

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.

EDITED BY
THE HONORARY SECRETARIES.

JANUARY TO DECEMBER,
1881.

CALCUTTA:
PRINTED BY J. W. THOMAS, BAPTIST MISSION PRESS,
AND PUBLISHED BY THE
ASIATIC SOCIETY, 57, PARK STREET.
1881.

CONTENTS.

	<i>Page</i>
Proceedings for January 1881	1-20
Do. for February, including Annual Report.....	21-48
Do. for March, 1881	49-60
Do. for April, "	61-84
Do. for May, "	85-102
Do. for June, "	103-118
Do. for July, "	119-132
Do. for August, "	133-148
Do. for November, "	149-168
Do. for December, "	169-178
Index	179-190
List of Members of the Asiatic Society of Bengal on the 31st December, 1880, Appendix to February Proceedings	i-xvi
Abstract Statement of Receipts and Disbursements of the Asiatic Society of Bengal for the year 1880, Appendix to May Proceedings	i-xii

LIST OF PLATES.

- I. Trace of Van Rysselberghe and Schubart's Meteorograph (p. 65).
- II. Facsimile of the last page of a MS. of the Bhatti-Kávyá, dated Saka
1326 (p. 134).
- III. Tracing from Sun Negative taken at Dehra observatory, G. T. Survey
of India (p. 153).

MS. Ind. 52

2200

.133

3

JAN-DEC/1281-82

484097

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.

FOR JANUARY, 1881.

The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 5th of January 1881, at 9 P. M.

H. B. MEDLICOTT, Esq., F. R. S., in the Chair.

The minutes of the last Meeting were read and confirmed.

The following presentations were announced—

1. From Dr. R. L. Mitra,—Nidána, a Sanskrit system of Pathology, translated into Bengali by Uday Chand Dutt.
2. From the Meteorological Reporter for Western India,—(1) Brief sketch of the Meteorology of the Bombay Presidency in 1879, (2) Abnormal Variations of Barometric Pressure in the Tropics and their relation to Sunspots, Rainfall and Famine.
3. From the Hon'ble Whitley Stokes,—Uber die Sprache der Etrusker, (2 vols.), by W. Corsen.
4. From the Madras Government,—Report on the Amravati Tope, and excavations on its site in 1877, by R. Sewell.
5. From the Department of the Interior, U. S. America,—History of the North American Pinnipeds by J. A. Allen.
6. From the Home, Revenue and Agricultural Department,—(1) Report on the Amravati Tope, and excavations on its site in 1877, by R. Sewell, (2) Max Müller's Sacred Books of the East, Vols. IV, V, and VII.
7. From the Authors,—(1) An account of the Country traversed by the second column of the Tal-Chotiali Field Force in the spring of 1879, by Lieut. R. C. Temple, (2) Gulshan-i-Raz, the Mystic Rose Garden of Sa'd-ud-din Mahmud Shabistari, by E. H. Whinfield.
8. From Pandit Mohanlal Vishnulal Pandia,—Nos. 1—9 of Harischandra Chandrika and Mohan-chandrika.

9. From Surgeon-Major A. F. Bradshaw,—Hindu Matrimony, by Babu B. C. Bose.

10. From the Trustees of the British Museum,—Illustrations of Typical specimens of Lepidoptera Heterocera in the Collection of the British Museum, Part IV, by Lord Walsingham.

The following Gentlemen are candidates for ballot at the next meeting—

1. P. J. Carter, Esq., Forest Department, British Burmah, proposed by E. W. Oates, Esq., seconded by A. Pedler, Esq.

2. Capt. T. Morris Jenkins, Asst. Commissioner, British Burmah, proposed by E. W. Oates, Esq., seconded by A. Pedler, Esq.

3. Major W. F. Prideaux, Calcutta, proposed by A. Pedler, Esq., seconded by Capt. W. H. Johnstone, R. E.

4. R. C. Laughlin, Esq., proposed by J. C. Douglas, Esq., seconded by L. Schwendler, Esq.

5. Dr. G. Bomford, Garrison Surgeon, Fort William, proposed by Dr. A. F. Bradshaw, seconded by A. Pedler, Esq.

The SECRETARY reported that Mr. H. A. Cockerell and Mr. J. G. Apcar had intimated their desire to withdraw from the Society, and that Mr. W. T. Webb had requested that his letter of resignation might be cancelled.

