88,0	88,0	84,4	.....	.....	.....	S	S	S	Haze	Clear	Clear	Do.
28	,036	,896	,940	88,0	88,6	85,2	.....	.....	.....	S	S	S	Clear	Clear	Clear	Do.
29	29,956	,921	,936	88,3		85,1	.....	.....	.....	S		S	Clear	Th. ha.	H. ze	Do.
30	,962	,850	,958	87,8	87,8	84,3	.....	.....	.....	S	S	S				
Mean.	30,004	29,883	29,968	86,7	88,4	83,9										

The Instruments with which the foregoing Observations are made, are placed on the Western Verandah of the Honorable Company's Observatory, at about 5 feet above the surface of the ground, and 27 feet above the level of the Sea: the Thermometer was made on purpose for the Observatory, and at 75degs. (the only point at which a comparison has been made) it was found to differ insensibly from the Royal Society's Standard;—the Barometer is one of two Standards which I have lately constructed, and may be depended upon to 0,01 of an inch: the diameter of the tube is 0,22 of an inch; rendering it necessary to apply the correction +0,051 inches for capillary action, in addition to the usual correction for temperature.

	h.	*m.*	*s.*
Longitude.....	5	21	8 E.
Latitude....	13°	4	8,5 N.

MADRAS OBSERVATORY,
1st July 1838.

T. G. TAYLOR,
H. C. Astronomer.

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MADRAS JOURNAL

OF

LITERATURE AND SCIENCE.

No. 21.—*October* 1838.

Fourth Report of Progress made in the Examination of the MACKENZIE MSS., *with an Abstract Account of the Works examined.—By the Rev.* WILLIAM TAYLOR, *Member of the Madras Literary Society, &c.*

A :—TAMIL.

Palm-leaf manuscripts.

I—The *Bhagavata-Purana.*

Two copies No 11.—Countermark 17, and No. 12, Countermark 18.

The court of *Janamejaya* held at the royal town of *Hastinapuri*, near the site of modern Delhi, appears to have been the resort of learned men; and these, especially of the order of mystic sages, seem to have been much encouraged and reverenced. The great epic poem of the *Mahabharata* (in Tamil styled the *Baratham*) was according to its own assertion originally recited to him. The *Bhagavatam* also contains an implied indication of having been written in his reign, though it is stated to have been narrated to his father *Paricshit*, a short time before his death. *Paricshit* was the son of *Abimanya*, who was the son of *Arjuna*, the hero of the *Mahabharata*, and fabled to be the offspring of *Indra*, the regent of the visible heavens. The era of *Janamejaya* was at the beginning of the *Cali-yugam*; and probably was somewhat prior to the commencement of the Christian era. It does not however follow, of necessity, that the composition of the *Bhagavatam* was so early; for though said to be recited to *Paricshit*, and recorded in the time of *Janamejaya*, that may possibly be a fiction of the author, who very likely lived at a much later period.

METEOROLOGICAL REGISTER KEPT AT THE MADRAS OBSERVATORY, FOR THE MONTH OF MAY, 1838.

Days.	Barometer at 10 A. M.	Barometer at 4 P. M.	Barometer at 10 P. M.	Thermometer at 10 A. M.	Thermometer at 4 P. M.	Thermometer at 10 P. M.	Rain. Sun-rise.	Rain. Sun-set.	Evaporation.	Direction of Wind. 10 A. M.	Direction of Wind. 4 P. M.	Direction of Wind. 10 P. M.	Weather. 10 A. M.	Weather. 4 P. M.	Weather. 10 P. M.	Remarks.
1838	Inch	Inch.	Inch	°	°	°			Inch.							
May 1	29,934	29,886	29,966	87,9	88,5	85,3	.....	.....	.....	S	SE	S	Clear	Clear	Clear	Lightning.
2	,994	,846	,952	87,4	85,8	84,2	.....	.....	3,225	SE	SE	S	Clear	Cloudy	Clear	do. and thunder.
3	,942	,820	,936	87,2	89,0	85,8	.....	.....	.....	SW	SE by E	S SW	Clear	Clear	Haze	do.
4	,916	,802	,904	86,8	88,5	86,2	.....	.....	.....	S	SE	SW	Clear	Cloudy	Haze	Lightning.
5	,968	,834	,936	85,8	89,6	85,2	.....	.....	.....	NE	E by NE	SE	Cloudy	Clear	Clear	Thunder and lightning.
6	,966	——	,946	88,5	——	86,0	.....	.....	.....	SE	——	S	Clear	——	Clear	Lightning.
7	,982	,856	,946	90,2	89,8	86,1	.....	.....	.....	SW	SE	S	Clear	Clear	Clear	
8	,954	,826	,940	89,7	90,0	86,5	.....	.....	.....	SW	S by SE	SW	Clear	Cloudy	Cloudy	Lightning.
9	,954	,828	,940	89,9	91,5	86,3	.....	.....	3,328	SW	S by SE	S	Haze	Haze	Clear	do.
10	,942	,832	,914	89,8	90,5	86,3	.....	.....	.....	SW	SE	S	Clear	Clear	Clear	do.
11	,932	,808	,904	90,7	91,6	86,3	.....	.....	.....	SW	S by SE	SW	Clear	Clear	Clear	do.
12	,948	,842	,920	90,4	90,5	86,2	.....	.....	.....	W	S	S	Clear	Clear	Clear	do.
13	,976	——	,940	90,4	——	88,2	.....	.....	.....	SW by W	——	S	Clear	——	Haze	
14	,964	,840	,908	92,0	92,0	87,9	.....	.....	.....	SW	S by SE	S	Clear	Clear	Fl. cl.	
15	,908	,810	,886	92,0	91,5	86,2	.....	.....	.....	SW	S by SE	S	Clear	Clear	Clear	Strong wind.
16	,920	,818	,890	89,0	92,2	86,5	.....	.....	4,325	SW	SE	SE	Clear	Clear	Fl. cl.	Lightning.
17	,934	,818	,946	88,4	90,0	86,0	.....	.....	.....	SW	SE by E	SE	Cloudy	Haze	Clear	do.
18	,970	——	,960	88,6	——	85,6	.....	.....	.....	S	——	SE	Haze	——	Clear	do.
19	,960	,850	,942	88,4	89,8	85,3	.....	.....	.....	SW	SE	SE	Haze	Th. hz.	Clear	do.
20	,940	——	,914	88,8	——	84,4	.....	.....	.....	S	——	SE	Clear	——	Clear	do.
21	,960	,852	,928	88,5	89,0	84,2	.....	.....	.....	SE	SE	SE	Clear	Th. hz.	Clear	do.
22	,932	,820	,904	88,0	89,5	84,4	.....	.....	.....	SW	SE	S	Clear	Clear	Clear	do.
23	,876	,740	,850	89,3	89,8	85,9	.....	.....	3,108	W	SE	SE	Clear	Clear	Clear	do.
24	,880	,804	,902	88,4	89,6	85,7	.....	.....	.....	SE	SE	SE	Clear	Clear	Clear	do.
25	,934	,878	,928	88,4	89,0	85,2	.....	.....	.....	E	SE	SE	Clear	Clear	Clear	do.
26	,930	,832	,874	88,6	89,2	85,6	.....	.....	.....	SE	SE	SE	Haze	Th. hz.	Clear	do.
27	,896	——	,858	89,5	——	86,7	.....	.....	.....	NW	——	SE	Haze	——	Clear	do.
28	,864	,752	,828	88,5	89,8	85,9	.....	.....	.....	NW	SE by E	S	Th. hz.	Th. hz.	Haze	do. S. W. at 10 A. M.
29	,796	——	——	89,9	89,8	——	.....	.....	.....	NW	SW	——	Cloudy	Cloudy	——	Lightning.
30	,814	,758	,856	87,9	85,8	83,7	0,537	.....	3,116	W	S	NW	Clear	Cloudy	Cloudy	do.
31	,880	,770	,848	86,5	87,0	84,0	.....	.....	.....	S	S SE	S	Clear	Clear	Clear	
Mean	29,928	29,817	29,912	88,[illegible]	89,6	85,7										

METEOROLOGICAL REGISTER KEPT AT THE MADRAS OBSERVATORY, FOR THE MONTH OF JUNE

Days.	Barometer at 10 A. M.	Barometer at 4 P. M.	Barometer at 10 P. M.	Thermometer at 10 A. M.	Thermometer at 4 P. M.	Thermometer at 10 P. M.	Rain. Sun-rise.	Rain. Sun-set.	Evaporation.	Direction of Wind. 10 A. M.	Direction of Wind. 4 P. M.	Direction of Wind. 10 P. M.	Weather. 10 A. M.	Weather. 4 P. M.	Weather. 10 P. M.	Remarks.
1838	Inch.	Inch.	Inch.	°	°	°										
June 1	29,886	29,772	29,826	86,8	88,2	85,3	.....	.....	.....	S	S	S	Clear	Clear	Clear	Lightning strong S. wind dur-
2	,890	,736	,798	89,3	91,2	85,9	.....	.....	.....	SW	SE	S	Clear	Clear	Clear	Do. [ing the day & night
3	,878	——	,840	89,3	——	85,3	.....	.....	.....	SW	——	S	Clear	——	Haze	Do.
4	,874	,784	,842	91,5	91,6	87,9	.....	.....	.....	W	SE	SW	Haze	Cloudy	Th. hz.	Do. thunder land wind con-
5	,864	,766	,870	85,0	87,5	86,4	0,167	.....	.....	SW	SW by S	S	——	Cloudy	Th. hz.	Do. do. [tinued long time
6	,862	,758	,842	84,8	87,8	85,0	.....	.....	4,211	SW	SE	SW	Cloudy	Cloudy	Cloudy	Do.
7	,864	,806	,860	86,0	87,8	84,5	.....	.....	.....	S	E	SW	Cloudy	Cloudy	Cloudy	Do. do.
8	,900	,800	,844	86,3	89,9	84,7	.....	.....	.....	SW	SE	SW	Haze	Th. hz.	Clear	Do.
9	,866	,758	,852	87,4	89,8	86,5	.....	.....	.....	W	SE	SW	Clear	Fl. cl.	Cloudy	Do.
10	,860	——	,836	87,7	——	86,3	.....	.....	.....	W	——	S	Haze	——	Fl. cl.	Vivid lightning and thunder.
11	,869	,786	,832	86,9	87,6	85,9	.....	.....	.....	SW	S	S	Cloudy	Cloudy	Haze	Do.
12	,850	,732	,836	87,7	89,0	86,3	.....	.....	.....	SW	SE	SW	Clear	Clear	Fl. cl.	Do. do.
13	,856	,764	,814	88,7	89,8	85,3	.....	.....	2,960	W	SE	S	Clear	Fl. cl.	Fl. cl.	Do. do.
14	,838	,712	,808	89,7	89,9	86,7	.....	.....	.....	SW	S by SE	S	Clear	Cloudy	Haze	Do. do.
15	,822	,708	,753	88,6	93,8	90,3	.....	.....	.....	W	W SW	W	Haze	Cloudy	Th. hz.	Do. do.
16	,764	,650	,724	90,3	93,6	89,8	.....	.....	.....	W	W	NW	Haze	Cloudy	Cloudy	Do.
17	——	——	,782	——	——	89,8	.....	.....	.....	——	——	W	——	——	Fl. cl.	Do.
18	,796	,676	,786	90,7	94,0	90,7	.....	.....	.....	SW	W S W	SW	Cloudy	Cloudy	Clear	Do.
19	,800	,700	,842	90,6	94,8	91,0	.....	.....	.....	SW	SW	W SW	Cloudy	Fl. cl.	Cloudy	Do.
20	,842	,748	,840	92,0	89,0	86,3	.....	.....	.....	SW	S	S	Clear	Cloudy	Fl. cl.	
21	,876	,740	,862	91,0	87,6	84,0	.....	0,197	.....	SW	S	SW	Clear	Cloudy	Cloudy	Thunder and lightning.
22	,888	,784	,882	88,0	95,8	86,9	0,107	.....	.....	W	SW	SE	Haze	Fl. cl.	Cloudy	Do.
23	,918	,790	,894	89,5	93,6	88,0	.....	.....	.....	W	SW	SE	Haze	Cloudy	Cloudy	Do.
24	,928	——	,908	89,2	——	88,3	.....	.....	.....	W	——	SE	Haze	——	Cloudy	Do.
25	,944	,834	,910	88,3	93,0	87,9	0,177	.....	.....	SW	SW	SE	Haze	Fl. cl.	Haze	Do.
26	,928	,920	,896	88,6	88,5	83,9	.....	0,227	.....	SW by W	SE	SE	Clear	Cloudy	Clear	Vivid lightning.
27	,900	,800	,840	86,9	88,5	84,2	.....	.....	4,406	W	SE	S	Th. hz.	Th. hz.	Haze	
28	,868	,790	,860	90,0	88,8	84,7	.....	.....	.....	W	SE	S	Clear	Fl. cl.	Clear	
29	,868	,788	,844	88,5	88,5	86,3	.....	.....	.....	W	SE	S	Haze	Th. hz.	Cloudy	Lightning.
30	29,880	29,788	29,842	87,6	89,0	86,4	.....	.....	.....	W	SE	S	Cloudy	Th. hz.	Fl. cl.	
Mean	29,858	29,765	29,839	88,5	90,3	86,7										

banished *Cali-purusha*; but the son refused to recal what he had said, and confirmed it. The ascetic did what he could, by sending a message to the king, bidding him take all precautions to avert the threatened danger. Nevertheless the mind of the king became saddened, with one continued and oppressive thought, that he must soon inevitably die. He made over the kingdom to his son *Janamejaya*.

The *rishis* came to console him. *Suca* also came. The king told *Suca* that he himself must die by the bite of a snake, within seven days; and enquired how, within that short space of time, he might merit beatitude. *Suca* directed him to beg of the aforesaid ascetic to stay in one place for seven days, which was not the ascetic's custom. *Paricshit* having retreated to a temporary abode, constructed in the centre of a large reservoir of water, was there attended by *Suca*, who narrated to him what follows; being properly speaking the *Bhagavatam*.

Second *Cándam*, or section.

Suca commences with the story of a king who fought against *rácshasas*, and conquered them; in consequence of doing which he obtained the promise of a celestial gift. The said king replied, that the only gift he required was to know when he must die. "Within two days" was the answer. The said king immediately renounced every thing earthly; and, occupying himself in meditation on *Vishnu*, obtained beatification. *Suca* assured *Paricshit* that, in like manner, he would obtain the same; provided he kept his mind single, or undistracted, by inferior things, for seven days. *Paricshit* was consoled by this assurance; and attended to the recital of the *Bhágavatam*.

Then follows a mystical description of *Vishnu*: the parts of his body representing different portions of the universe; amounting, on the whole, to something very like the *animi mundi* system. Much praise is given to *Sanniyâsis*, or recusants from the world. A life of retreat in wastes, wildernesses, and mountains, is lauded, as preferable to earthly desires, or secular possessions. Abstract devotion is the means of acquiring future bliss. Homage is of many kinds. If *Yógam* (abstraction in penance) be performed, it will procure the paradise of *Brahma*. If the meditation be fixed on *Vishnu*, it will merit the paradise of *Vishnu*. Outward rites are inferior. A *yágam* (or sacrifice) may be performed for the sake of health, and strength. If a child is desired, the nine *Brahmádicas* are to be honoured. For wealth, homage is to be paid to *Dúrga*. For a handsome form, *Agni-deva* must have homage. For health, let the sun be adored. There are further directions of this kind. There follows much enlargement on the praise of *Vishnu*. *Paricshit* asks why *Vishnu*, as

Náráyana, created *Brahma*, *Vishnu*, and *Siva*? *Suca*, in reply, states that *Narada* asked the same question of *Brahma*, and adds that he will repeat *Brahma's* answer. *Brahma* said that *Náráyana* made him—instructed him—by means of *Náráyana* he created the world—not by his own power—nothing could exist without that being—the sun, and the stars, are his light—he is the source of all human knowledge. *Sarvam Vishnu mayam jagat** or "the universe is the illusive form, or evolution, of *Vishnu*." Within him all mundane eggs (or germs of worlds) are placed. What other gods soever are worshipped, originally or ultimately, all proceed from *Vishnu*. Much more is added concerning the *mayam*, and other characters of *Vishnu*. An explication is given, by *Suca* to *Paricshit*, of certain technical terms; probably intended to be a definition of their meaning, as used in subsequent portions of the work.

Third *Cándam*, or section.

A salutation to *Vyása*; and then a brief reference to events narrated in the *Mahabhárata*. The birth of gods, and of various other things, from different parts of the body of *Vishnu*. They who read *Vaishnava* books drink *amrita* (nectar), and will not taste the salt-water of other books. The ubiquity of *Vishnu* is compared to the reflection of the sun's image in many vessels holding water: it is seen in each distinct, and the reflected images are numerous, but the sun itself is one body. A reference to various orders, or classes, of beings, and things, as created by *Brahma*. Account of light, its rays, and divided rays. Definition of time, distinguished into time, as regards men, and time as regards the *pitri-devas*, or divine ancestors. Enumeration of the *yugas*, or revolving ages of time. Mention of worlds. The upper ones are the *Bhu-pavr-svar-maha-jana-tapò-locas*; and "above these the *Satya-loca* shines;" which is the (*irupidam*, or) dwelling place of *Brahma*. *Brahma's* life, or age; his sleep, attended with the destruction of worlds. The *maha-yugas*, or great ages. The *Manvantaras*, or periods of rule of each of the *Manus*. The *Calpas*, or days of *Brahma*, equal to one thousand great ages. Destruction of the universe at the close of the *Calpa* by *Agni-deva* (that is by fire). The office of *Vayvu* (or wind) at the close of the deluge. *Vishnu* (i. e. *Náráyana*) holds all worlds inclosed within himself. The *tabó-loca* and *jana-loca* are described as being inhabited. All the *Calpas*, are but a moment to *Vishnu*. Narrative of the birth of *rishis*, from the members of *Brahma*. Panegyric of *Vishnu*, by *Brahma*. Story of *Cazyapa*, and of *Diti*, one of his wives, mother of the *Daityas*. Refer-

* An often quoted phrase.

To the latter opinion I should incline; but do not think its original composition could be later than the beginning of the Christian era, because of the subsequently troubled state of India, from the incursions of foreign conquerors, of which *Hindu* books give obscure, but powerful, reminiscences. The original work of course, was written in Sanscrit, and this original from collated copies, as I learn from Monsieur Langlois's version of the *Harivamsa*, is either translated, or in process of translation, at Paris. A good version, in any European language, of the Sanscrit original would supersede any necessity of translating a Tamil document, merely an epitome of the original: meantime I offer the following very meager abstract of the older* part of the work, including the first nine books. The latter portion, from the tenth to the twelfth book inclusive, I need not epitomize. It is the portion most familiar to those who are in any measure acquainted with the work; and is, in every point of view, least valuable: it has also I think tended to convey quite an erroneous idea of the entire work. I cannot profess to offer a very minute abstract. The Tamil copy, itself an epitome, is too much condensed to admit of much further abridgment, if followed in every particular *seriatim*. A general idea, or outline, of the contents is all that I can promise.

First *Cándam*, or section.

Homage to *Vyasa*. Certain *rishis*, 21,000 in number came to *Suta-rishi*; and, doing obeisance, said that as the *Cali-yugam* was about to begin, and men were become very depraved, they wished to hear from him the story of *Crishna*, and other matters, pertaining to still older times. *Suta* was rejoiced. He terms *Vyasa* his *guru*, or spiritual instructor. He adverts to *Para Brahm*, and *Paramesvarer*; meaning *Vishnu*. He discourses on the *Satwica*, *Rajasa*, and *Tamasa*, dispositions, and their consequences; also concerning the ten metamorphoses or superior incarnations, and the inferior incarnations, of *Vishnu*. Transition to the story of *Paricshit* who built a house, and dwelt, in the midst of a tank, in consequence of a prediction concerning his speedy death. Thither *Suca*, the son of *Vyasa*, came to recite to him, in his last hours, the story of the *Bhagavata*, that, by the merit of hearing it, his safety after death might be secured. *Suta-rishi* says, that having heard it from *Suca*, he now recites it to the before mentioned *rishis* for their advantage.

Thus far is the foundation, or introduction, of the narrative.

The four *Vedas* were delivered to different persons by *Vyasa*. The *Baratham* (or *Mahabharata*) is termed the fifth *Veda*. This, with the eighteen

* The *párva b'ága* contains the *dasama-cándam*; but the contents of the 10th section relate to matters more modern, than the preceding nine books, or sections.

puránas were delivered to *Suta*. The *Vedas* were communicated only to Brahmans. All stories not relating to *Vishnu* are venemous; and there is much in the like style. Even a *Sudra* by doing homage to *Vishnu* will become virtuous. The assertion is exemplified in the case of *Nareda*, who though at first a *Sudra*, yet by following the instructions of a *Brahman*, was born a second time as a *Brahman*. If the *Vedas* be read 16,000 times, beatitude will not be attained; but it will be attained by hearing the *Bhagavatam* read only once; provided it be at the same time understood. There is a reference to the great war, led on by *Crishna* and the *Pandavas*. A statement of certain events, births, deaths, and other matters, as in the *Mahabhárata*. The death of *Bhishma* is particularly noticed. Story of *Crishna*, and his sixteen thousand wives (which is probably resolvable into some astronomical enigma). The *rishis* enquire concerning the birth of *Paricshit*, and *Suta* replies. His nativity, or astrological horoscope, was calculated. Thence it was predicted, that he would be of illustrious character; would make great acquisitions; would have a son named *Janamejaya*; would have his life endangered by the bite of a serpent; and then, after hearing the *Bhagavatam* recited, would go and die by the Ganges (water in general). The calculation, and prediction, were made at the instance of *Dherma rája*, who after hearing the result, returned to *Hastinápuri*. *Nareda* is introduced as detailing, to *Dherma-raja* many particulars of the future fate of several of his relatives; and as announcing the evil character of the approaching *Cali-yuga*. *Dherma-raja* caused *Paricshit* to be crowned. *Paricshit*, going out to hunt, saw a cow with three legs broken, having a calf, and weeping. The king enquired what was the matter; when the cow lamented that *Crishna* was no longer on earth to care for it. A *Sudra* came by, and kicked the cow; breaking the remaining leg, so that it fell to the ground: the king was angry, and threatened to cut him down with his own sword, when *Cali-purusha*, the said man, besought his mercy; and was sent away out of his dominions.* As the king always acted justly, the cow was restored to its former position, during his reign.

Another day the king went out to hunt; and came to the place where an ascetic was doing the penance of a *Yogi*. The king asked for water; to which request the ascetic paid no attention. A dead snake was near, which the king took up; tied round the neck of the ascetic; and went away. The son of the ascetic coming up, uttered a denunciation on the person who had so acted, to the effect that he should be bitten by a snake and die. The father said the doing so was wrong; inasmuch as the king had

* This it will be remembered is symbolical language, as will appear more plainly from a Mahratta MS. abstracted under that head in this report. See Mahratta Bakheer No. 27.

ence to *Hiranyacsha* and his son *Pracalátanan (Prahláda)*. Two *Brahmans* went to the gates of *Vishnu's* paradise, and were resisted by two porters. The *Brahmans* in consequence denounced, on these two porters, the doom of becoming *racshasas*. *Vishnu* came forth, and appeased the *Brahmans;* saying he would take dust from their feet and put it on his head; adding that he possessed *Vaicont'ha* because of the homage paid by the *Brahmans*. These two Brahmans were appeased; and being dismissed, *Vishnu* then told the two door-keepers, that since he could not avert the doom denounced by the *Brahmans*, they, the said warders, must go to earth, and be born of *Diti*, as *racshasas;* and become his (*Vishnu's*) enemies. According to this appointment one of the porters was born as *Hiranyacsha*, and the other as *Hiranya-casipu*. The latter performed severe penance, and thereby acquired great power. He went to *Sverga*, and alarmed the inhabitants of *Indra's* world (symbol for great prosperity). He fought with, and conquered the elements. Among them *Varuna* (water personified) treated with him concerning peace, and said if *Hiranya-casipu* delighted in war he might go to *Vaicont'ha*, and fight with *Narayana*. The former accordingly went thither; and at the entry was met by *Nareda*, who told him, that *Náráyana* was not now at home, but was gone down to *Patála-lóca* to bear the burden of the earth. The *Daitya* went down thither, saw *Vishnu*, with whom he fought, and was killed.

Transition to another narrative, by *Maitraya maha muni*, to *Viruda*, of various beings changed in form by *Brahma*. Subsequently *Vishnu* is introduced speaking to *Karta-Brahma* (or the creator *Brahma)* telling him, that his wife, the daughter of *Vaivasvata menu*, should bear nine female children, which were to be given, to the nine *Brahmádicas*. *Brahma* came, and saw the marriage celebrated. Afterwards *Capila* (in whose person *Vishnu* had antecedently promised to become incarnate) was born; and, according to promise, *Vishnu*, in this his inferior incarnation as *Capila*, instructed his earthly father and mother in wisdom. Some specimen of his instructions is given. *Capila* narrates the greatness of *Vishnu*; and, ascribing all honour to him, states that his form is to be worshipped. He gives explanations concerning the three dispositions *támasa*, *rájasa*, *sátwica*. To the *tamasa*, quality is ascribed violence, arrogance, obstinacy, ostentation, avarice, hatred; to the *rajasa* quality, covetous desire of acquisition; to the *satwica*, quality, knowledge of the ninety-six *tatvas*, or qualities of the body; self knowledge, knowledge of *Vishnu*, meekness, and meekly reflecting on *Vishnu*. The last quality is the best of the three. To these three qualities, different future states of being are apportioned: to the *támasa*, the *sálócya*

or entrance on *Vishnu's* world; to the *rájasa*, the *sámipya*, or nearness to *Vishnu*; to the *sátwica* is awarded the *sárupya*, or identification with *Vishnu's* form. To the spiritually wise, is allotted *sáyujya*, absorption into the essence of *Vishnu*.

"He," says *Capila* (as *Vishnu*), "who offers sacrifice, but not to ME, performs a *yágam* on ground covered with ashes:* the sacrifice of a prevailingly treacherous man I will not accept. Better than a motionless animal existence, is one that walks; better than this, is a four-footed beast; and better than a four-footed beast is the biped man. Among men the Brahmans are the greatest. Such Brahmans as have studied the *Vedántam* (spiritual end, or substance, of the *Vedas*) are more honourable than others. The *Nyanis* (or wise) are still greater. The *Vriddhis* (or exempt from sensual passion) are better than they. The *Satwica-Dhermas* are best. Such of these last as worship *Vishnu* are better than others. And such of these worshippers of *Vishnu*, as are wholly without earthly desires, or attachment to earthly things, are much the best. *These have* ME *in their possession.*" The contrast is introduced; and a catalogue of crimes, vices, and follies, is stated, as pertaining to those who do not worship *Vishnu*. Among them are the three vicious desires of land, women, money, or property: those who eat flesh, and who drink any strong or intoxicating drinks, will, like the victims of other vices, be punished for many thousand years in *Yama-loca* (hell). Of these punishments, in that world, as apportioned to each crime mentioned, there is a full and minute specification. When the spirit is separated from the mortal body, there is a kind of body, with which it is clothed, that is adapted to bear, and feel, those several punishments, termed *Yatana-deca* (the punishment bearing body). When the expiation, by suffering, is ended, then according to the former *carmam* (state or degree of merit, or demerit) the spirit will be born anew, or otherwise. A little time before birth, the pent-up existence, or straitened-soul, will remember and think intensely on all the crimes, or vices, attendant on a former state of existence; with a sorrowful consciousness of their enormity. The pains of birth, to the child itself, during parturition, are greater than the torments of *Yama-loca*. In consequence *Capila* exhorts his mother to perform severe penance; in order that she may not be exposed to the evil of future births; nor suffer their attendant pangs. Here the narrative of *Maitraya* to *Viruda* is suspended. It was repeated by *Suca* to *Paricshit*;

* That is unprofitable; good, and clean, ground being an essential requisite in a *yágam*, or sacrifice.

and again narrated, by *Suta*, to *Savunaca*, and the other *rishis*, mentioned in the introduction.

The fourth *Cándam*, or section.

Salutation, as before, to *Vyása*. *Suta* recommences his narrative to *Savunaca* of what *Suca* related to *Paricshit*, which is a resumption of the statement given by *Maitraya* to *Viruda*. The account of *Karta-Brahma* is reverted to. *Atri*, one of his race, performed penance; his object being to know which of the *Trimurti* (*Bramha-Vishnu-Siva*) was the greatest. In consequence of his austerities, a flame was produced, which rested on the head of the said *rishi*. The celestials being troubled by anxiety as to the object of this penance, which might possibly affect their own safety, went in a body, and complained to the *Trimurti*. These, with their consorts, ornaments, vehicles, and all attendants, came to the *rishi*, who worshipped, and praised them; and, on being told to mention his wish, he requested to be taught, by some visible appearance, which of the three was Lord of the Universe; adding that though he had performed penance, directed to one, yet the three had appeared. They replied that *in* themselves they were without difference, and could not be divided; that they were three persons in one form, but diverse in operation: in creating—in causing to be born, and preserving—in destroying, they were three; by consequence one of them being worshipped, the three were worshipped. Those who think of the three, as without distinction, are appointed to happiness. The *rishi* was instructed not himself to make any distinction; and an assurance was then given, that the three would be born, or become incarnate, in his posterity; from which circumstance he would acquire lasting fame. Receiving then the homage of the *rishi* they disappeared.

Some time afterwards *Anusvaya*, wife of *Atri*, gave birth to *Dattatreya*, under the direction, influence or power, of *Vishnu*; to *Durvasa* under the energy of *Siva*; and to *Chandra*, under the influence or power of *Brahma*. These three sons were excellent and famous. A detail follows of the children of the other *Brahmádicas*, by their respective wives. By these children, and their posterity, the world was peopled; and the creator (*Kartar*) *Brahma* was rejoiced.

The account of *Dacsha* follows. Two of the *Trimurti* rose up in token of respect before him; but *Siva* did not do so. *Dacsha* is represented as abusing *Siva* in the grossest terms; calling him "an eater of flesh; one dwelling in burning grounds; a devourer of filth; an evil demon, that taught the *Vedas* to *Sudras*;" regretting the having given his daughter in marriage to *Siva*, and denouncing on his sacrifices

want of success. *Nandi* (the bullock vehicle of *Siva*) hearing the language of *Dacsha*, was incensed, and in turn denounced misfortune on him, with the loss of his head, to be replaced by the head of a goat. *Brighu*, the great *muni*, heard the denunciation of *Nandi*, and because he had so doomed a *Brahman* (i. e. *Dacsha*) he (*Brighu*) pronounced maledictions on the *Saiva Brahmans*, terming them "vile ash-coloured impostors, blasphemers, corrupters of the *Vedas*, bad hierophants, evil, choleric persons, worthy to be dressed in their filthy garments." Thus, says the narrator, they who were harmonious became divided; execrating each other. He adds that *Dacsha's* insults appeared to *Siva* like eulogistic praises; but the other words, by the other two, were really bitter reproaches. *Siva* went to *Cailasa*. From that time forwards, between father-in-law and son-in-law (*Siva* and *Dacsha*) anger inwardly burned.

Some time afterwards, *Dacsha* made a great sacrifice, sending no invitation to *Siva*, but inviting all the other gods, *rishis*, &c. He also invited all his daughters *Sati* the wife of *Siva* being excepted. *Sati* went to her husband *Siva*, and told him that all the gods, and men, were going to her father's sacrifice; adding, "let us also go." *Siva* smiled, and said that if she went her father would insult her, on his account; but if she would go, she might. *Sati* went. *Dacsha* rudely received her, termed her a *Siva-drohi* (malicious, or treacherous, *Saivite*). His daughter died, consumed by a flame within in her own body; and afterwards became wife to *Yama*. *Siva*, on hearing what had occurred, in great wrath plucked a bunch, or lock, of hair from his head, and threw it on the ground, which started up as another *Siva* (a form of *Siva*), in the person of *Vira Bhadra*, having a thousand hands, each one armed with a weapon. *Isvara* sent him to destroy the sacrifice of *Dacsha*. He proceeded, accompanied by others, overset all the preparations, killed several persons, and cut off *Dacha's* head; afterwards returning to *Cailasa*. The gods, and others who escaped went away to *Brahma-deva*, and told him what had occurred. *Brahma* called *Dacsha* a *Siva drohi* (traitor to *Siva*, a pun on the term) asked if any sacrifice could be without the presence of *Siva*, adding that since *Siva* was not there, neither did he (*Brahma*) nor *Vishnu* go. He determined that what *Siva* had done must pass; or could only be reversed by himself; and invited the complainants to accompany him to *Cailása*. They went thither; and interceded for the success of *Dacsha's* sacrifice. *Siva*, prevailed on by their entreaties, came down to earth; gave life to the persons who had been killed; and in the hurry, of the moment, fitted a goat's head to the trunk of *Dacsha's* body, which became reanimated. Some other, rather ludicrous, details are given. *Dacsha* restored, and without a troubled mind now paid homage to *Siva*;

which the latter accepted. *Vishnu* came on his vehicle, and asserted the unity, and want of any division, or difference, between the *Trimurti*. They says the narrative, who read this account, will receive all prosperity.

Maitraya continues still addressing *Vidura* and enters on the history, and apotheosis, of *Druhva*. His father was *Uttara-parata*, who had two wives named *Suniti* and *Suruti*. *Druhva* was the son of the first, and *Uttama* was the son of the second wife. This latter wife was the favourite of the two; and the father used to take her son on his knee. *Druhva* son of the elder wife, one day came in, and the father took no notice of him. *Suruti* told *Druhva* that had he been her son, he would be loved; but, as the case was, he might go where he pleased. The boy, being five years old, complained to his mother, who told him he must do penance to *Vishnu*. As he was proceeding to do this penance, *Nareda* met him, and said he was too young to do penance. *Nareda* taught him a *mantra*, as a shorter way, to qualify him so as to obtain the desired boon. After making use of this charm, for some time, *Vishnu* came to know what he wished to have; announcing to him that he would have his father's kingdom for twenty-six thousand years, and afterwards be taken to the *Druhva-mandalam* (north pole of the celestial sphere). Accordingly, in due course of time, he came to the possession of his father's kingdom, ruled 26,000 years, was married, and had two sons. At the expiration of that period a *Vimánam* (celestial car), with two of *Vishnu's* messengers, appeared; and, his mortal form being changed to a divine form, he was carried up to the *Druhva-mandalam*. (The north polar star still bears the name of *Druhva-nacshetra*). *Maitraya* here tells *Vidura* that he who reads, or learns, this narrative will be prosperous in all his undertakings.

An account of *Druhva's* posterity follows. His son was *Urcala*, who did not even attempt to govern, but roamed about insensate, and like a devil. His son was installed; and some regular successions took place; down to *Vena*, a vile and vicious person, on whose account there was no rain. He paid no attention to the counsel of the *rishis*, or spiritual men, and these *munis* killed him. His wife ruled. The ministers of state beat or churned the right-shoulder of *Vena* (some enigma, or symbol) by which means a wicked king was produced. They beat, or churned, the left-shoulder of *Vena* and *Vishnu* in the form of one named *Archisa-mati*, or *Prit'hu*, was born. Different celestials gave him various gifts. Still there was no rain: several starving people came, imploring food from the king. *Prit'hu* was much incensed against *Bhumi-devi* (the earth personified as a goddess) and in consequence he took his bow and arrows to fight with her. In fulfilment of this intention he, for a long time, pur-

sued her, she being in the form of a cow (the hieroglyphic, or symbol, of plentiful production). At length tired out she knelt at his feet to do him homage; and said "if you kill me, the people will suffer." She recommended him to procure the calf which had been suckled by her; and, by means of milk drawn from it, all gifts would be obtained. As a result *Svayambhu** appeared in form as a calf. Many personages, celestial as well as terrestrial, obtained benefits by turning rings, and other jewels, or valuables, into calves. Among other things the Sun† was metamorphosed into a calf. In this way (explained more at length in the purana) *Prit'hu* obtained benefits, extending to all classes of beings, and things. In consequence the earth thence acquired the name of *Prit'hivi*, that is the daughter of *Prit'hu*. He built various towns; and on his purposing to perform a hundred *asvamedha yágams* (horse sacrifices), the purchase if successful of *Indra's* throne (that is the highest possible prosperity), the said *Prit'hivi* spontaneously supplied him with all the requisites for so extraordinary a service. He succeeded to the extent of ninety-nine of these sacrifices (that is, his prosperity was as great, as can fall to the lot of any mortal). *Indra* could endure no longer, as his throne was in danger. Accordingly he stole the hundredth horse, and took it up to the sky. *Atri* the great *rishi*, saw the theft, and told the son of *Prit'hu*, who took bow and arrows in hand and followed; but, seeing *Indra* look so much like *Isvara*, he was afraid to discharge any arrow against him; till being encouraged, by being told that it was only *Indra*, he went on to the assault. *Indra* disappeared, and the valiant son of *Prit'hu* brought the horse back to the place of sacrifice. The *rishis* praised his prowess, and termed him *Siddha-siva* which became his name. *Indra* did not relinquish his purpose; but the next day privately came as a *Sanniyasi* (ascetic) and again took away the horse. *Siddha-siva*, perceiving the ascetic to be no other than *Indra* in disguise, pursued him and shot at him an arrow: *Indra* fled; and the horse was again recovered.

Some persons, now a days (adds the writer) assume the garb which *Indra* then wore. They are called *Caháli*, *Báuddhas*, *Páshándas*. By these means the *Páshándas* originated. (*Páshánda* is the Sanscrit term for schismatic, impostor, not *Hindu*; it is used chiefly with reference to the *Bauddhas* or *Jainas*: wherever this term occurs, in this *purana*,‡

* The self existent being;—the hyperbole is extravagant; but throughout this passage there is a recondite, and symbolical, meaning.

† This "Phœbus" is perhaps a little too sublime; but we must remember that the author writes hieroglyphics.

‡ A passing remark may not be superfluous.—According to my own view of the question, for which I have elsewhere given reasons, I do not for my own part, think that the

there is usually something to indicate contempt and detestation). If any one speak with them or even see them (*dosham-varum*) evil, or crime, will occur.

Prit'hu, angry at *Indra*, took bow and arrows; and, ordering the sacrifice to stop, said he would summon and punish *Indra* by the power of incantation. On making the *homam* (oblation, or sacrifice by fire) *Brahma* appeared, and told *Prit'hu*, it was not right to do any thing of evil bearing, towards *Indra*. He addressed the *rishis*; and, again directing his words to *Prit'hu*, bid him consider what was there in the effect of a *yāgam* to him, whose higher ambition should be rather to seek *mocsham*, or beatitude, than perishable earthly good; whence it would be his wisdom to let the sacrifice and *Indra* alone. *Brahma* added that the merit of ninety-nine sacrifices was sufficient for him: he was already (by birth) a form, or incarnation, of a portion of *Vishnu (ādi Vishnu-murti)*. *Indra* was a virtuous personage; and charging *Prit'hu* to be friendly with *Indra*, *Brahma* went away.* After receiving this lesson *Prit'hu* put an end to the sacrifice, and paying due honours to all concerned therein, he gave presents to the poor; and was highly flattered in being told that his sacrifice was quite sufficient for the *Bhu-devas*, or gods of the earth (that is, the *Brahmans*, for they assume to themselves that title). Afterwards *Vishnu* himself came on his eagle conveyance, bringing *Indra* with him; and, after complimenting *Prit'hu* told him he must be friendly with *Indra*. *Vishnu* terms both of them *âtmana pér* (*pure* soul, or spiritual beings), between whom there ought to be neither enmity, treacherous friendship, nor division. *Prit'hu* paid all reverential homage to *Vishnu*, who being pleased thereby, desired him to ask a gift. *Prit'hu* replied that the privilege of worshipping at his feet was sufficient, and permission to this effect was given. *Indra* then fell at *Prit'hu's* feet implored pardon, and was forgiven: thenceforward they were friends. But, though they were friendly, *Prit'hu*, from that time, relinquished all desire of such benefits as *Indra* could bestow (rain, fertility of land, &c. earthly good);

Bauddhas or *Jainas*, system had any influential prevalence in India until after the era of *Anoca-Vardhana* of *Mágadha*, who was long posterior to *Janamejaya* or *Parickshit*. But that system must so far have prevailed as to cause great hatred towards it from *Hindus*, when this *Purana* was written. Hence I should be disposed to date its original composition as late as the era of *Vicramaditya*, or even the time of *Bhoja raja*, and indeed, if I remember aright, both Mr. Colebrooke, and Professor Wilson, agree in making its composition be at least equally modern. My argument arises from internal evidence.

* The circuitous and emblematic manner in which the moral, that even kings of unexampled prosperity must not expect divine, or perfect, happiness on earth; as also, that there is a higher good to be obtained than earth can bestow, is, in the above narrative, worthy of being observed.

and fixed his meditation entirely on *Vishnu*. The latter slowly (or majestically) returned to *Vaicont'ha*.

Afterwards *Prit'hu*, with his wife *Archisami devi*, and his counsellors, or ministers, prosperously dwelt in his city. The season of spring being come, *Prit'hu* went to his pleasure-grounds, or park; and there met with *Sanaca*, *Sananda*, *Sanatcumara*, and *Sanusudharana* (divine sages) who had been specially appointed to impart to him lessons of wisdom. The king, on seeing them, prostrated himself before them, and addressed them as unincumbered spiritual intelligences, of high mystic acquirements; requesting to be instructed in the precepts that relate to the soul and the body, and to separation from earthly things. They were pleased with his deference; and replied in complimentary language. *Sanatcumara* then discoursed to him, at length, teaching an entire abstraction from all family cares; a ceasing from all earthly desires; and an earnest breathing of soul after final beatification; which must be sought by means of abstract contemplation or meditation directed to *Vishnu*; through whom alone that highest attainment can be acquired. The four divine instructors then disappeared, and went to *Brahma's* world.

Prit'hu had in all five sons named *Siddha siva*, *Aryachanna*, *D'herma ketu*, *Tacshasa* and *Vircula*. Having ruled many years he divided his dominions among these five; and then, divesting himself of every thing, became a *Vána prast'ha*; went into waste, uninhabited places, and lived on berries, or similar spontaneous productions; or, when these failed, on fallen leaves, sometimes on water alone. At length he brought himself to subsist merely by respiring the atmosphere; and, by stopping the exercise of the five senses, he acquired a wonderful degree of eminence in the homage of *Vishnu*; being united with *Vishnu* without the personal distinction of *he* or *I*; and being filled with a divine afflatus*, or unction from *Brahma*, he received the greatest, mental joy. From this state of neutral existence, his soul escaped by the extreme top of his head; and rose, first into the atmosphere, thence by various steps until, in the highest one, it acquired assimilation to the divine nature; and, having escaped all the evils connected with the body, it enjoyed perfect beatitude.†

Archisa-devi the relict of *Prit'hu* burnt herself, with his body, and went with him. *Maitraya* here resumes a direct address to *Vidura*; and says, that they who read or hear this narrative will acquire the four kinds

* I know not how better to render *anumati* in this place.

† The mystic theology of the strict *Vaishnavas* may be gathered from the preceding passage: and it may be noted that any idea of re-union of soul and body makes no part of their doctrine, as regards beatitude. In the final effect the strict *Vaishnavas* and the *Jainas* or *Bauddhists* seem to me to accord, on that important article.

of bliss. He then continues his narrative with reference to *Siddha siva* the son of *Pri'ku*. He became famous and ruled in the midst of plenty. His younger brothers respected him; but, by the ill wishes of *Vasishta*, three *agnis* were born on earth, as his children, and immediately died. By *Pasupati* his wife he had a son, who made a sacrifice for a thousand years; and then became a recluse devotee. He had six children, one of whom made the whole world a sacrificial plain.

The last mentioned had a son named *Prasana*, who had ten sons of equal powers, talents and courtesy, whence they acquired the epithet of "servants of the people." These ten, going to the southern sea found a reservoir of sweet water; and heard sounds of music, where the before mentioned *Sanaca*, and the other sages, were doing homage to *Nila-cant'hésvara* (or *Siva*). This *Nila-cant'han* addressed those young men; telling them, that the worship of *Vishnu* was pleasing to him; that there was no essential difference between himself and *Vishnu*, that the homage paid to *Vishnu* equally honoured himself; moreover that both he himself, and his votaries, attained their present happiness by the worship of *Vishnu*: finally he taught them a mode of worshipping *Vishnu*, practised, at a former period, by *Nareda*; and then disappeared. Those ten sons performed a penance for ten thousand years, directed to *Vishnu*. But *Nareda* tried to destroy the merit of their penance. He told *Prasana*, their father, that the cows (or sacrificial animals) which he had slain in sacrifice, were now waiting in the celestial world, being armed with iron horns, and whenever he attempted to enter there, they would push him away; by which argument he persuaded him to put an end to his sacrifice. The king said he was sinking in the sea of earthly pleasures; and begged to know how he might avoid, or get rid of his delusion. In reply *Nareda* tells the (allegorical) tale of one *Puranjaya* (conqueror of the exterior) who desired to possess a town, and finding one with nine gates, he lived therein, for a long time, a merely animal life, without desiring beatification. When the tale is ended *Prasana* asks the mystical meaning; and *Nareda*, stating it to be allegorical, explains it as referring to the soul inhabiting the body, having nine entrances (that is, the five senses &c.) and lethargic therein, until length awakened as if from sleep it becomes conscious of spiritual things and desires full emancipation. The object of the lesson is to teach suppression of the senses; or an entire subjugation of the bodily appetites, and passions with which moral the fourth section ends.

Remark. In order to obviate an undue preponderance of one subject, and an entrenching on the space proper to be given to other matters,

it may be expedient to postpone the remainder of this abstract to a future section of my general report; especially as I find the abstract, however meager, considerably more verbose than I anticipated at the commencement. I may be permitted to observe, that the moral end, apparently proposed by this work, *resembles* that proposed by the Christian system, with a difference however as to the idea involved in beatification, and with a much wider difference as to moral means; especially as to the idea of human merit, which the one exalts, and the other abases. It is further observable, from what precedes, that the doctrine of this *Purana* is a clouded theism; evincing the primal idea of one Supreme Being to have been obscured, and depreciated, when the *Purana* was written. It is likewise impossible to deny to its author an obscure traditional acquaintance with the sublime idea of a triad in unity; rendered however inconsistent with itself, from being misunderstood, and made subservient to the object of a sect among the *Hindus*. I have been reminded, in passing, of the notions of the Jewish Rabbies, and Talmudists, on this same subject; though an assimilation of things, and persons, so different must be avoided. It may not be wrong to note, by the way, that the sacrifice of *Dacsha* has been supposed to refer to the sacrifice of Abel; and the translation of Enoch has been identified with the apotheosis of *Druhvah*. In both cases however, wherein so many things, on either side, are wanting to complete a parallel, the rashness of the identification seems to me to be extreme. A more ready way, to bring researches into the history, and theology or mythology, of the people of India into premature contempt, could hardly have been devised. Let us first submit patiently, and perseveringly, to learn what *Hindu* books really do contain; and when a sufficient basis of accurate knowledge has been acquired, then inferences, assimilations, or comparisons, may be drawn, with greater safety.

Note. The two MSS. specified at the head of this article, are very briefly entered in Des. Catal. vol. 1. p. 106. as "an abridged translation of the *Bhagavat purana* by *Chennaya Vádha*."—On examination No. was found to be very incomplete; wanting the 1st and 2d sections, a of the beginning of the 3d section, and the whole of the sections from 4 to 9 inclusive. From the 10th section, to the end, there is no defect; and all that remains of the book is quite uninjured by insects.

The MS. No. 12 was found to want a leaf at the beginning of the 10th section, and a leaf copied from the contents of No. 11, was inserted, making this MS. complete: it is also in good preservation. One complete copy I deem sufficient.

2. *Sedhyar*, No. 129.—Countermark 186.

This title, as far as it is intelligible of itself, would denote a work having reference to the *Sidd'has*, or sages, considered to have attained to superhuman qualifications. In the sense however of this work, the term may be, not inaptly, rendered by the term "philosophers;" in the modern unphilosophical, and atheistical, usage of the term; by a corruption of its true meaning, as introduced by leading members of the French Institute.

On examination the manuscript proved to be a Tamil version, in poetical stanzas, with a version in plainer prose, of the doctrines of *Charvvaca*, the leader of the *Hindu* atheistical school of philosophy. It denies the being of God, or any divine being, or first cause; the earth, the visible sky, the expanse of ether, the sun, the moon, are self produced: there is no distinction between moral good, and evil; and no state of rewards or punishments after death. Hence there is no need to entertain any dread, or reverence, of any superior, or inspecting, Being.

But while such is the general doctrine of *Charvvaca*, and the other *Siddhas*, or "philosophers," there are a few among them of the *Samana* persuasion, who object to the leading atheistical tenets; and only adhere to so much of the system as maintains a perfect equality among men; denying any distinctions of caste, or differences by birth, and asserting a common homogeneous relation between all men.

The divisions into which the *Charvvaca* class is distinguished, are, according to this work, eleven; at the head of which *matam*, or sect, an individual presides; according to the following enumeration:

Savundaranti.	Battácharya.
Yoga raja.	Prapácara.
Vaipashaca.	Máyáváti.
Niganda-váti of the *Samanas*.	Parákariya.
Asvaca.	Nirsvásangi.
	Pancha-rättiri.

These subdivisions differ from each other; but each agrees with itself.

Note. The manuscript is complete; and in good preservation. Tamil works contain allusions to one or other of these opinions; so as to render a full understanding of the tenets of this atheistical school desirable. They strike at the root of Brahmanical Hinduism: but at the expense, in some parts, of reason and truth; and one feature of the general system is remarkable, inasmuch as it deprives the school of Hobbes, Voltaire, Diderot, Volney, Paine, and company, of all claims to originality. The native

tendency of the human mind is towards such a system; and it needs not perhaps to be wondered at, that it has appeared in India, Greece, France, and other countries, similar, in the general features, though without any apparent intercommunication.

The book is entered in the Des. Cat. Vol. I, p. 230, as follows:

"LVI. *Sittyar*—Palm-leaves.

Short expositions of the doctrines taught by different teachers of the *Saiva* religion."

Hence it seems to be another instance of the deplorable misrepresentations to which Professor Wilson was subjected by his Mackenzie *Brahmans*. Let me add that a good translation of this work, would be a great desideratum, as a key to unlock many obscure allusions in Tamil works, which *Hindu* natives properly such, either do not understand, or will not explain; or of which they give only erroneous interpretations.

3. *Calingatu-parani*, No 200.—Countermark 68.

A poem on a conquest of the *Calinga* country, by a *Chola* king.

