

ROYAL ASIATIC SOCIETY,

CEYLON BRANCH.

PROCEEDINGS,

1885.



COLOMBO:

GEORGE J. A. SKEEN, GOVERNMENT PRINTER, CEYLON.

1886.

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1885.

OFFICE BEARERS, 1885.

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J. L. VANDERSTRAATEN,
Esq., M.D.

PROCEEDINGS.—1885.

GENERAL MEETING.

29th January, 1885, 8.30 p.m., at Colombo Museum.

Present :

The Hon. J. F. Dickson, M.A., C.M.G., President, in the Chair.

P. D. Anthonisz, Esq., M.D.

T. Berwick, Esq.

F. W. Bois, Esq.

H. Bois, Esq.

The Hon. R. A. Bosanquet.

J. B. Cull, Esq., M.A.

D. W. Ferguson, Esq.

J. Ferguson, Esq.

W. Ferguson, Esq., F.L.S.

The Hon. F. Fleming.

Ph. Freüdenberg, Esq.

H. MacVicar, Esq., F.Z.S.

W. P. Ranasinha, Esq.

J. H. Thwaites, Esq., M.A.

W. H. Wright, Esq.

W. E. Davidson, Esq., C.C.S., Honorary Secretary.

Six visitors introduced, and six ladies.

Business.

The Paper for the evening was a translation, by Mr. Philip Freüdenberg, of an account of Ceylon by Johann Jacob Saar, a private soldier in the service of the Dutch East India Company, whose experiences of fifteen years' campaigning in Ceylon were admirably rendered in Mr. Freüdenberg's translation. The naive spirit of the original was capitally caught. The extract read by Mr. Cull, the whole translation being too long to read, was the part relating to the siege of Colombo by the Dutch, and its capture from the Portuguese in 1656.

The recital of Saar's experiences in Ceylon is in the form of an extended diary, with the dates of the various incidents noted very carefully. The translation commences with the fourth chapter of the original work, the previous chapters referring to his travels in other countries. It is dated 1647, A.D. when, with three hundred other soldiers in the Dutch East India Service, the writer left Batavia for Ceylon, arriving at Galle, then regarded as the Dutch capital of the Island, the Portuguese holding possession of Colombo, Negombo, Kalutara, Mannár, and Jaffnapatam. The account of the country and its people in the early part of this diary is told very much as we find it in Knox, save that the latter referred to Kandyans, whereas Saar speaks of the low-country people. He alludes with evident surprise to the fact of the peasant, or cultivator, being held in higher esteem than the artificers in gold and silver, but so it is not only in all Eastern countries, but amongst the early inhabitants of the West, where the poorest free-born cultivator was, in the Saxon times, held to be

superior to the burgher or artisan. There are several pages devoted to an account of the kraaling of elephants, which was evidently carried on then pretty much as it is in the present time, except in the methods adopted for taming and training the captured brutes. There is an amusing account of a capture of a huge rock-snake whilst in the act of swallowing a young deer, a portion of which protruded from the creature's jaws: the snake was killed, and the young deer removed from it was found to weigh forty pounds. Seeing the natives prepare to cook the snake, Saar bethought him to make a meal or two of the deer, and found that, on being cooked, it tasted remarkably well.

It is made very evident from Saar's recital that the Portuguese had rendered themselves intensely disliked by the King of Kandy, or, as he is termed, the Emperor of Ceylon, who on several occasions made overtures to the Dutch to aid him in expelling the Portuguese from the country, sending on one occasion an embassy to Batavia for that purpose. The Dutch, nothing loth, came to an understanding with the Kandians, who supplied them with fresh provisions of all kinds, as well as with native troops to aid them in their operation, and coolies for carrying supplies, &c.

The hostile proceedings of the Dutch Commander of Galle appear to have been directed, in the first place, against "the great fortress of Negombo," as it was styled. Negombo had at that time four bastions, two towards the sea and two towards the land, each armed with eight guns, with a wall of sods twenty-two feet thick running round the whole, and enclosing a castle protected by two bastions. Outside of all there was a deep and wide ditch lying with sharp stakes. Altogether, it must have been a formidable place in those times against a native enemy. The reason for all this strength was that Negombo was the centre of the cinnamon jungles, into which large bodies of peelers were despatched at the proper season, accompanied by a hundred soldiers to drive off the enemy and wild elephants during the collection of the much-coveted bark.

Negombo was taken by the Dutch, and recaptured from them several times after much fighting and some blood-letting, but, after the taking of Colombo and the establishment of a good understanding with the Kandyan sovereign, it was no longer necessary to maintain a large garrison at Negombo, and the fort and its works were much reduced in size and strength.

The account of the march of Dutch troops to the siege of Colombo is full of interest, as showing the mode of warfare adopted in those days, and the tedious marches undertaken by the troops, all of whom were infantry. Meeting a body of Portuguese troops seven hundred strong, a few miles on the Galle side, the Dutch army, reinforced from Batavia and numbering three thousand, had no difficulty in defeating them and killing a large number. Advancing on the capital they regularly invested it, but met with such a stout resistance that their numbers were considerably reduced by dead and wounded, the latter being cared for in

a monastery at Mutwal. The besieging force was now beginning to feel some discouragement, but the narrative goes on to say :—

“ When, however, on the 2nd of April, three ships with fresh soldiers arrived from Batavia, our spirits rose considerably, and we wanted to have our revenge ; the more so, as, on the following day, 3rd of April, we got hold of the Portuguese provisions which had sailed from Goa under a Dutch flag, in hopes to pass through our fleet into the harbour of Colombo.

“ When the besieged learnt these two facts, they, on the other hand, became despondent, especially as they saw that every day we got nearer to the town. Daily many deserters came to us, and all reported that there was great want of provisions, and that many had died of hunger. This was confirmed by their daily driving out black people, whom we could not allow to get into our camp, and therefore had to shoot between the trenches and the town. At last the famine assumed such proportions that one native woman ate her own child ; others took grass from the ground, and wanted to eat it. As we had no means of driving them away from our camp, we had to strike a still greater terror into them, and when a woman came and brought small children, we forced her to put her child into a wooden mortar, and to pound it dead with the poulder, and then again to go away with the dead child. On the 9th of April we began to dig a mine, and managed to make a gallery on one side across the ditch. When, however, on their side we had dug for two days, they noticed it, made a counter-mine in the direction of ours, so that when we became aware of it and heard it, we had to give up our work.

“ On the 12th of April, our General wanted to reconnoitre whether we could not construct a mine in a different locality. But when we wanted to go into the last trench, a shot from one of the bastions hit him and killed him on the spot, which caused a great terror among our soldiers.

“ On the 2nd of May his body was taken to Galle, and there carried into the church by sergeants and buried, whilst the cannons upon the wall and round the town fired a salute, and two companies of soldiers gave three volleys. On the 6th of May, a Saturday, we were lying all through the night in the trenches, as the Emperor of Ceylon and ourselves had decided to attempt again a general assault. Just then a Portuguese, fully armed, ran over to our camp, and then was conducted before our Governor, who commanded in place of the late General. On close examination he said that those in the town wished for nothing better, but that another storm should be attempted. He told us that in the town passages been made through all the houses, whilst all the streets were provided with double palisades of palm trees, that the cannon had been taken down from the walls, and had been posted in the streets charged with shot ; that below the walls which we should have to pass, big boxes with powder had been put and so arranged that, with a running fire through all their houses, they could be exploded, and by thus separating the bastions

from each other, make it impossible for us to carry our point, because we should all be killed either by fire or by mines. On the other hand, he gave us splendid advice. He said that, as soon as daylight appeared, being Sunday, the citizens, who had been watching during the night, would go with the soldiers to hear mass, and there would be no more than five or six men in the bastions. Altogether, there were only about one hundred real Portuguese soldiers; the others were burghers and slaves. Now, we were to make our drummers beat and our trumpeters trumpet at the same time, and in the usual way in the morning; we were to remain quietly in the trenches, that nobody might become aware of our intentions, and then, half an hour afterwards, when they would be all in church, we were quietly to attack the bastion called St. John's. This advice pleased us very much; three companies with firearms were quietly told off, and a reward of fifty-six dollars promised to him who should first scale the wall. We prepared quickly our ladders, placed them against the wall, and managed to get up without being noticed. We found not more than eight natives, seven of whom were asleep; the sentinel, it is true, was awake, but he was killed with the others before he had time to escape.

"Soon there was an alarm in the town, all bells were tolled, everybody was up and in arms and ran towards the bastion. The cannons were directed against us, and a strong fire kept up, so that we again had about three hundred dead and many wounded."

Before the Paper was read, some questions were put by the Members, which elicited interesting information. In reply to Mr. Fleming's inquiry as to what publications might this year be expected, the Secretary gave the satisfactory assurance that five or six volumes would be issued from the press during 1885. The Journal for 1883, which had been delayed through many causes, was now nearly ready, and the catalogue, by Dr. Trimen, of plants indigenous to or growing wild in Ceylon was being printed, and was promised by the end of February; this would form an extra number of the Journal. During March, the Proceedings of 1884 would be printed, while April and May were to be devoted to the publication of the first part of the Journal of 1884; the whole of this number would be taken up by the studies of the Játakas, which were now being edited by the Bishop of Colombo. Mr. Parker's Paper on the Archæology of Tissamaharáma is to appear a month later, and is of itself to form a separate and most interesting number. A third instalment of the Journal, comprising the other Papers read during 1884, would be taken in hand later; and if the funds of the Society would admit, a reprint of one of the back numbers, now out of print, would be undertaken. This assurance shows a most promising harvest, and if the Secretary is able to act up to his promises, the Members will have every reason to be well satisfied.

Mr. Bosanquet put a very pertinent question in asking for news as to the excavations being conducted by the Society at

Anurádhapura. The answer to this by the President was disappointing ; nothing of real value was to be found. It has been found that no chapels existed on three sides of the Mirisveṭi dágoba, and all that has been laid bare are the mouldings and plaster covering of the dágoba.

The President stated that Mr. Cull had recently paid a visit to Anurádhapura, and could, perhaps, give the Society some information.

Mr. Cull replied that very little had been done, the only interesting objects excavated being some inscribed stones round near what were supposed to have been the royal elephant stables, but which may turn out to be the remains of the Maha Vihárá.

The President expressed his opinion that the object towards which the Society should strive in its archæological researches was the discovery of manuscripts, and he gave it as his belief that several of the ancient dágobas of Ceylon—notably the Abhayagiri dágoba, at Anurádhapura—were built for the express purpose of enshrining the sacred books of Buddhism. This belief had received an unexpected confirmation in Mr. Parker's researches at Tissa. He read a letter from Mr. Parker, in which he says :—

“ I have been informed by several persons who saw it that a book of two gold leaves was found in the old relic-chamber at the top of the Maharáma here, and replaced in the new relic-chamber, which is now entirely covered up. It is said to have the leaves covered with writing, which resembles the characters on the inscribed bricks.”

There seems some fear now, from what Mr. Freüdenberg said in answer to a question by Mr. Berwick, that the translation of Prof. Virchow's Monograph on the Veddás, which has been made for the Society through Mr. Freüdenberg's instrumentality, may be lost through a misunderstanding with the translator, an English lady, who has left Germany for America, and taken her manuscript with her. We trust, however, that Mr. Freüdenberg, in his next trip to Europe, will somehow contrive to bring the long-delayed translation with him on his return.

The Meeting terminated with a vote of thanks to Mr. Freüdenberg for his translation, and to Mr. Cull for the reading of it.

COMMITTEE MEETING.

17th February, 1885, 4.45 p.m., at the United Service Library.

Present :

The Hon. J. F. Dickson, M.A., C.M.G., President, in the Chair.

J. Capper, Esq.

W. P. Ranasinha, Esq.

J. L. Vanderstraaten, Esq.,

M.D.

W. E. Davidson, Esq., Honorary Secretary.

Business.

1.—Read and confirmed Minutes of Committee Meeting of 19th December, 1884.

2.—Discussed memorandum circulated by the Honorary Secretary, suggesting a systematic division of the year into three sessions, one of which should be devoted to lectures of a popular character, so far as the topics chosen could be held to come within the scope of the Society's *raison d'être*. After some discussion, it was resolved that during June, July, September, and August, a series of lectures on the following topics should be delivered, if the gentlemen invited by the President and the Committee to deliver the lectures would kindly consent to do so:—

(a) The Colombo Breakwater : its engineering features, by J. Kyle, Esq.

(b) An account of the Structure and Resources of the Colombo Waterworks, by A. W. Burnett, Esq.

(c) The Pearl Fisheries of Ceylon, by J. Donnan, Esq.

(d) The Colombo Fort in the Portuguese, Dutch, and English Times, by J. Capper, Esq.

(e) History of the Public Health of Ceylon, by W. R. Kynsey, Esq., P.C.M.O.

(f) Food Products of Ceylon, by E. Elliott, Esq., C.C.S.

3. Discussed the range to which invitation should be limited to contribute to the Játaka studies of the autumn sessions.

Resolved finally,—That the Bishop of Colombo should be requested to draw up a synopsis of work founded on that written by him last year, and that this be circulated by the Secretary to Members of the Society, and to students of Buddhism, among the scholars in various parts of India.

4. Attention was drawn by the Secretary to the want of co-operation and reciprocity in the exchange of publications of certain learned Societies.

Resolved,—That the Secretary do draw the attention of these Societies to the fact, and do request reciprocity in exchange.

GENERAL MEETING.

20th February, 1885, 8.30 p.m., at the Colombo Museum.

Present :

His Excellency the Hon. A. Hamilton Gordon, G.C.M.G.,
in the Chair.

The Hon. J. F. Dickson, M.A., C.M.G., President.

P. D. Anthonisz, Esq., M.D.
T. Berwick, Esq.
W. J. S. Boake, Esq., C.C.S.
H. Bois, Esq.
Hon. R. A. Bosanquet.
J. Capper, Esq.
J. B. Cull, Esq., M.A.
A. M. Ferguson, Esq., C.M.G.
J. Ferguson, Esq.
W. Ferguson, Esq., F.L.S.
Hon. F. Fleming.

Ph. Freüdenberg, Esq.
S. Green, Esq., F.L.S.
Hon. A. C. Lawrie.
H. MacVicar, Esq., F.L.S.
F. H. Price, Esq., C.C.S.
W. P. Ranasinha, Esq.
Hon. F. R. Saunders.
H. Van Cuylenburg, Esq.
H. White, Esq., C.C.S.
W. H. Wright, Esq.

W. E. Davidson, Esq., C.C.S., Honorary Secretary.

Seven visitors introduced, and twelve ladies.

Business.

After the Minutes were read and passed, Dr. Trimen read a valuable Paper, of which the following is an abstract :—

*Remarks on the Composition, Geographical Affinities,
and Origin of the Ceylon Flora.*

The author commenced by remarking that the Systematic Catalogue of Ceylon Plants which he presented to the Society was as unsuited for reading as a dictionary, a concordance, or an index ; but he would accompany it by some general observations on the flora which it enumerates. The present catalogue includes about 3,250 species, of which the odd 250 may be reckoned to be ferns, and the 3,000 flowering plants or phanerogams.

Of these 3,000, he first called attention to those among them, 285 in all, which, though more or less wild plants, were not native, but aliens, colonists, denizens, or casual waifs and strays. There are numerous foreign fruit trees and many tropical weeds. The tendency of weeds from the New World to spread over the Eastern tropics was noted, and that of the weeds of Europe to colonise in temperate climates ; examples from these two classes were given. There remain 2,715 phanerogams in the native flora.

A comparison with some other areas of this globe, temperate and tropical, was made, and the conclusion arrived at, that,

though less so than was formerly supposed, the Ceylon flora was a rich one for its position, and probably more so than any equal area in India.

Taking as his text a remark of the late Mr. Bentham, that the chief interest of the vegetation of Ceylon would be found to lie in its relations with surrounding countries, the author commenced by an examination of these native species. The remarkably large proportion of *endemic* species, *i.e.*, species peculiar to the Island, viz., 786 (or 29 per cent.), was first remarked as probably larger than that of any other continental island, except Madagascar. Comparisons were made in this respect with other countries, from the British Isles with over 1,400 species and probably none endemic, to New Zealand with 72 per cent. peculiar, and the richness of true oceanic islands in this respect alluded to.

The views now generally held as to the causes of the present distribution of species over the world were briefly passed in review, and Ceylon was seen to have derived the bulk of its flora from Continental Peninsular India, only about 130 species (besides the endemic ones) not occurring there. The separation of the northernmost part of the Island from the mainland was shown to be geologically recent.

The subject of representative species of the same genera in different areas was illustrated by the case of the Ceylon mountains and the Nilgiris, only 400 miles apart. More than half of our mountain species are endemic, and not found in the Nilgiris, though nearly all the genera are identical; the flora may be said to be very similar and yet very different. Examples of different genera were given in illustration. The explanation of a common origin and evolution of new forms in time, under new surroundings, was accepted; more remote affinities in community of distant floras by common possession of natural families were pointed out.

Of endemic *genera* Ceylon only possesses 20, and these contain 48 species. Of the endemic species, all but about 73 are members of genera also represented in Peninsular India. But there are also in Ceylon species of genera, also not met within Peninsular India, identical with those of other countries. Many examples were given. In all, no less than 100 genera of flowering plants are represented in Ceylon which are not found in the peninsula. Nearly the whole of these are natives of the hot, wet districts of S.W. Ceylon; a very few are mountain types, but these are not endemic, though of interest as not occurring in the Nilgiris.

The affinity of these non-peninsular genera was shown to be in the great majority of cases *Malayan* (as opposed to Indian), including in the term not the Malay Peninsula and Archipelago, but the Andaman and Nicobar Islands, and the northward extension into East Bengal through Burmah. It was next pointed out that this Malayan type was also present in Southern India on the Malabar coast, where it is represented by either the same or

allied genera and species to those in Ceylon, but to a much less marked extent than here.

The question of how this flora reached S.W. India and Ceylon was next considered. Mr. Wallace's view of the elevation of the northern part of the Bay of Bengal, in Miocene and Pliocene times, when the Indian Peninsula was an island, was considered. The remarkable affinities of some genera of plants rather with Borneo and Java, than with the E. Bengal flora, led to the expectation that the former means of transit was rather at a lower latitude, at or near the equator, but there is no evidence of this available.

The author called attention to the Indo-Ceylonese region of zoologists characterised by a few endemic genera in the fauna. He pointed out that apart from the Malayan type, the flora did not give very clear evidence of any other element peculiar to these districts, but mentioned some endemic genera in both which were not especially Malayan in character. As for the other parts of Ceylon, at least four-fifths of the Island, all N. E. and N. W., presents almost precisely the floral characteristics of the Carnatic, the few endemic species being closely allied to those of that district of S. India. Perhaps one or two of our endemic genera are also members of this flora. With regard to the flora of the mountains of Ceylon and the Nilgiris, it is simply a southward extension of the Himalayan; there are no endemic genera through such a vast number of endemic species, and every genus is also Himalayan; there appears to be no Malayan admixture.

The few Mascarene and tropical African affinities in the flora were then discussed, and their existence held to show the probability of the passage across the Indian Ocean in past times, by the aid of the former large islands marked by the banks and coral reefs of the Carcados, Chagos, and Maldives. The latter land must have approached very near to Ceylon, and played doubtless an important part in the history of the formation of our flora.

Mr. Wm. Ferguson proposed a cordial vote of thanks, which was seconded by Dr. Vanderstraaten, who took the opportunity to dwell on the great value of Dr. Trimen's work in reference to the botany of the Island, and to urge Mr. W. Ferguson to publish some more of the results of his study of the local vegetation and natural history. The Governor then put and conveyed the vote of thanks, and closed the Meeting.

COMMITTEE MEETING.

18th June, 1885, 4 p.m., at the United Service Library.

Present :

The Hon. J. F. Dickson, C.M.G., President, in the Chair.

W. R. Kynsey, Esq., P.C.M.O., Vice-President.

T. Berwick, Esq.

J. Capper, Esq.

D. W. Ferguson, Esq.

W. P. Ranasinha, Esq.

J. L. Vanderstraaten, Esq., M.D.

W. E. Davidson, Hon. Sec.

Business.

1.—Read Minutes of last Meeting, and confirmed them.

2.—Read correspondence with the Government of India relative to casts or photographs of sculptures illustrative of Buddhist history.

3.—Read letter from Government announcing that L. C. Wijesinhe, Mudaliyár, has been seconded for special duty in completing the translation of the “Mahavanso,” and in revising that portion translated by the Hon. M. Turnour.

4.—Read letter from Government forwarding copy of Ordinance No. 1 of 1885.

5.—Read letter from Clough’s Dictionary Revision Committee.

6.—Read papers regarding certain inscriptions discovered and copied by Mr. Evan Byrde, C.C.S., at Mannár.

7.—The Honorary Secretary reported progress made as regards the Society’s publications since last Committee Meeting :—

Journal, 1883, Vol. VIII., No. 26, out.

Do. 1885, Vol. IX., No. 30, now ready.

Proceedings, 1884, in the press.

Journal, 1884, Part I., Vol. VIII., No. 27, in the press.

Do. 1884, Part II., No. 25, in preparation.

Do. 1885, Part III., Játakas, No. 29, in preparation.

The prospects of the ensuing sessions being discussed, the Honorary Secretary stated that the following Papers had been received :—

(a) An Account of the Kabragal Viharé, by E. R. Gunaratna, Atapattu Mudaliyár of Galle.

(b) A Description of Moorish Jewellery, by A. T. Shamsuddeen.

(c) An Account of the Wild or Rock Veddás, by C. J. R. Le Mesurier, C.C.S.

(d) Tamil Customs and Ceremonies in connection with Paddy Cultivation, by I. B. Lewis, M.A., C.C.S.

Papers due:—

- The Jinæ Caritæ, translation by D. W. Ferguson.
- The Food Supply of Ceylon, by E. Elliott, c.c.s.
- Some notes from a Jungle Diary, by S. M. Burrows, M.A., c.c.s.
- The Fort of Colombo, by J. Capper.
- Plumbago, by A. M. Ferguson, c.m.g.

Papers promised:—

- Caste in Ceylon, by C. J. R. Le Mesurier, c.c.s.
- Translation of Van Schowter's Account of Ceylon, by Philip Freüdenberg.
- Public Health of Ceylon, by W. R. Kynsey, p.c.m.o.

8. Read correspondence with the Government of India relative to an application from this Society for plaster casts or photographs of those Buddhist sculptures at Bharhut, Yusufzai, and elsewhere which specially illustrate the Játaka or Birth-stories of Buddha, together with two series of photographs received.

Resolved,—That the cost of the photographs be remitted, with thanks for the trouble taken by the Governments in Calcutta and Lahore. *Resolved*, further, that a list of the photographs be recorded in the Proceedings, together with copies of the following reports from Major-General Cunningham and Dr. Anderson:—

Major-General A. Cunningham to the Secretary, C.B.A.S.

Camp Jhansi, 19th January, 1885.

SIR,—I HAVE the honour to acknowledge the receipt of your letter No. 6, dated 6th January, 1885, regarding the loan of casts and photograph of ancient Buddhist sculptures to the Ceylon Branch of the Royal Asiatic Society.

In reply, I beg to state that the principal collections of ancient Buddhist sculptures have been found at Bharhut in the Nagode State, and in the Yusufzai District of Peshawur, to the west of the Indus.

The Bharhut sculptures have been published in my work on the “Stûpa of Bharhut,” which contains photographs of all the Játakas (of former births of Buddha) that were discovered. Some copies of this work were supplied to the Ceylon Government. The negatives are now in England. No casts of these sculptures have yet been made, so far as I am aware; but as the sculptures themselves are in the Indian Museum in Calcutta, it would be very easy to have a few casts made from them.

The Yusufzai sculptures have not yet been published. There are two large collections of these remains—one in the Lahore Museum and the other in the Indian Museum in Calcutta. Several casts in plaster-of-Paris have been made of the Lahore collection, by Mr. Vupling, and copies of these could no doubt be obtained on application to the Punjab Government.

There are also numerous photographs of the Yusufzai sculptures in the Lahore Museum, which belong to the Punjab Government.

Of the Yusufzai sculptures in the Indian Museum, a few casts have, I believe, been taken, copies of which could of course be obtained from the Trustees of the Indian Museum.

But I am very much afraid that there are but few of the Yusufzai sculptures that belong to the particular class of Játakas which the Ceylon Branch of the Royal Asiatic Society is specially anxious to obtain, and there are certainly no casts of them. The only examples that I can remember were the Wessantara and Dasaratha Játakas on the risers of a flight of steps—and both of these are now in the British Museum.

I have, &c.,

A. CUNNINGHAM, Major-General,
Director-General Archæological Survey.

*The Under-Secretary to the Government of India to the
Superintendent of the Indian Museum.*

No. 17.

Calcutta, 7th February, 1885.

SIR,—I AM directed to forward a copy of the communications below noted* relative to an application made by the Royal Asiatic Society, Ceylon Branch, for the loan of any duplicate plaster casts or photographs illustrative of Buddhistic history.

2. The Governor-General in Council would be glad to know how far the authorities of the Indian Museum could make arrangements to comply with this request, or what help could be provided by them in the matter.

I am, &c.,

F. C. DANKER,
Under-Secretary to the Government of India.

The Superintendent of the Indian Museum to the Under-Secretary to the Government of India.

No. 101.

Calcutta, 9th February, 1885.

SIR,—IN reply to your letter No. 17, dated the 7th instant, I have the honour to inform you that there are no duplicate plaster casts in this Museum illustrative of Buddhist history. Moreover, General Cunningham, in his letter to you, No. 253, dated the 19th January last, is in error in saying that any casts have been taken from the Yusufzai sculptures in the possession of this Museum.

* From the Colonial Secretary, Ceylon, No. 28, of the 11th December, 1884, and enclosures. From the Director-General of the Archæological Survey of India, No. 253, of the 19th January, 1885.

If casts are wished, there will be no difficulty in making them, with the assistance of the Calcutta School of Art, but the undertaking will be a costly one. I can, however, supply photographs illustrative of Buddhist history, subject to the sanction of the Director-General of the Archæological Survey of India. The photographs to which I refer are those illustrative of the Buddhist sculptures from Bharhut and those from Yusufzai; and General Cunningham has fallen into a mistake in saying that the negatives of the Bharhut Stûpa are now in England, as they are under the custody of the Trustees, along with those of the Yusufzai sculptures. All these negatives, and a very large series of others from different parts of India, were made over to the Trustees by the Archæological Survey of India, for safety, and on the understanding that no prints were to be taken from the negatives until the sanction of the Survey had been obtained beforehand. The Trustees of the Museum, however, addressed General Cunningham on the 24th of last month on this subject, asking whether he had any objection to prints from the Bharhut and Yusufzai negatives being supplied to the Ceylon Branch of the Royal Asiatic Society, and as I do not suppose there will be any objections, I would suggest that the Society be informed that there are 24 pictures of the Bharhut Stûpa containing Jâtakas, and that these could be printed for about eight annas each; and there are 27 of the Yusufzai or Gandhara sculptures, which might yield Jâtakas, and which could be printed at the same rate. If the Society sanctions the expenditure the printing could be gone on with at once.

I am, &c.,

JOHN ANDERSON,
Superintendent.

List of Photographs for the Royal Asiatic Society (Ceylon Branch).

GĀNDHĀRA.

Jamāl Gashi.

- | | |
|--|--|
| <p>A 5 Various religious scenes
 6 Four-horse chariot, and
 religious scenes
 7 Various religious scenes
 80 Do. do.
 9 Two chapels, with sculp-
 tures
 10 Birth of Buddha
 11 Buddha leaving his
 father's palace, &c.
 12 Various religious scenes
 13 Buddha waylaid by club-
 men
 15 Domestic scenes—lady
 tubbing her child—
 lady at toilet, &c.
 21 Nos. XIV., II., and IX.,
 steps of Stûpa staircase
 22 Nos. V., VIII., VI., and
 VII., ditto</p> | <p>23 Nos. XVI., IV., X., and
 XII., steps of Stûpa
 staircase
 29 Rows of friezes, with
 figures in panels
 30 Four-horse chariot, and
 religious scenes
 31 Various religious scenes
 32 Do. do.
 33 Do. do.
 34 Buddha waylaid by club-
 men, &c.
 35 Various sculptures
 36 Rows of winged figures
 37 Birth of Buddha
 38 Large chapel scenes
 39 Two chapels
 46 Risers of flight of steps
 47 Do. do.</p> |
|--|--|

Bharhut.

- | | |
|--|--|
| <p>F 6 Ruined temple of Kannu
 Makhar
 7 Outside views of E. gate
 of Stûpa
 8 Inside of do. do.
 9 Detail of pillar, E. gate-
 way
 11 Toran beam sculptures,
 and fragments
 13 Sculptured pillar, monkey
 scene
 14 Sculptured pillar, Jeta-
 wana scene
 15 Sculptured pillar, deer
 scene
 16 Fragment of end pillar, S.
 gateway
 19 S.-W. quadrant, monkey
 and elephant
 20 Part of S.-W. quadrant,
 with soldier</p> | <p>21 Corner pillar of W. gate
 22 Ladder scene, corner
 pillar W. gate
 23 Corner pillar W. gate,
 second face
 24 Upper scene of corner
 pillar
 25 Elephant scene of corner
 pillar W. gate
 26 N.-E. quadrant pillar,
 Maya devi
 27 Coping of S.-E. quadrant
 28 Do. do.
 29 Do. do.
 30 Fragments of coping of S.
 gateway
 31 Copings of S. gateway
 32 Copings of S.-W. quad-
 rant
 33 Copings of N.-E. quad-
 rant</p> |
|--|--|

H. B. MEDLICOTT,
Honorary Secretary.

GENERAL MEETING.

11th August, 1885, 9 p.m., Reading Room of the Museum.

Present :

The Hon. W. H. Ravenscroft, in the Chair.

Hon. R. A. Bosanquet.
A. M. Ferguson, Esq., C.M.G.
T. Berwick, Esq.
W. J. S. Boake, Esq., C.C.S.
J. Capper, Esq.
J. B. Cull, Esq., M.A.
A. R. Dawson, Esq., C.C.S.
J. G. Dean, Esq.
A. M. Ferguson, Esq., junior.
J. Ferguson, Esq.

D. A. Ferguson, Esq.
H. W. Green, Esq., C.C.S.
J. J. Grinlinton, Esq.
Hon. P. Ráma-Náthan.
R. W. Ievers, Esq., C.C.S.
L. O. Pyemont-Pyemont,
Esq., C.C.S.
W. P. Ranasinha, Esq.
J. G. Wardrop, Esq.
W. H. Wright, Esq.

W. E. Davidson, Esq., Hon. Secretary.

One visitor, and five ladies.

Business.

- 1.—Read and confirmed the Minutes of last General Meeting.
- 2.—The Secretary laid on the table List of Books received since last General Meeting.
- 3.—The following gentlemen were then proposed and seconded, and elected as Members of the Society :—

Mr. T. Alexander, Forester N.-C.P., Anurádhapura.
Mr. A. W. Cave, M.A., Colombo.
Mr. P. De Saram, Colombo.
Mr. W. Wrightson, P.W.D., Anurádhapura.