The following papers were read—

1. *On the Identification of Certain Diamond Mines in India which were known to and worked by the ancients, especially those which were visited by Tavernier.*—By V. BALL, M. A., F. G. S.

(Abstract.)

In this paper the author gives the result of his investigations into the identity of the diamond mines visited and described by Tavernier which have long afforded matter for more or less vague speculation to numerous writers on the subject.

RAOLCONDA is believed to be identical with Rawdukonda in the district of Mudgul in the Nizam's Dominions: it is situated near the Tungabudra river in Lat. 15° 41' Long. 76° 50'.

GANI-COLOUR is shown to be identical with Kollur on the Kistna river, Lat. 16° 42' 30', Long. 80° 5'. Under this heading there is a note on the Great Mogul diamond and its identity with the Koh-i-nur. The prefix Gani is supposed to be simply the Persian *Kan-i-* (*i. e.* mine of). And the title *Koh-i-nur* may have been suggested by the meaningless name Kollur.

SQUMELPOUB appears to have been situated in Chutia Nagpur and probably was in Palamow. It is quite a distinct locality from Sam-

balpur on the Mahanadi with which it has been the custom, hitherto, to identify it. Its position was about Lat. 23° 35' Long. 84° 21'.

BEIRAGURH, mentioned in the Ain-i-Akbari as having diamond mines, is shown to be identical with Wairagurh in the Chanda district, Lat. 20° 26', Long. 80° 10', where the remains of the mines are still to be seen.

This paper will be published in full in the Journal, Part II.

2. *On a forgotten Record of the occurrence of the Lion in the District of Palamow and its connection with some other facts regarding the Geographical Distribution of Animals in India.*—By V. BALL, M. A., F. G. S.

I have taken the above title for this paper in consequence of the fact that in the accounts of the distribution of the lion in India by the principal writers on the subject, there is no notice of the following statement which occurs in a work by Surgeon Breton "on the Medico-Topography of the Ceded Provinces of the South-West Frontier" published in the year 1826.* The following is the passage: "A lion in 1814 was shot by the natives near the village of Koondra in Palamow and its skin was seen and recognized by Mr. W. M. Fleming, the then Magistrate of Ramgurb, to be that of a lion." Surgeon Breton adds, "Possibly this may have been a stray animal, for the lion is very little known in South Behar, although the name of *Sheerbubbur* (lion) is familiar to the more intelligent of the natives."

It may appear at first sight that such slight evidence as the above is not of much importance, but viewed in connection with other facts regarding the geographical distribution of animals in India, it is of no little interest.

Mr. W. T. Blanford in a paper published in the Journal for 1867 gives a *resumé* of the information of which he was then in possession as to the distribution of the lion in India during the present century. The most eastern locality he mentions is Sheorajpur, twenty-five miles to the west of Allahabad where a lion was killed in 1864, and he records another as having been killed in Rewah in 1866.

I am inclined to believe in an inherent probability that the lion formerly occurred in Palamow from the fact that I have observed peculiarities in the fauna of that sub-division which serve to separate it from the regions surrounding it, and that in fact it should be regarded as an eastern prolongation of the Gangetic province of Blanford. In a paper published in the Proceedings "On the Mammals of the Mahanadi basin" I stated that so far as I then knew, the Indian Gazelle (*G. Bennettii*) did

* Govt. Lith. Press, Calcutta, and Transactions of the Medical and Physical Society of Calcutta, Vol. II, P. A. S. B. 1877, p. 168.

not occur to the east of Sirguja ; but since that time I have found that it is not uncommon in Palamow, having been seen by me as far east as Latiabar, Long. 84° 35' E.

Again in a paper on the distribution of birds throughout the region extending from the Ganges to the Godavari,* I have pointed out that there were indications that Palamow, in consequence of the occurrence within its limits of certain species would in all probability prove to belong to a region or sub-province of geographical distribution distinct from that which includes the rest of Chutia Nagpur.