The general subject of this poem is as I have defined it, in the above English explanation of the title. The following is a brief abstract:—

Kulottunga Chola came from his capital to *Canchi*, making the intermediate road a hunting excursion. At Conjeveram he received the homage, and tribute of several petty rulers; but the king of *Calinga* did not appear with his tribute, at which *Kulottunga Cholan* being much incensed determined on war; and accordingly sent his *Senatipati*, or general, named *Vanda Nattarasan*, with an army, to invade the *Calinga* country. This general conquered an army with a thousand* elephants; and subdued the country; which the *Chola-raja* assumed as his own. With this general outline much discursive matter, and panegyric, is mixed up. The work is divided into brief sections; a table of which is prefixed to the MS.; and is as follows:—

1. The usual invocation.
2. The opening of the door.
3. Chant of the forest.
4. Description of the fane.
5. Praise of *Dévi*.
6. Chant concerning evil demons.
7. The champion named *Indra jalam*.
8. The genealogy of the king.
9. Complaint of demons to *Cáli* for want of food.

* *Parani* is the technical title of the 3d class of *Prabandhas*, or ninety-six classes of Tamil poems. Its subject is one who has killed a thousand elephants in battle.

10. The king an *avatara* of *Vishnu*.
11. Petition of *demons* to *Cali* for leave to follow the king's army, in order to feed on the dead bodies of the slain.
12. The battle, with an account of those killed.
13. A continuation of the same subject.

The whole is contained in five-hundred and eighty-three stanzas. The different subjects are above indicated with sufficient distinctness, except the second and seventh. The former section praises the king for giving liberty and safety, to wives of the warriors of the opposing army. The other section contains the boasting of a head-demon as to the prowess of the demons attendant on the army. There is much, as it will even hereby appear, of *diablerie* mixed up with the composition; and war chants in the general features, from Homer downwards, seem very similar all over the globe.*

The name of the writer does not appear in the work; but I learn otherwise, that it was the composition of *Ottya Cuttan*, a famous bard, patronised by one of the *Chola* kings. That a *Chola* conquest, to the northward of Madras, did take place, extending beyond Nellore, and perhaps as far as Guntoor is certain; but a little hesitation may be felt before believing that it penetrated farther than to the outskirts of the ancient *Calinga-désam*. The subject may be compared with other records. A reference, in a former MS. book, having been made to this poem for an account of the destruction of artizans at *Mándu*, I kept that incident in view; but do not find it mentioned, and the reference must be erroneous.

Note.—The MS. is complete, and the material fresh: still one or two leaves are partially injured, to the endangering of the sense; and these I have had restored, on new palm-leaves, corresponding with the others.

The work is entered in Des. Catalogue, vol. 1, p. 196, art. v. with sufficient accuracy; except that there does not appear to be authority for stating that "*Kulottunga Chola* is made to recover *Calinga* from a Mahomedan prince." Such a statement is not in the poem, and the era of *Ottya Cuttan* was higher up than the earliest intervention of Mahomedans, in the peninsula.

4. *Mandala purusha Nigandu*, No. 55.—Countermark 214.

This copy is entirely in verse. Nine leaves are wanting from the sixth section. The remainder is complete, and in tolerably good order, though

* In the demoniacal portions of this poem there are resemblances to accounts given of Tahitian war-minstrels.—See Ellis's Polynesian Researches.

partially injured by insects. There are many orthographical inaccuracies in the copy.

5. The same title, No. 56.—Countermark 215.

The greater part verse, mingled with a little prose. Two sections are wanted at the beginning. The book is complete from the 3d section, with the exception of one leaf in the 3d to the end of the 12th. The whole work is contained in 12 sections. It is but very slightly injured by insects.

6. The same title, No. 58.—Countermark 217.

In verse and prose. The three first sections are complete. The whole of the sixth in verse only is added. The other eight sections are wanting. The manuscript is uninjured by insects.

7. The same title, No. 59.—Countermark 218.

In the preface, one leaf is wanting. There is only the first section in this copy; and, at the end of this section, one leaf is wanting. The remaining sections are wanting. The contents of the copy are in verse, without prose commentary. A complete copy can at any time be made out of the three last, or two copies out of the four.

The foregoing are four different copies of one of the *Nigandus*, or a Tamil dictionary of nearly synonymous words. A fifth copy was before noticed. Vide 3d Report. The work is of common occurrence, and nothing further needs to be done with regard to these copies. We have their substance in printed Tamil dictionaries. *Mandala purush*, the author of the *Nigandu*, was of the *Jaina* persuasion.

These books entered in Des. Catal. vol. i. p. 251, art. iv.

8. *Tolcápiyam*—a grammar, No. 54.—Countermark 210.

Agastya (a *Brahman* named after the great *rishi* so called) first passed the *Vindhya* mountains; and led on the *Brahmans* to the southern peninsula. He is sometimes styled the father of the Tamil language, as I

imagine from forming the Tamil letters (which partake of the *Tibetan* and *Grant'ha* features), and from shaping the language into a somewhat grammatical form. A work on grammar is ascribed to him; said to have contained 12,000 *sutras*, or concise stanzas. *Tolcápiya* his disciple, reduced that work (now lost) to 1,660 *sutras*, in the *Tolcápiyam*; and *Paranandi*, a later grammarian, reduced these to 460, in the *Nannul*, which is now the most commonly used epitome of grammar.

The *Tolcápiyam* complete, should consist of three parts, on letters, words, prosody (or rather versification as an art). Of these the last part is extremely rare: perhaps cannot be found complete. The two former parts only are found in this copy, as is customary. These two parts are complete. The *sutras* themselves occupy a small space; the larger portion of the work being a commentary by *Náchinárkinnaiyàr* which, out of three different commentaries, is esteemed the best one. The manuscript is but slightly damaged by insects, and does not need restoration.

It is entered in Des. Cat. vol. 1, p. 247, art. 1, with which entry the above notice may be compared.

9. *Déva Sahaya Sic'hámani Málai*, a poem concerning a person surnamed "the crown-jewel of divine aid." No. 206.—Countermark No. —157.

This book is very incomplete. Nine palm-leaves are wanting from the 5th to the 12th inclusive. From the 13th to the 32d it is in regular order: but how many leaves afterwards are wanting, or how the deficiency occurred, can only be matter of conjecture. The work when complete, I am informed, is considerably larger. It is likely not to have been in high favour with Colonel Mackenzie's *Brahmans*; and may probably have been introduced to the collection by *Veda Náyaka*, a Christian in the Colonel's employ: whose name occasionally appears in various portions of the collection.

The following is an outline of the contents. The *Raja* of *Tiruvangudi* termed *Vánchi mátándan* as a titular name, had a minister in his employ, who beginning to doubt the truth of the system of credence in which he was educated, gave ear to the instructions of a Roman Catholic missionary in Travancore; in the end was baptized by the name of *Déva Sahaya Sichámani*, and made a public profession of the Roman Catholic faith. Information of the circumstance reaching the king, he sent for his servant and questioned him, who avowed the fact of his change of religion. The king was very angry; and sent him to the

first of his remaining twenty three counsellors, by whom he was treated with great indignity, and passed on to the second, who imitated the conduct of the first; and so on, till the twenty three had each one exhausted his invention in devising modes of indignity, and punishment. As the convert notwithstanding continued firm, his death was resolved on, and he was shot. His body was afterwards interred in the bed of the river, in or near the fort of *Barbanat'ha puram*. The narrative is given with some poetical ornaments of language; and is evidently the production of a Roman Catholic native. The whole of the materials of the above abstract, are not in this copy; but I have obtained them by enquiry. The book complete is in the hands of some of the Roman Catholic natives at Madras.

Note. This manuscript is entered in Des. Catal. vol. I. p. 223. art. xxxii. as follows:

"*Daiva Sahaya Sakhamanimala.* Palm leaves. Account of the minister of the *Raja* of *Tiruvankatur* or *Travankore* who, although of the *Mapilla** caste, was distinguished for his devotion to *Siva*, and foundation of charitable establishments."

Prof. Wilson certainly would never have stooped to make such an entry, if the real contents of the manuscript had been truly stated to him, by the *employés* of Colonel Mackenzie.

10. *Cholinga-puram-koil-kyfeyut*, or account of the fane at *Cholinga puram* No. 227.—Countermark partly obliterated.

References to *yugas* and *avataras*, and some early kings of the first age, second—third—fourth. A few kings in each age specified. After the close of the *Hastinápuri* dynasty, there is a transition to the *Chola rajas*, of whom twenty three are specified, with moderate periods of reign ascribed to each one.

Sálivahana, having performed severe penance, and killed *Vicramáditya*, reigned for 80 years. He then vanished away. Thence is reckoned the era of *Salivahana*. A period of 605 years is then given to the *Chera*, *Cholan*, and *Pandiya* dynasties. The *Yádava* race, from Sal. Sac. 730. Of these a list is given, then a reference to the Warankal *rajas*. The *Rayer* dynasty is specified in detail. Transition to *Chandragiri* kingdom. Notice of Mahomedans, down to Tippu Sultan.

Note. The preceding is a palm leaf copy of a document already abstracted from a Tamil MS. book No. 1, sect. 6, in the 3d Report.

* Mahomedan.

There follow some unconnected documents, given in by individuals; stating the ground of their rights to certain *agraháràms*, or similar possessions. These are of no permanent value.

After these comes what is properly the *St'hala purunam*, consisting, in the earlier portion, of a tissue of legendary fiction, and supernatural machinery, often puerile; and extracting portions from *Puranas* or from the *Mahabharata*, fixing the locality of action to the fane in question, which seems to be otherwise termed *Véda puri*. There is occasionally a reference to *Racshasas*, *Védars* and *Kiratas*, as different from *Hindus*. The name of *Veda-puri* is stated to be derived from *Veda-Vyasa*, on account of his presence at this place. At length towards the end of the MS. a reference is made to *Kulottunga Cholan*, and his illegitimate son *Adondai*; enabling me thenceforward to recognize the place as that where *Adondai* is said, in another MS. to have had a vision of *Siva* and *Parvati*, encouraging him to proceed against the *Jaina-Curumbars*. The legend of a chorister from *Indra's* world sent down to earth to do penance is begun; and, from what is stated, it can be anticipated that he is the opponent whom *Adonda* conquered, termed in one of the preceding documents *Visvavasa raja*; but, at that place, there are leaves wanting: how many it is not possible to say. However I do not think the loss of consequence, as we have the narrative, both simple and ornate, in other papers.

A minute specification, as to accounts of expenses requisite for the fane, is tied up at the beginning of the MS. The portion first abstracted (which is valuable) does not I conceive properly belong to the document. The manuscript is a little injured; but not to any measure of illegibility. On the whole (with the exception indicated) it claims no further notice.

I conceive it to be the document entered in Des. Cat. vol. I, p. 178. art. XLII. If so, the mention of contents, proceeds no further than the minute specification of accounts, improperly placed at the commencement of the book. The fixing the locality to *Cholangivaram* near *Chittùr* may be of service; because the place is connected with historical associations.

11. *Marava jati Charitra*, or account of the *Maravas* of Ramnad and *Sivagangai* districts, No. 238.—Countermark 167.

This manuscript, of fifteen palm-leaves, was translated by me, and afterwards printed in the Madras Journal of Literature and Science No.

13. It may be sufficient therefore to state that it contains a minute account of the customs of the curious race of people at the extreme end of the peninsula, whose ancestors appear to have escaped extermination by the colonizing *Hindus*. I paid particular attention, in the first instance, to this document in order to see if it had any details of an alleged ascendancy of the *Maravas* over the *Pàndiya* kingdom, which it has not; but it first fixed my attention to the fact that there are people in the country not aboriginally *Hindus*: since otherwise extensively illustrated from papers of this collection.

Note.—The manuscript is complete, and in good order. It is briefly entered in Des. Cat. vol. 1. p. 211. art. xxxvi. under the title of *Marawa Jati Vernanam*. The title as above written is the one contained in the heading of the MS. itself. On the envelope the word *Kaifeyat* appears for *Charitra*.

12. *Alakesvara-raja Cadai*, or the tale of king *Alakesvara*, No. 159. —Countermark 146.

12½. Another copy, No. 158.—Countermark 145.

This is a work of fiction, to be distinguished from another romance of like title, which will be at a future time noticed.* The name of the king is merely a derivative from *Alacapuri* the town of *Cuvera*, and therefore an appellative, implying merely a wealthy king. This king, *Alakéndra*, is stated to have had four ministers; and the introductory portion of the work adverts to their description of a camel to the owner who had lost it, though they had not seen it; on which the owner accused them of being thieves to the king; but, on their detailing the principles on which they had described the animal, the king was struck with their sagacity; praised them; and gave a compensation to the camel owner. These ministers had charge of the king's palace as guardians, and while one of them, named *Pótha-váthittan*, was attending to his office, in the interior apartments, he saw a serpent enter which he killed with his sword, and the blood falling on the queen, he attempted to wipe it off, which awoke her, and the guardian became accused before the king. The latter then relates a story to his ministers, concerning a *Sudra* who brought up a dog; and these narrate tales in return. These different narratives being ended,

* See Tamil MS. book No, 7, Sec. 2, in this report.

the matter was referred to *Manu niti*, the chief of the ministers, who gave an opinion in favour of the accused person; tending to his acquittal. The accused paid homage at the shrine of *Bhadra-Cáli*; and having propitiated her favour, went to the king, declaring his innocence, and that his zeal alone had brought him into questionable circumstances. The king pardoned him; and then, with his ministers, continued a prosperous rule.

Remark.—Except as a mere work of fiction this book has no claims to notice. Both copies are complete, and uninjured. They are entered in the Descriptive Catalogue vol. I. p. 220, art. XXIII.

13. *Viramáran Cadha*—No. 167.—Countermark 167.

14. *Vira-Durendra raja Cadha*—No. 210.—Countermark 151.

15. *Vira Durendra raja Cadha* No. 211.—Countermark 150.

These are three different copies of the same work. The first is the most full; differing chiefly in the encomiastic portions; in which it is the more florid of the three. The last copy is the smallest; the writing being minute and close.

The tale seems to me fictitious; but the following brief notice, or epitome, may help towards forming a judgment, on that point.

Vira-durendra-raja ruled in *Vijayanagaram*. He had a *mántri* named *Tatva-pracasa-pillai*. One day when the king, accompanied by his minister, went out to hunt in the forest, he came to a spring of water named "the looking-glass"; near to which was a writing cut out in a stone to the effect that "the king, who listened to the counsels of his minister would perish." The king consulted with his minister, concerning the said writing. The minister took counsel within himself; to the purport, that his influence over the king would cease, and that his own life would be endangered. In order to avert such a result, he seized the king; threw him into the spring; and, returning to the city, usurped the kingdom. The late king's wife *Chennamena-devi*, to avoid a contemplated outrage, privately made the escape, being pregnant; went to *Chandra-giri*; and there subsisted, in a miserable manner, by gathering and selling fire-wood. The king of *Chandra-giri*, designing evil towards her she left that place, and went to *Arasanápuri* where a native

chieftain named *Ragha singh*, treated her hospitably; and had a small cottage built for her reception. A child was born to her named *Viramāràn*. The said child, being well instructed, early distinguished himself by killing a tiger. The remainder of the work is chiefly occupied with details of a literary, or poetical, contest, with the daughter of *Vira-rama* king of *Cosala desam*; by skill in which contest *Viramarán*, won the hand of the said princess. The forces of her father being now at his disposal he with them dispossessed, and killed, the usurping *mantri*; and then proceeded to the place where his own father, *Durendra*, had been made away with: he there offered a great sacrifice; as the result of which the celestials descended, and brought with them his father, restored to life; who remained with his son, while the latter ruled the kingdom.

Remark.—From this outline it will appear that the tale is of a poetical, and romantic character; bearing a resemblance, in its several features, to portions of various *Hindu* works of reputation. In one part there is a resemblance to an episode in the *Mahabharata*, in another to the *Mudra Racshasa*, or drama of the murder of *Nanda* by his minister; and in the marriage contest, to a tale of a daughter of the *Alacesápuri-raja*, in this collection, to be noticed hereafter. It is also on the same plan with that tale, as to composition: the tissue of the narrative being prose, with flourishes, and specimens of difficult versification, interwoven. I believe we have nothing of the kind in English literature; unless some of the novels of Scott, should be deemed an exception; but I have seen a work published on the Continent, precisely on the same model of composition, though rather poor, and professing to be an imitation of some foregoing work, deemed an original idea, in this kind of writing. The languages of Europe do not differ in the poetical and prose dialects, so greatly, as do the native languages of the peninsula. Hence no European work can exactly be a parallel with *Hindu* works of fiction of this class. An idea sufficiently distinct I trust has been conveyed; and there can be no doubt, that, in the hands of a man of genius, a work might be produced on this model, which in English would, I think, be a new species of composition; but in order to please, and be successful, it would require to be extremely well managed.

Note.—In point of condition, the first and best copy is very old; it is not injured by insects, but apparently from mere decay of the leaves; parts of them, at the edges, in various places are broken, or worn off. Hence to make out a complete copy of this particular book would be impracticable. The leaves were transposed; but have been again put in proper order. The second copy is of recent writing, and tolerably good preservation; slightly damaged by insects. The third copy is on nar-

row leaves, and in small writing: it is more seriously damaged than the second. Out of the three a copy might be made, by editorial labour; but the work is not of such consequence as to render it needful for me to undertake that labour in the present stage of my enquiries. With common care the three copies will last, as they are, for some years to come.

The three manuscripts are entered in the Des. Catal. vol. 1. p. 222. art. XXVII under the title of the first one or "*Viramaran Katha.*" The entry is comprised in two sentences; and it will be corrected by comparing it with the preceding epitome.

16. *Mathurai Virapan Ammáni.* No. 135.—Countermark 95.

This copy is complete, and only very slightly injured at the commencement; an injury at present of no consequence.

17. Same title No. 138.—Countermark 93.

This copy wants four palm-leaves at the beginning; the remainder is without defect; and very slightly injured, as to condition.

18. Same title No. 134.—Countermark 94.

This copy wants twenty-six leaves at the end; and, in the middle, one leaf is broken. It has the appearance of being much older than either of the other copies. As there is one copy complete, it does not appear requisite to restore the damage of this one; especially as the subject is not of high importance.

After some introductory invocation, and praise of the magnificence of *Cási*, it is added that a king of that place as the reward of long penance was favoured with a son named *Virapen*. He was born with a caul, or something similar, round his neck, which being a token of infelicity, an astrologer was consulted; in consequence of whose advice the child was taken into a wild place, and left exposed under a tree. A serpent, hearing the child cry, approached; and shaded it from the rays of the sun with its hood. The wife of a man of low tribe came to gather a species of medicinal bark; and on seeing the child (being without one of her own), she took it up, and carried it home. The town where she lived, was ruled by a chief named *Bomma*. This chief

had a daughter; who arriving at maturity, was according to the custom of his caste, taken to some distance in the country; where a cottage was prepared for her reception. The aforesaid *Virapen's* foster father, it seems, was appointed to guard the cottage; and whether this circumstance arose from its being the office of a low caste man, or from any other cause, does not appear. But on a very tempestuous night the man sent his foster-son in his place; and, on account of the weather, the chief's daughter invited the guard inside to take shelter; which incident brought on a mutual affection between the parties. After her return to the palace, *Virapen* mingled with beggars who went thither; and, being recognized by the chief's daughter, signs passed between them; the consequence of which was a night elopement. They halted at a certain distance, and in the morning *Bomma nayak* pursued: *Virapen* with some attendants met the chief with his attendants; the latter together with the chief were slain, in consequence of *Virapen's* superior skill in the use of arms. *Virapen* then proceeded to Trichinopoly; and took service as a soldier, under the governor of that fortress; who was subordinate to *Tirumala Nayak* of Madura. The latter writing to the governor, that the intermediate road was much beset, and molested, by the *Kallars*, the governor sent *Virapen* with troops, and some previous marks of honour, to clear the country of the robbers; a service which he effected. At one time a mob of those people, amounting to a thousand persons, rushed unexpectedly into the fort of Madura, and *Virapen* here also was directed to clear the fort. In the fane of *Minacshi*, a female servant was employed named *Vellai-ammai*; with whom *Virapen* formed an acquaintance; and, on coming out of the fane in the night, he was caught by peons, and reported as a plunderer to the king, who directed his arms, and legs, to be cut off. When *Tirumala Nayak* discovered who was the sufferer; and that he had so mutilated the bravest of his servants, he was sorry; and besought *Mináchi* to restore again his deficient limbs; which, according to the poem, took place; whereupon *Virapen* vowed to become a devotee to *Minacshi*. In pursuance of this object he proceeded to a mango-grove, on the other side of the *Vaigai* river; and, there having a sacrificial-pit prepared, he burnt alive both *Bommi* the chief's daughter, and *Vellai-ammai* the more recent acquaintance. To complete the tragedy he came to the fane of *Mináchi*; and, fixing a pillar in front of it, there cut his own throat; and in such a way, according to the poem, that his head rolled to the door of the shrine (in the usual mode of a sacrifice to *Cali* a synonymous name in effect with *Mináchi*). Soon after, in the night, his spectre went to the palace of *Tirumala Nayak*; and there cut the throats of elephants, and horses; it then proceeded to the very sleeping room of

the king; and, after uttering certain sounds expressive of fiendish d light, vanished. The king, *Tirumala*, was extremely troubled at th unusual and unearthly visit; which induced him to go and make a special homage at the shrine of *Minácshi*. She appeared to him afterwards, in vision; and directed that, in order to appease the troubled spirit of *Virapen*, an annual great sacrifice of sheep should be made to him, and that he must be worshipped as a god; in consequence of his great devotedness to her shrine. This order was attended to; and an image of *Virapen* was placed in the fane. The poem concludes with stanzas, in the shape of a hymn to *Virapen*, of a mystic kind; but of course too revolting to be more than simply mentioned.

Remark.—In abstracting this poem I have been a little more particular, than its measure of historical consequence alone would deserve; because of its very extraordinary contents, as to manners, and mythology. I confess myself somewhat incredulous regarding them; supposing that there may be ornament in other things, as well as in the spectre-story. But there must be an under stratum of truth; though allowing for some poetical colouring. The depraving tendency of the worship of *Siva's* consort, under whichsoever of her names, or forms, conducted, is herein evident; were proofs otherwise wanting, which is not the case; since they exist in ample abundance.

Note.—The three copies of the MS. are entered in the Des. Cat. vol. 1, p. 205, art. xxiv, with tolerable correctness, one or two points being excepted; but still so as to make it manifest that the compiler of the catalogue was not told all the truth.

19. A small book, without mark or number.

On looking closely at the boards the marks of labels, having once been pasted on, are discernible; which circumstance is the only one remaining to identify the MS. with this collection, besides being now found therein. It is written on broad palm-leaves, and is not complete at the end. In the commencement *Nanja-raja* is addressed, as if by epistle; but the document seems to be wholly of the *bána* class; and therefore deserving no further notice.

20. *Tiruvalluvar-cural*, an ethical poem by *Tiruvalluvar*, No. 101. —Countermark 191.

This is a copy in verse, without prose commentary, of the above mentioned, and highly celebrated, work; which, by common consent, among natives, seems to rank first in ethical poetry even as *Cambar's Ramáyanam* ranks first in epic, or heroic, poetry. Among *Hindus* there are enumerated four kinds or sources of happiness, termed respectively *aram, porul, inbam, vêdu*; or benevolent virtue, property, sensual-pleasure, eternal bliss. *Tiruvalluvar* wrote on the three former; referring to the other occasionally throughout. This copy contains the three divisions of his work; it is complete, and in exceedingly good order; wearing the appearance of having been copied out but a few years since.

In Or. Hist. MSS. vol. 1, p. 177—179, a few cursory remarks were made respecting *Tiruvalluvar*, and his celebrated work. It may suffice, in the present discharge of my duty, to refer to them. The manuscript is entered in Des. Cat. vol. 1. p. 232, art. LXVI. wherein the author is highly honoured in being termed "the divine-*Valluvar*." A lengthened extract is added from Mr. Ellis's version of a part of the *Cural*. Mr. Ellis was a learned, and a laborious, editor; but yet not a fit editor, as allowing his own prepossessions and prejudices to appear prominent on almost every page. Apparently his views were not based on the alone foundation of true morality.

21. *Niti-sáram*, or the marrow of morality, No. 187.—Countermark 189.

This book contains fifty-two poetical stanzas with a prose rendering in plain language; the subject being sententious moral maxims. It is indicated that the work is a sort of centum; the matter being selected from various other productions, and here presented in a connected form. The compiler's name does not appear; and it is uncertain whether the work is complete at the end. It has many orthographical faults; but easily susceptible of correction, if at any time edited, and published. The native moral sentences are usually rather inane. Still it is desirable to know what their books can afford, on the subject; and, in this point of view, this one might possibly merit translation.

It is entered in the Des. Catal. vol. I, p. 232, art. LXII, and is stated to contain moral precepts by *Sivágnyanaprakása*.

22. (1) *Uvamána sangráha*, epitome of metaphors, (2) *Ratna-Churukam*—gems of verse, No. 188.—Countermark 190.

These two little works are tied up together in one book, absurdly entitled, on the label outside, both in Tamil and English letters, *Niti-sáram*, like the preceding.

The first epitome is by *Tiru Vencatáiyar*; and the second, so termed gems, by *Pugerenti*, a poet of some repute, formerly patronised by a *Pandiya* king; and author of the Tamil poetical version of the story of *Nala-raja*.

The "epitome" contains a specification of the metaphors to be used in poetry, on the perfections of the more elegant portion of the human species; and the "gems" are of the *bána* class; for a definition of which see catalogue of *Hindu* works, in the second Report (MS. book No. 21. § 9).

The book is entered in Des. Catal. vol. 1. p. 232. art. LIX, copying the erroneous title; and it is stated to "contain moral precepts and illustrations by *Olaganath*."

23. *Niti-sára-caru* (or *Niti-sastra*), the essence of morality, No. 178. —Countermark 193.

This book contains sixty-six stanzas, of the species termed, *Viruttam*. The name of the author does not appear. Some stanzas are occupied on public laws, regulations, and punishments. Following ones relate to the dispositions of men, with their respective faculties, or intelligence. Next are distinguishing marks between justice, and injustice, or equity and want of equity. The rules for the proper swaying of the kingly sceptre follow; together with the due mode of protecting the good, and punishing the evil. Some subsequent stanzas are on forethought and counsel, and the propriety of mature consideration; with the addition of some cautions on the need of fully understanding any one's disposition before employing him in weighty affairs. Every thing should be entered on with full consideration: when done, it should be with severity, firmness, or decision.

Note.—It is doubtful if the MS. is complete. It is in tolerably good preservation. It would seem to merit translation. It is entered in the Des. Catal. vol. 1. p. 232. art. LXIII. and ascribed to *Sivagná prakasa*.

24. *Sarangadhara Pachaganam*. No. 117.—Countermark 122.

25. Same title. No. 118.—Countermark 123.

These are two copies of the same poem. The first one wants twenty palm-leaves, from different places. The second copy wants the 95th leaf only. Two complete books can, at any time, be formed, by copying deficient portions in the one from the other. The first is a little damaged; the other in good preservation.

The subject is a fictitious narrative, of a kind not adapted to an abstract; and quite irrelevant to the object of my present enquiries. It may be sufficient to refer to the entry of both MSS. in the Des. Catal. vol. 1. p. 214. art. IV.

26. *Camban-pádal*, the chant of *Camban* the poet, No. 225.—Countermarked 164.

This manuscript contains seventy stanzas of the kind termed *âsiriya-viruttam*; and, at the commencement, is said to have been composed by *Camban*. The subject is a panegyric of the *Vanniyar*, a class of *Hindus* who formerly had local authority in the Carnatic. The *Vanniyar*, are of the *agni-culam* (or fire race), and are herein said to be descended from *Sambhu muni*. They are praised for their skill in the use of the bow and arrow; and it may be inferred, that they prevailed against feebler neighbours.

Remark.—The manuscript is of recent copying, and in very good preservation. I am told, by a competent judge, that this book does not bear a resemblance to *Camban's* style. For my own part I consider, that a formal ascription of its authorship to *Camban*, at the commencement, is equal to an admission that it is the production of some later poet, making use of the former's name. Tamil literature abounds with such literary *licenses*. The book is entered in Des. Catal. vol. 1, p. 224, art. XXXVI.

27. *Dottiya-Mathura-Câli-amman-púrvótarum*, or ancient account of the *Dúrga*, in the Dottiya district of the Madura country, No. 246, —Countermark 61.

This image was buried in an ant-hill, and was dug out thence by a *Pandaram*, who, with the aid of the neighbouring villagers, built for it a small fane; after being installed in which certain prodigies were accomplished; especially in healing the sick or diseased. One day a man of

consequence named *Bujangaraya*, riding that way, permitted his horse to protrude its feet into the precincts of the fane; at which the *Cáli* being displeased, killed its rider. His elder brother *Nijangarâyen* sacrificed a thousand elephants, and a thousand sheep, before the shrine, in consequence of which the said *Amman* restored his brother again to life. A merchant failing to pay a vow, which he had made, the *Cali* killed him with a club. In consequence, having established a terrific reputation, the shrine has had a plenitude of gifts and offerings rendered to it, with donations of land and the like, from inhabitants of the Madura kingdom.

Remark.—This document is of value in elucidating local manners, and powerful superstitions. It is damaged by the breaking of three leaves at the ends; but is otherwise complete, and in good order.

It is entered in Des. Cat. vol. 1, p. 179. art. XLIV. but erroneously as to the name *Valiy amma*, and as to the locality of Chillambram.

28. *Cânchi puram Sthala purâna*, or the local legend of the *Saiva*-fane at Conjeveram, No. 16.—Countermark (wanting).

This is a very large manuscript of 401 palm-leaves, of which seven are wanting, from 108 to 116. The writing is comparatively recent; and the leaves only slightly injured. It is in verse; and I understand was composed not a great many years since. It offers a singular compound of *pauranical* legends, made to apply to various localities about Conjeveram. To abstract the whole of so large a work, would perhaps be attended with no adequate advantage. The following is offered as a specimen.

After the customary invocations, the eulogy of the *Tônda-nâdu* is begun. This is introduced by the poetical description of a mass of clouds, raised from the sea, appearing like the body of *Vishnu*, between which clouds personified, and *Vada Agni*, or great heat personified, a dispute arises: the clouds threaten to make use of the rainbow in combat, and they teach a *mantra* to the *vajranga*, or lightning. A profusion of rain falls from a body of clouds, like the assemblage of the four clouds, which once (according to the *Tiruviliyadal*) rained on Madura. The hills were refreshed, and honey streamed down from them; the channel of the *Palar* river was filled: and a great number of other rivers or streams; which like good and evil, in their results centering in one deity, mingled at length altogether in the sea. The course of the *Palar*, especially, gives occasion to some hyperbolically poetical description of the country through which it flows. With these subjects, inclusive of the descriptive matters, one hundred and forty-five stanzas are occupied.

The *varalaru* (spring or fountain head), of the *purana* is then entered on, by a reference to a great assemblage of *rishis*, or sages, in the *Naimisara* wilderness. These, all of respectable fame in *Hindu* books, are represented as discoursing together concerning the chief good. One declares in favour of penance; another in favour of equity; another in praise of alms; another is for truth or integrity; another prefers sacrifice; another domestic virtue; another utter renunciation of family cares, and all worldly concerns. As they were thus occupied, without agreeing, *Suta-rishi*, expert in the *Saiva* system, and learned in the 18 *puranas*, which were delivered through him, comes among them; is saluted by them; and, with general consent,* is appointed to decide their difference of opinion. He refers to a section of the *Scanda-purana*, delivered by *Sanatcumára* to *Vyasa*, by *Vyasa* to *Suca*, and by the latter to himself. *Suta* then proceeds to explain his meaning.

The *Sanatcumára-padalam* (or chapter) follows. *Sanatcumara*, the son of *Brahma*, was occupied in meditation when *Uma* wife of *Siva* passed; so that he did not rise to pay her homage; on which account *Nandikésvara*, the vehicle of *Siva*, spoke of him contemptuously, as having no more sense than a camel; and denounced on him the doom of becoming a camel. Under this metamorphosis the sage came to *Cáchi*, or Conjeveram, and is made to declare that after comparing the *Naimisara-vana*, the *Curucshetram*, and other places, famous in *Hindu* story, upon the whole Conjeveram-wilderness deserved preference. *Brahma* interceded with *Siva*, in order to get the metamorphosis of his son removed; but *Siva* declared that what had been done by one of his servants he did not choose to reverse; referring the case to *Nandikésvara*. Application being accordingly made, one favourable look from *Nandi* immediately removed the evil, and restored the sage to his proper form. He then received instructions respecting the different modes of life, domestic, ascetic and the like; with the respect due to each. *Sanatcumára*, on hearing it said, that there are many *Saiva* fanes, asks which of them is chief. *Nandi*, after a little reflection, tells him, that he recollects what *Siva* told to *Uma*, which it will be extremely proper for *Sanatcumára* to hear.

Chapter on the specialty of the fane.

After a little introductory matter, an enumeration is given of several distinguished *Saiva* fanes; beginning from the extreme south; and end-

* By the way, it may be remarked, that the sages in addressing *Suta*, are represented as saying that the exterior world exists by the perception of the five senses; being the *vedanta* doctrine; and the same system as that of Berkeley, and Hume, confuted by Reid, and Beattie.

ing at the extreme north. Beyond *Himalaya* one is mentioned, and then *Cailasa*, the last. Among these *Siva* declares the chief to be Conjeveram. Immediately afterwards an exception is made in favour of *Cási*, or *Benares*; and then *Siva* informs *Uma* that he always reigns, together with herself, rejoicing at Conjeveram; and so great is the merit of that place, that if any one reside there only for a *cshana*, or moment, his beatification is certain. At the close of the chapter, *Suta* says that *Siva* told this to *Uma*, and *Nandi* to *Sanatcumára*, who told it to *Vyása*, and the latter to himself, who repeated it to the sages assembled in the *Naimisara-vana*, as aforesaid. Whosoever hears or reads this chapter will be healed of all sickness; will receive prosperity; and long dwell with children on earth; and afterwards receive beatification, in a future world.

Remark.—So much may suffice to shew the *animus* of this *purána*. It is throughout ultra *Saiva*; and, in different places, pours abundant contempt on *Brahma*, and *Vishnu*, the latter especially: his being the rival fane; at the present day in highest estimation, owing to the number of *Vaishnavas* at, and near, Madras.

Note.—The MS. is entered in the Des. Cat. vol. 1, p. 167, art. XVI, and is attributed to *Camban*, who however was a *Vaishnava*. Its authorship is much more modern.

Manuscript Books.

Manuscript book No. 1.—Countermark 47. *Palani-puranam*, or legend of *Pazhani*, *vulgò* Pyney.

Of this document the following abstract is offered:

The work opens, as usual, with an invocation, or praise of *Ganesa*, usually termed in Tamil works *Vikneswara*, implying a power to forbid; verses follow in praise of other gods. Then follows the eulogy of distinguished individuals; among others of *Sampanta-murti* who was born, it says in *Vedaranyo*, that is the original town afterwards called Vijayanagaram; came by way of Cuddapah to Madura, and there overcame seven thousand of the *Samunar* (*Jainas* or *Bauddhists*). It then eulogises *Mánica vásacar*; for a fuller account of whom, as well as of the preceding, see abstract of the Madura *Sthala Purana* (Oriental Hist. MSS. vol. 1. p. p. 104—114). Next follows the eulogy of *Dandéser*, who made a *lingam* (or symbol of *Siva*) of earth, which his father in contempt kicked to pieces, on which account the son cut off his father's legs; but *Siva* appeared, and ultimately gave to both of them access to his superior

world. Laudatory strains, of the worshippers of the god, follow. Upwards of one hundred stanzas are occupied with the foregoing matters. The contents of the *Purána* are next indicated. It professes to be taken from the *Scanda Purana*; is narrated (as usual) by *Suta-rishi* to other *rishis*. It is announced that the work will contain twenty-three sections, or chapters. The praise of the town is given, with some mention of the three qualities—*rájasam*, *támasam*, and *satwicam*; or *choler*, *depravity*, and *purity*. The name of the work is then stated to be the *Pazhani Puranam* (in the South usually pronounced *Palani Puránam*): then follows an apology for defects that may be observable, stating that though the work may be rude, yet that, as it contains the sacred name of God, like a pearl from the sea, it is hoped that it may be allowed to pass without severe censure. The author then pays his court to other poets, according to established rule, stating his own entire inferiority; and, after these precautions, proceeds with the different subjects as announced.

Section 1. Concerning the mountain.

An enumeration is given of celebrated hills, in different parts of the country of India; all subordinate to *Maha-meru*, occupying forty-eight stanzas.

Section 2. Concerning *Varáha-giri*.

This is the mountain on which the temple of *Subrahmanya* at Pyney is built, and forms the subject of special praise. It is termed the *Southern Cailasa*. An enumeration follows of special trees, and shrubs, growing on the mountain; next of the birds, proper to it; and lastly of the *Curuvars*, or wild people inhabiting it.

Section 3. Account of *Mayatri*.

It is asked of *Suta-rishi*, why *Varaha-giri* came to be called *Mayátri* or *Mayáchalam* (both words in Sanscrit meaning "illusive-mountain") who replies that it was because *Siva* dwelt therein, as the *pancha karta-kal* (or five-lords*).

* These are *Brahma*, *Vishnu*, *Rudra*, *Sadasiva* and *Máyésvara*. The three first are the *Trimurti*. The fourth (in the dialect of his followers) is *Siva*, as the Supreme Being and the last is *Siva* assuming illusory forms.

Section 4. Concerning the *Young pigs.*

See abstract of the Madura *Sthala-puranam* (Or. Hist. MSS. vol. I. p. p. 91. 92). The account given in the Pyney legend is quite similar.

Section 5. Concerning *Arjuna.*

Isvari (or *Parvati*) enquires why *Siva* assumed the form of a hunter, during the penance of *Arjuna;* referring to the story in the *Mahabharata.* It seems that his *sacti*, at the same time bore the form of a huntress, and saw *Siva* and *Arjuna* fight. This event took place in the north, near the *Virpatta* mountain, where the celebrated immortal man *Marcandáya rishi* performed penance. In this contest (of which a full account is given in the *Mahabharata*) it seems that *Varaha-giri* (literally hog-mountain) was animated by *Yama* (the regent of death) in the form of a pig, which was hunted by *Siva*, and which sought protection with *Arjuna*, as he was doing penance. Hence a dispute arose between the (apparent) hunter, and the anchoret, in which *Siva* was conquered, and then gave to *Arjuna* celestial arms. The pig, which was the cause of the dispute, afterwards came back to the south, and settled down in the shape of *Varáha-giri.* (From this section the comparatively modern origin of the temple, and its superstition, is clearly deducible).

Section 6. Account of the temple on *Varáha-giri.*

It contains five emblematical images. Moreover *Subrahmanya* (*Carticeya*) came, and was married on this mountain.

Section 7. The origin of the river.

Its glory cannot be expressed. *Brahma* came and did penance near one of the pools, in the form of a serpent. (The work, in various places, has an especial quarrel against *Brahma*).

Section 8. Account of the *Kanikar* forest.

Certain *rishis*, with their wives, when performing penance in the *Taracâvana* (or wilderness), became proud of the merit of their performances,

and refused to honour the gods. On a complaint being made concerning their conduct, *Siva* and *Vishnu* undertook to destroy the merit of their abstract devotion; and assuming respectively the human form, as male and female, they addressed the *rishis* and their wives apart, and so troubled both, that all their past merit was destroyed. At length the fraud was discovered; and the *rishis* proceeded to offer *yágas* (or sacrifices) from which they first raised up an elephant, and sent it against the intruders. This elephant *Siva* killed and used its skin as a cloak, which he still wears. Next a tiger was raised up and sent, which *Siva* also killed, and made like use of: so that among his thousand names, are *ani-tol* and *puli-tol* or "elephant, hide," and "tiger skin." The *rishis* then raised up, and despatched, a deer; this *Siva* took up in his hand (it is still so represented in pictures and images). They sent fire, which he took up and made use of as a weapon, in his right hand. Lastly they sent a hare, which he trampled under foot. The *rishis* now came to a better mind, and sought forgiveness, which was extended to them. Afterwards during the three first ages, *Isvari* did penance in the *Kanikar* forest at Palani. (The above legend is taken from an older Sanscrit *Purána*, and has been narrated in the abstract, by various English writers).

Section 9. The penance of *Adi-sesha.*

A dispute occurred between *Adi-sesha* and the god *Vayvu* (the wind) as to which was the strongest. To bring this matter to a test, *Adi-sesha* coiled itself round *Maha méru*, covering each one of its thousand peaks with one of its thousand heads. *Vayvu* assaulted the mountain in vain. At length the snake lifted up one of its heads to see what was become of *Vayvu*, who for a time had suspended the assault; and, on the instant, *Vayvu* blew away one of the peaks, left for the moment unprotected. In consequence *Vayvu* was conqueror. *Adi-sesha* being mortified at this result performed penance at *Varaha-giri*; and on the god appearing to enquire what was its requests, the snake replied that it asked for conquest over *Vayvu*. In answer the god said, "Have power to eat the wind." Hence it is said that, by virtue of this permission, snakes can live for a long time by subsisting on air alone.

Section 10. The legend of *Kavusila-chéran.*

Kavusilen was a distinguished chief or king of the *Chéra désam.* Having made a pilgrimage to many places, he observed a forest on his return, in which there were many wild beasts; and he, in consequence, gave orders to proceed on a hunting excursion. A very beautiful deer was started, which the king so eagerly pursued that, at length, he was left alone; and, on coming to the *kanikar* forest, the animal disappeared. The king became exceedingly hungry; but in all this region seeing no sacred edifice, he vowed that he would not eat, until he had discovered one, and had paid homage to its god. He sought for one in vain, on that day; and the next one: and so on, for three days in succession. On the third day he saw a *Brahman,* who came to the forest to gather flowers. The *Chéran* stated who he was, and desired to be led to a fane. The *Brahman* conducted him to a *Saiva* fane, where he paid homage; and then took refreshment. He expressed a great wish to see an *Amman-kóil* (or shrine of *Párvati*); and, in consequence, the *Brahman* taught him a particular *mantra,* bid him go to a certain river and repeat it, and an *Amman* would appear. He did so, when *Párvati,* in the shape of a *Brahman* female, became visible, and told the king that he could not see the *Amman* now in her proper form; that she herself was doing penance, preparatory to marrying the god *Siva;* and she instructed the *Chéran* to wait till the day of the marriage procession, when his wish of seeing the goddess would be granted. Some *rishis* also came, and saw the goddess doing penance; and going to *Siva-lóca* (the world of *Siva*) narrated what they had seen. The god *Siva* said he would come to the wilderness, and marry the *Amman.*

Section 11.—Account of the marriage.

A long description is given of the marriage ceremonies, and procession: on which latter occasion the wish of *Kavusila Chéran* was gratified, in seeing the goddess in her own proper form. He then projected the design of building a town, on the spot where this had occurred.

Section 12.—The building of the town.

In order to carry his design into effect *Kavusilen* sent to *Atri-giri,* his own town, for his two younger brothers, who brought money as where-

quired. Many fanes, streets, choultries, &c. were built; and when finished the place was called *Kavusila-puram.*

Section 13.—Account of *Tiruvávenen-gudi.*

Some laudatory titles of *Subrahmanya* are given. It is said that *Bhúmi-dévi* (or the goddess of the earth) came and did penance at this place; as also *Lacshmi, Surya,* and *Cámadhénu* (the cow of plenty). *Náreda* went to *Brahma,* and received from him a pomegranate. *Nareda* carried it to *Siva,* to whom he presented it, praising its qualities. The two children of *Siva* (that is *Ganésa* and *Subrahmanya*) laughed on seeing it. *Siva* said "I will give this fruit to whichever of you can go round the world in a moment of time." Thereupon *Subrahmanya* mounted his peacock vehicle, and came from *Cailasa* down to earth, and set out to go round it; the other simply walked round his father and mother, and praising them, said that, as they contained all things, in going round them he went round the world. Thereupon *Siva* gave him the pomegranate.

A pompous account is narrated, highly overcharged, of *Subrahmanya's* progress round the earth; and of the different places to which he came, until all the *eight* points of the heavens were passed, and he returned to his parents; when he saw the pomegranate already in the hands of his elder, and more skilful, brother. At this he was both sorry and angry; and leaving *Cailasa* in disgust came to *Varâha-giri,* and created many things at *Tiruvavanengudi. Siva* and *Parvati* came hither in order to pacify him; told him he was a good child; and that it was not worth his while to grieve on account of that fruit, adding *Pazhaniyallavà,* whence the name of the place. They promised him *many* fruits; whereupon he paid them homage. They asked him what gifts he desired; and, according to his request, bestowed many immunities on the place, and gave beatitude to all who were doing penance there. Hence (says the tale) they who, in the months of January and November, bathe in the *Saravana tirt'ha* (or pool), will obtain beatitude. None can tell all the virtues of that pool, or all its wonders, except *Siva* himself. The pools, which are there, contain the real waters of the *B'hagirat'ha* river (or Ganges). For bathing here gifts were accorded both to *Lacshmi,* and *Bhumi devi,* with permission to marry *Vishnu* (they are his two wives). Gifts were also given to *Camadhenu,* with leave to go, and always to remain, near to *Vasishta.* On the same accounts gifts were accorded to *Surya* (the sun) with permission to go and remain in the heavens. From that time forwards the place was called

Pazhanist'hala (that is Pyney) because of the expression "art not thou a fruit?"

Suta then says he will tell another tale, which is contained in the following section.

Remark.—As in the case of the *Bhagavatam*, and for a similar reason, the concluding of this abstract must be postponed. The entire *purana* contains twenty-three sections.

Manuscript book, No. 57.—Countermark 1026.

Fifty-three inscriptions, on stone, in the *Vridhachala* district.

Inscriptions in the fane of *Arnachala-isvara* at *Trinomali*.

1. Dated in the twenty-second year of *Vallava-dever*. Gift of lands at *Trinomali*, in free tenure to the *Brahman* managers of the above mentioned fane.

2. Dated in the tenth year of *Vicrama-Chola-dever*. Extensive gift of lands, let out to be cultivated by *Somasipádi malaiyaman*; the proceeds to be appropriated to maintaining lights in the above fane.

3. Dated in the tenth year of *Svasta-Sri-Kóvi-Jaya-nandi-Vicrama-dever*. Gift of some gold pieces by *Konacanàr*, son of *Manikattàr*, to maintain a lamp in the said fane.

4. Dated in the 48th year of *Kulottunga Cholan*; gift by *Vira-raja sec'haraChacravarti* of some wet and dry lands, as a free tenure, to some of his serfs; recorded in the fane of *Tirucóvalùr*.

5. Dated in the 5d year of *Sri Coperu singha-dever*, a chief subordinate to *Kulottunga Cholan*; gift of a village for ordinary supplies to the fane of *Tirucóvalùr*.

6. Dated in the eleventh year of *Kulottunga Chólan*; gift by *Pándiya-rayen*, of a large tract of land to supply three lights in the fane of *Tirucóvalùr*.

7. Dated in the eighth year of *Vicrama Pandiya-dever*; gift of waste land in the neighbourhood of the same fane to *Vanicat-appaiyar*, a *Brahman*, to cultivate for his own benefit.

8. Dated in the eighth year of *Vicrama Pandiya-dever*; gift of wet and dry lands, by certain *Pandárams*, to silver (or gold) smiths, to provide ornaments for the image in the said fane.

9. Dated in the 32d year of *Kulottunga Chola dever*; gift (amount not stated) to provide oil, for anointing the image in the said fane.

10. Dated in the second year of *Vicrama Pandiya dever*: gift of wet and dry lands, by certain district chiefs to the above mentioned fane.

11. Dated in Sal. Sac. 1378, in the time of *Mallicarjuna rayer*, commemorating the sale to the said fane of the village of *Nallùr*, purchased with its surplus funds.

12. Dated in the 10th year of *Sri-raja-raja-dever*; gift by villagers of *Tirucóvalùr* to the *Vaishnava* fane of twenty-one *vélis* of land.

13. Gift of lands to the said fane in the time of *Vicrama-Pandiya-dever*.

14. Dated in Sal Sac. 1420, in the time of *Immadi-rayer*; gift of lands for the celebration of processions in the said *Vaishnava* fane at *Tirucóvalùr*.

15. Gift of certain portions of grain, from the general produce; for the benefit of servants of the said fane.

16. Dated in Sal. Sac. 1414 in the time of *Sada-Siva-maha-rayer*; gift of certain villages, and 2572 gold *huns* by *Surapa-nayak*; for the celebration of festivals in the said fane.

17. An imperfect inscription, bearing date Sal. Sac. 1201, in the time of *Hari-hara-rayer*, any further specification is wanting.

18. Dated in the fifth year of *Sri-Kulottunga-Chola-dever*; gift of land to the *Saiva*-fane, in the same place.

19. Dated in the 24th year of *Sri-kulottunga-Chola-dever*; gift of an alms house, and certain lands to the fane by villagers.

20. Dated in Sal. Sac. 1368, in the time of *Sri-Pratapa-Vijaya-rayer*, who had ordered certain excessive exactions from the people for the benefit of the fane, which reduced them to distress; in consequence of which distress, *Nadarasa udiyar* (a titular name) ordered the exaction to be discontinued.

21. Dated in the 10th year of *Kulottunga-Cholan*; gift of land by a district chief, to maintain lights in the fane.

22. Dated in the 2d year of *Sri-raja-raja-dever*; gift of land to maintain lights; and for a supply of food to the fane.

23. Dated in the 4th year of *Raja-raja-dever*; gift of land to supply oil for the fane, by the local chief of the district.

24. Gift of land in the 6th year of *Rajéndra-Chóla-dever*.

25. Dated in the 6th year of *Rajéndra-Chóla dever*; gift of 98 milch-goats, to supply butter-oil to the fane, by a local chief.

26. Dated in the twenty-seventh of *Padma-raja-raja-Cesari*; gift of 96 milch goats, to maintain lights in the fane.

27. Dated in the 20th year of *Sri Kó-vijaya-Nurupa-Conga*, in the era of *Vicramaditya* (no year specified); gift of some silver, to maintain lights in the fane.

28. Dated in the 17th year of *Sri-kó-vojaya Vicrama-Nandi;* gift of some gold, to supply butter-oil, for lamps, in the *Vaishnava*, and *Saiva* fanes.

29. Dated in the 6th year of *Rajendra-Chola-dever;* gift of land to maintain lights in the *Saiva* fane.

30. Dated in the 6th year of *Kulottunga-Chola-dever;* gift of wet and dry lands, to maintain the public processions of the *Saiva* fane.

31. Dated in the 10th year of *Sri-Kóvi-raja-raja-Césari;* gift of certain wet lands; the proceeds of cultivation, to supply food for the image, and its attendants.

32. Dated in the 5th year of *Vicrama-Chola-dever;* gift of a village to maintain the public processions, in a *Saiva* fane.

33. Dated in the sixth year of *Vicrama Chola;* gift of certain villages for the benefit of the fane.

34. Dated in the 17th year of *Raja-raja-Césari-Padmar;* gift of fertile land to the fane.

35. Dated in the first year of *Kulottunga-Chola-dever;* some head villagers sent a body of men to do work for the fane, without any charge for the labour performed.