4.—The President, before introducing the Paper of the evening, made a feeling allusion to the loss the Society had sustained in the untimely death of Mr. Haliburton MacVicar, whose ornithological knowledge had often been of much value to the Society, and who was known to many of the Members as an intimate personal friend.

Mr. Elliott, after deprecating the pessimist views regarding paddy cultivation to which publicity had been recently given, stated that inquiries made by him gave such favourable results as to encourage the belief that paddy can be grown locally cheaper than it can be imported.

Reviewing the information regarding India, he finds that 30 to 40 bushels per acre is the general return.

As regards Ceylon, Mr. Elliott gave a detailed account of the modes of cultivation in the Mátara and Batticaloa Districts. The expenses of cultivation per acre he finds to be : in Mátara, 36 days'

labour of a man, and an outlay of 4 bushels of paddy ; in Batticaloa, for munnari, 38 days' labour of a man and 8 bushels of paddy, for malamellama, 18 days' labour of a man and 10 bushels of paddy.

After giving some instances of exceptional crops in favourable localities, he stated that he considered 25 bushels as a fair average return from irrigated land.

With such a return, the average cost of raising a bushel of paddy ranges from $1\frac{1}{2}$ to $2\frac{1}{2}$ days' labour, while a return of 30 bushels reduces the cost from 1 to $1\frac{1}{2}$ days' labour. But as all these estimates are based on outside rates of expenditure, he considers it may be fairly assumed "a day's labour produces a bushel of paddy."

Cents 25 is an outside value of labour in the rice-producing districts. Mr. Elliott is of opinion the enemies of paddy are few, and can be easily combated. The Paper also gave particulars of cost of transport from the producing Districts—Batticaloa to the market at Jaffna. This amounts to 25 cents as cost of production, and transport 50 cents, and the paddy can generally be sold for Rs. 1.25.

The Hon. P. Ráma-Náthan opened the discussion by stating that the question Mr. Elliott had set himself to solve was whether Ceylon could grow rice so as to under-sell the Indian article in the local market, and he had not only answered that question in the affirmative, but had shown a profit of 75 per cent. for the cultivation. This was for the Mátara and Batticaloa Districts, where Mr. Elliott had spoken of crops as high as 35 to 70 bushels per acre. Mr. Elliott had worked out the cost of cultivation, and put it at Rs. 13 per acre. Now, there was a very great diversity of opinion on these subjects, more particularly as to the yield of rice in crop, and this was shown by the report of the Irrigation and Paddy Commission of 1867,—on which were Sir R. Morgan, Col. Fyers, Messrs. Parsons, Alwis, Wise, &c.,—who said, among other things:—

The Committee have had under their consideration the returns of the quantity of paddy produced in the various Districts of the Island ; these data show that the supposed average yield of ten-fold is rarely obtained, the produce usually ranging from three or four-fold to about eight-fold, whilst in other Eastern countries the return ranges between twenty and fifty-fold. The return in Ceylon during former periods was seventeen-and-a-half-fold, according to the inscription on the Polonnáruwa tablet, quoted in a preceding page, where the tenth is stated to be one amunam and three pélas. According to the information thus collected, it would appear that the yield per acre, instead of being as usually supposed thirty bushels, is not more than half that quantity.

The evidence on which this report was based was of the most varied and even contradictory character, and here Mr. Ráma-Náthan read several extracts showing how native cultivators gave such returns as 24, 36, and 9 bushels as the crop of paddy per acre. His own opinion on the subject was that the average yield for the Island was between 20 and 25 bushels. As regards

the cost of production, he thought Mr. Elliott had left out certain charges, such as the wear and tear of implements and tools, which he would put at Rs. 2 an acre, and interest Rs. 3, bringing the total up to Rs. 18 per acre, against a return of 20 to 25 bushels of paddy valued at Re. 1 each, leaving a margin of from Rs. 2 to Rs. 7 per acre. This he would compare with the return from cocoanuts, which was at least Rs. $37\frac{1}{2}$ per acre, or from cinnamon even—or perhaps tea. (Applause.)

Mr. J. Ferguson said that all who had studied this question were accustomed to take their start from the report of Sir Hercules Robinson's Commission already quoted, in which, after making inquiries and receiving evidence from all parts of the Island, it was stated that the average yield of paddy in Ceylon was nearer 15 than 20 bushels per acre, the range being four to eight-fold against twenty to fifty-fold for other favourite Eastern rice-growing regions. Mr. Elliott had undoubtedly brought together much valuable information respecting the yield and cost of rice in India, but he could not help thinking that, as regards the rich alluvial lands of the Gangetic valley, and of Burmah especially, the returns were under-rated. He had seen an official statement that the average for the rice-fields of Burmah was forty-fold, which would mean 40 bushels per acre according to their way of sowing, and Mr. Hallett, the co-traveller of Mr. Colquhoun, had stated in respect of the Shan country, north-east of Burmah, that the people told him in one large district that they got back 250 times what they put in of paddy. The latest Administration Report on British Burmah stated that there were four million acres under paddy, and that 100,000 acres were added to the cultivation yearly, the annual export of rice having risen to a value of £6,000,000 sterling. The estimate for all India was sixty million acres under rice. Looking at the matter broadly, therefore, he did not think any one could say that Ceylon could be put in comparison as a rice-growing country with Burmah or Bengal. But Mr. Elliott had confined his Paper to certain favoured Districts, and he (Mr. Ferguson) did not think any one had ever disputed the advantage of irrigation works and rice cultivation in Mátara and Batticaloa. At the Royal Colonial Institute he had carefully guarded himself by saying that where the land was suitable for rice-growing in Ceylon, and irrigation could be profitably applied for a resident population ready to take advantage of it, the unofficial public had uniformly supported the Government in such expenditure. He had then the Mátara and Batticaloa Districts specially in view. Further, he could add to Mr. Elliott's instances of very heavy crops in exceptional cases in Ceylon, from the authority of the intelligent Kachchéri Mudaliyár of the North-Western Province (Mr. S. Jayatileke), who had told him that on the banks of the Maha and Deduru-oyas, after floods with favourable weather, there are fields which give a return of 100 bushels per acre, and others 40 and 50 bushels. But such cases were entirely exceptional, and although he believed Mr. Elliott's Paper to be

a generally correct and most valuable account of grain cultivation in the Mátara and Batticaloa Districts, yet it was very difficult to reconcile it in some parts with other official statements. For instance, it was his (the speaker's) duty—a painful one rather—to study very closely year by year the Government Blue Books and Administration Reports. Now, while in the case of Mátara the grain statistics showed good progress, and the rate of yield was very steady at an average of 16 to 17 bushels per acre, in the favourite Batticaloa District the case was very different. The maximum of over a million bushels of crop was reached in 1870, with an average yield of 24 bushels per acre; that rate had gone down in 1877 to 17 bushels; in 1883 to 12; and last year the Blue Book figures positively only showed a return of 6 bushels per acre. (A laugh.) So again with the total production of the Island, our maximum seemed to have been reached in 1880; since then there had been a heavy falling off in the local crops. Now they all knew the disrepute attaching to Blue Book returns so far as agriculture was concerned, but if there was one District more than another from which they ought to have correct reports, it was surely Batticaloa, with its steady industry and supervised irrigation. However, passing over that and taking Mr. Elliott's own average of a return of 25 bushels per acre, produced at a cost of $37\frac{1}{2}$ cents per bushel, leaving a profit of 75 cents, or (leaving out carriage) let them say 50 cents per bushel, what was the net result? Only Rs. 12·50 per acre, while, as Mr. Ráma-Náthan had mentioned, cocoanut (or he might add areca-palm) cultivation gave the natives a net return not under Rs. $37\frac{1}{2}$ per acre. Again, Mr. Elliott had almost provoked a comparison with tea, which he (the speaker) thought the Government ought to encourage the Sinhalese villagers to cultivate around their huts and in their gardens after the fashion of the Chinese. A bushel of paddy, according to Mr. Elliott, and a pound of tea could be produced for nearly the same cost in Ceylon—the one being worth 75 to 100 cents, the other say 50 to 60 cents on the spot. But then, even with native cultivation and management, the cropping of the tea might safely be taken at 300 lb. an acre, and with a profit of 20 cents a pound that would be equal to Rs. 60 per acre, against the Rs. 12·50 for rice, so leaving a wide margin in favour of tea. Confining attention, however, to the old products, and looking at the country as a whole, in what direction did the people display most enterprise? In Burmah, without, he believed, any special stimulus from Government or irrigation works, there were about 100,000 acres added yearly to the rice-cultivated area. In Ceylon, 20 to 30 years ago, to take one instance, there was probably not a single cocoanut patch between Negombo along the Maha-oya towards Polgahawela; now it was almost a continuous expanse of that palm, and there were unbroken fields of as many as 5,000 acres. He was not aware that the Ceylon Government had done anything to stimulate this industry by even a single report on the subject, save that the land was surveyed and put up

for sale; but look at the result. Our exports now of cocoanut oil are between four and five times what they were 30 years ago; of coir stuffs we send three times as much away; copperah four times; nuts, poonac, &c., in proportion—and all this from what may be said to be a purely native industry. (Hear, hear.) Here then, at least for the Western and South-Western Districts, we have the most profitable investment for native enterprise. But he would not for a moment allege that there were not other Districts, and notably Mátara and Batticaloa, where rice is best fitted for native occupation, and where the Government might well do all they can to extend its culture, seeing the margin of profit is wide enough to satisfy the cultivator after paying for his rent and water-supply. One thing Mr. Elliott had made clear, that the so-called water-rate, considering the certainty brought by irrigation, was most moderate, and the Government levy in Ceylon was far less than in India, where, as Mr. Elphinstone told the speaker, only a few days ago he found the people at Trichinopoly gladly paying at the rate of Rs. 9 per acre for water privileges. In conclusion, he would only say that the wants and capabilities of each District and its people in the Island must be judged by Government on their own merits, and while he cordially agreed with much that Mr. Elliott had said about Mátara and Batticaloa, Government ought not, in other Districts at least, to forget that there were other industries worthy of direct encouragement besides rice-growing. (Applause.)

Mr. Berwick thought that the discussion had travelled a good deal beyond the limits observed by the writer of the valuable Paper to which they had listened with so much interest. That Paper had to do with rice cultivation solely in the Mátara and Batticaloa Districts, and he had not risen so much to discuss its merits as to gain information on certain points which puzzled him. He wished especially to know whether any account had been taken of the large original outlay of public money on the irrigation works in the Districts referred to. Had Mr. Elliott taken this heavy item into his reckoning? As regards the gentleman (Mr. Ráma-Náthan) who apparently would wish to stop the cultivation of paddy (No, no! from Mr. Ráma-Náthan), he would like to know if he had considered what the effect would be on the cost to us of imported rice if there were not a large local production to act as a check. (Hear, hear.)

Mr. A. M. Ferguson remarked that Mr. Elliott, by his very interesting and useful Paper, had proved himself doubly qualified, by national origin and acquired experience, to treat of the subject of *paddy*. (A laugh.) The facts he had stated with reference to the Districts of Mátara and Batticaloa showed that good results could be obtained from rice culture in Ceylon, where a steady supply of irrigation water had been provided. But still better results could be obtained, if only the natives under good and scientific advice sowed one bushel of seed to an acre instead of two, germinating the seeds in nurseries and putting out the plants

in the fields in drills, as was done in India and more especially in Java, where he had been delighted to see the careful and scientific mode of cultivation adopted by the peasantry. Another great improvement in the culture of rice in Ceylon would be the teaching of the natives to be less extravagant in the use of water. They flooded their fields instead of irrigating them, thus converting what was intended to be a semi-aquatic plant into one wholly aquatic, its produce being less in quantity and deficient in nutritious properties in proportion to the waste of water. We in Ceylon, with our poorer soil, could not compete with the fat alluvials of India and Burmah, but Mr. Elliott had shown that rice culture in the Island was susceptible of great improvement, and could be so conducted as to be remunerative to the natives. But Mr. John Ferguson's figures, showing apparent decadence instead of progress in production in the specially-favoured District of Batticaloa, were so bewildering, that, however sorry he might be to say such a thing in the presence of the honourable gentleman who occupied the chair (Mr. Ravenscroft), he was compelled to regard the question as one of utterly unreliable Blue Book statistics. (Laughter.)

Mr. J. Capper said it should not be forgotten that nearly all the rice locally produced was required by the cultivators for themselves and their families—very little was thrown into the markets for sale. The Commission of 1867 had to deal with the returns for the Island generally in giving their low estimate of production, but there had never been any doubt that under irrigation the cultivation of rice would pay and yield handsome returns. As regards the Blue Books, the figures were indeed a mystery, for in addition to what had been said about Batticaloa, he might mention that the Kurunégala District now showed the heaviest yield—some 26 bushels per acre—in the country, and Badulla 21 bushels, against $6\frac{1}{2}$ bushels for Batticaloa. (A laugh.)

Mr. A. R. Dawson, C.C.S., could not with so much confidence speak of Batticaloa, but as regards Mátara he could with certainty say—notwithstanding any contradiction in the Blue Book returns—that the production of rice had been steadily progressive, and he would recommend Mr. Ferguson, when in doubt as to the crops, to turn from the Blue Book agricultural tables to the Revenue returns, which were a sure index to the amount and value of the crops. In the case of Mátara, the revenue from grain had greatly increased since the irrigation works were completed. As regards Batticaloa, the system which had prevailed there of selling the rents was a very uncertain, unreliable one, and could not fail to lead to much uncertainty as regards the produce returns; but this would all be rectified by the work of the Grain Commission. In reply to Mr. Berwick's inquiry, he would state that in some cases the expenditure on irrigation works had been repaid by the cultivators benefited in a certain number of annual payments, in others by the addition of a rupee per acre to the rent, in perpetuity. He hoped that the Paper now read would be the

precursor of others equally instructive on the food supply of the country, and the various topics connected therewith. (Hear, hear.)

Mr. J. Ferguson explained that he had not criticised the Mátara crop returns, but only those of Batticaloa. He thought that with the Colonial Secretary in the chair, and so many rising Revenue Officers in the room, they ought to urge the necessity for greater attention in sending in Blue Book returns; the Government Agents ought to compare their revenue and crop statements year by year, and afford in notes needful explanations, or their own opinions on the produce figures where large discrepancies occurred. (Hear, hear.)

Mr. R. W. Ievers, C.C.S., rose to mention, with reference to Mr. Ferguson's statement about Burmah, that in a book he was reading the other day, written by a traveller in that country, it was distinctly stated that he had learned from the people their return of crops was from 10 to 25-fold. (Mr. J. Ferguson—I referred to British, not native, Burmah.) He could not see that the country could differ so much as to allow of a return in another direction of 250-fold, as had been stated.

Mr. H. W. Green, Director of Public Instruction: I worked out the returns from rice cultivation in Burmah not long ago in company with a friend, and we found as the result that the crops were equal to 70 and 150-fold. (Laughter.)

Mr. Elliott, in reply on the discussion, pointed out that it had gone over wider ground than he had covered in his Paper; indeed, had extended to the whole question of paddy-growing throughout the Island, whereas he had restricted his Paper to rice cultivation under irrigation, and to what was being done without entering on the question of what might be secured by improved cultivation. He had in his time advised a large expenditure in the Mátara District on irrigation, and now that he could adduce actual results, he was naturally anxious to vindicate the correctness of the views he had so long held. In reply to Mr. Ráma-Náthan's objections, he pointed out he had given the details of cultivation in his statement, and had provided for tools, allowing in grain one amunam of paddy, or at the rate of $7\frac{1}{2}$ bushels for 25 acres. Mr. Crowther had allowed 50 per cent. more, but his total expenses were under Mr. Elliott's. In Mátara he had allowed one bushel for $2\frac{1}{2}$ acres, which he believed was sufficient. As regards the quantity of paddy sown in an acre of land, $2\frac{1}{2}$ bushels to the acre had been long recognised and acted on as the proper equivalent in the Indian district. Mr. Ludovici also speaks of the usual paddy sowing basis as $2\frac{1}{2}$ acres to the amunam of six bushels. In the Batticaloa District the figures varied from two to four bushels, and he had taken three as a fair average. However, this difference but little affected the results. Again, as regards *wheat*, it was difficult to know what rate to fix and what value to place on the land. The lowest rate for money loans in Batticaloa was $16\frac{2}{3}$ per cent., and on loans of grain 50 per cent. in kind. In view of this, Mr. Elliott had only gone into the actual expenditure

on the land in raising the crop, such as a superintendent would have to disburse, leaving what might be called the "Colombo charges" to be added according to the circumstances of each case. Still, accepting Mr. Ráma-Náthan's figure of 20 bushels produce per acre, and an outlay including interest of Rs. 16, he pointed out that paddy would only cost 80 cents a bushel against 96, the Madras value, and Rs. 1.50 the usual selling price of India paddy in Ceylon. As regards water-rate, Mr. Elliott had allowed for this in the case of Má tara, where it was a charge (of Rs. 1.50) in perpetuity. In Batticaloa it was all paid off in ten years, and would be properly chargeable to the capital cost of the land. Against the low rates of yield quoted by Mr. Ráma-Náthan, Mr. Elliott gave some other instances of returns in excess of those on which he depended, which had been committed to him, one of 60-fold at Vavuniya-Vilánkulam. He also quoted one from the same report as Mr. Ráma-Náthan had of a return of 150 amunams, or 1,125 bushels, from 40 acres, or 28 bushels the acre from land in Batticaloa. As regards the gentleman who had quoted Blue Book statistics,—which were admittedly untrustworthy, in spite of spasmodic attempts of individual officers,—to make them more correct, he reminded his hearers that, out of some 70,000 acres of paddy land in the Batticaloa District, only 36,000 were affected by the expenditure on irrigation, and some of this area was still imperfectly irrigated and requires further subsidiary works. He (Mr. Elliott) had always advocated irrigation where there was a nucleus of a population. In Batticaloa, where irrigation had been begun, it was about 70,000, and it was now over 109,000. He believed that there was room to make other Batticaloas and Má taras in the Island, especially in that part stretching from the Giant's Tank to Elephant Pass, to which he believed the surplus population of the Jaffna Peninsula would flock if the water-supply could be made secure. In reply to Mr. Capper's query as to the development of rice cultivation in Batticaloa, Mr. Elliott gave the following figures :—

		Area actually Cultivated.			Land Revenue.
		Acres.			Rs.
1856	...	22,655	...		23,906
1866	...	41,380	...		37,157
1876	...	59,730	...		77,060
1883	...	58,916	...		60,757

The general revenue had increased from £6,071 in 1848 to only £7,315 in 1857, about which time irrigation had been commenced in Batticaloa. It then went up to £10,787 in 1858, and £16,855 in 1861 (but this included £6,872 from land sales). In 1865 it was £14,840, £21,000 in 1867, and £31,000 in 1883 (including only £1,382 from land sales). The revenue from the arrack farms had risen from £680 in 1867 to £2,038 in 1867, and £3,402 in 1883. Stamps gave £2,283 in 1883, against £1,020 in 1858.

Before separating Mr. Ráma-Náthan wished to correct Mr. Berwick in the thought that he was opposed to paddy cultivation, or arguing against it—nothing could be further from his thoughts.

Mr. Berwick moved a vote of thanks to Mr. Elliott for his timely and valuable Paper, on one of the most important subjects which could occupy their attention ; and this was seconded by the Hon. R. A. Bosanquet, who said he had regularly attended their Meetings in the hope of gaining information, but that this was the first occasion he could remember on which he really felt he had been instructed and was going away wiser than he came. (Laughter.) He hoped similar discussions of practical value would frequently occur. The vote was carried by acclamation.

In replying to the vote of thanks, Mr. Elliott expressed his belief in the permanency of paddy cultivation. Rice had been grown on the same lands for over one hundred years, and the crops did not seem to be affected by those general adverse influences of nature which had so severely tried other branches of agriculture in Ceylon.

The Meeting separated about 11 P.M.

GENERAL MEETING.

28th August, 1885, 9 p.m., at the Colombo Museum.

Present :

T. Berwick, Esq., in the Chair.

P. D. Anthonisz, Esq., M.D.
W. J. S. Boake, Esq., C.C.S.
Hon. R. A. Bosanquet.
A. R. Dawson, Esq., C.C.S.
P. De Saram, Esq.
A. M. Ferguson, Esq., C.M.G.
A. M. Ferguson, Esq., junior.

J. Ferguson, Esq.
H. W. Green, Esq., C.C.S.
S. Green, Esq., F.L.S.
J. J. Grinlinton, Esq.
W. P. Ranasinha, Esq.
A. T. Shamsuddeen, Esq.

W. E. Davidson, Esq., C.C.S., Honorary Secretary.

Seven ladies present, and four visitors introduced.

Business.

- 1.—Read and confirmed Minutes of last General Meeting.
- 2.—Captain H. Morgan, R.E., was elected a Member.
- 3.—Mr. A. M. Ferguson then proceeded to read portions of his Paper, of which the following is a summary :—

Plumbago : With special reference to the position occupied by the mineral in the commerce of Ceylon ; and the question discussed of the alleged existence in the Island of the allied substance, Anthracite.

On the tables were various objects to illustrate the Paper, viz., a dágoba formed of lumps of plumbago, samples of dust, chips, and lumps, pieces of rock showing iron pyrites, mica, &c., some fine crystals, a series of crucibles presented to the Museum by the Battersea Crucible Co., and two elephants cut out of plumbago.

Mr. Ferguson commenced by stating that the mineral of which his Paper treated was a form of carbon, the substance which constitutes so large a portion of organised nature, more especially of the vegetable world. Graphite was in truth vegetable matter mineralised by those various forces of moisture, heat, friction, pressure, and electricity or magnetism, which have so marvelously metamorphosed the primitive rocks in which the mineral is generally, if not exclusively, found. In Geikie's "Handbook of Geology," graphite is mentioned first in the list of rock-forming minerals, sulphur and iron following, before silica in its protean forms is specified. In a more or less definitely crystallised, foliated, columnar, needle-like, or massive shape, the mineral embodies the altered remains of some of the earliest plant-forms which appeared on the earth, when the fiat was uttered in the far back ages of creation, "Let the earth put forth grass, herb, yielding seed, and fruit-tree bearing fruit." Those of the audience who entertained a vivid recollection of the fascinating Paper by Dr. Trimen on the flora of Ceylon, recently read in that hall, could imagine the delight it would afford that eminent naturalist, and thousands of other scientists, could the brilliant steel-gray to jet-black ore they were considering reveal the secrets of its vegetable origin, and show the fibres, the leaves, the flowers, and fruit of the earliest herbage of the morning of the times, from which it has been transformed, in like manner as ordinary coal also generally speaks of the early days of the geologic ages. But graphite (so called from its earliest use in the formation of pencils for writing and sketching), which there can be little doubt is closely allied to coal, although generally older in origin, and the subject of more intense and long-continued metamorphic influence than the carbonaceous substance so valuable as fuel, is too highly mineralised (with the exception, perhaps, of the formations in Canada) to display a trace of the vegetable tissues from which it claims its descent.

To the seeker for fossil remains of ancient organic life, therefore, graphite, like our other primitive rocks, gneiss and crystalline limestone, is less interesting than are the coal measures, with their wonderfully preserved specimens of plants and animals and shells, on which human eye probably never looked until the operations of the toiling miner revealed their, in some cases, almost perfect lineament. Graphite seems, in truth, to be the most highly crystallised form of carbon next to the peerless diamond, which poetically, if not with perfect scientific accuracy, has been described as a drop of pure liquid carbon crystallised. Graphite (to which, when burnt, the diamond reverts) has a beauty of its own, and as small diamonds have actually been formed by artificial

means, the time may possibly arrive when the form of carbon which mineralogists rank only next below the diamond, may, by means of the appliances of progressive science, be advanced from the second to the first place. Let us only attempt to imagine a mass of pure graphite equal to a quarter of a ton, such as that sent to Melbourne in 1880, and the still larger mass which will probably figure in the Court of the Colonial and Indian Exhibition of 1886, metamorphosed into diamond “of purest ray serene,” and try to conceive the thing of beauty it would be, even if shrinkage in the transformation process reduced its size to one-tenth or even one-hundredth of the original bulk. Meantime, it seems curious that Ceylon, so rich in “precious stones,” which, with all their brilliancy are simply crystallised and coloured clays, should be utterly destitute of specimens of the king of all gems, seeing that diamonds are found close by us in Southern India, and in formations similar to those existing here: laterite, occasionally, and especially in association with corundum, which in Ceylon is so common and of which our most precious sapphires and rubies are but higher forms.

The Paper then stated that of more value to Ceylon economically, beyond all comparison, would be the real discovery amidst its rocks of that form of carbon which ranks next to the diamond and graphite, and which seems to be graphite and perhaps diamond in a less altered form. It need scarcely be said that coal is referred to.

The authority of the late Dr. Gardner, formerly of the Royal Botanic Gardens, Pérádeniya, the late Rev. Dr. MacVicar, and Dr. William King, of the Indian Geological Survey, was quoted, to show the improbability of the existence of coal, where, as with us, primitive rock formed the surface strata, and the reader proceeded to discuss fully and to show the utter baselessness of statements made by Dr. Gygax, a Swiss mineralogist, and endorsed by Tennent, to the effect that, in addition to millions of tons of iron which could be laid down in Colombo at £6 a ton, anthracite, in association with plumbago and basaltic rock, was equally abundant, and could be laid down in Colombo at 18s. per ton, after cost of digging and conveyance from Sabaragamuwa. If Gygax and Tennent considered the alleged discovery of anthracite important with reference to steam navigation in 1848, how much more important would such a discovery be now, when the powerful but odourless and smokeless heat, which the form of coal called anthracite yields, would be just what is wanted by our expanding tea industry, while as regards the requirements of steamers, it need only be mentioned that between 1880—when Colombo Harbour first afforded moorings for steamers—and 1884, the imports of coal into Ceylon had gone up from 80,000 to nearly 200,000 tons, the average value being over Rs. 20 per ton. But while bituminous coal was found in India, anthracite did not exist there, the nearest approach to it being crushed coal near Darjiling, which had been converted into semi-graphite. But while

dogmatism was deprecated, entire scepticism was expressed as to the existence in Ceylon of anything more closely resembling coal than the peaty matter found, amongst other places, at Nuwara Eliya, and which, compressed and dried, might be useful as a fuel. What seemed beyond question certain, was that neither Dr. Gygax nor any other human being had ever seen anthracite in our gneiss rocks, and as to the alleged discovery of the mineral in enormous quantities, Mr. Ferguson said, in the history of scientific exploration and report, and of colonial history and progress, there seems to be no greater fiasco.

A curious circumstance in connection with the alleged existence of anthracite in Ceylon was mentioned. The late Mr. John Armitage, a well known and enterprising merchant, saw in the British Museum a specimen of fine iridescent anthracite, labelled as from Sabaragamuwa, Ceylon. It was said to be from the collection of a Colonel Greville, a name not prominent in the annals of Ceylon, and Mr. Ferguson added :—To show how confusion may arise, I need merely mention that through the dropping of a comma, plumbago is represented in successive works, including the “Encyclopædia Britannica,” as found in “Travancore Ceylon,” as if the localities were one. There is the case of *columba* root, too, which received that name because ships touching last at Colombo brought the bitter root to Europe from India. But the crowning absurdity was that the Emigration Commissioners, who had in 1846 the ordering of such matters, instead of saying to Messrs. Armitage and Tindall, “We will refer to the Governor of the colony for information,” or, “You go and prospect, and let us know what you find and under what circumstances, make your offers, and we will consider them,” jumped instantly to the conclusion that anthracite of such quality, in such plenty, and in such circumstances of cheap acquirement, existed in Ceylon that forty per cent. would be a fair royalty to charge! There the matter ended, until Gygax’s alleged discovery was announced, two years subsequently. It seems just possible that in both cases the supposed anthracite was the rocky hard form of plumbago, which the natives call *yabora*, or iron dross. It was suggested that finally to set at rest the question of what minerals or metals might and might not be expected to occur in our Ceylon formations, the Asiatic Society should press on Government the propriety of asking for the loan of the services of a competent geologist, like Dr. William King of the Indian Geological Survey, who, with his experience acquired in India, could pronounce on all important points in a period of time probably not extending beyond a year.

Passing over much detail of a more or less interesting character, we quote as follows :—

But if the diamond, amber, coal, and petroleum are absent from our rock formations, happily there can be no question as to either the quality or the quantity of our mineral carbon in the shape of plumbago, of which indeed, in the form most valuable for the manufacture of metal-melting crucibles, Ceylon seems to have as

much a natural monopoly as she has of first-class cinnamon in the vegetable world. There are, no doubt, vast deposits of graphite in North America, especially in Canada, but the mineral seems to be generally diffused in rock from which it is difficult and expensive (labour being scarce and dear) to separate the small particles. Graphite, although rare in a form economically valuable, seems very widely distributed over the face of the earth. In India, plumbago has been found in a large number of places, and has been the subject of many experiments and much discussion, but the results have been hitherto disappointing. It generally appears sparingly in very quartzzy rock, and in heavy ferruginous gneiss. The mineral is deficient in lustre, contains much iron, and one specimen gave 35 per cent. of lime. Lime is, perhaps, even more fatal to the value of plumbago than iron, and although graphite may occur in the magnesian limestones of Ceylon (I never heard of but one instance), it is quite manifest that digging in the dolomite need never be resorted to, the mineral being so plentiful in our quartzzy gneiss, where the only enemy encountered, and that, happily, not very frequently, is iron. Like some other adversaries, this one sometimes appears in gneisses the most radiantly beautiful: in the present case as pyrites, varying from splendidly crystallised masses, with facets polished like finest silver, and again simulating auriferous treasures by putting on the most glorious colourings of gold, shading away to a lovely and delicate green, indicative, this tint, it is supposed, of the presence of sulphate of copper.

This auriferous coloured pyrite is appropriately named in Sinhalese, *diya rat-ran*, or “water gem-gold,” the recognition of water as the agent to which the formation and its brilliant colours are largely due being, curiously enough, in perfect accord with the conclusions of the most advanced geological scientists.