Although the lion mentioned by Surgeon Breton may have been a stray or solitary one, the fact that Palamow is up to the present day included in the range of the Gazelle, would seem to shew that it had not wandered beyond its legitimate province. This, taken with the fact that the Gazelle and some species of birds keep within these boundaries which are not limited on the south by more than an easily traversable range of hills, affords a case of limitation of distribution sufficiently remarkable to be worthy of permanent record.

3. *A find of coins struck by Gazni Sultans in Lahore.*—By C. J. RODGERS, Principal, College Amritsar.

Some time ago in wandering about the city of Amritsar, as I am pretty well known as an old coin collector, a young Sarráf asked me to look at some coins he had just received. There were two small bags full of them, so I asked permission to take them home and examine them, at my leisure. This was readily granted. On getting them home I examined them, and they proved to be coins of Masaud I of Gazni, Maudúd, Abd-ur Rashid, Farrukhzád and Ibrahim, struck in Lahore.

The coins of Masaud were of the horse and bull type with the name مسعود over the horse. But there were several varieties of this exceedingly rare coin. Several had the name just as I have written it. Some had مسعود محمد which is very strange, as the two brothers were deadly enemies to each other. Some had مسعود محمود which is not so strange, as Masaud was son of Mahmúd. Some had مسعود which is only a variety of the first. I did not notice one with محمد simply on it, although Thomas in the Chronicles of the Pathán kings says that Sir E. C. Bayley has one of these coins with *Muhammad* on it and one with Masaud.† From this I infer that Mr. Thomas knew of no others. Before this find I had three of Masaud's of this type, and the Rev. J. Doxie has one of Muhammad. Two of the coins of this find had a new name over the horse مسودود. There is no mint mark on these coins. But as they were found with a

* Stray Feathers, Vol. VIII.

† Thomas gives a figure of this coin of Masaud on p. 58.

lot which were all of one mint, and as the whole of the coins were of the same style as to finish and as to metal, I infer that the few without mint names were of the same mint as those which had mint names. Hence I have no hesitation in calling these coins Lahore ones. The Gazni coins are altogether of another type as to execution of inscription and animal-drawing and metal.

Of Maudúd there were, besides the one type already mentioned, three other distinct types. They all had the bull on one side, and over it was the usual inscription in Hindí *Srī Samanta Deva*. The obverses of the coins were covered with Arabic inscriptions round which were margins in Arabic giving originally the mint town and date. In these margins wherever the mint town comes, it is spelt لوهور or Lohor. The inscriptions were :—

(a)	(b)	(c)
ابو الفتح شهاب الدولة و قطب الملة مودود	عدل شهاب الدولة و قطب الملة ابو الفتح مودود	ابو الفتح الامير الامرا شهاب الدولة مودود

The third type has not been published. The dates in the margin are *four* and *five* (only the *unit* figures or words rather are on the coins). Hence as Maudúd reigned from A. H. 432 to 440, the dates are 434 and 435 A. H. Of this third type there were only two. Of type (b) there were 19. Of type (a) no less than 35, but some of them were very much the worse for their being 800 years old.

Of *Abd-ur Rashid* there were several types. All had the bull reverse. The obverse was covered with inscriptions in a circular area round which was a margin sometimes of dots, sometimes of words stating mint town and date.

(a).	(b) Same as (a)	(c).
عدل عدالدولة وزين الملة عبد الرشيد margin of elongated pear shaped dots.	only Arabic margins.	عدل عدالدولة وزين الملة ابو منصور عبد الرشيد Arabic margin.

A variety of (a) has instead of عدل the word فتح. A second variety of the same type has ع. A third type has a flower with a dot on each side of it. Of (a) were 5, of (b) 13, of (c) 8. Thomas marks (a) as "*unique, my cabinet.*" But his has not the word *adl* on it, only a dash to indicate its absence.

The coins of *Farrukhzád* were of one type only, and the varieties were those of execution rather than of inscriptions. They had a bull on the reverse as usual. The obverse was occupied by an inscription with dotted margin.

عدل
جمال الدولة
ابو شجاع
فرخ زاد

A variety has فتح instead of عدل

The coins of Ibrahim were of two types only. Bull reverse. Obverse inscriptions in areas and on margins.