36. Gift of an annual quantity of rice-grain, for the service of the fane.

37. Dated in the eighth year of *Vicrama-Chóla déver;* gift of wet and dry lands, the produce to support public processions in the fane.

38. Dated in the 10th year of *Sri-raja-raja-déver;* gift of land to maintain lights in the fane.

39. Dated in the 8th year of *Vicrama-Pandiya-déver;* gift of land to supply lights, and food, to the fane.

40. Dated in the 10th year of *Raja-raja-déver;* gift of land for the supply of oil for lamps.

41. The name of *Cachi-rayen* a *palliya-carer*, appears; but the body of the inscription had perished, when the fragment was copied.

42. The same, and many others are said to have been in like condition.

43. Merely the names of a few ascetics.

44. Dated in the 22d year of *Kulottunga-Chola-déver;* gift of one hundred cows to the fane for the supply of butter-oil to anoint the image.

45. Dated in the 5th year of *Sriko-perun-déver;* gift of some bars of silver, to the servants of the fane.

46. Dated in the 15th year of the same; gift of butter-oil, daily to the fane.

47. Dated in the 14th year of *Sri-raja-raja-déver;* gift of 96 milch goats, to supply butter-oil, for the use of the fane.

48. Dated in Sal. Sac. 1350. Commemorates an agreement between the towns-people, that if either "right hand caste" or "left hand caste" create any disturbance, and fight with each other, during public festivals, the said persons should be forthwith killed on the spot, with spears, without ceremony.

49. Dated in Sal. Sac. 1156 in the time of *Hara-dever-Maha-rayer;* gift of a reservoir, and lands fertilized by it, to a fane, to support public processions.

50. Dated in the 10th year of *Sri-có-peran-dever;* gift of 229 cows, to supply butter-oil for anointing the image.

51. Dated in Sal. Sac. 1295; gift of rice to a fane.

52. Dated in Sal. Sac. 1221; gift of a piece of fertile ground, to the watchman of the fane.

53. Dated in the 16th year of *Sri-có-perun-singha-déver;* gift of 96 milch goats to supply butter-oil for lamps, in the fane.

Remark. This book being damaged, and the writing having become almost illegible, by the fading of the ink, I had it restored: the contents are of average interest.

Manuscript book, No. 9.—Countermark 763.

Section I.—Account of *Trivatur.*

This paper contains a statement of *Dacsha's* sacrifice; the death of *Sati*, the wife of *Siva;* his anger; the form of *Vira Bhadra* assumed in consequence; the overthrow of *Dacsha's* sacrifice; the penance of *Siva;* the device of *Indra* to destroy that penance; the reducing his messenger to ashes; the return of *Siva* to *Cailasa;* the proposition to wed the daughter of *Parvata-rayen;* the ceremonials attendant on the marriage.

Remark. This paper is very similar to the contents of one of the *Sargas* (or sections) of the *Trinomali St'hala puranam.* I believe it to be another version of the same; though, in the book, it is said to relate to the *Trivatur Isvara*, which may be but a slight fiction; the tutelary gods, at both places, being forms of *Siva.*

In this paper, the pages are transposed, confused, and perplexed, [illegible] the carelessness of the binder. The index of contents, here [illegible]ven, is derived from running over the different pages, and then re[illegible]cing them to the order, in which they ought to be found, accord-

ing to the coherence of the narrative. There is no need of re the document, as the same legend occurs in other manuscripts.

Section 2. Account of the *tirt'has*, or sacred pools, at *Trinomali*.

A reference to the introductory portion of the *Trinomali St'hala puranam*, delivered by *Brahma* to *Sanaca*; by him to *Vyasa*; by *Vyasa* to *Suta*; and by him to the *rishis* in the *Naimisara* wilderness; and then an account of the *tirt'has*, in the usual puerile, and extravagant style, needless here to be abstracted; as the substance will appear in the notice of the *Purana* itself; in which *Purana* it forms the 7th *sarga*. For the same reason, the re-copying of this section is not necessary.

Section 3. Legend of the *Pulacadiyan*, an asura.

This also relates to the same fane; being taken from its local legend. An *asura* (that is I presume, a *barbarian*) entered the fane, and obtained the favour of *Siva*. The story of a civet-cat is mixed with the other matter.

Section 4. Account of *Daivica-raja* who ruled in *Tirucóvalùr*.

This is an incomplete section. What there is relates to the visit of *Avvayar* (the poetess) to a *paria* village and the intended marriage of a *Hindu* chief, to an outcast woman. The writer seems to have contemplated an ornate production, in prose and verse; but after writing two *venpas*, his poetical inspiration appears to have ceased.

Section 5. Tale of *Ponnai-vanan* of *Tirucóvalùr*.

This section has the appearance of being an incomplete fiction, by the author of the preceding one. A school boy was frightened by a goblin residing in a tree, that always called after the youth as he went to school; without presenting any visible appearance. The elder brother of the young man recommended speaking with the sprite; accompanying him to

the spot, but remaining concealed in order to give him confidence. The goblin, on being interrogated, said that buried treasure was in its charge, which it would give up on condition of first receiving a human sacrifice. A dispute arose between the brothers, which ended in yielding to the claim of the elder to become the victim; the young man got possession of the treasure, and with it commenced a magnificent establishment. He sent an embassy consisting of two messengers to the *Pândiyan* king, to obtain from him the *Veppa*-garland, the decoration of heroes. The *Pândiyan* king asked them whence they came, and the reply is couched in poetical stanzas; after which nothing follows, leaving the effort nearly as abortive as in the foregoing section.

Section 6. Account of the fane of *Góbrapuram* in the *Vriddhâchalla* district.

Reference to the legend of *Móhini*, with which this shrine is made to be connected. An extravagant statement of the power of this place in the removal of all crimes, and the certainty of securing beatification, by remaining, even for an instant, within its limits. Much jejune matter follows; useful indeed in illustrating manners, and the credulity of superstition, but of no other value. The statement was prepared by certain persons whose names are mentioned at the close; being the substance, as they state, of the legend of the fane.

Remark.—The ink is pale, and the paper somewhat damaged. As it contains the substance of a local legend, and that legend being illustrative of manners, it has seemed best not to allow it to perish; it has accordingly been restored.

Section 7. Account of *Arunâpuri* in the *Trinomali* district.

This is a legend founded primarily on a fable concerning *Nandikesvara*, and apparently belonging to the *Trinomali St'hala puranam*. It alludes to various other *Saiva* fanes: and is of the ultra *Saiva*-kind. It consists chiefly of empty, and bombastic, eulogy, not easy to be abstracted; and, if attempted, the result would be worthless. The ink is deep-coloured, and the paper in good preservation.

Section 8. Account of the *Surya*, and *Chandra, vamsas*, or solar, and lunar races.

A very brief reference to the origin of the *Chandra-vamsa*, and then a rapid transition to the posterity of *Santanu*; entering on the details contained in the *Maha'harata*, down to the death of *Pándu*: the narrative then breaks off abruptly.

Note. The fragment is of little or no value.

Section 9. Notice of the origin of some subdivisions among the *Jainas*.

This short memorandum states the date, and cause, of four of the variations, or separate classes, among the *Jainas*. It is in the hand-writing, and kind of ink, which heretofore, in other documents, occasioned so much trouble. I have had it restored.

Section 10. Account of the *Panta-curzis*.

This is a paper concerning a singular species of subterranea; similar, in its contents, to the one abstracted in my second report: MS. book, No. 14, sec. 1. This document follows the same general outline of attempted explanations, as in that one; only it is rather more full concerning the leaving aged people to die in tombs, prepared for them, when grown feeble, in a way similar in effect to that said to be common on the banks of the Ganges. I have no confidence in these vague explanations; and believe the said excavations to be the tombs of *Bactrian* invaders; as I have before intimated, with reasons added, in my remarks on the *Chola púrva patayam*; at the commencement of my second report. As however all evidence, on this subject, is worthy to be kept on record, and as the hand-writing of the paper in question is a mere scrawl, I have had it recopied.

Section 11. Account of the *Bauddha-rajas*.

In the time of *Parsva tirt'hacara* a *Jaina* ascetic named *Put'thikirti*, being of great learning and acute intellect, began to moot differences in the *Jaina* mode of credence; leading to an appeal to their tribunal

which decreed his expulsion. He raised followers, and introduced the *Bauddha* system (the document says he originated it, which of course, is an error). Some of the *Bauddhist* books are known, others are lost. The end of the *Cali-yuga*, of the *Jainas*, is said to have given place to the era of *Salivahana*. There is then a reference to kings at *Casi*, who bore the common cognomen of *Sitala*, and from them the *Jaina* king named *Hemasitala* is deduced. He ruled in *Arzipadi tangi*, a fort of seven inclosures. The disputes between the *Jainas* and *Bauddhas* being reported to him, he caused a public disputation to take place, which lasted during eight days; the conquered sect he bruised to death in oil-mills of stone. *Acalingan*, by homage paid to *Dherma devati*, succeeded on the eighth day, in overthrowing the *Bauddhas*, and the king made several of them adopt the *Jaina* system. Some of the *Bauddhas* went to Ceylon by sea; where their power continues. The emigration occurred a thousand years since.

Remark.—This section may be compared with section 3, MS. book* No. 15, with which it harmonizes; but it is more full concerning the kings' names. The ink having become very pale, the document was restored.

Section 12. Account of the customs and manners of the *Curumbars*.

They are said to be of the *Yadava* race (that is herdsmen); but are not assimilated, in mode of religious credence, with any of the classes of *Hindus*. They worship one deity termed, *Vira* or *Virálu* or *Virá Bhadra*. They have a special religious ceremony at the new moon of the month *Tai* (corresponding with part of January). At other times the image is locked up in a box, and deposited in a house, set apart for that sole purpose. On the return of the festival they open the house, and the box; take out the image, which is of fine copper, or brass; and, making use of acid tamarind juice, clean it of oxide, and brighten it. They spread out a cloth; place the image upright upon it; crown it with flowers; offer to it the smoke of incense; put rice and other matters in a clean pot, and cook the same, which is offered to the idol. This ceremony being over the image is again deposited in the box; and then, but not before, they proceed to eat of the offering. Their mode of selecting an officiating hierophant, is the following one. A person supposed to be suitable is fixed on, who is carefully bathed and clothed in clean gar-

* First Report.

ments. He is placed in front of the image at the festival time (which here seems to be intimated occurs thrice yearly) and when so placed cocoa-nut is broken on his head. If blood appear he is considered to be defiled, and is set aside till the following day, when another trial is made. If blood again appear, he is thought to be more impure, and is rejected. Any one who abides the test, becomes servant of the idol. He alone can enter the house, take out, or deposit the idol in the box. When the festival is ended the *Curumbars* dance together; beat small drums; and blow very long horns, or trumpets. Their occupation is chiefly to take care of a kind of goats, with the hair of which they make blankets, and sell them. But there are other *Curumbars* whose office is to rule the land; others who make and sell chunam or lime; and some are hunters, who live by the chace. Their customs of marriage, and of dress, are stated. They make free use of ardent spirits at their weddings. The fine for breach of the marriage contract is two fanams, with which liquor is bought, and used by the referees. The bond of marriage is dissolvable by mutual consent. The birth of a child makes the mother to be considered unclean. In funerals some are burned, some buried. The *tàli* is not taken from a widow. She may marry again as many husbands as she pleases.

Remark.—This curious paper exhibits a people distinct from the *Hindus*, but who have adopted some of their customs; retaining many more of their own. The resemblance to the *Maravas* is striking. It must be borne in mind, that the account of their religious ceremonies is given by a writer of a different persuasion.

The ink being pale, I have had the document restored; and, as a curiosity, it seems to merit translation.

Manuscript book, No. 43.—Countermark 797. Account of the ancient princes, or *Tamil-rajas*.

On this book coming under examination some time since, it was discovered to be a copy, on paper, of the palm-leaf manuscript entitled *Congu-desa-rajakal*. It could not, of course, be so recognized merely from the above title, copied from the index; and by consequence did not attract my notice, while the said manuscript was under attention. Both manuscripts, and also the restored copy of the *Congu-desa-rajakal*, were out of my hands when I met with this additional manuscript, and I hoped that this last might aid in filling up one slight lacune in all the other copies. Hence this book was set aside, till I could make the comparison:—

done so, this manuscript is found to be merely a copy of best of palm-leaf MSS. omitting only the Telugu words, where they appear: but having precisely the same lacune; so that it has not afforded any additional advantage in the work of collation. It is written on good French paper, damaged only as regards the cover; but the ink, in some pages has become very pale. Having however a restored copy, adapted to be permanent, this book may remain as it is. The restored copy is the proper one to be depended on, or followed.

Note.—This manuscript is entered at the end of the Tamil local tracts in the Des. Catal. vol. 2, p. L. art. XLIII. as a "Genealogical account of the ancient *Tamul rajas*."

Manuscript book, No. 23.—Countermark 777, genealogical account of the *Tanjavur rajas*, of the *Bhosala-race*.

This is a document of considerable length. It commences with a reference to the head of the race, named *Sembu*, who was a petty chief of a village on a hill, also named *Sembu*. His son named *Ekoji* received a small fief from the Nizam. *Ekoji* had fifty sons. His eldest son was of the same name. Between the following descendants and the Nizam, there was war. Some other descendants are mentioned down to *Maloji* and *Vitoji*, who may be considered as the subordinate heads of the *Mahratta*-family. Their children took part in wars between the Nizam, and *Ali-Adil-shah*. They were engaged, under the Nizam's orders, against *Cólapur*. The following details are rather full; and refer to various wars, and similar matters; in which *Sivaji* bore a distinguished part. The interference in the affairs of Tanjore is ascribed to *Ali-Adil-Shah*; who by consequence is the Mahomedan prince referred to in other manuscripts, under the general term Padshah. From the time of *Ekoji's* assumption of Tanjore there is a detail of following transactions in order; down to the death of the prince who confided his son *Serboji* to the care of Swartz, and some gentlemen of the Honorable Company's service. *Ameer Sinh* for a time ruled; but the Honorable Company set him aside, and *Serboji* came to the possession of sovereignty. There is special mention of Swartz's care, and education, of *Serboji*; and also of the death of the said preceptor. Some matters concerning *Serboji* are mentioned; the account apparently having been written during his reign.

Remark.—In a blank leaf at the commencement there is a title in the hand writing of Colonel Mackenzie, as follows. "Historical account of the Tanjore Family: copied from a MS. in possession of the Tranquebar Missionaries, communicated by the Rev. Messrs. John and Rottler;" and

the taking the copy is dated April 4th 1804. This memo. will [illegible] for the particular mention made of Swartz. The book is wr[illegible] medium Europe paper, entirely uninjured; and though the ink is [illegible] what faded, yet it will remain legible for several years. The restoration by consequence is not required, but as the MS. is strictly historical, and bears every appearance of containing information derived from authentic sources, it is of value towards any full account of the Mahrattas: and as such I strongly recommend its entire translation.

Note.—It is entered in the Des. Catal. vol. 2. p. XLIII. art. XXIII. and the following one at page XLIV art. XXVII.

Manuscript book No. 27.—Countermark 781, genealogical account of the Tanjore princes.

This is a duplicate of the foregoing document, and has the appearance of being a copy made from it. In addition to what is stated above, it may be mentioned, that in the narration of affairs between *Aurungzebe* and *Ali-Adil-Shah*, in which the Mahrattas are mingled up, either as auxiliaries, or principals, there are many particulars probably not to be so fully met with elsewhere. The details of interference at Madura, when in a state of anarchy, are also adapted to convey some further information, concerning that place at the time in question.

Note.—By the aid of documents in this collection the Tanjore history is now clear, up to the time of setting aside the old *Cho'a* dynasty, in the beginning of the fifteenth century. We can also ascend higher up; though not as yet with assurance of perfect accuracy, in all details. But, with the measure of certainty acquired, it may be conjectured that the origin of the *Chola* dynasty, is probably posterior to the commencement of the Christian era.

Manuscript book, No. 8.—Countermark 901.

Section. 1. Account of the tribe of *Nayanmar* (or Nairs) of Malayalam.

A reference to the formation of the *Kerala desam* by *Parusu-Rama*, and the location of the *Brahmans* in sixty-four village districts. The *Sudras* of the country acquired the name of *Nayar* from the name of a local god. The etymology of the name is specified. Other tribes arose, as the offspring of *Brahmans*, by *Sudra* women. A specification is given of some of these classes, and their occupations. The loose manners of

the *Nayars* are stated. Their marriage, and domestic, customs are detailed. The military office of the *Nayars*. Funeral customs.

Remark.—From this paper it appears to me evident, that the *Nayars* are the descendants of the aboriginal inhabitants of *Kerala*, who probably were brought into some measure of civilization by the colonist *Brahmans*; yet retaining so much of their own manners as to be a people, inclusive of the mixed tribes, very different from genuine *Hindus*. There are traces of resemblance between their customs and those of the *Maravas*; and I have little doubt that they were aboriginally portions of one homogeneous, but excessively barbarous, people. At present the *Maravas* seem to have the advantage, such as it is, in point of moral relations, and domestic order.

Note.—This paper was much damaged: it has been restored.

Section 2. Is in the Telugu language.

Section 3. Account of the *Nanji-curavar* who ruled, in former times, in the *Nanji-nàd*.

The commencement is merely legendary, or traditional. The origin of the *Curavar* is dated in the time of the *Pándiya* kings. The obtaining of power is ascribed to the discovery of an oil-well, which had the property of turning iron into gold; first seen in the instance of a sickle accidentally dropped therein. Afterwards all iron-utensils were so alchymized; the secret being carefully kept in the family. By means of the great wealth, so acquired, they engaged troops, and spread their power. At length the king of this *Curava* tribe, desired a daughter of one of the neighbouring *Vellazha Muthaliars* for his wife; and, after some consultation with his caste, the *Muthaliar* consented, prescribing as a condition, that the ceremony should not be conducted in a common booth of palm-branches, but in a stone-building specially erected for the purpose. The building was formed by workmen under the influence of the *Muthaliars*; and was so contrived as to appear strong, yet to be capable of being thrown down in an instant. The ceremony was also so managed as to leave, at a particular time, only the *Curava* king, and his people, within side; on whom the building was caused to fall. Some of his posterity ruled. Names and periods are specified; and they would appear to have been superseded by the *Vellazhar*, and these by the English authorities.

Remark.—This paper I suppose to be enigmatical as to the well, and the stone building. The former may denote a profitable monopoly in the oil trade. The latter any device by which the death of the king was procured. There was something similar in the result to this in a *Malayalam* paper before noticed; perhaps both incidents may be one and the same, narrated in different manners.

Note.—This section was so much damaged as not to be capable of complete restoration. The sense is defective only in one place: the remainder is coherently re-copied.

All that remains of the book is in so hopeless state of destruction, by insects, that no three consecutive words can be put together; and the whole is, by consequence, *irrecoverable*. The head sections in English are so injured as not to preserve connexion. I therefore copy them out from their previous entry in Des. Catal. vol. 2, p. XCIX. art. VIII.

4. Account of *Teruvangode* otherwise called *Teruvatan-góde*-village.

5. Account of the mountaineers residing on the *Panmalla* hill in the *Travenkur* district.

6. Account of the celebrated temple of *Anantasena* of *Teruvenandapurom.*

Manuscript book, No. 50.—Countermark 1019.

Section 4th. Copies of inscriptions at the *Vaishnava* fane of Conjeveram, and at other places.

No. 1. Dated in the 8th year of *Sri Vijaya kanda Gopala.* Gift of cows and some other cattle by a *nayak* to herdsmen; by which they stood engaged to supply the expense of keeping a lamp constantly lighted in the fane of *Varada-raja.*

No. 2. Dated in Sal. Sac. 1453 (A. D. 1531) in the reign of *Achyuta-rayer.* An engagement from the Brahmans of the fane given to *Narasaiyar* to prepare a certain quantity of food for the idol; in consideration of a certain proportion of revenue, arising from her village of *Salopâcam.*

No. 3. Dated in Sal. Sac. 1496, in the time of *Sriranga-rayer.* Certain *Brahmans* gave to another *Brahman* 500 gold *huns* on condition of his performing certain portions of ceremonies in the fane, defraying all attendant expenses. The name of *Tattacharyar* appears among the

donors; and as he acquired considerable distinction, it may be well to know the time when he flourished, hereby specified.

No. 4. Dated in Sal. Sac. 1392 (A. D. 1470) in the time of *Virupacsha-rayer.* Gift of a village by *Timma-raja* to a fane at *Tiruvatiyûr.*

No. 5. Dated the 20th year of *Sriraja Narayana Sambhuva rayer.* An order to cause the image of *Aralâla-nat'ha*, to pass through a certain street in public processions, and also to visit certain groves specified.

No. 6. Dated in 1443 in the reign of *Vira Crishna Deva Rayer* (A. D. 1521). Gift of a village the revenues to go towards certain ceremonies and processions specified; by *Jada-koba-jiyar*; and the *Brahmans*, in return, engage to discharge the said obligations.

Note.—The above date is valuable.

No. 7. Dated in Sal. Sac. 1517 in the time of *Sri Vira Vencatapati-deva-maha-raja.* Gift of a part of the proceeds of a village, from two *Brahmans*, to *Pandarams* of the fane, in order to conduct certain ceremonies which are minutely specified.

No. 8. Dated in Sal. Sac. 1459, in the time of *Catâri-saluva-canni Narasingha rayer.* Gift by a manager of that prince, of the revenue arising from increased cultivation; in consequence of a water-course dug at his expense: to a fane at *Tiruvatiyur*, of *Porulâla Perumâl.*

No. 9. Dated in the twelfth year of *Sri Rayisa maha-raja-dever.* Gift of thirty-three cows to produce curds, and butter-oil, for the same fane, from *Raja-raja Marava-rayen.*

No. 10. Dated in Sal. Sac. 1390. Gift of a village in free tenure, by *Vira Hariyana údiyur* to a fane, not specified.

No. 11. Said to be in Telugu, and not given in the book.

No. 12. Dated in Sal. Sac. 1481 (A. D. 1559) in the time of *Sâluva Narasingha-rayer-maha-rayer.* Gift of means to supply a light in a fane, by two persons whose names are specified.

No. 13. Dated in Sal. Sac. 1498. Gift of a light to a fane, from whom does not appear.

No. 14. Dated in Sal. Sac. 1464 (A. D. 1542) in the time of *Sri Vira Achyuta rayer maha rayer.* Gift by *Chelligutiya pillai* of 250 fanams (value uncertain) to purchase seed-corn, and cultivate it after being sown; the proceeds to be applied to find butter-oil for anointing the image, on every eleventh day of the moon's bright, and dark, half.

No. 15. Dated in Sal. Sac. 1459, in the time of *Sri Vira Achyuta Mahadevarayer.* It commemorates a donation to this effect; *Tirumalaya maha-raja* deposited 300 gold *huns*, in the hands of *Ramanujayengar*, to provide butter-oil, for anointing the image during 130 days out of the whole year.

No. 16. No date. *Timma Kondan* (a ruler) gave an order to ten heads of villages, to supply some assistance (not specified) to a fane.

No. 17. Dated the in 26th year of *Rajathi raja-raja-dever. Nágapa-nayak*, gave twenty-six cows and 59 sheep to 3 cow-herds and shepherds, under an obligation to furnish every day a certain specified quantity of butter-oil and curds; the former to be used in maintaining a perpetual lamp in a fane.

No. 18. Dated in Sal. Sac. 1459, in the time of *Achutapa-deva-maha-rayer*. The said *Rayer* gave a village, having four connected hamlets to the fane of *Arulála-Perumal* in *Tiruvattiyùr*, to furnish a constant supply of butter-oil for the evening-daily-anointing of the image: and also a revenue of one thousand five-hundred gold *huns*, arising from fourteen villages for the general ceremonial usage of the said fane.

No. 19. Dated in Sal. Sac. 1461, in the time of *Sri-Vira-Achyuta rayer*. One named *Paráncusa-jiyar* purchased from *Brahmans* three villages, their private property, and then made them over to the fane of *Arulála perumal* in *Tiruvattiyùr*, for anointing the image with butter-oil, and other ceremonies, on fifteen *yécadasas* (or eleventh-days of the moon's bright and dark half) out of the entire number during the year.

No. 20. Dated in the 6th year of the reign of *Sri-Vijaya-Kanda Gopála*. Gift by the whole of the people of the town of *Amùr* of eighty *calams* of rice-corn annually, to the above mentioned fane at *Tiruvattiyùr* (supposed to be Conjeveram).

No. 21. Dated in Sal. Sac. 1513 (A. D. 1591) in the time of *Vencatapati-rayer-maha-raja*. Gift by *Sama véda-rangapaiyer* of the two united villages of *Alampácam* and *Anampádi*, for the general ceremonies in the fane of *Porulála Perumàl; Cumara Tattacharya-ayengar* being constituted trustee.

No. 22. Dated in Sal. Sac. 1462 in the time of *Vira Pratápa-Achyuta rayer-Maha-rayer*. One named *Ráma Pattáiyar* gave 120 gold huns to be laid out in cultivation, the proceeds to be appropriated to the supply of food for the image (i. e. temple-attendants).

No. 23. Dated in Sal. Sac. 1454 *Nandana* year in the time of *Achyuta rayer-maha-rayer*. *Achyúta-rayer* was installed in the preceding *Virodi* year; he conquered many persons—he subdued the *Pándiya* king, and took one of his daughters; he fixed a pillar of victory on the banks of the *Támbraparani* (river at Tinnevelly); he greatly harrassed *Tumbichi nayak*, and *Sáluva-nayak*; and, returning hither in the above mentioned year 1454, in the presence of *Varada-raja-svámi* (god of the *Vaishnava* fane at Conjeveram) he had himself weighed against pearls in the opposite balance, and gave his weight in these to the fane; and, at the

same time, gave a present of one thousand cows. He also gave to the fane many largesses in money; some very valuable jewels; and some costly garments. He further bestowed a revenue of one thousand five-hundred gold *huns*, arising out of seventeen villages. He also gave a *chank*, a *chacra*, an open hand of benediction* and a tridental mark (*tirunama*), the same being made of gold set in jewels.

Note.—The above inscription is cut on the south wall of the Conjeveram fane; opposite the place where the ceremonial utensils are kept.

It is very important towards adjusting some valuable dates, and to give a footing whereon to stand in ascending higher up in the history of the Carnatic. The specification of grants, in the inscription, is much more minute, than in the preceding abstract. It is probable that the largesses herein detailed are those referred to in No. 83, *which see*.

No. 24. Gift by *Koneri Mái-kondan* of fifteen-hundred pagodas, or gold *huns*, arising from the revenues of three villages, for the conduct of festivals to the fane of *Kondarama* (built by the giver) inclusive of the *Vaishnava-Brahmans*.

No. 25. Dated in Sal. Sac. 1470, in the time of *Sri Vira Sadà-Maha rayer*. One named *Vallaba-deva-raja*, gave a village yielding a revenue of one-hundred and forty-eight pagodas, in the name of another person, to the fane where the inscription is recorded.

No. 26. Dated in Sal. Sac. 1475. Gift by *Tiruvencataiyar* of a half of one-third of the revenue of two villages, the other two-thirds of which revenues had been previously bestowed on the fane.

No. 27. Dated in the 13th year of the reign of *Kulottunga Chola*. One named *Vicrama Chola Sambhuva Rayer* gave certain cows, goats, &c. to furnish a supply of butter-oil; in order to keep up a perpetual light in a fane.

No. 28. Dated in Sal. Sac. 1514, in the time of *Sri Vencatapati-deva-maharayer*. One named *Tirumala Cumára Tattachari-ayengar*, bestowed the revenues of two villages, in order to supply food to the fane of *Porulala-Perumal* at *Teruvattiyur* during the public processions in the months of July, August, September, March, and May.

No. 29. Dated in Sal. Sac. 1493, in the time of *Sri Rhanga-deva Maha-rayer*. One named *Achyuta nayak* (a local chief) gave five villages, the proceeds to go towards the expenses of a public procession and festival of the *Alavar* (deified votaries of *Vishnu*) in the month of May.

* Of *Vishnu's* two front hands, one is open in the form of benediction, the other open in form of receiving.

No. 30. Dated in Sal. Sac. 1480, in the time of *Sri Vira Sada-Siva deva-Maha-rayer*. The inscription is incomplete: a string of titles precedes the names; but what was given does not appear.

No. 31. Of this inscription there is left only a line or two, at the beginning.

(Here follows a chasm: occasioned by three leaves having been cut out of the book. The whole of No. 32, is wanting, and the commencement of No. 33).

No. 33. ******, minute specifications of tax, or duty, on various agricultural, and other productions, and a like minute mention of the mode of appropriating the different small sums; the whole amounting to one-hundred and twenty-three gold *huns*, for certain festival services in a fane: the name of which does not appear in the part of the inscription which remains.

No. 34. Dated in Sal. Sac. 1325, in the time of *Sri Vira Hari-hara rayer*, a gift by one named *Dévanen* of cows to supply butter-oil to the fane of *Tiruvattiyur*.

No. 35. Dated in Sal. Sac. 1423 two persons, named *Yécapa-nayaka* and *Tirumala-nayaken*, gave means to keep up a perpetual lamp in the same fane: made over inalienably into the hands of the temple manager; and with a severe denunciation added on any one that may alienate the gift.

No. 36. Dated in Sal. Sac. 1309, in the time of *Accana-udiyan*, and *Cambana-udiyar*. Gift of the village of *Kolipacam*, by *Konapu* son of *Muttapen* to the fane of *Arulala-perumal* in *Tiruvattiyur*.

No. 37. Dated in Sal. Sac. 1459, in the time of *Sri Vira Achyuta Rayer*. Gift by a *Brahman* (as supposed), named *Narayanan* of 80 *fanams*; for the purpose of cultivation; the proceeds to go to provide a certain kind of cakes; and also butter-oil for anointing the image of the aforementioned *Porulálar*, during four festival days.

No. 38. Dated in the 13th year of *Sri-rajathi-raja-dever*, *Copaiya-Tanda-nayak* son of *Mandala-nalla Tandama-nayak-raja* of *Astagir* (a name of Conjeveram) from a district bestowed on him by *Viraj Narasingha-deven*: it gives the village of *Triyalam* of *Yévùr* district for the service of the fane of *Arulala-perumal*, inalienably bestowed.

No. 39. Dated in Sal. Sac. 1452, in the time of *Sri-Vira Achyuta deva Maha-rayer*. Gift to the fane of *Porulala Perumal*, of two thousand five-hundred *chacrams* (gold coins) from *Ramanaj-ayengar*, for the celebration of the *Lacshmi*-festival in the month of *Piratasi* (or September).

No. 40. Dated in the 16th year of *Vijaya-kanda-Gopala-dever*. Gift of a piece of ground, by a servant of the fane, to supply flowers.

[Here occurs another chasm, by reason of one leaf cut out from the book (visible from the remains); occasioning a loss of five short inscriptions from No. 41 to 45, inclusive].

No. 46. Dated in the 10th year of *Raja-raja-dever*. Gift of 33 cows, by *Damotaren* to supply butter-oil, for a perpetual lamp in the *Perumal* fane.

No. 47. Dated in the twenty-first year of *Raja-raja-dever*; a like gift for the same object from *Perayira-chetti* of *Purnóttu-mangalam*.

No. 48. Dated in the 11th year of the same like gift, for like purpose; by *Aya nambi-perumal- nayaken*, of *Karpali nattam*.

No. 49. Dated in Sal. Sac. 1439, in the time of *Sri Vira Crishna dever maha rayer*. Gift by him, at the solicitation of the *Brahmans*, of the revenues of two villages to be appropriated to sundry uses connected with the cars, and other appurtenances of festival processions.

No. 50. Dated in Sal. Sac. 1633. A charity by three-hundred townspeople of *Pennaconda*: the inscription is incomplete.

No. 51. Dated in Sal. Sac. 1640 (A. D. 1718) in the time of the rule of *Sadatulla Khan*, commemorating the cutting of a water-course for increasing the cultivation, by one styled *Cúniya rayer*.

No. 52. Dated in Sal. Sac. 1387, in the time of *Sri Vira Pratápa dever rayer maha rayer*. Gift of 400 fanams to prepare food in the fane of *Arulála-perumal*, from one styled *Rámánuja govinda-pattar-arulála perumal*.

No. 53. Dated in Sal. Sac. 1325 (A. D. 1403) in the time of *Sri-Vira hari-hara rayer*: the rest is imperfect.

No. 54. Dated in Sal. Sac. 1581, in the time (apparently) of *Deva-rayer*. *Vencatáthi-ayen*, being a great devotee, received a command from the god to perform certain ceremonies.

The preceding are inscriptions from *Asta-giri*.

Nos. 55 and 56 are referred to the end of the book (on looking at which it is found that several leaves have been torn out at the end).

No. 57. The name of *Madurántaca-Potambi Cholan* appears: a gift of land is commemorated; but the inscription is incomplete.

No. 58. Gift of a village to the managers of the fane of *Velakoli Náyanar*, by one named *Ilaiyalvan Calinga rayer*, the possessor of *Nattúr*.

No. 59. Dated in the eighteenth year of *Sri-Sambhuva-rayer* "emperor of all worlds." One named *Calinga-rayen* bought a small piece of land from persons mentioned; given by him to *Brahmans* of the

fane of *Ulagalanta perumal*, with the condition of their always keeping a water booth on the same, for the supply of passengers.

No. 60. Dated in Sal. Sac. 1404 in the time of *Sri-rangha-deva-maha rayer*; gift of land to a fane.

No. 61. A stanza in *Grant'ha* characters containing a Sanscrit *slóca*, in praise of a goddess of the fane.

No. 62. (a). A Sanscrit *sloca* in *Grant'ha* characters, as above; and of like purport.

No. 62 (b). Dated in the 5th year of *Kulóttunga Chóla-dever*; gift of a piece of land to a fane, by some villagers.

No. 63. Dated in the seventy-ninth year of *Kulóttunga Chola Dever*. Gift of money to provide curds for the image in a *Vaishnava* fane.

No. 64. Dated in the 48th year of *Kulóttunga Chola-dever*; gift of land to a fane.

No. 65. Dated in Sal. Sac. 1457 in the time of *Sri-vira Achyuta déva-maha-rayer*. A piece of land having been stripped of cocoa-nut trees, and areca palms by a storm, the land was designated for cultivation of rice-corn; the proportion of revenue usually accruing to the prince being made over to the temple, and an additional rate superadded. The ground was a former endowment, the same being regulated anew, and more to the advantage of the attendants on the fane.

No. 66. Dated in Sal. Sac. 1477 in the time of *Sri-vira Sada Siva deva-maha-rayer*. Gift by *Alagiya-singh-aiyer* of a piece of land which he bought for the purpose, and appropriated to a fane, in order to carry on ceremonies, at the recurrence of particular lunar days (or *nacshetras*) specified.

An inscription follows without any number: it may possibly be the one referred to at No. 55.

Dated in the 13th year of *Tribhuvana Chacraverti*, "the decapitator of the *Pandiya* king." Certain property which had been made over to a fane, was alienated from it, and restored to *Kulóttunga-Chola*; whether or not in return for any other; and greater, advantage does not appear.

No. 67. Dated in Sal. Sac. 1438 in the time of *Crishna-Rayer*; gift of fifty pieces of money, to supply food for the god, and servants of the fane; by seven persons whose names are mentioned, and who seem to have been district cultivators.

No. 68. Dated in Sal. Sac. 1438 in the time of *Crishna-rayer*. Gift of 170 pieces of money, to provide food for the fane during four festival days, which are specified; by *Pandarams* of the fane of *Arulála Perumal*.

No. 69. In Telugu (not contained in the book copied from).

No. 70. dated in the 19th year of *Raja-raja-dever*; gift of some villages to a fane.

No. 71. Dated in the 5th year of *raja-raja-dever*; gift of cows to supply butter-oil for the fane of *Arulála Perumal*, by a woman named *Sa-ningár*.

No. 72. Dated in the 13th year of *Apperam Singha-dever*; gift of 30 cows, and other cattle, to provide three quarters of a measure daily of butter-oil for the fane of *Arulála Perumal*, by *Mali-mandalatu-nayak*, and two other persons.

No. 73. Dated in the 37th year of *Tribhuvana-dever*; gift of 30 cows, and other cattle, to supply the like quantity of butter-oil for one lamp in the fane of *Arulála Perumal*, by the same persons.

No. 74. No date; gift by certain *Vaishnavas* of some land, to the same fane.

No. 75. Dated in the 22d year of *Raja-raja-dever*; gift of 33 cows, and other cattle, by a merchant, to provide three quarters of a measure of butter-oil daily, for one lamp in the said fane. Name of donor *Iravi-ayen*.

No. 76. Dated in the 14th year of *Bukhar*; gift of 30 cows and cattle to supply the like quantity of butter-oil, for a lamp in the said fane, by one named *Pillai kóndàn*.

No. 77. Dated in the 10th year of *Raja-raja-dever*; gift of 30 goats to supply butter-oil for one lamp, in the same fane, by *Surapa Nayak*.

No. 78. Dated in the twelfth year of *Rajathi-raja-dever*; gift by some merchants and their wives, of 66 cows and cattle, to supply butter-oil for two lamps in the same fane.

No. 79. No date; gift of some lands to the said fane, by three persons.

No. 80. Dated in the 5th year of *Gopála-dever*; gift of cattle to supply butter-oil for a lamp, in the said fane, by a wealthy man, the son of *Perumal-deven*.

No. 81. Dated in the 17th year of *Raja-raja-dever*; gift of wet and dry lands, to the same fane, by one named *Canda Gopálan*.

No. 82. Dated in Sal. Sac. 1474, in the time of *Sada Siva-maha-deva-rayer*. Commemorates the setting apart of seventy gold *huns*, by the *Ayen-gar*, and *Jiyar* (managers) in order to provide for sundry small expenses, from time to time, connected with public processions, or the ordinary service of the fane. These various items of expenditure, of two or three fanams (two pennies) each, are minutely specified, in a lengthened inscription.

No. 83. Dated in Sal. Sac. 1455, in the time of *Achyuta deva rayer*. (The contents are curious). The god *Arulala Perumal*, is stated to have appeared to *Saluva Nayak*, directing him to go and request *Achyuta*

rayer to behave as munificently to this fane, as he had already done to two fanes of *Yécambésvarer (Saiva)*, and *Varada raja (Vaishnava)* at *Conjeveram*. In consequence of this *divine* intimation, *Achyuta rayer* resumed both the larger grant to the *Saiva* fane of *Yécambesvarer*, and the smaller one to the *Vaishnava* fane of *Varada-raja*, amounting together to twenty-four villages; the names of which are specified. These he sold, and the proceeds amounted to 2,590 pagodas (equal to 9,075 rupees) and appropriated the whole of that sum to this fane of *Aruldla-Perumal* (see Ins. No. 23).

No. 84. Dated in the 14th year of *Raja-raja-dever*: the remainder is imperfect, and the sense incomplete.

No. 85. No date. The inscription is incomplete.

No. 86. Dated in the 26th year of *Raja-raja-dever*; gift of twenty pieces of money to maintain lights in the fane of *Alaga-singha*, by *Nanjiriyàn*, and some others.

No. 87. Dated in Sal. Sac. 1307, in the time of *Hari udiyan*; gift of twelve cows, to supply oil for the fane of *Alaga-singha*.

No. 88. No date; gift of some lands: the remainder incomplete.

No. 89. Dated in the 18th year of *Kulóttunga Chóla dever*; gift of a village to supply the expenses of lights in the said fane; by whom does not appear.

No. 89. Dated in the 10th year of *Vicrama Chola-dever*; gift of some lands in free tenure to the fane, by several persons, whose names are mentioned.

No. 90. Dated in Sal. Sac. 1431, in the time of *Vira-Narasingha-rayer*; gift of three thousand pieces of money, by *Tirumala*, a merchant; for sundry expenses connected with the fane.

No. 91. Dated in Sal. Sac. 1373 in the time of *Mallicarjuna-rayer*; gift of five *fanams* daily, by a tax on the sale of pulse; to maintain lights in the fane, by *Canaka-rayen* son of *Periya-nâttu-kôn*.

No. 92. In Sanscrit *Grant'ha* character (see the last head of this report).

No. 93. Dated in the 10th year of *Gopála-dever*: gift of 33 cows to provide butter-oil for the fane, by *Ramanan* of *Paiyur*.

No. 94. Dated the 16th year of the same; gift of 33 cows, as before, by *Conéräiyan*.

No. 95. Dated in Sal. Sac. 1440 in the time of *Rangha-dever*; gift of 320 gold *huns* to supply means for various expenses connected with festivals in the fane, by a *Brahman* of *Cumbhaconam*.

No. 96. Dated in the 24th of *Raja-raja-dever*; gift of 33 cows to supply butter-oil for the fane, by *Perumanda-nayak*.

No. 97. No date of year (except that of the *Hindu* cycle). Gift by *Kuruvulà-rayen* of 11 different kinds of animals to supply oil for one lamp daily.

No. 98. Dated in the 36th year of *Tribhuvana Chacravertí*. Gift of 48 cows, and other cattle, to supply butter-oil to the fane; by whom does not appear.

No. 99. Dated in Sal. Sac. 1238. Gift of one thousand gold *huns*, to procure certain valuable ornaments for the image in the fane of *Arulóla Perumal*; by whom does not appear.

No. 100. In Sanscrit *Grant'ha* character (see end of this report).

No. 101. Ibid.

No. 102. Dated in Sal. Sac. 1373, but the rest is very imperfect.

No. 103. Dated in the 38th of *Sri Coperum Singha-dever*. Gift of 33 cows &c., to supply butter-oil, by certain traders, whose names are specified.

No. 104. Very imperfect.

No. 105. Gift of land; but the whole very imperfect.

No. 106. Dated in Sal. Sac. 1440: in the time of *Chrishna-dever-rayer*: the inscription itself, on the *stone*, is stated to be not complete.

No. 107. Dated in the 22d year of *Kulóttunga Chola-dever*; gift of land; but the remainder very imperfect.

No. 108. Dated in Sal. Sac. 1496 in the time of *Srirangha-deva-rayer*. Gift of 24 gold *huns*, for the service of the fane; by certain persons whose names are specified.

No. 109. In Telugu (not in the book copied from).

No. 110. Gift of certain portions of ground, within certain villages. The proceeds to go towards building an *agraharam*, connected with the fane of *Yécámbésvarer* at Conjeveram; date, or name of giver, does not appear.

No. 111. Dated in the time of a chief subordinate to *Hari-hara-rayer*. Gift of certain portions, which are specified, of revenues from different villages, by *Rama-devi-avvayar*, to the fane of *Yécambésvara*, at Conjeveram.

No. 112. Dated in the reign of *Vencatapati-deva-rayer*, in Sal. Sac. 1418; the remainder is incomplete.

No. 113. Dated in the 3d year of *Gopala Maha-raja*. Gift of certain lands in perpetuity to the fane of *Yécambésvarer*, by a herdsman.

No. 114. Dated in the 8th year of *Kulóttunga Cholan*; gift of money by *Mathuràntaca-deven*, to maintain lamps in the fane of *Yécambésvara*.

No. 115. Dated in the 18th year of *Kulóttunga Cholan*. Gift, by the wives of some *Wiyalvàr* chiefs, to the *amman* (or goddess) of the fane of *Yécambésvara*.

No. 116. Dated in the same year of the same. A similar gift fro[illegible] wives of the *Wiyalvar* chiefs.

No. 117. Dated in Sal. Sac. 1508, in the time of *Vencatapati-deva-Maha-rayer*, commemorating a remission of tax, or custom, on all articles in transit when intended for the use of the shrine of *Yécambésvara*, and *Cámácshi*.

No. 118. Dated in Sal. Sac. 1328 in the time of *Bukha-rayer*. Gift, by two ladies (including their children with themselves), of the proceeds from the sale of certain lands, to the fane of *Yécambésvara*.

No. 119. Dated in Sal. Sac. 1391. Gift of certain wet, and dry, lands, to the fane of *Yécambésvara*, by *Buvanáeca víran*.

No. 120. Dated in Sal. Sac. 1328 in the time of *Bukha-maha-rayer*. Gift of wet and dry lands to the said fane, by three persons whose names are specified, to the same fane.

No. 121. Dated in the 20th year of *Sri-raja-raja-dever*: commemorating an agreement by certain individuals to supply oil in turn, for the maintenance of several lamps, in the same fane.

No. 122. Dated in the 25th year of *Gópála-dever*. Gift of certain lands to the said fane, by *Sura-Vettánudiyàr* to supply food.

No. 123. Dated in the 5th year of the same. Gift by certain individuals, whose names are specified, of thirty-two cows, &c. to supply butter-oil, for the use of the fane.

No. 124. Dated in the 12th year of *Kulóttunga Cholan*: commemorates simply the appointment of an officiating hierophant; with an engagement to follow his orders.

No. 125. Dated in the 15th year of *Srikula.sec'hara*, ruler of the *Chola* kingdom. Gift of thirty-two cows to supply butter-oil as before; and of two hundred *huns* (or pagodas) to supply food for the god.

Inscriptions at *Sri-Permatûr*.

No. 126. Dated in Sal. Sac. 1556, in the time of *Vencatapati-rayer* of *Pennaconda*. Gift by several traders of thirty *huns*, at the opening of [illegible] new *Mantapa*; it being stated, that the said 30 *huns*, would pr[illegible] duce annually an interest of nine pagodas, which interest was intend[illegible] to provide all things needful at the annual celebration in the said porch, or *Mantapa*.

No. 127. Dated in Sal. Sac. 1516 in the time of *Sri-Vencatapati-rayer*. Gift of fifteen pagodas, by certain *Brahman* managers of the fane, to

supply food, with a heavy denunciation on any who might alienate the gift to other purposes.

No. 128. Dated in Sal. Sac. 1667, in the time of *Angara nayak*, son of *Vencatapati*; commemorating the building of a *Mantapa*: the remainder imperfect.

No. 129. Dated in Sal. Sac. 1512, in the time of *Vencatapati-deva-maha-rayen*. Donation of certain portions of rice-grain, from the proceeds of harvest, at several towns and villages, the names of which are mentioned, for the use of the fane, by certain villagers, or towns people.

No. 130. In the *Vaishnava* fane at Conjeveram dated in the 32d year of *Raja-raja-dever*. Gift of part of the revenue on certain lands which produce salt; to go to the service of the fane of *Arulála Perumal*, for festival occasions.

No. 131. Dated in Sal. Sac. 1509 in the time of *Sri-Viru-Vencatapati-rayer*. Gift of 200 *huns* by certain *Brahman*-managers, for the service of the fane. Conjeveram is described as being within the *Chandragiri* kingdom.

No. 132. Dated in Sal. Sac. 1288. Dated in the time of *Sri-Vira-Camban*, a local chief. Gift by certain cultivators, of the proceeds of certain revenues, for the advantage of the fane.

No. 133. Inscription at little Conjeveram.

Dated in Sal. Sac. 1408. Two persons named *Rághava* and *Chola Perumal*, commemorate the gift, each one, of a daughter, to become the slave of the god, in the said fane, and to do all needful work therein.

No. 134. At the *Yecambara*-fane. Dated in the fourth year of the *Vícrama-Chola-dever*. Gift of certain wet and dry lands, for the benefit of the fane, by certain villagers (names not mentioned; the inscription being incomplete).

No. 135. Dated in the 27th year of *Kulottunga Cholan*. Gift of thirty-two cows, &c. to supply butter-oil by *Tiru Yecambanudiyàn*.

No. 136. An inscription of *Crishna Rayer* in Sanscrit, and *Grant'ha* characters (see the last article in this report).

No. 137. Dated in Sal. Sac. 1494. Gift of a village, in free tenure; for the service of the fane.

No. 138. Dated in Sal. Sac. 1516 in the time of *Vencatapati-rayer*. Donation of 110 pagodas; the interest to go to supply food, for the fane: by certain *Brahman*-managers.

No. 139. No date. Gift of ten pagodas, the interest to supply food for the fane, on the recurrence of a certain *nácshetra*, or lunar asterism.

No. 140. A document containing the names of the *Alwar* or certain special *Vaishnava* devotees, with the times and places of their birth.

An inscription commemorating the gift of certain lands; it does not appear to what fane.

Another commemorating a donation, by whom not stated, to supply food for the fane at *Sri-Permatur*.

A copper-plate Inscription.

Dated in Sal. Sac. 1646. Commemorates a gift of thirteen villages, in free tenure, through the means of *Ramanuja-achâryar*.

There follows a list of sundry matters, contained within the fane of *Varada raja* at Conjeveram.

Afterwards there is a list of kings or rulers, with dates; being a *résumé* of the contents of preceding inscriptions; omitting every thing except the year, when given, and name of the king, or ruler, mentioned. As these appear, in brief, in the foregoing abstract, in a compressed form, there is no need of minutely following the said *résumé*.

A list in the Sanscrit language, and *Grant'ha* character, is appended; containing a catalogue of various books in the said language; the minute specification of which, in this place, is needless. It was very probably made use of in compiling a general catalogue of Hindu literature, adverted to in my second report; which may be consulted.

There is also a detail of the succession of the line of *Tattâcharyar*, head *Brahman*, upwards; of some use in chronologically fixing the origin of the fane. The names of *Sancarâcharyar* and of *Ramanajâchâryar* appear among others.

Manuscript book No. 4.—Countermark 48 and 49.

Section I. *Tambaravani* (Tamraparni) *Mahatmyam*, or legend of the river at Tinnevelly.

This river being among those that are deemed specially sacred, it of course has its legend, contained in this paper; to the following general purport.

Reference to the *Trimurti*, to *Munis*; to the place of their residence yielding every thing desired, and termed *Naimisaranya*; to the four *Vedas*, to *Parmeshwar* and to *Parâsacti*, the consort of the Supreme

Being, the first cause, from whom the *Trimurti* proceeded: (the term *Paramesvari* in this sense is used only by *Saivas*; it has then a relation to *Parvati*, and conveys the priority and supremacy to *Siva*. The same idea as personified is termed *Maya* with reference to *Brahm*, and *Narayani* with reference to *Vishnu*, to whom the *Vaishnavas* attribute the priority and supremacy). Reference to *Saraswati*, to *Lacshmi*, to *Cáli*, with details concerning them, and the thirty-three crores of celestials. Allusion to the *pauranical* story of *Dacsha*, and the creation of beings by him. The formation of the *Tamravanni* river is derived from a wish of *Parvati* to have a companion; owing to which wish, *Siva* went to *Brahma*, who formed this river. Eulogy of the numerous *tirt'has*, or sacred pools, for bathing, is added. Various emblems of *Siva* are adverted to; while removal of sin, and final beatification, are stated to be obtainable by bathing in those pools, and worshipping those emblems. Legendary notice, and eulogy, of various *Saiva* fanes of celebrity. All manner of sin, whether among the inhabitants of *Indra's* world, or of earth, are removed and final beatitude obtained by bathing in the *Tamravanni*; and even beasts, by bathing therein, attain to *Sverga*, or the world of *Indra*. Those who eat of the grain grown on lands fertilized by this river will attain beatitude. A symbolical fable is given. The river is termed the daughter of *Agastya*, as springing from *Pothaiya* hill, and as married to the *Samudra-raja* (or sea-king), because flowing into the sea. Both are stated with mythological accompaniments, and ornaments. In this document there is a reference to the affair of *Agastya* with *Gajendra*. The latter was a king, whose servants, or attendants, refused admittance to *Agastya*; on which account the said *rishi* doomed the king to become an elephant. The said king besought that a human mind, or intelligence, might be allowed him, which was granted; and the elephant, becoming a devotee, gathered flowers for the service of the fanes; but in a time of drought, it sought for flowers in a tank, or reservoir, and there was seized by an alligator. The elephant worshipped *Vishnu*, who sent down his *Chacra* to earth, and killed the alligator; which, containing an imprisoned spirit, this returned to *Indra's* world, and the elephant was relieved.