To Mr. Williams, Acting Government Agent of the North-Western Province, I am indebted for a collection of interesting specimens from Polgolla, on the road to Dambulla, showing how plumbago is associated with and forms round a nucleus of crystalline or semi-opaque and sometimes garnetiferous quartz (the position of the minerals being, I am told, occasionally reversed), and quite a number of pieces of rock which the non-scientific might well be excused for regarding as coated and permeated with brilliant golden ore. These may be regarded as the flowers of the subterranean regions where plumbago is mined. I am bound to state, however, that the brilliancy of iron pyrites has no effect in modifying the inimical feelings with which those connected with the plumbago enterprise regard the mineral, while they talk with disapproval and disgust of the *yabora* = (*a*) *ya* iron, *bora* dross: iron dross, the hard iron-like form of plumbago; and any one desirous of procuring specimens will be made heartily welcome to what, in the eyes of the plumbago dealer, is associated with a rocky interior and unsaleable product. But truly the pure soft mineral itself, in its various forms of crystallisation, the most prevalent

being a radiating star-like arrangement, and its variation of sparkling colours, from steel-grey to plates of jet-black, may be regarded as a veritable "thing of beauty." A collection of first-class lumps, each highly polished and lustrous, intended for shipment to Germany, which could be seen at Mr. W. A. Fernando's store recently, was certainly a striking sight. In connection with this collection of silvery masses, Mr. Fernando showed us specimens of a dark-coloured variety, of needle-like formation, which he said he had been requested by his customers to make up separately, as the ordinary mills could not easily grind that particular quality. Graphite generally, like iodine, shows a bright metallic sheen, but it is at once distinguished from the true metals by its soft and unctuous mechanical condition. I am speaking of first-class mineral, for, showing us a specimen of plumbago formed, apparently, over an ironstone nucleus, Mr. Fernando declared such ore to be unsaleable. In truth, the reasons why our Ceylon graphite is so much sought after, are the entire absence of lime from the mineral, and in most cases its equal freedom from ferruginous particles, the small proportion of foreign substances, if any, being volatile matter and minute fragments of silica and alumina. Besides grinding to extreme fineness, an acid bath is used to thoroughly purify graphite used for certain delicate purposes, such as electrotyping, when the finest and purest dust is required to coat surface of wood, plaster of Paris, gutta-percha, &c., to render them conductive. An authority, of all in the world, perhaps, best qualified to speak, describes Ceylon plumbago as combining the two qualities of being almost as refractory as asbestos, and at the same time the most perfect conductor of heat.

The various portions of the world in which graphite is found were then enumerated, from North America to Japan, and the first mentions of Ceylon plumbago were traced, evidence not being forthcoming to prove Bennett's assertion that Ptolemy, who wrote in the second century of our era, had referred to the mineral. The historical records of Ceylon are as silent regarding plumbago as they are with reference to cinnamon, but a medical treatise of the fourteenth century (about the date of a MS., extant in Europe, said to be ruled with black-lead) speaks of *kalu-miniran* (black mica) as a medicine when boiled and subject to the detergent influence of *Euphorbia* juice. The Cumberland black-lead was also sought after as a medicine about a century and a half ago.

To quote again : The officer of the late Ceylon Rifle Regiment, who wrote a book on Ceylon, stated that Thunberg, the Scandinavian naturalist, who wrote in 1777, was the first to notice plumbago as a product of Ceylon. This was an error. Robert Knox, who wrote in 1681, mentioned the existence of the mineral; and Valentyn gives a letter of a somewhat earlier period by the Dutch Governor Ryklof Van Goens, dated 24th September, 1675, addressed to his successor the Governor-General Jan Maatsuyker, in which he mentions veins of plumbago (*potloot*) in the hills and

mines in the low-country. He described it as a product of quicksilver, an error which, repeated, may explain the alleged discovery of a mine of quicksilver near Kótté, soon after the British took possession of Colombo. So important was the latter discovery deemed at the time that a military guard was placed over the mine; but subsequently the existence of quicksilver in Ceylon became as mythical as that of anthracite seems now to be, or the alleged discovery of coal by the Dutch, who are said to have disregarded it in view of the abundance of wood fuel. * * * A Mr. Ive, who wrote apparently in 1755, professed to have discovered "black-lead" and copper ores in Ceylon. Mr. W. P. Ranasinha has unearthed for me the tradition that the last king of Kandy, infamous for his cruelties as he is famous for his æsthetic taste, added to his many-sided character a development of the commercial instinct, supplying, it is said, plumbago to merchant ships, more than seventy years before such enterprising traders as the Fernandos and De Mels appeared on the scene. The tradition seems also to indicate that some of the plumbago in which the monarch traded was dug from a mine on the lands of Molligoda Disáwa.

Then followed references to notices of plumbago by Cordiner and Davy. Bertolacci, although he dealt with every export of any importance in detail up to the end of 1813, makes not the slightest mention of plumbago. The export of the article must have commenced between 1820 and 1830, however, for Mr. Joseph Dixon, the founder of the great American Crucible Company, obtained a shipment of Ceylon plumbago in 1829. In that very year Colonel Colebrooke, one of the Commissioners on Ceylon affairs, stated in his report that provision had been made for the delivery of cinnamon and black-lead in the Kandyan Provinces (then including the Seven Kóralés), at fixed rates. Reference to the Government Calendars shows that there is no mention of plumbago until 1831, when it was included in the list of articles liable to export duty, the rate being 10*d.* per cwt. The amount of revenue at this rate in 1832 was £22. 18*s.* 6*d.* The mineral did not, however, assume real importance in the commerce of Ceylon until 1834, and for the half century which has elapsed between that year and the end of 1884 I possess, thanks to the courtesy of the Assistant Auditor-General, Mr. C. Dickman, full details of the rise, progress, and fluctuations of the trade, until from small beginnings it has in the past five years attained truly important dimensions, whether regard be had to the quantity and value of the mineral exported, or the revenue derived by Government from a royalty finally fixed in 1877 at the very moderate rate of Rs. 5 per ton.

For the first three years of the period beginning with 1834 no export duty was levied on this article. From 1837 to 1846, and again from 1858 to 1869, a duty of $2\frac{1}{2}$ per cent. was levied, which yielded in the earlier period sums so low as Rs. 12.25 in 1839, rising to Rs. 759 in 1846. In the second series of years, when export duties were levied expressly for railway purposes, the duty rose from Rs. 1,190 in 1858 to the appreciable sum of Rs. 22,240

in 1869. The latter sum was levied on 226,132 cwt., valued at Rs. 889,620. The rated duty seems, therefore, to have been as nearly as possible one-tenth of a rupee per cwt. The only Customs import to which plumbago is now liable is, apart from the royalty, seven cents per barrel, recently exacted for harbour purposes. As each barrel contains $5\frac{1}{4}$ cwt., net, of mineral, the burden is only a fraction over one cent per cwt., in addition to the royalty, which since 1877 has been levied at the rate of Rs. 5 per ton, or 25 cents per cwt., equivalent to $2\frac{1}{2}$ per cent. on the Customs valuation of Rs. 10 per cwt., but rising to 5 per cent. if the real value is only about Rs. 100 per ton. Previously to 1851 no royalty was levied, and the varying rates since then have been :—

In 1851, per ton	... 4s.	In 1864, per ton	... 16s.
„ 1852, „	... 5s.	„ 1869, „	... 30s.
„ 1859, „	... 7s. 6d.	„ 1873, „	... Rs. 10
„ 1862, „	... 14s.	„ 1877, „	... Rs. 5

There can be no possible question, it would seem, of the propriety of exacting a royalty, moderate in proportion to its market value, on this mineral, which is entirely an article of export, and which is as much the property of Government, or the people of Ceylon, as are the pearly treasures of the “oyster” banks off Arippe; providing, too, as the revenue from plumbago does, for the construction, amongst other public works, of means of communication which facilitate and cheapen the operations of the diggers. We could only wish that copper, tin, nickel, and other ores which have been so positively written about as occurring in Ceylon, with gold, which beyond question does exist, were found in quantities sufficient to add appreciably to the revenue in the shape of royalties. The one necessary qualification is, of course, that the amount of the tax should be such as not to bear heavily on an enterprise which is always toilsome and often precarious. Taking the average value of plumbago at Rs. 10 per cwt., the Customs figure, the present impost of 25 cents is, as noticed above, only equivalent to a rate of $2\frac{1}{2}$ per cent., which certainly cannot be complained of as unduly onerous, however justifiable complaints and remonstrances were when 14s., 16s., and even 30s. per ton were exacted, or Rs. 10 between 1874 and 1877. The present rate has the merit of being light, easily collected, and productive, for in the five years ended 1884 an average export of nearly 12,000 tons per annum, of an annual value of Rs. 2,400,000, yielded royalty equal to a yearly average in round numbers of Rs. 60,000. When the proceeds of digging licenses and leases of Crown lands, and stamps on those leases, are added, the average may be raised to Rs. 65,000. The maxima of quantities exported, total value, and total revenue were reached in 1883, when the figures were :—

Plumbago exported cwt.	262,774
Value @ Rs. 10 per cwt. Rs.	2,627,737
Total revenue {	Royalty	Rs. 65,694	} Rs. 70,421
	Leases and licenses	Rs. 4,727	

Wonderful contrasts these, even if we reduce the Customs valuation by one-half, to an export of only 423 cwt. in 1839, valued at only Rs. 490, or a little over Rs. 1 per cwt., and yielding to the revenue of the Colony only Rs. 12·25, a sum scarcely worthy of collection ! The totals for the whole period of half-a-century of the export trade in Ceylon plumbago are striking, viz. :—

Quantity exported	...	cwt. 3,526,000
Value of this quantity	...	Rs. 25,742,000
Contributions to revenue	...	Rs. 841,000

Crediting plumbago revenue with items brought to account under stamps and other headings, the amount might be raised to Rs. 900,000, and had Government always got its own in the shape of royalty, the round million of rupees would be considerably exceeded.

Taking averages of qualities and periods, it is probable that Rs. 200 per ton is too high a valuation for this mineral, and that twenty million of rupees would, more nearly than twenty-five million, represent the total value of the plumbago exported in fifty-one years, for which figures are given. At any average price of less than Rs. 100 per ton, it would probably not pay to dig plumbago, and, as a matter of fact, what was evidently over-production between 1880 and 1883, led to a reaction in 1884, when not only did exports fall off, but operations in the preparing yards in Colombo were stayed for a time by general consent, some not opening again even when the probability of a war with Russia gave a fresh fillip to the trade.

It is a melancholy fact that plumbago is one of the class of articles, like “villainous saltpetre” and some others, the trade in which prospers when war has broken out or when warfare is threatened. The reason in the case of our staple mineral is, that the chief use by far to which Ceylon plumbago is put is the manufacture of crucibles, nozzles, &c., employed in the preparation of Bessemer and other steel, now in such large requisition for ship-building, plates for ironclads, torpedoes, shot, shell, &c. ; this, in addition to the melting of the precious metals, for which crucibles of refractory plumbago are eminently suited from their superior strength and perfect smoothness. There are many minor uses to which plumbago is put, as will hereafter be shown, but I believe I am right in stating that its extended consumption (if that word can be correctly applied to an article which is almost unconsumable) in recent years is due to the great and rapid advance of the steel industry on both sides of the Atlantic, not merely to provide materials for ships, durable and light, but for the dread weapons and appliances of modern warfare, such as Krupp and Armstrong guns, steel shot, &c. But the abundance of the ore in Ceylon, and the enterprise and activity with which the mining, preparing, and shipping of the mineral have been pursued, have in this case, as in so many others, recently led to production considerably in excess of demand, so that the profits of the pursuit, never very great and always precarious, have recently been low or *nil*.

When at its highest market value I do not suppose that Ceylon plumbago ever sold for more than £50 per ton ; indeed, the highest price of which I have evidence is £48, realised by Mr. W. A. Fernando, of Brownrigg-street, Colombo. What is this to the celebrated Borrowdale pencil "black-lead" mines, which, after having been worked since the reign of Queen Elizabeth, recently gave out, so that now pencils picked up at Keswick as curiosities cost sixpence each ! In the report of the Mátara District for 1870, the Assistant Government Agent stated :—To meet Ceylon plumbago in Cumberland was certainly a surprise, but when recently at the English lakes I learned that plumbago from this Island was mixed with the local graphite to make good pencils.

In the palmy days of the plumbago mines of the north of England, the black-lead obtained from them was valued at 30s. per pound, or over £3,000 per ton, or within about two-thirds of the price of ordinary gold. We cannot be surprised, therefore, to learn that a couple of centuries before the world heard of the gold escorts of California and Australia, the black-lead of the English lake region was guarded in its transit in carts, from mine to manufactory, by parties of military, the robbery of black-lead mines being, by an Act of George II., constituted a felony. The Act, curiously enough, recited that black-lead was employed for divers useful purposes, and more especially for the casting of bomb-shells, round shot, and cannon-balls. The connection, therefore, with the art of war of the mineral so long associated with the most intellectual and humanising of the arts of peace—writing and drawing, to wit—does not date from yesterday.

The quality of the Borrowdale ore, dark-coloured, pure, and soft, rendered it eminently suitable for pencils of the finest descriptions, and for about two and a-half centuries the world was practically supplied with pencils from this one source. From one pound of the ore, worth 30s., or at the rate of £168 per cwt., the number of pencils cut averaged from 18 to 20 dozen. The mineral was stated to be found in pipes, strings, and irregular masses called "sops," a description which, substituting modern terms for olden, applies equally to the Ceylon graphite formations. Since the exhaustion of the Cumberland mines, the best ore for pencils is *said* in some books to be obtained from Siberia, while no doubt the massive and soft stove-polish black-lead, occurring in various parts of Germany,—Bavaria, Bohemia, &c.,—is applied to the manufacture of pencils. It cannot be questioned also that some of the finest quality of Ceylon plumbago is thus used in Britian, and also in the United States.

Then followed notices of the various methods of manufacturing pencils, from the period when blocks of black-lead were sawn into pieces, until Conté, of Paris, in 1795, discovered the method now universally adopted of mixing finely-ground graphite and clay together and subjecting the mass to pressure and heat, plumbago crucibles being used to give a final firing to pencil-leads. In the one city of Nürnberg, 250,000,000 of pencils, worth £400,000,

are turned out annually, so that Mr. Ferguson felt justified in estimating the production of the whole world at 1,000 million, worth at least £1,500,000. Clay in varying quantities is used to give adhesion to crucibles, but those with the largest proportion of plumbago are of course the best.

To quote again :—The Canadian and United States plumbago is of as pure a quality as that of Ceylon, but good as the American ore is, when freed from the rock in which it is generally scattered, after the fashion of mica, I suspect the high cost of the labour necessary for first mining and then separating the mineral by the wet process—for the dry has proved a failure—will prevent continued and successful competition with Ceylon. We shall soon see, however, for the Joseph Dixon Crucible Company had produced in 1882 a quarter of a million pounds of native plumbago, against 16,000,000 pounds imported from Ceylon, and a determination to “go ahead” was expressed. Some as yet unthought of machinery, cheap chemicals, and appliances must, however, be brought into play before the pure, massive Ceylon product and our far cheaper labour are distanced in the race. And if, as Professor Dawson states, some of the Canadian ore is fibrous enough to indicate by its texture its vegetable origin, there is room to suspect that, however pure the mineral may be as carbon, its mechanical condition cannot be so good as that of the more highly crystallised Ceylon plumbago. One important element in the question is, that, according to our American friends themselves, enterprise and competition have had such influence, that Ceylon plumbago can now be obtained by them at 25 per cent. of what it cost some years ago.

The effect of competing demand for the substance, however, between 1850 and 1870, chiefly on the part of the Battersea Crucible Company, in England, and the Joseph Dixon Company, in the United States, was to enhance the value of the ore to such an extent in Ceylon as to produce temptations to cheating, which the native headman, whose business it was to weigh the output and collect the royalty at the pit's mouth, were unable to resist. These estimable servants of Government cheated the diggers out of bribes by threatening to report them as having surreptitiously removed plumbago on which royalty had not been paid, and they impartially cheated the Government by accepting bribes to largely under-report the quantities really dug and removed. The Customs figures enabled the Government authorities to appreciate the vast extent to which the demoralising system had gone, and so in 1873 legislation was initiated, the main object of which was the collection of the royalty at the Custom-house—a mode in itself far preferable to the direct system of collection previously in force, and securing every sixpence of royalty due, because, practically, every hundredweight dug is exported, the quantity as yet used in local foundries or for any local purpose being quite insignificant. I believe a few crucibles for gold and silversmiths' use are locally made, and the result of inquiries

made by Mr. W. P. Ranasingha, at my request, is that Ceylon potters occasionally employ the mineral for giving a glaze to pottery, as is the practice in India.

The mercantile community strove hard in 1873 to make out a case for the entire abandonment of the royalty, but the press supported Sir William Gregory's Government in resisting the pressure brought to bear in this direction, only that the *Observer* strongly urged a rate so low as Rs. 5 per ton, which, after four years' experience of Rs. 10 per ton, under which exports declined, was conceded in 1877. Under this rate, which is still in force, the exports more than trebled in the six years between 1878 and 1883.

Then follows a description of the largest plumbago mine in Ceylon :—

Mr. De Mel has been amongst the most prosperous of all who have engaged in the plumbago digging enterprise in Ceylon, his prosperity being mainly due to the rich yield of his Kurunégala District mine, which is by far the most important in Ceylon, having been sunk to a depth of 450 feet near the base of a hill, Polgola, which seems to be largely composed of fine quality plumbago. From this mine Mr. De Mel obtained an average of 800 tons annually for eleven years, his profits, he authorises me to say, being at the rate of £2,000 per annum. No wonder if, notwithstanding lessened production and profits in the past two years, connected with this mine, there is a steam crane for raising water and a considerable length of Decauville railway for the carriage of the ore from pit-mouth to cart, or that the enterprising owner has commenced a base-level tunnel at an estimated total cost of £2,000, to free and keep the mine clear of water, whether the result of springs in the rocks or of monsoon rains (the effect of the latter during the recent exceptionally heavy burst of the south-west monsoon in May was to fill up the pits and put a stop to digging everywhere), this, irrespective of a fall of £2 per ton from the price to which the mineral had been sent up by the war scare.

The tunnel in Mr. De Mel's mine, when completed, will not only carry away water, but facilitate the output of mineral from the lower, which are generally the richer strata, besides ventilating the mine so as to prevent injury from mephitic gases or inconvenience from the smoke of the explosive employed in blasting. The draft will also alleviate the heat in the interior of the mine, which the workmen now complain of as sometimes intolerable. For blasts under water, large quantities of dynamite cartridges are employed, in addition to gunpowder used in portions of the galleries comparatively free from moisture. The wages paid to diggers in this mine, chiefly low-country Sinhalese, vary from 9d. per diem for coolies, to Re. 1 for those who perform the boring and blasting operations. In the Pasdun Kóralé there is a system of payment for labour by shares in the profits, after all preliminary expenses defrayed by the capitalist have been reimbursed.

The hill in which Mr. De Mel's mine has been opened—

Mr. W. A. Fernando having another at a higher elevation than De Mel's, with a depth of 330 feet—seems to be permeated in its whole extent by generally horizontal veins of the richest plumbago, associated with beautifully snow-white crystalline to semi-opaque quartz, the latter occasionally showing specks of garnet and bands of soapstone, and Mr. De Mel brings to the surface practically pure plumbago. As regards the generality of pits, he agrees with the estimate of Mr. W. W. Mitchell (who has probably purchased, prepared, and shipped to America as well as Europe more plumbago than any European merchant who ever resided in Ceylon) that the extraneous matter in the shape of earth and rock brought to the pit's mouth is equal to one-half of the whole, about 10 to 15 per cent. being the proportion carried to Colombo and separated from the ore in the preparing yards. Mr. Fernando's estimate, however, of foreign matter brought to Colombo is 5 per cent. for pieces of quartz round which plumbago adheres, and $2\frac{1}{2}$ per cent. for minute fragments of silica, iron, &c., mixed with the smaller pieces and dust. Any person who has witnessed and appreciated the difficulty and the expensiveness of the processes whereby small fragments of rock are separated from the lower classes of plumbago in Ceylon, can well imagine the obstacles to profitable separation of the mineral from rock in America, where there are no masses, but only scales of the mineral distributed throughout the rock.

Then followed a notice of a mass of plumbago only 14 lb. short of 6 cwt., which De Mel exhibited when the Prince of Wales visited Colombo, and the statement that large masses are sometimes, although pure carbon, of such hard consistency as to be commercially valueless. Mr. Ferguson suggested that this form of plumbago and not the softer kind should be used for sculpturing elephants and other objects. Then followed a description of the various systems in force in the three Provinces to which plumbago mining is practically confined. In the North-Western Province all the mines are on private property. In the Southern Province only licenses to dig are charged for, at the rate of Rs. 10 per annum, but no rent. In the Western Province, besides the charge for licenses, a rent-royalty of one-tenth of the plumbago dug, or its equivalent value, is levied, which adds considerably to the revenue. Sir Wm. Gregory, in 1873, announced that the policy of the Government would be to lease and not to sell plumbago lands, so as to prevent a monopoly in the hands of the rich. Mr. Saunders is, however, in favour of selling such lands outright, but only in small lots. He quotes in favour of his view the results of a sale in 1880, when a lot of 1 acre 1 rood and 13 perches realised Rs. 8,150. As a general rule, the rent-royalty exacted in the Western Province is somewhat below the sum of Rs. 5 per ton charged on export, so that the total impost on such plumbago is Rs. 10 per ton. Owners of private mines and diggers on Government lands in the Southern Province pay only Rs. 5. Mr. Ferguson said of the leasing system:—

The merit of the system, provided the rent-royalty is moderate, is that the lessee of the land pays only and just in proportion to the productiveness of the land he has leased, payment being accepted in money or in kind. At the end of each year the lease can be either renewed or otherwise, and plumbago lands which have been for a certain time abandoned, and which evidently do not contain appreciable quantities of the metal, are sold on the terms applied to ordinary Crown lands.

At present, as sources of plumbago, the North-Western Province seems entitled to first rank, the Western following as a good second, while the Southern is a distant third, the Galle Customs returns showing an export of one-tenth of the whole plumbago sent away, against nine-tenths from Colombo. Three-fourths of all the plumbago exported from Ceylon are dug in the Kurunégala and Kalutara Districts. It was then noticed that exaggerated figures have appeared in the Blue Books as to the number of plumbago mines in the Island, from the inclusion of abandoned pits and mere holes. While the pits opened from first to last must amount to thousands, those being worked at any one time may be taken at from 300 to 600. Water in the soil and from rainfall is the great difficulty. To quote :—

As a general rule, graphite seems to exist not far from the surface, on which its presence may be revealed through fissures, while, in regard to this mineral, as well as gold and other ores, indications in streams guide explorers up to the including rocks, generally quartzzy gneiss, in which the mineral is embedded or diffused. Mr. De Mel tells me that very good plumbago is often found near the surface, but that, as a general rule, the lower the digging operations go the better the quality and the larger the quantity of the mineral. Of course, the purer the finds are, and the larger the masses the better, but a visit to any of the preparing yards in Colombo will show, besides the cost of prospecting and mining and the uncertainty of ultimate success, a good deal of expense is involved in conveying a considerable proportion (already noticed) of extraneous matter to Colombo, there to be hammered, cut with small axes, picked, sifted, and washed out.

Still, with all its drawbacks, the plumbago enterprise is valuable to the country, not only for the revenue it yields, but for the generally remunerative employment it has given to many thousands of the population (from 15,000 to 20,000 men, women, and children, probably, including cartmen and carpenters), especially since the period when the collapse of the once great coffee interest led to so much distress in the country. The Kurunégala Administration Report of 1873 stated that in that District alone the plumbago industry had given employment to some 5,000 persons. The Galle Report for 1872 estimated that each mine required from two to eight or ten miners, and even up to fifty or sixty, at high wages. At a period when the plumbago industry was at the height of its prosperity, Mr. De Mel and other mine owners had almost concluded an arrangement with Messrs. John Walker

& Co. for a light railway line from the mine region to the Government Railway. Depression in prices caused this design to fall through, but the day cannot be far distant when Kurunégala, at least, will be connected with the Government Railway system at Polgahawela, forty-five miles from Colombo. The Western Province plumbago, found in the Pasdun Kóralé (a Kóralé which is famous for the quality, as well as the quantity of ore it produces), does not come on the railway at Kalutara. Once it is loaded in boats it comes by water all the way to Colombo.

A return furnished by Mr. Pearce shows that nearly one-half of all the plumbago exported from Ceylon comes on the railway at various points, mainly at Polgahawela, the quantity so carried in 1882 being no less than 5,642 tons.

To show the vicissitudes of the plumbago enterprise, I may quote from the Sabaragamuwa Report of 1873 to the effect that plumbago which formerly sold at Rs. 200 per ton, then realised only Rs. 90, while the working expenses had considerably increased in consequence of the enhanced prices of labour. It will be remembered that 1873 was the year in which the change was made to the collection of royalty at the Custom-house, in anticipation of which the great manufacturers in Britain and America had provided themselves with stocks of the mineral. Hence a fall in exports and prices. Eleven years subsequently, in 1883, Ceylon sent away her largest export of plumbago, but the depression had even then set in, which led to greatly reduced shipments in 1884. In the one matter of cask-making, however, the increase in the export of plumbago during the past five years must have largely filled up the void created by the decrease in coffee. Hora, one of our most inferior timbers, can be utilised for plumbago casks, and as the casks are uniformly made to hold a quantity somewhat over a quarter of a ton ($5\frac{1}{4}$ cwt. net), an average of 45,000 casks per annum for the past five years, or a total in the quinquennium of 225,000, must have given, in their manufacture, remunerative employment to a considerable number of carpenters who had previously been largely dependent on cask-making for coffee.

The industry now so wonderfully successful in the North-Western Province is apparently of quite recent origin. Gate Mudaliyár Jayatilleke states, in reply to my queries as to whether there were anything hereditary, or a system of payment by shares, amongst the mining class :—

“All the plumbago quarries that are now worked in the District are purchased from the Crown. No licenses have ever been applied for or granted to dig plumbago. The diggers are paid wages, and they are coolies from the Siyané and Hápitigam Kóralés in the Western Province. Very few Kandians are employed, as they are not handy in blasting and excavating any depth of more than 15 or 20 feet.”

I may add that but few Tamils are employed in the Ceylon plumbago mines, which are, I believe, exclusively owned by

Sinhalese, although, no doubt, the ubiquitous Chetty of Southern India is interested in the recovery of advances made, or supplies furnished, in some cases.

To Mr. G. S. Williams, the Acting Government Agent of the North-Western Province, I had previously been indebted for responses to my questions, thus :—

“ The pits are about sixteen miles north-east of Kurunégala on the Dambulla-road. There is a good resthouse at about the twelfth mile, and the journey in decent weather is easy enough.

“ The trade altogether failed last year—I mean no digging was done—on account of the fall in price, but this year operations have been resumed, and I am told that about 2,000 men are employed. The plumbago is found in rocky ground in which are very large crystals, transparent like Derbyshire spar.* De Mel is the owner of the principal pit. The resthouse is at Gokarella. It is not mentioned in Fyers’ Itinerary, but is between Polgolla (about a mile beyond it) and Ambanpola. On page 20 of the new edition (1881), Part I., you will find Weta-keiyápota, which is 15·55 miles from Kurunégala, and 0·55 mile beyond that, or 16·10 from Kurunégala, ‘minor road to plumbago pit on right.’ There are other plumbago pits, some actually by the roadside.”

It thus appears that the best deposits of plumbago at present worked in Ceylon are situated at the base of the north-western portion of the mountain zone. The mineral exists at high elevations, up to Nuwara Eliya indeed, but apparently not in paying form or quantity. It would appear that while the veins of plumbago run generally from south to north in the Western Province, their direction in the Kurunégala District is from east to west.

It seems possible that if digging for gems and plumbago continues on a large scale, and becomes widespread, legislation may be needed such as exists regarding the protection of wells, and that measures to prevent accidents from subterraneous blasting and the collapse of tunnels, as also to secure free ventilation, may be necessary. Though not so much so as gem-digging, plumbago mining is, no doubt, largely a speculative pursuit, involving the loss and demoralisation which ever accompany gambling pursuits. The ultimate result is, however, beneficial to the people and the country.

From some of the Administration Reports consulted, it would seem that the plumbago industry is a recent one in the District of Sabaragamuwa, although the existence of the mineral must, surely, have been revealed to the gem-diggers who have for ages been engaged in searching for the sapphires and rubies for which the region around “the city of gems” (Ratnapura) is so famous.

A vivid idea will be formed of the extent to which Government

* Crystalline quartz, of course, as time taking the form of spar seems to be non-existent in Ceylon?

—that is, the public—were formerly cheated under the system of collecting the royalty at the pit's mouth, when it is mentioned that while 226,000 cwt. were exported in 1869, the royalty recovered was only Rs. 16,000, against Rs. 65,000 on 263,000 cwt. in 1883, the rate in the latter year being only one-third of that in the former.* The extreme rate of 30s. per ton in 1869 evidently proved an irresistible temptation to diggers and headmen, and the royalty recovered was only one-tenth of the sum which ought to have been collected.

As has been proposed in the case of chips in the cinnamon trade, it would almost seem desirable that low quality dust should be excluded from the exports. Buyers are strongly inclined to confine their attention to lump of best quality, and I have heard that some of the local dealers have injured their own reputation, and that of the article in which they deal, by mixing lower qualities with the higher. As matters stand, the proportions in which the mineral seems to be exported are :—lumps, 1st and 2nd quality, 50 per cent. ; chips and dust, each 25 per cent. ; so that dust is only one-fourth of the whole. In the home market, during the past five years of unprecedented out-turn, I am informed that prices have ranged from £20 per ton, the highest for lump, down to £10. In Colombo, apart from the exceptional case in the experience of Mr. W. A. Fernando, already mentioned, the highest prices ever known are stated to be Rs. 320 per ton for fine, Rs. 270 for ordinary, Rs. 95 for dust. In the old sailing ship days plumbago was taken at an exceptionally low rate of freight as “dead weight.” Since 1880 the average rates for a ton of 20 cwt. have been : steamer, 40s. ; sailer, 35s.

The United States are our best customers in the case of plumbago, the Ceylon form of which the late Mr. Joseph Dixon saw and appreciated in 1827, and of which he secured a first shipment in 1829. In 1882 the quantity received in the United States from Ceylon was stated at 16,000,000 lb., and of the *comparatively* small quantity of $22\frac{1}{4}$ million of pounds sent from Ceylon in 1884, more than half went to the United States. But a memorandum showing the various countries for which the plumbago exported in the past five years was destined will clearly indicate how important a customer for our mineral we have in the United States, with its large steel manufacturing industry. The general result is, that of the whole export of 1,170,000 cwt. in the five years, 641,000 cwt. (or very considerably more than one-half of the whole) went to the United States, the United Kingdom taking the bulk of the remaining 529,000 cwt.

* How striking is the illustration here afforded of the value of indirect (and especially Customs) taxation, rather than a direct levy, in the case of Orientals. No greater fiscal boon could probably be conferred on the people of India and Ceylon than—if it were possible—the collection of all Government dues through the Customs Department, so saving an amount of oppression on the one hand and of bribery and corruption on the other, of which European administrators never get more than a faint idea.

Out of an export of 263,000 cwt. in 1883, Britain took 119,000 cwt. and the United States 142,000 cwt., leaving only 3,000 cwt. for other places. The memorandum referred to is appended as a note.* It seems probable that three-fourths of all the plumbago which Ceylon exports is used in the great crucible factories of Britain and the United States, that established by the Messrs. Morgan Brothers, at Battersea, and the crucible factories of Jersey City, New Jersey.

Notices then followed of the Battersea Crucible Works, and those of the Joseph Dixon Company, New Jersey, and it was stated that a vast fund of information regarding plumbago, and the very numerous and varied uses to which it is put, were quoted from descriptions of those extensive establishments.