(a)	عدل	(b)	عدل
(49 of this	نصير الدولة	(50 of this	السلطان
type.)	و ظهير الملة	type.)	المعظم
	ابراهيم		ابو المظفر
			ابراهيم
	لوهور		لوهور
	on margin		on margin

Besides these there were great quantities of coins of the ordinary bull and horseman type without any Arabic inscription on them. The find was interesting as showing that these five sovereigns had more or less a hold on Lahore and therefore on the Panjab. Old coins of the different types were perhaps known before. But this find has revealed some new types and has given duplicates of previously esteemed unique ones.

The coins were all of silver and copper. Some however seemed to have more silver in them than copper. Dr. Stülpnagel, W. Theobald, Esq., Dav. Ross, Esq. and myself have secured a few of the best. The rest, about five hundred, will of course find their way to the smelting pot.

4. *On the Coins of the Sikhs.*—By C. J. RODGERS, Principal, Normal College, Amritsar.

(Abstract).

In this paper the author reviews the history of the Sikhs from the time of Nának to the battle of Gujrat, illustrating the later portion of that history by the help of the coins struck by the later Sikh leaders. "It was during the temporary occupation of Lahore by the Sikhs, about 1757, that the first Sikh rupee is said to have been struck by Jassá Singh Kallál." But this appears to be doubtful. The first undoubted Sikh rupees were struck in 1764 in Lahore and were called *Gobind Sháhi*, not *Nának Sháhi*, as sometimes stated. The first Nának Sháhi rupees date from 1778. The first rupees issued by Ranjit Singh are of 1800

(i. e. 1857 Samvat). "But they do not contain his name. Ranjit Singh put his name on nothing, gave his name to nothing. The fort he built at Amritsar is called Gobind Garh, the garden he made there, Rám Bágh." After the accession of Ranjit Singh rupees were struck regularly every year at Amritsar and Lahore, and after the conquest of Multán, also at the latter place. For some years his rupees show on the obverse, what looks like a double branch. This is supposed to represent a peacock's tail. These coins are known as *Morá Sháhi* rupees amongst the bankers; and they are said to have been struck by Ranjit Singh, to gratify the desire of a favourite dancing-girl of his, who wished to have her name placed on his rupees. Another curious rupee of Ranjit Singh was struck at Lahore in 1836 (= Samvat 1893). The reverse has two figures on it, Nának and his Muhammadan fellow-wanderer Mardáná. It is the only one of the kind that Mr. Rodgers says he has seen. Another peculiarity is that all rupees struck after Samvat 1884 (A. D. 1827) and up to 1906 retain the date 1884 or 1885 on the reverse, while the real date is given on the obverse. This is explained by a superstitious notion of Ranjit Singh, that he would thereby prolong the number of the years of his life. The inscriptions on the Sikh coins are either in Persian or in Gurmukhí.

This paper will be published in the Journal, Part I.

5. *Notes on the Inhabitants of the Nicobars.*—By F. A. DE RÖPSTORFF, *can. philos. F. R. Danish S. Antiquaries, C. M. R. Dan. G. S. and of the Berlin S. for Anthropol., Ethnol. and Antiquaries, &c.*

In the Proceedings of the Asiatic Society for July 1876 will be found a report on the inland tribe of Great Nicobar* in which I called attention to this tribe, and quoted what was authentically known about them. I mentioned the visit paid to a remote, and for the time being, deserted village on the Galathea† river by the members of the Danish expedition, and I quoted the description *in extenso*. I then described a visit I paid to the Ganges harbour‡ where I saw a man and two boys belonging to the inland tribe, in whom I failed to see any trace of Negrito or Papuan origin, from which I concluded that the tribe living on the North end of the island is not of such origin as has been supposed. There were at the time sufficient facts to connect him with the Galathea village. His cooking-pot I saw: it was formed (like the one in the Galathea village) of a sheet of bark, and as it was standing on the fire-place with the remains of his last meal, there was no mistake about it. He also produced the same sort of spea,

* The largest and most southern of the Nicobar Islands.

† Running out into the south bay of the Island.