The document is entered in the Des. Cat. vol. 1, p. 175, art. xxxiii.

NOTE.—It is in good preservation. It illustrates the mode of symbolical writing among the *Brahmans*; and might be made use of in other valuable illustrations. It makes mention in one place of *Manalur* which, according to some other documents, was the earliest residence of the progenitors of *Pandiya* kings.

Section 2. Account of *Mánica Vásagar.*

This paper was forwarded to Major Mackenzie, and received by him, May 26, 1810, from *Veda Nayak*, a Christian servant in his employ; in consequence of a requisition calling for information concerning that renowned devotee of *Siva*. A few remarks are premised by the respondent; unimportant, now that our knowledge of events at Madura is superior to that possessed by the enquirer at that time. There follow sections taken from the *Vádur St'hala purana*, which it may not be necessary here to abstract; seeing that there are some copies of the *purana* itself in the collection, to be examined and abstracted; where an epitome will be more in place.

For a similar reason the document need not be re-copied. It is in moderately good preservation.

Section 3. *Jambukésvara St'hala Mahatmya*, or legend of a *Saiva* fane in the island of *Srirangha*.

The opening refers to the instruction of the inhabitants of *Cailasa* in the *Sórnamantra*, with some reference to the work of creation by *Brahma*. It afterwards states that *Siva* eat a fruit of the *Jambu* tree, or rose-apple, rejecting the kernel; which fell down to earth, and alighted near a *rishi*, doing penance in the island of *Srirangham*, who took it up and swallowed it. In consequence a *Jambu* tree grew out of his head; so that he acquired the name of *Jambu-muni*. He could not bear the inconvenience, and besought *Siva* to come and dwell in the tree; the doing which would afford him relief; and an affirmative promise was conceded.

It so happened, when the three hundred and thirty-three millions of celestials were doing homage on *Cailása*, that *Parvati* smiled; at which *Siva* became angry and censured her impertinence; whereupon *Parvati* became afraid, and offered an apology, and explanation. *Siva*, notwithstanding, banished her from his presence; and directed her to go and dwell with *Jambu-muni*, and other *rishis*, where he would also afterwards come, and be married to her there. She had a splendid reception; and ultimately *Siva* fulfilled his twofold engagement, as coming and residing there.

Jambu-muni besought that one of the *tirt'has*, or sacred bathing-pools might be called by his name; which request was granted. *Rama*, and his company, bathed in another pool; which, after he had returned

to *Agodhya*, acquired the name of *Rama-tirt'ha*. Further, *Agni*, for a fault committed, bathed in another pool, to wash the fault away; which pool thence acquired the name of *Agni-tirt'ha*. Moreover *Agastya*, when sent from *Cailasa* to the south, asked how he could go thither without having previously seen the marriage of *Siva* with *Parvati*; and was told, in reply, that the same should be seen by him in the south, after first visiting two places: one of which was *Jambukésvara-St'halam*, where a pool still bears the name of *Agastya tirt'-ha*, because he bathed therein; *Surya* (or the sun) did penance at this place, in order to acquire beauty; and the pool is called *Surya-pushcara tirt-'ha* wherein he bathed. *Chandra* (or the moon) did penance on account of his fault concerning *Rohini* (the fourth of the lunar asterisms); and the pool wherein he bathed is called *Chandra-pushcara-tirt'-ha*. A reference is then made to the subject of the *Sri-rangha-Mahatmyam*.—*Vibushana* brought the image of *Rangha* to the neighbourhood, where it continues; and adds to the celebrity of the place. There is further some mention of *Cumbhakerna*, a relative of *Rávana*.

The story is then introduced of a spider, that weaved a canopy for the image of *Siva*, which an elephant that came to do homage always destroyed. The spider determined on revenge; and, watching an opportunity, crept into the trunk of the elephant, and up to its brain; thereby killing the elephant. The spider also died, from not being able to get out again. Both being devotees of *Siva*, they received gifts as the reward of their attachment. The elephant asked that the neighbourhood might be termed *Gajáranya*, which was granted. The spider desired to be born a king; as such to build fanes and towers to *Siva*; and then to obtain beatification. Accordingly it was born at *Chillambram*, as the son of *Subadina chola*; concerning which birth there are some astrological matters. In his time the shrine of *Jambukésvara* was built, and ornamented. In order to defray the expense the *Vibuthi* (or sacred ashes of the *Saivas*) was miraculously turned into pieces of money; and the supply was proportioned to the amount required.

Remark.—This last section, being written on inferior country paper, was found to be much injured by insects. It has been in consequence restored. The document is illustrative of local mythological opinions. The story of the spider is alluded to in the Trinomali *Stala purána*. The account of the son of *Suba-dina* may be compared with a paper on the *Chola rajas*, abstracted in my second report (see therein Telugu MS. book No. 33, section 1, at the commencement of the section).

Note.—This document is entered in the Des. Cat. vol. 1, p. 175. art. lxxiv.

Manuscript book, No. 24.—Countermark [illegible].

Section 1. Account of *Mavaliveram*, or the seven Pagodas, in the district of Arcot.

Reference to the legend of *Púndarica rishi*, in a former great age, and a lotus flower, which he purposed to offer to *Isvara*: he was seized by an alligator, when gathering one; which creature was a *Brahman*, imprisoned by the sentence of another *Brahman*, for mocking him. A reference to the fable of *Vishnu* sleeping on the shore, and the subsequent establishment of a fane. On this legend is grounded a petition (to whom does not appear) to restore certain immunities, lost during the Mahomedan troubles in the Carnatic.

The legend of *Karz Kúndam*. *Rajendra Chola* was afflicted with *Brahma-hatti*; which left him on entering any fane, but seized him as soon as he left it. It finally quitted him, on his paying homage at this shrine; in consequence of which benefit received, he gave the place some immunities, and privileges.

Suru-guru-raja originally built the fane, and many connected buildings. At a later period, when they had gone to decay, *Cánda rayen* repaired, and restored, them. Other persons subsequently made various additions. Notices of minor local matters; down to the time of Mr. Huddlestone, a Collector in whose time some repairs were made. At a later period the *Cúmbhábeshegam* was performed; during a renovation of the shrine, in the time of the Nabob. The place suffered by reason of Hyder Ali's irruption.

A detail follows of the days on which festivals are held, and processions made; as also of expenses required.

Some particulars are given, concerning one named *Pombala-Pandáram*, who made many additions to the place.

A mention follows of the *Chacravertis* the periods of whose reigns are mentioned, in crores, lacs, and thousands of years. On coming down to the *Chola-rajas* and *Balala-rajas*, their reigns are specified in thousands, and hundreds of years. The names of some of the *Rayers* are given with the *Sacai* year. (This list in the later period may be of some use; but there are other similar ones already abstracted in former reports).

Account of *Karz-Kùndam*.

A detail of shrines amounting to nine, and of thirty-two villages, belonging to them, by way of endowment. Also of eighteen other villages; given, for repairs, ornaments, &c. connected with the service of the shrines.

A list of the inscriptions, within or around the walls of the fane; but without any specification of the contents.

Remark.—The section-heading imperfectly designates the contents: the chief portion of which relates to the fane of *Karz Kundam*, about seven miles S. W. of Chingleput (a building on a hill, of remarkable appearance, on the high road to Trichinopoly).

The paper, on which the section is written, is in perfect preservation; the ink is become pale; but the contents are not of such consequence as to require immediate restoration. The document will last, as it is, for several years.

Section 2. Account of *Pándiya Pratápa rája* of the *Pándiya désam*.

This is not, as the title would appear to imply, the account of one king, but of the *Pandiya* race. Hence *rája* is to be understood collectively, or in the plural, and *Pratápa* merely as an epithet signifying "celebrated" or "illustrious."

The document contains an outline of the contents of the Madura *St'hala Puránam*, down to the time of *Kúna-Sundara Pándiyan*. It then mentions an unsettled, or unknown, period. The story of *Arjuna* and his brothers, is adverted to, from the *Bháratam*; so far as needful to introduce the visit of *Arjuna* to Madura. It is added afterwards, that *Arjuna* having married the daughter of *Maliya-dhvaja*, his son named *Peparavâhana* succeeded to *Maliya-dhvaja*, and thence forward is deduced a line of kings, down to *Chandra Sec'hara*, and the intervention from *Vijayanagaram*; which led to the accession of *Visvanátha-nayak*; with the mention of which circumstance, and the cessation of the *Pandiya* dynasty, the document ends.

Remark.—In so far as concerns the *St'hala purána*, nothing further needs to be mentioned. The list of descendants, deduced from *Pepara-vahana*, is the same with that contained in the supplementary manuscript (Or. Hist. MSS. vol. I.) to which, with the three documents, before reported, it affords a fourth attestation.

The statement that *Arjuna* married the daughter of *Maliya-dhvaja*, I have met with herein, for the first time, in a native MS.: consequently an expression of disbelief, as to its being contained in any native MS. which I have somewhere made, must be withdrawn. The conjecture to that effect, by an inference of my own, is confirmed. And, if it be true, it

[illegible] contrary, the entire *Purânam*; because the son of *Arjuna* and the daughter of *Malaya-dhvaja*, then must be the famous *Sundara* and *Mínâxi* the tutelary *numen* of the place; considered to be incarnations of *Siva* and *Parvati*. There, for the present, I leave the matter.

Note.—The paper is good, and in perfect preservation; and the ink deep coloured; consequently restoration is not required.

There is half a page following, in Telugu, mentioning the building of a fane at *Chola-puram* in the *Pándiya* country, by one named *Sancara-narâyana*. He also built the village, and an *agrahâram*; residing there. He did so in consequence of having been driven from his residence at *Chola-puram*, in the Trinomali district, by the violence and oppression of a *Chola* king; which induced him to emigrate to the south.

Section 3. Account of Sixty-six *Jaina* fanes in the *Canchi* district, with the customs and manners of the *Jainas*.

A mention of the different ages, according to their system; the twenty-four *tirt'hacaras*; the *Manus*; and the *Chacravertis* among them. The commencement of the *Sacai-era* is specified in the *Cali Yuga* year 741. Many *Jainas* came, from the north, to the *Cânchi* district in the *Cali Yuga* 1451 Sal. Sac. 710: in the reign of *Hima-sitala maha raja*. It was then a forest, which they cleared and cultivated. In his time a schism arose between the *Jainas* and the *Bauddhas*. *Aca'anga-dever*, overcame the *Bauddhas*. Some of the *Bauddhas* were intended to be put to death in large stone-oil-mills; but instead of that were embarked on board ships, or vessels, and sent to Ceylon. Some subsequent matters are mentioned; and then a reference to *Appar* and *Manica-vasacar*. Subsequent times of war, and disturbance, are adverted to; in which the *Jainas* were scattered, and went to various places: their fanes being injured, or destroyed. Revenue matters are mentioned, in the time of the Honorable Company. In the *Pira-désam* there are about one hundred *Jaina* house-holders. Fifteen fanes are large, some small: in all there are sixty-five fanes. A list of these, and of their villages, follows.

Remark.—This paper is curious and important: both as regards ink and paper, it is in good preservation.

Section 4. Answers to queries, from *Brahmans* at *Sri-rangham*.

Who was *Dherma Brahma*? He was a *Chola*-king of the *Treta-Yuga*,

not *Dherma-raja* (of the five *Pandavas*). He was contemporary with *Vibíshana*, and founder of the shrine.

His capital was *Uriyur*. A few particulars, not well connected are given; together with the early dynasties of kings.

In reference to *Chola* kings, they say these ruled at *Tiruvalamchúri*, west of *Combaconum* about four miles; where remains of their palace are found.

Enquiry as to history subsequent to *Salivâhana* and *Bhoja-raja*? The reply goes backward, above that era, and adds some loose names, without connexion, of subsequent kings. A more specific mention of the northern dynasty, at Madura, is added.

A list of the *Rayers* of *Vijayanagarum*; and a re-petition of the Madura dynasty.

Enquiry as to *Ramanuja*. Some particulars are given concerning him. He is said to have flourished in Sal. Sac. 939.

Enquiry as to *Sancarácharya*. Particulars are stated respecting him of some interest. He is said to have killed *Crimi-kanda-Cholan*. His polemical proceedings are narrated.

Enquiry as to *Pandarams*, and their residence. A detail of their different places of dwelling is given.

Enquiry as to *Chera* kings. Nothing special is stated.

Enquiries as to *Congu-desa* and Madura, they decline to answer, as relative to *Saiva* places; while the respondents are *Vaishnavas*.

The reply to a reference concerning *Kerala-desam* is unimportant.

In reference to *Brahmans* they assert that these were always in the country; yet admit the introduction of some. The reply is vague on this point; and on others they indolently profess ignorance.

Section. 5. Genealogical account of *Uttama Nambi*, a manager of the fane at *Sri-rangham*.

Reference to the birth of one of the *Aluvar*, in the *Pándiyadesam*, in the year 45 of the era of *Cótana nat'ha*. *Vallab'ha deva*, a *Pàndiya* king was a disciple of the said *Aluvar*, and established him at *Sri-rangham*, expending property on the endowment of the shrine there. Several details are given of the institution of the first of the series of managers. The said *Aluvar* exercised his office during "one hundred and seven years." His son *Sri-Ràmandar* was manager for 70 years. His son *Tiru-vadi-aiyen Uttama Nambi* was 60 years in charge of the fane. His son was *Tiru Malla nat'ha*, who received presents, from *Maha raja-Vana*

deva. He was in charge 50 years, and some months. The series is continued down in hereditary succession, with an average of about 50 years ascribed to each. This succession offers nothing remarkable, down to the 57th in order, who was named *Nani-perumal-aiyen-Uttama-nambi*. This manager applied to the *Prab'hu*, or local-chief (name not stated) for the means of conducting the public festival of the goddess, which the said chief declined affording; and the Brahman cut his own throat, in consequence: immediately after which an afflatus of the goddess is said to have rested on some one present, telling the chief that there was no need now to do that which had not been commanded by her. The suicide, after death, had an epithet applied to him, signifying "firm to his word." In the time of the 63d, in order the shrine of the goddess was repaired. In the time of the 74th named *Garuda-vahana-Panditar-Uttama-Nambi*, we first meet with a known date, being Sal. Sac. 995 (A. D. 1072). Concerning him it is noted that besides ordering certain matters relating to the fane, which are specified, he was a scholar, and wrote many *Grant'has*, or Sanscrit books. His son and successor, pulled down his own house, and employed the materials in building a hundred pillared *Mantapa* (or porch) which procured signal approbation from the god. The 78th was named *Ramanujachary Uttama Nambi* (apparently after the famous *Ramanuja*). Many evils befel the fane in the time of the 80th, which he remedied by rebuilding what had been destroyed (how not specified). The date of repairs Sal. Sac. 1293 in the time of *Buk'ha rayer* of *Vijayanagaram*, whose general or agent was named *Campanra-udiyar*. The influence of the *Rayer* dynasty appears under the 81st of the series. In the next, donations by *Tirumala Nayak* of Madura are mentioned, with a date; and other similar particulars, occur down to the 90th, who is simply termed *Uttama Nambi*.

There follows a list of 21 other names of another line, which has the cognomen of *Chacraiyer*; probably that of a second manager. A few lines of a *Grant'ha* inscription in corroboration are added: and the authenticity of the whole is attested by the autograph (apparently) of *Uttama Nambi*; stating his personal responsibility if any thing erroneous should be found therein.

Remark.—This document being written on bad country paper, much injured by insects, has been restored. It affords an instance of the way in which such kind of scattered documents may clear up a difficulty, or doubtful point, of history, when least expected. All the manuscripts, which treat of the *Pandiyan* history, mention the first incursion of the Mahomedans, with the disastrous consequences, and ascribe their expulsion to one *Cammanan* or *Campanan*; sometimes described as having

come from Mysore, and sometimes as a king from the north. In the foregoing document it is said that many evils befel *Sri-rangham*, in the time of the 80th head *Brahman*, without saying whence these proceeded; but the date given Sal. Sac. 1293, as that when the evils were repaired (corresponding with A. D 1361), enables us to perceive that the incursion of the Mahomedans must have been the cause. The name of *Campanra-udiyar* here occurs; and while the cognomen udiyar, shews him to have been a local chief, probably in Mysore, it is also here stated that he was subordinate to *Bukha-ráyer* of *Vijayanágaram*; a statement not heretofore met with by me: nor had I suspected the influence of the *Rayer* dynasty, so far south as *Sri-rangham*, at so early a period. However here is the evidence in a document respectably authenticated; and I think, in this particular, worthy of credit. I had otherwise considered that the genealogy would be of use in ascending upwards to the origin of the *Sri-rangham* fane. There are two dates; from A. D. 1361 upwards, allowing, on an average, 33 years for each one of 80 generations, we come to A. C. 1279; and from A. D. 1072, ascending for 74 generations, we come to A. C. 1370. By this check a difference of about one hundred years becomes apparent; and it is otherwise manifest that the numbers, in the earlier part of the series, cannot be relied on. From documents which have passed through my hands, I know that the date of the foundation of this fane can be definitely fixed at a much later period. There are also other documents yet to be examined, before any positive conclusion is drawn. It may be observed, in passing, that the names of the head Brahmans give intimations of the cotemporary rulers; as, for example, under the northern dynasty at Madura, the names of the head Brahmans are similar to the names of those kings; and so on upwards: a remark perhaps not to be entirely neglected. As a document in evidence, this genealogical list, should, in my opinion, be fully translated.

Section 6. Chronological account of the ancient kings of the *Caliyuga*, with some account of *Chandragiri*.

This brief paper is endorsed in Col. Mackenzie's hand-writing "Paper from *Chandra-giri* 1802;" and on another page "History of *Chandragiri*." The following is the substance of its contents.

Reference to the *Yugas*: then to persons and events of the *Mahabhárata* down to *Saranga d'haren*, with whom the lunar race became extinct. Afterwards *Sudra-Maha-raja* ruled 154 years. The *Bhágavatam* was related to some of the forementioned kings. *Vicramarka* ruled 1745

years. *Sálivâhana* killed him: he (*Sálivâhana*) was the son of a *Brahman*, by the daughter of a potter (*Kosaven*). He afterwards went on a pilgrimage to the foot of mount Himalaya. *Bhoja-raja* ruled 144 years: he was a great poet, and the patron of *Cáli-dása*; dying for grief on account of his death (i. e. of *Cáli-dasa*).

Afterwards *Nandana Chacraverti* ruled 62 years, and *Tribhuvana-Chacraverti* 57 years. Subsequently the *Chola-rajas* ruled as follows.

Uttunga Cholan	years	32
Kulottunga Cholan	„	15
Rajendra Cholan	„	9
Tirumudi kanda Cholan	„	18
Cari Cála Cholan	„	21
Arinteja Cholan	„	13
Uriyur Cholan	„	17
Cheragan Cholan	„	15
Mandanta Cholan	„	12
Manu-náti kanda Cholan	„	15
Vara-guna Cholan	„	14
Ala peranta Cholan	„	8
Tirunittu Cholan	„	15
Ariloru kadamai Cholan	„	62
Jayankonda Cholan	„	12
Crimi kanda Cholan	„	29
Tondaman Cholan	„	12

Of his son *Adondai Cholan* there are some accounts. He cleared the forest south of *Tripetti*, built the town of *Calastri*, and sent for a colony from the south.

Afterwards, Bútankatru Cholan

Changu nurainjân Cholan	45	years.
Cholamân Cholan	14	„
Gangai konda Cholan	11	„
Sundara pándiya Cholan	11	„
Porcupu Cholan	40	years.
	24	„

so called from his works on the Cauvery, termed *Gangai* by metonymy.

in all 23 *Chola*-reigns.

Sálivâhana, the conqueror of *Vicromarka*, remained 718 years in penance at *Himalaya*: and, then returning, ruled 20 years; after which he disappeared. His descendants ruled in Mysore; but records are lost. In other countries, the *Yádava* race governed. In the account of the *Yádava* kings, that of the rulers of *Chandragiri* will be included, as also that of the *Rayers* "to be sent by letter."

This appears to be a letter as on it is signed *V. Parasuramen*, and dated *Chandragiri*, June 11, on Friday (no year, but the heading mentions 1802).

Note.—There is very little in this paper that can be considered new; and the list of *Chola*-princes has names, that sound artificial, though others are real. *Adondai*, in other accounts, is stated to be son of *Kulottunga-Cholan*.

The paper was found to be loose, and in a state of decay—the ink very pale; it was therefore restored. Let it be noted that *Salivâhana* is stated to be the son of a potter's daughter; and the other statements concerning *Sálivâhana* differ from those usually received. The history of *Chandragiri*, it will be seen, is not in the paper. However we know that it became a distinct principality only in consequence of the capture of *Vijayanagarum* by the Mahomedans.

Section 7. Copy of a record preserved in the hand-writing of *Vaidyan-Cupaiyah* at *Bhavani-kudal*.

Birth of *Visvacarma* after the deluge. Origin of the *Pranava*; the gods produced by means of the said *Pranava*; and various other orders of beings, from the same causation. The works of *Visvacarma* fabulously stated. *Nandi* in reply to an enquiry from *Subrahmanya*, taught the latter the origin of the symbol of *Siva*; needless to be detailed. Different kinds of *Vahanas*, or conveyances, on festival occasions of the images of *Siva*. These festivals were observed in the time of the *Palliya-cárers* and, for a time, under the Honorable Company; until a disturbance created by the Pariars, led to a suit in a court of justice, when all collision of the right and left hand castes was forbidden. Some other minute and local details are given, of customs and allowances under the *Palliya-cárers*: the writers (of the five lettered sect) complain of neglect from the Honorable Company, and request patronage.

Section 8. Account of the *Mahratta-rajas* of Tanjore.

The document begins with the dispute between *Amir Sinha* and *Sarboji*, and with the Honorable Company's interference; but takes a retrospect to the times of *Malloji*, *Vitoji*, *Siváji*, &c. Reference to connexions with the Padshah, at *Bijapur*. Affair with the *northerns*, at Tanjore; that is with the descendant of *Vijaya Raghava*. *Ecoji* made

his claims for arrears the ground of his proceedings. Detail of subsequent Mahratta princes. Account of the *Cáta raja*. The detail of domestic affairs, and of petty machinations within the palace, is somewhat full. There are also fall details of proceedings of a more public kind, down to the interposition of Lord Pigot. Much is stated concerning that affair. The proceedings of Governor Campbell, in person, at Tanjore, are mentioned. The close of the document advert to the release of the son of *Tulsi raja* from prison: but states that, for the rest, injustice remained; and at the close, appeals to the rectitude of the Honorable Company, soliciting full enquiry, and redress.

Section 9. Details concerning the fanes of *Siva pracâsa*, in the principality of *Turaiyur*.

Various particulars are stated concerning this place, of a legendary kind. Among the rest, a child that had died from the bite of a snake was here restored to life; and one, afflicted with leprosy, here obtained a cure.

Copy of an inscription commemorating certain gifts and immunities made in Sal. Sac. 1665, to this fane, by a descendant of *Nallaiya rediyar*, named *Vencatáchala-rediyar*, whose pedigree is deduced from the *Rayer*-dynasty: with heavy denunciations against any one alienating the same to other purposes.

Section 10. Account of grants of land made to the said fane of *Siva pracâsa*, in the *Turaiyur* district.

A mere repetition of the aforesaid grant, with a specification of lands bestowed; and attested by the signature of the said *Vencatáchala rediyar*.

Section 11. Account of an emigration of some persons of the *Reddi*-caste, from the Nellore district.

This is a mere fragment, stating the fact of an emigration; but breaking off abruptly. I think it must have been intended for a copy of a paper elsewhere found in the collection, concerning the *Rediyar* chiefs of *Turaiyur*, or at least the subject would be the same: hence there is probably no real loss. [See my Third Report MS. book No. 1, section 5].

General Remark.—A brief note has been attached to the abstract of the sections down to No. 6. Thenceforward there was found to be loose sheets of thin, and inferior, country paper; much injured, at the edges, by insects, and transposed in point of order. Not wishing to let the matter entirely perish, it has been re-copied; but not without breaks in the sense, where words were eaten away at the edges. Of this latter portion of the book, section 8 alone is of any value; and that, from its minute particularity in the later period of the Mahratta rule at Tanjore, ought to be translated, as affording historical materials. A MS. book, before adverted to (No. 23 in this report), is more full in anterior details, wherein this one is brief; and less particular in later matters, wherein this is minute. They also take different sides of the question, which cost Lord Pigot his liberty, government, and life.

According to the section titles in English (at the beginning of the book) there ought to be a paper on the five tribes of artificers, called from a distance, and located in the Trichinopoly district; but this document is not now to be found in the book; and as the sheets are loose, it may have been lost, at some period subsequent to the first binding.

Manuscript book, No. 7.—Countermarks 51, 97, 104.

Section 1. *Tér-conda-vâsacam*, a narrative of the car-incident.

This is a brief prose version of the circumstance, otherwise variously recorded, of the son of a *Chola* king running over a calf with the wheels of his car or chariot, in the streets of *Tiruvarur*; the appeal of the cow its mother, by ringing the justice alarum bell; the distress of the young man's father; the means resorted to, in order to obviate the consequences, of the crime; and the happy termination of the whole by *Siva's* accepting the offerings, staying the father's hand when about to kill himself, and restoring the young man to life: who on the principle of like for like (or *lex talionis*) had been killed by running the wheels of a car over him. The subject forms the matter of a popular drama; and "*vâsacam*" indicates a prose version from the drama. The narrative has already been given in my second report. (Telugu MS. book No. 33, section 1). There are also palm-leaf copies of the present document in the collection.

Remark.—It is written on country paper, as yet in good preservation. The ink is rather pale; but the writing will continue legible for some

years to come: on which account, as well as from the circumstance of there being other copies in the collection, restoration does not at present seem to be required.

Section 2. *Alakéa-rajavin-cadhai*, the tale of the king of *Alakésa-puri*.

This is a clever work of fiction. The outset is revolting to western ideas: and all the following proceeds on the system of transmigration of souls. A king's daughter forms an attachment, at first sight, to the stupid son of another king, who cannot read the writing which she conveys to him: but shows it to a diseased-wretch, who tells him it warns him to flee for his life. The king's daughter is imposed upon, by the said leper: kills herself: and becomes a disembodied evil spirit, haunting a particular choultry (or *serai*) for travellers; whom, during the night, if they do not answer aright to her cries, she strangles: and, vampire-like, sucks their blood. *Avvaiyar*, the famous poetess, asks the people of the town for permission to sleep in the said *serai*, when on a journey. They warn her of the consequences: to which she replies, that she does not fear all the devils of the invisible world. At the first watch, certain screams, of unintelligible monosyllables are uttered, which *Avvaiyar* takes up, puts each monosyllable in its place, and from the whole makes a recondite stanza: the purport being to chase away the spirit, which departs. At midnight, other monosyllables are uttered, which are taken up, and a more difficult stanza is produced, on which the spirit leaves. At the third watch the same process occurs, with a still more difficult stanza, as the result. The spirit now owns itself conquered: appears visibly to *Avvaiyar*, and receives from the said *Avvaiyar* a prophetic intimation of future transmigrations, and a happy result. It is not necessary to follow out the thread of the tale; but simply to state, that ultimately the said transmigrating spirit again animates the body of a king's daughter of superior wit and accomplishments, who resolves to marry no one that cannot conquer her at capping verses: in doing which the candidate must not only explain the meaning of the dark enigmas propounded (sphinx-like) in her verses, but also enounce faultless verses himself; and the uttering any such verse which she could not explain would secure her hand. Many witless sons of kings made the endeavour, and failed. *Narkiren* (head of the college at Madura) at length encounters her, disguised as a poor man selling wood. She utters a stanza of contempt; but is arrested and surprised by his answer. The contest continues for days; every step of progress, consisting of verses more difficult than the

preceding. They are indeed utterly unintelligible, without a commentary; which usually accompanies them. *Narkiren* ultimately conquers. There are subordinate details which I omit.

Remark.—This species of writing was noted by me in a former part of this report, under the Tamil palm-leaf manuscript, entitled *Vira Durendra Raja-Cadhai*. The present however is a much more recondite specimen; and by a superior hand. It differs widely from the *Alakesvara raja Cadhai*, also abstracted in this report. The document is written on strong durable paper, with good ink, and will long continue in good preservation. The frame work, or prose of the tale, might be translated; but from the different genius of language, the verses could not be fairly represented, by any translation: unless indeed any one could write Runic verses, mingling these with modern English, and giving a glossary, or explanation.

It is entered in Des. Cat. vol. 1. p. 219, art. xxii. under the title of "*Tamul-Perumal Cheritra*;" for which title, I can divine no reason. The authorship is ascribed to "*Seyallar*."

Section 3. *Rama-paiyan-ammani*, the poem concerning the victory of *Rama-paiyan*.

This poem relates to the time of *Tirumala Nayak* of Madura, and to his general *Rama-paiyan*, who was sent with an army to reduce the rebel *Setupati*, or chief of Ramnad.

A large body, under feudal chiefs (or *palliya-carers*) was gathered, commanded by *Rama-paiyan*. The *Maravars*, in defence, were headed by *Sadaican*, the *Setupati*, and by *Vanniyan*, his son-in-law: a six-days' straggling contest occurred. Of the Madura people, 360, and of the *Maravas* 200 fell. *Sadaican* was wounded in the hand, and retreated to the sea-shore, where he embarked with his army. Some petty sea-fights occurred. But *Rama-paiyan* ultimately constructed a bridge from the main-land to the island *Ramiseram*, whereon the *Setupati*, and his troops had taken refuge. Here the fighting was renewed. *Vanniyan* escaped with his life; but *Sadaican* (by magical devices, says the document) was taken prisoner; put in fetters; carried to Madura: imprisoned: and after some time, released. *Rama-paiyan* received distinguishing honours, as the result of his successful command.

Remark.—In the accounts of *Palliya-carers*, heretofore abstracted, the incidents of this war are mentioned. Most of them, with a reference also to this poem, were given by me in the 2d vol. of Or. Hist. MSS. This

document was written on very inferior country paper, considerably damaged; though as yet remaining legible. I have had it restored, in a more permanent form.

It is entered in Des. Catal. vol. 1, p. 206, art. xxvi. The authorship is ascribed to *Tennamanar-kavi*. The object of the war is not accurately stated; and the word *Tumbi* seems erroneously used as a proper name.

Section 4. *Jati nul*, the rule of Castes.

The usual invocations. The author undertakes to give an account of the existing divisions, and differences of caste. His name is *Ulaga-náthan*: he wrote it, by desire of others. Benefits resulting from reading it. Four chief castes. First rank, men; inferior class women.

Five divisions among the *Saivas*. *Adi-saivar-Maha-saivar* only specified.

Then the usual account of the origin of the four divisions from the head, shoulders, waist, and feet, of *Brahma*: which is a mere symbolical emblem.

The minute details of numerous sub-divisions which follow, are not well capable of being abstracted.

Most of these minute sub-divisions are traced to irregular intermixture of different castes, originating minor sub-divisions. The reading over of the statements produces a strong impression, on my own judgment, of an artificial structure. Nevertheless, as several of the names occur in the practical intercourse of life, and others are connected with doubtful and unsettled questions in history, a translation, as a document to be weighed in evidence, might be desirable. It is to be observed, that the title mentions a composition in verse; but this seems to have been accompanied with a prose explanation, which latter only is contained in this paper. It is a sort of poetical prose that would be ridiculous were it the primary, and not the secondary, or explanatory, composition. It is observable that the poetical author availed himself of every opportunity to throw in ornament of a kind acceptable to the taste of his countrymen; though not absolutely essential to the subject. My opinion is, that the composition of a poem was more an object, than precise accuracy; and that, where the writer was ignorant of the origin of any particular kind of people he, drew on his invention.

Remark.—The document is written on strong and durable paper, not damaged; and the ink, though a little faded, will continue legible very many years. Restoration is therefore not required. I do not know positively whether the author be the same person with *Ulaga-nat'ha* who composed the *Ulaga-niti*, though it is probable that he was the same. If

as he was of the *ambattan*, or barber, caste, and would merit gr[illegible] for his talents and acquirements, whether he may or may not have [illegible] successful in his account of the origin of castes.

Section 4. *Sri carunara purânam*, or legend of the tribes of *Brahman*-accountants of villages.

The usual invocations. The destruction of the *Samunas*, at Madura, by the intervention of *Sampantar*, is adverted to; and the king is spoken of as afterwards consulting with his minister on the best mode of diffusing Sanscrit literature, and the system of Hinduism taught therein, among his subjects, and generally throughout the country. *Narkiren* is spoken of as a cotemporary; which is not the usual representation. He is said to have obtained from *Suta-rishi*, a *puranam*, or legend esteemed sacred, taken from the *Brahmanda-puranam* to account for the formation of the Madura college. This is similar to the one contained in the Madura *puranam*. *Durvasa-rishi* appeared in the assembly at *Cailasa*, and required of *Siva*, that the doom which he had denounced on *Brahma* and *Saraswati*, to the effect that they should both be sentenced to become incarnate on earth, might be accomplished. This requisition was granted; and the forty-eight letters, which fancifully are said to compose the body of *Saraswati*, became incarnate in different places. There is much puerility in the details which follow. Connected with this account, is a reference to *Cánchi*; and the introduction of sixty-four tribes of *Brahmans* into the Conjeveram district, as village accountants. A list of villages, granted to their tribe, is given. The bearing of the whole goes to shew, that the *Samunas* (that is *Bauddhas*, or *Jainas*) originally possessed the south country; that the sending of the famous *Sampantar* from *Chillambram*, led to the *first* introduction of the *Hindu*-system in the *P'andiyan* kingdom; that the Madura College was established to diffuse Sanscrit literature, and the *Hindu*-religion; and that a large immigration of *Brahmans* was invited: the secular portion of them receiving large endowments, with a view to effect the extensive diffusion of the tribe throughout the more southern portion of the peninsula.

Remark.—The paper on which the document is written is strong and good, the ink somewhat faded in a few places; but the whole, as it is, will last for several years. A small portion, at the beginning, and a [illegible] at the end, are of consequence; the middle portion, taken apparently from the Madura *Sl'hala puranam*, is little better than worthless; [illegible] the simple fact of the formation of a college of forty-eight

[illegible]. The document adds an item of evidence in proof, that the [illegible] were originally *foreigners* in the peninsula.

The entire contents of the M. S. book No. 7, have now been attended to; with I believe sufficient particularity. They are of medium consequence.

Manuscript book, No. 11.—Countermark 904.

This book afforded but small hope of being able to restore any portion of its contents. The three first sections were found to be utterly irreco-verable. The English section headings at the commencement are the following.

Section 1. Account of the fane of *Janardana swámi* at *Varkara Cshe-tram*, in Travancore.

Section 2. Account of the celebrated fanes at *Colatupalli*; situated on the chain of hills in Travancore.

Section 3. Account of the fane of *Vera-nangavu sassa*, at *Parungalam* in Travancore.

So far termites, and other insects, have so effectually perforated the country paper that no one sentence can be made out complete. The patient industry of a copyist has been a little more successful, in a part of the following contents.

Section 4. Account of the hill *Vélamar* called *Arasanmar*, and *Kéni-yalar* of *Ulla-mali*, and other mountain-borders of the Travancore country.

This account was collected by *Nitala-narayana* in 1817. The ranges of hills, inhabited by these people, are described as extensive. The *Néyar* are fishermen; are said to be of *Agastya's* tribe, or race; and paid homage to an image, by offerings of *Né*, or butter-oil; hence the name *Néyar*. Many neighbouring places have not been explored, through the thickets and fastnesses. The *Mali-Vélamar* build houses; cultivate fields for three years; then cut down more forest, and cultivate the

land for three years; and so on. A detail of lands, occupied by the two classes of the *Vélamar*, is given: the total number of inhabitants, on these lands, amounted to more than four thousand. They pay extreme honours to chiefs of districts of the low-country; especially such as wear white clothes. They were so ignorant of writing, that if any written order sealed were sent from the low-country, they took alarm, especially at the seal, and fled. They are now somewhat better informed; and get persons to read for them. They have a god, known by the name of *Péva-vallana-vevoltu-mallan*, and a goddess termed *Ayira-valli-amman*. They dig pits, loosely covered over, to catch elephants, and other wild beasts; and, on having finished the excavation, render homage to the said goddess. If any wild beast do damage to their corn-fields, they pay homage to the aforesaid god, and believe that the beast will be caused to die. They have some peculiar customs at the birth of children. They marry many wives: widows re-marry. Their customs are loose; and like those of other hill tribes, heretofore specified. They make use of ardent spirits; and especially at the time of rendering offerings to their gods. They also use the same on occasions of births and funerals. They con-sider themselves defiled at such seasons; and for certain days, do not enter their houses: fearing that were they to do so, their gods would cause them to die. If any one offend them, they retain a sense of the injury done; and if they utter any denunciation against the offender they regard it as of certain accomplishment. The dress of these mountaineers is described. They never wear white dresses, and are afraid of such as do wear them. An exception exiss: if any one present them with a white cloth, they tie it round their head, but never around the body.

REMARK.—This is another instance of mountaineers, not *Hindus*, who under various names, and minor differences, have been traced as existing in the *Baramahl* hills, on the Ganges; in the *Vindhya* mountains; in the range down the centre of the Mahratta country; the Ganjam and Kimedy hills; the hills of *Sri-hari-cota*; the Neilgherries; the Dindigul hills; and the hills of Travancore.

Section 5. Account of the fane of *Sancara-narayan swámi*, at *Neetyi-kulam*, in Travancore.

The origin is ascribed to a dream of a king, or local chief. There are details concerning offerings and supplies. Some mention of *Nambiri* [illegible] Ward conducted a survey, in this neighbourhood, in 1817.

hierophants. Sandal trees grow around the fane; and a special reference thereto is required before felling them.

Remark.—This section is unimportant.

There follows copy of the journal of *Nitala-Narrayan*, the *Brahman* employed by Col. Mackenzie to make researches in Travancore, and the *Malayála* country. It notices his leaving Dindigul, and proceeding, by way of Madura. A des ription is given of the localities, and antique remains, at this place; with the addition that he had no time to look into books, or ancient records. Notice is given of the village, and fane, of *Su-brahmanya*, at *Sicandar-mali*; and of a remarkable tank near at hand. In like manner a journal is continued through the districts of former *pálliya-cárere*, with descriptive remarks, and occasional anecdotes. The *Tamra-parni* river, and Tinnevelly, have some The journal continues till his arrival. It is superficia ly because it cannot long continue any wise legible. S e not usually deemed matter either of abstract, or restor ie, even were it of importance, could not be effectively journal is not noticed in the English index of contents; f it contained in the Des. Catal. vol. 2. p. cii. ciii.

Next follows the remains of paper, now which it can be seen that the list of *rajas* of Travanco D. Catal. as section 6, would have been derivable. As isting record is concerned, their names are departed for e ed sections 7, 8, 9, 10, 11: which, from th e has attend- Catal. (no longer legible in the book itself in the Des. been of consequence. What follows hap idge to have China paper; which, though torn and inju ten on thin whole legible. s yet on the

Section 12. Account of *Ariya-nad* in ountry.

In this district there were anciently many m carried on a brisk trade with others in the old *Pandiya* kingdom. An anecdote is given of *Kulo-sec'hara Perumal* of Travancore, who put to death several of his cousins. A conspiracy was formed against him, in consequence: of which being informed, he conducted himself as though he were quite ignorant of the matter; but took occasion to go to *Trivandrum*, where he invited the conspirators to a feast, the viands of which were poisoned in order to destroy them. A son of his escaped to the Madura country. A successor imitated him in cruelty; and an instance, in the case of a mer

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chant and his wife, caused the entire body of merchants to emigrate to the Madura kingdom; in consequence whereof the *Ariya-nad* became depopulated, and desolate. Anecdote of a *Brahman* who, sweeping aside a heap of ashes, found an image therein; whereupon he called in his relatives to see the wonder; and ultimately the image became invested with sanctity as *Ananta-isvara*; a fane being built for its residence. Such is the popular story. The name of the district *Ariya-nad* is derived from an incident said to have occurred when *Rama Chandra* and his brother *Laschmana* passed through it: the connexion between incident, and name, not being very clear. Some minute details, of modern date, do not well admit of abstract. A few of them evince the existence of ruthless dispositions.

The preceding traditions are stated to be derived from verbal accounts, given by people resident. The document is datedat Quilon, Jan. 17th, 1818, and signed by *Nitala-narrayana*.

General Remark.—This book is now gone through, and done with. The 4th, 5th, and 12th sections have been, upon the whole, effectively re-copied. The 4th and 12th sections have some interest attaching to them. Being restored they can at any time be consulted.

Manuscript book, No. 9.—(Countermark wanting).

This book is also greatly injured; though not to an equal degree with the last one. The front cover, and the index, are gone. The two first sections are in pale ink, much worn away by rubbing, or handling, and the paper partly torn away. These two sections can be made out to be those entered in the Des. Catalogue, vol. 2, p. c. art. ix. which last No. is that belonging to the book, though now not found on it. The sections in the Catalogue are—

1. Legendary account of *Narayana Svami* in the fane of *Tiru-pani-turai-kota*, in the Cochin district.

(From the remains it can be seen to have been very brief).

2. List of villages of *Yedapalli*, in the *Yeda* district in Travancore. (This title is legible in the book, the names of villages not so: nor are they of importance).

Section 3. Account of agriculture in the neighbourhood of the capital of Travancore.

This title is taken from the Catalogue, only translating two words that would not generally be intelligible. The section heading, in Tamil, promises rather an account of revenue arising from cultivation; especially that which accrues to the fane, or fanes, at the capital, by virtue of grants or donations. Accordingly the document is wholly occupied with details of different sums; accruing from various localities of no general interest, or consequence.

Section 4. Account of products in the same neighbourhood.

The sections 3, and 4, are not distinguished, in the book; but run one into another; and alike relate to one general topic of revenue from agriculture.

Section 6. List of lands adapted for the cultivation of rice, and other grains, in the wet and dry seasons in *Malayalum*.

In this country there are six months rain, and six months of dry weather. The months are specified. The time of ploughing; with connected details, as to labourers, and instruments, employed. Sowing in the beginning of the month of May, or opening of the rainy season. Pay of labourers, not at the time: but from the produce, when reaped. Gift from the harvest to the poor on their coming to seek it. Time of harvest. Some idle fable about *Arjuna* and *Agni-deva*, to account for the difference of lands fitted for wet, and dry, cultivation. Notice of rising grounds, or higher lands. Injury sometimes done by wild beasts. Leave is obtained from the capital; and then watch is kept on trees, and the animals, as occasion offers, are shot. Specification of nine different kinds of grain. Modes of manuring land. Contrivance for extracting the juice of the sugar-cane; and manner of conducting the process. Municipal order and arrangements in villages. Grants made to survivors of the family of any persons who have fallen in battle. The documents are sealed with the *rudracsha*-seal, and the grants are inalienable. Payments of some attendants on the palace. Details as to military service. Revenue details follow. Included within this section are details which, in the Des. Catal. are entered distinct, as sections 17, 18, 19, and 20.

Section 5. Account of revenues in Travancore.

This document has been copied in transposed order, it relates wholly to revenue details; and is unimportant. On a brief paper, attached, is a mention of lands cultivated by slaves.

There follows a document written on thin China paper, torn and imperfect, concerning the people termed *Congunar*, who are stated to be descendants of those that assisted *Parasu Rama* in his wars. There is a preface of legendary matter, relative to *Siva*, and his overcoming of *asuras*, to the contentment of the *devas*. The account of *Parasu Rama* is introduced: his parentage. In early life he singly encountered a lion, and killed it. There were many *Cshetriya* kings in those days; among whom *Kartaviriyan* was very powerful; who by force took away the cow of plenty, from his father *Jamadagni*. He ultimately killed the oppressor. The *Brahmans* told *Parasu Rama* it was not right for him to possess a country, which he had made over to them. He left in anger; and besought from the sea as much land as would extend to the distance to which he could throw a hand-winnow for corn. It alighted at *Gokernam*. (There is a difference here from other accounts; and the account breaks off, leaving a blank page). Thence recommences a mention of *Parasu Rama* locating the *Conganar* in this country; and it states that he still resides, doing penance, on one of the mountains in the extreme south. (The section heading in the Des. Cat. which may have been intended to designate this paper cannot be now determined).

A paper on cultivation, compiled by *Nitala Naraya*[illegible] contained [illegible] ous minute details, not met with in the preceding p[illegible] ; but for which it is difficult to fix on any section hea[illegible] Des. Cat. The details are not adapted for abstracting. It [illegible] viewed as supplementary to the first sections.

Section 14. Account of the *Nayars*, otherwise [illegible] (chiefs).

The document states their amount to be 3 lak[illegible] and [illegible] thousand, or three hundred and fifty-thousand. The statement is [illegible] bal answers to enquiries. It is very brief, and contains lit[illegible] nothing, beyond the mention of the circumstance, that when two persons of the same family are in one house, one is the property of the king.

Section 11. Account of the tribe of *Plapalli Brahmans* at the *Mantapa*, (alms-house) of *Ambalapul*.

They are descendants of *Brahmans*, who were fishermen; who, in consequence, were afterwards rejected by other *Brahmans*, and received the distinctive name of *Plapalli*; the substance of a fish, being termed *Pla*, and *palli* is a common titular name of an inferior class. They are regarded as of a low order.

Section 12. Account of the tribe of *Variyarjati*, in the same neighbourhood.

The origin of the class is traced up to a time when a *Tambiran*, or ascetic, ordered some of his disciples to take up the bones of a dead body, which had been burnt, and on their refusing to do it, on account of caste, he directed a disciple for whom he had a special regard to do so. This one obeyed; and the name of *Vari*, was applied to him, as an epithet of reproach. The *Nayars* assembled, and had him expelled from his caste, for having touched the bones of a dead-body. The *Tambiran* in consequence took particular care of this disciple, by carefully training him in learning. He became a schoolmaster; and his descendants, the *Variyar*, follow the like occupation.

Section 13. Account of the *Illakar*, or first tribe, among the *Nayars*.

The mode of domestic life, and marriage ceremonies, preceded by astrological computations. The various parts of the ceremony minutely described; expenses, and presents. The tie is lax, and connected with polygamy. The *Namburi Brahmans*, and the *Nayar* husbands, are much the same. The funeral ceremonies are described; together with the fruits, and other matters, prepared on these occasions.

Section 17. Account of grants and rules of the people in *Malayalum*.

Under this section-heading in the Catalogue must, I imagine, be intended a paper containing questions and replies, on statistical matters, pertaining to *Mirasi* rights, or property in the soil; modes of transfer; purchase; and the like; as connected with the possessing, mortgaging,

selling, or otherwise transferring, landed property. This subject has more than once before occurred, in documents abstracted from the *Malayalam* language: these questions appear to me to have been prepared under directions from the late Mr. Ellis, and transmitted to *Malayalam*, for solution by Col. Mackenzie's agent, named *Nitala Narayana*.

There is appended to this paper a brief description of the plough used in *Malayalam*. It is merely an *addendum*.

Account of the *Arasanmar* of *Peruvantan* in *Malayalam*.

The account of the *Arasanmar* is here limited to the notice of a few local customs, chiefly those of marriage. There is a better, and fuller, paper concerning them, in a preceding document. (See MS. book, No. 11, section 4).

Section 7. Account of the wild people (or foresters) in the *Nili-malai* hills, near Travancore.

This account is stated to have been obtained while journeying on the road towards *Savari-malai*, a hill so called. If those people see any one they hold no intercourse. They are deformed, with pot-bellies, and very long hair. They have a sort of commerce by barter. Their food is roots, &c. They are so shy of strangers that no difference of sexes, or different castes, was observable. The paper is brief.

Section 10. Account of the *Arasanmar* residing on the *Savari Malai*.

The different names of classes among them are specified; one of which is *Panikan*, that has heretofore occurred in *Malayalam* papers. A few local customs are stated, chiefly those attendant on marriages; the document breaks off abruptly.

Section 9. Account of the *Polaiyar*, a low tribe, residing on *Cancharpalli*; and other hills, near it, in *Malayalam*.

This paper is described as a poem by *Muttusámi* of the southern *Cailasa* (Pyney ?) in the *Tinnevelly* district. The language is good prose; but the contents are brief. When *Parasu Rama* had made slaughter in his wars, the widows lamented their being without husbands; and besought him to supply others, which he effected by calling in strangers; from

which origin it may be understood that the low *Polaiyars* (or *Poolias* of *Abbé Raynal*) are derived. The writer gave his production to Mr. Turnbull, whom I remember as having been employed in the survey department, among the hills, in the extreme south.

It is then stated that the *Polaiyars* are sold as slaves; a pair fetching various prices from 300, up to 400, 600, 800, or 1000, *chacrams*.

A few unimportant remarks, as to marriage and other customs, are added.

Section 16. Account of the dates, and years, of the *Caliyuga-rajas*.

Vicramaditya, 21 years—a few marvels concerning him are stated: era of Vic. 135.

Bhoja-raja, 111 years: he ruled in *Dharapur*, and protected poets.

Sattathan, his son, 21 years.

Salivahana, 18,000 years (some mistake, or exaggeration).

Salivahana, ruled 21 years.

Mádha-verma	30 years	died Sacai 51
Kóda-Kethana	70 years	121
Nila Canda	ruled 33 years	154
Mukanti	66 years	220
Chola rajas	217 years	down to S. S. 437
Yavana Bhoja	41 years	died 478
His posterity eight persons	417 years	down to 895
Narapati, Gajapati and Asvapati	591 years	down to 895
Gajapati race, and the Reddis	255 years.	
Crishna Rayer	18 years	down to 1452

Era of Yudishthira ..... in all 3044....thence to

Vicramaditya	135 from him to
Salivahana sacam	1741 (A.D.1819)
The total	4920 years.

A further loose mention of eras, and kings, follows, in Tamil and Telugu.

Mention of a king who, when bathing, had his foot bitten by a lobster; which being caught, and its body opened, a valuable jewel of a red-colour was found in it: which was afterwards, put on the neck of the image in the fane at *Trivanderam*.

There follows a paper containing lists of agricultural productions, greatly injured by insects; and, so far as I can judge, not of the least consequence.