The Battersea Works was founded by the Brothers Morgan, in 1855. The American establishment had been at work long before this period, but no doubt its productions did not go beyond local demand, for in a notice of the Battersea Works we find it stated that previously to 1855 crucibles were almost exclusively imported from Germany. Now that country, together with other centres of industry on the Continent, is principally supplied from Battersea, where crucibles are turned out at from 8*d.* per dozen, up to a gigantic melting pot costing £6. 5*s.*, and capable of taking in 1,000 lb. of steel. Such a crucible can bear from 8 to 10 meltings, while in the case of gold, a crucible taking in 1,200 ounces can sometimes stand seventy meltings. So in the case of brass, while crucibles for assaying the precious metals are very carefully manufactured, being rendered porous by the use of charcoal. The absence of coal fuel from Ceylon is probably a fatal objection to local iron or steel manufacture on any extended scale, but for small quantities of superior steel for special local use, I would, with some diffidence, suggest that crucibles composed of our indigenous plumbago and kaolin clay, both abundant and cheap, might be profitably used. The existence of "millions

* Plumbago exported in each of the last five years, showing the countries to which the mineral was shipped :—

	1880. cwt.	1881. cwt.	1882. cwt.	1883. cwt.	1884. cwt.
United Kingdom	70,276	89,709	143,450	119,312	84,981
Holland ...	—	—	—	438	945
Trieste ...	107	4,217	1,828	—	210
France ...	507	699	300	294	884
Hamburg ...	—	4,031	—	—	816
U. S. of America	133,556	160,259	113,451	141,664	94,083
British India .	1,095	109	999	326	506
Australia . .	197	885	118	—	—
China ...	—	—	12	—	—
Hongkong ...	—	—	8	739	—
Totals ...	205,738	259,909	260,166	262,773	182,425

of tons" of iron ore in Ceylon is not so apocryphal as that of anthracite, and those who owe their origin to Britain are not likely to forget that her wealth in iron quite casts into the shade all the treasures of the diamond mines of Golconda, and the gold diggings of California and Australia.

Mr. Ferguson said, commenting on a very able Paper by Mr. Orestes Cleveland, of the Joseph Dixon Company :—In most of the works consulted in the preparation of this paper—and they have been many and various—the credit of having first made and used plumbago crucibles has been given to the Germans. Mr. Cleveland awards the credit to the Dutch, and it is certainly significant that the Dutch name for the mineral should be *potloot*, or pot lead, the lead of which crucibles are made (?).

Again :—And so our plumbago, like our coffee, suffers from the "ways," that are literally "dark," of the adulterators. Mr. Cleveland, in a kind of despair, exclaims :—Perhaps no article except mustard can be so successfully adulterated as plumbago. He means, of course, for stove polish, because adulteration in the case of plumbago used for crucibles would soon be betrayed in the trial by fire, one great value of the pure plumbago in crucibles being that it conserves carbon in steel when being melted.

As a lubricant for metal surfaces, journal boxes, carriage axles, and all metal bearings, we can easily understand why only the very finest plumbago should be used, the choicest lumps being pulverised till the particles will not glisten, but the mass becomes a dead black. It cannot, Mr. Cleveland states, be made fine enough by bolting (he means sifting through silk), but must be floated either in water or air.

I notice, however, from advertisements in the American papers, that "mica grease" as a lubricator is competing with plumbago, but how far successfully I cannot say. What I know is that the writer of a recent article on American minerals strongly supports Mr. Cleveland's view as to the great superiority of plumbago as a lubricator. I am not aware that it is so used to any extent in Ceylon, either in foundries or on the railways, although if all stated regarding its value be correct, Ceylon plumbago ought to be much more largely used in Ceylon than it is at present, as a lubricant and for other purposes. For all uses it would seem that grinding to extreme fineness is essential.

We now, said the reader, come to some miscellaneous and curious uses to which plumbago is put, the mineral being applied to articles so different as musical instruments, hats and boots, bottles, paint, boats, and yachts. Listen :—For pianos, plumbago is employed to coat the bridge over which the wires are drawn, because of its perfect lubrication ; it prevents the wire from adhering to the wood, and should be as free from impurity as that used by the electrotyper, but need not be pulverised as finely. For organs, it is used to lubricate the sides, and should be the same as that used by piano-makers. The German black-lead imparts a peculiar tone to the colour, and a softness and

smoothness to the touch of felt hats. The very best lump only should be accepted. As it has once been washed and dried in lumps, they will readily separate again in water, and no pulverising is needed. For colouring dark glass for carboys, bottles, &c., the best German black-lead is used in lumps, but no inferior grade will answer. For paint, plumbago has long been known as possessing great value. The elements do not exhaust it, water sheds from it as from oil itself, and fire does not affect it. The grade need not be the highest. For the bottoms of boats and yachts it has long been used, especially for racing boats; but only the best Ceylon plumbago, very finely pulverised, is valuable.

A substance which, used as a paint, resists the action of the atmosphere, and is both water-proof and fire-proof, is surely of great economic value, and ought to be specially useful as paint for the numerous tea factories erected or in course of erection in Ceylon.

To quote again :—

Mr. Cleveland's very interesting and valuable notice of the American Crucible Company, and their varied manufactures of plumbago, is supplemented and brought down to so late a date as 1883, by the writer (Mr. John A. Walker) of an article on plumbago in a volume on the "Mineral Resources of the United States," prepared by the National Geological Survey Department, and supplied to our Library by the Smithsonian Institute, to which my attention was attracted by our Honorary Secretary, when he asked me to write this Paper. In the summary prefixed to this volume it is stated that the amount of graphite mined in the States in 1882 was 425,000 lb., worth crude at the point of production 34,000 dollars, equivalent to about Rs. 70,000. During the first six months of 1883 the production was estimated at 262,500 lb., worth 21,000 dollars. From Mr. Walker's detailed account we learn that graphite is, as a mineral, widely distributed in the United States; as an ore it is found in but few places in sufficient quantities and purity to be profitably worked.

The attention being paid to the mineral in America may be judged from the fact that samples had been received and reported on by the Joseph Dixon Crucible Company from no fewer than thirty-three localities, between October, 1877, and January, 1882.

The Joseph Dixon Company had laid themselves out to produce 500,000 lb.; altogether 525,000 lb., valued at 8 cents per lb. Let us say 18 cents of our rupee currency, and we get the high value (founded on cost as well as quality?) of Rs. 20 per cwt., or Rs. 400 per ton. The local production, however, was certainly not much to place against 16,000,000 lb. imported from Ceylon in 1882, with considerable quantities in the two following years.

Referring to analyses of Canadian and Ceylon graphites, quoted from the American authority, Mr. Ferguson said:—Both are almost absolutely pure, and did the Canadian and United States mineral occur in such a form in the enclosing rocks that it could be

cheaply mined and prepared, there would of course be an end of the export of Ceylon plumbago to America. But if, in America, plumbago, however pure, is only distributed in the proportion of 8 to 15 per cent. mineral to 92 to 85 rock, those connected with the Ceylon enterprise need not, it would seem, concern themselves greatly with the competition in America of indigenous ore with that from our Island.

Under the heading "Manufactures" there is interesting summarised information, which I quote :—

Proportionate amount of graphite used for different purposes :—

Manufactures.	Kinds of Graphite used.	Per cent.
Crucible and refractory articles, as stoppers and nozzles, crucibles, &c. ...	Ceylon, American ...	35
Stove polish ...	Ceylon, American, German ...	32
Lubricating graphite ...	American, Ceylon ...	10
Foundry facing, &c. ...	Ceylon, American, German ...	8
Graphite greases ...	American ...	6
Pencil leads ...	American, German ...	3
Graphite packing ...	Ceylon, American ...	3
Polishing shot and powder ...	Ceylon, American ...	2
Paint ...	American ...	$\frac{1}{2}$
Electrotyping ...	American, Ceylon ...	$\frac{1}{4}$
Miscellaneous — piano action, photographers', gilders', and hatters' use, electrical supplies, &c. ...	—	$\frac{1}{4}$
		<hr/> 100

A table like this will give many of the readers of this paper a new view of the multifarious uses of the mineral carbon called plumbago. It will be observed that, next to the manufacture of crucible articles, the great use of the mineral is for polishing and preserving from rust the ranges of stoves and other cooking appliances which contribute so much to the neatness, cleanliness, health, and comfort of modern abodes. The proportion used for this purpose in Europe—in Britain at least—cannot certainly be below that given for the United States. There are graphite greases as contradistinguished from lubricants, and the mineral seems to be used for the packing of engines. From the largest forges, where tons of steel are manufactured, in Pittsburg, down to the studio of the photographer and the shops of the gilder and hatter, plumbago is of valuable use. And not only is it called into requisition to produce the highest order of steel guns and steel armour for war-ships, but it is good for polishing the sportsman's powder and shot. Gunpowder used for blasting operations is also greatly improved by receiving a glaze or varnish of graphite, the philosophy of the operation being that thus the grains are prevented from absorbing the moisture which exist in mines and quarries.

Graphite enables the electrotyper to prepare and present to the world, cheaply and at will, casts of coins, wood-cuts, copper-plate, maps, &c., equal in the most minute and intricate detail to the most highly prized and costly originals. But next to the boon which the real discovery of anthracite or natural coke in Ceylon would be, is the certainty, of which we are assured, that in our teeming supplies of plumbago the tea planters of Ceylon can get a paint for their stores equal in its fire-resisting properties to asbestos paint. If this should prove to be correct, and we see no reason to doubt the statement, the prospect is that Ceylon will be speedily exporting, instead of importing, fireproof paint. Mr. Walker may well say in conclusion :—

“The growth of the graphite industry has kept pace with the age, each new development in metallurgy and engineering offering some new field of usefulness for graphite. For instance, it furnishes the pots for the manufacture of cast steel, and the nozzles and stoppers used in the Bessemer process. It is used in the manufacture of electrical supplies, &c. Fifty years ago graphite was little known and mis-named. Now it is of constantly increasing importance. From an insignificant beginning in the present century the industry has grown to its present proportions.”

A list is then given of twenty-five American firms engaged in the plumbago industry, of which the Joseph Dixon Company of Jersey City, New Jersey, takes the lead, employing 500 hands in the manufacture of everything for which graphite is used. The same number of hands find employment from the Eagle Pencil Company ; while A. W. Faber, probably an immigrant or descendant of an immigrant from Nürnberg, employs 150 persons in his pencil factory. Others employ lesser numbers, six firms giving crucibles as their exclusive manufacture ; three, lead-pencils ; four, foundry facings and lubricants ; seven, stove polish and lubricants. It will thus be seen that except in the branch of pencil-making, and perhaps electrotyping, the New World has gone, or is rapidly going, in advance of the old in the plumbago industry, which means corresponding advance in the steel industry. It is surely a striking incident in the romance of commerce that this ancient eastern isle of “Serendib,” the scene of the mythical adventures of Sindbad the Sailor, should be the main source of supply of an article so useful in the industries and elegancies of life, the appliances of peace and war, and the pursuits of the artist and literary man, not only to countries in the eastern hemisphere, but to the regions of the far Western World.

Having noticed the leading establishments in Europe and America where our Asiatic ore is so largely utilised, let us now turn to one of the compounds, or yards, with its brick and tar “barbecue” or platform, and surrounding sheds, in which Singhalese men, women, and boys prepare, assort, and pack the mineral when received in Colombo from pits, none of which are nearer than thirty miles, and some of which are so distant as the District of Hambantota, at the eastern extremity of the Southern Province.

The chief exhibitor of plumbago at the Melbourne Exhibition of 1880-81 was Mr. W. A. Fernando, of No. 1, Brownrigg-street, Cinnamon Gardens, Colombo, and a description of his establishment which the editors of the *Ceylon Observer* gave in their paper of August 12th, 1880, is, in all substantial details, corrected in August, 1885.

The description was then stated to be reproduced, and the closing remarks were to the following effect:—

We now feel confident that the number to which the pursuit gives employment was much under-estimated in 1880, and that, considering that 5,000 persons were said to be engaged in mining in one year in a single District of the North-Western Province, our higher estimate of an average of 20,000 men, women, and children at present engaged in the various operations of mining, carrying, preparing, packing, and shipping Ceylon plumbago, is not beyond the truth.

It is curious that the Sinhalese women should entertain a prejudice against plumbago as poison, seeing that it is included in the native pharmacopœia. We should have expected members of what Artemus Ward called "the female sect" to have been more troubled about the soiling of their persons and clothes by contact with the mineral; but in truth a coating of the shining ore, while easily got rid of by the use of water, produces no such hideous effect as that so familiar to us now in Colombo of the truly uncanny-looking coaling coolies, when proceeding to their houses after loading or unloading the bunkers of one of the multitude of magnificent steamers which now resort to our harbour. A polish of person, if not of deportment and manners, is the result of working amongst even the dust of plumbago, and it is curious to see the dark-skinned coolies of the plumbago stores walking about with their bodies shining as if they were electrotypes vivified.

In its further metamorphic progress from vegetable to mineral, the form of carbon we call plumbago has certainly taken a great step in advance of the carbon we call coal, in getting rid of smoke entirely, and also of dirt. Coal, however, cannot be accused, as plumbago justly is, with causing a whole roof-covering of tiles suddenly to fall off, from the slipperiness created by wind-blown particles of the greasy mineral. We were greatly amused by Mr. Fernando's statement at the time, but others, Europeans included, who have to do with the preparation of plumbago, have fully confirmed his representation as to the incompatibility of plumbago dust and tiled roofs. In this connection we would advise visitors to plumbago compounds to be careful how they bear themselves in such slippery places. A sudden step on to the polished platform may end in an undignified tumble. And this reminds me of the sensation produced many years ago in Mincing-lane by the peculiar appearance of some Ceylon coffee which had been dried on a barbecue where plumbago had been previously spread. An attempt to impart a fictitious colouring to the beans was suspected until the requisite explanation was afforded.

As this Paper may be read beyond the limits of Ceylon, it may be as well to explain that *cadjan* is a word, curiously enough, of Malay origin, applied in Ceylon to plaited branches of cocoanut palms, used for roofing houses, sheds, carts, &c. *Compound* is a yard or enclosure, and *barbecue* is a platform.

I have already shown, what I may be allowed to repeat, that for the average shipments of 12,000 tons per annum of plumbago from Ceylon for the past five seasons, the yearly supply of casks must have been 45,000, and that the manufacture of these alone must have given welcome and remunerative employment to carpenters out of work by reason of the partial collapse of the staple Colonial industry; this, apart from the large number of persons (estimated above at 20,000) engaged in mining, carting, preparing, packing, and shipping the mineral.

Let us, therefore, hope that the plumbago industry of Ceylon may continue to prosper and extend, not as the result of wars or rumours of wars, but because of the steady and beneficial progress of the peaceful industries and arts which contribute to the elevation of humanity in all that constitutes comfort, happiness, and means to cultivate the loftier instincts and destinies of our race.

[It may be added that in appendices to the Paper much valuable information is contained, and that the collection of rocks and minerals associated with plumbago, made by Mr. Ferguson with the aid of Messrs. G. S. Williams, Jacob De Mel, and W. A. Fernando, including crystallisations of iron pyrites and quartz in various beautiful and interesting forms, is about the largest and most complete ever brought together. Mr. Williams has requested that the specimens sent by him, including a magnificent pyramidal crystal of translucent quartz, which was found embedded in kaolin with plumbago and pyrites at its base, should go to the London Exhibition, and there can be no doubt that Mr. De Mel will lend for this purpose his splendid, silver-like crystallisations of iron pyrites.]

The Chairman said that he had no doubt some of those present, merchants or scientific men, would have something to say on the subject of the Paper of which a sketch had been given to them. No one, however, rising to speak, Mr. Berwick continued that it therefore fell to him to propose a vote of thanks to Mr. Ferguson for the very interesting Paper, of which the barest summary evidently had been laid before them. The subject was one of great importance, relating as it did to the only mineral of marketable value which the Island possesses. The sight of those pieces of plumbago raised in his mind an almost overwhelming feeling, when he remembered that they contained the very oldest form of vegetation which this world had known, taking us back for not thousands of years, but for a space of time that only astronomers could calculate. We were reminded of the lapse of time as we gazed on the ruins of our own ancient cities, or read about those of

Egypt brought before us so vividly in the lines addressed to Belzoni's mummy :—

And thou hast walked about (how strange a story !)
 In Thebes's-street three thousand years ago,
 When the Memnonium was in all its glory,
 And time had not begun to overthrow
 Those temples, palaces, and piles stupendous,
 Of which the very ruins are tremendous !

But these things were but as yesterday compared with what we had to realise as we looked on the pyramid before us, for the vegetation which went to its formation carried us back at one bound to the very first chapter in Genesis. He hoped that one effect of this Paper would be that new uses would be found for plumbago, and that the price would once more go up.

Mr. A. R. Dawson, c.c.s., in seconding the motion, said the clever Paper read by Mr. Ferguson appeared very opportunely at a time when they were all anxious to have attention attracted to the products and resources of Ceylon. He hoped that the Society would arrange to have copies of the Paper distributed from the Ceylon Court at the Indian and Colonial Exhibition next year, and still more that the interesting display of plumbago in its various states before them that evening would be secured to go forward among the Ceylon exhibits. (Hear, hear.)

Mr. A. M. Ferguson returned thanks, and said that Mr. W. A. Fernando had kindly placed at the disposal of the Exhibition Committee the pyramid of plumbago on the table, merely stipulating that the Secretary (Mr. Davidson) should take it home in his pocket. (A laugh.)

The Honorary Secretary stated that arrangements had already been made to have copies of Mr. Ferguson's Paper printed for distribution at the Ceylon Court in the Exhibition, and that the plumbago exhibits would be fully utilised, while he was glad to be able to say that they also hoped to send to London the largest mass of plumbago ever yet shown—beating even that displayed before the Prince of Wales, and also of far superior quality. This was a block weighing some 7 cwt., from the Pasdun Kóralé, whence some of the best plumbago came.

The Chairman then stated that the next Meeting of the Society would be held on September 21st, 1885, when Mr. Burrows, c.c.s., would read a Paper on the results of Archæological Investigations at Anurádhapura. The Hon. J. F. Dickson, the President of the Society, would occupy the Chair, and take farewell of the Members.

The Meeting then broke up.

COMMITTEE MEETING.

22nd September, 1885, 5 p.m., United Service Library.

Present :

The Hon. J. F. Dickson, M.A., C.M.G., President.
The Right Rev. the Lord Bishop of Colombo, D.D.,
Vice-President.

T. Berwick, Esq.
J. Capper, Esq.
D. W. Ferguson, Esq.

S. Green, Esq.
J. L. Vanderstraaten, Esq., M.D.
W. E. Davidson, Esq., Hon. Sec.

Business.

- 1.—Read and confirmed Minutes of the last Meeting.
- 2.—The President announced to the Committee that owing to his removal to Singapore he was obliged to place the resignation of his office as President in their hands, and requested the Committee to consider what arrangements should be necessary to fill up the post. He added that his Lordship the Bishop of Colombo had at his request signified his willingness to undertake the duties of President if that were the unanimous desire of the Committee.

After many expressions of regret at the loss to the Society, owing to the promotion of Mr. Dickson out of the Island, the Committee unanimously resolved that His Lordship the Right Rev. the Bishop of Colombo be solicited to allow the Committee to nominate him for the post of President in 1886, at the Annual Meeting of the Society in December, and that, meanwhile, he be requested, as Vice-President of the Society, to undertake the duties of the President until the Annual Meeting.

- 3.—The question having arisen as to the time and place most convenient for holding Meetings, no formal resolution was passed, but it was the sense of the Committee Members present that evening Meetings of the Society should be continued at the Museum, but that the Annual Meeting for the election of Officers, reading the Committee's Report, and the President's Address should be held as heretofore in the Council Chamber.

- 4.—Read letter from the Hon. the Colonial Secretary, dated the 4th August, 1885, forwarding a report by Mr. S. M. Burrows, C.C.S., on Archæological work at Anurádhapura, 1884–85.

Resolved,—That the Report be printed in the Proceedings.

Report on Archæological Work at Anurádhapura, 1884–85.

As the Archæological work on these ruins has been chiefly in my hands for the last eleven months, I am directed by the Government Agent to furnish a report, in reply to letter No. 221, of July 25th, from the Hon. the Colonial Secretary.

I annex a detailed account of the expenditure of the vote of Rs. 200, allotted to the Anurádhapura ruins, out of the vote of Rs. 500 mentioned in Colonial Secretary's letter No. 270, of March 27th. From this it will be seen that the money has been spent almost entirely on clearing jungle around newly-discovered ruins, and for exploration purposes, and upon the purchase of lime and cement for restoration purposes. The work of excavation has been carried on chiefly by convict labour. For the last three months I have been allowed a force of twelve men and a peon; previous to that the force was increased or diminished as occasion demanded.

The following details will give some idea of what has been done:—

1.—Of the work done at the Mirisvęti dágoba I say nothing, as this was carried out under the direction of the Royal Asiatic Society.

2.—The interesting ruins surrounding the dágoba called by hypothesis the Wijayaráma, were thoroughly cleared and a good road cut to them.

3.—The discovery of the centre piece of the stone canopy near the large canoe led to extensive excavations there. Mr. Ievers found three large stone sannasas, one of which is in perfect preservation, and has been copied. The heavy job of restoring the stone canopy to its original position has at last been satisfactorily accomplished.

4.—Mr. Ievers found an enormous “Bisokotuwa,” lined with granite slabs, near the Queen's Palace, which has been cleared and excavated to the depth of about 35 feet. The large ruined pokuna near it has also been cleared.

5.—A very large vehera, measuring about 80 ft. by 60 ft., has been unearthed in the jungle opposite to the stone canoe. The stairway, door-guardians, &c., are the finest and most massive yet discovered. The whole of the surface has been cleared, exposing a “Yóga” stone in position; and the whole of the boundary wall with its perfect moulding has been laid bare.

6.—Beyond this “vihára” a large vihára with huge monolithic pillars and ornamented capitals has been cleared.

7.—Beyond this again a square vihára with more slender pillars (which, however, are also monolithic and ornamented) has been unearthed, and a quantity of interesting stones connected with it exposed to view. This vihára is particularly interesting, as it is the only specimen of a Mágoda-shaped vihára yet found.

8.—North of the vihára mentioned in paragraph 5, a very large sedent Buddha has been found, and restored to its original position.

9.—North-west of the Kuttam Pokuna, a square pokuna, of similar design and elaborate workmanship to the Kuttam Pokuna, has been cleared and a road cut to it. Near it, a curious inscription, apparently in the Canarese language, has been uncovered and copied.

10.—A path has been cleared to two collections of rock-dwellings north of the Tammettan Pokuna. Near one of these there is a long and clear inscription, in some language that is neither Sinhalese, Tamil, nor Nágara, and which will be copied this week.

11.—A large expanse of jungle has been cleared and burned south of the Jétawanaráma, exposing to view a quantity of stone boundaries, pillars, water-courses, &c.

12.—A very fine vihára or pirawena has been discovered and cleared north-west of Lanjáráma. Its moulding is unique in its massiveness; it has four annexes and a dágoba to the west.

13.—Two working parties of coolies are at present employed, (a) in excavating the eastern chapel of the Abhyagiri dágoba; (b) in clearing and partially restoring the two most perfect of the five pavilions on the outer circular road.

14.—A large number of enamelled tiles, iron and copper implements, interesting detached stones, &c., have been brought to light and carefully preserved.

The conclusion.—I would venture to express a hope that a surveyor will very shortly be detached for the special duty of laying down on the plan all the ruins, boundaries, &c., that have recently been unearthed. Only when this is done will it be possible to form any connected idea of the dimensions and general aspect of the old city. Such a plan would be of invaluable assistance to the future excavator, and I make no doubt that there are a vast quantity of ruins still lying hid in this dense thorn jungle.

The present force of convicts, if kept continuously at the work, will be amply sufficient to keep clear the paths to, and the jungle round the later discoveries.

The Disáwa of Tamankađuwa has been written to for a report on the work done by him at Polonnáruwa.

I am, &c.,

S. M. BURROWS.

27th July, 1885.

GENERAL MEETING.

22nd September, 1885, 9 p.m., at the Colombo Museum.

Present :

The Hon. J. F. Dickson, M.A., C.M.G., President, in the Chair.

The Right Rev. the Lord Bishop of Colombo, D.D.,
Vice-President.

P. D. Anthonisz, Esq., M.D.	J. P. Lewis, Esq., M.A., C.C.S.
H. P. Baumgartner, Esq., C.C.S.	Capt. Morgan, R.E.
H. C. P. Bell, Esq., C.C.S.	E. T. Noyes, Esq., C.C.S.
T. Berwick, Esq.	E. T. Perera, Esq.
S. M. Burrows, Esq., M.A., C.C.S.	L. O. Pyemont-Pyemont, Esq., C.C.S.
J. Capper, Esq.	S. Rajapakse, Mudaliyár, G.G., J.P.
J. B. Cull, Esq., M.A.	G. S. Saxton, Esq., C.C.S.
J. E. Dean, Esq.	A. T. Shamsuddeen, Esq.
D. W. Ferguson, Esq.	H. Sumangala Terunnánse.
J. Ferguson, Esq.	H. Wace, Esq., C.C.S.
R. W. Ievers, Esq., M.A., C.C.S.	
C. J. R. Le Mesurier, Esq., C.C.S.	

W. E. Davidson, Esq., C.C.S., Honorary Secretary.

Sixteen visitors present, and nineteen ladies.

Business.

The Minutes of the last Meeting having been read and confirmed, the Secretary announced that the name of Mr. G. S. Williams, C.C.S., was submitted for election. He was proposed by the Chairman and seconded by the Secretary.

Mr. Williams was declared elected.

Mr. S. M. Burrows, C.C.S., then read an instructive and interesting Paper, entitled "Jottings from a Jungle Diary," of which the following is a brief summary :—

The scheme of this Paper is simple almost to crudeness. It is to give some account of the more recent archæological discoveries at Anurádhapura, and to describe one or two places and incidents which I have come across on circuit in the less beaten tracks of the North-Central Province. While carrying out some mild excavations on the outer circular road near the "stone canoe," in November last, we had the good fortune to dig up a magnificent stone, nearly square, and weighing some four or five tons, with sunk panelled mouldings to a depth of $1\frac{1}{4}$ feet. As the stone had fallen on its face, the delicate lines of moulding proved to be almost as perfect as on the day they were carved. A little further search was rewarded by the discovery of two smaller stones of similar design, which exactly fitted on to either side of the centre piece ; and it was then evident that the trio had formed an oblong canopy over some statue, or perhaps over a

throne. The pillars were discovered at some little distance from the canopy, at a depth of about four feet below the surface, and by degrees a series of oblong slabs were turned up, each bearing a bold fresco of peculiar design, which ran along, and were keyed into, the upper rim of the canopy. Finally, the site of the building was found about two feet down. The subsidence of the ground had displaced some of its pavement stones, but the general shape and the measurements left no doubt of its identity. Further excavations revealed no less than three large stone "sannasas," one quite perfect, the other two more or less mutilated ; and also a very perfect specimen of a yóga stone, with twenty-five squares. The Paper then went on to describe "finds" in the adjoining jungle, the most important being a large sedant statue of Buddha, in excellent preservation. A little further on a magnificent staircase, unrivalled in the ruins for completeness and size, was unearthed. One of the door-guardian stones had fallen headlong, and was buried seven or eight feet deep ; but when it was at length raised into position, it proved to be the most perfect specimen yet discovered. It measures 4 ft. 6 in. high by 2 ft. 3 in. wide inside the frame, the total length of the stone being 6 ft. The tip of the nose is broken ; otherwise it is as perfect as on the day when it was carved. Still deeper in the jungle another large vihára was discovered. When the trees and underwood that entombed it were at length cleared away, several pillars of great beauty were brought to light. They are monoliths, with highly-decorated capitals, 10 ft. 6 in. in height, while the width of each side of the pillar is $1\frac{1}{8}$ ft. Excavations are still going on here. About 200 yards to the east of this shrine I discovered still another vihára, which differs in design from all those previously exposed to view. The slab form is as nearly as possible 38 ft. square ; three rows of beautiful monolithic pillars, with delicately-carved capitals, run from east to west along the two sides of the platform, leaving a blank space in the middle, and I have little doubt that they supported a pagoda, or dome-shaped roof, and represent the only instance of this kind of roof at present discovered in Anurádhapura. To the north-west of the Kuttam Pokuna, a square pokuna of similarly elaborate workmanship has been found. The sides are lined with long smooth slabs of granite, arranged in tiers ; and a long stone water-pipe projects into it, supported on a very grotesque and obese figure. Near it a very curious inscription was found, apparently in the Canarese language. A careful copy has been taken of it, and forwarded to the Colonial Secretary. In the jungle not far from the Thupárama, I came across a curious stone, which has been identified as a "Pandu-oruwa," or dyeing-vessel. It is an oblong stone about 5 ft. in length, and $1\frac{1}{2}$ ft. thick. At one end there is a deep circular hollow, narrowing towards the bottom, the outer rim of the upper lip being decorated with the lotus leaf pattern. At the opposite end of the stone an oblong raised platform is cut, and its edges moulded. The stone was apparently for the dyeing

of priests' robes. In the channel recently cut I have found a large collection of ancient roof tiles, thickly coated with blue enamel, or glaze; none are absolutely perfect, though many are very nearly so. A great deal of old iron has been found, mostly in the form of rails, clamps, and bolts, proving, I think, clearly, that most of these stone pillars bore superstructures, and that the superstructures were of timber. The only articles of domestic use I have found are two old "katties," a pair of long scissors of a peculiar design, and one leg of an iron betel-nut cutter, ornamented with the head of a mythical beast. There is an old Italian saying that the safest time to turn heretic is when the Pope is dying: perhaps it may appear to be somewhat on the same principle that, in connection with the carvings and buildings we have been discussing this evening, I venture to suggest a theory to which I know that our President, of whom we are to take regretful leave to-night, will not agree. But I cannot help thinking it is just possible that the Tamil invader, who is generally looked upon as a mere iconoclast, was both the artist who designed and the workman who carried out the patterns and mouldings of the Great City. Of course one would like to believe that these delicate and chaste designs were the spontaneous outcome of the artistic Aryan mind, and spread from the cities of the Aryan invaders in Ceylon to the dark Dravidian continent, its neighbour on the north. Mr. Phœbus, the prophet of Aryan principles in Disraeli's "Lothair," "did not care for the political or commercial consequences of the Suez Canal, but was glad that a natural division should be established between the greater races and the Ethiopian. It might not lead to any considerable result, but it asserted a principle. He looked upon that trench as a protest." In the same way, there are many followers of Mr. Phœbus who looked upon the Palk Strait and the Gulf of Mannár as a protest: a watery intervention between the Tamil iconoclast and the Aryan artist. I confess that my own view of the matter is different, though an Aryan fellow-feeling makes me hope that the arguments which weigh with me will be successfully demolished. They are these:—1. Failing evidence to the contrary (and I submit that there is none trustworthy), the natural hypothesis to form concerning the architectural and artistic ideas which are realised in stone at Anurádhapura is that they gradually travelled down from north to south, and so were imported into the Island from the extremity of the continent, and not *vice versa*. 2. Unless we are to believe in the mystical flight through the air of the great missionary Mahindo, the assumption is that he travelled through the south of India to Ceylon, carrying with him reminiscences of the sacred edifices he had seen in his native land and on his journey, which he persuaded his insular converts to imitate and perhaps surpass, for the honour and glory of Buddha. 3. If we may trust the "Mahawansa," we know as a fact that the early rajahs sought their wives from Southern India, that the Tamil Elala reigned peaceably for forty-four years, the great

Polonnáruwan monarch, Prákrama Báhu, imported Tamil artificers to carve his temples, and, as a pretty certain inference, that the early religion of the Island was Hinduism. 4. Nearly all religious emblems are plainly imported, and not original representations of local animals and ideas. The conventional rendering of the horse, the lion, the bull, and probably of the goose, *must* have travelled southward from the continent, while the “dvarpal,” or door-guardians, the “makaratoranas,” and the frescoes at the Isurumuniya temple are obviously of Hinduistic origin. The interesting ruins thirty-five miles south of Madras, known as the Seven Pagodas (so called, on the *lucus a non lucendo* principle, because they are nine in number), and which are of unknown antiquity, present so many strong points of resemblance to the sculptures of Anurádhapura, that I am surprised they have not been more dwelt upon. There are to be seen the same stairway, with highly mythical animals forming the balustrades; the same door-guardians in the same saltatory attitude; there is the familiar flute-player of Surumuniya (an incarnation of the Hindu Mercury), and the squat, obese figures with a half-fractional expression, looking like Falstaff after he had swallowed his half-penny worth of bread. There is a roof precisely the same as that of the newly-discovered stone canopy; a stone bull which is own brother to the Anurádhapura bull with the prolific reputation; a wall with a bold frieze of elephants and lion closely resembling the elephant wall that surrounds the Ruwanweliséya; and many other minor likenesses, too numerous to detail. If my previous arguments are of any value they go to prove that Anurádhapura and Polonnáruwa are more or less replicas of the Seven Pagodas and similar Indian shrines. In conclusion, I would venture respectfully to urge upon the Society the advisability of encouraging in every possible way excavations similar to those I have detailed in so disjointed a fashion this evening. I only speak from a year's experience, but I am quite sure that an immense quantity of interesting discoveries remain to be made by a careful and intelligent use of the mamoty and pickaxe, and I can conceive no better archæological investment than the gradual acquisition of details concerning the two magnificent cities which have been so long and shamefully neglected. The first great want is an accurate and complete survey of all that has been discovered up to date; and with that foundation to work upon, with a regular supply of convict labour under intelligent overseers, and an annual monetary grant, I feel confident that these ruins would rank among the most interesting and instructive to be found in the world.