‡ Near the north-west point of Great Nicobar.

as that found south, and also the same bark-made cloth. His height was 5 ft. 8½ in., which showed clearly that no "ito" could be added to his name. From 1876 until the present day, I have always wished to make further enquiries into the question, because I found that the different tribes were described very differently by the Nancowry men who had seen them or had heard of them.

When the settlement at Nancowry was opened in 1870, Okpank (Capt. Johnson), a Nancowry man, went on a visit to Calcutta. On returning he stayed some time at Port Blair with Major Protheroe, and when he saw an Andamanese for the first time, he at once said to Major Protheroe in Malay, that the Andamanese was like a tribe that lived in the interior of Shambelong (Great Nicobar), and seemed afraid of him. Since that time parties of Andamanese have at different times been at Nancowry, but the people there *now* deny that they resemble at all the Great Nicobar inland tribe. Yet that Okpank who is a sharp observer, should have shown such a fright on seeing the Andamanese seems very peculiar, for it could not have been acting on his part, as he did not know that we had any knowledge of the Shom-Bengs of Great Nicobar, or that he had seen them. To me it seemed probable, that there was some resemblance which at first sight reminded him of them, but which on nearer acquaintance might not be so very striking.

Since then the theory of an *inland* tribe in the Andamans has been completely explored and exploded, for several expeditions have been made, and the unknown tribes, so called, are found to be a few migratory clusters of men with free access to the sea, and occupying the seacoast and creeks without making any attempt at cultivation. No boats of any description have been found, and in their camping places no sea shells of salt-water-food were seen, but this does not preclude, in my opinion, other encampments existing where such and other produce of the sea would be found.

On the 26th October last, I again started to Great Nicobar. The plan was to go to Pulo Milo, and to take one man and a little canoe on board to land in. On the morning of the 27th we, however, found ourselves set too easterly, so we proceeded straight to Galathea Bay. The weather was very boisterous and we could not effect a landing, and the morning of the 29th found us again at the N. E. end of Great Nicobar. It was now our intention to anchor off Pulo Condul, and I would from thence have made an attempt to get to their villages by the help of my friends at Condul, but a canoe that came off warned us, that there had been ten deaths among the little population of Condul (Lamongshe), and that all the inhabitants had fled.

The two men that had come off said that we should be able to meet Shom-Bengs not very far off, and they showed us a good anchorage off the village Laful (Trinent). This village lies about four or five miles south of the N. E. Point of Great Nicobar. The wind died away, and we had to anchor

some two miles off. We had brought a Nicobar man from Camorta, and after describing to him what we wanted to do, he was allowed to go ashore with the two who had come off, and who were engaged as our guides.

In the cool of the evening some of the ship's officers and I landed at the village. It consists of 7 or 8 houses, and lies to the north of a creek. Our Camorta guide met us on landing, helplessly drunk; he was boisterous and tried to contradict and counteract us in everything. We found the whole village in mourning, and outside the first house we entered we found the usual sacrifices to the spirits, consisting of cocoanut shells, pandanus bread, troughs and other things belonging to women, which were broken, cut up, and destroyed, which indicated that the sacrifice was for a woman, and so it was, for a woman had died while the men were out at our ship. There she lay still and peaceful, as if she were sleeping. Friends and relatives had assembled and brought gifts of cloth, which were stacked up beside her; they put silver bangles on her feet and arms. They were very quiet, but their grief did not however, prevent them from being curious as to what we wanted, what we had brought with us, and what we were going to take away. They were rather disappointed at my assuring them that our visit was solely intended to open out communications with the Shom-Bengs (or Pengs). They all assured me that they were in this neighbourhood, and the two men who came off in the morning promised to go up with us, and so also did a woman and her husband who knew them well.

While we were in the village the corpse was moved to a larger house and the crying over the dead commenced. Although they all were very much concerned in the mourning, I must say, that they were very hospitable. We were offered seats and young cocoanuts, and some men and women remained to entertain us. The whole place was however as if quite taken up with the dead, and I was heartily glad to get on board again.