General Observations.—A transposition in the order of copying some parts of this book has occurred; the latter portion only was rejected, that is the lists of agricultural productions. I did not wish the contents to be left to perish. They are however but of very moderate consequence. Perhaps sect. 17, may be the most valuable. The list of kings is excessively loose, and unsatisfactory. In the Des. Catal. 20 sections are entered; but of these some are only distinct subjects in one paper, and some are not now in the book, *e. g.* there is found a title answering to section 8, but the filling in of the subject is wanting.

(To be continued).

II.—*Remarks on the practical utility of the Sympiesometer as a Marine Instrument, deduced from a series of Observations made with it during a Voyage from England to India.—By* Richard Baird Smith, *Lieutenant, Madras Engineers.*

The voyage from England to India, carrying us through so much variety of climate, affords many opportunities of making interesting meteorological observations. Impressed with this idea I felt anxious that these should not be lost, and on the commander of the vessel in which I was a passenger, kindly offering to place his instruments under my charge, with the view of registering their indications, I gladly availed myself of his kindness, and took every opportunity which circumstances would permit of making my observations as complete as possible. I felt the more happy in thus daily employing a portion of my time, since one of the instruments, Adie's Sympiesometer, was to me perfectly new, and thence exceedingly interesting. I was led from this circumstance to pay closer attention to it, in the hope that I might thus discover the principles on which it was constructed, and determine its value as a practical aid to the seaman.

The conclusions at which I arrived will afterwards be stated; at present, since the Sympiesometer is neither so generally known nor appreciated as it ought, I will endeavour to describe the form of that instrument with which the annexed table of observations was made. By a reference to the elevation attached, it will be seen that the Sympiesometer consists, first of a tube A of the form there exhibited. In the lower

portion of this is placed a quantity of highly rectified oil, whose surface is exposed to the free action of the pressure of the atmosphere. Supposing, though it is not the case, that common air filled the upper part of the tube above the oil, then a difference in the level of the latter would be the joint effect of two distinct causes. Firstly, a variation of the temperature would produce a change in the elasticity of the included air, and consequently the oil would rise or fall accordingly. Secondly, changes in the density of the atmosphere resting on the surface of the fluid would likewise produce proportional alterations of its level in the tube. It is only with the latter of these causes which we have to do; some method must therefore be found by which the change due to the former may be eliminated. This is done by the insertion of a scale so graduated that the errors due to thermometric influence are thereby corrected—hence the thermometer B is an essential part of the instrument, and indeed regulates every observation. The first step in each of these is to note the degrees which the thermometer shews, the scale D being fixed and exhibiting these thermometric degrees, the scale C, which is moveable by means of the knob E, is then set with its fleur-de-lis opposite the observed point at which B stands, and the indications then read off from C give the tabulated numbers or heights of the column of oil due solely to the pressure of the atmosphere. On the proper construction of the scale C depends the efficiency of the instrument, and it requires a most elaborate series of experiments to determine its different points to that degree of precision requisite in an instrument to be used for philosophical purposes—for practical use, its indications not being then necessarily so minute, the same laborious construction is scarcely requisite. Unless, however, considerable, nay great, care is taken in determining the differences due to the effect of heat, the Sympiesometer is scarcely to be depended upon. G is merely a register for marking the last observation. The whole is contained in a box about 2 feet long, 4 in. broad and 1½in. deep, so that it is very portable. The preceding theory had suggested itself to me while on board, and on arrival here and making inquiries as to the real principles of the instruments, I found I had to substitute nitrogen gas for the common air in the upper portion of the tube, that having been found to afford the most correct indications; the principle however was correct. The instrument I used was one by the original patentee Adie, which, having been constructed shortly after his invention was made public, was of peculiarly beautiful workmanship. The thermometer was read off to hundredths of a degree, and of course, the scale C was corresponding, each single division being however considered as double, so that in a space divided to fifths, the readings go as far as

tenths. The instruments having been in constant use for 3 or 4 years, a slight concavity had formed in the upper portion of the tube from the trifling evaporation of the oil, allowance was always made for this in every observation, and the due correction applied to the results. The barometer, with which the Sympiesometer was compared, was a very beautiful one, by Troughton; its scale indicated to the hundredths of an inch, and was divided in a manner worthy of its maker. Its attached thermometer was always read off as a check to the other in the Sympiesometer, and thus as far as possible the chance of error removed. Both instruments were placed in the poop cabin with a free exposure, the Sympiesometer attached to the bulk head, which perhaps might make a little difference in temperature, but nothing material, and the barometer, as usual, suspended in jimbols.

In the third and fourth columns of the register, are inserted the latitude and longitude of the ship, at noon of the day of observation, and in the eighth, the direction of the wind is noted. The remarks on the weather include its state during the whole 24 hours, as marked in the ship's log, which for the purpose of making these extracts was kindly placed at my command. The range of the observations extends from lat. 23° 57′ S. to 2° 39′ N. and long. 26° 50′ W. to 80° 50′ E. so that, in tracing isothermal lines on the surface of the earth, a considerable number of distinct points will thus be supplied, from the thermometric columns, and though, to aid in the construction of each line, one element only then is obtained, yet it will not be altogether useless. By a reference to the register of the direction of the wind, it is found, that during the whole time we were between the parallels of latitude 30° and 40°, running down about 90° of longitude, out of 180 observations on the direction of the wind, upwards of ⅔ are westerly; next to these, the northerly prevailed most, and next again the easterly. Of course these directions vary considerably, but under all circumstances at this period of the year, westerly winds prevail in these latitudes, and are taken advantage of in running down the longitude.

Passing now on to the main subject of this paper, I have first to remark, in regard to the indications of the Sympiesometer, that it invariably fell more on the approach of wind than of rain. It took little notice of passing showers, though succeeding each other with considerable rapidity, but the moment a squall seemed gathering, the level of the oil began to be lowered, and if it continued gradually sinking, we equally invariably had a strong breeze, and if it sunk very low a heavy gale. An objection, which has some weight, has I believe been stated to the Sympiesometer, arising from its being too delicate, and giving

sudden alarms by sinking two or three divisions on the approach of a comparatively trifling squall. This remark I found perfectly just, for the Sympiesometer, by itself, does certainly give alarming indications on trifling occasions, but while the barometer is observed along with it, the remedy is at hand. The latter takes no notice whatever of sudden squalls, though very violent during their short continuance, and I found in Captain Horsburgh's excellent treatise on the navigation to India, that this was, in his opinion, a most serious objection to the barometer. I could not but be struck with the beautiful manner in which the Sympiesometer removes this objection, for it just steps in to offer its aid, at the very point where it was wanted. It invariably foretold the approach of these squalls, indicating their violence by the number of divisions through which it descended, while the barometer stood perfectly, as far as the eye aided by a good microscope could judge, unmoved and heedless. Hence then we concluded, that, if the Sympiesometer fell alone, no danger was to be apprehended, as the squall would soon pass away, and facts invariably supported this conclusion, for we were not once deceived; on the other hand, when the barometer and Sympiesometer fell steadily together, we were sure to have a gale of greater or less violence. In our experience of this we were only once led astray, a very serious depression of the two instruments having been for some time observed, but no wind made its appearance. During the whole of the day however, in which these observations were made, we were enveloped in a thick fog bank, which may offer a solution of this apparent contradiction, the elasticity of the air and its consequent power to exert the ordinary pressure being always diminished by the presence of a aqueous vapour. This was on the 5th June, lat. 37° 10′ S., long. 27° 57′ E. Bar. 29.70 inches, Symp. 28.09 per scale. Ther. 64° 49′. The lowest point to which the barometer fell during the voyage was 29. 25. inches, and the corresponding point of the Sympiesometer was also its lowest, 27. 68 per scale, June 11th, lat. 37° 26′ long. 61. 27 E. Ther. 62. 10. wind westerly and blowing an exceedingly heavy gale.

The susceptibility of the Sympiesometer enabling it to detect changes unappreciable to our senses, frequently produced a rise in the column while the gale seemed unabated. This was always hailed as a favourable sign, and we seldom were wrong in concluding that the greatest force of the storm was expended, and that before long the wind would lull. One of the most striking instances of the efficient aid the two instruments would afford when observed together, was just before the storm of the 13th of June. A calm and beautiful day was succeeded by

an equally calm and beautiful night, not a cloud was in the sky, and the edges of the full moon were clearly and distinctly defined, with not a trace of any halo or other symptom of unsettled weather; but the Sympiesometer and barometer has been falling steadily and progressively together, and every one seemed to think that for once they would be proved not infallible. About 9 or 10 P. M., however, the clouds began gradually to gather on the horizon, and the waves in the distance shewed their white crests, the sky became troubled, the moon seemed watery-like; every preparation accordingly was made for a storm, and about midnight the wind rose, and gradually strengthened till the noon of the same day, when it blew a heavy gale. On the night of the 14th we were in imminent danger, and had the instruments not given us timely warning few of us might have lived to tell the tale. Few, after this proof of their efficiency, thought of despising their prognostications. The three rules of Mr. Hemmer, in regard to the circumstances which regulate the rising and falling of the mercury in the barometer, I found very distinctly indicated by the Sympiesometer. These are:

1. First when the sun passes the meridian, the barometer, if in the act of falling, continues to do so in an accelerated degree.

2. When the sun passes the meridian, the barometer, if in the act of rising, falls or becomes stationary, or rises more slowly.

3. When the sun passes the meridian, the barometer, which is stationary, falls, if it has not risen before or after being stationary; in which case it usually becomes stationary during the sun's passage.

These three rules all rest on the single fact, that, about noon, the pressure of the atmosphere becomes diminished; this result I clearly observed with the sympiesometer, and my remark, made in ignorance of the above rules, was confirmed by the experience of Captain Edmonds, who had observed this fact frequently during the three years he had used the sympiesometer. My observations are by no means sufficiently extensive for me to state definite quantities, I only remarked the decided tendency of the column of oil to lower its level about noon, and to rise again in the after part of the day. This is clearly connected with the sun's position in the heavens, perhaps the greater quantity of aqueous vapour present in the atmosphere, and due to the increased evaporation produced by his noon-day heat, may offer a solution of this difficulty, or perhaps it may be owing to some change of the electrical state of the atmosphere, due to the variable temperature of its different parts. There are no means of deciding, that I am aware of, what is the true cause of this, and speculation will not tend to settle the point.

The prevalence of different winds endues the atmosphere with vari-

able supporting powers, as I frequently observed the Sympiesometer to fall when the wind changed, and to resume its former level when this returned to its old quarter. I had intended to have discussed the observations with more detail, had time permitted, by the construction of diurnal barometric and sympiesometric curves, with the registered heights for their ordinates, and the hours of observations for their abscissæ, but, before I could have done this satisfactorily, and before the series could be available for purely philosophical purposes, certain corrections must have been applied, which it was not in my power to do; this paper is, therefore, merely intended to give an estimate of the practical utility of this instrument, and the opinion I entertain of it is, that, by itself, it is not of so much importance, but that, worked with the barometer, giving as it does the very information this withholds, I certainly think it a most valuable addition to our list of marine instruments. The original construction of the Sympiesometer must however be good, otherwise it is not to be depended upon, and I am inclined to think much of the prejudice which has arisen against it among naval men takes its origin from the patent having been invaded, and cheap, and inferior articles having been manufactured, and sold. From my own observations I am most favourably impressed in regard to it, and should always like, in every ship, to see the barometer and Sympiesometer lending their aid to correct and strengthen each others indications. The deductions from the table of observations may be condensed into the following general rules, it being taken for granted that the barometer and Sympiesometer are observed together, since this is, we repeat, the only method whereby the greatest benefit can be derived from their indications in guiding the commander of a vessel as to the weather he is to prepare for.

1. The steady simultaneous rising of the two, or their retaining together a permanently high position, presages good and fair weather.

2. Their simultaneous depression indicates a change to bad weather; if they fall very low, a heavy gale, usually accompanied with rain, may be expected.

3. If during the continuance of a gale, however violent it may be, at the moment of observation, the two exhibit a decided tendency to rise, the force of the storm will soon abate, its maximum point being passed. If the Sympiesometer, in consequence of its greater susceptibility of slight variations in the atmospheric pressure, rises alone, not so much confidence is to be placed in the hope that the storm is abated:—such rising is however a good sign, as it was usually soon accompanied by a rise of the mercury in the barometer.

4. If a storm seems gathering, of which the barometer takes no notice, but by which the Sympiesometer alone is affected, a short squall will be the result. No alarm need be entertained, for here the barometer completely checks and corrects the Sympiesometer.

5. A simple change of wind may produce a depression of the Sympiesometer; of this the barometer takes no notice.

6. A slight allowance must be made for the depression at noon.

The preceding six remarks exhibit the whole of the results of practical importance. There exists an impression, that both the barometer and Sympiesometer lose their power within the tropics; unfortunately we had no good opportunity of putting this to a complete test. The Sympiesometer, however, as far as we could judge, *retained* its sensibility, as its indications varied, even during the continuance of the fine weather we had. Why the pressure of the atmosphere should cease to act, or rather to exhibit the proofs of its action, within the tropics, it is difficult to conceive; the indications of the instrument will of course be more vitiated by the increase of temperature, and the larger quantity of moisture present in the air, but that the same cause will produce similar effects, either at the Equator or the Pole, is certain, and, if it is the case that barometric indications are not trustworthy within the tropics, we must look for the cause in some concomitant circumstances. I found the minds of those naval men I came in contact with, firmly impressed with this idea, which they said they based on experience, without being able to account for it, yet there are instances on record, in which, on the approach of storms, or hurricanes, immediately under the line, the mercury has fallen upwards of an inch. The deviations of the mercury from its mean annual height are certainly far greater, and more frequent, towards the Poles, than near the Equator, the reasons mentioned above of increased temperature, and diminished elasticity may, to a certain extent, account for this. Our information is however by no means satisfactory; much must yet be done in meteorology before any thing can be offered worthy of serious consideration. The circumstance has been noticed, simply in consequence of its having been suggested, and as a point on which more decided information would be interesting. The many practical rules, based on experience, whereby seamen judge of the weather, and prognosticate coming storms, or calms, from the appearances of the heavens, are accompanied with considerable interest. The first I noticed, was the indications of wind coming from a certain quarter, by the appearance there of flashes of lightning. To this considerable attention was paid, and it was found generally correct, when the horizon was free from clouds in the quarter whence the lightning proceeded. If however

clouds were there, the indications were always false, the lightning being caused by the discharge of the electric fluid from one of these to the other, whereas in the first case, it seems as if some disturbance in the usual state of the electricity of the atmosphere was taking place, dependant on the effects of currents of air. Here again we are all in doubt and darkness, for we know little of any thing of the correct agency of electricity in meteorology; there is a wide field open for investigations connected with it, and a few hints are even already given us of the important part it plays in several of our atmospheric phenomena. The indications of wind from the appearance of meteors, I found invariably false, although the sailors placed considerable dependance upon them. The appearance of cirri, or Grey Mare's tails in the sky, told us to expect wind, and indeed from their appearance, it is natural to conclude, they are under the influence of the currents in their own regions, which may soon be expected to affect ours. The cirro-cumuli were usually apparent in settled, and fine weather. Some attention was paid to the old, and long established prejudice, in regard to the moon's effect on the weather. The impossibility of explaining this influence satisfactorily, naturally induces scepticism as to its actual existence, and since there is no method of proving whether the moon actually does, or does not affect the weather, except by long, and careful observations, conducted by men acquainted with science, and unprejudiced in their views, we must cast aside opinions, however hallowed by the lapse of time, and base our conclusions on facts and facts alone. Experience seems decidedly to uphold the doctrine, but the question occurs—if so, how does the moon act? Tabulated observations indicate slight diurnal tides in the atmosphere, which we would be led to anticipate, from the action of gravitation, but as to what are the secondary laws, by which the moon exercises such an extensive sway over the weather, it is difficult to say. Her electric influence is scarcely sensible to the most delicate instruments, and indeed, so much difficulty attends our search for the cause of her influence, that we are inclined to consider the whole as a deep rooted, though certainly useful prejudice; the existence of which proves the low ebb of the science of meteorology.

That this apparently most capricious, because to us incomprehensible, branch of natural science, is governed by similar regular laws, to those which have been impressed on every sister science, there can be no doubt: it is our ignorance only which turns order into disorder, beauty into confusion. The human mind, even when gifted with very extensive powers, when it has many marked phenomena presented to its view, finds it difficult, almost impossible, to rest satisfied till some cause has

been found by which these can be explained—it readily grasps at any plausible explanation, and what at first it admitted only as a means of removing dissatisfaction, becomes, when harboured as a frequent guest, a strong and rooted prejudice, and if future experience tends to confirm the idea, it cares not about farther investigation, because certainty would again be succeeded by uncertainty, and the prejudice gradually passes into firm conviction, capable of resisting for a long time any amount of counter evidence. Such may have been the origin of the almost universal opinion in regard to the moon's influence on the weather—for, the latter being so exceedingly variable, there is every probability, that numberless coincidences with its changes, and those of the moon, may be expected; but how the same cause can produce such diametrically opposite effects as she has the credit of doing, I confess seems to me exceedingly puzzling; it would be foreign to the subject of this paper to enter on such a question in detail, the subject has been treated at considerable length in the National Journal of Science, &c., by Sir David Brewster, and I was pleased to find the views there taken were similar to those expressed above, but supported by tabular data of long continued observations. My own remarks on the voyage fully confirmed these sceptical views; the prejudice is however by no means an useless one, for it often comes, most opportunely, to offer its aid both to the agriculturalist, and the seaman, for they look forward with hope to the change of the moon, in bad weather, as the harbinger of better, in good weather, as the means of its continuance; at one time, it is expected to bring rain, at another, it is to drive it away; it ushers in the frost, and commences the thaw, and on the whole it has certainly most multifarious and diversified duties imposed upon it; and, if it really performs them, must be looked upon not only as one of our greatest blessings—but as one of the most singular phenomena of creation, puzzling alike to the simple and the sage.

Comparative Register of the Variations of Atmospheric Pressure, as indicated by the Barometer and Sympiesometer.

Commenced May 17th. } 1838.
Finished June 28th. }

From lat. 23° 59' S. to 26° 00'
" long. 26° 50' W. to 21° 00' W.

Date of observation.	Hour of observation.	Noon latitude.	Noon longitude.	Height of barom.	Height of sympes.	Height of ther.	Direction of wind.	Remarks on the weather, &c.
May 17th	12	23.59	26.50	.... ..	28.41	69.00	S. S. W.	A. M. variable, light winds and cloudy.
	4 P. M.	.....	.....	.....	.40	67.50	S. W.	NOON. light airs and fine.
	6½ "	.....	.....	.....	.50	67.00	S. S. W.	P. M. lt. br. and fine—6h. cloudy—8h. do.
18th	8 A. M.	24.35	25.44	.....	.38	68.00	S. W.	A. M. variable winds and cloudy—8h. do.
	12 "	.....	.....	.....	.34	69.00	S. W.	NOON do. do.
	4 P. M.	.....	.....	.....	.30	60.20	S. W.	P. M. do. 6h. cloudy—8h. moderate and fine.
19th	9 A. M.	26.00	21.00	.....	24.24	70.20	W. S. W.	A. M. variable winds and squally—8h. breeze increased, and fine—11h. 30m. strong breeze, squally with rain.
	12 "	.....	.....	.....	.16	71. 4	W. S. W.	
	4 P. M.	.....	.....	29.80...	.14	71.80	W. S. W.	
	4½ "	.....	.....	.80	.14	71.60	N. N. W.	P. M. squally with heavy rain at times—4h. Fresh gales and squally—6h. strong gales and heavy squalls at times—8h. do.—midnight do.
	6 "	.....	.....	.70	.10	71.00	"	
	9½ "	.....	.....	.78	.13	71.00	"	

TABLE *continued.*

From lat. 27° 00' S. to 30° 45' S.
" long. 19° 30' W. to 15° 26' W.

May 20th	6 A. M.	27.00	19.30	.78	.20	66.30	"	A. M. strong gales attended with heavy squalls of wind, and rain—4h. do.—8h. do.
	8 "	.....	.....	.80	.26	66.00	W. by S.	
	12 "	.....	.....	.80	.20	66.40	W. S. W.	
	2½ P. M.	.....	.....	.70	.24	65.40	"	NOON. more moderate.
	4 "	.....	.....	.80	.18	65 00	"	P. M. strong breeze and squally at times—4h. do. more moderate—8h. moderate and cloudy.
	6 "	.....	.....	. 2	.24	65.00	"	
21st	8½ A. M.	.....	.....	30.00	.44	65.30	S. W.	MIDNIGHT. Fresh breeze and squally. A. M. Fresh breeze and squally—8h. moderate.
	12 "	29.31	18.35	"	.46	65.20	W. S. W.	NOON. Fine.
	4½ P. M.	29.31	18.35	30.10	28.44	64.40	S. W. by W.	P. M. Moderate breeze and fine—4h. squally and rain—6h, cloudy—8h. variable winds and cloudy—midnight moderate.
22d	6 A. M.	.....	.....	.50	.64	63.00	Variable	A. M. variable winds and fine—4h. squally, moderate.
	8½ "	.....	.....	.22	.66	61.00	"	NOON. Fine.
	10½ "	.....	.....	.24	.64	64.00	"	P. M. light winds and fine—5h. do.—8h. do.—11h. do.
	12 "	.....	16.28	.27	.50	66.00	S. W.	
	4½ P. M.	.....	.....	.30	.70	64.20	S. W. by S.	
23d	8 A. M.	.....	.....	.36	.76	63 20	N. W.	A. M. calm and fine—6h. cloudy—7h. light breeze and fine.
	10 "	.....	.....	.30	.70	.30	"	NOON. Do. do.
	12½ "	30.45	15.26	.30	.70	.00	Variable	P. M. light winds, variable and fine—6h. variable cloudy—7h. squally—8h. cloudy—11h. 30m. variable and squally.
	3 P. M.	.....	.....	.30	.70	67.00	"	
	6½ "	.....	.....	.30	.70	66.20	"	
24th	8 A. M.	.....	.....	.25	.68	65.00	"	
	10 "	.....	.....	.20	.66	65.20	N. W.	A. M. variable winds and fine—4h. do.—8h. do. NOON. Do. do.

TABLE *continued.*

From lat. 31° 36′ S. to 31° 40′ S.
From long. 13° 40′ W. to 3° 42′ W.

Date of observation.	Hour of observation.	Noon latitude.	Noon longitude.	Height of barom.	Height of sympes.	Height of ther.	Direction of wind.	Remarks on the weather, &c.
May 24th	12 A. M.	31.36	13.40	30.18	28.60	66.40	N. W.	P. M.. increasing breeze and fine—4h. fine.
	3 P. M.	.....	.....	.14	.58	67.00	,,	6h. moderate and cloudy with rain—8h. moderate and fine—midnight, variable and squally.
	4½ ,,	.....	.....	.14	.58	67.00	,,	
	6 ,,	.....	.....	.14	.58	67.00		
25th	8 A. M.	.....	.....	.12	.54	66.00	Variable	A. M. variable winds and squally—4h. cloudy and rain—8h. fresh breeze and fine.
	1 P. M.	32.56	10.58	.10	.50	67.30	N. N. W.	NOON. Do. do.
	6 ,,	.....	.....	.14	.52	67.00	Variable	P. M. moderate breeze and fine—4h. do.—7h. do. MIDNIGHT. Increasing breeze and fine.
26th	8½ A. M.	.....	.....	.12	.50	66.30	N. N. E.	A. M. fresh breeze and hazy—4h. do.—8h. do.
	1 P. M.	33.42	7.06	.00	.54	67.30	,,	NOON. fresh breeze and fine.
	3 ,,	.....	.....	.08	.48	67.10	,,	P. M. fresh breeze and hazy—6h. do.—8h. fresh breeze with rain—midnight do.
	5 ,,	.....	.....	.10	.48	67.10	,,	
	8 ,,	.....	.....	.12	.44	70.00	,,	
	11½ ,,	.....	.....	.02	.43	68.00	,,	
27th	1 A. M.	.....	.....	.04	.43	69.00	N. W.	A. M. squally with sudden shifts of wind.
	8½ ,,	.....	.....	.13	.46	65.00	,,	4h. moderate breeze and cloudy with rain—8h. do.
	10 ,,	.....	.....	.04	.52	64.20	,,	
	12½ ,,	34.40	3.42	.04	.50	64.00	WEST.	NOON. Fresh breeze and fine.
	3 P. M.	.....	.....	.04	.54	64.00	W. by S.	P. M. fresh breeze and hazy—4h. moderate do.—8h. do.—midnight moderate and fine.
	8 ,,	.....	.....	.12	.58	64.00	,,	

TABLE *continued.*

From lat. 34° 58′. S. to 36° 01′. S.
,, long. 0° 33′ W. to 6° 04′. E.

May 28th	8 A. M.	.....	.....	.20	.64	61.20	W. by N.	A. M. moderate breeze and fine—4h. variable and hazy—8h. do.
	10 ,,	.....	.....	.20	.66	61.30	,,	
	1 P. M.	34.58	0.33	.15	.58	62.00	N. W. by N.	NOON. Do. do.
	3 ,,	.....	.....	.12	.60	62.20	,,	P. M. increasing breeze and hazy—4h. do—6h. cloudy and hazy—8h. do—midnight do.
29th	8½ A. M.	.....	.....	29.97	.46	63.00	N. W. by N.	A. M. moderate breeze and hazy—4h. do. daylight increasing breeze—8h. fresh breeze and hazy.
	1 P. M.	35.24	2.40	.92	.38	63.20	NORTH	
	3 ,,	.....	.....	.87	.32	63.40	,,	NOON. Moderate and hazy.
	4½ ,,	.....	.....	.82	.28	63.00	,,	P. M. fresh breeze cloudy and rain—4h. do—6h. do.—8h. fresh breeze and cloudy—midnight do.
	6 ,,	.....	.....	.82	.24	65.00	N. W.	
	9½ ,,	.....	.....	.81	.21	65.20	,,	
30th	6 A. M.	.....	.....	.58	.02	64.60	N. W.	A. M. fresh breeze and cloudy—4h. do.—5h. squally and rain—7h. strong breeze with rain—8h. sudden shift of wind to westward with heavy rain.
	8½ ,,	.....	.....	.55	.02	65.00	,,	
	9½ ,,	.....	.....	.51	.00	63.40	WEST	
	10½ ,,	.....	.....	.58	.03	63.00	,,	NOON. Variable and cloudy.
	1 P. M.	36.01	6.04 E.	.50	27.98	63.20	N. W.	P. M. fresh breeze and fine—4h. strong breeze and fine—6h. fresh gale and squally with rain at times—8h. do. moderate do.
	3 ,,	.....	.....	.50	.96	62.30	N. W. by N.	
	5 ,,	.....	.....	.50	.96	62.00	,,	
	9 ,,	.....	.....	.50	.96	64.40	,,	
31st	7 A. M.	.....	.....	30.46	28.16	59.50	WEST	A. M. fresh gales accompanied with heavy squalls at times, and rain—4h. do. with lightning.
	8½ ,,	.....	.....	.66	.26	59.10	,,	
	9½ ,,	.....	.....	.68	.22	59.20	,,	

TABLE *continued.*

From lat. 36° 07′ S. to 37° 13′ S.
„ long. 10° 02′ E to 21° 31′ E.

Date of observation.	Hour of observation.	Noon latitude.	Noon longitude.	Height of barom.	Height of sympes.	Height of ther.	Direction of wind.	Remarks on the weather, &c.
May 31st	2 P. M.	36.07	10.02	30.76	28.27	62.00	WEST	NOON. Strong gales and squalls at times with hail and rain.
	8 „	.....	.....	.94	.37	61.00	„	P. M. Do.—4h. more moderate—6h. squalls—8h. moderate breeze with squalls at times—midnight squally.
	8½ „	.....	.....	.93	.38	61.30	„	
June 1st	6 A. M.	.....	.....	.96	.46	56.00	Variable	A. M. variable winds and squally at times—4h. variable and cloudy—8h. variable.
	9 „	.....	.....	.98	.49	55.20	„	
	1 P. M.	36.22	12.57	.96	.40	58.10	NORTH	NOON. Variable and cloudy.
	3 „	.....	.....	.92	.35	58.40	„	P. M. moderate breeze and cloudy—4h. increasing breeze and cloudy—midnight, fresh gales and squally.
	5 „	.....	.....	.88	.33	59.30	„	
	8½ „	.....	.....	.86	.28	59.40	„	
	11½ „	.....	.....	.76	.23	62.60	„	
2d	3 A. M.	.....	.....	.68	.17	62.60	„	A. M. fresh gales, squally at times—4h. more moderate—8h. do.—11h. squally with rain.
	7 „	.....	.....	.70	.15	62.40	„	
	8 „	.....	.....	.68	.16	62.20	„	NOON. fresh breeze with rain.
	9 „	.....	.....	.70	.20	62.20	„	P. M. fresh breeze with rain—4h. more moderate—8h. moderate and fine.
	10 „	.....	.....	.70	.18	62.20	„	
	12½ „	37.08	17.44	.76	.20	63.20	N. N. W.	MIDNIGHT. Moderate and cloudy.
	4½ P. M.	.....	.....	.76	.20	63.40	„	
3d	9 A. M.	.....	.....	.72	.22	64.30	Variable	A. M. fresh breeze and cloudy—4h. do.—6h. variable and cloudy with rain—8h. fresh breeze and cloudy with rain.
	10 „	.....	.....	.78	.24	64.30	N. N. E.	
	1 P. M.	37.13	21.31	.76	.20	64.10	N. by E.	NOON. Do. do.

TABLE *continued.*

From lat. 37° 13′ S. to 37° 10′
„ long. 21° 31′ E. to 27° 57′ E.

June 3d	3 P. M.	37.13	21.31	.76	.17	64 20	„	P. M. increasing breeze and squally—4h. fresh gales and fine with heavy following sea—6h. do.—7h. do.—8h. do. and fine—9h. 30. Strong gales and squally with heavy rain.
	6 „	.....	.....	.75	.16	65.00	N. N. W.	
	8½ „	.....	.....	.74	.10	67.10	„	
	12 „	.....	.....	.74	.10	67.40	N. W.	MIDNIGHT. do.
4th	5½ A. M.	.....	.....	29.86	28.30	65.00	N. W.	A. M., fresh gales and squally at times—2h. more moderate with lightning to southward—4h. moderate and fine—8h. squally.
	8 „	.....	.....	.96	.36	65.20	„	
	9½ „	.....	.....	.96	.36	66.00	„	
	12½ „	37.21	25.10	.92	.34	66.40	N. N. W.	NOON. fresh breeze and fine.
	1½ P. M.	.....	.....	.92	.34	66.40	NORTH	P. M. moderate breeze and fine—4h. do.—5h. variable and hazy—8h. light winds and hazy.
	3 „	.....	.....	.98	.32	66.40	„	MIDNIGHT. do.
	8 „	.....	.....	.97	.33	67.00	Variable	
5th	8¼ A. M.	.....	.....	.76	.28	66.20	„	A. M. light winds and hazy—4h. do.—8h. do. and hazy—11h. variable winds and thick fog.
	9 „	.....	.....	.78	.27	66.30	„	
	10 „	.....	.....	.78	.28	65.10	„	NOON. do.
	12½ „	37.10	27.57	.70	.12	64.40	W. N. W.	P. M. light variable winds and thick foggy weather—6h moderate breeze and hazy—8h. do.—10h. sudden shifts of wind to S. W. variable and cloudy with lightning to N. E.
	3 P. M.	.....	.....	.72	.12	64.40	N. by W.	
	4½ „	.....	.....	.70	.12	65.20	„	
	6 „	.....	.....	.78	. 9	66.00	„	
	8 „	.....	.....	.78	.15	66.00	„	
	8½ „	.....	.....	.76	.12	66.30	„	
	11½ „	.....	.....	.78	.20	65.00	S. W.	

TABLE *continued.*

From lat. 37° 15' to 36° 46'
" long. 31° 30' to 39° 15'

Date of observation.	Hour of observation.	Noon latitude.	Noon longitude.	Height of barom.	Height of sympes.	Height of ther.	Direction of wind.	Remarks on the weather, &c.
June 6th	6 A. M.	.....	.....	29.88	28.34	62.00	S.W. by S.	A. M. moderate and cloudy with lightning to E. and N. E.—4h. do.—8h. squalls with rain.
	8 "	.....	.....	.98	.38	61.10	WEST.	Noon, fine.
	12 "	37.15	31.30	.98	.38	61.20	W. by N.	P. M. moderate breeze and fine—4h. do.—6h. do—8h. moderate and fine.
	3 P. M.	.....	.....	30.00	.48	61.20	W. N. W.	
	6 "	.....	.....	29.98	.40	61.20	"	MIDNIGHT, cloudy.
	8 "	.....	.....	30.00	.38	64.20		
7th	8 A. M.	.....	.....	.00	.56	64.30	N.W. by N.	A. M. Increasing breeze and cloudy—4h. fresh breeze and fine—8h. do.
	12 "	36.50	35.27	29.98	.37	65.20	N. W.	NOON, fresh breeze and fine.
	3 P. M.	36.50	35.27	29.98	28.36	65.40	N. W.	P. M. fresh breeze and cloudy at times—6h. fresh breeze and fine—8h. do.—10h. squally and rain.
	4½ "	.....	.....	.96	.34	65.40	"	
	6 "	.....	.....	.96	.33	66.10	"	MIDNIGHT, do.
	8 "	.....	.....	30.00	.27	67.30		
8th	2 A. M.	.....	.....	29.53	.36	66.30	W. N. W.	A. M. fresh breeze squally and rain at times,—4h. moderate and fine—8h. squally.
	8 "	.....	.....	30.06	.50	65.40	"	
	10½ "	.....	.....	.14	.46	65.20	"	NOON, moderate and fine.
	12 "	36.46	39.15	.06	.42	66.10	"	
	3 P. M.	.....	.....	.04	.44	65.30	"	P. M. moderate and cloudy at times—4h. squally—6h. fresh breeze and cloudy—8h. moderate and fine,
	4½ "	.....	.....	.06	.44	65.10	"	
	8 "	.....	.....	.10	.48	65.20	"	MIDNIGHT, fresh breeze and fine.

TABLE *continued.*

From lat. 36° 35' S. to 37° 09'
" long. 43° 13' E. to 52° 39'

June 9th	8 A. M.	.....	.....	.14	.64	66.20	WEST	A. M. fresh breeze and cloudy at times—4h. moderate and fine—8h. do.
	10 "	.....	.....	.12	.53	64.20	"	NOON, fresh breeze and fine.
	12½ "	36.35	43.13	.08	.50	64.10	W. by S.	P. M. fresh breeze and fine—4h. more moderate—6h. moderate breeze and fine—8h. do.
	3 P. M.	.....	.....	.14	.50	64.10	"	
	4½ "	.....	.....	.14	.50	64.10	"	MIDNIGHT, do.
	7 "	.....	.....	.14	.50	66.20	"	
	9 "	.....	.....	.16	.52	66.20	"	
10th	8 A. M.	.....	.....	.14	.54	64.10	Variable	A. M. moderate breeze and fine—4h. variable and fine—6h. same—8h. variable and cloudy.
	12½ "	37.09	53.39	.12	.52	63.30	"	NOON, variable and hazy.
	3 P. M.	.....	.....	.10	.50	64.20	"	P. M. light winds and variable—4h. sudden shift of wind with rain—6h. variable and cloudy—8h. do.
	6 "	.....	.....	.10	.42	65.20	SOUTH	
	8 "	.....	.....	.12	.50	66.40	"	MIDNIGHT, moderate breeze and fine.
11th	8 A. M.	.....	.....	.06	.42	63.30	N.W. by N.	A. M. moderate breeze and fine—4h. do.—8h. fresh breeze and fine.
	10½ "	.....	.....	·06	.44	64.20	"	
	12½ "	36.39	49.31	30.00	28.36	65.10	N.W. by N.	NOON, fresh breeze and fine.
	3 P. M.	.....	.....	29.96	.36	65.30	"	P. M. do.—4h. do.—6h. do.—8h. strong breeze and fine.
	6 "	.....	.....	.95	.34	65.20	"	
	8 "	.....	.....	.93	.33	66.00	"	MIDNIGHT, fresh breeze and squally.
12th	8 A. M.	.....	.....	.88	.28	64.10	"	A. M. fresh breeze and cloudy—4h. do—8h. do. fresh breeze and fine.
	10 "	.....	.....	.86	.28	64.40	"	
	12 "	37.09	53.39	.82	.24	65.20	"	NOON, do.

TABLE *continued.*

From lat. 37° 09' S. to 37° 26' S.
,, long. 53° 39' E. to 61° 27' E.

Date of observation.	Hour of observation.	Noon latitude.	Noon long.	Height of barom.	Height of sympes.	Height of ther.	Direction of wind.	Remarks on the weather, &c.
June 12th	3 P. M.	37.09	53.39	29.82	28.22	65.20	N.W. by N.	P. M. do.— 4h. do. increasing breeze and fine— 7h. 30. fresh breeze and fine.
	6 ,,	.....	.....	.76	.20	65.00	,,	
	8 ,,	.....	.....	.74	.12	67.00	,,	MIDNIGHT, fresh breeze and fine.
	9 ,,	.....	.....	.70	.05	68.00	N. N. W.	
13th	12½ A. M.	.....	.....	.66	.06	66.20	N.W. by N.	A. M. strong breeze and cloudy—4h. do.— 6h. increasing breeze.
	7 ,,	.....	.....	.56	.00	65.30	,,	NOON, strong gales and heavy sea.
	8 ,,	.....	.....	.56	27.98	65.10	,,	P. M. strong gales with heavy rain and sea—4h strong gales and squally at times—6h. do. 8h. do.
	9 ,,	.....	.....	.54	.97	65.30	,,	
	2¼ P. M.	37.37	57.59	.40	.88	68.00	,,	
	5¼ ,,	.....	.....	.40	.84	67.30	,,	MIDNIGHT, strong gales and heavy squalls.
	6½ ,,	.....	.....	.36	.78	68.00	,,	
	8 ,,	.....	.....	.35	.77	68.00	,,	
	11 ,,	.....	.....	.30	.74	67.30	,,	
14th	3 A. M.	.....	.....	.25	.68	67.30	N. W.	A. M. strong gales and heavy squalls at times— 4h. do. ship hove to, from the strength of the gales—8h. strong gales—9h. more moderate.
	8¼ ,,	.....	.....	.32	.86	67.10	,,	
	9½ ,,	.....	.....	.38	.86	62.00	,,	
	10½ ,,	.....	.....	.43	.94	62.30	W. by N.	NOON, fresh breeze and cloudy.
	12 ,,	37.26	61.27	.38	.90	62.10	,,	P. M. fresh breeze and fine—4h. do.—6h. cloudy —8h. moderate and cloudy with lightning to N.E.
	1 P. M.	.....	.....	.40	.92	62.30	WEST	
	3 ,,	.....	.....	.42	.94	60.40	,,	MIDNIGHT, squally appearance to W.

TABLE *continued.*

From lat. 37° 26' S. to 33° 08'
,, long. 61° 27' E. to 71° 06'

14th	4 P. M.	37.26	61.27	29.48	27.94	62.00	WEST.	
	6 ,,	.....	.....	.48	.94	61.20	,,	
	8 ,,	.....	.....	.50	.96	62.20	,,	
15th	8 A. M.	.....	.....	.66	28.17	58.00	Variable	A. M. cloudy.
	9 ,,	.....	.....	.64	.18	59.00	,,	NOON, squally with rain.
	12 ,,	Sun.	.....	.62	.14	59.20	,,	P. M. fresh breeze and fine—4h. heavy, squally and rain—6h. severe squally.
	3 P. M.	Invisible	.....	.66	.16	57.20	WEST.	
	8 ,,	.....	.....	.68	.17	57.20	,,	
	9½ ,,	.....	.....	.70	.18	57.40	,,	
								A. M. strong breeze and fine.
16th	7 A. M.	.....	.....	.84	.36	53.40	,,	P. M. fresh breeze and squally at times—4h. squally with rain and hail— 8h. moderate and cloudy—8½h, squally.
	8 ,,	.....	.....	.90	.37	54.10	,,	
	11 ,,	.....	.....	.94	.58	58.10	,,	
	3 P. M.	.....	.....	.94	.50	57.10	W. by N.	
	4¼ ,,	.....	.....	.98	.48	55.20	,,	
	6 ,,	.....	.....	30.00	.52	55.20	,,	
	8 ,,	.....	.....	.04	.54	55.20	W. S. W.	
17th	8 A. M.	.....	.....	.26	.70	53.40	S. W.	A. M. moderate.—8h. cloudy.—9h. squally with rain.
	10 ,,	.....	.....	.30	.76	53.20	,,	NOON, moderate breeze and fine.
	12 ,,	33.08	71.06	.28	.70	54.20	,,	P. M. moderate breeze and fine—4h. squally.— 6h. cloudy—8h. squally and rain.
	3 P. M.	.....	.....	.30	.76	55.10	SOUTH.	
	6 ,,	.....	.....	.38	.81	55.00	,,	
	7¼ ,,	.....	.....	.40	.82	56.40	S. S. E.	

TABLE *continued.*

From lat. 31° 02' S. to 25° 27'
„ long. 73° 53' to 76° 27'

Date of observation.	Hour of observation.	Noon latitude.	Noon long.	Height of barom.	Height of sympies.	Height of therm.	Direction of wind.	Remarks on the weather, &c.
June 18th	8 A. M.	.....	.....	[illegible]	[illegible]	55.10	S. S. E.	A. M. squally with light rains—4h. fine—8h. fresh
	10½ „	.....	.....	.52	.97	55.40	„	breeze and squally.
	12½ P. M.	31.02	73.53	.50	.93	58.10	S. E.	NOON, do. do.
	6 „	.....	.....	.46	.86	59.20	„	P. M. do. do. all night.
	8 „	.....	.....	.48	.92	58.40	„	
	9½ „	.....	.....	.48	.90	58.40	„	
19th	8 A. M.	.....	.....	30.45	28.86	59.40	E. S. E.	A. M. strong breeze and heavy squalls—8h. do.
	10½ „	.....	.....	.44	.84	61.40	S. E.	do.
	12 „	27.59	75.17	.40	.77	63.10	„	NOON, do. do.
	3 P. M.	.....	.....	.40	.76	64.40	„	P. M. do. do. all night.
	6 „	.....	.....	.42	.74	63.10	„	
	9 „	.....	.....	.40	.74	63.10	„	
20th	8 A. M.	.....	.....	.30	.64	64.00	Variable	A. M. Fresh breeze with heavy squalls and rain
	3 P. M.	25.27	76.27	.26	.54	67.20	S. E.	at times—8h. do.
	6 „	.....	.....	.22	.52	67.20	„	NOON, do.
	8 „	.....	.....	.22	.52	67.40	„	P. M. fresh breeze and squally—4h. do.—6h. do.
								—8h. do. with rain.
	9 „	.....	.....	.20	.52	67.40	„	MIDNIGHT, strong breeze and squally.
21st	6½ A. M.	.....	.....	.10	.46	67.20	„	A. M. strong breeze and squally with light rain
	8 „	.....	.....	.16	.46	68.00	„	continued till
	10 „	.....	.....	.16	.48	69.00	„	NOON and

TABLE *continued.*

From lat. 22° 09' to 12° 07'
„ long. 78° 25' E. to 79° 55' E.

June 21st	12½	22.09	78.25	.08	.42	70.10	S. E.	P. M. till 6h. more moderate—8h. fresh breeze and cloudy.
	3 P. M.	.....	.....	.08	.40	69.40	„	MIDNIGHT, do.
	6 „	.....	.....	.08	.40	69.40	„	
	9 „	.....	.....	.08	.40	69.40	„	
22d	6 A. M.	.....	.....	.12	.44	69.40	„	A. M. fresh breeze and cloudy at times.
	8 „	.....	.....	.14	.46	70.20	„	NOON, fresh breeze and fine.
	10½ „	.....	.....	.16	.46	71.40	„	P. M. do.—6h. do.—8h. fresh breeze and cloudy—
	1½ P. M.	18.41	78.58	.10	.38	72.30	S. E. by E.	10h. squally.
	3 „	.....	.....	.10	.37	72.40	„	MIDNIGHT.
	6 „	.....	.....	.16	.42	72.40	„	
	9 „	.....	.....	.18	.38	73.00	„	
23d	8 A. M.	.....	.....	.12	.32	74.30	„	
	1 P. M.	15.11	79.23	.04	.26	75.10	Variable	A. M. strong breeze and squally at times—
								8h. do. but fi .
								NOON, do. do.
	3 „	.....	.....	.00	.22	73.40	„	P. M. do.—4h. do.—6h. more moderate.
	6 P. M.	15.11	79.23	30.94	28.[illegible]6	75.10	Variable	P. M. moderate breeze and cloudy.
	9 „	.....	.....	.08	.26	76.00	S. E. by E.	MIDNIGHT, do. do.
24th	8½ A. M.	.....	.....	.08	.22	77.00	S. E.	A. M. moderate and fine—8h. do.
	2½ P. M.	12,07	79.55	.02	.16	78.00	„	P. M. do.—4h. squally and light rain—6h. fresh
	3 „	.....	.....	.00	.16	78.00	„	breeze and cloudy—8h. do.—11h. squally.
	6 „	.....	.....	.03	.16	78.20	„	MIDNIGHT, squally and rain.

TABLE *continued.*

From lat. 8° 33' S. to 4° 21' S.
" long. 80° 07' E. to 80° 07' E.

Date of observation.	Hour of observation.	Noon latitude.	Noon longitude.	Height of barom.	Height of sympes.	Height of ther.	Direction of wind.	Remarks on the weather, &c.
June 24th	9 P. M.	.....	.....	30.06	28.17	78.00	S. E.	A. M. fresh breeze and squally, and rain at times—8h. fresh breeze and fine.
25th	8½ A. M.	.....	.....	.02	.15	79.00	"	
	9½ "	.....	.....	.03	.12	79.20	"	
	12 "	8.33	80.07	.00	.10	80.10	"	Noon, do.
	3 P. M.	.....	.....	29.92	.04	80.20	Variable.	P. M. variable winds and fine.—4h. variable winds and cloudy.
	6½ "	.....	.....	.98	27.98	80.30	"	
	9 "	.....	.....	30.02	28.08	81.00	"	Midnight, squally.
26th	8 A. M.	.....	.....	29.98	.06	81.30	N. E. by E.	A. M. lt. winds—3h. squally with rain—8h. lt. breeze.
	10½ "	.....	.....	.98	.06	82.10	"	Noon, cloudy.
	1 P. M.	5.55	80.11	.90	.04	80.40	"	P. M. light winds and cloudy with rain—6h.
	3 "	.....	.....	.88	.02	81.20	Variable.	cloudy with rain—8h. variable winds and cloudy.
	6½ "	.....	.....	.94	.08	80.20	"	Midnight, light winds and cloudy, with rain,
	10 "	.....	.....	.98	.12	79.40	"	heavy lightning to southward.
27th	8 A. M.	.....	.....	30.00	.08	82.00	"	A. M. light variable winds with lightning
	12 "	4.21	80.07	29.96	.04	82.20	"	—8h. do.
	3 P. M.	.....	.....	.94	.00	82.40	E. by S.	P. M. light breeze and sultry.—4h. do.
	6 "	.....	.....	.96	.02	82.20	"	—6h. do.—8h. do.
28th	8½ A. M.	.....	.....	.98	.04	83.30	"	Midnight, do.
								From latitude 2° 34' longitude 80° 50' E.
28	10½ A. M.	.....	.....	.98	.04	83.40	E. by S.	A. M. light winds and fine, 8h. do.
	12½ "	2.39	80.50	.92	27.98	83.30	"	Noon, do.
	3 "	.....	.....	.88	.94	84.20	"	P. M. do.
	6 "	.....	.....	.92	.98	84.20	"	
	9 "	.....	.....	.96	.96	83.40	"	

III.—*Description of a Raft for saving Shipwrecked persons.*—By LIEUT. CONGREVE, *Madras Artillery.*

To the Editor of the Madras Journal of Literature and Science.

SIR,—The numerous disasters which occur to vessels in the Indian seas render it very desirable that some plan be introduced by which those on board may have it in their power to quit the ship in safety, as soon as all hope is abandoned of saving her: the crew on such occasions generally fly to the boats which from being overloaded are not unfrequently swamped, if they have previously succeeded in getting clear of the hull of the broken vessel without being stove in, and the method of putting rafts together from the timbers and spars of the ship is so very precarious and consumes so much valuable time, that in one of the hurricanes which are experienced in these parts without some more certain and speedy method of extricating themselves from a wreck, the unfortunate sufferers on board have but a very narrow chance of escape. Captain Manby's apparatus was found to answer all the purposes expected of it in saving shipwrecked crews, but it is only practicable on the coast and in situations where a communication may be had with the shore, and as I have never seen any plan made use of by our cruisers or merchantmen to effect the object in view, I may venture for want of a better, to recommend to public notice the following method of saving the crews of wrecked vessels by means of portable folding rafts.

These rafts should be constructed 24 feet square, of 12 planks, each 24 feet long by 2 broad, the whole shutting up by means of hinges into a compact pile which, taking the thickness of each plank at 2 inches, would occupy but a very small space on deck—the under surface of each plank ought to be armed with three loops or hoops which close into a groove in the plank on a rolling hinge, in order to be out of the way when the raft is not made use of and folded up—these clasps are meant to receive three sleepers, the breadth of each being one third that of a plank; thus they will lie compactly on, and form an upper tier to the pile when it is put aside.

In making use of the raft all that is called for is to draw it from the corner in which it has been stowed away in company with its fellows in sufficient number to sustain the whole crew—to remove the three sleepers—open out the folds or planks—then the hasps—pass the three sleepers through the three lines of them, and cast away.

It is calculated two minutes and a half, or three at the very utmost, would be ample to effect all this, and moreover that six rafts of the

described dimensions would support the crew of a thousand ton ship. Each raft when packed would occupy a space 24 feet long by 2 high and 2 broad, which being so inconsiderable might be taken from the quarter deck, and immediately under the bulwarks, where the whole of the equipment might lie entirely out of the way, and in nowise interfering with the working of the ship. Three ropes having their ends fastened in the loops of the lowest plank may be carried over the raft and fastened to the opposite side, to add to the security to those on board in giving them something to cling to, they would also serve to tie up the planks with, when they are shut up. There is no chance of the hinges giving under the pressure of the superincumbent weight as those parts of the planks to which they are fastened rest upon the sleepers. I add a plan of the platform under different views, and half a sheet of foolscap doubled up in reverse folds in illustration of the principle of the contrivance, which may be also applied to military purposes.

IV.—*Plan of a Machine for dredging the Paumban Passage.—By* Lieut. Congreve.

To the Editor of the Madras Journal of Literature and Science.

Sir,—If you view the accompanying plan of a machine for dredging the passage through the horse shoe sand bank at Paumban, not entirely undeserving of a place in the Madras Journal of Literature and Science, I would feel obliged by your finding room for it therein.

The machine, to the best of my judgment, possesses some claim to originality, for although the common dredging apparatus employed by civil engineers at home, and worked by steam, consists in a succession of buckets attached to a revolving chain, the position of these vessels has, I suspect, never hitherto been so arranged, that, their contents, on being discharged, shall aid the movement of the engine.