At the conclusion of the reading of the Paper, the President asked for discussion on it.

Mr. Cull demurred to the theory set forth by Mr. Burrows that the architects of Anurádhapura were the Tamil invaders and not the original Aryan inhabitants of the Island, and he would like to know if more light could be thrown upon that point.

The Bishop was very glad that Mr. Cull had challenged Mr. Burrows' idea on the subject, because he thought they would all be very much disappointed if the credit of that great work should be lost to the Aryan family, to which most of them had the honour to belong. He would not say that his confidence had been much shaken by the arguments of the reader of the Paper. He fancied the argument that in travelling from the north of India the invaders must have passed over from the south coast of India is a mistaken one. In early days people did not travel long distances by land, and in getting from the north of India to Ceylon they would come by sea, and if he remembered the "Mahawansa" correctly it states that they did come by ship. The parallel raised between the language and art of the Island and that of the north of India, he thought was a point which they would find came out more clearly the more they looked into it; but it was also true that the races of the north of India had great power in early days in the south, and brought their art into the south of India, and he had no doubt the interesting parallel Mr. Burrows had pointed out between the Seven Pagodas at Madras and the ruins of Anurádhapura had its foundation in that fact.

Mr. Berwick suggested that if the theory put forward by the Bishop was correct they would expect to find that the invaders, the builders of these great cities, would not have planted themselves in the interior of the Island, but that the colonies would have been placed more on the sea-border.

The Bishop said his remembrance of the history was that the colonists landed somewhere about Puttalam, and that they advanced gradually inland, and Anurádhapura was one of the first cities which they founded.

The President said the question Mr. Burrows had raised was a very interesting one, and he thought to most of them it would be novel. These were days in which many of their old preconceived notions, and he might say many of what they used to consider established beliefs, were rudely shaken, and amongst other things they might have to learn that the people of Ceylon not only had for seventy years to suffer under the subjugation of their Tamil neighbours of the south of India, but that they have nothing on which they can pride themselves, and that all the great irrigation works, architecture, and literature is due to the Dravidian element of Southern India. But he thought they would all of them want some stronger proof than his able friend had adduced before them, before they abandoned their belief that those works are Aryan, and that we owed almost all we have in Ceylon of the kind to the Aryan origin of the people. The President went on to speak of the endeavour of the Committee to secure for this Society photographs and casts of the more important sculptures connected with Buddhism, which have been discovered in various parts of India, and stated that they had obtained two very interesting albums of photographs from two different parts of India, showing

a totally different origin for these works of art, which in former days had led the people to illustrate the religion of their country. They would find there grounds for the carefully-considered suggestions which Mr. Burrows had thrown out. He was not prepared to say they would find those suggestions right, and he thought they would find that our architecture and all that is beautiful in the country is of Aryan origin ; but it might be on further research they would find it was as Mr. Burrows suggested. To those who knew the interesting ruins which Mr. Burrows had described with so much enthusiasm, his descriptions would afford the greatest pleasure ; those who did not know them he hoped it would induce such to go and see for themselves what treasures some, like Mr. Burrows and himself, had dug amongst the ruins and laid bare for their pleasure. He had now only to express the thanks of the Society to Mr. Burrows for coming there and reading his interesting Paper on the early works of architecture. He was sure they would vote the thanks of the Meeting by acclamation. (Applause.)

FAREWELL TO Mr. DICKSON.

The Bishop :—It has been suggested that the honour should fall on me of proposing a vote of thanks to the chair. Proposing a vote of thanks to the chair is in many cases merely the duty of giving expression to an ordinary courtesy ; but what is in our minds this evening is something more, it is to give expression to a real gratitude and a sincere regret. (Hear, hear.) The gratitude which we feel is not for anything which has taken place this evening only, but looks back a long way, and is due for a whole course of services. And it is accompanied by a sincere regret, a regret that when our President rises from the chair this evening he will be vacating altogether the position which he has adorned, and the importance of which he has enhanced by the zeal and ability which he has brought to bear upon it. It is not very long since, I believe, that Mr. Dickson has been able to take the part of an active Member of this Society, but in a comparatively short time he has done much. (Hear, hear.) His intimate acquaintance with this country, its people and the places in it, the conspicuous part he has had the opportunity of taking in developing its archæology, and his close interest in everything that concerns works of utility, ancient or modern, as well as the special attention he has paid to Eastern languages, have fitted him in a peculiar degree to occupy the President's chair of a Society which has so many objects within its scope as this one has. In that chair he has contributed, by Papers of his own, and by his able and instructive Presidential Address, valuable additions to the Proceedings of this Society. But that is not all, he has been able to kindle zeal in others, and to enlist for our Meetings the interest of the Members and of the intelligent public. I say it is not, I believe, a very long time since that Mr. Dickson has been able to take an active part as a Member of the Society, but it is many years since his name first began to be known as a worker in two, at least, of the

branches of study of this Society. To his work in developing the ruins of the ancient monuments which are found in this country I need hardly refer. Besides that, in the field of Páli literature, Mr. Dickson has made a name for himself as one of those first among European scholars to bring that study into popular interest. It was about the year 1875, I think, that his “Kammavâcâ” was published, and it at once superseded the ancient and necessarily imperfect edition of Spiegel, which had been in use since 1841. About the same time, or shortly afterwards, was issued his “Pâtimokkha,” which we fancy will supersede the Russian edition of Professor Mineyeff; but whether it be the *editio princeps* it certainly is the principal edition. It would be no slight thing now-a-days to show work like this, but things are very much changed since ten years ago, and the works which Mr. Dickson did are such as to entitle him to a prominent place, and his name will be remembered wherever Páli scholars exist. (Applause.) But we were hoping for yet more from our President, and under his inspiring leadership the Society was setting itself two ambitious tasks in this department of literature. We were thinking we might perhaps do something considerable in Páli literature, in contributing, at any rate, something towards the edition of the Játakas, and that in Sinhalese literature we might lay the foundation of a dictionary. Whether we shall be able when our leader is gone, whose courage in putting his own shoulder to the wheel has been such as to embolden us to look upon such a task as not altogether impossible, whether we shall have courage to continue is a question we shall have to answer; but if these schemes ever come to anything they will be memorials of Mr. Dickson’s spirit, and will bear traces of his loss,—as lost to us, for the present at least, it seems he must be,—and therefore it behoves us to retain what we can of his spirit and take up his mantle. He leaves to us as students and scholars the same example which I believe he should to his colleagues and subordinates in the public service, an example of courage and conscientiousness. We hear it sometimes said of one man that he is nothing if not brilliant, and of another that he is nothing if not laborious; but even if it cannot be said of Mr. Dickson that he was painstaking, it can be said that he was brilliant, and if it cannot be said that he was brilliant, which it can, it can be said that he was painstaking. (Applause.) It is rarely given to one man to be both, but those who know Mr. Dickson, those who as his colleagues or subordinates in the public service have been closely connected with him, will bear me out in saying that with the temptation to be merely brilliant he is determined to be also painstaking. (Hear, hear.) He leaves us an inspiring example of one who is a lover of work, and a lover of good workmanship, and a workman who needeth not—and that is what we should all desire for ourselves whatever our work may be—to be ashamed of the work he turns out. That example we who remain in the Society should keep in mind, and since our President himself must leave us we will speed him on

his way with our most earnest good wishes and our sincere thanks.
(Loud applause.)

Mr. Berwick :—Ladies and gentlemen, it is not usual in seconding a vote of thanks to say much, and I feel if I were to attempt to say much upon the subject which you have heard now, I should be repeating what has been so well said by his Lordship the Bishop of Ceylon. At the same time I cannot resist the opportunity of giving expression to the great pleasure which I feel in taking a secondary part in the proceedings of this evening, in joining in the expression of gratitude to a President who has distinguished himself so much already, and who has given promise to distinguish himself even more before his work is done, and joining in the expression of regret that we are to lose the valuable services which he has rendered to this Society. If I may to some extent modify a metaphor which I heard the President use in another place last evening, when he referred to the dark plumaged bird which hovers over every joy, I think there is another and a brighter plumaged bird : there is the dove of hope, and though we are to lose Mr. Dickson now there is this hope that he is not going very far away, he is going to a land which is very closely associated with that which he leaves, and we know he will find in the Straits many points of contact with Ceylon,—in ethnology, in archæology, and in many various ways ; and he will have opportunities of contrasting these points, and we may hope that Mr. Dickson, who, I believe, will continue a Member of this Society, and who will continue to take an active part in its operations, will favour us with communications upon those points from time to time.

The President :—Gentlemen,—You will not expect me to put to the vote the motion which my Lord has put before you, and which my friend Mr. Berwick has seconded, nor will I for the moment pay any attention to the too-flattering words which his Lordship has addressed to you respecting me, and which Mr. Berwick has been so good as to endorse. Those words I shall put aside as a kindly and friendly expression of feeling, and will not commit the fault of taking them to myself as deserved. I have now to resign you the honourable office you have been good enough to allow me to fill. I have humbly endeavoured to serve you to the best of my ability, and I shall be thankful if I can think I have been of any service to you. I am happy in resigning this office to tell you that the Committee of your Society met together to-day for the purpose of considering how this office should be filled, and I am sure it will give you all the greatest satisfaction to learn, and that you will all endorse with one accord and one voice the conclusion at which the Committee arrived unanimously and without one word of dissension, and that the Society will be an immense gainer if, on this opportunity, they are able to secure to themselves the advantage of obtaining my Lord's consent to become the President of your Society. (Applause.) It is the unanimous decision of the Committee that they will

propose to you at the next Annual General Meeting that the Bishop of Colombo shall be elected with one voice to be your President. I may say, and I say on account of the prospects of the Society for the future with very great regret, that he is the one man pointed out to be your President. I wish I could say that he had a second in the Society, but as that is not so, it is a good turn to the Society that they will be able to ask one so distinguished by learning and by scholarship, and by catholicity of character, to become President of a Society which is so essentially catholic in its nature. The important work of the Society of the past year has, indeed, not been mine, but has been his. It was to my Lord's suggestion that we undertook the great and interesting work of the study of the Játakas, as a Society, and it has been to his position as Chairman of the Committee appointed to undertake the great work of a scientific dictionary of the Sinhalese language, that we have been able to give a satisfactory account of this year's work. I am able to read you an extract from a letter from Dr. Rost, the learned Librarian of the India Office, who, in addition to being one of the greatest amongst Oriental scholars, is, perhaps, of all Orientalists, the one with greatest sympathy with Orientalists all over the world. He writes :—"The Játaka work taken up by your Society is meeting with high approbation here." That, gentlemen, will show you what interest is taken in the important work which the Bishop has initiated, and which you have carried on with considerable success. That work is in the Bishop's hands, and that work is the Bishop's. If that stood alone, it would be sufficient to show you how great a gain you will have in obtaining the services of the Bishop of Colombo. But it is not that alone. He has undertaken a far greater and more important work. He has undertaken to be Chairman of the Committee for preparing a scientific dictionary of the Sinhalese language. I need but tell you it may be fifty years before the fruits of his labour can be seen, to show you the task he has undertaken. I have great pleasure in congratulating the Society upon having the consent of the Bishop of Colombo to place his services at your disposal. Gentlemen, I thank you very much for the kindness with which you have responded to the cordial words my friends have addressed to you.

The President announced that the Bishop, as one of the Vice-Presidents of the Society, would preside at its Meetings till the Annual General Meeting, when it would be their duty to elect him President.

The proceedings then terminated.

COMMITTEE MEETING.

4th December, 1885, 4 p.m., United Service Library.

Present :

The Right Rev. the Lord Bishop of Colombo, D.D., Vice-President, in the Chair.

J. G. Dean, Esq., Hon. Treasurer.	D. W. Ferguson, Esq.
T. Berwick, Esq.	W. P. Ranasinha, Esq.
J. Capper, Esq.	J. L. Vanderstraaten, Esq.,
J. B. Cull, Esq., M.A.	M.D.

W. E. Davidson, Esq., Honorary Secretary.

Business.

1.—Read and confirmed Minutes of last Committee Meeting.

2.—Laid on table the translation of Professor Virchow's Monograph on the Veddas of Ceylon, which had been received by the Society through the kind offices of Mr. Freüdenberg.

Resolved,—That inasmuch as the translation is one authorised and supervised by Professor Virchow, the Paper should be printed *in extenso* in the Journal of the Society ; but that for the purpose of reading and discussion at Meetings of the Society, an abridgement of the Paper should be prepared by Mr. Berwick (who has kindly consented to do so), and this abridgement read at the next General Meeting.

3.—The Secretary having brought forward the question as to whether the Society, as a Society, could be represented at the forthcoming Indian and Colonial Exhibition of London (1886), and he having suggested the feasibility of representing a collection of the Páli classics and a set of the Society's publications, and the possibility of sending to the exhibition a Singhalese man to illustrate the manner in which olá writing is done in Ceylon, it was resolved, after some discussion, that the Secretary do communicate with the Secretary of the Executive Committee with a view to carrying out these suggestions, if this can be done without any expense to the Society.

4.—*Resolved*,—That the Honorary Secretary be requested to insert advertisements in the local papers for the numbers of the Society's publications which are out of print, and of which copies are wanting in the Society's Library.

5.—*Resolved*,—That the next General Meeting of the Society be held on the 15th December, 1885 ; that the Annual General Meeting be fixed for Monday, the 21st December, 1885 ; and that a Committee Meeting be held on the 17th December, 1885.

COMMITTEE MEETING.

7th December, 1885, 9 p.m., at the Colombo Museum.

Present :

The Right Rev. the Lord Bishop of Colombo, D.D.,
President, in the Chair.

T. Berwick, Esq., Vice President.	J. Loos, Esq., M.D.
A. M. Ferguson, Esq., C.M.G.	J. H. Thwaites, Esq., M.A.
D. W. Ferguson, Esq.	J. L. Vanderstraaten, Esq., M.D.
F. C. Loos, Esq.	J. G. Wardrop, Esq.

W. E. Davidson, Esq., c.c.s., Hon. Secretary.

Business.

- 1.—Read and confirmed Minutes of last General Meeting.
- 2.—The following gentlemen were then elected Members :—

The Rev. S. Langdon.
The Hon. Cecil Clementi Smith, C.M.G.
R. Webster, Esq.

3.—Mr. Berwick then read an abridgement, very carefully prepared by himself, of a monograph on the Veddás of Ceylon, written by Professor Virchow, of Berlin, and since translated for this Society. The Paper, which was illustrated by a series of skulls lent for the occasion by Dr. J. L. Vanderstraaten, contained the Professor's conclusions, which were somewhat at variance with those arrived at by many persons who have studied this obscure race. It was decided, however, owing to the lateness of the hour when the Paper was concluded, to postpone any formal discussion of the subject until a future occasion, when Mr. Berwick's abridgement will be printed, and be in the hands of Members who were prevented from attending the Meeting. At an early gathering, it is hoped that the Society will be in possession of the views of several of its Members who have had exceptional opportunities of studying the Veddás, and that the views of Professor Virchow may be then discussed more fully.

The evening was unfortunately wet, which prevented the attendance of many Members.

THE VEDDA'S OF CEYLON.

(*An Abridgement, prepared by Mr. T. Berwick, of the Monograph by Professor Virchow.*)

[For the marginal headings the compiler of the Abridgement is responsible.]

Object of the Paper.—In the various mixtures of races inhabiting Ceylon, the Veddás have for a long time been objects of special prominence in the study of ethnography, because

there is much room for conjecture that in them is preserved a remnant of the aboriginal inhabitants of the Island. And now, when according to all accounts their number is so rapidly diminishing that, at no very distant date, their last members will have disappeared from among the living, a peculiar interest is added to the study, and it is desirable to transmit to posterity a trustworthy picture of their singular characteristics. For this purpose the material we now have is nowise sufficient; hence the object of the following disquisition is not merely to collect what has been already ascertained, but to point out the gaps which can be supplied only by further local researches. It is to be hoped that this may stimulate to the immediate application of all possible means to obtain the wanting material.

The Veddá Land.—The Veddás have dwelt, at least for some centuries, in the vast forests on the south-east side of the Island, between the mountains and the sea, and especially in the wild tracts of land called the *Veddá-rata* of Bintenna and the *Mahá Veddá-rata* of Uva. The more savage remnants of the tribe live in the beautiful District of Nilgala and in the forests of Bintenna. There is much evidence, however, that in times not very far distant the Veddás were scattered over a larger extent of country, which reached much further northward, and their earlier presence in the south and even south-west is also proved.* They are indeed spoken of as having formerly inhabited the districts between Adam's Peak and the Rayigam and Pasdun Kóralés on the west coast, south of Colombo, and are conjectured to have given its former name to Saffragam. (*Habaragamuwa: Habara* = "barbarian.")

The present Veddá land is very lovely, embracing a comparatively flat, wooded country, nowhere raised more than 200 feet above the level of the sea, and frequently having the appearance of a park. The character of the soil varies: damp and unwholesome marshes alternate with rock-ribbed hills, which stud the country between the central mountains and the sea coast. Here the Veddás live in perfect isolation even from their more civilised tribal brethren, without fixed abodes, but yet upon their own recognised lands, mostly in small groups or simply in families. Rarely do they venture beyond their own boundaries, and then only for the purposes of exchanging honey, wax, skin, or venison, for iron, axes, arrow-points, &c.

Their Numbers.—This secluded existence explains why the estimates of their numbers vary so greatly. No recent estimate leads us to conclude that the total exceeds 1,500, and the extinction of the tribe seems imminent, though wherefore we are unable to discover.

* *Knox*.—"Historical Relation of the Island of Ceylon," 1817, p. 91., 122. *Percival*.—"Description of the Island of Ceylon," translated by Bergk., p. 337. *Bailey*.—Trans. Ethnol. Soc., Lon., 1863, new series, Vol. ii., p. 313, note.

Village and Forest Veddás.—From the time of Knox they have been classed in two groups, a “tamer sort,” or “village Veddás,” and a “wilder,” or “forest Veddás.” All observers, however, agree that both belong to the same race. Hence, for the study of their physical condition, the two groups may without hesitation be united; but for the observation of their social and physical conditions we must hold them strictly apart. In the latter respect only the forest, or jungle Veddás, are of any interest to us. These, therefore, will be mainly spoken of here; nevertheless, we may not venture quite to set aside the village Veddás, since their actual settlement and civilisation have succeeded only very imperfectly as yet.

Attempts at their Culture; Yakkho Worship.—All attempts to bring the Veddás into fixed abodes and to raise them to a higher culture have suffered shipwreck in far greater measure than the efforts to civilise the Australian. Whether they actually have any conceptions of God, or God-like beings, is, to say the least, very doubtful. The only thing that is proved is a lower kind of demon or *yakkho* worship amongst them, which here and there assumes the form of a worship of ancestors. Mr. Bailey tells us that those in Bintenna had mourned and buried their dead for a long time, but that the more barbarous inhabitants of Nilgala had only just begun to do so. Formerly they threw their dead into the jungle, or left them where they had died; after covering the body with leaves, they laid a heavy stone upon the breast, and sought out for themselves another cavern, giving up the one where death had entered to the spirit of the departed. These spirits—now become *yakkho*—watch over the welfare of those left behind, come to their relations when they are ill, visit them in dreams, and grant them flesh in the chase. They are invoked with dance and song around an upright arrow. Sometimes, while preparing for the chase, the spirit is promised a piece of the flesh of the slain animal; at other times they cook something and put it in the dry bed of a river or other obscure place, invoke the souls of the departed, dance round the food, and perform their incantations.* Mr. Hartshorne describes these sacrificial feasts. While invoking the departed spirit they roast the flesh of the *wandurá* monkey, or *talagoyá* (iguana), with honey and edible roots, and then distribute it among those present, who eat it on the spot.

* [In respect to these beliefs and customs—apparently put forward as illustrations of barbarism—do we, the most civilised, not also seem in our dreams to see those who have occupied our thoughts when alive, and still occupy our affections when gone? and who has not at least wished, or hoped, if not prayed for the countenance, the approval, even the aid in our needs, of venerated ones passed from hence? Do not the vastest number of Christians pray to and invoke the dead, not to speak of sacrifices and vows and offerings to them? Is the difference so great at bottom between the ideas of the Veddás on these heads and those of Augustan Rome or Modern Europe?—T. B.]

Yakkho and Nága-worshipping Communities in early times.—This word “*yakkho*” designates, according to Turnour, a kind of demon; though the demon-worshippers are also called *yakkho* and *yakkini*. He derives it from the root *yága*, “to bring offerings.” This word has, for a long time, justly excited the attention of scientists, since in the great historical work of Ceylon, the *Maháwanso*, the earliest inhabitants of the Island are called by that name. When Wijaya, the founder of the first-known Ceylon dynasty, in the year of Gautama Buddha’s death, 543 B.C., landed in the Island, he found an already organised *yakkho* state; and indeed it is said of Gautama Buddha himself that he came to Lanḡá, “a settlement of the Yakkho.” It is hardly allowable to conclude from this, with Sir Emerson Tennent and others, that these were indentical with the Veddás, and that up to the time of Wijaya an aboriginal homogeneous race inhabited the Island, though it may not be a mistake to assume that in the earliest period almost the entire population were devoted to this *yakkho*-worship as it now exists amongst the Veddás. The identification of the Veddás with those Yakkho would require us to assume such a deep physical and intellectual degeneration of the present Veddás from old Yakkho times as would be without parallel in history, as well as in ethnology, and such as the author cannot bring himself to admit. Not a single fact sustains the conjecture that Wijaya, with his followers from the valley of the Ganges, was the first stranger who came to Ceylon. On the contrary, the legend of the advent of Gautama Buddha, and, no less, the old traditions of the Rámáyana, clearly point to earlier arrivals and invasions, and if Wijaya found some kind of political organisation on the Island, the time in which the whole north of the Island was Veddá-land must then be placed a good deal further back. The first visit of Gautama Buddha to the Island was, according to the *Maháwanso*, in Bintenna. According to the Yakkho, in whose midst the Buddha here appeared, he visited on a second occasion, *Nágadípa*, the abode of the Nágas, or snake-worshippers, which is generally assumed to be the name for the north and west of the Island; at any rate, mention is made of Nágas living by the ocean, as well as mountain Nágas, and a Nága king of Kalniya, in the neighbourhood of Colombo, is spoken of. If any importance is to be attached to these traditions, a number of tribes, or at least a division of the original population, must be inferred. And it is not without value that the description of the Nága states, in these most ancient myths, discloses to us a much more perfect organisation than we find any account of in the tales of the Yakkho. Nevertheless, we must renounce the idea of using these myths as the basis for ethnological contemplation, and for building up a highly developed Veddá state in prehistoric times.

Veddás nomadic hunters.—Up to a very recent date the Veddás have been a nomadic, half cave-inhabiting race of hunters, each small family group having its special vaguely-defined

hunting ground, comprising a proportionately vast tract of woodland. Of any kind of culture, garden or farm, there was no trace. They had no domestic animal save the dog, of a species identical with that common in Ceylon, and apparently trained not for hunting but for watching. Their hunting implements are the simplest possible, consisting of a strong bow 6 feet long, and two or three arrows of $3\frac{1}{2}$ feet, having points of wrought iron, not made by themselves but obtained by barter for honey and wax. Besides these they have only an iron axe, or sometimes two (a larger and a smaller), obtained in the same way. Mr. Hartshorne rightly finds in their word for axe a reminiscence of an earlier period when stone weapons were in use among them, and for which it might be a not unprofitable task to explore the caverns where, according to Mr. Bailey, bones of the dead are still to be found. They subsist almost wholly on animal food, excluding the flesh of cattle, the elephant, bear, leopard, jackal, and fowls. Their food is cooked but very roughly, as they have no clay or earthen vessels. They have no special stimulants, and neither betel nor tobacco, but chew a kind of bark. Their only drink is water. Mr. Hartshorne says that even salt was unknown to them, but that when it was given to them they were much delighted with it. Only in occasional places where European influence is perceptible do we find a rude kind of agriculture, in the form of little strips of chena cultivation. With this exception, which really cannot be taken into account, their whole existence depends on the product of the chase; and there is nothing to speak of which indicates that anywhere or at any time they have risen above the condition of a savage tribe of hunters. Indeed, they have never arrived at even the very crudest form of permanent dwelling places; and although they sheltered themselves from the inclemency of the weather in natural caverns, or in simple huts made of branches of trees and bark, they seem never to have made these their settled abodes. On the contrary, perpetual change of place within their hunting grounds has been ever the rule.*

Influence of their mode of life on their Psychological Condition.—Hence their social intercourse is essentially limited to their next of kin, whose number is often very small, consisting of only four or five persons, and all stimulant to higher acquisitions and enjoyments, and need for sustained mental effort is, therefore, wanting.

Their Peaceable Character.—In character they are peaceable among themselves, and towards strangers so long as they are unmolested. They respect the rights of property, and are true and truth-loving.

Dress and Ornaments.—Both sexes go almost naked. In former times they wore pieces of bark from the *riti* tree (a species of *Anticaris*), which were later replaced by little bits of cloth held

* [And a necessity of their life, as hunters depending on game for their subsistence.—T. B.]

round the body by a string. The women wore round iron pegs stuck through their ears. Mr. Hartshorne, however, saw ornaments worn in the ears by both sexes, generally pearls or, what seemed peculiarly admired, empty cartridge cases. Evidently these are quite modern innovations.

Marriage relations.—It is a custom with them to marry with a younger sister—a practice in use among the royal families of the Singhalese from the time of Wijaya. The only marriage ceremony consists in the suitor bringing food for the parents.

Emotional expression.—There seems to be no particular depth of feeling among them. All the descriptions indicate rather a certain morose indolence. Whilst they can help it they not only do not laugh themselves, but they despise those who do. Mr. Hartshorne says of them that they are incapable of laughing. This, if it be true, is a peculiarity which, so far as the author knows, has not been told of any other race of people, and has only appeared among certain idiots.*

Intellectual capacity.—In point of intellect they seem indeed to stand very low. If they have any notion of numbers, or can count at all, it is to the most limited extent, probably not beyond five. It is said that they have no word for colour, nor any perception of differences of colour; that their memory is defective; and that they are incapable of forming any general ideas. Sir Emerson Tennent says they have no notion [perhaps it would be more correct to say only a very limited and vague notion] of time or space; no words for hours, days, or years;† no games, no amusements,‡ no music.§ These statements, however, apply in their full breadth only to the “wild sort,” for Davy says of the village Veddás that they have a rough kind of song performed as an accompaniment to a clumsily-executed dance. Granting some of the observations furnished to be too exclusive, still we are compelled to acknowledge the inferiority of the race.

* [It seems impossible to deny the existence of emotions, and of the outward physical expression of these, to any vertebrated animals at least. However low the sensibilities, pain and pleasure must equally be experienced, and be visibly manifested in the absence of some physical defect, and their deliberate suppression or control would seem to argue a degree of intellectual and moral strength which no one has given the Veddás the credit of possessing. Possibly, a low emotional excitability has been confounded with incapacity. Mr. Hartshorne's assertion has, however, been disproved, as appears in Russels' account of the Prince of Wales' visit to India.—*T. B.*]

† [But the ordinary Singhalese cultivator is singularly poor and vague in the observation and notation of time and space, though he does measure the day by the length of the shadow in feet, and the height of the sun by comparison with the height of a cocoanut tree. Is it quite certain the Veddás do not the same.—*T. B.*]

‡ [If their children do not gambol, if their men and women have no enjoyments, their life must be stagnant indeed and far below the level of the beasts in their forests. But who can believe this?—*T. B.*]

§ [Also incredible; and it has been already stated that they invoke the dead with dance and song.—*T. B.*]

Caste.—As they have no distinction of caste it is a very striking fact that they not only look upon themselves as superior to their neighbours, but are looked upon by them as members of a high and even of a royal caste. The Sinhalese term for the agricultural caste is *Goyi-waṇsé*, the Malabar term *Wellála*; to this caste they are said by writers to belong, and those of Bintenna are said to call themselves “Veddá-Wellálas.”

Dodda-Veddás: Rodiyas.—In connection with this subject we must be careful not to confound the Veddás with the “Dodda-Veddás,” a name given to a division of one of the very lowest castes, or rather a tribe of outcasts, including the Rodiyas. Thousands of years had not sufficed to reduce the Rodiya outcasts to the degree of degradation to which the Veddás had fallen when Knox first heard of them.

HISTORICAL AND LINGUISTIC.