A restless fever night made me rather doubtful whether I could undertake the expedition in the morning. Captain Simpson, of the "Constance," kindly offered to come with me, and, with some refreshments packed up, a dry suit, and a bag with presents, we started. At daybreak we landed at Laful. No one was to be seen, but after a while our Camorta man turned up, sober and very sorry (so he said) for his behaviour over night. I warned him that if he would make that good, he must get hold of our second guide (one I had kept on board during the night), and in a few minutes we were off. We entered the creek, and as there is a surf the canoe was sent round first. Just inside the surf we got in and, with three Nicobarese to paddle, started. No scenery can compare as far as I have seen the world, with the luxuriance, beauty and solemnity of the creeks in these islands. They are generally land-locked and the most absolute silence reigns. The light-green mangrove with its many roots in the salt and

brackish water, the Dhunny palm, pandanus, rotangs, and, now and then where higher land skirts the water, foliaceous trees, together with reed-like plants, creepers, and orchids, all pass in succession before the eyes, all graceful forms, which seemingly pour out of the grim muddy soil, so that it is like a fairy land to those who visit it for the first time. In this creek the formation was, however, past the mangrove stage, and only a few of these trees appeared every now and then. At one place a ficus had thrown a root right across a branch of the creek, and had formed almost like a wall. We shot past it, and after a journey of about a mile and a half we landed. An oar was stuck in the mud inside the enclosure made by the outrigger, and the canoe was left. We then proceeded across a large piece of alluvial soil covered with fine grass (not the Savanna Lalang of Camorta), with pandanus and cocoanut plantations. We passed through a village and our guides left their dhaos (heavy Burmese knives some 12 to 18 inches long) in one of the houses. After a while, we struck into the same stream which had carried our boat. It was now no longer fit for canoes, it was rather broad, and ran between boulders with turnings right and left. On the whole we could see by the sun that it kept about the direction west, a little southerly. Occasionally we scrambled out of the stream, and found our way near its side or over some flat short cut of its windings. On one of these we came across a rattan put in the ground like an arch about 5 feet 8 inches high. One of our guides pointed to it, and said it was some joke (*miloe*) of the Shom-Bengs.

Again a little further on, one of the guides pointed out to me a dhao stuck in a tree, and almost immediately after we came upon a cleared spot. The trees had been felled and the undergrowth cleared away, but it was again nearly covered with secondary growth. In it there were some plantain trees carefully planted out, the young ones hedged in, and 4 Shom-Beng huts. The three huts were evidently intended for habitation, and the fourth either for cooking purposes or for a storehouse; the latter was only $3\frac{1}{4}$ feet raised from the ground, and was covered with rotangleares. The three houses were 6 feet in length by 4 feet in breadth. They consisted of sticks, 2 or 3 inches thick, in the ground tied together with rattan. About 3 feet from the ground was a platform with overlaying cloven thin stems of some palm, the flat surface uppermost. The roof consisted of 5 or 6 pieces of bark laid across the ridgestick and resting on thick rotangs. These huts stood N. and S. and the ends were open. I might compare them to rough six-posted bedsteads made for a night's rest by travellers on a journey, they certainly could not contain more than a couple each. On the ground round the huts were the remains of their meals. The most notable were some navicellæ and other freshwater and landshells, and the worked out scales of the pandanus trees, which show that they have learnt the secret of making larome (*i. e.*, pan-

danus bread) from the Coast people. I would not suggest that this pandanus bread had been made by Coast-women on a visit because it is a very slow process. The layer of these shells and husks was so thin that it showed that this clearing was not old, for their meals had not got time to grow into a Kiökkenmiödding.

The rain then began pouring down violently and the guides were anxious to return. I showed them, however, what they might expect if we actually came across the people, and as they could not withstand the promise of possessing a couple of plated spoons, they decided that they would find them.

As the rain was heavy the guides left our dry clothes in one of the Shom-Beng houses, a sign, it seemed to me, that property is pretty safe with these people. We then started, and now our guides were very energetic. The road led us up the stream we had hitherto ascended, and it was a desperate scrambling over big, slippery stones, through waterpools, now and then along the sides of the streams. The natives with their naked feet felt none of the inconvenience we did. One guide disappeared ahead, and it was with great trouble we kept the others with our party.