It is incumbent on me to mention, that the plan was originally submitted to the Board of Revenue, but objected to by that body, owing to a still simpler contrivance having been already adopted for clearing out the canal through the bank.

The subjoined extracts from my letter, I apprehend, will be sufficient to convey a just conception of the merits of my contrivance, though I am concerned that the little leisure I at present enjoy precludes me from entering more fully into its details.

"The current runs through the passage in the Paumban sand bank with the rapidity of a mill race, and I conjecture would impart motion to the largest description of water wheel, and most effectually surmount any resistance opposed to its revolution by the sand and silt, it might come in contact with in the bed of the channel, I therefore recommend that three rafts, constructed on country boats, be moored across the channel, one on either hand, and the third midway, and that scaffoldings be erected upon them of sufficient strength to sustain two water wheels armed with spades or shovel leaves, which, in their revolution, will dig into the silt at the bottom and bring it up with them; the contents of these vessels in the shape of sand, silt, and rubbish, on being discharged into lighters moored behind the wheel, will in the descent from one leaf to the other, after passing the vertex, materially aid the rotatory motion of the wheel, which may be further increased, if necessary, by manual labour, on the rafts, applied to a double wynch bent in the prolongation of the iron axis of the wheel: the flat bottom of the shovels, which are fixed at a trifling inclination to the spokes, and in the direction of the current, offer that measure of resistance to the stream requisite to convey motion to the wheel independent of the foregoing additional powers.

The apparatus may be otherwise disposed, by a single wheel being let into the deck of the raft, where it will play between the boats that support the platform; it thus becomes more locomotive, and offers no obstacle to the navigation of the passage by the country vessels during working hours."

Palamcottah, August 23, 1838.

V.—*Observations on Suspension Bridges, with a Plan.—By Lieut.* C. C. Johnston, *Madras Engineers.*

Suspension Bridges are particularly adapted to the traffic in this country, as they are never likely to be strained with very heavy loads. The expence of their construction would not exceed half that of masonry bridges, and a very great advantage to be derived from them is, that they may be erected at any time, without regard to the quantity of water in the river. This remark applies only to bridges averaging 100 feet span, for any thing beyond that, it would be advisable to have one pier (or more as the case may be) in the bed of the river. The following calculation is made for

a bridge of 90 feet span and 8 feet breadth of road-way, and the strength proportioned to the greatest weight that could be brought on the bridge at one time, i. e. supposing it to be crowded with people, and allowing 2 square feet of platform for each person, or 70-lbs. per square foot. This is far beyond the average weight of people in this country, and the bridge is never likely to be so laden.

Calculation for an Iron Suspension Bridge.

Span 90 feet—deflection of main-chain 1-15th of span = 6 feet—then length of curve chain

* square root of $\left(\text{deflec.} \times \frac{\text{deflec.}^2}{3}\right) \times \text{semi-chord}^2$ square root of 2089 = 45.7 × 2 = 91.4 feet.

Tension at suspension piers.

square root of $\frac{(\text{semi-cord}^2 + {}^2\ \text{deflec.}^2) \times \text{suspd. wt.}}{4\ \text{deflection.}} = \frac{\text{wt.}}{24}$ square root of 2169 = 1.93 times wt.

Sine of the angle of direction of the chains.

Square root of $\frac{2\ \text{deflec.}}{(2\ \text{deflec}^2 + \text{semi-chord})^2} = \frac{12}{\text{square root of } 2169}$ = .257 and cosine = 0.966.

Do. of back stays do. do. do. nearly.

Tension at the middle in parts of suspended weight

tension of extremity × cos. of angle of direction = 1.864.

Suspended Weight.

Planking for road-way

90' × 8' × $\frac{1}{6}$ = 120 cub. feet at 40-lb. per cub. foot = 4800

earth for road-way

90' × 8' × $\frac{1}{4}$ = 180 do. at 120 do. = 21.600

bridge crowded with people.

90' × 8 × = 720 square feet at 70 do. = 50.400

15 cross beams to support planks.

each 10' × $\frac{1}{3}$ × $\frac{1}{6}$ = 8$\frac{1}{3}$ cub. feet at 40 do. = 333.3

30,$\frac{1}{2}$ inch diameter vertical suspending rods mean length 3 feet.

$90 \times \frac{.7854}{24^2}$ = 107 square feet at 480 do. = 51.36

77184.66 or say 34 tons for the suspended weight exclusive of the main chains then

$$\frac{\text{weight exclusive of main chain} \times \text{tension due to deflec.}}{9\ (\text{length of chains} \times 0.00148 \times \text{tension}} = \frac{34 \times 1.93}{91.4 \times 0.00148 \times 1.93)} = 7{,}5$$

square inches of section for main chains.

The weight of 7.5 square inches of iron 91.4 feet long = (7.5 × 00148 × 91.4) =

* See Drewry on Suspension Bridges.

1.01 tons weight of main chains.

Total suspended weight = 34 + 1.01 = 35.01 tons which × 1.93 = 67$\frac{1}{2}$ tons.

The stretching strain of 7$\frac{1}{2}$ square inches = 7$\frac{1}{2}$ × 9 tons = 67$\frac{1}{2}$ tons.

In large bridges constructed in England and elsewhere it is usual to allow one and one-fourth or 1$\frac{1}{2}$ times the section given by the foregoing formula, but this I imagine is chiefly to provide against the great vibration which there must necessarily be in those large bridges, but in this country it would be superfluous. This calculation allows for a much greater strain than is ever likely to be on the bridge at one time.

Measure of horizontal draw and vertical pressure. Horizontal pull inwards =

tension × cos. of direction of chains = 1·93 × .966 = 1.864.

Do. outwards.

tension × cos. of direction of back stays do. do. nearly.

When the back stays are carried at the same angle, or nearly so, as the chains, which is the best direction as then the horizontal draw equal each other leaving very nearly a vertical pressure on the main piers, which will be equal to tension × cos of direction = (35.01 × 1.93) × 257 = 17.34 tons, which multiplied by two (the vertical pressure of the back stays being the same) = 34.68 tons.

Mr. Drewry speaking of the strength of the abutments or retaining piers, says their weight should not be much less than equal to twice the utmost strain that can be brought on the chains by dead weight, and their total resistance (i. e. weight and resistance of adhesion combined) should be at least equal to four times the utmost strain.

Method, of calculating the strength of the cross-beams to support road-way.

$$\text{cube root of } n. \times \frac{\text{length between supports in feet} \times \text{suspended weight}}{260 + 2} = \text{but}$$

since when the load is uniformly distributed over the length of a beam it supports double the weight, that it would do, if the load were laid on the middle, we have

$$\text{cube root of } \frac{n = \times 8 \times 2538.65 =}{520} \text{ cube root of } 117.1 = 4.85 \text{ depth,}$$

say and $\frac{4.85}{3}$ = 1.6 breadth.

The breadth *n* bearing a certain proportion to the depth in this case ⅓ so that 4'' deep by 2'' broad would be ample for the strength of these beams.

The platform may be supported by two single chains made of wrought iron bars of any length, and 2'' diameter would be quite sufficient for this bridge, or the best plan would be to let each chain consist of four

parts of 1" diameter and bolted together at the ends as shewn in the plan. The suspension piers may of course be made of any material according to circumstances—if of wood, it would be advisable to furnish the top of the pier with an iron plate, to prevent its destruction by the friction of the chains.

The method of fastening the ends of the chains will be seen by reference to the plans, but the strength of the masonry will of course depend entirely on the nature of the ground, as also of the bridges, whether for bandies or foot passengers only. The bolt connecting pins should be 2" in diameter and the vertical suspending rods may be of ½" iron as the strain on them will be very slight. The method of fastening the chains as shewn in fig. 5 is preferable to that shewn in fig. 4, as the strain upon the connecting bolt will be more even—or perhaps that shewn in fig. 7 will be the best, for should the chains stretch they will only tighten the iron binding straps, and avoid the necessity of welding which is very indifferently done by native workmen, unless well superintended.

The platform consisting of 2" planking is laid upon and fastened to cross beams, 10 feet × ⅓ × ⅙ supported by the vertical rods which pass through them, and are secured with bolt pins of ¾ inch diameter—a few inches of earth may be laid on the planking.

To determine the transverse strength for the wrought iron retaining bolts.

cube root of $\frac{\text{strain in lbs.} \times \text{length of bolt in feet}}{1{,}600}$ = cube root of $\frac{37800 \times .25}{1{,}600}$ = cube root of 5.9 = 1¾ inches nearly.

A good plan for the road-way of a light bridge is (earth being very heavy) to fasten down iron plates for the wheels to run on, as shewn in fig. 1.

From numerous experiments made by Mr. Drewry and others, it has been found that malleable iron bars will stretch slightly at 10 tons per square inch. Although the stretching is almost imperceptible, however, 9 tons per square inch is allowed as the strain that the chains of suspension bridges will bear continually without injury, and if made of wire, 10 tons per square inch. I should say 12 or 14 tons may be safely allowed for the chains of suspension bridges in this country.

Estimate for Bridges.

Allowing 30 feet for the length of each back stays,
then (7½ × .00148 × 60) = .531 = 1189.4 lbs.
Chain between piers = .101 = 2262.4
Vertical suspending rods = ——— 51.36 lbs. at
20-lbs. per rupee—175 about

Planking 120 cubic feet } = 128¼ at 1 rupee per cubic foot, 128¼
Cross beams 8⅓ do. }
Allowing 50 cubic feet for parapet do. do. 50
2 abutments each 4¼ × 5¼ × 10½ = 245 7/16 × 4 = 981¼
4 blocks of masonry for ends of chains each } 6 × 3 × 3½ = 63 × 4 = 252
Total cubic feet 1233¾ at 1⅓ anna per cubic foot } 165 5/16
Excavating foundation 20 × 10 × 5 = 1000 c. ft.—at 3 pice pr. f.—15¾
Making chains do.
Do. planking do. } The cost of workmanship for the chains will vary very considerably, and will be very little, particularly if each chain is 15 or 16 feet long. The data for masonry also vary in every part of the country.

The trials that I have had the opportunity of making on suspension bridges, are of course very limited, but at the same time quite sufficient to convince me of their practicability and very great value in this country. In a small bridge, constructed on the principle recommended by Captain G. Underwood of the Engineers, (see No. 18 of the Madras Journal) of 30 feet span, and 4 feet road-way, the main chains consisted each of three wires of 1-10th inch diameter, and giving a sectional area of .0471 square inches, and allowing ten tons per square inch for the bearing weight gives .471 tons = 1055.57-lbs. this bridge I loaded with planking 30' × 4' × 1-6 = 20 cubic feet at 40-lbs. per cubic foot = 800-lbs., and then walked over it several times, the vibration was of course very great, from the bridge being so light, but it was perfectly strong. I afterwards loaded it to considerably upwards of half a ton before its giving way.

I then constructed a bridge of the same dimensions, and supported the platform on chains, each of one iron bar of ¼ in. diameter, giving a sectional area of .0981 square inches, and allowing 9 tons per square inch for the bearing weight, gives .8829 tons or 1977.69-lbs. This was also loaded with the same weight, of planking as the last, viz. 800-lbs. and covered with earth to 30 × 4 × 1-12 = 10 cubic feet at 170-lbs. = 1700-lbs. making a total of 2500-lbs. which is considerably above the bearing strain allowed: this weight the bridge has borne for many weeks, and is still standing in perfect order. Being obliged to leave the place where I was making these trials, I am unable to say anything further on the subject, but trust that these few observations may assist in promoting the construction of such very valuable, practicable, and cheap bridges, so particularly adapted to this country.

VI.—*On the Lateritic Formation.*—By John Clark, Esq., M. D. *Asst.-Surgeon H. M. 13th Dragoons.*

Geology, although one of the last of the sciences which engaged particularly the attention of the world, was the first in the order of creation. Before the varied tribes of animals were called into existence, and before the tender herb and scented flower burst forth into life and beauty, the earth was lying in darkness, without form, and void—a chaos—in the language of the poet, a kneaded clod or a congregation of vapours. What the condition of our globe was, when it first came from the hands of an Almighty Being, neither Scripture nor science disclose—we know this only, that the spirit of God moved upon the face of the waters—the everlasting fiat went forth that it should become a fit habitation for the creatures of an after formation, "and it was so." This expression "and it was so," looks almost as if written in anticipation of the scepticism which doubts and disbelieves every thing not of earth and like itself earthly, and the philosophy which endeavours to penetrate even the mysteries of space.—These are the dark things of the earth upon which no light cometh, and it is to such subjects that we can truly apply the words "His ways are past finding out."

Our theories in the science of geology have been much in advance of our facts. Instead of looking minutely into nature and interrogating her, and on the inductive principle listening to her still soft voice, we have had recourse to theories, and piled one upon another as lofty and indistinct as the mountains themselves whose formations we have endeavoured to explain. The two elements of fire and water have been advanced to account for every thing in heaven and earth and below the earth. In the days of Werner the watery theory covered the earth like a flood, but its popularity ebbed and flowed, and, like the waters of the flood, it has since "decreased continually." The subsidence of the aqueus theory has been in some measure owing to the elevation of the igneous or plutonic, the followers of which are now "lights in the firmament" of the science. However much water and the other element of fire may have contributed to alter the face of nature, they are to be considered more as disturbing than creating agents, and as such have been over-rated: whilst electricity, electro-magnetism, &c. &c. have been in some degree over-looked, but not altogether, the investigations on these points becoming daily more interesting.

These remarks are but a prelude to the consideration of other agents in the alteration or re-formation of many of the present rocks, and amongst

these, that of the laterite, which, as Mr. Cole observes, may be considered the opprobrium of Indian geology. The agents alluded to, are *oxydation* and *decomposition.* Linnæus long since defined the three kingdoms of nature as follows—*Mineralia crescunt, Vegetabilia crescunt, et vivunt, Animalia crescunt, vivunt et sentiunt.* This definition claims like many others more credit for brevity than correctness, for although minerals may grow and increase, they have a greater tendency to decompose and crumble away.

The whole creation obeys this law of death or dissolution; withdraw from the animal world the principle of life, and the creature dies: and allow certain agents to act upon the solid rock, and it becomes soft, decomposes, falls into earth, or forms new compounds.

The mineral kingdom, from not possessing that vital principle which opposes itself to the destructive elements around, is more susceptible of changes, and more liable to decompose. It has not that plastic life, that adhesive living principle to resist the dissolving agents. These agents are many, as heat, cold, moisture, &c. &c. but a greater than even these, is that wide spreading process of oxydation, which is daily and hourly working changes over the whole mass of earth. Here I may mention another difference between the three kingdoms of nature, in the influence of oxygen upon them; in the vegetable and animal kingdom it is the principle of nutrition and life, in the mineral, it is that of decomposition and destruction; inhaled by the animal, absorbed by the vegetable, and attracted by the mineral, its effects are most opposite, supporting and invigorating the two first, and corroding and destroying the last. It is to this oxydising agency that many changes on the earth's crust are owing, and its constant operation has, in the lapse of ages, altered the face of the earth, and produced a state of things generally referred to other causes, much more energetic, but not so unvarying and progressive. As previously observed, it is impossible to penetrate the mysteries of creation, or catch nature as it were in the act; but it is easy to watch her in her decay and decomposition, and that which the chemist accomplishes by experiment, nature does for us by decomposition. Now although the mineralogist values only those specimens of rocks which are perfectly free from decomposition, the geologist gains much knowledge from the study of decomposing rocks. By obtaining them in different stages, he sees the passage of one formation into another, and is not guided by *cabinet* councils, like the mineralogist, but interrogates nature and thus becomes an interpreter of her mighty works. It is often only in decomposition, as far as the eye is concerned, that the real nature of a rock is discovered; this is well shown in some of the very small

grained granites and hornblende rocks on their decomposing edges. The mere process of decomposition alone, it may be imagined, not taking into consideration other agents, can be better studied in such a country as India, where primitive formations abound, to the almost total exclusion of others. In both Europe and America aqueous and igneous action are in operation, but in India, or rather in that portion now alluded to, no volcanoes are in active existence, no inland seas or lakes worthy of the name are depositing; oxydation and decomposition are in almost undisturbed possession, and rioting like the worm, slowly but surely. To one who has visited both the new and old world the contrast afforded is very striking; the one abounding in rivers and lakes of vast extent, the land emerging as it were gradually from the giant embrace of the deep, fresh and blooming and prolific; the other, of which India is a part, having scarcely any fluid on its surface, dry, parched, wrinkled, and "blasted with antiquity." India even now just looks as if it had never risen from under the curse attached to all creation on the fall of man, lying prostrate and stricken, and the decomposition that is going on, is only in accordance with that same curse which consigned all things to decay.

It is now time to enquire what are the circumstances which give a tendency to decomposition. The grand fundamental rock in India, and perhaps over the greater part of the old continent, is a granite containing hornblende; but besides this sienitic granite, hornblende rock, or primitive trap, is found constantly associated with it, and these two occupy immense tracts, to the exclusion often of other rocks. The peculiarity of hornblende is the quantity of iron entering into its composition; this is so great in some parts of India that Dr. Heyne remarks he would be disposed to call it ferrulite. The iron in the hornblende attracts oxygen, and the rock is loosened, and decomposes easily. This tendency to decomposition in sienitic granite compared with simple granite, was long since remarked by Heyne, in his *Statistical Sketches*. The ferruginous character of hornblende is therefore established, and it is to the decomposition of rocks containing much hornblende that Dr. Benza refers the formation of lithomargic earth. This talented observer, whose writings have tended to diffuse a taste through the Presidency for geological studies, and to whose researches we all owe so much, has been puzzled to account for the decomposition of rocks containing hornblende into lithomarge on the Neilgherry Hills (he might have added Coorg and the Western Coast), and not in other localities in India, where such rocks abound. In even hinting at an explanation, he is doubtful whether to refer it to the present agency of cold, frost, &c. &c. which are in constant operation on those hills, or to actions long since past. In the 12th Number of this Journal will be found a paper by Mr. Cole, in which he states with great clearness the variety of opinions entertained upon the formation of the laterite, and where he calls upon those who may have traversed the localities where it abounds, to give their ideas thereon. Having lately visited Coorg, the Neilgherries, the Western Ghauts and Coast, I have been led in the present paper to record my very humble views.

To the excellent paper of Mr. Cole, I refer those interested on the subject, for the descriptive characters of the laterite, and for the many ideas entertained on it by all Indian geologists. It is by an *analysis* of what is written that we can alone discover what is truly known, and in this way truth gets filtered from all erroneous impurities. As the decomposition of rocks containing much hornblende into lithomarge is not confined to the Neilgherries, but takes place on the western coast, and in many places in Mysore, besides other localities where cold and frost and elevation do not operate, we must look to other causes, different to those hinted at by Dr. Benza. I think it will be observed, that where lithomarge and laterite abound, for they are frequently associated, the rocks whose decomposition form these two states, are ferruginous—veins of iron ore are found imbedded in both, and the quartz, entering into the formation of these rocks, is at the same time highly ferruginous. This greater proportion than usual of iron in the rock would dispose quickly to its decomposition, and account for a bed of laterite or a small hill of lithomarge without calling in the assistance of frost, elevation, &c., or the hidden and disturbing forces of by-gone centuries. All along the western coast, near Cannanore, lithomargic hills and lateritic rocks are associated, and even the passage of one into the other is sometimes seen, as in the lithomargic earth on the Neilgherries, an excellent specimen of which is preserved. Some short time after I began to see the connection between the lithomargic and lateritic formation, I was gratified by reading a remark of Dr. Heyne, where he says, lithomarge is a sure sign of being near a bed of iron-stone. It would be perhaps as difficult to define the characters of lithomarge as laterite; and here again is another point in common; for as both are the result of decomposition, they must vary much in appearance. Hence no two authors agree in their description of the widely diffused laterite. The laterite of one is scarcely that of another, and the specimens from one locality differ much from those of another. This might arise either from a greater or less proportion of iron, and the oxydation thus resulting, or it might be referred to the preponderance of the quartz over the felspar, or the felspar over the hornblende. A rock consisting principally of hornblende and felspar, I imagine would decompose into lithomarge, and one containing

a larger proportion of quartz into laterite. Quartz being more difficultly indecomposable, being almost as it were the undying portion of the rock, forms a nidus or nest—it constitutes the more solid ingredient, and the felspar and hornblende the softer portion. In almost every specimen of either lithomarge or laterite, small crystals of quartz are found; and here is another striking similarity—these crystals being the only parts of the original rock resisting decomposition. As in some measure a proof of the views now entertained, I may refer to the decomposed rock of which the Conoor bridge on the Neilgherries is built—it appears to be in that medium state between lithomarge and laterite; it is quite solid, and, although not cavernous, has much of the appearance of laterite. It is a rock exemplifying the fact of catching nature in the act, not, of course, of formation, but of decomposition. It is in that medium condition, where a further decomposition would have produced a lithomarge, or a preponderance of quartz would have given it all the decided characters of laterite. I am endeavouring to prove the connection between lithomarge and laterite, and to shew, that the cause which leads the original rock to decompose into either of these conditions is the same. Wherever laterite is found in great abundance the hills are of a rounded and lithomargic character, and there is a peculiar family likeness between the rounded hills of Coorg, the Neilgherries, Manantoddy above the western ghauts, and all the hills from the bottom of the ghauts to the sea—from the foot of the Heggula pass to within a mile or so of Cannanore. The greatest victory to be gained by science in the field of nature, is through arrangement; but the error daily committed, is that of seeing order and arrangement where such do not exist, of laying nature down, and fixing her there by means of a little gum and water. I have no arrangement of lateritic rocks to offer, and would not be justified in even attempting to form one, as it requires more extended observation and more science than I possess; but I might perhaps venture to arrange those in my possession into the *lithomargic* and the *quartzose*. It is as well here to remark, that in the lithomargic kind quartz is not excluded—in the last it is the principal ingredient. The cavernous, tubular structure of laterite is one of its peculiar features, and the consideration of the cause or causes leading to this state may in some manner explain my views. I was long puzzled to account for it except in one way—the falling out of the decomposed felspar: but in those specimens of the harder and more quartzose kind, and where it approached in a certain degree to a sort of iron-stone, and no felspar seemed to enter into its formation, I was much at a loss for an explanation. There are two modes, besides the one alluded to, in which this

appearance may be accounted for. The first may be shewn in the following manner. A rock containing a large proportion of quartz decomposes: the softer parts crumble into earth, or form a red ochreous cement, which binds together the quartz in a state of pebble, and ferruginous from the infiltration of oxyde of iron—this, after a time, when broken into, has a somewhat cellular and tubular structure, from the *irregular junction* of the *pebbles* leaving interstices or cavities between them—this cavernous structure being at the same time increased by the falling out of the earthy and softer parts. A laterite of this nature is found above the ghauts, between Manantoddy and the Neilgherries, in the Wynaad jungle, near Sultan's Battery. It is found protruding from the ground on the road, and is externally of a dark black colour—surface irregular, and full of cavities, with pieces of quartz crystal attached to it; internally, it is of a blackish brown colour, with irregular cavities, and also containing small pieces of quartz. It appears to be a quartz rock, which has undergone oxydation and decomposition. When the quartz did not form into a laterite, it decomposed into a species of ferruginous sandstone, like what iron is obtained from in some parts of Mysore. With the exception of talc slate I saw nothing but the quartz, laterite and quartzose sandstone in the locality now referred to—the two last being the result of decomposition, the sandstone arising from the decomposition of granular quartz of a loaf-sugar aspect, but ferruginous colour; and the laterite arising from the oxydation and decomposition of a large crystalized smoky coloured quartz. It must be borne in mind, that when I speak of a quartz rock I mean a rock containing chiefly quartz, but not entirely excluding felspar.

This is the place to describe the laterite of the Neilgherries; and its varied appearance and connection with what in the geology of those hills has been called hæmatitic iron ore, confirms me in my opinion that not only is laterite a rock of oxydation and decomposition, but so also is the hæmatitic iron ore, or rather that which has very improperly been named so. It may be as well first to observe, that the principal rock on the Neilgherries is a hornblende rock, or a sienitic granite—one passing constantly into the other: frequently exhibited even in hand specimens. The quartz which has a tendency to run in veins, is of a very peculiar opaline colour, and in rather large crystals. In all the sections, immense veins of this quartz are in a decomposing state, and it is in these that the iron ores, so prevalent on the hills, are found. In very many localities, the garnet is a most abundant mineral, some specimens shewing more of it than of either hornblende or quartz; so that the principal rock might be called a garnetic sienite or a garnetic hornblende rock. Besides these

two, with true granite and pegmatite, through which last basalt has frequently insinuated itself (none of the rocks that I have ever seen *on* the hills, but certainly *below*, are deserving the name of hornblende slate), there is another, very common, named by Dr. Benza hæmatitic iron ore. I feel that I am almost presumptuous in calling in question the correctness of Dr. Benza's nomenclature for the last, being conscious of my deficiencies, but in all investigations after truth, the name attached to things is of more consequence than any consideration for the name of individuals, however eminent. What Dr. Benza calls hæmatitic iron ore I will now describe, having visited its various localities, some of which are not mentioned by him. It is generally found *in situ*, towards the top of the small hills, although detached pieces are frequently at the bottom. It protrudes about two or three feet from the ground; I have seen it in one place more than 8 or 9; and is covered with lichens of various colours—the size of these rocks and their grouping together, similar to quartz rock in general—the surface irregular and full of cavities, with ragged elevations—those detached and lying on the ground shewing a more irregular surface, the result most likely of water lodging on them more easily than on the fixed rock—the interior is almost always of a brown colour—the aspect of the rock, both externally and internally, sometimes brown yellow or reddish, generally the former, and sometimes all the intermediate shades—small holes, like pin-holes, are scattered over the whole internal surface, which in some specimens are not very distinct, and small specks of undecomposed quartz are distributed over the whole in the same way. In one specimen before me, the surface is irregularly pisiform—the pea-shaped aspect weathered down—the interior not so solid as the others, fuller of pieces of undecomposed quartz, and it has one or two cavities containing a dark brown or purple earth, apparently a drusy cavity of titaniferous iron ore decomposed; and it is to the falling out of the decomposed substance from these cavities, that, in some of the specimens, which approach close upon laterite, will account for the cavernous appearance, which was previously referred either to the irregular junction of the quartz pebbles or to the falling out of the softer parts. These are, therefore, the three modes by which to explain the tubular and cavernous aspect of laterite, viz. the irregular junction of the quartz pebbles or crystals, the falling out of the felspar and softer parts, and the existence of drusy cavities of iron ore in the original rock. Many specimens of this so named hæmatitic iron ore have all the peculiar features of true laterite, in as great a degree as those on the coast, with which a comparison has been made. This leads me to the nature of this hæmatitic iron ore, and to that also of Dr. Benza's

pisiform iron ore, both of which are extremely light, containing, I suspect, little or no iron, and do not, in my humble opinion, deserve at all the name of iron ores. I cannot help considering both of them as different stages of alteration and decomposition of the rock *in situ*, containing much quartz, and that large grained opaline quartz which has been described. I have preserved what I consider the different stages, and I think that when much felspar or hornblende has entered into the original rock, the specimens of this so named hæmatitic iron ore are decidedly lateritic. Dr. Benza's mind does not seem to have been made up on the subject of what he proposes to call the lateritic iron ore, and which he wishes to distinguish from true laterite. His observation, that many of the hard blocks of this conglomerate, alluding to his hæmatitic iron ore, resemble very much, if they are not identical with, the laterite of the low lands of India, confirms me in considering his hæmatitic iron ore, and lateritic iron ore, as only different stages of decomposition and alteration, both being the result of oxydation and decomposition. I possess specimens of real hæmatite, picked up on the hills, with most marked characters, and not for an instant to be mistaken for that which is so common, just described. Why should not true laterite exist there, as at Coorg and on the coast, where there are the same class of round lithomarge hills, the same ferruginous character of the rock, and in a certain degree the same character of climate, as far at least as regards rain, which, falling in such abundance, must predispose both to oxydation and decomposition.

The geology of the Neilgherries is extremely simple—a hornblende rock or sienitic granite, with numerous quartz veins containing various iron ores, has decomposed to a very great extent. The hornblende and felspar have formed the lithomargic earth so abundant there; these two substances being so easily decomposable, leaving occasionally on the surface masses of quartz rock, which, although resisting total decomposition, have undergone alterations, and been converted either into Benza's hæmatitic or pisiform iron ore; this altered quartz rock containing within it sometimes either magnetic or titaniferous iron ore, besides the true hæmatite, which must not be confounded with the rock in which it is imbedded. If any thing stronger is required, and the above not considered satisfactory, I would refer to an analysis by my very talented friend, Mr. Gilchrist of Hoonsoor. He sent specimens of a rock very common in his neighbourhood to Dr. Benza who informed him that they were the same as described in his geology of the Neilgherries under the name of hæmatitic iron ore. Now Mr. Gilchrist, perceiving that they were so extremely light as not, in his opinion, to deserve the name of iron ores, put them to the test of analysis, and found that in-

stead of containing about ninety per cent. of iron as hæmatite does, they had only, I think, six per cent. The specimens sent by Mr. Gilchrist have a more jasperry appearance than those on the hills, and are I think of the quartz family, either a jasperry clay iron ore, or a ferruginous opal, some specimens passing into a coarse kind of jasper, and into semi-opal and chalcedony.

To terminate, then, this part of the subject, the connections pointed out by Dr. Benza himself, between the specimens on the hills, and those sent him from Hoonsoor, which as just observed were found associated with, and passing into, jasper, semi-opal and chalcedony, tells much in favour of his hæmatitic iron ore being an altered quartz rock, and not the true hæmatitic iron ore of mineralogists. The peculiar appearance of laterite has been by many referred to the influence of water, and the very same structure has led others again to a belief in igneous action. This igneous aspect I believe to be the result of oxydation. Water, by lodging on a rock or percolating through it, may assist in its decomposition, and the enormous quantity of water falling on the western coast might, in some measure, account for the almost universal prevalence of laterite on that coast. In the neighbourhood of Cannanore nothing but laterite is seen, accompanied by series of rounded lithomargic hills, some of them a little flattened at the top and resembling reversed tea cups. This laterite has at a distance the appearance sometimes of granite, hornblende rock, or gneiss. What appears to be a trap dyke is found on inspection to be laterite, and in many places its similarity externally to decomposing gneiss was so strong, that I never was satisfied till convinced by the hammer. Buchanan mentions that laterite on the coast overlays granite: a proof, I should imagine, of its being derived from it; and this connection is found in various other parts of the country. The cantonment of Cannanore is situated partly on a cliff overhanging the sea, which cliff varies in height and terminates on the north and south by a beach. Along the coast a few rocks are seen elevated above the water, and blocks of the same nature, having fallen from the cliff, lie below it, upon which the waves break. The cliff and blocks are of laterite, and resemble externally the water-worn sandstone formation of Bermuda. On the sea-shore I picked up specimens exactly like lithomarge, but indurated, and one or two of a very sandstone aspect and of a reddish colour. The greatest part of the coast towards Tellicherry is low, with much sandy soil, and, the natural accompaniment, numerous cocoa-nut trees. Some way before reaching this place, there is gneiss, containing much black mica, and Tellicherry there is a great deal of rich reddish yellow soil, close to the sea, and hornblende rock is lying on the beach, and extending some way

into the sea. A section just on entering the town shows a rock decomposing apparently into lithomarge, and in some spots almost into laterite. About 7 miles from Cannanore, in the direction of Manantoddy, there is a good deal of quartz rock, having a pinkish and decomposing aspect, and further on the rocks are almost altogether of hornblende or sienitic granite. The prevalence of laterite all along the western coast, may truly attach to it the character of an iron bound coast, used more generally in poetic than scientific language. This laterite is of a soft consistence, and of a very lithomargic character in some specimens—it is mottled red and white, contains numerous sinuosities, which resemble the worm-eaten cavities in decayed wood; and its colour is lighter, and more inclined to pink, than in the laterite of the interior. When removed from its bed, it is perfectly soft, but hardens on exposure, and in this state is employed for building by the natives, whose houses in most parts of India are of mud, but frequently here of laterite.

But to leave the coast and take to the interior. Around Bangalore, and in many other localities, there is a harder and more quartzose kind of laterite; less lithomargic and less clayey in appearance, and containing fewer sinuosities. On inspecting many of the granite rocks which elevate themselves above the surface of the ground and stand up several feet from it, there will often be found a coating of quartz, the softer portion of the rock having fallen away, leaving this as if plastered on. This appearance shows us in some measure the mode in which the quartz laterite may be formed. Imagine a small mass of gneiss, just showing itself above ground, or in some places slightly covered with a soil the result of decomposition. If the surface of the rock should contain much quartz, say a large bed of it, instead of suffering decomposition like the felspar or mica, the pieces of quartz, now formed or forming into pebble, would arrange themselves together, the softer and more ferruginous parts decomposing, and a laterite, simple in its nature, and having fewer cavities and sinuosities, would be formed. A thick bed of quartz laterite of this kind is found near a village on the road to the fort, close along gneiss, only a few feet from the ground, and attached to it; a laterite has therefore been formed, the thickness of the quartz bed; and it is the presence of quartz in large quantity on the surface of a rock which may account for the formation. It is not universal, but confined apparently to spots where quartz abounds. For instance, immediately on a line with this place and on the other side of the cantonment close to the last building appropriated for the stand of arms of a native regiment, there is a deep pit from which a very pebbly kind of laterite is taken to repair the roads. It is no here well defined, and is generally merely a congeries of pebbles which

have adhered and not yet sufficiently decomposed to show the open texture and other features of laterite. This pit at the north end, where it forms the boundary of one of the compounds, confirms me, I think, in the connection between lithomarge and laterite. It is deep and shows decomposition to a considerable extent; a rock containing on the surface a bed of quartz has decomposed, and a bed of pebbles for several feet occupies the upper part of the section, with lithomargic earth beneath, but not well defined, a sort of demi-lithomarge. When the pebbles have adhered together for some time and decomposition has gone on, and the softer parts fallen away, showing internally a somewhat very slight cavernous aspect, the specimen deserves I think the name of a detrital laterite. The lithomargic, the quartzy and the detrital are well defined by Mr. Cole, page 113 of the 12th Number of this Journal. I prefer extracting Mr. Cole's description, because, without intending by it to form any classification, he seems to have seen the classification as it existed in nature, at least on the spot described.

"The laterite varies very much in appearance—sometimes it is very "hard, compact and heavy, highly ferruginous, of a deep red colour, "penetrated in all directions by the sinuosities containing the red and "yellow and white earths. Some masses are nearly half composed of "the white lithomargic earth, which renders it very crumbling." This would answer to the lithomargic. "Other varieties exhibit a pisiform "structure, numerous rounded pebbles being united together by a yellow "clayey cement; this seems of recent origin." This would answer to the quartzy. "Again, in many superficial situations, it is a mere gravel, pos-"sessing very little coherence, and, apparently formed from the *debris* of "the laterite itself. The pebbles composing this gravel, still exhibit the "structure, of the red conglomerate sand-stone and of the ochrey iron "ore." This again would answer to the detrital. From this description and from observation, I have formed a *sort* of classification. No doubt there are many kinds of laterite which perhaps cannot come under any of the heads, and I should therefore not wish to claim for it the character of a classification of what *exists* in nature, but what I have *seen* in nature—a distinction always necessary, but not always made.

Water, as an oxydising and decomposing agent, has been mentioned, but as a transporting one, something may now be said. When a rock has decomposed and the felspar, hornblende, or mica been converted into soil, if much quartz has existed in the rock the ground will be found in the neighbourhood strewed with small pebbles, which often cover the fields, and during the monsoon, when the rush of water is very great, all the small water-courses around will be found full of them—these pebbles are carried on to some

large nullah, where they remain agglutinated together through the medium of clay. At the bottom of such nullahs there is generally a quantity of clay, arising from the decomposition of felspar, and the quartz pebbles transported thither fix themselves in this clay, and the bottoms of such nullahs are one mass of a species of laterite, which, according to circumstances, may either be the quartzose or the detrital—the water continually passing along, although unable to remove them from their position, percolates through the mass and assists in oxydising it, and establishing that tubular and cavernous structure so peculiar. Water, therefore, as a decomposing, oxydising and transporting agent has much to do in the formation of laterite, and if these deposits of pebbles forming into laterite, were by any convulsion of nature, or by the falling in of the banks of the nullahs, to be hidden beneath the earth, and no relict of a water-course visible, it would be difficult hereafter to account for their position and formation. Such are my views respecting laterite, a formation, the result of *oxydation* and *decomposition*—the natural decay incident to primitive rocks in countries like India, where circumstances favour such decomposition, and where, perhaps, since the flood, disturbing forces have very slightly operated. How different from the new world, where, even in a very limited extent of country, primitive, transition, secondary and tertiary formations, meet—where disturbing forces have been at work—a portion of the globe which has been made, modified, and again, as it were, broken to pieces. But India has remained in its primitive simplicity, almost as unchanged as its great Creator; and in a geological, as well as historical, sense, truly deserves the very appropriate cognomen of the *Old World*.

The circumstances which favour decomposition are both external and internal. The external are heat, and, as on the western coast of India, great heat and moisture combined. The internal, or what would be called in medicine the immediate cause of the laterite formation, seems to be the ferruginous nature of the constituents of the rock, or the existence of iron ores. Iron, we know, exists more or less in most rocks in the state of oxide, and when therefore speaking of oxydation throughout this paper, I beg it may be borne in mind that I mean *hyper-oxidation*. A species of laterite not mentioned by me is found beyond and near Nundidroog, forming slight elevations. The specimens are of the colour and appearance of burnt brick, only much harder; on those pieces exposed to the influence of the atmosphere, there are a few small cavities from the decomposed felspar having been washed away, but the specimens can scarcely be called cavernous. The basis has, as just observed, the appearance of burnt brick, in which are nests, streaks and

lines of a white substance, decomposed felspar. It is an iron clay, intermediate between the laterite of the coast and indurated lithomarge, and in agreement with the views above detailed, entitled to the name of laterite. Is it the iron clay of Voysey? It appears to be the result of decomposition and hyperoxidation of a trap rock, containing a great deal of hornblende, and a smaller proportion of felspar; the hornblende highly ferruginous; for upon the hard brick looking portion of the specimens there are small holes, dots and lines of a blue ferruginous aspect. The hills formed of this laterite or clay iron stone are closely allied to the lithomargic hill, called the Belfry, near Bangalore; they are on a line with it and distant only a few miles, showing the connection between the two formations.

VII.—*Memorandum relative to an ancient Cemetery situated about 11 miles N. W. of Madras.*

About two miles west of the lake at the Red Hills, or three miles N. N. W. of Major General Farran's bungalow, are situated many singular tombs, apparently of great antiquity; it is believed that they were first observed by Captain A. T. Cotton, of the Engineers, who, it is hoped, will one day publish an account of them. They are situated on a barren plain, a little elevated above the adjoining country, composed of laterite, and partly covered with stunted thorny bushes, few of which are more than two feet high.

Each tomb consists, or rather did consist, of a parallelogram, within a circle. The squares and circles are of various dimensions; the square generally six feet in length, the breadth of different tombs varying from 2½ feet to 4 feet, the diameter of the circle generally 18 feet.

Each square is composed of four pieces of laterite, one piece forming one side of the square; the pieces are set in the earth on their edges; at the surface of the earth they (the several stones) are about two feet in thickness, tapering a little to the upper edge; the height generally about 3½ feet above the earth; the surface of the interior of the square is rather higher than the surface of the circle.

Each circle is formed of 16 pieces of laterite, set on their edges like the stones that form the square; each of the 16 stones is a rude segment of a circle, the surface of the circle outside of the square is on the same level as the surrounding plain.

The above is a pretty correct description of the outward appearance; of the few tombs that remain in a tolerable degree of preservation.

In most of the tombs the circle cannot be traced without difficulty—the stones of some of the squares incline outwards, in others they incline inwards and form arches over the graves. Recently workmen have been employed by European gentlemen in digging up the interior of the squares, and in a little time it will be impossible to trace the original plan, or form, of any of the tombs.

The writer of this memorandum saw one of the squares, or graves, partly opened. At about two feet from the surface appeared a slab, not of laterite, but granitic stone (an exotic at the Red Hills) corresponding in length and breadth with the size of the square; this slab was not removed, but it has been ascertained from unquestionable authority (a gentleman who witnessed the removal of several of the slabs) that under each slab is found an earthern vessel filled with human bones—pieces of the broken pottery lie about the tombs that have been fully opened.

There is no appearance of inscriptions on any of the stones; the inhabitants of the neighbouring villages have no tradition regarding the tombs, in all probability, they existed previous to the introduction of Hindooism.

Madras, 14*th August* 1838.

VIII.—*To the Editor of the Madras Journal of Literature and Science.*

Sir,—In No. 18 of the Journal p. 120, I find that inadvertently I have stated nine tons only per square inch of sectional area, to be the supporting power allowed to bars of welded iron, while it is well known that 27 tons is the *average* which is now taken as the standard for the ultimate or breaking strength of cohesion of good malleable iron. In all suspension bridges *three* times this strength is calculated for, that is, "nine tons per square inch are taken as the strain that the chains of "a suspension bridge may bear continually without any injury, and it "is prudent to proportion them for that strain." Vide Drewry, p. 19.

I shall take an early opportunity of forwarding some transcripts of experiments made by me for strengthening beams of wood by the application of iron wire, and hope also to be able shortly to declare that iron may be effectually preserved from rust by the application of a vegetable extract, which in this country is abundant and cheap. I have tried it for a long time, and am most sanguine of complete success.

I remain, dear sir,
yours faithfully,
G. A. Underwood.

IX.—*Report on the Tea Plant of Upper Assam—By* WILLIAM GRIFFITH, Esq. *Assistant Surgeon, Madras Establishment—late Member of the Assam Deputation.*

In the 17th No. of this Journal we were enabled through the kindness of Mr. McClelland, who accompanied the Scientific Deputation as Geologist, to present to our readers an account of the geographical distribution of the Tea plant in Upper Assam: a geological description of the country: the nature of the soil which favours the production of the plant, and the character of the climate of Assam.

The distinguished botanist, WILLIAM GRIFFITH, has favoured us with a copy of his Report to the Supreme Government, which has been published in the *Transactions* of the *Agri-Horticultural Society of India*; from which we now give the more strictly botanical history of this interesting and important plant.

General remarks on the extent of the Localities, their natures, and the appearance of the plants.

In all its localities, to which the term patches is perhaps most applicable, the Tea plant is distinctly limited in extent. This is the more worthy of notice as pointing out the absolute similarity in the habits of the Assamese and of the Chinese plants, which to use Ellis's own words always occur "in small patches." But although the localities are limited in extent, it does not appear that they are so in number. At the time of the visit of the deputation, the plant was known to exist at Borhath on the Disung Nuddee, and on the banks of the Debroo, between Rangagurrah and Debroo Mookh, at a place called Cherabei: and since that time Mr. BRUCE has ascertained the existence of several more sites, chiefly along the Buroo Dihing and about Tingrei: he has likewise received information of the existence of others. The Tea plant may, therefore, be looked upon as one of the common plants of a large portion of Upper Assam. Almost all the Tea localities occur within very short distances of each other, the only gap of any extent being that between Borhath and Gubroo Puribut, which is nearly 60 miles in length. Now, although I am not aware that it is even reported to exist in this direction, yet the Tea plant is one so ill adapted for even moderately interrupted dispersion, both on account of the structure and weight of the seeds, as well as the ease with which the germinating principle is destroyed, that I have no doubt that connecting patches will be found between the points alluded to, and that in forming the abovementioned and necessary connection, the plant will follow throughout nearly two-thirds of the gap, the Disung Nuddee.

Nature of the Localities.

All these, with the exception of Gubroo and Ningrew, occupy low spots, and the former is perhaps the only one which is always exempt from inundation. The wetness of the four first during the rains could not well be exceeded, and although Gubroo is, as I have said, not actually wet, it is excessively moist. During the cold weather even, they maintain their character for humidity. That of Kujoodoo is the only one near which I saw no water-course or stream, but then its situation is certainly lower than that of Kujoo or Ningrew. All may be characterised as presenting an excess of humidity. On this subject I cannot do better than refer to Mr. McClelland's report, p. 35, which is highly deserving of attention. The localities are in every instance clothed with excessively thick tree jungle, the trees, in almost every case, being of moderate size. Undershrubs and herbaceous plants, such as love shade, are found in abundance intermixed with the Tea plants. In some of the localities bamboos are of common occurrence. So thick, indeed, are these jungles, that it is much to be doubted whether the Tea plant, not even excepting the arborescent ones, ever receives the direct rays of the sun.

Appearance of the Plants.

The size of the Tea plant diminishes, speaking in a general point of view, as we proceed towards the west, and speaking in a limited point of view, as we approached the confines of each tract or locality. On this point Mr. McCLELLAND excellently observes, "It was also to be remarked here as well as in other situations in which the Tea plant was afterwards examined, that insulated individuals were smaller in size, the farther they were detached from the natural limits of the colony; which last were always found to be marked by certain changes in the soil, except, perhaps, in a single instance." The largest plants exist in the Kujoo locality, one being observed to measure 43 feet in length, with a diameter near the base of six inches. Occasionally the plant reaches to a height of 47 or 50 feet. The average height of the better sort may be estimated at 6 to 8 feet. At Gubroo, as I have mentioned, it exists only as a moderate sized shrub; it was hence pointed out to us as a new variety, and was even dignified with the name of dwarf Tea. But this diminution in size is not of sufficient importance to characterize a variety, and may always be expected to occur towards the boundary lines of the geographical distribution of every plant. The appearance of the plant, excepting some at Tingrei, where the jungle was less than usually thick, is the same as one would expect in any shrubby plant growing in a dense jungle. This may be characterised by a great tendency to elongation (each plant struggling as it were, to attain a height at which it may procure some portion of solar influence), by a small straggling crown,

and by a general paucity of leaves. During the examinations, ample opportunities occurred of seeing both flowers and ripe fruit, the latter being the remainder of the produce of the last season. There is some variation in the time of flowering between the extreme localities, as at Kujoodoo the plant was in full flower in the middle of December, while at Nadowar it was in flower in February. The leaves of all the plants were old and of a very dark green; they were sufficiently coarse and varied in length from 4 to 8 inches. The young leaves unfold, I believe, about April.

Remarks on the Vegetation associated with the Tea Plant in Assam and in China.

The cause that exercises the greatest influence on the distribution of vegetables is known to be temperature, and the causes which exercise the greatest influence on this, are latitude and elevation. The ratio which these bear to each other, has been determined by Baron Humboldt, one degree of retrogressive latitude being near the tropics equivalent to an ascent of 396 feet. It is owing to this law that the line of perpetual snow on the mountain Sulitelma, in Lapland, lat. 68° N. occurs at an elevation of 3,640 feet, and on Chimborasso, one of the Andes in lat. 2° 30' S. at one of 15,600. For the same reason in ascending in India an elevation of a given height, the floras of a tropical, subtropical, temperate, alpine, and lastly, arctic regions may be passed through in succession, until we arrive at the limits of vegetable existence. The same series may be viewed in succession in passing from the equator towards the poles, until we again reach the limits of vegetable existence. In drawing up an estimate of the comparison between the floras of Assam and of the Tea districts of China, we have but little to do with elevation, that little being about 380* feet in favour of Upper Assam, or in other words, nearly a degree of latitude; so that lat. 28° in Assam will correspond to lat. 29° in the districts alluded to. Elevation, therefore, not being of sufficient amount to be taken into consideration, we must turn to the temperature of either climate (particularly to the mean summer and mean winter temperatures), to the humidity, and the amount of light. This last not having been noticed, we have only two agents to consider, and these, I trust to shew satisfactorily in a subsequent part of this report, to be of a nearly similar amount in both climates. I have considered it advisable to preface the remarks on the vegetation associated with the Tea in Upper Assam, by the above slight notice of the agents that act most powerfully on the distribution of plants, because a considerable number of forms appear in Assam which are not found on any part of the plains of India, and which indicate

* The Barometer at Tatung, according to Abel, stood at 30° 13' at Wooha-kea at 30° 22', &c. See Abel's chart of the route on the Yang-tse-kiang.

a remarkable peculiarity in its climate, and it must constantly be borne in mind, that neither the latitude nor the elevation of any portion of its surface can account for the number of northern or elevational forms found in its flora, for the extreme latitude does not exceed 28° 20' N. and the extreme elevation cannot, I think, even at the foot of any part of the boundary ranges, exceed 1,000 feet.

In glancing over the vegetation associated with the Tea, I shall confine myself to the notice of such plants as were actually growing either among the Tea or on the limits of the localities; reserving those which struck me as peculiar, and which were found removed from the Tea, to that portion of my report in which I shall enter more fully into the Botany of Upper Assam.

As the general features of the flora of this province are tropical, so are the general features of that portion which occurs assosiated with the Tea. Thus at Kujoo I found tropical Rubiaceæ, Acanthaceæ, and Cyrtandraceæ, Myristiceæ, Laurineæ and Piperaceæ; Dillenia Speciosa, Leea, a Dipterocarpus and a Chloranthus, among Dicotyledonous forms. Of Monocotyledones tropical Orchideæ, Commelineæ, and Gramineæ (among which a Bambusa was common), and Roxburghia occurred. And of Acotyledones, of which ferns are chiefly deserving of notice, tropical forms of Lycopodium, Polypodium, among which is P. arboreum, Asplenium and Angiopteris crassipes. A few Jungermanniæ and Hepaticæ, but none of remarkable forms were met with. At this locality no peculiar plant of importance was found, if we except a Castanea, the distribution of which, however, is wide. At Kujoodoo and at Ningrew similar features present themselves, but at the latter a peculiarity was indicated by the presence of a Dicksonia on the limits of the colony, and of Chrysobaphus Roxburghii among the Tea. At Tingrei a very striking instance was observed in the existence of a species of Stauntonia; some importance is also to be attached to the presence of a new and remarkable genus, which at present I refer to the natural order Ternstrœmiaceæ, and of a new species of Choripetalum, with distinctly acid leaves. Lastly, at Nadawar, the principally remarkable associated plant is a species of Eurya. An estimate of the value of each of these will be found in a subsequent part of this report.

In drawing a comparison between the Assamese and Chinese forms that exist in association with the Tea plant, it must be observed that the data are excessively meagre; this applies chiefly to those relative to the Flora of the South of China, and is attributable to the loss of Dr. Abel's collections and Mss. by the wreck of the Alceste. But on the subject of paucity of data I shall hereafter have occasion to make a few remarks.

We learn from Dr. Abel, whose account was written from memory, that in lat. 30° 13' N., where the Tea plant was first seen, that a few species of oak and some dwarf chesnuts were found. Nothochlœna piloselloides, a fern widely distributed over some part of India, was likewise proved to exist. On a subsequent occasion, when the Tea plant was found apparently wild and near no plantation, a Euphorbiaceous plant, Elœococcus of Commerson, was seen growing with it. Dr. Abel informs us that, "the Pinus Massoniana of Mr. Lambert still continued to be the most general species of fir, but was occasionally mingled with the Pinus Lanceolata of the same author." A species of Eugenia is likewise mentioned as covering "the declivities of almost every hill in the province of Kiang see." If we now consider the plant actually mentioned by Abel as occurring close to the Tea, we shall find that they are reducible to several species of oak, among which are Quercus Densifolia and Quercus Sinensis.