Cultivated Races in the Island: Tamils.—This would be the place to bring forward the historical and linguistic observations which concern the relations of the Veddás to the cultivated tribes of the Island, by far the most numerous of whom, after the Sinhalese themselves, are the Tamils, who now exclusively occupy all those portions of the Island which lie nearest to the Indian continent, and whose connection with the Dravidians of India seems unquestionable. These are the *Damilos* of the “Mahá-waṇso,” a Páli term exactly equivalent to *Dráviḍa* in the Sanskrit.* In local English speech they are frequently called Malabars, as if they came only from the Malabar coast, but in point of fact they belong to the ancient great Pándian kingdom, which stretched from the east to the west coast of India, and from the Deccan to Cape Comorin, but has ultimately dwindled to the little state of Madura. The first warlike invasion of the *Damilos*, of which there is historical record, took place 237 B.C., and during the whole of the next fourteen or fifteen hundred years their invasions were constantly renewed, and the dynasties of native princes repeatedly superseded by their Tamil conquerors.† In the beginning of the thirteenth century the whole country was overrun, subjected, and cruelly devastated, its inhabitants tortured, and many of its Buddhist monuments destroyed by a great expedition from Kálinga and the northern Circars of the Dekkan, under Mágha, who assumed the throne of the Island. In the result, the Sinhalese people succeeded in recovering or retaining the Provinces of Ruhuna in the south, and Mayarāṭa in the mountainous centre of the Island; but the north of the country—the Province of Pihiti or Rájarāṭa, the land of the kings—remained,

* R. C. Childers. “Notes on the Sinhalese Language.” Journal Royal Asiatic Society, 1875, London, Vol. viii., p. 133, note.

† *Maháwaṇso*, chap. xxi., p. 127. *Ibid*, Appendix, “Soverigns of Ceylon,” p. lxi. Glossary, p. 5. *Mah.*, p. 128 lxiv. *Ekanayaka*, in Journal Royal Asiatic Society, 1876, Vol. 8, p. 297. Tennent, i. 412.

even as far as the Máhawila-gaṅga, in the possession of the Tamils, and was by them wholly and permanently Dravidised.

Moors.—More peaceable invasions of the country took place by Muhammadan Arabs, whose descendants are now called Moors, or Moormen. There seems to be no doubt that, at least since the first, and certainly since the sixth century A.D.,* very extensive mercantile relations existed between Persia, Arabia, and Ceylon, and that since that time many of these *Mauren* (as the Portuguese called them later) remained in the Island. The present Moors seem to be descended partly from these immigrants, who intermarried with native women, and partly from persons of similar origin in India, who in large numbers settled in the districts of Chilaw and Puttalam.† There is now little or no distinction between these two groups of Moors, who are scattered over the whole Island, and are the chief mediums of all mercantile intercourse—even with the Veddás.

Malays.—Malays, belonging throughout to the Muhammadan religion, are to be found in the Island only in comparatively small numbers, but scattered over many regions. According to the representations of Mr. Pridham‡ they are descended chiefly from the little Rájás and their followers, whom the Dutch brought hither from Java, Malacca, and Sumatra, and who were later taken by the English into their native regiments. More important it would be for us if the opinion were correct that the original population of the Island had been Malays. This is supported by the certainly very noticeable fact that the Sinhalese use double canoes, or boats with booms, just such as are used in all the regions inhabited or colonised by Malays. This, however, is the only foothold for the hypothesis of an ethnic relationship.

Europeans, Negroes, Parsees.—Naturally, in the last centuries, the different nations of Europe, especially Dutch, Portuguese, and English, have added to the population; but for our researches they are of no importance. The same is to be said of the African Negroes and the Parsees, the former of whom have been only recently introduced, whilst the latter immigrated at different periods, but in small numbers.

Sinhalese.—The southerly half of the Island, the old Province of Ruhuna and the central Maya-rāṭa, are still peopled by the Sinhalese; the former by comparatively pure-blooded Sinhalese, the latter by the somewhat more mixed Kandyans, the immediate neighbours of the Veddás. The ethnological position of the Sinhalese has been until now discussed chiefly on linguistic grounds, and on these it has been inferred by some that the Sinhalese belong to the great Dekkan family, and by Max Müller that they are a mixture of Indians with Dravidian aborigines. But others entertain directly the opposite opinion, and particularly

* Tennent, l. 546, 555, 607.

† Pridham, i. 470.

‡ Pridham, p. 482.

Childers,* who derives the Sinhalese language from the ancient Elu, with, however, an immense admixture of Sanskrit words partly unchanged. According to him the word *Elu* is identical with the word “Sinhalese,” by which the Sinhalese call themselves. It stands for the old word *Heḷa* or *Heḷu*, and this again for the still older *Seḷa*, which leads us back to the Pāli *Sihala*. The Sinhalese language is very nearly related to Pāli, which, however, only represents the dialect of *one* of the districts of Māgadha (the modern Behār), from a district of which (Lala) Wijaya, the founder of the Sihala dynasty, is said to have come. Hence Sinhalese is one of the native Aryan (Sanskrit) languages of India, and very ancient, for it is absolutely identical with the Elu of the fifth and sixth centuries B.C., which is also found on the rock inscriptions of Mihintalé of the second or third century.

Veddā Dialect.—What place the Veddā language holds relatively to this is still in the highest degree dubious. In Ceylon itself the opinion has long prevailed† that it is a broken or corrupted Sinhalese; and all writers on the subject—Bailey,‡ Max Müller,§ E. Taylor,|| Hartshorne,¶ and Cust**—seem to consider it to be a dialect of, or to approach to the Sinhalese. But there is much difference of opinion as to the existence in it of Dravidian elements, the supposed mixture of which (Telugu) in a dialect of an Aryan tongue (which he considers Sinhalese to be) leads Mr. Taylor to say that “their language makes a mixture of Aryan blood along with Aryan language probable, whilst their bodily characteristics show that the race of Veddās belongs chiefly to the native pre-Aryan type.” The disagreements in the views of linguists are so great that we unfortunately gain very little from them towards a just comprehension of the phylogenetic position of the Veddās. On the contrary, the mystery that envelopes this people, so remarkable in themselves, is vastly increased, and the purely anthropological interest comes even more into the foreground.

The word ‘Veddā.’—“Veddā,” or some modification of it, is widely used in India—a whole series of little tribes dwelling far apart, and who probably have not the least connection with one another, bearing the very same name, or one very like it. Whether the word be derived from the Sanskrit *viyadha*, “hunter” or the Tamil *vedan*, “hunter,” “wood-dweller,” this much seems

* Childers, Royal Asiatic Society's Journal (new series), London, 1875, Vol. vii., p. 35; 1876, Vol. vii., p. 131. Alwis, in Journal Ceylon Branch R. A. S., 1876, p. 70.

† Knox, l. c., 122; Starkie, in Journal Ceylon Branch R. A. S., 1853, p. 80; Gillings, 84.

‡ Bailey, l. c., 297, 305, 309.

§ Max Müller, cited by Childers, l. c., Vol. viii., 131, note.

|| Journal Ethnol. Soc., London, 1870 (new series), Vol. ii., p. 96.

¶ Hartshorne, l. c., 417.

** Cust, “Sketch of Modern Languages of East India,” London, 1878, p. 63.

certain, that except when used in combination (as in the case of *Dodda-Veddá*) it always relates to aborigines, or savage races.

The Ethnological problem not to be solved by Linguistics, but by Anthropology.—Up to the present time two leading views stand opposed to one another, which are mainly supported by linguistic observations, and only in part by anthropological facts. According to one, the Veddás would be next of kin to the Dravidians; according to the other, members of the great Aryan family. In either case they must have immigrated from the Continent, only in the first very much earlier than in the second. If we assume that the Veddás originally belonged or were nearly related to the Dravidians, or even, if different from them, at any rate a savage aboriginal tribe, and that they only received their present language subsequently from Aryan conquerors, then it is difficult to conceive how the process of Singhalesing the language could have been accomplished, whilst their whole way of living, their customs and habits, remained wholly unchanged. On the other hand, the hypothesis that the Veddás are Singhalese who have become savage, would require us to fall back on some period after Wijaya, and, contrary to all experience, we should have to assume a descent from a high state of comparative civilisation to a degradation too great to be conceivable, unless we can prove at the same time a very deep physical demoralisation; and that, too, whilst in closest proximity,—even in direct contact,—with a people who had passed through a long and eventful history. From whatever side we consider the question, we must come to the conclusion that linguistics can only be used as aids in the investigation; and that if a real solution is to be found, it is only possible by means of anthropology.

ANTHROPOLOGICAL.

Veddás.—The earliest known description of the Veddás is contained in a work attributed to Palladius, Bishop of Helenopolis in Bithynia, who died 410 A.D. and in which he describes a journey made from Thebes to Ceylon. The Veddás are there described as feeble and small of stature, and as having heads black and apparently large, with long, smooth, unshorn hair. Davy has given the first description resting on autopsy. He says:—“Such of the village Veddás as I have seen were in general small men, between 5 ft. 3 in. and 5 ft. 9 in. high; muscular and well made; in colour, form, and features resembling the Singhalese. Their appearance was wild in the extreme, and completely savage. Their hair seemed never to have been combed or cleaned; it was long, bushy, and matted, hanging about their shoulders and shading their faces in a very luxuriant and disgusting manner: nor were their beards less neglected.” Sir Emerson Tennent describes their children as unsightly objects, entirely naked, with misshapen joints, huge heads and protuberant stomachs, and says of their women that they were the most repulsive specimens of humanity he had ever seen in any country. The men, he says, also presented

the same characteristics of wretchedness and dejection. He speaks of their projecting mouths, flattened noses, and stunted stature. Of several measured by Mr. Bailey, the tallest, who towered above his fellows, was only 5 ft. 3 in. in height, and the smallest 4 ft. 1 in.; and he concludes the average height of the men to range from 4 ft. 6 in. to 5 ft. 1 in., and of the women from 4 ft. 4 to 4 ft. 8 in. Observers present no facts which indicate disproportionate or imperfect development of the separate members of the body. Only Mr. Hartshorne asserts that they have short thumbs and sharp-pointed elbows. The descriptions we have of them are sufficient to show us that the Veddás are a dark, but not actually black race, and not woolly-haired like the Negro; and that they are a very small, not to say dwarfish race.

As to their features, Bailey says that these are, on the whole, tolerably regular. He, like Sir Emerson Tennent and Hartshorne, speaks of the flatness of the nose, and of the lips as somewhat thick. A woodcut, prepared from a drawing made from a photograph of a group of six Veddás, who were presented to the Prince of Wales, shows plainly the growth of the hair; the noses comparatively short, broad at the end and flattened; the eyes apparently deep-set; the lips of the younger persons full and bulging; and this gives a far more vivid idea of the people than any description could furnish. One only of the men has anything like a beard. We see the little spear worn by the men, the great bows they carry, the arrows with the leaf-like points, and, finally, the iron axe stuck in the girdle.

If we add to the foregoing description of their features, the short thumbs and sharp-pointed elbows referred to by Mr. Hartshorne, there are indications enough to distinguish the Veddás in a noticeable manner from the Oriental races living in their neighbourhood.*

In our comparisons with other races, the Sinhalese and the Tamils come chiefly under consideration: the others only collaterally. Those two are so predominant, both through their numbers and the extent of territory they occupy, that, apart from their exclusively historical claims, they must be specially considered.

The Sinhalese.—For purposes of comparison with the Veddás, the information with regard to the relative physical condition of their neighbours is very deficient, and osteological material scanty in the European collections; and what there is of that rather unsafe. The following remarks must, therefore, be taken with reserve, and are made principally to induce the sending of better material, and especially photographs, half lengths and not too

*[The detailed craniological observations which follow the descriptions of the external physical appearance of the different races are here omitted, as the material points are collected and compared or contrasted in the pages which discuss their comparative craniology and osteology.—*T. B.*]

small, showing the profile and front face in the right horizontal position.

The Sinhalese occupy in the main the south and south-west of the country. According to Sir Emerson Tennent the inhabitants of the south coast, from Galle to Hambantota, are the purest Sinhalese. This part formed an important division of the old Province of Ruhuna, which was very early colonised by the descendants of Wijaya, who neither mingled with the Malabars nor had any intercourse with them.

Physical appearance compared with the Veddás.—If we compare the descriptions given of the Sinhalese with those of the Veddás, we find in reality few points of difference. The complexion of the latter may be on the average somewhat darker, but it varies, apparently, within the same limits. It is equally doubtful if the hair varies; allowance being made for its neglected, dishevelled condition in the one case, and its carefully combed and well-kept condition in the other, it may be considered that the difference here is owing rather to culture than to original peculiarity. The average height of the Sinhalese seems to correspond with that of the tallest Veddá, but they are also somewhat shorter than Europeans. Among all the characteristics cited, there is in reality only one which seems to have made a great and decided impression on every observer, to wit, the form of the nose. Whilst with the Sinhalese it is very prominent, resembling an eagle's beak, and therefore thin and round, with the Veddás it is always described as flat and with widely distended nostrils. Add to this, the thick and projecting lips and the large mouth, and perhaps also the comparative smallness of the Veddá face, and there remain few facial characteristics for diagnosis.* We may say that the Sinhalese also belong to a dark, perhaps best described as a brown, smooth-haired, and a not (or only very moderately) prognathous race,—that is to say, the jaws do not project, or only slightly.

The Tamils or Malabars: their distribution in the Island, and physical appearance.—We understand by this term the Dravidian immigrants who, in historic times, came from many different parts of the peninsula of Hindústán, and in the course of two thousand years multiplied so greatly, that they almost exclusively peopled the north and a large portion of the east of the Island, more especially along the shore, and whom Pridham speaks of as inhabitants of the land from Batticaloa on the east to Jaffna on the north, and from there as far south as Puttalam on the west coast. When the Portuguese, the first pioneers of civilisation, obtained a firm foot-hold upon the Island, the Malabar rule was firmly established in the old Rájarata, or Pihiti. It is not to be supposed that they live even now

* [Another point—whether common to the Veddás also I do not know—which seems to me of perhaps ethnological importance, is the *yellow* tint or tone that seems to suffuse the brown Sinhalese complexion, and which is noticed by Percival, Philoletes, and Dary.—T. B.]

wholly separated from the Sinhalese. On the contrary, they are found in no small numbers mixed with other races. It is of special interest to us that they are immediate neighbours of the Veddás. Wolff describes the Malabars as black, long-haired, and without calves to their legs. Beyond this the author has found very few statements regarding their physical peculiarities; most of the writers limiting themselves to ascribing to them a stouter physique than the Sinhalese, and greater activity.

The Moors, or Moormen.—Their number is small, and their effect upon the rest of the population even less highly to be estimated, because of their religion, which necessitates a sharply-defined separation, so that they rarely intermarry with the Sinhalese or other natives. We have scarcely any description of their physical peculiarities. There seems to be only one skull of a “Moor” in Europe, and that is in the possession of Mr. Bernard Davis. This (317 of his collection) is a male skull of 1,495 cubic cm. capacity, therefore tolerably large; with a length to breadth index of 70; length to height index of 71; and a facial index of 85.7. It is accordingly ortho-dolichocephalic and chamaeprosop. From a single skull no judgment can be formed whether it is really typical of its race, and therefore further comparison is scarcely desirable.

Malays.—The existence of a scattered Malay element has been earlier discussed. A few statements as to their physical condition have come to us. Cordiner describes them as lighter, more inclining to copper colour than any other of the Indian races. Selkirk speaks of them as copper-coloured, below middle height, with flat brow, broad flat nose, and piercing eyes. In the Davis collection there is a Malay skull from Colombo, marked male. Its capacity amounts to 1,435 cubic cm.; the length to breadth index is 79; length to height, 76; face index, 108. It is therefore hypsimeso-cephalic and leptoprosop.

THE MUTUAL RELATIONS OF THE RACES.

We now proceed to consider the origin and relationship to each other of the different tribes existing close to one another in Ceylon: and it is noteworthy that the inhabitants of the Island are spoken of as belonging to distinct races both by Greek travellers in the sixth, and by Chinese travellers in the seventh centuries after Christ.

Question of a Chinese or Siamese origin of the Sinhalese.—With respect to the question of a Chinese origin, which some have on insufficient grounds attributed to the Sinhalese, we have reports of one warlike invasion by the Chinese; and Chinese soldiers are stated to have entered the military service of King Parákrama in 1266. The defeat of a King of Ceylon by a Chinese army so late as the year 1408 is also narrated. But nothing is known of any colonisation or settlement by the Chinese having ever taken place in Ceylon; and no elaborate proof is needed to

prove that neither Sinhalese nor Veddás, at least in the form of their skulls, present the slightest indication of any relationship to the Mongols. According to an old tradition mentioned by Valentyn, the Sihala dynasty, from which Wijaya the conqueror was descended, had their residence in Tennasserim, so that a Siamese origin [or connection] is thus ascribed to the Sinhalese; but it is unnecessary to follow up the tradition. Besides, it is not the search for the origin of the Sinhalese which claims our first interest, but the derivation of the Veddás.

The Veddás not degenerated Sinhalese.—Whether we consider the Veddás to be, as some say, “savage Sinhalese,” or the Sinhalese to be, as others say, “tame Veddás,”—thus deducing both from the same stock,—we must begin our investigations with the Veddás. A reverse order would be justified only if we assumed that the Veddás had sunk back from a condition of higher civilisation to that of absolute savagery, in which all travellers have found them for many centuries. The theoretical objection to such an assumption need not be again brought up, but I will only ask what signs of an earlier civilisation have actually been found? What remains of an earlier culture that, with any probability, might be attributed to the Veddás? A people who do not even possess clay vessels; who have no knowledge of domestic animals beyond the dog; who are unacquainted with the simplest form of gardening and agriculture; who lack almost every kind of social institution; who are not even counted as outcasts by their civilised neighbours,—cannot possibly ever have had the means which make a higher culture of any kind possible. The hypothesis of a relapse to barbarism must hence be definitely given up.

The ground for such an assumption could only be found in the language. But it has been already shown how great is the difference of opinion as to the place which should be given to that. That it is no Dravidian idiom, fundamentally, seems proved beyond a doubt. If we take it for a dialect of the Sinhalese, and the latter for a primitive sister dialect of the Páli, it will still be truly very difficult for any one to argue from that, and still less from the Sanskrit words intermingled with it, the derivation of the Veddás from the valley of the Ganges. Surrounded for centuries by more highly cultivated peoples, a certain intercourse with their neighbours has been unavoidable, and consequently, where the Tamils have continually pressed on nearer to them,—as near Batticaloa,—a part of the Veddás have adopted the Tamil language. But for very much longer, and in the greater number of places, they have been in immediate contact with the Sinhalese. What wonder, therefore, if they have adopted more and more Sinhalese words and forms. The question is only whether besides these, as I suppose, borrowed words, their language has not preserved some individual elements? To this point so little attention has been given that we do not even know positively whether the Veddá language contains any words

designating numbers. It is no use being told that half the words noted down are corrupted Sanskrit. To what belongs the other half, which perhaps with greater attention might be enlarged? If we cannot class it among the Tamil languages it is very possible that it may prove specific. Nothing hitherto justifies us in any such one-sided statement as that of Mr. Tyler, who, without hesitation, calls the Vēddā language Aryan.

The matter would take a rather different aspect if we might assume that originally the Vēddās alone inhabited the Island, and that they were not only forced back into the forests by the immigrants, but had [partly] intermingled with them.* According to the native analysts the origin of the Sinhalese is to be traced back to the followers of King Wijaya—a victorious host of immigrants from the valley of the Ganges, in a numerical proportion to the inhabitants which must have been somewhat like that of the Danes and Normans in England. A patriarchal system was introduced, which has lasted for thousands of years, and a series of facts testify that the aboriginal population was not wholly excluded from this system.† Upon such a foundation an intermingling of the Māgadha people with the aborigines would most naturally take place, and if we look upon the Sinhalese race as the result of the commingling, the experience of so many other countries, where a similar commingling has taken place, would make it perfectly explicable that the Māgadha people made their language, the old Pāli or Eḷu, the ruling one, while in their physical conformation the aboriginal element won lasting influence. With such a view of the matter the Vēddās and Sinhalese would neither be identical nor distinguished from one another merely by the degree of culture. The Vēddās would appear rather as representatives of the aboriginal race; the Sinhalese, on the other hand, as hybrids produced by a union of immigrant Indians with Vēddās, and therefore varying according to the measure of these elements. This, indeed, strikes me as being the solution of the anthropological problem before us. The linguistic difficulty, that also the unmixed natives adopted to some extent—less or more—the Aryan language of their conquerors, appears no longer insurmountable, for the same thing is actually now happening with the Fins in the Baltic Provinces of Russia.

COMPARATIVE ANTHROPOLOGY.

The craniological materials available to the Author for purposes

* This has actually happened. Of the Tamils who did not immigrate till later, we may say that while in the north they have entirely supplanted the original population, in the east they have not merely mingled with the Vēddās, but have accomplished a veritable Tamilisation of them.

† [We have corroboration of this in the statement that “King Pandukhabayo (437 B.C.) placed the Vēddās in a *separate* settlement near the town (Anurādhapura).”—*Burrows’ “Buried Cities,”* p. 3. Unfortunately Mr. Burrows has not quoted his authority for this statement.—*T. B.*]

of comparisons have been the following. Of Veddá skulls, twenty-three well-authenticated specimens, including three lent to the Author himself from the Colombo Museum : but of this number two had to be excluded from some of the computations, owing to abnormalities, the probable consequence of artificial or accidental occipital pressure. Of Sinhalese skulls, after setting aside those of which there are no detailed descriptions or measurements, or which are measured on a system different from that used by the Author, and also those of hybrids, there remained twelve available for comparison, which include two received by the Author himself, through the kindness of Consul Ph. Freüdenberg ; a third, similarly received, proved to be probably that of a Tamil child. These would form a good broad basis for future decision, if important measurements were not wanting in those belonging to Mr. Davis' collection,—for instance, of the orbits, nose, and palate. With respect to Tamil or Malabar skulls, only a single specimen was known in Europe until lately. This was in the collection of Mr. Davis, in which was also the skull of a hybrid of Malabar and Sinhalese. This has been supplemented, through the kindness of Mr. Freüdenberg, by three Tamil skulls, unfortunately all without the lower jaw, and a child's marked Sinhalese, but which rather appears to be Tamil. There are therefore, strictly, only four specimens for comparison, and in giving the averages of measurements only these undoubted ones are taken into computation.

[There is only a single skull of a Moor known in Europe, and in the Davis collection one Malay skull from Colombo, but these are not brought into the comparisons.]

ANTHROPOLOGICAL COMPARISON OF THE VEDDÁS WITH THE SINGHALESE.

Considered simply on anthropological grounds, the differences between the Veddás and the Sinhalese are not so great as to oblige us to assume an absolute contrast in the two tribes. The skulls which have been personally examined by the Author are too few to lead to a definite conclusion, but they seem sufficient to enable us to ascertain whether any reason exists for distrusting results obtained in other ways. Such reason the Author does not find.

Comparing briefly what has been arrived at, the result is that the Veddás, as well as the Sinhalese, are dark tribes, whose complexion varies—apparently within the same limits—between yellow-brown and black. The character of the hair also is plainly similar : only that here the effect of culture is conspicuous to a much greater extent. Both tribes, however, wear the hair long ; it is black, luxuriant, and a little wavy ; but with the Veddás, owing to neglect, it hangs down in tangled, but properly speaking, not curly nor woolly tresses. There is special testimony which conclusively proves that the Sinhalese hair, when not cared for, strongly resembles that of the Veddás. Information

with respect to the colour of the *iris* is less complete, but it may be gathered that, as a rule, it is black or dark-brown in both cases. As regards size, plainly both races are of moderate stature, rather short than tall. The significance of the shorter measure of the Veddás cannot be doubted, but the fact that they are not all dwarfs, and that comparatively large Veddás are met with, may be adduced in favor of the hypothesis that their often dwarfish size is a result of long continued unfavourable conditions for development. Nevertheless, the fact in the main is well established that the Veddás belong to a small, indeed to one of the smallest known races. Concerning the development of muscle and strength of body, the witnesses testify loudly in favour of the Veddás. With respect to the shortness of the thumbs and pointed elbows, emphasised by Mr. Hartshorne, only the first would be of any importance if it should be proved by measurement to be altogether disproportionate. It may, perhaps, be a deception, such as that of Mr. Burnet in regard to the length of the foot, which direct measure shows to be of perfectly fair proportions.

Similar observations, only still less distinctive, we find in regard to the size of the head, and especially the capacity of the skull. The result proves that Veddá skulls are on the average much smaller than Sinhalese; their capacity only averaging 1,261 cubic cm. against 1,406 cubic cm. for the latter. [The average capacity of the English male skull is 1,511 cubic cm., taking the average of those in the Royal College of Surgeons—*T.B.*] Some of the Veddá skulls are positively nano-cephalic, descending in one specimen to a capacity of 1,025, and in another, that of an adult man, to a capacity of only 960 cubic cm. This term nano-cephalic [pigmy-headed] is chosen to distinguish the case from micro-cephalic in the pathological sense [*i. e.*, smallness of the head the result of disease or malformation]. But notwithstanding this difference in average, the numbers slide over from both sides; the higher average of the Sinhalese does not prevent the occurrence of very small specimens; for the extremes range from 1,694 to 1,110 cubic cm.; and *vice versa*, the certainly very low average of the Veddás includes some pretty large specimens (one 1,420, and one 1,614). The length measures and the relations deduced from them have brought to light certain differences between the two tribes, but we shall represent these parallel to each other in their indices. One of the proportions is, however, now mentioned as being of considerable importance, viz., that with the Sinhalese the front and middle of the head have the larger share in forming the roof of the skull, while with the Veddás it is the occipital region that does so. Of special interest is the comparison of the skull indices. The average ratio between length and breadth, ascertained by the Author, is for both tribes almost identical: 71·8 for the Sinhalese; 71·6 for the Veddás. This is a highly dolicho-cephalic [long-headed] measure [and its value will be better appreciated if we remember that for the narrow, long-headed Negro the ratio is nearly the

same, while for the European it is 80, and for the broad and short head of a Tartar tribe 85, and in some Mongolian tribes even 88.—*T. B.*]. For our present purposes of comparison we can only say that these important relative measures do not point to any radical difference in race between Singhalese and Veddás. With both, the skull is long and narrow, yet among the Veddás there is a greater number in which the narrowness is extreme than among the Singhalese. The Veddá skulls are narrower than those of the African Negroes, and sometimes as narrow as those of the new Caledonians. [The narrowest appear to be the Fijian mountaineers, with whom the average ratio is only 66.—*T. B.*] It is the same with the ratio between length and height, which is ortho-cephalic [straight-headed] with both tribes; [the average for the Singhalese (74·2) being only a little below that for the Veddás (74·9)]. With reference to the height measures the ratio is somewhat different, in so far as the larger figures are on the side of the Singhalese. In both the vertical height exceeds the breadth. These coincidences of the main indices are so great that they could not be greater within the limits of a single race. The configuration of the capsule of the skull may—apart from the share of the separate bones in it—be considered as identical. The total result as regards the formation of the skull is that a great correspondence exists between the proportions of the skulls of the Singhalese and the Veddás, while the absolute figures show those of the Singhalese to exceed the Veddás, as a rule, in height.

In fact, according to the testimony of travellers, the difference of race is more conspicuous in the face than in the skull. It is chiefly to the form of the nose, particularly the flatness of its ridge and the breadth of the nostrils, but likewise to the form of the lips and jaws, which are throughout described as prognathous [projecting], that the various writers call attention as being characteristic features of the Veddá face. Contrasted with the Singhalese nose,—which the old Chinese reporters call a bird's beak, and in the description of a Kandy beauty is compared to a hawk's bill,—and also contrasted with the delicate lips and orthognathous [straight] jaw, which we perceive in Davy's drawings, there are certainly very striking differences. Unfortunately no other observer has recorded orbital measurement for the Singhalese, and there is a difference in the system of the published measurements which prevents our turning the skulls in England to much account in this direction; but, on the whole, osteological investigation has, in regard to the main facts, confirmed the observations made among the living. The skeleton face of the Singhalese differs far more from that of the Veddás than their respective skulls do. The index for the face shows very considerable contrast to that of the Veddás, averaging for the latter only 83, against 89 for the former, calculated on five female and one male skulls, one of which is that of a weak-minded person. In general the skeleton face of the Singhalese is much

narrower and longer than that of the Veddás. Corresponding with this the palate with the Sinhalese is more long and narrow; with the Veddás rather short and broad, with a prognathous jaw. In the last particular, however, the contrast is not so clear. With the Veddás occur mesoconchy (orbital index 84.6) and mesorrhiny (52), with many individual aberrations it is true, so that with the women more platyrrhine [flat nose], with the men more leptorrhine [narrow-nose], forms occur. On this point the Sinhalese material is very unsatisfactory and quite inadequate.

ANTHROPOLOGICAL COMPARISON OF THE TAMILS WITH THE VEDDÁS AND SINHALESE.

It is necessary to take the Tamils next into comparison, chiefly because the historical accounts, going backwards as far as the time of Wijaya, inform us of numerous marriages, not merely of the kings, but of their retainers, with the Malabar women, not to mention the very early invasions and settlements made on the Island by Tamil hordes.

In spite of the meagre reports with regard to the physical characteristics of the Tamils, we cannot doubt that they, likewise, are very dark, more or less black, and have long black hair. For the rest, observers lay stress on their greater strength and activity, nothing more. Hence there remains only the scant craniological material found in Mr. Davis' and the Author's own collections. As these are all insufficient for a final authoritative answer to the question of the ethnological relation of the Tamils to the two other (Sinhalese) tribes, the author wishes his conclusions only to be accepted with great reserve.

All the Tamil skulls are comparatively small; the average capacity being only 1,247 cubic cm., which is even less than the average of the Veddás (1,261 cubic cm.) and of the Sinhalese (1,406 cubic cm.). It is scarcely possible to look upon this number as the typical one for the race, and it is only interesting as showing that small skulls may be found among all the races in the Island. Still, none of them reach the minimum figure for the Veddás. More important, however, is the difference in the form of the head. The Tamil skull, judging from these specimens, is hypsi-meso-cephalic [*i. e.*, the height index exceeds the breadth index; while the relation of the breadth to the length approaches the medium]—in fact wholly different from the Sinhalese and the Veddá skull. Corresponding to this its transverse vertical length is greater than its sagittal circumference length. In the share of the separate bones of the skull in forming the roof of the skull we also find a great difference and radical contrast; the squama occipitalis [the flat portion of the occipital bone] is much smaller, and the frontal bone considerably larger than with the Sinhalese, and still more emphatically so than with the Veddás. While with the Tamils the skull-roof

culminates with the frontal division, with the Sinhalese, and still more with the Veddás, the occipital is strongly developed. The basilar view shows plainly the extraordinary shortness of the occipital region in the Tamil skulls. After this we must say that the skull of the Tamils, so far as can be ascertained from those under consideration, exhibits no relationship either with the Veddás or with the Sinhalese.

In size the Tamil face occupies a middle position between the Sinhalese and the Veddá face. The Sinhalese is the largest, then the Tamil, and the Veddá the smallest. The proportions of the Tamil face may briefly be stated in the following formula: mesokonchy, mesorrhiny, prognathy, and brachystaphy [medium orbital index, medium nasal index, projecting jaw, and short palate.—*T.B.*] This positively distinguishes the Tamil face from the Sinhalese, and brings it nearer to the Veddá face. But the almost complete identity of the nasal indices (Tamils 51, Veddás 50-52) does not prevent the greatest variety in the formation of the nasal bridge. Owing to the greater narrowness of the nasal bone, as well as the form of the bridge, we would not be at all justified in representing the flat, and, towards the lower part, broad nose of the Veddás as a Tamil inheritance. The form of the orbits is different in all the three races; and to this dissimilarity is to be added the very different formation of the naso-frontal region, in which, however, the proportions in the Sinhalese more nearly resemble those of the Veddá. The form of the aperture of the nose is with the Tamil more like that of the Sinhalese than that of the Veddá, both being platyrrhine, and that of the Veddá mesorrhine; but at its epiphysis, nevertheless, the Veddá nose is flatter and more depressed; the Sinhalese and Tamil protuberant—the Tamil, in fact, more than the Sinhalese. The chief distinctive feature of the Veddá palate is that the “tooth-curve” has very nearly the outline of a horse-shoe. Wholly different from the Tamils, and also somewhat different from the Veddás, is the “tooth-curve” of the Sinhalese. With them the palatal plate is unusually large, and at the same time of considerable breadth, so that it is very large; but the sides are more parallel, and the region of the incisors forms a broader, flatter curve, jutting out in front. The *os palatinum* has a relatively large share with the Sinhalese in the formation of the palatal plate. The Tamil palatal index is in very striking contrast to the Sinhalese.

The facts given in respect to three of the most important regions of the skeleton face show that great difficulties are encountered in attempting to ascertain the degree of affinity existing between these three tribes. If we take, as usual, the indices as guides, we gain for each region another combination. Most nearly related are:—

According to the orbital index—the Veddá and the Tamil.

Do. nasal index —the Tamil and the Sinhalese.

Do. palatal index—the Sinhalese and the Veddá.

We must not forget, however, that here only one individual is taken from each tribe, and that he by no means corresponds in every particular to the average of his tribe, the Author having had to select for his illustrations from the few skulls available those which gave the best indications of regular development, but which perhaps do not, in all respects, represent typical forms. The Author's work will have fulfilled its aim if it hastens the bringing up of better material. For the present he can only assert that, so far as we have a distinct view of the physical relations, as few evidences appear of a real affinity between the Tamils and the Veddás as between the Tamils and the Sinhalese.

Question of Dravidian element in Veddás and Sinhalese.—This, however, does not decide the question as to whether there is a Dravidian element in either the Veddás or the Sinhalese. We know now that the Tamils who made invasions and settlements in Ceylon came not only from the nearer points on the coast of India, but also from quite northern districts; and before expressing a decided judgment, all the tribes of Hindustan which are usually embraced in the term “Dráviḍas” must be compared in turn. A comparison of this kind would here be out of place, and the material is not sufficient. For the present, it will only be stated that the physical condition of the Tamils, including those of the Coromandel coast, is not sufficient to represent perfectly the Dravidian type.* Close beside them in the mountains we come upon other “Dráviḍas,” such as the Kurumbar and other wild tribes of the Nilgiris, of stunted stature and debased type, who, to all appearance, are essentially different from the Tamils, and whose skull measurements show great similarity to those of the Veddás of Ceylon, while the form of their face, though differing from that in both Tamils and Veddás, is not so different from the latter as to justify an ethnological separation. Therefore, if one would search out the connection of the Veddás, and perhaps of the Sinhalese themselves, with Dravidian India, it would be advisable to go beyond the inhabitants of the coast, and bring the mountain tribes into comparison.

But even here the researches will not end; for, according to all probability, the present mountain tribes are not the real aborigines of Hindústán. We have the tradition that, together with the Kurumbar, the Veddás were the oldest inhabitants of Tondamandalam (Madras); and of them it seems was said “there were then no forts, only huts; no kings; no religion; no civilisation; no books; men were naked savages: no marriage institutions.” And we have the tales of the fight of Vishṇu with fabulous Assurs; and of the war of Ráma upon Ráwana, the Ceylon

* Of two skulls from Tanjore,—the Chola of the Sinhalese annals,—one is dolicho-cephalic, the other mesocephalic. Which is here typical? One is hypsiconch, the other mesoconch; one leptostaphyline, the other brachystaphyline. According to which shall we decide?

champion of the Yakkho and Ráksha worship ; and also the traditions preserved among the Hayas in Nepál, and the Wouralis of the Konkán, that their tribes emigrated from Ceylon to their present mountain homes when Ráwana was slain. Such traditions are, of course, of no positive value for the diagnosis of the different tribes, but they at least warn us not to decide as to the aboriginal races of India and Ceylon simply on the ground of some crude linguistic indications, or the physical characteristics of a few better known tribes. All the same, we cannot avoid the conviction that the earliest inhabitants of Ceylon stand in a close affinity to the aborigines of India.

Proto-Dravidians and Pre-Dravidians.—Whether these aborigines were Proto-Dravidian, or even Pre-Dravidian tribes, we cannot with certainty decide at present. When the light-skinned Aryans from the Punjáb invaded the land later called Hindústán, they found it already in the possession of numerous tribes of “dark-skinned” people, who in the Vedas are designated by the generic name of “Dasa.” The greater part of them, as the conquerors penetrated further into the valley of the Ganges, were forced back on both sides, to the mountains northward into the Himálaya, and southward into the Vindhya ; those who remained behind were adopted as Sudras, thus becoming a part of the Aryan organisation. Hence nothing stands in the way of the assumption that the mountaineers in general belong to the aboriginal tribes. But neither does anything compel us to consider all these tribes of the *Dasyu* as homophylic [one race]. M. Rousselet speaks most positively of an immigration of Tibetan tribes of the yellow race from the east, and another of Turanians from the west, before the Aryan invasion ; but he assumes, as anterior to both, a population of Negritoes. To the admixture of the latter with yellow tribes he first of all ascribes the origin of the Proto-Dravidians (counting among these the Malars, the Konds, and perhaps the Gonds); and only when fresh troops of invaders had again mixed with the Proto-Dravidians, arose, in his opinion, the “Dráviḍas” or “Tamiḷs.” They brought the snake (Nága) worship with them. On the other hand, from the immigration of the Turanians arose in the plains the Yats ; in the mountains the Bhils, Minas, and Mhairs. He regards as the last remains of the primitive black population scattered remnants of a small black people upon the high plateaus of the Amarkantak, who became known under the name of Djangals, Puttnas, and Yuangas (Dschuangs).* If I have many doubts about admitting the distinctions of M. Rousselet, especially with regard to the assumption of a veritable Negrito race as the aboriginal race of India, I yet in nowise oppose the idea that the tribes of black-skins which the Aryans found established in the

* Col. Dalton states that these belong to the Kolars ; and his description of these contains quite as many Mongolian as Negretian characteristics.

valley of the Ganges were mixed. How much Mongolian, Turanian, or Negrito blood flowed in their veins, must remain for the present undecided. But it is certainly not impossible that a part only of the "Dasa" were Dravidians, and that even before the Proto-Dravidians of M. Rousselet, Pre-Dravidian tribes inhabited the land. Neither the Mongols nor the Turanians satisfactorily explain the stunted growth of the tribes of "black-skins" to whom even Pliny alludes as "pigmies." All the information we have of them is so imperfect as to admit of being turned to account for any sort of opinion. M. de Quatrefages has collected accounts of the Negritoës in India, from which he concludes definitely that Negritoës are still living in various parts of the country. I cannot esteem the evidence sufficient, but will not deny that the question is open to discussion.

As affording grounds for misgivings, reference may be made to the so-called Negrito race inhabiting several clusters of islands and parts of Malacca, and also to their neighbours, the "little-blacks," who dwell in the Andaman Islands. In various respects, as by their dark complexion, the smallness of their frames, and particularly of the head, they unquestionably show a striking approach to the Veddás and Kurumbas. But the one circumstance of the difference in the form of the skull, which, with the Andamanese as well as the Negritoës generally, is in reality brachy-cephalic, distinguishes them definitely from all the Ceylon races. When to this is added that their hair grows in spiral coils, and is to be classed with the woolly hair of the genuine Negro, every possibility disappears of a connection with the Veddás, unless we assume that climatic influences have especially affected the hair. Even less analogy is found between Veddás and Australians, although M. Topinard has recently emphasised the supposed relationship of the Australians to the Veddás, as well as to the Bhils, Gonds, Khandas, Kurumbars, &c.

Malay element.—Very much more complicated is the question whether Malay elements were not infused into the aboriginal population of Ceylon. The Malays have extended their settlements much further, and even as far as Madagascar. There are, however, no obvious physical indications of such a relationship. Only Mr. Williams, an Amercian missionary in China, observed in the Sinhalese "a Malay expression of countenance."

CONCLUSION.

From the foregoing discussion we assume as proved :—

1st.—That manifold resemblances exist between Veddás and Sinhalese, and that the origin of the Sinhalese race from a mixture of Veddás and immigrants from India possesses great probability, as well upon historical as upon anthropological grounds.

2nd —That the Veddás, as well as the Sinhalese, are, in the main features, distinguished from the Ceylon Tamils, and equally from those of Tanjore (Chola).

3rd.—That on the other hand, among the remnants of the old Dravidian, or perhaps Pre-Dravidian tribes of Hindustan, we find even to-day evidence of analogies with the Vēddās.

The low development of the Vēddās a race distinction and not an hereditary morbid condition.—Have the Vēddās remained in the condition of the Proto-Dravidians, or possibly Pre-Dravidians? or have they, in their isolation, sunk to a lower state? In other words, are they ethnologically to be turned to account in order to paint anew the picture of this primitive period? If, in spite of reasons which seems to the Author conclusive, one would assume that they have by degrees retrograded physically and intellectually, we should be forced to represent them as a pathological tribe; and the question suggests itself whether the tiny size of their skulls and small capacity for mental development do not stamp them as microcephalic in the pathological sense? We can distinctly deny this suggestion. The individuality of the Vēddās is psychically fully developed. So far as their needs demand they have matured their capacities, and are able to take care of themselves and their children; and they even associate, so far as is unavoidable, with neighbours and strangers in a free way and as self-determined men. They are distinguished in all the main features from micro-cephalic tribes in the technical sense; and it may therefore be admitted, without hesitation, that the inferior bodily and mental development of the Vēddās is not owing to a really morbid condition, which, as such, might be hereditary, but is rather to be regarded as a race peculiarity.

This, however, by no means excludes the possibility that favourable outward circumstances, especially better food, might produce a more complete development, the body become larger and stronger, and the skull and brain formation more perfect. In fact, such cases appear among the Vēddās, as is proved by examples of men far exceeding the average height, and by skulls having a capacity of 1,614 and 1,420 cubic cm. It might follow from this that the Sinhalese are civilised Vēddās who simply owe the superiority of their physical development to their better life. But the Vēddā race is still, as it was in ancient days, among the smallest of the living human tribes. Similar dwarfish tribes are scattered all over India, which possibly was in ancient times inhabited by tribes which had a close relationship to these. And with just as little propriety as the present Hindús can be said to have sprung, and progressively developed from these more or less dwarfish aborigines, does such a kind of explanation suit the connection of the Vēddās with the Sinhalese. As they have not descended from the Sinhalese by regressive degeneration, neither surely have they been transformed by progressive evolution into Sinhalese. That no such affinity exists is proved chiefly by the form of the face, to which all observers testify. All descriptions, and history confirmed by the Rámáyana, as well as the Wijayan legend, show there can be no doubt that the Sinhalese face is an importation from the Aryan province of the Indian

continent ; while, directly to the contrary, all observers ascribe to the Veddá face a foreign, and very frequently, Dravidian type. It becomes clear, then, that genealogical investigation must make the face a main object of study.

If the view be correct that the Veddás are a pure and the Sinhalese a mixed race, we may then leave the question out of consideration as to how far soil, food, a climate, and the like may have operated to determine the formation of the body or the size of the head, or to transform the character of the hair from that of woolly-haired blacks, like Negritos, &c., to what we now find it. Although facts bearing more or less plausibly on this question may not be wanting, we should hesitate before applying arguments gathered from the history of domesticated animals to the savage inhabitants of Ceylon, at any rate until it is proved that the latter actually possessed in earlier times different physical characteristics. The present state of the hair plainly corresponds to the description given by Palladius, and must, therefore, have been just as it now is for at least fifteen hundred years.

Direction of further inquiry: the Veddás a member of the pre-historic Dasa group.—It is very certain that if we would pursue the search for the origin of the Veddás genealogically, we must first turn our investigations to the savage or half-savage tribes of India. Every possible effort must be made to enlarge the facts bearing on Indian ethnology in order to be able to investigate radically the tribes of “Black-skins.” Since a part of the Dasa were transferred to the Sudras, and consequently included in the caste system of the Hindús,—as the Veddás in that of the Sinhalese,—it is not possible to bring to a conclusion the physical anthropology of the Hindús and the Sinhalese, until we have resolved the evidently very composite group of the Dasa into its separate members. One such member is plainly the tribe of the Veddás : their natural isolation upon an island has perhaps tended to preserve in them, more than in similar places upon the Continent, their peculiar character, and made them an object by which to test the admissibility of the theories concerning the origin of the “Black Indians.” May the zeal of the observer know no flagging, that, before the utter extinction of this already much-depleted race, the language and customs, the physical and mental constitution of the Veddás may, in all particulars, be firmly established.

COMMITTEE MEETING.

17th December, 1885, 4 p.m., at the United Service Library.

Present :

P. Freüdenberg, Esq., in the Chair.

T. Berwick, Esq.
J. B. Cull, Esq., M.A.
J. G. Dean, Esq.
D. W. Ferguson, Esq.

J. L. Vanderstraaten, Esq.,
M.D.
W. E. Davidson, Esq., C.C.S.,
Honorary Secretary.

Business.

1.—Read and confirmed Minutes of last Committee Meeting.

Resolved,—That the following list of gentlemen be recommended by the Committee to the Society at the Annual General Meeting as Office-bearers during 1886 :—

President.—The Right Rev. the Lord Bishop of Colombo, D.D.

Vice-Presidents.—W. R. Kynsey, Esq., P.C.M.O., and T. Berwick, Esq.

Hon. Treasurer.—J. G. Dean, Esq.

Hon. Secretary.—W. E. Davidson, Esq., C.C.S.

Committee.

The Hon. Lieut.-Col. F. C. H. Clarke, R.A., C.M.G.

J. Capper, Esq.
J. B. Cull, Esq., M.A.
D. W. Ferguson, Esq.
P. Freüdenberg, Esq.

Staniforth Green, Esq., F.L.S.
W. P. Ranasinha, Esq.
H. Trimen, Esq., M.B., F.L.S.
J. L. Vanderstraaten, Esq., M.D.

2.—The Secretary submitted a draft Report of the Society's labours during 1885 for approval. After being read and discussed, the report as amended was approved and passed, and the Secretary desired to read it at the Annual General Meeting.

ANNUAL GENERAL MEETING.

21st December, 1885, 9 p.m., at the Colombo Museum.

Present :

The Right Rev. the Lord Bishop of Colombo, D.D.,
Vice-President, in the Chair.

H. P. Baumgartner, Esq.,
C.C.S.

T. Berwick, Esq.

Hon. Lieut.-Col. F. C. H.
Clarke, R.A., C.M.G.

J. B. Cull, Esq., M.A.

J. G. Dean, Esq.

A. M. Ferguson, Esq.,
C.M.G.

D. W. Ferguson, Esq.

W. W. Fisher, Esq.

Ph. Freüdenberg, Esq.

A. P. Green, Esq.

J. J. Grinlinton, Esq.

W. R. Kynsey, Esq., P.C.M.O.,
(Vice President).

L. O. Pyemont-Pyemont,
Esq., C.C.S.

Hon. C. Clementi Smith,
C.M.G.

W. Subhúti Terunnánsé.

H. S. Sumangala Terunnánsé.

H. Trimen, Esq., M.B., F.L.S.

J. Wardrop, Esq.

W. E. Davidson, Esq., C.C.S.,
Honorary Secretary.

Two visitors.

Business.

1.—The Minutes of the last Meeting having been read and confirmed, Mr. J. G. Dean proposed, and the Secretary seconded :—

2.—That Mr. W. W. Fisher be elected a Member.—*Carried.*

3.—Proposed by Mr. J. F. De Saram, and seconded by the Secretary :—That Mr. Pestonjee Dinshajee Khán be elected a Member.—*Carried.*

4.—The Chairman announced that a letter had been received from the Governor's Aide-de-Camp expressing His Excellency's regret at not being able to be present ; and then called on the Secretary to read the Committee's Annual Report.

The Secretary read the Report of the Committee for 1885, as follows :—

ANNUAL REPORT.

“YOUR Committee beg to lay before the Society a brief Report showing the work done by the Society during 1885, and the position it is now in, at the end of the fortieth year of its existence.

Meetings.

“There have been during the year six General Meetings, besides this Annual General Meeting, at which the following Papers have been read and discussed :—

1. A translation, from the Dutch, by Mr. Ph. Freüdenberg, of the account of Ceylon by Johann Jacob Saar, a soldier in the

congratulate ourselves on the fact that the material for printing is forthcoming in such abundant quantities.

Dutch service in the East from 1647-1667. He served in all the leading operations which resulted in the conquest of the Maritime Provinces by the Dutch from the Portuguese.

2. Remarks on the Composition, Geographical Affinities, and Origin of the Ceylon Flora, by H. Trimen, M.B., F.L.S., Director of the Royal Botanic Gardens, Pérádeniya.

3. Rice cultivated under Irrigation in Ceylon, by E. Elliott, C.C.S.

4. Plumbago: with special reference to the position occupied the Mineral in the Commerce of Ceylon, by A. M. Ferguson, C.M.G.

5. Jottings from a Jungle Diary: being an account of certain recent Archæological Discoveries in Anurádhapura, with a theory as to their origin and construction, by S. M. Burrows, M.A., C.C.S.

6. An Abridgment, by Mr. T. Berwick, of a Monograph on the Veddás of Ceylon, contributed to this Society by Professor Virchow, of Berlin.

These General Meetings have all been held in the evening at the Colombo Museum, and from the large attendance—the average being over thirty-three persons at each Meeting—it is evident that the custom suits Members better than the afternoon Meetings in the Fort.

Journals.

The Society has published during the year the following numbers of its Journal:—

No. 26, Vol. VIII., 1883, containing the Papers read in 1883.

No. 27, Vol. VIII., 1884 (Pt. I.), Report by Mr. H. Parker, M.I.C.E., on the Archæology of Tissamáharama.

No. 28, Vol. VIII., 1884 (Pt. II.), the Játaka Studies of the Society during 1884, edited by the Bishop of Colombo.

No. 30, Vol. IX., 1885 (Pt. I.), Catalogue of the Flowering Plants and Ferns of Ceylon, by H. Trimen, M.B., F.L.S., Director of the Royal Botanic Gardens, Pérádeniya.

No. 31, Vol. IX., 1885 (Pt. II.), containing three popular lectures delivered during the year by H. Trimen, M.B., F.L.S., E. Elliott, C.C.S., and A. M. Ferguson, C.M.G.

“Besides these, there are now in the press: (1) Proceedings of 1884; (2) Proceedings of 1885; (3) No. 29, Vol. VIII., 1884 (Pt. III.), containing a large number of Papers contributed during 1884, and closing the Society's Publications for 1884.

“The Society must acknowledge a debt of gratitude not only to the Government for permitting to the Society, under certain restrictions, the use of the Government Printing Press, but also to Mr. G. J. A. Skeen, the Government Printer, without whose ready co-operation and assistance so much editing work could not have been accomplished. As it is, five Parts of the Journal have been issued during the year, and although there is much leeway to be made up before the Society succeeds in publishing all its work for a year within the year, yet we have cause to

Programme for 1886.

“The intention at present is to print the following Publications during 1886, before all arrears are blotted out :—

- (a) No. 29, Vol. VIII., 1884 (Part III.).
- (b) Proceedings of 1884.
- (c) Proceedings of 1885.
- (d) No. 32, Vol. X., 1885 (Part III.) ; which will consist of a series of translations from French and Dutch writers on Ceylon, contributed by the late Colonel A. B. Fyers, R.E., once President of this Society, and by Mr. Ph. Freüdenberg.
- (e) No. 33, Vol. IX., 1885 (Part IV.), in which will be printed Professor Virchow's Monograph on the Veddás of Ceylon, as well as the correspondence and supplementary Papers which are likely to result from a full discussion of the Professor's views.

“There are fortunately good prospects for future Meetings as far as Papers are concerned, and your Committee would recommend for adoption the following distribution of the Society's Meetings :— During January and February to have two Meetings. It has been usual for some years to devote these Meetings to translations of writers on Ceylon, or to subjects of historical or antiquarian interest. Mr. Freüdenberg's translation of the Ceylon portions of Wouter Schouten will find a place at one of these Meetings. For the other Meetings Papers are promised by Dr. Kynsey, and by Dr. Vanderstraaten. A series of the so-called popular lectures should be read (as in this year) during July, August, and September. Towards this series, contributions have already been promised by the Vice-President Dr. Kynsey, Mr. J. Ferguson, Mr. Le Mesurier, and others. In October and November a series of Meetings should be devoted to the continuation of the Society's Játaka studies, one of the important works which the Society must steadily push on. Work has already been in progress some time on this subject among the best Páli scholars of the Society.

Members.

“The number of Members at the beginning of the year was 143. It is now 136. Twelve new Members have joined. Death has taken Sir John Douglas, our genial patron and our good friend ; Mr. Haliburton MacVicar, F.Z.S., whose ornithological knowledge and love of natural history have often been of use to the Society ; Mr. G. D. Browne, C.C.S.; and the Rev. S. Ondaatje. Eight Members have resigned, and the names of seven others have been struck off, under the rules, for neglect to pay subscription.

Finances.

“A statement of the Society's finances is subjoined. The position of the Society is sound, thanks in a large degree to the

industry of Mr. J. G. Dean, the Treasurer. The assets of the Society divide themselves into three sections: (1) The ordinary balance of annual subscriptions over the expenditure. This balance is now Rs. 70·90, the income of the year being approximately spent in the year. (2) The amount realised by a certain number of Members having compounded and having become, by a payment down in lieu of the annual subscription, Members for life. The balance stands at Rs. 417·50. (3) The total balance under the exploration account of Rs. 354·59. As regards the current balance nothing need be said: the main payments are in printing, the binding of a large number of books, in the Library, and in the payment of £20 for the translation of Professor Virchow's contribution. As regards the second balance, the sum obtained by capitalising part of the Society's yearly income should, the Committee think, be diverted to some permanent work, unconnected with the annual expenses. The Committee would suggest the advisability of using it for the purpose of reprinting some of the back Numbers of the Journal which are out of print, and are now very difficult to procure. The Secretary has at the moment with him six applications for the purchase or exchange of a complete set of the Society's publications, and these cannot be complied with for the lack of seven Numbers, of which no copies are left. The sale of Numbers of the Journal might in future be funded on this account.

Reprints.

"The Committee further venture to hope that, when once the process of reprinting is taken in hand, overtures may be made to the Asiatic Society of Bengal to allow the reprint by this Society among its own records of the contributions (especially concerning Ceylon History) made by the Hon. G. Turnour in 1836-38. These contributions form a series in the Papers of the Asiatic Society of Bengal, having been written some years before the birth of this Society. This series of Papers, which form perhaps the most important contribution within the last century to the elucidation of the ancient history of India and Ceylon, have a peculiar claim on our attention, as they were the work of the first great Pāli scholar of Ceylon, and as the discoveries made by him were gleaned from the ancient record of Ceylon History. The Asiatic Society of Bengal has lately permitted the same privilege of reprinting Papers on Malayan subjects to the Straits Settlements' Branch of the Royal Asiatic Society.

Exploration.

"Turning to the third fund to the Society's credit, namely, the balance from the special fund raised towards assisting in the exploration of the remains of Anurādhapura, there is still a sum of Rs. 354·59 to the credit of this fund. Your Committee consider that this balance should be applied to the purposes for which it was originally raised. Opportunities may arise at any time for

the useful application of the sum in hand. A special Sub-Committee, consisting of His Excellency the Governor, the late President Mr. Dickson, and Dr. Kynsey, associated with the Revenue and Engineer Officers at Anuādhapura, were nominated at a General Meeting to direct the expenditure of this fund, and this Sub-Committee will be able, with the assistance on the spot of Mr. Burrows, one of our most industrious Members, to turn the balance to good account.

Secretaryship.

“The Honorary Secretary Mr. Davidson, proceeds to Europe on six months’ leave of absence from March next, but the Committee have been fortunate enough to obtain the promise of Mr. R. W. Ievers’s services during Mr. Davidson’s absence : possibly Mr. Ievers may be induced to take up the Secretary’s duties permanently.”

On the conclusion of the reading of the Report—

The Chairman rose and said : “I perform a little more than a formal duty in moving the adoption of the Report. I think we shall all agree that it is a record of useful and satisfactory work. It exhibits a sound financial position, and lays before us sensible suggestions for the arrangement of our Proceedings in the coming year. In moving the adoption of the report, I feel that I am to some extent asking the Members present to put their seal upon the valuable services of the reader. A Society of this kind owes its efficiency and prosperity in a very large proportion indeed to the activity of its Secretary, and we have been very happy in having such a Secretary as Mr. Davidson, and we shall regret for a time that he is going away. There is one part of the Report with regard to which I should like to make a suggestion, if it were in order now, and that is with respect to the closing words, in which he threw out some hint that on his return the duties will still remain in other hands. We shall enjoy the able services of Mr. Ievers, and the time I hope will come when he will be permanently connected with us ; but until we have had a great deal more out of Mr. Davidson, we shall not, I hope, see the work entrusted to other hands. (Laughter and applause.) I beg to move the adoption of the Report.”

Mr. A. M. Ferguson, C.M.G. :—I have much pleasure in seconding the motion.

The motion was put and carried unanimously.

ELECTION OF COMMITTEE.

Mr. Ph. Freüdenberg :—“My Lord Bishop, Ladies, and Gentlemen,—I have been requested to lay before you for your approval the list of the Members of Committee for the ensuing year, as suggested at our last Committee Meeting. It is usual on such occasions to express the wish that a task like this had been entrusted to abler hands to do justice to it ; but, as such a remark

would be conspicuous by want of freshness, I will refrain from making it, however intense my feelings on the point may be. (A laugh.) The list which we have to submit to you contains very few new names. His Excellency the Governor is the Patron of this Society, and, as a matter of course, is not subject to re-election ; but we trust that His Excellency will not withdraw his patronage from this Society as long as he rules over this Island. (Hear, hear.) The direct intervention on behalf of the Society by His Excellency has immensely benefited it, and the gatherings we have been used to of late—and I do not think I am exaggerating when I say so—are greatly due to the interest which His Excellency takes in the Society ; and it is quite refreshing to contrast the gatherings now with, for instance, one which I remember in this very room not many years ago, when the only persons present were the late Honorary Secretary, one Member to read his Paper, another to listen, and your obedient servant in the chair! (Laughter.) The office of President has been vacated by the Hon. J. F. Dickson on his departure from Ceylon. His Lordship the Bishop has very kindly consented to temporarily act for him ; and to-day we are going to ask him to fill that office permanently. You are all aware what a vast amount of work His Lordship has done for this Society, and his name will always in our annals be associated with those delightful tales of domestic occurrences in Buddha's life—the Jātakas. As first Vice-President, we propose to you to re-elect Dr. Kynsey, who has so worthily filled the post hitherto ; and as second Vice-President, my learned friend Mr. Berwick has the unanimous recommendation of the Committee. The worthy Treasurer has enabled the Secretary to lay before you to-night such a glowing account of the financial position of this Society that I think we are all anxious to saddle him once more with the arduous duty of looking after the pounds, shillings, and pence, and we only hope he will be as fortunate in the future as he has been in the past in handling the gigantic accounts entrusted to his safe keeping. Of Honorary Secretaries we have had two—Mr. H. C. P. Bell, and Mr. W. E. Davidson. Mr. Bell has, in the interests of the Service, been removed from Colombo, and I think we shall have to forego his assistance as Secretary, while we trust he will be able to give us his valuable aid by helping to edit the Journal of this Society. Mr. Davidson is proposed as Honorary Secretary. On this occasion I should have liked to say something about him, but unfortunately for me His Lordship has anticipated me. When filling in the names of the gentlemen to serve on the Committee, I inquired who were the ladies who had first arrived at the bright idea of adding charm and lustre to our Meetings by their presence, because I am of opinion that the very least we could do to show our gratitude was to elect one of them to serve on the Committee. (Laughter.) I was stopped in my researches by the Honorary Secretary, who pointed out that ladies were permitted to attend, not as Members, but as guests. This is an instance of the selfishness of men who frame laws for the exclusion of the fair

sex from power, and afterwards claim the merit of politeness in doing a small part of their duty. The names of the Committee Members are those of John Capper, Esq., the oldest Member of this Society; Hon. Lieut.-Colonel Clarke, C.M.G., one of the youngest Members, but whom we trust to see following in the footsteps of his predecessor in office, the late Col. Fyers, who at one time was President of this Society; J. B. Cull, Esq., M.A., indispensable for discussions at our Meetings; D. W. Ferguson, Esq., who will be very useful to this Society in his absence, inasmuch as he has promised to write a Paper or two for us when he takes his leave to Europe, having at present no time to attend to us; Staniforth Green, Esq.,—we trust that Mr. Green, who continues so immersed in his researches, will give us a most interesting account of the marriage customs of the Hymenoptera (laughter); W. P. Ranasinha, Dr. H. Trimen, and Dr. J. L. Vanderstraaten, are the three other Members of Committee propose. Gentlemen, I leave the list of names in your hands, and I trust to find that we have only anticipated your decision.” (Applause.)

Mr. J. J. Grinlinton seconded.

The motion was unanimously carried.

The Bishop of Colombo then rose to deliver the Presidential Address, which ran as follows:—

PRESIDENT'S ADDRESS.

“THE custom of an Annual Address by the President is in itself an excellent custom, but it imposes a task which is very difficult to perform. Those who have preceded me in this chair have been men remarkably well qualified to undertake it, either by general culture or by special acquaintance with one of the subjects of the Society's study, or by both. Yet such men as these, I find, have very frequently omitted the Presidential Address, and those who have discharged the duty have had the great advantage of doing so after the custom had been some years in abeyance. They have thus had the events and proceedings of three or more years to describe; or, in some cases, after a much longer interval, they have had occasion to revive decayed interest, and when the retrospect was unsatisfactory they have found room for exhortation in looking forward.

“My immediate predecessor possessed in a high degree the qualifications, both general and special, for this task, and had he been still with us would no doubt have discharged it well to-day. He would have been able to review a year's work over which he had himself presided.

“I, on the other hand, have, I think, good reason to ask your kind indulgence, if on first entering on office I am unprepared either to review or to direct the Society's exertions. A few weeks ago I had no notion that I should become in any degree responsible for them. During the time I hold the office to which you have been so good as to appoint me, I will try to keep at

least *au courant* with your proceedings, and what concerns them; but I speak to-day as one who has been till quite recently little more than an outsider.