Some Dwarf Chesnuts.

Elœococcus Vernicia (Dryandra cordate of Abel's Journal).

Pinus Massoniana.

Pinus Lanceolata.*

Mr. Ellis mentions it as being found associated with a new species of oak, and the Laurus Camphora at the foot of the Leeshan mountain.

In addition to these that were actually observed, we may infer that it is associated with Camellia oleifera, Stillingia sebifera, Nothochlœna piloselloides and Eugenia microphylla.†

The relative value of the above plants as indications of a cold climate varies very considerably. I shall consider those now which are peculiar to China, leaving the notice of those which have representatives in Assam, until I come to the comparison between the floras of the two countries at about similar latitudes.

Elœococcus Vernicia is a Japan plant, but there is another species which is a native of China and Cochin China. As I find that no other habitat is given to the first species than that of Japan, although the works I have consulted are of a later date than the Journal of Abel, I conclude that the latter species was mistaken for the former. The order Euphorbiaceæ to which this plant belongs, has almost every variety of geographical distribution;‡ but as in the Western world it is decidedly

* Journal of the proceedings of the late Embassy to China, &c. by H. Ellis, vol. ii. p. 76.

† There is a curious mistake in Abel's Journal concerning the etymology of this species.

‡ See Lindley's Introduction to the Natural System, Ed. 2, p. 113.

most numerous towards the equator, and as it is conjectured that the smaller number found in the equatorial regions of the Eastern world, is to be attributed to their not having been observed in an equally careful way; we may come to the conclusion that the order is in general an equatorial one. I do not, therefore, attach any importance to the existence of this plant, particularly if it be not the Japan species.

The occurrence of the Tea plant with a decided species of fir, the Pinus Massoniana of Lambert and Sprengel, or Pinus Chinensis, has been a matter of surprise to most of the authors who have noticed the Tea, and who have hence inferred that the climate of such places was similar to that in which fir trees are generally found, that is one of a temperate or subalpine nature. Although the genus Pinus is, perhaps, especially if the number of species be considered, a better indicator of a decidedly cold climate than any other in the order, yet exceptions do exist: a species is found in the dry sandy plains of Virginia and Carolina, as well as on the sea shores of the south of Europe. One species, Pinus halepensis, derives its name from being found about Aleppo as well as on sea coasts of southern Europe; it is so impatient of cold, that plants cultivated in England are liable to be destroyed by frosts. Pinus Canariensis is found in the Canary islands from the level of the sea to an altitude of 6700 Parisian feet; this is remarkable not only from the latitude of these islands, but from their insular climate, at least at low altitudes.

In addition to these aberrations, the existence of Pines is by no means dependent on mere elevation in all cases, for although they desend in lat. 30° 31' N. on the Himalayas to within 2000 feet of the plains, none exist on the Khasiya Hills until the torrent of the Boga Panee is reached, along the bed of which they occur. Yet the difference of altitude between the summit of this ravine on the Churra side and the bed of the torrent, cannot be less than 1,500 feet. From this place, which may be estimated at about 4500 feet above the level of the sea, they ascend to nearly 6,000, the highest point of the range in this direction. They descend on the northern, or Nunklow face, to about 2,500 feet above the plains of Assam, attaining the greatest perfection at about 3,500 feet. What is more remarkable, no pines exist on the portions of the same range, which I crossed in my late journey to Hookhoong, although two separate ranges were crossed, one of 5,400, the [illegible]her of 5,600 feet. Again, on Thumathaya and Laimplangthaya, two [illegible]untains well known to the Mishmees, no species of this genus is [illegible]und, although a few miles farther to the eastward they exist in abundance at similar elevations, and even descend to the bed of the Burrumpooter, along which they were observed by Captain Wilcox.

These facts which may appear foreign to some, I have considered it proper to state, because they indicate that Pines are occasionally more influenced by peculiarity of soil than by mere low temperature, and hence tend to diminish our surprise at the occurrence of a fir in association with Tea.

The existence of the second species of Abel, the Pinus lanceolata, now the Cunninghamia Sinensis of Mr. Brown, is not of such importance. This species, with some others of other genera, is remarkable for the dilated leaves in opposition to the usual acerose or scaly forms of other Coniferæ. These broad-leaved species are more equatorial, and vary more in their geographical distribution, with the exception of Salisburia adiantifolia or Gingke of the Japanese, which does not appear to straggle lower than 32° N. L. In proof of this, Cunninghamia was first met with by Abel on his return from Pekin, near the Poyang Lake, lat. 30° N. and Loureiro informs us, that it is abundant in the southern provinces of China. A Dacrydium is found in Penang. The Dammar Pine or Agathis loranthifolia is found in the Eastern Archipelago and in Penang. Podocarpus Horsfieldii occurs also in Penang, and was met with by Captain Hannay in the third Kioukdweng or defile of the Irawaddi, as far north as 24° 30'.*

Podocarpus neriifolius is found in Nepaul and in Amboyna, and P. Macrophyllus in Nepaul and at Singapore.

The remaining species of Coniferæ, which are natives of China, belong to the genus Thuja and Cupressus, the greater portion being found likewise in Japan. From this we may, perhaps, infer that they are natives of northern China, whence they straggle southwards. Abel mentions Thuja as being abundant in lat. 37° N. and Sir G. Staunton does not seem to have noticed it below 32° N. L. Loureiro indeed mentions, that two species of Cupressus and one of Thuja are found in Cochin China, but of these Thuja is cultivated.

But regarding these Coniferæ, and especially Pinus Chinensis, a question arises: are they not cultivated rather than actually wild, at least in many of the places in which they were observed by the embassies? It must be observed that both firs and oaks are generally mentioned as occurring in plantations, and Sir G. Staunton expressly states, "every mountain, either too steep or too rocky to be applied to any other use, is planted to the top in various kinds of pines." If we take into account the industry of the Chinese, and the fact of their applying every available spot to some cultivation or another, this opinion cannot be far from the truth.

* Dr. Wallich is my authority for this.

Comparison between the Flora of Upper Assam and that of China, in somewhat similar latitudes.

The next subject of enquiry is one of considerable extent, and of considerable difficulty, owing to the scanty data of which we are in possession relative to the vegetation of China, as well as for other reasons to which I shall hereafter allude.

For the Chinese portion of the materials I am indebted to the work, already often alluded to, of Sir George Staunton, in which four lists of plants will be found; of these I have restricted myself to the use of the two last, viz. those containing plants found in the provinces of Shan-tung and Kiang nan, Kiang-see and Quan-tung. By far the greater portion are taken from Loureiro's Flora Cochinchinensis, but, unfortunately, as it will be seen hereafter, these are not of much value; the few additional plants are adapted from the lists in Abel's work and Royle's Illustrations of the Botany of the Himalayas. I have already alluded to the loss of the whole of Abel's collections in the *Alceste*, a loss the more to be regretted, as among the few plants he saved, owing to his having previously presented them to Sir G. Staunton, were several of great interest. Mr. Reeves, of Canton, has, I believe, considerably extended our knowledge of the Canton Flora, by transmitting plants and seeds to England; but with the actual nature of the results I am unacquainted. The latest traveller to the Tea districts was Mr. Gordon, but his attention does not appear to have been directed (as it might, with justice have been expected to have been), towards increasing our knowledge of the vegetation of the Chinese Tea districts. A small collection of such plants as strike common observers, is in all such cases of much more importance than is usually imagined; neither does it involve any material degree of trouble or labour.

The materials from which the accounts of the Flora of Upper Assam are deduced, were collected during my residence at Sadiya, from March to October, 1836; they were partly published in a very imperfect form in the Journal of the Asiatic Society, for December, 1836; but I have since been enabled to render them a little more complete, by a hasty examination of the collections made during the late deputation, which enclose a few additional plants of interest.

The examination was necessarily hasty, owing to the confusion in which the deputation, Herbarium which has been kept at the Botanic Gardens, remains even at this remote period.

EXOGENÆ.

Natural Orders.	*Assam.*	*China.*
Ranunculaceæ,	4 15	6 30
Papaveraceæ,	0	1 15
Nymphœaceæ,	1	1
Magnoliaceæ,	3 24	6 40
Winteraceæ,	0	1 10
Anonaceæ,	6	3
Schizandreæ,	1 10	0
Dilleniaceæ,	2	1
Umbelliferæ,	7 15	8 15
Araliaceæ,	4	4
Escallonieæ,	0	1
Ampelideæ,	15	3
Onagrariæ,	2	4
Combretaceæ,	3	1
Alangieæ,	1	1
Hamamelideæ,	1 10	1 10
Melastomaceæ,	6 15	4
Myrtaceæ,	5	8
Loranthaceæ,	3	0
Cucurbitaceæ,	12	14
Homalineæ,	0	1
Begoniaceæ,	1	1
Cruciferæ,	3 15	9 15
Capparideæ,	3	2
Resedaceæ,	0	2 10
Violaceæ,	1 5	2 10
Samydeæ,	1	0
Droseraceæ,	0	1
Passifloreæ,	3	1 10
Flacourtiaceæ,	1	1
Guttiferæ,	2	0
Hypericineæ,	2 10	3 15
Ternstrœmiaceæ,	6 30	4 15
Sapindaceæ,	4	4
Aesculaceæ,	1 15	0
Polygaleæ,	1 8	3 10
Lineæ,	1 5	0
Stereuliaceæ,	4	5

	Assam.	*China.*
Malvaceæ,	6	9
Elæocarpeæ,	1	0
Di[illegible]ocarpeæ,	1	0
[illegible]e,	5	1
[illegible]iceæ,	3	2 (including Soneratia.)
Meliaceæ,	8	1
Aurantiaceæ,	7	13
Rhamneæ,	5 10	4
Burseraceæ,	0	2
Euphorbiaceæ,	15	19
Celastrineæ,	2	1
Staphyleaceæ,	1 5	1 5
Malpighiaceæ,	3	1
Sileneæ,	0	3 20
Alsineæ,	3 10	1 5
Tamariscineæ,	1	1
Illecebreæ,	3	3
Zygophylleæ,	1	1
Xanthoxyleæ,	5	4
Balsamineæ,	5	2
Oxalideæ,	1	1
Conariaceæ,	1 15	0
Rosaceæ. Roseæ,	6 28	10 40
Pomeæ,	0	6 40
Amygdaleæ,	2 10	5 20
Leguminosæ,	41	46
Chrysobalaneæ,	1	0
Saxifrageæ,	0	2 15
Crassulaceæ,	0	3 20
Amyrideæ,	0	2
Anacardiaceæ,	1 10	2
Cupuliferæ,	5 25	6 25
Betulaceæ,	1 10	0
Urticeæ,	42 5	12 5
[illegible]iceæ,	1 8	0
[illegible]ineæ,	0	1
[illegible]ndeæ,	1 8	0
[illegible]oranthea,	1	1
Saururea,	1 10	1

	Assam.	China.
Piperaceæ,	5	5
Salicineæ,	1 5	1 5
Santalaceæ,	0	1
Elœagneæ,	1	1
Thymeleæ,	1 10	3 30
Aquilarineæ,	0	1
Proteaceæ,	1	1
Laurineæ,	6	3
Nepenthæ,	0	1
Aristolochiæ,	2 5	0
Amarantaceæ,	5	10
Chenopodiaceæ,	3	3
Polygoneæ,	12 15	9
Nyctagineæ,	2	2
Menispermeæ,	13	0
Lardizabaleæ,	2 30	1 15
Ericineæ,	0	3 20
Primulaceæ,	1 5	1 15
Myrsineæ,	6	2
Sapoteæ,	0	1
Ebenaceæ,	1	1
Styraceæ,	2	0
Ilicineæ,	0	1 10
Convolvulaceæ,	6	11
Hydroleaceæ,	1	1
Lobeliaceæ,	1	1
Campanulaceæ,	3 16	2 8
Sphenocleaceæ,	1	1
Cinchonaceæ,	35	16
Stellatæ,	1 15	2 15
Caprifoliaceæ,	2	3
Compositæ,		
Cichoraceæ,	4 20	5 25
Asteraceæ,	32	36
Cynaraceæ,	3 15	4 15
Dipsaceæ,	0	1 15
Plantagineæ,	1 8	1 8
Plumbagineæ,	1	1
Cordiaceæ,	1	1

	Assam.	China.
Ehretiaceæ,	3	1
Boraginеæ,	3 25	3 30
[illegible]atæ,	14	16
[illegible]naceæ,	11	10
[illegible]ineæ,	1	1
Bignoniaceæ	1	0
Cyrtandraceæ,	1	1
Acanthaceæ,	11	4
Scrophularinæ,	20	25
Solaneæ,	6	14 { Several cult.
Gentianeæ,	2	2 20
Apocyneæ,	8	3
Asclepiadeæ,	9	6
Oleaceæ,	5 15	2 10
Jasmineæ,	2	2

	Exogenæ.	*Gymnospermæ.*
Gnetaceæ,	2	0
Cycadeæ,	1	1
Coniferæ,	0	8

	Endogenæ.	
Scitamineæ,	9	8
Canneæ,	2	3
Musaceæ,	2	5
Amaryllideæ,	2	0 10
Burmanniaceæ,	0	1
Taccaceæ,	0	1
Irideæ,	1 cult.	3 10
Bromeliaceæ,	1	1
Hydrocharideæ,	1	1
Orchideæ,	15 15	7
Apostasieæ,	1	0
Palmæ,	6	4
[illegible]ntedereæ,	2	1
[illegible]elanthaceæ,	0	1
[illegible]liaceæ,	5 20	13 50
Commelineæ,	10	4

	Assam.		China.	
Butomeæ,	1	5	1	5
Alismeæ,	1	3	1	3
Junceæ,	1	5	2	5
Philydreæ,	0		2	
Smilaceæ,	3		3	
Dioscoreaceæ,	3		1	
Pandaneæ,	1		0	
Aroideæ,	5		9	
Acoraceæ,	2		1	
Roxburghiaceæ,	1		1	
Typhaceæ,	1	3	1	3
Fluviales,	3		1	
Lemnaceæ,	1		0	
Gramineæ,	37	15	18	
Cyperaceæ,	28	20	2	
Eriocauleæ,	1		1	

	Acrogens.			
Equisetaceæ,	2	5	2	10
Filices,	34	25	19	
Lycopodiaceæ,	5		2	
Musci,	19	50	6	
Hepaticæ,	13	20	3	10

From the above list which contains 780 species for Assam, and 623 for China, it is at once evident that the chief features of either flora are tropical, and that the singularity of either consists in the existence of forms in tolerable frequency, which reasoning on the latitude and small elevation above the sea would never have been expected. The tropical nature of the floras is particularly indicated by the great excess of Cinchonaceæ over Stellatæ, by the tropical nature of the Leguminosæ, and by the excess in favour of Asteraceæ over Cichoraceæ and Cynaraceæ. In forming an opinion relative to the value of the northern or elevational forms appearing in both, considerable difficulties arise from the fact that many of Loureiro's species are so imperfectly known as to be ranked amongst the doubtful; and secondly, from the vague nature of the habitats hitherto given in most general floras hitherto published, in wh[illegible] the habitat of Indian plants is indicated by India Orientalis, &c. the s[illegible] tion or locality being totally neglected. But in no work published is t[illegible]

vagueness carried to such an extent as in the catalogue of the plants of the H. E. I. Company's Herbarium by Dr. Wallich, in the whole of which scarcely a single instance of indication of elevation will be found, although a great portion of the plants were derived from mountainous countries. It is owing to this vagueness in the habitats, that I have purposely omitted adding to the Chinese catalogue all such plants as have been merely denominated natives of China, which considering that this empire embraces in extent 20 degrees of latitude, is as unsatisfactory as could well be desired.

Mr. Griffith proceeds at considerable length to the estimation of the relative values of the various forms, indicating a decided tendency towards a temperate climate; and concludes this part of his subject, thus:—

Avowedly incomplete as my observations are, I trust that sufficient has been shewn to prove the singularity of the flora of Upper Assam, and that in this it approaches to a considerable extent to that of certain portions of China. The singularity alluded to is of such a nature and of such an extent, that I affirm, with tolerable confidence, that it is not to be met with elsewhere in India at the same elevation, even as far north as the thirty-first parallel.

From the amount of the values that I have ventured to give to each plant of northern or elevational form, it will be seen that China at a lower latitude, so far as the generality of the species is concerned, and with a smaller amount of species, has the greater value. But with regard to this I must mention, that in the first place plants from hilly and mountainous regions are included in the list, and in the second place that in almost every case the maximum of value has been given to each such form, which value when the plants shall have been more rigorously determined, will most probably have to suffer a reduction.

It appears to me to be evident enough, that in the geographical distribution of the component parts of the flora of valleys, instances of irregularity may be expected to occur. That is, that those plants which flourish under certain elevations may be expected to straggle down towards, or even to reach the bases of the boundary hills. Certain circumstances are indeed necessary, but then almost all valleys from their configuration enjoy such circumstances: and in Assam they are highly favourable, for with a mean annual temperature of 67-2, we have a mean summer one of 80, and a mean winter one of 57, and in addition the development of the heat is gradual. Certain it is, that in Assam most of the forms of value have escaped, if I may use the expression, from the neighbouring hills. If these views be correct, it follows,

that under the same circumstances the narrower the valley the greater will be the number of northern or elevational forms discovered during a progress through it, although the reverse will obviously be the case if a wide and a narrow valley be submitted to complete investigation, because in the former case the boundary hills being distant, a variation in their floras may be expected.

I have offered these remarks, not because they bear much on the question as it now stands, but because they will do so if a more extensive comparison be ever made upon good data between the floras of Upper Assam and of the Tea districts of China.

I have already adverted to the low temperature, during the hot months, of the two great rivers the Dihong and Brahmapoutra proper; the influence they exert, is well shewn by the fact, that some of the most valuable forms are confined to their immediate banks. It must be confessed, however, that further inquiries are requisite on this head. I cannot conclude this portion of my report in a better mode than by observing, what is certainly sufficiently remarkable, that of the eight genera, adduced by Mr. Royle as proving the similarity of the flora of the mid region of the Himalayas with that of the mountains of the central provinces of China, five are found in the plains of Assam, viz. Eurya, Stauntonia, Kadsura, or Sphœrostemma, Hovenia, and Ophiopogon.

Mr. Griffith proceeds to a comparison between the climate of Upper Assam and that of the province of Central China; and an examination into the nature of the stations of the Tea plant in the provinces of Kiang-nan and Kiang-see. Passing over these, we will introduce his

Remarks on the genus to which the Tea Plant belongs, with remarks on the geographical distribution of the Indian Plants of the natural order Ternstræmiaceæ.

Most botanists appear to have agreed, but on what grounds I know not, that the plant furnishing Tea is generally distinct from Camellia. Without entering minutely into the history of these genera, it will be sufficient for me to state that Linnæus, Decandolle, Hooker, and Cambessedes appear to have no doubt on the above point; and the last author, who has written a monograph of the order Ternstrœmiaceæ, places the two genera at considerable distances from each other. This unnatural separation appears, however, to have partly arisen from the author not

having been acquainted with the structure of the seeds of Camellia. In the report of the Tea Committee published in the Journal of the Asiatic Society for the year 1835, at p. 47, will be found an appendix containing the marks, by which Dr. Wallich considers the two genera alluded to to differ very widely. Before analysing the distinguishing marks, it will be necessary to premise a few remarks on the structure of the fruit, by which I mean the Ovarium in its mature state. A fruit, when simple, consists of a single Carpellum, or modified leaf, rolled inwards, so that the margins meet next the axis: if it be completely normal, it consists of a single cell. Most frequently, however, other Carpella enter into its formation, and their margins being rolled inwards, it follows, that all will meet at or near the axis. The inflected portions, if approximated, as is usually the case, will divide such a fruit into as many cells, as there are component Carpella, and the partitions or septa will necessarily be double, although this cannot always be demonstrated. Of this structure is the fruit of the Tea plant, consisting of three Carpella.

Of the vertical dehiscence of such a fruit there are two principal modifications. If it opens along the line of the inflected margins, each valve will consist of the original Carpellum, now become distinct, the dissepiments having divided into two plates forming the sides of each valve. This modification constitutes the *Septicidal* dehiscence: it is likewise expressed by some as consisting in the alternation of the valves with the dissepiments, or in the valves having their margins turned inwards. But if the cohesion between the inflected portions be sufficiently strong, (or perhaps from other causes) the dehiscence may take place along the middle of the back of each cell or carpellum, usually indicated by a line known to botanists by the term of dorsal suture: in this case the valves are compound; and the partition will project along the middle of the valve in the form of a keel. This is the loculicidal dehiscence, formerly known by the phrase "the dissepiments are opposite the valves." To this modification belongs the dehiscence of the fruit of the Tea plant.

It is now known that no higher value than that of generic importance can be attached to such difference in the dehiscence of fruits. The dehiscence is both in Thea and Camellia of the same nature; that is, loculicidal. Having reduced the dehiscence of the two fruits to the same character, the question naturally arises, where is the wide difference? The only difference that does really exist, is simply of specific value, consisting in the fruit of the Tea plant being three-lobed, of the Camellia triangular. The question appears to me to be reduced to this; Dr. Wallich either intended to establish that the dehiscence of the one is septicidal, of the other loculicidal, in which he has certainly

failed; or to characterise the one genus as having a three-lobed, the other a triangular fruit; a difference which, it is needless to state, cannot be admitted to be of generic value.

I am prepared to state from examination of the Assamese Tea plant, and of two species of Camellia, from the Khasiya Hills, that there is no difference between Thea and Camellia: and I am not singular in this point; for in Dr. HOOKER's account of the Tea, in the *Botanical Magazine*, new series, t. 3148, I find that some able European botanists are said to be of the same opinion. The name Thea should be preferred, owing to its seniority, it having been given by KÆMPFER, in 1712, while Camellia was constituted by LINNÆUS, in 1753.

Of the family Ternstrœmiceæ to which this plant belongs, about 40 species are known to exist in India; these belong to the following genera, their stations being given to illustrate the geographical distribution of the order, and to corroborate the idea that the Tea plant is not found on mountains at any considerable elevations.

Of *Cochlospermum*, one species only exists: it has a wide range, being found on the Coast of Coromandel, in lower Bengal, and in the north of India at Hurdwar: its station is chiefly on low hills.

Of *Ternstrœmia*, seven species exist in the catalogue before alluded to, but all are doubtful; their range is from Singapore to Tavoy: one may, perhaps, be inferred to exist in the Peninsula of India, but its station is unknown.

Cleyera. Of this genius there are three species: one from Nepaul, one from the Pundua mountains, by which is meant the Khasiya range, and one from the Peninsula.

Of *Eurya*, seven species exist: they are found equally distributed in the hill and plain flora of India. One species attains the maximum of elevation, so far as the Indian portion of the order is concerned, being found, according to Mr. ROYLE, in lat. 30° N., at an elevation of 6,500 feet, among pines, oaks, and rhododendrons. I have found one species at the level of the sea, as low as 12° N. lat.

Saurauja. Six species exist in the catalogue; of these five are from Nepaul and the Khasiya Hills, one from Penang. So far as my experience goes, no species ascends above 4,500 feet in lat. 27° 28' N. Three species are found in the valley of Assam, having straggled down from the boundary hills.

Gordonia. Of the nine species referred, with some doubt, to this genus, four are found in mountainous countries at elevations of between 3-4,500 feet; the remainder occupy the countries between Chittagong and Singapore. On the Khasiya Hills I have seen species ascend as high as 4,500

feet, in lat. 25° 40' N.; in lat. 27° 20' this genus ceases at 3,500 feet. Another species is common about Bamo, lat. 24° 20' on plains, at an elevation of, perhaps, 700 feet above the sea.

Of *Camellia* five species are enumerated in the catalogue, but two of these are doubtful: of one, leaves* alone existed. The species which ascends the highest, appears to be C. Kissi, which is found on the Himalayan range at elevations of 4-6,000 feet.

C. caudata, which on the Khasiya Hills occurs at an elevation of 3-4,500 feet, in Assam, lat. 28, descends nearly to the plains. A third genuine species occurs on the Naga range, towards the eastern extremity of the valley of Assam, occupying the summits of hills of an elevation of 1,000 to 1,500 feet. This species, which attains the size of a small tree, is well known to the Assamese and Singphos by the name of Bun Fulup or jungle Tea; being used by them as a medicine. The two species that, in India at least, appear to be confined to the plains are the Tea plant, and another which Dr. WALLICH found about Tingrei. Thus of these five ascertained species, three are natives of hills, two of plains. I have elsewhere entered into the question, whether there are two species of Camellia, which afford the Tea of commerce or only one; but a few other points bearing on this still remain to be considered. In the size both of the plant and of the leaves, as well as in the texture of these last, and in its stations, the Assamese plant approaches to the Green Tea plant of China; in its geographical distribution, so far as latitude is concerned, it approaches to the Black Tea.

The inflorescence of the Assamese plant varies, but, perhaps, its usual state is to have the flowers solitary in the axils of the leaves. That this is not the natural structure, however, is pointed out by the presence of bracteæ or scales on the pedicels. Hence no specific distinction can be founded on variation in the number of flowers, for each bracte should produce from its axil either a flower or a ramification of the inflorescence. In fact, the number of flowers varies in the Assamese plant from one to five. The other differences assigned by Dr. HOOKER, in the *Botanical Magazine*, new series, t. 3148 are not of much importance; the question can, as I have elsewhere said, only be cleared up by a botanist who has seen the plant in its various states in China.

It would appear from the adoption of the term "Colony," as designating the tea patches or localities, as well as from some observations which will be found at page 14 of Mr. McCLELLAND's report, that this gentle-

* From such materials was Camellia ? Scottiana Wall. constituted.

man considers it possible that the plant was introduced into Assam.* Now, however, that the plant has been traced to Bamo, nearly a degree and a half farther to the eastward, it appears pretty certain that the Tea has straggled from the East into Assam. The line of continuation between Assam and Bamo is about S. S. E. If the plant had been introduced in remote periods, I should consider that the changes of its successful cultivation would be increased.

Mr. McClelland has observed, that of the Tea localities visited by the deputation, that of Kujoo is the oldest: he also points out the probability of the seeds having been transmitted along the course of currents. With reference to this I may observe, that the courses of the rivers throughout the Tea district are nearly east and west, and that with this the direction of the Tea localities, which is in that of longitude, corresponds almost exactly. Westward of Gubroo, however, the case is different, for the river Dhunseeree has a northerly course; and not only is this the case, but the distance between the rivers is considerably increased. I consider it, therefore, probable, that Gubroo is really the limit of the distribution of the Tea plant in Assam, and, if this be found not to be the case, that the localities will occur in the direction of latitude and not in that of longitude.

Amoslea. Of this genus only one species exists, occurring on low hills, certainly not 200 feet above the level of the sea, about Moulmain, lat. 17° N.

Of the last remaining plant of this order, I sent home an account in 1835, under the name of *Erythrochiton*; this occurs on the island of Madamacan, near Mergui, lat. 12° N. at the level of the sea.

Mr. Griffith, after animadverting on the imperfect method hitherto adopted in attempting the cultivation of the Tea plant in the British possessions by the importation of seeds and plants from China, lays down his own plan, which appears to promise better success.

I now come to the consideration of the steps, which in my opinion must be followed, if any degree of success is to be expected. Of these the most important is the importation of Chinese seeds of unexceptionable quality, and of small numbers of the finest sorts of Tea plants. I imagine, and I think that most persons will agree with me, that the importation of even the inferior kinds would be more likely to lead to the produce of a marketable article, than the cultivation of wild or, to use to our Indian notions a more expressive term, jungly stock. The evidence I have before adduced relative to the facts of seeds possessing or not possessing most of the properties of the parent, is, I trust, sufficient to shew, that instead of orders being sent for the recal of Mr. Gordon, that gentleman should have been directed to redouble his exertions in procuring additional seeds and plants. The discovery of the Tea plants in Assam I take to be important on two heads: 1st. The fact of its occurring as denizen to a considerable extent of certain portions of the wooded tracts, argues volumes in favour of those tracts being the best adapted for its cultivation. 2nd. From the fact that a wild stock is, under certain management, to which I shall have occasion hereafter to allude, reclaimable to a greater or less extent. On both these grounds the most, indeed the only philosophical course, that remained was to cultivate, *imprimis*, on the tracts alluded to, the best procurable plant, taking at the same time every precaution towards reclaiming the Assam plant. These same remarks apply to a considerable extent to the nurseries in other parts of British India, unless, indeed, the usual qualities of a jungle stock are expected to be reclaimable by the soils of the Himalaya range. From what I have said it will, I think, appear that the prospect of immediate competition with China was quite visionary. The first step must be therefore the importation of seeds with a small proportion of the best plant from China; this is still more essential from the total annihilation of those previously imported; and the importation must continue to be for some years, for obvious reasons, an annual one. The seeds and plants are to be planted in the Tea localities themselves, and when these are stocked, in such other situations as may be deemed most eligible.* The living plants that are procured must be brought round and sent up in earthen pots; and the choppers of the boat must be so constructed as to admit of being removed whenever it may be deemed necessary. As I have said the number of plants may be limited, their transmission will not involve a large outlay of money. It should be so managed that they shall arrive in Bengal at the commencement of the cold season. Having located a certain number of good Chinese stocks, and it is with this view alone that I recommend the importation

* In the valley of Hookhong Tea appears to be rare, and none certainly exists in any place visited by Captain Hannay. Among the low undulated hills, separating this valley from the district of Mogoung, two localities occur, of which one is situated on a nullah, called by the Burmese, the Tea-Tree Nullah. At Bamo it was brought to me from hills, one day's journey from the town; it is curious that the specimens were certainly superior to any of those from more westerly localities; the leaves being not only smaller, but of a much finer texture.

* If it be deemed advisable that the seeds be sown in Calcutta, they are to be sown in gomlahs, and on no account are they to be transplanted.

of plants, owing to the greater certainty of success, experiments may be made in crossing, that is by applying the fertilising power or pollen of on to the stigmata or communicating organs of fecundation of another: and, as according to the law that the produce of such fecundation possesses the properties of the plant furnishing the pollen, it is obvious that the pollen of the Chinese plants must be applied to the stigmata of those of Assam. By repeating the experiments indefinitely, always applying good pollen from Chinese plants to the plants produced by previous crosses, it may be expected that the indigenous plant of Assam will lose most or all of those bad qualities that may, with reason, be supposed to exist in it. I need not enlarge farther upon this subject which is one of great extent, and the operation of which requires in an especial degree care: it is one however of every day appplication in countries where horticulture is properly attended to. The only circumstance that can retard the improvement of the Assamese plants under such circumstances is the existence of a deteriorating quality in the soil, and this there are no grounds for supposing to be the case; even if it be so, the necessity for the experiment is still farther increased. There are other methods of improving or rather reclaiming plants, on which as they are obvious to every body acquainted with horticulture, I need not dwell. I allude to grafting, &c. &c.*

The fact that wild stocks are more or less irreclaimable, leads me to state, that all the accounts I was enabled, through Mr. Bayfield, to gather, induce me to suppose, that the Tea possesses the last bad quality in a considerable degree. All the Chinese or rather Shan-Chinese, agreed in saying that the wild plant was not considered worthy of being submitted to cultivation; and I must not omit to mention that the Tea of the Pollong district of Burma, situated to the N. E. of Ava, and which is said to be from the wild stock, has not hitherto, although cultivated to a certain degree from a remote period, undergone any improvement. The step next in importance is to secure a sufficient number of first rate Chinese cultivators and manufacturers, both of black and green Teas. This can only be done by the usual route; for I found that among all the so called Chinese, who are to be met with at Mogoung, Bamo, and Ava, as well as among those who form the large annual caravans that trade with Burma, there is not a single genuine China-man.

* On the principle that improved culture improves the whole plant, it may be said that the importation of seeds from China is not necessary. But let me ask which is the best, as well as the safest plan? By adopting the one, success is certain, and, moreover, rapidly so; by adopting the other, its attainment is postponed to a remote and perhaps to an indefinite period.

I have above stated my conviction, that success is, under the circumstances alluded to, certain: and I have adopted this conviction on the following grounds:—

1. That the Tea plant is indigenous to, and distributed extensively over large portions of Upper Assam.

2. That there is a similarity in configuration between the valley of Assam, and two of the best known Tea provinces of China.

3. That there is a similarity between the climates of the two countries, both with regard to temperature and humidity.

4. That there is a precise similarity between the stations of the Tea plant in Upper Assam, and its stations in those parts of the provinces Kiang-nan and Kiang-see, that have been traversed by Europeans.

5. That there is a similarity both in the associated and the general vegetation of both Assam and those parts of the Chinese Tea provinces, situated in or about the same latitude.

I have before more than once alluded to the success that has attended the cultivation of Tea plants in Java. I have but little hesitation in affirming, that Java does not present the necessary qualifications to such an extent as does Assam; yet success has been ensured to an unexpected degree. This success appears to have been obtained by annual importations of excellent seed, and by great care in procuring the best possible cultivators. Of the degree of the success, some idea may be formed by the fact, that a gentleman of great experience recognized in Java Tea taken to Canton, the flavour of the original stock. It is said to have succeeded at Rio Janeiro,* and in the western parts of North America, but in no place but in Java has it been carried to such an extent as to allow of its exportation.

* Mr. Masters informs me, that 'he finds from good authority, that Tea plants are much grown and encouraged at Rio Janeiro, in lat. 23° S. or thereabouts; they thrive in company with cloves, oranges, pine-apples, cinnamon, nutmegs, &c. in ferruginous clay, in a valley not more than half a mile from the sea. His authority is Mr. McCulloch gardener to the Pacha of Egypt.'

X.—PROCEEDINGS OF SOCIETIES.

Proceedings of the Anniversary Meeting of the Royal Asiatic Societ[illegible] Held on the 6th of May, 1837.

The Fourteenth Anniversary was held this day at One o'Clock; the Right Hon. Charles W. Williams Wynn, M. P., the President of the Society, in the Chair.

The Minutes of the last Meeting were read and confirmed.

The Secretary then read the following Report of the Council :—

ANNUAL REPORT,

May 6, 1837.

In submitting the Report of its Proceedings for the past year, the Council has great satisfaction in being able to congratulate the Members on the continued prosperity of the Society.

For some years past the Council has had, on similar occasions to the present, to express its deep regret at the prolonged state of ill-health of the lamented Director of the Society. On this occasion the melancholy duty devolves upon it of recording his demise. It will be in the recollection of the Members, that, but a few weeks ago, this much to be regretted occurrence induced the Council to adjourn the usual General Meeting, and to testify, by every means in its power, the respect of the Society to the memory of Mr. Colebrooke. The Society cannot but feel the deepest concern at the loss of one who originally proposed its formation, and who so ably contributed to support its character and efficiency. In accordance with this feeling, therefore, and as a mark of gratitude due to the memory of our late Director, a proposition will shortly be submitted to you that the Society should, by a voluntary contribution on the part of the Members, obtain a marble bust of the deceased, to be placed in a conspicuous part of the General Meeting-room of the Society.

It also falls to your Council on this occasion, to mark by a special notice, the loss which this Society has sustained in the deaths of two others of its most eminent Members,—the learned and venerable Sir Charles Wilkins, and William Marsden, Esq., to whom this Society, and Oriental literature in general, are so much indebted. It will [illegible] however, be expected of your Council to enter into, or attemp[illegible] discuss, the great merits and worth of these highly distinguished M[illegible]bers of our Society, as memoirs of their lives, if not already, will no doubt soon be before the public, and as characters of so much literary

[illegible]inence cannot fail to command the attention of the future biogra[illegible]er and historian. It may, however, be allowed here to mention that it was the gracious intention of His Majesty, as signified through the President, to confer the same mark of distinction on Mr. Colebrooke as on Sir Charles Wilkins, but that the extreme ill-health of the former prevented his availing himself of this gracious intention of the illustrious and Royal Patron of the Society.

In addition to the gifted individuals above-mentioned, the Society has sustained a heavy loss in the deaths of the following Members :—Lord Viscount Kingsborough; Lieut.-General Colin Macauley; Major-General William Macleod; Lieut.-Colonel Thomas David Steuart; John Brenton; John Davidson; Robert Thomas Glynn; David Haliburton; Jerome W. Knapp; James Mill; Alexander Pearson; David Shea; George Smith; John Penford Thomas, Esquires; and, but a very few days ago, in that of another Member,—Sir Whitelaw Ainslie, whose valuable "Materia Indica" has introduced to Europe a knowledge of the various articles used by the natives of the East, in their medicine, arts, and agriculture.

It would be a pleasing duty to your Council to advert to each individual character of the long list of names which has been read, but the limits of this Report admit only of a few brief remarks.

To Lord Kingsborough, the munificient patron of the arts, and generous contributor to all literary and scientific institutions, the Society is indebted for the copy it possesses of the splendid edition of the Antiquities of Mexico, published by his Lordship; a work which is at once a specimen of graphic skill and elaborate decoration. We are also indebted to Lord Kingsborough for several other valuable donations, among which may be mentioned the original MS. copy of Amiot's Mandchou Dictionary.

Mr. Shea is well known by his translation of an interesting portion of Mirkhond's History of Persia. He had nearly completed a translation of the Dabistan, an account of the various religious and philosophical sects that have prevailed in the world, when death put a stop to the further labours of this valuable Member of our Society. He had been induced to undertake this work at the request of the Oriental Translation Committee; and it will be gratifying to the friends of Mr. Shea to learn, that Captain Troyer, of Paris, a gentleman well-known in this country and throughout Europe for his great acquirements in Oriental literature, has, in the most liberal manner, undertaken to complete the translation, and to edit the work for the Committee.

Mr. Shea had never been in Asia, and he was one of the few who

have acquired a complete knowledge of Oriental tongues, without having visited that quarter of the globe.

Alexander Pearson, Esq., conferred a valuable gift on a large portion of the human race, by introducing the vaccine inoculation into China. This useful, and, with regard to so exclusive a people, difficult measure, he accomplished in the year 1805; and wrote, at the same time, a pamphlet on the subject, which has been much circulated in China.

The "History of British India," has placed the name of James Mill, Esq., in the list of British Historians of the first class; while his works on political economy have secured to him an equal eminence in this branch of science. The great ability displayed by Mr. Mill in his History, and the investigations made by him into the political condition of India, recommended him to the notice of the Court of Directors of the Hon. the East India Company, in whose employ he long held one of the most distinguished situations,

Your Council would now turn to a more pleasing part of its duty. It is happy to congratulate the Members on the increased number of elections since the last Anniversary, which exceeds the usual average of former years; and comprises, in the class of contributing Members, nineteen Resident, and twenty-one Non-Resident. One Honorary, and five Corresponding Members, have also been elected during the same period.

The additional Honorary Member is His Highness the Imam of Muscat. On the arrival in this country of Captain Cogan, of the Indian Navy, in command of the *Liverpool* man-of-war, a present from the Imàm of Muscat to the King of England, the Council took occasion to recommend to the Society to elect His Highness an Honorary Member, in token of its approbation of the encouragement given by His Highness to the Arts and Sciences amongst his people, particularly to those of ship-building and navigation; and as manifesting its high sense of his desire to open a direct intercourse between his country and Great Britain; and of the friendly feeling he has on all occasions exhibited towards the subjects, Asiatic as well as European, of the British empire.

Of the Non-Resident Members elected last year, seventeen are native gentlemen of Bombay, one of Madras, and one of Bengal. Thirteen of the former are Justices of the Peace at the Presidency to which they belong. To the kindly feelings of Sir Charles Forbes, we are indebted for the introduction to the Society of sixteen of the gentlemen of Bombay; and this accession to our numbers must in every point of view be a matter of congratulation. Your Council would hope, likewise,

our proceedings become generally and better known among the re enlightened of our fellow-subjects in the East, that many others, m all the Presidencies, will be anxious to join the Society, and to operate with us in the attainment of its objects.

The Report of the Auditors on the state of the Finances of the Society will shortly be submitted to you.

While adverting to the subject of Finance, your Council has much satisfaction in noticing the very handsome donation of 100*l.* to the funds of the Society from Major-General Sir Henry Worsley; and likewise to a further proof of his liberality, in having increased his subscription, which, as an original Member, was only two guineas, to three guineas per annum.

It is with much regret that your Council alludes to the entire failure of the hopes which it has for some years past cherished, of obtaining from his Majesty's Government, the accommodation of the rooms formerly occupied by the Royal Academy in Somerset House, or that of some other public building. The results of the several deputations to Ministers to urge on them the expediency of such a grant, and the replies to the memorials presented, setting forth the claims of the Society, have been too often brought to your notice to render a recapitulation of them necessary. The first was in the year 1833, during Lord Althorp's administration, when, as is recorded on the minutes of your Council, the deputation was told by his lordship, that it was his lordship's individual opinion, that if the use of the rooms then occupied by the Royal Academy were to be granted to any Society, the Royal Asiatic Society should have the preference. The replies to subsequent applications in no way controverted this ground of hope; but it has within these few weeks come to the knowledge of the Council, that the rooms have been otherwise appropriated.

Your Council would willingly have waived any reference to this subject, did it not feel that its duty to the Society obliges it to make this statement, in order to dissipate from the minds of the Members this long-cherished hope; and, though it cannot be supposed that any such disappointment will for a moment slacken our endeavours to promote the usefulness of this Society, as regards the welfare of our fellow-subjects in Asia, or as regards the people of this country, in being the medium of communicating to them that knowledge of the former—their Arts, Sciences, Manufactures, and Commerce; of the valuable natural productions and vast resources of our widely-extended empire in the East, of which daily experience is now proving the great and increasing worth; still it is necessary to know that we must, in this

also, as in all other branches of the objects of this Society, look to our own strength, and to the combination of our private exertions only.

Your Council is happy to announce that the Committee of Agriculture and Commerce has commenced its operations, and that its first day's proceedings have been printed and circulated, a few copies of which are now on the table. In the choice which the Committee has made of a Chairman, your Council feels assured that it has secured to itself a guide whose active exertions and great experience will be the best guarantee of its prosperity.

It will not be necessary here to allude to the various topics which have engaged the attention of the Committee of Correspondence since the last Anniversary, as the Right Honorable the Chairman of that Committee will doubtless furnish an ample explanation of them, and of their interest and importance, in his Report.

It is with much satisfaction that the Council adverts to the proceedings of the Committee of the Oriental Translation Fund, and to the munificent support which that institution continues to receive, evincing that the cultivation of an acquaintance with the learning of the East, is looked upon as an important object by the patrons of literature, both in this country and on the Continent.

The following works have been recently published by the Committee:—

1. The first volume of the great Bibliographical Dictionary of Haji Khalfa; edited and translated into Latin by Professor Flügel.
2. The concluding parts of the Travels of Macarius; translated from the Arabic, by Francis C. Belfour, Esq.
3. The second part of the History of the Afghans; translated from the Persian, by Dr. B. Dorn.
4. The first part of the Arabian Chronicle of Tabari; a work of much authority in matters relating to the early history of the Mohammedans; translated into French by M. Dubeux.
5. The second and concluding volume of the Harivansa; a mythological work of the Hindus; translated into French from the Sanskrit, by M. Langlois.
6. The second and concluding volume of the Chronicles of Rabbi Joseph; translated from the Hebrew by Dr. Bialloblotzky.
7. The History of the Temple of Jerusalem; translated from the Arabic by the Rev. James Reynolds.
8. The poem of Leilí and Majnún; translated from the Persian of Nizámi, by James Atkinson, Esq.

Several valuable works are now in the course of printing under the auspices of the Committee; while the translation of many others is in a state of considerable forwardness. Among the former may be mentioned the following:—

1. The Vishnu Purana, one of the Puranas of the Vaishnava order, containing copious details relating to the doctrines and rites of the votaries of Vishnu; with a genealogy of Hindu Kings, and the life of Krishna; translated from the Sanskrit, by Professor Wilson.
2. The text of the Sankhya Karika; a compendious view of the Sankhya system of Philosophy; with Colebrooke's translation, accompanied by notes, illustrations, &c., by Professor Wilson.
3. Makrizi's History of Egypt, commencing with the fall of Saladin; translated into French by M. Quatremere.
4. The first book of the Rigveda Sanhita, a collection of ancient Sanskrit Hymns; edited and translated into Latin by Professor Rosen.

The numerous donations to the Library and Museum since the last Anniversary have been already notified in the proceedings of the Society. It will, therefore, be necessary to particularize only one or two of those, which, by their importance or rarity, call for especial remark.

The additional Sanskrit MSS. and printed Tibetan books, presented by Mr. B. H. Hodgson since the last Anniversary, complete a body of original Bauddhic literature, certainly unique in Europe. The yet obscure system of philosophy by which so many millions of inhabitants of the East are directed, and which may, perhaps, boast of a greater number of followers than any other existing system in the world, may now be illustrated from the original sources, and its principles accurately developed. Testimonies of the importance of these works have been given by continental authors. The philologist also will be gratified by the large accession of materials derived from the number of Tibetan texts now placed at his disposal.

To J. C. Whish, Esq., the Library is indebted for a large collection of works, chiefly in Sanskrit, but in the Malayalam character, written on palm-leaves, and principally comprising the Védas, and other religious and philosophical works of the Hindus. This large collection was made by his late brother, C. M. Whish, Esq., of the Madras Civil Service, during a course of many years that he was resident on the Western coast of the Southern Peninsula of India.

John Romer, Esq., is the donor of several curious Manuscripts, some of which are of great rarity; we may specify a poetical version in Ara-

bic of the Kalila va Dimna, and the Marzaban Nameh in Persian, purporting to be written in A.D. 983.

The two numbers of the Society's Journal which have been published since the last Anniversary, are now on the table. A reference to their contents will evince the interest taken by men of eminence in literature in all matters relating to the East.

Among the Papers in these Journals, we may notice the Sketch of the Kingdom of Pandya, by Professor WILSON; and notices of some ancient Hindú Coins in the Museum of the Society, by the same gentleman.

RAM RAZ's Paper on the proposed introduction of Trial by Jury into India, is a gratifying proof of the satisfaction given to the natives by the ameliorations gradually introduced amongst them by our governments; and an evidence of the sound views entertained by them on their social and political rights.

The Council would also refer to the Papers by Mr. GUTZLAFF, on the subjects of Chinese literature and science; and would remark that, from the growing intercourse with that remote country, all additional information respecting its inhabitants, and their modes of thinking and acting, are desiderata of the first importance.

The Council trusts that the zeal manifested by absent Members for literary success of the Society will be an incentive to those resident in this country, to devote some portion of their leisure to communicate to it the stores of information which many of them have at their disposal.

Your Council will now conclude its Report, trusting that the foregoing, though brief, review of its proceedings during the past year, will be considered satisfactory, and evince the interest it has taken in the superintendence and guidance of the affairs of the Society.

The Right Hon. Sir ALEXANDER JOHNSTON, as Chairman of the Committee of Correspondence, detailed the operations of that Committee since the last Anniversary, to the following effect:—A variety of reasons have called the attention of the British public, at the present moment, to three great divisions of Asia. The first, that which is bounded on the West by the Mediterranean and the Red Sea; on the East by the Euphrates and the Persian Gulf; on the North by the mountains of Armenia; and on the South by the Arabian Sea. The second, that which extends from the Himalayan Mountains, North, to Point de Galle, South; and from Surat, West, to Assam, and the Chinese province of Yunnan, East. The third, that which includes the whole of China

in the North, and Borneo, Celebes, New Guinea, and the other Eastern Islands, as far as Torres' Straits, and the N. W. part of Australia, in the South.

As the Committee of Correspondence always direct their researches to those parts of Asia to which the circumstances of the time have particularly called the attention of the public, they have directed their inquiries during the last year, to subjects intimately connected with those three divisions of Asia; and I shall take the liberty to explain to the Meeting the nature, as well of those circumstances, as of the inquiries made by the Committee, and the reasons I have for believing, from the present feelings of the people of Asia in favour of useful knowledge and literary distinction, that the proceedings of the Society are popular, and will be encouraged throughout that great and interesting portion of the globe.

As to the first division of Asia, there are two circumstances which have particularly called the attention of the public to it. First, the general conviction which prevails of the necessity and practicability of establishing a direct and expeditious communication between Great Britain and British India, either through the Arabian or the Persian Gulf. Second, the general belief which prevails, that the Russian Government may, in consequence of the extension of its frontiers towards the sources of the Euphrates and Tigris, attempt, in the event of a future war between England and Russia, to aim a blow at the British possessions in India through the Persian Gulf. With a view to these two circumstances, the Committee have endeavoured to acquire a thorough knowledge of the geography and topography of that division of Asia; and have derived so much information from the Surveys of the Indian Navy, as to render it their duty, considering the debt of gratitude which the friends of science owe to this distinguished body of men, to allude shortly to the history of their military achievements; their maritime surveys; and diplomatic negociations.

The inhabitants of the Western coast of the peninsula of India, from Cape Comorin, South, to Surat, North, have always, from the earliest times, owing to a variety of causes, had a great propensity to piracy. In consequence of this, the Great Mogul, as long as he exercised any authority over that coast, kept up a navy, under the command of an Admiral called the *Sedee*, for the protection of the trade which was carried on by his subjects between India and the Persian and Arabian Gulfs. The British Government, when Bombay was ceded to Great Britain by Portugal, found it necessary to establish and keep up a navy for a similar purpose; and it expended 50,000*l.* a year upon this navy from 1710 to 1756. In the latter year the Government had, upon an occasion of great political importance to the British interests in India, a full op-

portunity of estimating the value of the services which might be derived from this navy, it having become necessary, in consequence of the innumerable depredations committed by the pirates, and the great extent of coast which they had acquired, to annihilate the power of the celebrated pirate Angrea, who had got complete possession of all the sea-coast, 120 miles in extent, from Tamana to Bancoot, and all the inland country, as far as the mountains, which in some places are thirty, in others twenty miles from the sea-coast. The ships and men of that navy having been employed upon that occasion, under the command of one of their own officers, Commodore James, were completely successful; destroyed the whole of Angrea's fleet; and, with the assistance of some land troops, took his celebrated fort of Severn-droog, and all his other forts; and put an end to his authority and depredations.[1] From that time to the present period, they, as well in the capture of the island of Ternate, in the Burmese war, in the expeditions against the pirates of the Persian Gulf, as in a great many other military expeditions upon which they have been employed, have shown the greatest promptitude, the strictest discipline, and the most undaunted courage. They have been equally distinguished by the zeal, and by the great practical and theoretical science, with which they have executed those maritime surveys by which they have been enabled, during the last forty years, to complete the most useful and valuable charts of different parts of the coasts of Asia, and of the coasts of the Arabian and Persian Gulfs.[2] During the latter part of the last century, many of the officers gained great credit by the different maritime surveys to which their names are respectively affixed. In the beginning of the present century, Captains Ross and M'Gowan, made a trigonometrical survey of the seas between the Straits of Malacca and the Yellow Sea. In 1819, in consequence of the benefit which had been previously derived, during the expedition against the pirates in the Persian Gulf, from the accuracy with which they had examined the different inlets and creeks in that sea, some of the officers were employed by the Bombay Government, in making the chart of the whole of the Persian Gulf, which was completed in 1828. In that year, in consequence of the desire which was evinced by the public, of having a communication between Great Britain and British India through the Arabian Gulf, Captain Elwon was employed, in the *Benares*, in surveying that Gulf, from the Strait of Babelmandeb to Judda, and Captain Moresby, in the *Palinurus*, in surveying it from Judda to Akkaba and Suez: and the result of these two surveys has been published in that magnificent chart of the whole of the Arabian Gulf, of which Captain Cogan has presented a copy to the Society. In 1833, some more of the officers were ordered to survey the coast of Arabia, from the Arabian to the Persian Gulf; and thereby connect the survey of the Eastern coast of Africa, made from the Cape of Good Hope to the Arabian Gulf, by Captain Owen, of the Royal Navy, with that of the Western coast of the peninsula of India, made from Cape Comorin to the Persian Gulf, by the officers of the Bombay Marine, and between eight and nine hundred miles of the coast of Arabia have already been surveyed by them. In the same year Lieutenant Wellsted was employed in surveying the Island of Socotra, and his chart, and his account of that island, copies of which are published in the Journal of the Geographical Society, do the highest honour to his talents and to his scientific acquirements, and afford the public a proof of the advantage which they have derived from the employment of such an officer on so important a service. Many of the officers of this navy have availed themselves of the opportunities which their profession has afforded them, of acquiring a knowledge of the customs and interests of the different native chiefs on whose coasts they have been employed. Captain Cogan has particularly distinguished himself by his knowledge of the territories and of the interests of the Imàm of Muscat; and by establishing an intimate alliance between that chief and Great Britain. He, at the request of the Imàm, two years ago, brought to England the *Liverpool*, of 74 guns, as a present from the Imàm to the King of Great Britain; and, by command of His Majesty, last October, took back one of the finest of the Royal yachts as a present from His Majesty to the Imàm. This officer, while he was in England, having given the Committee much useful information relative to the countries and people under the authority of the Imàm of Muscat, and to the protection and encouragement afforded by the Imàm to arts and sciences, the Society, on the recommendation of the Committee, nominated that chief one of its Honorary Members, and sent him, by Captain Cogan, a diploma conferring that honour upon him. The Government of Great Britain, aware of the importance of the Bombay Marine, have lately extended to that navy the provisions of the Mutiny Act; have given the officers a fixed rank; have placed the whole establishment under the superintendence of one of his Majesty's naval officers at Bombay; and have changed the name of the service from that of the Bombay Marine to that of the Indian Navy. Under all these circumstances, I can have no doubt that the Society must be, as the Committee of Correspondence is, convinced that the

[1] The building on Shooter's Hill, called Severn-droog, was erected by Commodore James, in honour of that event.

[2] The collection of 118 charts, published by order of the East India Company, chiefly from surveys performed by the officers of the Indian Navy, show the value of the services executed by this able body of men.

Indian Navy is, at the present moment, not only one of the most important departments of the military and civil services in British India, but also one of the most powerful engines which can be employed by the Society for procuring information relative to Asia, and for diffusing amongst the people of that division of the globe, the arts, the sciences, and the civilization of Europe.

As to the second division of Asia, the following is the circumstance which has principally called the attention of the public to it. The consideration, first, of the effect which the approximation of Great Britain to the British possessions in India, by opening a direct communication between Great Britain and India, through the Arabian and Persian Gulfs, is calculated to produce, as well upon the minds and feelings of the people of Great Britain with respect to India, as upon the minds and feelings of the people of India with respect to Great Britain. Secondly, of the effect which the establishment and colonization of a great body of Englishmen in India is calculated to produce upon the moral and political feelings of the people of India. Third, of the effect which raising the people of India to the moral and political situation of the people of Great Britain is calculated to produce, upon the authority of Great Britain in India. And, fourthly, of the effect which the measures which must, sooner or later, be adopted by the British legislature for rendering Great Britain independent of foreign countries for cotton and silk, by getting those articles from British India, are calculated to produce upon the interests of Great Britain and India. With a view to this circumstance, the Committee of Correspondence have taken steps for obtaining accurate information, from genuine Hindu sources, relative to the general history, laws, moral principles, arts and sciences of the Hindus of India; for establishing Literary Societies amongst the Hindus, for completing, through them, with the assistance of the local governments, such parts of the Mackenzie Collection as are still incomplete;[3] for procuring from the East India Records[4] in this country all such Reports as can throw light upon the

3 Lord Auckland has, recently, it is understood, in consequence of the suggestions offered to him by the Committee before his departure from this country, taken the subject into his consideration, and appointed Mr. Taylor, who has lately published some of the papers relative to Madura collected by the late Colonel Mackenzie, to assist the Hindû Literary Society at Madras, in arranging such of the papers of the Mackenzie collection as are now at Madras.

4 Sir Alexander Johnston has, at different times, read most of these Reports, and is, therefore, fully aware of the very valuable information which they contain relative to the laws, customs, and usages of the Hindûs. A few of them are printed in the four volumes of the Judicial and Revenue Selections, but many are still in manuscript, and are highly deserving of being published, as they do the greatest honour to the talents and zeal of those public servants by whom they are drawn up.

ancient laws, usages, and customs, which, at the time each province was annexed to Great Britain, prevailed amongst the Hindus of that province; for ascertaining the genuine opinions[5] of the Hindus upon all questions of religion, morals, metaphysics, laws and government; for procuring returns of the statistics[6] of British India from the Bengal, Madras, and Bombay Governments; for arranging such returns according to the plan adopted by the French Government in 1802; for procuring all the observations which have been made, either in favour or against the continuance of the permanent system as to lands in India;[7] for collecting information from every part of India relative to the growth of cotton, and the propagation of the silk-worm, for the first of which articles Great Britain is at present dependent upon the United States, and for the second of which, upon France and Italy, instead of deriving both, as it is believed she may do, from British India, and thereby circulating amongst her own subjects, in her own territories, that portion of her capital which she now circulates for those articles amongst foreigners in foreign countries; for enabling the people of Great Britain to become acquainted with the process[8]

5 These opinions may be collected from the translations which have been made from Sanskrit into English of several Sanskrit works by the late Sir Charles Wilkins, the late Mr. Colebrooke, and Professor Wilson. It is advisable to make such a collection at the present moment, when the Society can have the assistance of its present Director, Professor Wilson, who is allowed to be one of the most distinguished, if not the most distinguished, Sanskrit scholar of the present day; and when it is anxious, in consequence of the recent death of those two distinguished Oriental scholars, Sir Charles Wilkins and Mr. Colebrooke, to show every respect to their memory, and to enable the British public to appreciate the real value of their acquirements, and their literary labours.

6 The Committee have already obtained much valuable information upon the statistics of British India from the Bengal and Madras Governments; and are daily expecting to receive more from the Bombay Government, in answer to the queries which were drawn up by Mr. M'Culloch, at the request of Sir Alexander Johnston, and sent out by him to the Governors of those Presidencies.

7 It is of great importance to those Europeans who may wish to acquire lands in British India, to be acquainted with the nature of the different tenures upon which lands are held in that country, particularly with the nature of the permanent settlement, about which so much difference of opinion has prevailed for many years.

8 As it is extremely useful for the manufacturers of Great Britain to have a detailed account published of the different processes observed by the natives of every part of Asia in their different manufactories, Sir Alexander Johnston is endeavouring to procure such accounts from every part of India; Mr. Lord lately sent him some particulars relative to the cutting and polishing of agate, cornelians, &c., which was published in the third Volume of the Society's Journal; and Mr. Wilkinson lately prepared for him the paper which is above alluded to, upon the manufacture of steel. It

observed by the people of India in the manufacture of steel, on which subject a very able paper was lately, on the suggestion of the Committee, read before the Society by Mr. Wilkinson; for promoting the establishment of a Committee of Agriculture,[9] composed of Members of the Society; and for reviving at Madura, subject to such alterations as change of circumstances and the progress in arts, science, and literature may require, the ancient Hindu College,[10] which is supposed to have had so great an influence upon the education and character of the Hindus in the Southern peninsula of India, from the third to the tenth century of the Christian era.

appears, by some papers collected by Sir Alexander Johnston, that his uncle, the late Hon. Colonel George Napier, when in the Ordnance, inquired very particularly into the manufacture of gunpowder in different parts of Asia; and ascertained that the proportions of charcoal, sulphur, and saltpetre, used in China, from the most ancient periods, in the manufacture of gunpowder, are the same as are used in this country, to produce the strongest and best gunpowder.

9 With a view of acquiring a knowledge of the agriculture and statistics of British India, the Committee of Correspondence, on the suggestion of Mr. Holt Mackenzie and Dr. Royle, some time ago recommended to the Council the formation of an Agricultural Committee, composed of the Members of this Society. Sir A. Johnston having himself at the same time communicated with the Members for Glasgow and Liverpool, and with some of the leading men of Manchester, upon the subject, and having found from them that they all agreed as to the utility of such a Committee; and one having been recently formed, it is only necessary to state that the Chairman of that Committee is Sir Charles Forbes, and that the two leading Members of the Committee are Mr. Holt Mackenzie and Dr. Royle, in order to convince the public of its efficiency, and of the advantages which Great Britain and India are likely to derive from its establishment.

10 In consequence of the influence which was exercised by this College for seven centuries over the Hindus in the Southern Peninsula of India, the celebrated Jesuit Missionary, Robertus di Nobilibus, who resided at Madura in the 17th century, and the equally celebrated Jesuit Missionary Beschi, who resided at Trichinopoly in the 18th century, both formed plans for reviving it; but, owing to the dissensions in their order, were unable to carry them into effect. The father of Sir Alexander Johnston, and the late Colonel Mackenzie, who resided at Madura in 1783, having procured an account of the ancient College, and copies of the plans of Robertus di Nobilibus and Beschi, in that year formed a plan of their own for the revival of this College; and Colonel Mackenzie, who was an officer of the Engineers, and who was then superintending the building of the house for Mr. Johnston, which is known at Madura by the name of Johnston House, and which is now the property of Sir Alexander Johnston, at the request of Mr. Johnston, laid out this house in such a manner as to enable Mr. Johnston, whenever an opportunity might offer, to convert it into the Hindu College which he had planned. No such opportunity, however, occurred during the lives of Colonel Mackenzie and Mr. Johnston; but as the house is still the property of Sir Alexander Johnston, he has offered to make over all right which he has to it, according to the original plan of his father, to any individual or society who may agree to carry that plan into effect, and he is now in communication with a Society abroad, who have the intention of sending out to Madura six men eminently distinguished in different branches of science, for the purpose of establishing themselves at Madura, and educating the Hindus, of that part of India, and circulating amongst them the arts and sciences of Europe.

As to the third division of Asia, the following are the circumstances which have principally called the attention of the public to it. The first, that of the frontiers of the British possessions in India having been recently extended, partly by conquest, partly by acquisitions obtained by treaties, to the neighbourhood of the province of Yunnan, the Eastern province of China. The second, that of the discovery which has recently been made, that the tea-plant is growing in a tract of country extending 300 miles within the British territories. The third, that of British traders having been enabled, in consequence of the opening of the trade with China to all British subjects, to visit parts of that Empire which were never visited before by British subjects, and to become better acquainted than they formerly were with the produce of the different islands in the Eastern Archipelago, and with the various wants of their inhabitants. With a view to these circumstances, the Committee have taken measures for procuring all the valuable information which is preserved in the archives of the Jesuits[11] at Naples, Rome, Genoa, Venice, Paris, Madrid, and Lisbon, respecting Upper and Lower Assam, Munipore, Borg, the North-East parts of the Burmese Empire, Laos, Cambodia, Cochin-China, and all the Eastern provinces of China; for calling the attention of the British public to the moral, political, and commercial importance of the Anglo-Chinese College,[12] established at Malacca by the late Dr. Morrison, and so liberally supported by Sir George Staunton; for encouraging the Rev. Mr. Gutzlaff[13] to proceed in his very interesting inquiries relative to the history, literature and science of China, to the practice of medicine in that country, and to

11 Sangermano, in his "Description of the Burmese Empire," translated by Dr. Tandy, and published by the Oriental Translation Fund, shows the value and the extent of the information which the Jesuit Missionaries acquired of each of the countries in Asia in which they resided. The *Annales des Propaganda* also show that the Catholic Missionaries who are at present in different parts of Asia, are not less active than their predecessors were in obtaining useful information relative to that part of the world.

12 In No. 1050 of the Literary Gazette, there is a very interesting account of a young Chinese gentleman who was educated at that College, and who is believed to have had considerable influence, by the knowledge he obtained at that College, in altering the opinions of the Chinese Government with respect to the trade of their country with foreign nations.

13 This enlightened and zealous Protestant missionary is indefatigable in his endeavours to acquire a thorough knowledge of China and its inhabitants, as appears from his analysis of the Yih-She, published in the third, and his paper on the Practice of Medicine by the Chinese, published in the fourth Volume of the Society's Journal; and to circulate amongst them a knowledge of the history, literature, arts and sciences of Great Britain, as appears by his translation into Chinese of an abridgment of the History of England; and his Geographical and Astronomical tracts printed in that lan.

the different idioms which are spoken by the people of Japan[14] who inhabit the coasts of that Empire; for acquiring a knowledge of the Island of Quelport,[15] which, from its local situation, is of as much importance to those who wish to carry on a trade with Japan and Corea, as the Island of Singapore is to those who wish to carry on a trade with Siam and Cochin-China, on the one side, and all the islands of the Eastern Archipelago on the other; for having translations[16] made from the Dutch into English of all the papers in the Dutch records of Ceylon, Cochin, Negapatnam, and Malacca, which throw any light upon the history of the islands in the Eastern Archipelago, and upon the trade which was, and is still, carried on between the Dutch settlements and those islands; and for obtaining from Mr. Earl,[17] a gentleman whose observations as to these islands, and the policy which the British Government ought to observe with respect to their inhabitants, are of so much value, the informati-

guage, at Canton, with portraits, maps, and diagrams. Sir Alexander Johnston, having submitted his paper on the Practice of Medicine by the Chinese to Sir Henry Halford, who, notwithstanding his extensive practice, devotes much of his attention to inquiries in every part of the world, connected with the knowledge of his profession, has forwarded from him to the Rev. Mr. Gutzlaff, a set of queries, which are calculated to elicit from the Chinese medical men, such further information as may be interesting to the medical men of this country.

14 He has recently sent to Sir Alexander Johnston, a vocabulary of the idioms of the language spoken by the Japanese who inhabit the coasts of Japan, which he compiled from the information he received from four Japan mariners, who, after having been wrecked in the Chinese Seas, were brought to Macao, and resided with him at that place for some time.

15 It is believed that the Government of the United States are fully aware of the commercial importance of the local situation of this island. The plan which they, and the Government of France have adopted, of sending their ships of war on frequent cruises through the Eastern Archipelago and the Chinese Seas for the purpose of making the inhabitants of these seas aware of their maritime power, and for that of acquiring local information respecting all the islands in those seas, and all the coasts of China bordering on them, has enabled those two governments, particularly the former, to acquire such a knowledge of these seas as may be of the greatest importance to them in a political and commercial point of view.

16 Sir Alexander Johnston, while President of His Majesty's Council in Ceylon had most of these documents, and most of the Dutch works upon the same subject, translated from the Dutch into the English language for his own information; and he is at present collecting them in order that he may present them to the Society.

17 This gentleman, some time ago, wrote, at the request of Sir Alexander Johnston, the papers relative to Borneo which have been published in the Society's Journal; and it is to be hoped that he will be employed in some situation in which he will have an opportunity of carrying on, with facility, those researches respecting the islands in the Eastern Archipelago, and the utility of establishing an English Colony, on the Northern part of Australasia, for which he is so peculiarly well calculated, by his acquirements, his character, and his zeal.

on which he collected during the recent voyages which he made to Borneo, and many of the islands in the Eastern Archipelago.

The following circumstances show that various descriptions of persons in Egypt, Arabia, India, Malacca, and China, are anxious to acquire literary fame themselves; to respect those who have distinguished themselves by their scientific discoveries; to promote the improvement of the condition of their fellow-creatures, and to co-operate with the Society in the attainment of the objects which they have in view.

In Egypt, the Pasha[18] of that country, who is an Honorary Member of this Society, by the attention with which he receives any Members of the Society who may visit his country; in Arabia, the Arabs who inhabit both banks of the Euphrates,[19] by their conduct towards Colonel Chesney, and the expedition under his command; the inhabitants of Bagdad, by the reception which they gave the steamboat, the *Euphrates*, when it came up the Tigris to that place; and the Imám of Muscat, by the policy which he has pursued in sending the *Liverpool*, one of his 74-gun ships, as a present to the King of England, by Captain Cogan, an officer of the Indian Navy, evince the feelings which they respectively entertain in favour of the improvement of the condition of their countrymen. At Bombay, the resolution which the nephew of that distinguished scholar, the late Mulla Firoz, has adopted, to publish, by subscription, with the aid of the Society, a translation into English of his uncle's work, called the George Nameh, on the discovery of India by Europeans; the application which Manockjee Cursetjee, and sixteen of the most distinguished *Parsis*, thirteen of whom are Justices of the Peace, made some time ago, through their friend, Sir Charles Forbes, to be elected Members of this Society, show the value which the natives of the highest respectability at Bombay attach at present to literary distinction, and the honour of becoming Members of this Society.[20] At Calcutta, the

18 Captain Mackenzie, a very intelligent corresponding member of the Society, who recently came through Egypt from Calcutta to England, had an interview while at Alexandria with the Pasha, and was received by him with the greatest attention.

19 It is understood that the inhabitants of Bombay have determined to erect a monument at Alla, the place near that part of the Euphrates where the steam-boat, the *Tigris*, was overset, to the memory of the officers and men who were lost on that occasion; and that the inhabitants of Alla, so far from being averse to this measure, are ready to assist in erecting the monument.

20 The circumstances which led to the first extension by Act of Parliament to the natives of British India of the right of sitting upon Juries, and of being appointed Justices of the Peace, have made the natives of the highest distinction at Bombay anxious to have the honour of holding this responsible office. Sir Alexander Johnston, in 1810, when President of His Majesty's Council in Ceylon, conceiving that the surest way of improving the education and raising the character and the situation of the na-

improved system of education which has been introduced amongst the natives; the number of useful works on science and literature which have been translated from the English into different Oriental languages; the variety of newspapers, in English and in the native languages, which are circulated through the country; and the frequent public meetings, and public discussions, which take place upon subjects of great public interest, have gradually weakened the prejudices which prevail amongst the natives against coming to Europe; and must ultimately induce them to follow the examples set them by the celebrated Brahmin the late Rammohun Roy,[21] and the Mahommedan Prince Jamh-ud-din,[22] of visiting England themselves, of becoming acquainted, upon the spot, with the nature and effects of all its political institutions, acquiring the means of exercising a direct influence upon the government of British India, and thereby protecting the rights and privileges, and promoting the local interests of themselves and their countrymen. At Madras, the natives, by forming a Hindú Literary Society at that place, show the desire they feel to acquire knowledge, and to promote the researches of this Society, by inquiring into the history, religion, laws, architecture,

tives of India, was by giving them an ample share in the government of their country, obtained for the natives of Ceylon a charter, under the great seal of England, imparting to them trial by jury, the right of being appointed Justices of the Peace, and all the other most important rights of British-born subjects. Mr. Wynn, in 1826, then President of the Board of Control, thinking, from the moral and political effect which had been produced on the people of Ceylon by this measure, that it would be advisable to adopt a similar measure with respect to the natives of British India, introduced the Act by which the right of sitting upon Juries was extended to the natives of Bombay, Madras, and Calcutta; and Lord Glenelg, Mr. Wynn's successor, subsequently, upon the petition of the natives of Bombay, also extended to the natives of those three places the right of being appointed Justices of the Peace. This right is highly valued, as none but those natives who are the most distinguished by their character and their talents are appointed to the situation.

[21] Rammohun Roy, when in England, was examined by the Committee appointed by the House of Commons to take evidence relative to India, before the passing of the last Act which was made for the government of that country, and thereby had a public opportunity given him of stating his opinions as to the privileges and rights which ought to be granted to his countrymen, and as to the alterations which ought to be made in the British government of India. This circumstance alone, shows the very great protection, and the very great advantage, which must be derived by the natives of India, from having countrymen of their own, of high character and great talents, residing in this country.

[22] This prince, after visiting different parts of England, Scotland, and Ireland, and obtaining a knowledge of the agriculture, manufactures, and statistics of the country, has become a proprietor of East India Stock, and thereby acquired a right of exercising his influence by his vote, over the British government of India. The history of this prince's family, shows the great changes which have taken place in India within the last fifty years. Hyder Alí, the grandfather of the prince, was once so powerful a chief,

and agriculture of their country. At Malacca, the Chinese, who have been educated at the College at that place, afford a decisive proof of the benefit which the people of China must derive from a good education, and of the influence which such an education must give them over the opinions and feelings of their countrymen, and over the moral and political changes, which, owing to the progress of knowledge, must sooner or later take place in that country. At Canton the establishment [illegible] the Ophthalmic Hospital; at Macao that of the Morrison Education [illegible]ety; at both of these places the exertions of Dr. Colledge and other [illegible]essional gentlemen, to afford medical and surgical relief to the Chinese; and the various European and American institutions at Canton and Macao, must gradually produce amongst the Chinese people a conviction of the practical benefits to be derived from European science and European acquirements. The liberal and enlightened conduct of the foreign merchants at Canton and Macao, as well of those who are subjects of the United States, as of those who are subjects of all the different sovereigns of Europe, in unanimously resolving to subscribe a large sum of money, for erecting a monument in honour of the memory of the late Captain Horsburgh, shows the estimation in which they hold scientific acquirements. The resolutions which were passed by them on the occasion, whether we consider the person to whose memory they relate; the persons by whose co-operation they were passed; the place at which they were passed; the nature of the monument, and the situation in which it is to be placed, must afford the highest encouragement to scientific pursuits, by holding out the highest honours to those who succeed in them. The person to whom the honour is paid, is one who left his home in Fifeshire as a cabin-boy, who, having been employed as a sea-faring man in the Indian seas, was wrecked between Batavia and Ceylon, on the Island of Diego-Garcia; and was, in consequence of this misfortune, first led to make those va-

that in the years 1781 and 1782 some of his troops were so near Madras, as to render it unsafe to reside in any of the garden-houses near Fort St. George, and Lord Macartney, the then Governor, and his private Secretary, the present Sir George Staunton's father, derived great credit from being able to get him to conclude, in 1783, that treaty, in allusion to which, the portrait of Lord Macartney, and Sir George's father, now in the present Sir George Staunton's possession, was painted. Scarcely twenty years afterwards, the British army succeeded in annihilating altogether, under his son Tipoo, Hy[illegible]s dynasty, and Prince Jamh-ud-din, the son of Tipoo, and a pensioner of the British [illegible]ernment, is now in England, and qualified to exercise, as a Proprietor of East India [illegible]k, a greater influence over the British government in India, than his grandfather, in the plenitude of his power, had ever exercised.

luable observations, and to collect those valuable materials, from which, with the assistance of Sir Charles Forbes, and his other friends, he afterwards published that magnificent collection of charts, which is known by the name of the *Indian Pilot*. The persons by whose unanimous co-operation the resolutions are passed, are merchants of almost all the nations of Europe, America and Asia. The place at which they were passed, is Canton, which, though 18,000 miles from the spot where he died, is a place at which all the foreign merchants are the most capable of appreciating the value of his labours, from having become fully aware, during their voyage from their own country to that place of the perils from which they had been saved by the accuracy of his charts and his observations. The monument which is to be erected is the most appropriate one that could have been erected to his memory, as it is to consist of a series of light-houses, which are calculated to afford to navigators the same protection by night, which his charts and observations afford them by day. The situation in which these light-houses are to be erected, is at one of the great entrances through which ships pass from the Pacific into the Chinese seas; and is calculated, both from the number of ships which are likely to pass through that entrance, and from the great moral and political changes which are likely to be brought about amongst the inhabitants of the empire of China, and amongst those of all the Eastern islands, by the European establishments in Australasia, to secure for Horsburgh's memory, for many ages yet to come, the respect and gratitude of the inhabitants of every maritime nation of Europe, Asia, and America.

Sir Ralph Rice said, that in rising to propose a vote of thanks to the Right Hon. Chairman of the Committee of Correspondence, for his very able Report, he only regretted that the pleasing office had not been entrusted to a person more able to do justice to it. He felt convinced, that, after the very eloquent and comprehensive address which had just been delivered, there would not be found one dissentient voice. It was, indeed, delightful, to find a gentleman, after having retired from the duties of a laborious profession, devoting his valuable leisure to subjects intimately connected with the general history of India, and affording, by such an employment of his time, so much information and gratification to those with whom he came in contact. When it was recollected what a vast range of information the Right Hon. Gentleman had displayed for so many years in his annual addresses, the extraordinary skill which he had shown in the arrangement of his interesting facts, as well as the valuable suggestions which he had made for the benefit of the Society, it appeared a matter of

doubt whether more praise was due to him for what had been done, the *actum*, or for what was afterwards to be undertaken, the *agendum*. He would not detain the Meeting by entering into any remarks on the subjects which had been just now touched on in so masterly a manner, but would simply propose—"That the thanks of the Society are due, and hereby given, to the Right Hon. Sir Alexander Johnston, the Chairman of the Committee of Correspondence, for his Report, and that he be requested to reduce his observations to writing, in order that they may be printed in the Society's Journal."

General Boardman seconded the motion, which was carried unanimously.

Sir A. Johnston expressed his satisfaction at receiving a vote of thanks for his services, from persons so welll calculated to decide on their utility

Colonel Galloway moved a vote of thanks to the Council for their services during the past year. He regretted that he was but little able to do justice to the resolution, but whoever looked at the ability and zeal requisite to effect the objects which had this day been brought before the Meeting, must admit that the Council not only deserved the thanks of the Society, but of all mankind.

Major Chase seconded the motion, which was carried unanimously.

The Right Hon. the President then rose, and said that they had now come to that point in their proceedings, where he usually made such observations as occurred to him on the general state of the Society, and the proceedings of the past year. He must be permitted to express first, the lively satisfaction which he felt in witnessing so numerous an attendance of members. When he saw that sufficiency of seats could scarcely be found for the gentlemen who were anxious to witness the proceedings of the Anniversary Meeting, he could not but suppose that the Society was exciting an increased interest. It had been truly remarked, that the Society had been instituted on broad and extensive principles, analogous to those commercial principles which the liberality and extended views of modern times had generated and sanctioned. Formerly it was declared, that we must consider that trade the best, where the greatest quantity of commodities was exported from this country, and the least imported. We then considered our interests as promoted by the depression of commercial rivals. Juster principles had since been adopted and acted upon. We are now sensible, from experience, that no part of the world can improve or become prosperous, without extending an increase of wealth and prosperity to Great Britain. That none can suffer commercial reverses which

shall not also be felt by our merchants and manufacturers. This principle particularly applied to our intercourse with India. Superior skill and superior science had enabled our manufactures to supersede those of India, not only in the markets of Europe, but in those of India herself: but the demand for them must be crippled and limited, if we d not find articles which we could advantageously import from India return. If, then, we looked only to the local and limited interests this island, we should best consult them by promoting the industry, the welfare, and manufactures of India. But he would be sorry to suppose, in looking at this great country, that she could be induced to act on such narrow and exclusive views, and not regard the happiness and prosperity of eighty millions of her distant subjects to be of far more value than any temporary advantages which might accrue to herself from any system she might deem fit to pursue. In her connexion with India, the Mother Country had every desire to act on a system of reciprocal advantage, and was most anxious, that, in return for what she received, she might contribute to ameliorate the state of civilization in that country. The Asiatic Society had the same object in view, and for that purpose had directed its attention to several subjects relating to India. First to the literature of the East, which had been particularly committed to the care of the Oriental Translation Committee, which had taken its origin from the Asiatic Society. The labours of that branch had been of vast importance, and more had been effected in the last ten years through its instrumentality, than had been altogether performed in any antecedent period. A second object of the Society's attention was the History of India. It would be perceived from the Society's Journal and Transactions how much had been effected in that department. Thirdly, the arts, manufactures, and produce of India, as well as the degree of improvement they were capable of. For the purpose of this investigation, the Committee of Agriculture and Commerce had lately been appointed, and from the commencement they had already made, from the experience, the zeal, and qualifications of the Chairman (Sir Charles Forbes), as well as of the other members whom they had selected, he trusted that results the most satisfactory might be anticipated. These were the principal objects of the Society with a view to ameliorate the condition of the inhabitants of India; and he felt pride in saying that their labours were productive of much good. When he had the honour of addressing the Meeting last year, he had mentioned the great uneasiness which had been expressed at the suspension of the printing of Oriental works at Calcutta at the expense of Government. The expense which was incurred was trifling, when compared with the magnitude of the objects which were held in view. The Society had taken some pains to demonstrate the impolicy of this suspension, and had effected so much, that permission was granted that the works in progress should be completed, and should go before the public in a perfect form. Whether the printing should continue to be altogether suspended, rested with the Governor-General of India, as the authorities at home would wait for his answer before they decided. This suspension of Oriental studies in India was of great importance. Without cultivating the native tongues, we could not arrive at an accurate and useful knowledge of the manners, habits and customs of the people. The Government were most anxious to urge the introduction of the English language, as well as our improved civilization, amongst the natives. But experience had proved that this could be best effected by paying respect to their languages and national feelings. He trusted that the encouragement given to the study of the Oriental tongues, might not be withdrawn, but that the enligtened policy of former times might be continued. The expediency of this course was deeply felt by Sir C. Wilkins, who was the first among Europeans that successfully studied the Sanskrit language, and whose translations of the Bhagavat Gita and Hitopadesa were the first fruits of his success, and to whom the world is indebted for originating the translation of the *Laws of Menu*, a work afterwards completed by Sir W. Jones. It was to be hoped that the Government would see the impolicy of stopping the printing of those works, which, in the opinion of sound judges, served to draw closer the ties which connected the two countries. The Right Hon. the Chairman of the Committee of Correspondence, in his admirable address, had expressed some fears as to the hostile intentions of Russia. No doubt, many persons in that country as well as others, entertained ambitious views; but when he considered the intimate union which had existed between that country and England for more than one hundred years with little interruption, he was convinced in his own mind that a greater security for a continued peace was afforded by the strong mutual commercial interests which so closely connected them, than by any political alliance which could be formed. When the aberration of the Emperor Paul had for a short period interrupted the harmony which existed between the two countries, notwithstanding every opposition, the usual commerce did in fact go on, until the catastrophe took place which violently finished the Autocrat's reign, and put an end to the disunion between Russia and this country. Such were the general remarks he deemed it right to make on the objects of the Society. With respect to particular points for consideration, the state of the finances called loudly for increased exertion.

The Members should endeavour to procure new subscribers. Unless more than usual efforts were made, the necessary repairs of the house would cause them to encroach upon the fund of the Society, which was laid by for particular purposes. He would direct the attention of the Members to this important subject, in order to stimulate them to exertion. Since last year, the society had to deplore the loss of Mr. Colebrooke, who had always been so zealous a promoter of its interests. That distinguished gentleman had occupied the chair of the Society at its first sitting. He had recommended him (Mr. Williams Wynn) to fill the office of President of the Society. This should not be deemed a compliment to an individual, but as a mode of showing that a connexion existed between the Society and the Government, and to prove to those who were in India, that the Government were anxious to countenance and assist any means for producing good to the inhabitants. His Royal Master, George the Fourth, approved of the suggestion, and had graciously declared himself the Patron of the Society, at the same time directing that the First Commissioner for the affairs of India should officially hold the office of Vice-Patron, and thereby supply a constant channel of communiation between the Society and the Government. His present Majesty had also accepted the office of Vice-Patron when Duke of Clarence, and since his accession had not only succeeded his Royal Brother as Patron, but had distinguished the Society by a mark of his particular favour, as selecting the late Sir Charles Wilkins and Sir Graves Haughton as companions of the Guelphic Order. As the situation which Mr. Colebrooke had occupied as Director, was to be filled up, it became necessary to procure a successor. An application was made to Sir Graves Haughton, who occupied a distinguished place in Oriental literature, to fill the vacant chair. Ill-health prevented that gentleman from complying; and it was perhaps a matter of congratulation to him, as his private friend, that he had not consented. Zeal for the interests of the Society might have produced extraordinary exertion, which might prove too much for a weekly state of health; and the Society would then have to deplore the loss of another eminent individual. Application was next made to Mr. Professor Wilson, who stood conspicuous as the first Sanskrit scholar of the day, and was distinguished by holding the situation of Professor of Sanskrit at the University of Oxford. It was felt, in recommending this gentleman to the Council, that not only was he the most eligible person, from the services which might naturally be expected from him; but that a lustre would be added to the Society in every country in Europe and in the East, by possessing so distinguished a scholar amongst their Members.

The advanced hour of the day prevented his adverting to other matters of interest; yet he could not forbear lamenting the death of Mr. Marsden, whose works on Eastern subjects had been the means of greatly extending the knowledge of Eastern philology and history. In conclusion, he must again express his pleasure at the fulness of the attendance, and would recommend to the good offices of all present, the task of procuring a further addition to their numbers, as the funds of the Society stood in great need of assistance.

Sir Alexander Johnston rose to discharge the pleasing duty of proposing a vote of thanks to the President. The longer they had the pleasure of knowing him, the more reason had they for being proud of their connexion with him. If anything more than another merited their gratitude, it was the handsome manner in which he had at first joined the Society. It was then important that a person connected with the Government should countenance and support the Society. The Right Hon. Gentleman came forward at the moment when the Society required it; he was then at the head of the Board of Control, and he did not for a moment hesitate to join them. Since that period, through all its vicissitudes, he had been regularly elected to the chair, which he adorned as much by his liberality of feeling, as by his zeal for literature and science. It was unnecessary to say more than to propose that the thanks of the Society be given to the Right Honourable President.

The Right Hon. Henry Ellis seconded the motion; which was carried *unâ voce*.

The President returned thanks.

Thomas Weeding, Esq., moved a vote of thanks to the Vice-Presidents.

Sir Charles Forbes seconded the motion; which was carried unanimously.

Sir A. Johnston returned thanks for himself and colleagues.

Sir George Staunton rose to propose a vote of thanks to the Treasurer, for the zeal and attention which he always paid to the interests of the Society. As he was standing, he should take the opportunity of adverting to a subject which deserved, he thought, the attention of the Society. It was to effect a more intimate union between the Royal Asiatic Society and the Oriental Translation Fund. In their anxiety to improve

the state of their finances, it might be worth while to see if a considerable saving could not be effected by such a junction. The two Societies had the same object in view, and held their meetings in the same house; and yet their measures were carried on by a double machinery. The expense, of course, was greater, by such separate proceedings, and this he thought might be considerably diminished by a connexion between the two Societies. He did not mean at that time to move any Resolutions on the subject; but he would read two Propositions which he had prepared as subjects to be considered on a future occasion:—

1. That a more intimate union of interests and of government, between the Royal Asiatic Society and the Committee of the Oriental Translation Fund is highly desirable for the promotion of their common object, the diffusion of knowledge connected with Asia, whether by means of Translations, or by means of Original Communications.

2. That the following propositions be made to the Committee of the Oriental Translation Fund:—

That the Oriental Translation Committee be a Committee of the Royal Asiatic Society: that all the present Members of the Committee be confirmed: but that no new Members be elected who are not Members of the Royal Asiatic Society.

That the Oriental Translation Fund be in future called the Oriental Translation and Publication Fund, and be applicable, in certain proportions, to the purposes of original publications upon Oriental subjects, as well as to those of translations of Oriental works; and that all Ten Guinea Subscribers to that Oriental Fund shall be entitled, accordingly, to receive copies of all the Publications of the Royal Asiatic Society, in addition to those of the Translations published under the direction of the Oriental Translation Committee.

It is presumed that the plan of including the original publications of the Society with the translations of Oriental works, if approved of by the present Subscribers, will add to the popularity of the Fund, and that the augmentation in the list of Subscribers would prevent any diminution of the pecuniary resources specially at the disposal of the Oriental Committee, while it would materially improve the general finances of the Society.

He thought it would not be difficult to show the advantages which must arise from the proposed junction. When first the Oriental Translation Fund had commenced its labours, it had printed many valuable works, which had been but little known. The first harvest of their exertions was now reaped, as the works which remained to be translated

could scarcely be expected to possess so much interest as those which had been first selected. He suggested therefore, that original contributions should be mixed with the translations which were made, as the works sent out by the Oriental Translation Fund would thus become more popular, and more widely disseminated. The same persons who were anxious to see translations of Eastern works, would be glad also to peruse original contributions referring to India; so that the present patrons and supporters of the Oriental Translation Fund could not be expected to make any objection. He laid the proposition before the Meeting, under the impression that some new arrangement of this description was now become necessary, and would be found to improve the finances of the Society. To return to the first object of his rising, he begged to move a vote of thanks to the Treasurer, for his valuable services.

Louis Hayes Petit, Esq., seconded the motion; which was carried unanimously.

J. Alexander, Esq., returned thanks for the flattering complimen which had been just paid him. He only wished that his exertions were more beneficial to the Society. He begged leave to urge on the Meeting the necessity of exertion, in order to increase their funds, without which they could not hope to be independent, and really useful.

Colonel Vans Agnew moved a vote of thanks to Captain Harkness, the Secretary of the Society, for his services. The high attainments and zeal of this gentleman, were too well known to require any encomium from him. He hoped that they might long have the advantage of his services, and that his example might stimulate other military men from India to employ their leisure agreeably, and usefully, in cultivating Oriental literature.

George Arbuthnot, Esq., seconded the motion; which was carrie unanimously.

Captain Harkness returned thanks.

Sir Henry Willock said, that in rising to propose a vote of thanks to Sir Graves Haughton, the Librarian, he had to announce to the Meeting that the weak state of that gentleman's health had obliged him to

retire from the duties of his office. A distinguished officer, however, had consented to undertake the labours of the office, and he felt confident that the Meeting would congratulate themselves when he named Colonel Francklin.

Colonel Strover seconded the motion; which was carried unanimously.

The Meeting then proceeded to ballot for the Officers and Council for the ensuing year; Andrew Macklew, Esq., and W. Newnham, Esq., were appointed Scrutineers. Professor Horace Hayman Wilson, was elected Director of the Society; and Colonel W. Francklin, Librarian; the other Officers were re-elected. The following gentlemen were elected into the Council, in the place of the eight who had retired:—The Hon. Mountstuart Elphinstone; the Right Hon. Henry Ellis; Sir Graves Haughton; Colonel John Briggs; John Francis Davis, Esq.; Charles Elliot, Esq.; William Newnham, Esq.; and William Oliver, Esq.

XI. *Horary Meteorological Observations made agreeably with the suggestions of Sir* John Herschel, *at the Madras Observatory.—By* T. G. Taylor, Esq. *H. E. I. C. Astronomer.*

8.	Time.	Barom.	Ther.	Wind.	Strength.	Remarks.
June 21	6 A.M.	29.852	85.6	S. W. by W.	Calm.	Clear.
	7	29.868	85.0	S. W. by W.	Gentle wind.	do.
	8	29.870	86.8	S. W.	do.	do.
	9	29.876	88.8	S. W.	do.	do.
	10	29.876	91.0	S. W.	do.	do.
	11	29.864	93.1	S. W.	Strong do.	do.
	12	29.856	94.2	S. W.	do.	do.
	1 P.M.	29.820	91.4	S. S. E.	Moderate do.	F. C.
	2	29.790	89.7	S. E.	Strong do.	Cloudy.
	3	29.751	90.0	S.	do.	do.
	4	29.740	87.6	S.	do.	do.
	5	29.730	86.5	S. E.	do.	do.
	6 P.M.	29.770	84.7	S.	do.	do.
	7	29.796	84.6	S.	do.	do.
	8	29.842	85.7	S. E.	Gentle do.	Rainy—lightning
	9	29.856	84.8	S.	do.	Dk. cl. vivid light dist. th.
	10	29.862	84.0	S. S. W.	do. breeze.	Mostly cly.—do.
	11	29.866	84.2	S.	Light do.	Thick haze.
	12	29.860	84.0	S.	Gentle do.	do. do.
	1 A.M.	29.838	83.8	S.	do.	— —
	2	29.816	83.6	S. S. W.	— —	— —
	3	29.802	83.0	S. W.	— —	— —
	4	29.800	82.8	S. W.	— —	— —
	5	29.800	82.5	S. W.	Moderate W.	— —
22	6	29.818	82.8	S. W.	Calm.	Thick haze.
	7	29.870	83.0	S. W.	do.	do.
	8	29.882	84.8	S. W.	Fresh wind.	do.
	9	29.896	86.4	S. W.	Gentle do.	Haze.
	10	29.888	88.0	W.	Moderate do.	do.
	11 A.M.	29.890	90.6	S. W.	Strong do.	do.
	12	29.882	92.4	S. W.	do.	Thick haze.
	1 P.M.	29.868	93.4	S. W.	Gentle do.	do.
	2	29.846	94.3	S. W.	Strong do.	do.
	3	29.816	96.0	S. W.	do.	do.
	4	29.786	95.8	S W.	do.	Flying clouds.
	5	29.784	91.6	S.	do.	Cloudy.
	6	29.818	87.4	N. N. E.	Gentle do.	do.

1838	Time	Barometer. Standard. C	Barometer. Standard. No. 1.	Thermometer. Dry.	Thermometer. Wet	Wind. Direction	Strength.	Remarks.
Sept 21	6 A.M.	29.880	29.852	79.4	76.5	w. s. w.	1	Heavy clou[illegible]
	7 ,,	.908	.882	79.2	77.4		calm	Generally cloudy.
	8 ,,	.924	.897	80.4	78.5	w. s. w.	1	Fleecy cl., overcas
	9 ,,	.954	.924	82.2	78.7	w. by s.	1	do. do.
	10 ,,	.954	.924	83.4	78.7	N. W.	2	do. do.
	11 ,,	.946	.914	84.9	79.6		calm	do. do.
	12 ,,	.912	.894	86.0	80.2	s. w.	1	do. do.
	1 P.M.	.884	.867	87.2	80.3	s. w.	1	do. do.
	2 ,,	.862	.848	87.2	80.2	s. w.	1	do. do.
	3 ,,	.844	.834	87.0	81.4	s. s. w.	1	do. do.
	4 ,,	.834	.829	86.2	81.3	s. s. w.	1	do. do.
	5 ,,	.848	.840	85.0	80.6			do. do.
	6 ,,	.866	.842	82.2	78.5	s. e.	1	do. dark cl. at s. w
	7 ,,	.886	.845	81.0	78.6	N. E.	1	Rain, lightning & th
	8 ,,	.906	.878	80.6	78.0	N. E.	1	do. do. do.
	9 ,,	.920	.884	78.0	76.5	N. E.	1	Cloudy do.
	10 ,,	.960	.926	77.3	75.7	N. W.	2	Rain do. thunder.
	11 ,,	.928	.904	77.9	76.5	s. w.	1	do. do. do.
22	12 ,,	.916	.898	77.9	76.6	s. w.	1	do. do. do.
	1 A.M.	.912	.890	77.3	76.5	s. w.	2	do. do. do.
	2 ,,	.892	.876	76.5	76.0	s. w.	2	do. do. do.
	3 ,,	.890	—	—	—	s. w.	2	do. do. do.
	4 ,,	.883	—	—	—	s. w.	2	do.
	5 ,,	.902	—	—	—	w.	2	do.
	6 ,,	.918	.894	76.8	75.4	w. N. w.	2	Thickly overcast rainy
	7 ,,	.951	.924	76.4	75.4	w. N. w.	4	do. do.
	8 ,,	.963	.942	77.2	75.5	s. w.	1	3.565 In of rain
	9 ,,	.952	.932	78.8	76.7	w.	1	cloudy. [since 6 p. m.
	10 ,,	.962	.934	79.8	76.9	w. by N.	2	do.
	11 ,,	.950	.924	81.2	77.7	w.	2	do.
	12 ,,	.910	.894	82.0	78.0	w.	2	do.
	1 P.M.	.882	.878	82.6	78.3	w. by s.	2	do.
	2 ,,	.858	.860	83.1	79.0	w. s. w.	1	do.
	3 ,,	.845	.848	85.2	79.5	s.w.by w.	1	Flying clouds.
	4 ,,	.852	.836	87.8	81.5	w.	2	Zenith clear cl. about
	5 ,,	.853	.836	86.4	80.0	s.	1	clear. [horizon.
	6 ,,	.871	.850	84.3	80.0		0	Cl. in N. horizon.

The Barometer C. is a very superior Standard which has been constructed for J. Caldecott, Esq. the Astronomer at the Travancore Observatory; the correction due for capillarity is +.006.

METEOROLOGICAL REGISTER KEPT AT THE MADRAS OBSERVATORY, FOR THE MONTH OF JULY, 1838.

Days.	Barometer at 10 A. M.	Barometer at 4 P. M.	Barometer at 10 P. M.	Thermometer at 10 A. M.	Thermometer at 4 P. M.	Thermometer at 10 P. M.	Rain. Sun-rise.	Rain. Sun-set.	Evaporation.	Direction of Wind. 10 A. M.	Direction of Wind. 4 P. M.	Direction of Wind. 10 P. M.	Weather. 10 A. M.	Weather. 4 P. M.	Weather. 10 P. M.	Remarks.
1838	Inch.	Inch.	Inch.						Inch.							
July 1	29.894	29.800	29.868	88.3	90.0	85.8				W	SE	S	Clear	Fl. cl.	Fl. cl.	Lightning.
2	.900	.826	.886	88.8	93.8	87.4				W	SE	S	Haze	—	Cloudy	
3	.912	.872	.926	90.0	88.0	86.4				W	SE	SW	Haze	Cloudy	Cloudy	
4	.966	.844	.906	88.8	92.5	85.8			4.185	W N W	E	S	Cloudy	Cloudy	Cloudy	Lightning.
5	.966	.878	.890	88.3	84.3	84.3				W	S	S	Clear	Cloudy	Cloudy	
6	.878	.780	.816	90.0	93.6	83.5				W	E	S SW	Clear	Cloudy	Th. hz.	
7	.832	.744	.822	89.7	95.0	88.3	0.187			N W		S	Haze	Fl. cl.	Fl. cl.	
8	.850		.848	88.6		87.3				W		S	Clear	Do	Do	
9	.916	.806	.902	90.6	90.6	87.2				W	SE	S	Clear	Do	Do	Thunder and lightning.
10	.928	.850	.898	90.5	87.9	86.9			4.380	N W	SE	S	Clear	Do	Do	
11	.894	.786	.872	90.8	90.0	86.9				N W	S	S	Cloudy	Haze	Haze	Lightning.
12	.886	.778	.842	86.8	88.0	84.8	0.964			W	SE	S	Cloudy	Cloudy	Cloudy	Thunder and lightning.
13	.854	.762	.826	87.3	89.4	86.6				SW	E	S	Th. hz.	Cloudy	Cloudy	Do. lightning.
14	.836	.736	.810	87.2	85.6	87.7	0.097			W	E	S	Haze	Cloudy	Cloudy	do.
15	.812		.806	88.0		87.0	0.357			SW		SW	Clear	Cloudy	Cloudy	do.
16	.832	.732	.834	89.2	93.0	89.4				W	NW	SW	Cloudy	Cloudy	Cloudy	do.
17	.852	.724	.824	88.8	92.5	90.2				W	W	SW	Cloudy	Cloudy	Cloudy	do.
18	.798	.876	.820	88.8	91.0	89.6			4.369	W	NW	W	Cloudy	Haze	Haze	do.
19	.856	.746	.802	88.3	90.5	87.8				W	W	S	Haze	Rain.	Rain.	Thunder and lightning.
20	.836	.746	.846	89.2	92.0	88.0	0.137			W	NE	W	cl.&rn.	Fl. cl.	Fl. cl.	Lightning.
21	.856	.762	.872	89.6	94.4	88.9		0.147		W	W	S	Clear	Cloudy	Cloudy	
22	.912		.882	88.4		86.4	0.101			W	—	S	Cloudy	Th. hz.	Fl. cl.	Lightning.
23	.918	.808	.908	88.5	89.0	85.9	0.027			W	E	S	Th. hz.	Th. hz.	Fl. cl.	do.
24	.910	.814	.898	87.3	89.4	85.7	0.097			W	SR	S	Cloudy	Fl. cl.	Fl. cl.	do.
25	.918	.866	.916	86.0	89.6	87.0			4.017	W	SE	SW	Cloudy	Cloudy	Haze	Thunder and lightning.
26	.952	.862	.938	83.2	89.0	86.2	0.277			W	E	W	Clear	Fl. cl.	Clear	Lightning.
27	.910	.838	.900	86.5	88.5	85.2				NW	NW	S	Haze	Th. hz.	Clear	do.
28	.902	.828	.896	88.8	89.8	85.7				NW	NW	S	Haze	—	Haze	do.
29	.890	.838	.843	87.8		85.9				NW	SE	S	Clear	Clear	Haze	do.
30	.864	.812	.838	87.6		86.3				NW	SE	S	Cloudy	Cloudy	Cloudy	do.
31	.850	.774		87.1	88.8	87.3				W	E	S				
Mean	29.882	29.797	29.865	88.4	—	86.7										

The Instruments with which the foregoing Observations are made, are placed in the Western Verandah of the Honorable Company's Observatory, at about 5 feet above the surface of the ground, and 27 feet above the level of the Sea.

The Barometer employed up to the 9th September was No. 1; one of two Standards (No. 1 and 2) which I had constructed at the end of the year 1836, to supply the place of those broken during the storm. It had been my custom occasionally to compare these standards by way of assuring myself of their having remained uninjured, and up to the 21st June 1838, the difference between them never exceeded the error incidental to the readings—from this date no comparison had been made up to the 9th September, when the Standard No. 1 stood, 045 lower than No. 2, which difference evidently arose from air having got into the tube—from 10 P. M. on the 9th September to 10 P. M. on the 17th the Standard No. 2 was employed; and from this date, having re-filled the tube of No. 1 it has continued to be employed as heretofore.

The corrections for capillarity, which remains to be applied to the reading of No. 1 is ..... +0.027

No. 2 — ..... ,085

During the month of October, I was enabled to compare both of these Standards with a magnificent Standard by Newman, which had been constructed with all the advantages of modern improvement for the Trevandrum Observatory, when, from the mean of several readings *corrected for capillarity*, the

Trevandrum Standard stood at.....30,000

Madras..... No. 1.....30,001

No. 2.....29,993

The Thermometer was made on purpose for the Observatory, and at 75° (the only point at which a comparison has been made) it was found to differ insensibly from the Royal Society's Standard;—

	h.	m.	s.	
Longitude.....	5	21	8	E.
Latitude....	13°	4	85	N.

MADRAS OBSERVATORY,
1st Oct. 1838.

T. G. TAYLOR,
H. C. Astronomer.

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