“A President’s Address ought, I think, to do one of two things. It ought either to pass in review the different branches of learning which come within the purview of the Society, and to describe and estimate the progress made in each, both within the Society and without it; or, if the speaker be characteristically a specialist, his address should be either a popular sketch of, or a substantial contribution to, the subject of which he is a master. Both these methods are unhappily impossible to me. I am neither Jack of all trades, nor master of any one.

“What a President’s Address ought not to be, that I fear is all that I can offer, namely, the occupation of a certain amount of the Society’s time, with no definite result either for edification or amusement.

Botany.

“Of the Papers which the Society has lately printed, several had been already some time in its possession, and were therefore referred to by my predecessor among the events of last year. This is the case even with Dr. Trimen’s very valuable catalogue of Ceylon plants;* which is important enough, however, to signalise the year of its actual publication as well as that in which it was presented to the Society. I consider it a high honour to the Society to be the *medium* of presenting to the scientific world a work which, I am sure, will be of abiding value.

“Taking stock afresh, after the interval of twenty years which had elapsed since Dr. Thwaites’ “Enumeratio” came out, of the stores of knowledge which had been collected by many observers (several distinguished Members of this Society among them), Dr. Trimen has added 200 species, he tells us, to the list of 1864, and has revised and re-arranged the whole. This catalogue must be of inestimable value to professed botanists; but to the general readers the Remarks on the Ceylon Flora, which the author read to us in February last, will be still more acceptable. It surprises us to find how many of those plants which we had regarded as most characteristic of Ceylon have really been introduced from other lands. Without the mango, the jak, the areca, the castor-oil plant, the datura, or the temple trees, one thinks Ceylon would hardly be Ceylon. Yet these, Dr. Trimen tells us, are as much foreigners and colonists here as any Member of this Society. It is gratifying to learn that our flora is decidedly a rich one, and that we beat our Indian neighbours—area for area—in this particular. To an inhabitant of Ceylon it is still more gratifying to learn that a large portion, some 30 per cent. of the kinds, are endemic or peculiar to the Island, and that in spite of our close proximity to the Indian Continent. Of the rest nearly all are

* C. A. S. Journal, Vol. IX., No. 31 of 1885.

identical with species found in the adjoining Peninsula; so that the north of Ceylon is with reason believed to have been joined to the mainland in recent geological times. But more than half of our mountain species are not found even in the Nilgheris, though they belong to genera found there.

“But there is a strong non-peninsular element, found chiefly in the south of the Island, and this is Malayan in affinity (similar, *i. e.*, to the flora of Assam, Burmah, the Andamans, Singapore, and Sumatra). And this Malayan element is present here more conspicuously than on the Indian coast. Whether these came through India or not, is doubted. Wallace thinks they did. Dr. Trimen is inclined to think they came direct from the islands. It cannot but strike one as curious that the same affinities are conspicuous between the floras as between the peoples and religions of Nepál, Burma, and Siam on the one hand, and Ceylon on the other. Still more that the question should be under dispute, whether the course of immigration of these gentle and gradual visitors, as well as of the ruder steps of human civilisation, was from the north and east direct, or by the way of Southern India.

“Dr. Trimen’s lighter touch, in this more popular Paper, shows how well he could do, what we so much want some one to do, a popular Hand-book of Botany for Ceylon. I asked one of the leading English botanists for such a book, and his reply was: ‘There is none, get Dr. Trimen to write one: he is the very man.’

Natural History.

“In a cognate field of Natural History the Society may congratulate itself on having received and published Mr. A. M. Ferguson’s excellent Paper on Plumbago.* He not only told us about the mineralogical and chemical qualities of this mysterious substance, and gave much information as to its geological relations, but he gave a very practical turn to the subject by tracing the fluctuations of the trade, and describing the application of plumbago in the arts. The intimate connection of this industry with the native enterprise, and native labour, the primitive mining operations, the employment of large numbers of operatives of both sexes in the mills, combine to render this a subject of peculiar interest to us, and the Paper I refer to must be of great value to very many.

“This is in the first place a learned Society, but if it can so pursue science as to promote useful industry, or so follow the steps of industry as to collect observations of scientific value, it is doing—I venture to think—what is essentially its proper work.

“I could wish that in this direction another track might be explored, or rather the result of its exploration recorded in a scientific form. I refer to the search lately made for gold. I suppose a great deal of information must have been acquired, in different places by

* C. A. S. Journal, Vol. IX, No. 31 of 1885.
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different people, valuable geological and mineralogical observations made, in the course of explorations conducted with a more commercial aim, but I am not aware that these results have ever been collected. The same gentleman who gave us the admirable Paper on Plumbago has been the means of giving so much information to the public, that I confess I am quite unable to keep pace with it, and what I am desiderating may have already been done; but, if not, I would venture to commend this suggestion to him and to other Members of the Society.

Geology.

“The study of the geology of Ceylon is not very attractive superficially, because it would consist almost entirely, I imagine, of the history of the earth itself, and not of the lighter amusement of fossil hunting. And yet I have heard scientific men say that there is a vast deal to be learnt here, nor can anyone travel much about this Island without wishing to know why the hills lie like gigantic wind-driven waves across the country, abruptly broken down on one side and sloping on the other; why through large areas of the Island we meet with low ridge after ridge, as if vast furrows had been washed by the ocean into soft undulations; why the quartz veins crop up here and there, or run in one long rib across the country; what coast is rising, and what sinking; and of what other land, now, perhaps out of sight, our “*Lañká Dwípa*” was once a part. I am venturing out of my depth, but, before I turn back towards the shore, I will venture to express a hope, in regard to the Meteorological Observations over which the Surveyor-General so ably presides—observations which his recently provided directions must have much facilitated—a hope that to this branch of knowledge, too long absent now from our Proceedings, we may some day have a contribution from his hand. One stroke more, before I turn landward—there is something exhilarating in being out of one’s depth—in these days of excitement about everything electrical, it has often occurred to me how great a field is afforded in Ceylon, where electric energies are so powerful, and display themselves often in so grand and terrible a scale, for systematic recording of the force and direction of earth-currents, as well as of the motions of storms, and of the phenomena of terrestrial magnetism.

Archæology and History.

“I should like to have spoken at some length of Mr. Parker’s deeply interesting Paper on Tissamaharáma,* but, though only just printed, it was fully reviewed by Mr. Dickson a year ago. I would express the greatest admiration for Mr. Parker’s industry, judgment, and learning; but at the same time I hope his facts will be distinguished from some of his inferences; the former are very precious; many of the latter are, no doubt sound; all are

* C. A. S. Journal, Vol. VIII, No. 27 of 1884.

ingenious ; but I should like to see a good battle over some of them before they go down to future readers under the shelter of the reputation for learning and accuracy which this Paper will assuredly secure to their author.

“ Exiled in that remote, and, but for his exertions,—possibly in spite of them, still, to some,—that unattractive spot, Mr. Parker has not only discovered amid its dulness a store of antiquarian wealth, not only extracted thence treasures of information, not only repeopled—what he would not allow us to call a desert—with the scenes of life and prosperity, but he has gilded it—this home of his toil—with, may I venture to say, just a touch of that gleam that never was on sea or land ; it must be no less than the great capital and even source of Aryan civilisation for the Island ; there Wijayo himself must have landed, and thence the Princess Kachcháná have been escorted to Anurádhapura. Now, we can see Adam’s Peak from off Chilaw (and probably farther north), as well as from off the southern coast ; and before Tambapanni is to be fixed on the banks of the Kirinda, we must look a little closer into some of the arguments, lest we be caught by the enthusiasm of an explorer, who is too jealously bent *ut exordia urbium angustiora faciat*.

“ It is very possible that the result of debate may be to place Mr. Parker’s conclusions on an unassailable basis. In the meantime, I should like to express my conviction—it is one at which most Members of this Society have arrived—that he does absolutely right in taking as a guide, to be trusted even further than at first sight seems possible, the old historical works of the Sinhalese,—the ‘Dípavaṇsa’ and the ‘Maháwaṇsa.’ What can be more instructive than the successive confirmations of that history which successive discoveries bring to light ? How clear is the warning which these give to students of history, that excessive scepticism—contemptuous setting aside of local chronicles—may be far more unphilosophical than a humble following of them, wherever they can reasonably be followed.

“ The fashion of historical scepticism, under the teaching of Niebuhr and his followers such as Grote, Mommsen, and others, had led to an excessive distrust. I suppose no more signal refutation of their position could be found than the ‘Maháwaṇsa’ affords.

“ Here are the records of a people imperfectly civilised ; a people of the so-called imaginative Indian race ; records preserved in poetry ; records about countries which the nation by whom those records are preserved had left centuries ago ; records overladen with ridiculous monstrosities, nágas, yakkhás, oceans of ghee, and mountains of flowers, and 84,000 monks coming though the air on every possible occasion. Every sign by which an untrustworthy record was supposed to be marked was present ; yet when was record more triumphantly confirmed ?

“ The ‘Maháwaṇsa’ states that Aśóka lived at such a date. The identity of Aśóka and Piyadassi is stated by the ‘Dípawaṇsa,’ and

proved by his own edict ; the very writings of Piyadassi, on the rocks in many parts of India, name the contemporary Greek kings : the date of those kings, ascertained from undoubted Greek history, confirm with practical accuracy the date assigned to Aśoka.

“ The ‘ Mahāwaṃsa ’ goes into detail about Aśoka’s doings, and asserts that he sent preachers of Buddhism into various countries, amongst whom one Kassapo was sent with others, it says, to the Himavanta. This statement remains unverified in the pages of the ‘ Mahāwaṃsa ’ till the nineteenth century. Then the dāgoba of Sanchi is explored ; relic-boxes are found ; they are inscribed with names in the unmistakeable characters of Aśoka’s time, the characters of his inscriptions (I speak within the limits of practical accuracy), and on one of these are found the words *Kasapa gotasa Sava hemavat ācāriyasa* ‘ (Relics) of *Kassapa*, teacher of the whole Hemavanta country.’

“ In view of such evidence as this, to question the mission of Mahinda would be absurd, and he would be a rash man who would draw the line there. And if Mr. Parker lays emphasis on the ‘ Dīpawaṃsa,’ saying that it was by stress of wind that Wijayo was driven to Laṅkā, and that he saw Adam’s Peak before he landed, he is at any rate on safer ground than I should be, if I said it was extravagant to attach weight to such details.

“ From Anurādhapura new discoveries have been reported to the Society in a Paper, rich in facts as well as gay with humour and daring in speculation, by Mr. Burrows.* I hope the challenge which he has thrown down will be taken up during the coming year by some advocate of the prevailing opinions. In presenting the solid results of his labours in exploration, he diverged into ingenious speculations as to the origin of all that art and civilisation, and shocked the Aryan sensibilities of some of us by suggesting that it was in reality Dravidian. There is much to be said no doubt on both sides. Some scholars of name, Lassen in particular, laid it down years ago, before they had much means of ascertaining, that the origin of the Sinhalese language was Dravidian ; and hence, in spite of Max Müller and most modern authorities, there are still those who dispute the fundamentally Aryan character of the language.

Veddās.

“ The same question is touched upon in the elaborate Paper of Professor Virchow on the Veddās. In discussing whether the affinities of that race be Aryan or Dravidian, he considers the question of the Sinhalese language itself as too uncertain to be made the ground of argument. The Professor’s Paper will no doubt be criticised. Mr. Le Mesurier and others will soon present us with views which differ, I understand, in some degree from the Professor’s ; and indeed, when we see how lamentably hampered Professor Virchow was by having to take almost all his

* “ Jottings from a Jungle Diary.”

facts at second-hand, we may think—without arrogance—that on many points he may be yet corrected by observers on the spot. But in the meantime his general conclusion is based on too careful consideration of all the available testimonies to be easily overthrown. He thinks that the Veddás are a pure and strictly native race, who inhabited the Island before the Wijayan settlers came; that they are probably akin to some of the mountain tribes of Southern India rather than to the Tamils; and that the Sinhalese are a mixed race, the offspring of these aboriginal inhabitants on the one side, and of the Wijayan immigrants on the other.

Játakas.

“On the same questions, of the immigration and affinities of nations, the permanence of customs, the veracity of traditions, as well as on the great subjects of religion and ancient art, light will be thrown, I hope, by the study, which we hope to carry on during the coming year, of the Páli Játakas. An instalment, very sketchy and superficial, and from the nature of the case irregular in form, is so far through the Press that our Secretary has reckoned it as printed. We have promises of contributions for the translation of a considerable proportion of the next hundred stories, and we shall be glad to receive more; but what we want especially is that Members should undertake some of the collateral work of illustration. We require for instance, at the very outset, a good list of the books which have been written about the Játakas, with a brief intimation of the contents of each; we require a comparison of the tales in this collection, with those which occur in Burmese, or Chinese, or Thibetan collections; we want the Gáthás traced to their sources, in the ‘Dhammapada,’ in other Piṭaka books, or in outside literature; we want the Játakas which occur, in various stages of development, in the various Piṭaka books, compared with the same as they stand in the Jáataka Commentary itself. As the Committee do not propose to bring on those Papers till towards the end of the year, it is to be hoped that Members will be found to undertake each a share in these several departments of the work.

Sinhalese Dictionary.

“A word must be said about the scheme for a Sinhalese Dictionary. We have taken the first step, but only that; but we have not abandoned the idea. My own absence and Mr. Dickson’s departure have delayed the Committee; but I hope it will soon meet and finally agree upon a ‘sample glossary’; which will be circulated among those who are likely to help us, as an indication of the kind of help we seek. The idea is, not to begin to compile a dictionary, but to begin to form glossaries of particular books, each co-operator taking a book or a portion of a book, and undertaking to make an alphabetical list of the words contained in it, giving for each the exact place or places where it occurs, and the meaning which it bears there. It is thought that out of many

such glossaries, showing in what books of different ages and styles each word occurs, and what varieties of meaning it has gone through, a systematic and scientific dictionary may some day be made. That we do not hope to see: we are content to make bricks at present for the building that is to come.

Conclusion.

“And now, ladies and gentlemen, I must detain you no longer. I have touched on only part of the topics which belong to the scope of our Society. Modern history, such as Mr. Freüdenberg is translating for us, modern language, present customs, religion, art, many things not less important than those I have mentioned, I have left untouched. How vast is the field of study that opens out before us, when we direct our thought upon even so small a world as that of this little Island! And what is all this in comparison with the expanse that lies before the restless intellect of man to be explored and sounded! *Ars longa vita brevis!* Yet in such leisure hours as we have, few enough with many of us, it is something if we have let in the light on one spot, however small, that was dark before; or have laid some stone, however insignificant, in the vast fabric of knowledge.”

His Honour the Lieutenant-Governor:—“As your youngest Member, I feel that it is somewhat venturesome on my part to act on a suggestion which has been made to me, namely, that of acting as your mouth-piece in giving our thanks to his Lordship for the very excellent address which he has delivered. I was rather under the impression when he opened his remarks that he would sit down after giving us but very little information, but as his Paper developed itself, I felt that we were listening to a master, and that the Royal Asiatic Society of this Colony had at its head a President worthy of itself, and worthy of its past history. He touched in so many ways exactly upon those points which we should expect a President of a learned Society to touch upon, that he fulfilled his duty far more to our satisfaction, I am sure, than to his own. The Address which he has read will be perused, I am quite sure, by the other Members present who have not had the advantage of attending here to-night, with that gratification which we have all derived from it. On your behalf I beg to tender to his Lordship our thanks for his very excellent Address, and our thanks for having accepted the post which the Society wished that His Lordship should fill permanently.” (Applause.)

The Hon. Lieutenant-Colonel Clarke seconded the motion for a vote of thanks.

His Honour the Lieutenant-Governor:—“As it is impossible for his Lordship to put this to the vote, I beg to do so. The motion is that a vote of thanks be tendered to his Lordship for his very admirable Address.”—Carried by acclamation.

The Chairman:—“I have to thank you for the confidence you have been kind enough to put in me and to say that the business of the Meeting is concluded.”

LIST OF MEMBERS.

(Corrected up to December 31st, 1885.)

1.—LIFE MEMBERS.

The Right Rev. the Lord Bishop of Colombo, D.D.	Ferguson, D. W.
Davids, T. W. Rhys	Ferguson, J.
Davidson, W. E., C.C.S.	Freüdenberg, Ph.
Dickson, J. F., C.M.G.	Grant, J. N.
Ferguson, A. M., C.M.G.	Gunn, J.
Ferguson, A. M., jun.	Lewis, J. P., M.A., C.C.S.
	Nicholson, Rev. J.

2.—HONORARY MEMBERS.

Gray, A.	Künste, M. M.
Holdsworth, E.	Military Medical Officers in Ceylon

3.—ORDINARY MEMBERS.

Alexander, J.	Daendliker, P.
Alwis, Hon. A. L. D.	Dean, J. G.
Anthonisz, P. D., M.D.	Dias, C. P., Mahá Mudaliyár
Arneil, J. A.	Dias, W., M.D., M.R.C.S., L.S.A.
Bailey J. B. A., C.C.S.	Dickman, C., C.C.S.
Baumgartner, G. A., C.C.S.	Duncan, W. H. G.
Baumgartner, H. P., C.C.S.	Dunlop, C. E., C.C.S.
Bell, H. C. P., C.C.S.	Dawson, A. R., C.C.S.
Berwick, T.	Elliott, E., C.C.S.
Blair, W.	Ferguson, W., F.L.S.
Boake, W. J. S., L.M.S.C.D., C.C.S.	Fisher, W. W.
Bois, H.	Fleming, Hon. F.
Bois, F. W.	Fowler, G. M., C.C.S.
Bosanquet, Hon. R. A.	Garvin, T. F., M.B., C.M.
Burrows, S. M., M.A., C.C.S.	Green, A. P.
Capper, J.	Green, H. W., C.C.S.
Carbery, J., M.B.	Green, S., F.L.S.
Cave, A. W., M.A.	Grenier, Hon. S.
Christie, T. N.	Grenier, J.
Churchill, J. F., M.I.C.E.	Grinlinton, J. J., C.E., F.R.G.S.
Clarke, A.	Gunatilaka, W.
Clarke, Lt.-Col. F. C. H., R.A., F.R.G.S., F.C.S., C.M.G.	Gunaratna, E. R., Mudaliyár
Coghill, J. D. M., M.D., C.M.	Haines, W. G., C.C.S.
Conolly, P. W., C.C.S.	Hill, C. G.
Comára Swámy, P.	Ievers, R. W., M.A., C.C.S.
Crawford, M. S., C.C.S.	Jayatilaka, S., Mudaliyár
Cull, J. B., M.A.	Jayawardana, A., Mudaliyár
	Kasipillai, M., F.H.S.

Karunaratna, F. C. J., Mudaliyár	Saram, F. J. De
Kynsey, W. R., M.K.Q.C.P.I., L.R.C.S.I.	Saram, J. H. De, c.c.s.
Langdon, Rev. S.	Saram, P. De, Mudaliyár
Lawrie, A. C.	Saunders, Hon. F. R., c.c.s.
Lee, L. F., c.c.s.	Saxton, G. S., c.c.s.
Le Mesurier, C. J. R., F.R.G.S., F.R.A.S., F.R.C.I., C.C.S.	Seneviratna, J. D. A.
Loos, F. C.	Senaviratna, K. D. C.
Loos, J., M.D., M.R.C.P., L.R.C.S.	Shamshuddeen, A. T.
Mackwood, Hon. F. M.	Short, E. M. De C., c.c.s.
Mason, J. D., c.c.s.	Skeen, G. J. A.
Morgan, Capt. D., R.E.	Smith, Hon. C. Clementi, K.C.M.G.
Morgan, J. T., M.R.C.S., M.B., C.M.	Soyza, C. H. De, J.P.
Moysey, H. L., c.c.s.	Subhúti, W., Terunnánsé
Nell, L.	Sumangala, H. S., Terunnánsé, High Priest of Adam's Peak
Nevill, H., c.c.s.	Symons, C. E. H.
Noyes, E. T., c.c.s.	Templer, G. W., c.c.s.
Pánabokke, T. B., R.M., P.M.	Templer, Hon. P. A., c.c.s.
Perera, E. F.	Thomas, A. H.
Perera, J. F., Mudaliyár	Tothill, J. F. H.
Perera, J. M.	Trimen, H., M.B., F.L.S.
Perera, W. R. H., Mudaliyár	Thwaites, J. H., B.A., F.R.C.I.
Pestonjee Dinshanjee Khan	Vanderstraaten, J. L., M.D., M.R.C.P., L.S.A., L.R.C.S.
Pieris, J. M. P., Mudaliyár	Vanderspar, G. H.
Plaxton, J. W., M.R.C.S., L.S.A.	Vandort, W. G., M.D., C.M.
Price, F. H., c.c.s.	Wace, H., c.c.s.
Pyemont-Pyemont, L. O., c.c.s.	Wardrop, J. G.
Rajapakse, S. De A. W., Mada- liyár	Webster, R.
Ráma-Náthan, Hon. P.	White, H., c.c.s.
Ranasingha, W. P.	Williams, G. S., c.c.s.
Ravenscroft, Hon. W. H.	Wilmot, C. E., c.c.s.
Rockwood, W. G., M.D.	Worthington, G. E., c.c.s.
Sagarajasingham, M.	Wright, W. H.
Santiago, A., Mudaliyár	Wrightson, W.

ROYAL ASIATIC SOCIETY.

(CEYLON BRANCH.)

The Asiatic Society of Ceylon was instituted 7th February, 1845, and by the unanimous vote of a Special General Meeting of the Royal Asiatic Society, held on the 7th February, 1846, it was declared a branch of that Society, under the designation of "The Ceylon Branch of the Royal Asiatic Society."

RULES AND REGULATIONS.

Preamble.

1. The design of the Society is to institute and promote inquiries into the History, Religions, Languages, Literature, Arts, and Social Condition of the present and former inhabitants of this Island, with its Geology and Mineralogy, its Climate and Meteorology, its Botany and Zoology.

Members.

2. The Society shall consist of Resident or Ordinary, Honorary, and Corresponding Members; all elected by ballot at a General Meeting of the Society.

(a) Members residing in Ceylon are considered Resident.

(b) Persons who contribute to the objects of the Society in an eminent and distinguished manner are, on the recommendation of the Committee, eligible as Honorary Members.

(c) All Military Medical Officers in Ceylon are Honorary Members of the Society.

(d) Persons residing at a distance from Colombo may, upon special grounds, and on the recommendation of the Committee, be elected Corresponding Members.

Entrance Fee and Subscriptions.

3. Every Ordinary Member of the Society shall pay on admission an entrance fee of Rs. 5.25, and an annual subscription of Rs. 10.50. Annual subscriptions shall be considered due on

the 1st of January of each year. Members who fail to pay their subscriptions by the end of the year (provided they have been called for) shall be considered, *ipso facto*, to have relinquished their connection with the Society. Members who have been absent from Ceylon have the privilege of rejoining the Society within twelve months of their return to the Island, on payment of the subscription for the current year.

- (a) The privilege of *Life membership* may be ensured by the payment of :—(i) Rs. 105, with entrance fee on admission to the Society ; (ii) Rs. 84, after two years' subscription ; (iii) Rs. 73.50, after four or more years' subscription.
- (b) *Honorary* and *Corresponding* Members shall not be subject to any entrance fee or subscription, and are to be admitted to the Meetings of the Society and to the privilege of its Library, but are not competent to vote at Meetings, to be elected to any of its offices, or take any part in its private business.
- (c) Persons desirous of rejoining the Society may be re-admitted Members without entrance fee, subject to the discretion of the Managing Committee.

Office-bearers.

4. The office-bearers of the Society shall be : a President, two Vice-Presidents, a Treasurer, and a Secretary, all appointed by open vote at the Annual Meeting of the Society ; and their functions shall be as follows :—

- (a) The President, or in his absence one of the Vice-Presidents, shall take the Chair at all Meetings of the Society and of the Committee, maintain order, collect the votes, and cause the laws of the Society to be observed and enforced.
- (b) The Treasurer shall receive, collect, and pay out all moneys on behalf of the Society, keep an account thereof, including the vouchers, and submit a statement of the pecuniary affairs of the Society to the Annual Meeting, and at all other times as may be required.
- (c) The Secretary shall arrange, give notice of, and attend all Meetings of the Society and of the Committee, and record their proceedings. He shall also edit the Journal, and exercise a general superintendence under the authority of the Committee.

In the event of any office-bearer leaving the Colony for three (3) months, it shall be competent for the Committee to fill up the office at the next General Meeting.

Committee.

5. The affairs of the Society shall be managed by a Committee of nine Members (with power to add to their number), in addition to office-bearers, and elected in like manner; but subject always to the rules and regulations passed at General Meetings. Three to form a quorum.

Mode of Admission.

6. Members desirous of proposing candidates for admission to the Society shall give notice to the Secretary, in writing, at least a fortnight before the assembly of any General Meeting. Admission to Membership of the Society shall be by ballot at any General Meeting. No candidate to be considered as elected unless he has two-thirds of the votes taken in his favour.

Meetings.

7. An Annual Meeting of the Society shall be held in December, and General Meetings at such other times as may be determined by the Committee; due notice of the Meetings, of any intended motions which do not come through the Committee, and the nomination of new Members, being always first given by the Secretary.

8. The course of business at General Meetings shall be as follows :—

- (a) The Minutes of the last Meeting shall be read by the Secretary, and signed by the Chairman.
- (b) Candidates for Membership shall then be proposed, ballotted for, admitted or otherwise.
- (c) Reports of Committees shall be read, and communications made of all articles received, and donations to the Society.
- (d) Any specific business submitted by the Committee, or appointed for consideration, shall be proceeded with.
- (e) Papers and communications for the Society shall then be read.

9. Every Member of the Society has the privilege of introducing, either personally or by card, one or two visitors to the General Meetings.

10. Special Committees may be formed for the prosecution of any specific object or matter of research. These must be named at a General Meeting, and will act as much as possible in co-operation with the Secretary of the Society, who will be a constituent Member of all such Committees.

Papers and Communications.

11. All Papers and communications shall be forwarded to the Secretary at least a fortnight before the assembling of the General

Meeting at which they are intended to be read. Such Papers shall be read by the author, or the Secretary, or by some Member of the Society.

12. All Papers and other communications to the Society read or submitted at any General Meeting shall be open to free discussion ; and such Papers and discussions may be printed in the Transactions of the Society, if approved by the Committee.

13. The writer of any Paper which is published in the Society's Journal shall be entitled to receive twenty-five printed copies of his Paper.

Journals.

14. One copy of each Journal shall be sent by the Secretary to every Member who has paid his subscription, for the current year, and to every Honorary Member ; and every such Member may procure a second copy on application to the Secretary. Members requiring more than two copies of the Journal can be supplied with them at half the price charged the public.

Suspension and Alteration of Rules.

15. It shall be competent for any General Meeting to suspend any of the above rules.

16. No alteration of rules shall be made except at the Annual Meeting, and unless carried by a majority of not less than two-thirds of the Members present ; due notice of any proposed alteration having been given in writing to the Secretary at least a fortnight before the Meeting.

RULES FOR THE LIBRARY.

1. The library is open on week days (except Fridays) from 7 A.M. to 6 P.M., and on Sundays from 3 P.M. to 6 P.M.

2. The Librarian shall keep a register of books belonging to the library, showing their title, name of author, date of receipt, whence obtained, edition, number of volumes, number of plates, place and date of publication.

3. All books, pamphlets, and periodicals received for the library shall, immediately on receipt, be entered in the library register, and stamped with the library stamp. The Librarian shall see that each plate and map in books received for the library is carefully stamped on the reverse side with the library stamp. New books received shall be stamped on the cover with the words "Royal Asiatic Society, Ceylon Branch."

4. A book shall be kept in which shall be entered the title of every work lent out, the number of plates (if any) it contains at the time of its being lent, the name of the Member borrowing the same, and the date on which it is lent. A Member applying in person for a work shall sign a receipt for the book and plates it may contain at the time of borrowing. A Member not applying in person shall send a written request for the books he requires, and this request shall be filed in the library as a voucher, the Librarian duly noting on it the books actually lent out. The Librarian shall send with each packet of books a form of receipt, to be signed and returned by the borrower. Should any Member prefer to keep a private register of books borrowed from the library, it shall be the duty of the Librarian to enter in such register the names of all books issued, and to initial receipt when returned.

5. On return of any books to the library, the Librarian, after satisfying himself that the book is in the same condition as it was when lent out, shall insert opposite to the entry, in the loan register, the date on which the book has been returned, and return to the borrower the receipt or other voucher given by him, duly cancelled. And if on the return of any book the Librarian shall perceive that it has sustained any damage since it was taken from the library, he shall make a note of the particulars, and report the same to the Honorary Secretary.

6. No Member shall remove any book, pamphlet, periodical, or any other article the property of the Society from the library without giving the Librarian a receipt for the same.

7. No book, pamphlet, journal, or periodical, &c., shall be lent out before the expiration of one week after its receipt in the library.

8. Periodicals and unbound Journals in numbers shall be returned after the expiration of one week.

9. Works of reference and certain rare and valuable books, &c., must not be taken out of the library without special permission of the Committee.

10. Non-resident members are entitled to take out books, plates, &c., from the library on making special application to the Honorary Secretary, and signing an obligation to defray the expenses of carriage, and to make compensation for any book, plate, manuscript, &c., which may be lost or damaged.

11. No member shall be permitted to have more than three sets* of books from the library in his possession at any one time without the special permission of the Honorary Secretary.

12. Except with the special sanction of the Committee, resident members shall not be permitted to keep books, &c., borrowed from the library for more than fourteen days, and non-resident members for more than one month.

13. All books, except in the case stated below shall be returned to the library before the 1st January in each year. Early in December the Librarian, having previously ascertained that the books are actually absent from the library, shall forward to all members who have books belonging to the Society in their possession a letter requesting that such books be returned before the end of the month. Non-resident members who on the 1st January have had books, &c., for less than one month may send a detailed list of such books instead of returning them.

14. The Librarian shall report to the Honorary Secretary, for the information of the Committee, each year in January, the names of all books not returned, and of the members by whom they were borrowed.

15. If application be made to the Librarian for a book already taken out from the library, he shall issue a notice to the borrower requiring him to return it free of expense, within one week from the receipt of such notice if a resident member, and within one month if a non-resident member.

16. If any book borrowed from the library be lost, damaged, defaced by writing or otherwise, the borrower shall be held responsible for such loss or damage; and if the book belong to a set, he shall be liable to make good the set to the satisfaction of the Committee, or pay its value.

17. No books, &c., shall be issued from the library to any member while he retains any property of the Society in contravention of the above rules.

* Each volume of the Transactions of any learned Society or similar publication shall be counted as one work.

18. A book shall be kept in the library in which members may write the names of any books, &c., they may recommend to be purchased for the library.

19. No person who is not a member of the Society shall be permitted to take away any book from the library without special authority from the Committee, or to have access to the library without permission of a member of the Committee.

20. In no case shall any member be allowed to take out of Ceylon any book, manuscript, pamphlet, periodical, &c., belonging to the Society.

21. The Librarian shall be held personally responsible for the safety of the books, &c., belonging to the Society's library under his charge, and that these rules are properly carried out, as far as lies in his power.

22. The Committee may at any time call in all books, &c., and may cease to issue them for such periods as the interests of the Society may require.

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