The sun was pretty high when we came to a shady nook where we were to commence climbing the hills. I now resisted and said that the guides must go on, and that we would await their return as it seemed to me useless to go any further, if we were not sure of coming across the people. We only kept the Nancowry man with us. The stream made a turn at this place and formed a big pool. The west side of the stream was bordered by a precipitous cliff, and on our side a few flat rocks gave us a resting-place. The same abundance of vegetation as at the Andamans presented itself on all sides. Trees were growing immediately on the rock, between them was a dense undergrowth of rattans and other palms; up the trunks of the trees were ferns growing, and the tops were interwoven with creepers. Green leaves in every shade from the faded ones that the current carried away past us to the finest light-green were to be seen, but there were no flowers visible. The shade where we lay was complete and cool, and the steadily falling rain helped to keep us from feeling the sun. I noticed that not one little fish nor a shrimp made its appearance and the Nancowry man showed us the artificial stone settings of the Shom-Bengs all along, and said that the stream was well worked by them, and that whenever the rain was not too heavy they scoured it of everything eatable. As the rain became heavier we retreated under the lee of a big tree sitting on the rock under its roots, and were beginning after an hour's waiting to feel rather cool. Suddenly the scene changed. To our left was half hidden to us the spot where our guides had disappeared.

We heard a shout and found that the two guides were there and a Shom-Beng with them. It was the latter who had shouted. He had a spear in his hand and seemed very much afraid, but after a little talk he threw his spear down, and came at once up to me and seated himself quite close, nearly hugging me. One look at him sufficed to assure me that I had now come across a specimen of a curly-haired race, Papuan or Negrito. His hair was bushy and with rather a bend, and was very abundant. It covered the whole surface of his head and was not like the hair of an Andaman Negrito, of the Papuan of New Guinea or of the Negro found in tufts or patches. It had, however, the Papuan quality of being long, longer than the hair of the Andamanese ever is. This hair was, or appeared to be, brownish, interspersed with white, was very coarse and stiff, and gave an exaggerated appearance of size to his head. I beg to enclose a lock of his hair for the examination of the Society. His face was pleasant, especially when smiling, his forehead was high, his eyes were black, his nose well formed and arched, his upper lip was remarkably prominent from the base, his underlip small, his teeth were black but of natural size.* One tooth was loose, but he could not be prevailed on to part with it. His colour was copper-brown and a shade fairer than our Great Nicobar and Camorta guides. His complexion did not at all remind me of the deep shining black of the Andaman Negrito. His name was Koal. He had his private parts tied up, but in such a loose way, that it was evident that the Coast people are right when they assert that the male Shom-Bengs go quite naked in their own haunts.

I asked to be allowed to go to his place, but he begged of us not to do so, as his wife and three children would be frightened; he promised, however, that if we would return, he would in the evening follow us to a certain house of the Coast people with his wife and children. As I had got the main point settled, namely, that there is a curly-haired race in the island, we came to terms. He allowed me to cut off some of his hair with a curious grin. The spear he brought with him had a handle with an iron spike; he gave it me and on it I cut a notch for his height. His height was 5 ft. 3½ in. (English measure).

Half a bundle of tobacco made him very happy and I gave him some handkerchiefs for his wife. We parted on good terms and he said that he would towards evening come with his family and bring presents for me. He promised to bring me their spears, some of their bark-made cloth (*celtis*? bark) and some produce of his garden.

We then went back. The rain had swollen the stream, and where we had before gone dry shod, we had now to go in water, but the satisfaction of having succeeded in seeing a typical specimen of this curious people made

* The *Coast people* have their teeth very much enlarged, see the latter part of this paper.

the road easy. When we reached the deserted Shom-Beng village we were very glad to turn into their houses, Mr. Simpson in one and I in another. The rain was pouring down very heavily, but the house I was in was perfectly dry. From the sheltered position of the village and the direction of the houses, the rain very rarely would beat in heavily. The shelter we gratefully acknowledged, and we faithfully shared our breakfast with the guides, who stared at every mouthful we took. Our claret they scorned; they do not appreciate anything between water and arrack.

We reached the hut that was appointed as our meeting place, and having sent on our guides to bring clothes and food, we made ourselves comfortable in the house which was deserted at the time. At about 5 P. M. the Shom-Beng turned up. By this time the house was full of people. He looked quite a different man. In the morning he had a pleasant expression full of smiles, perhaps he was also a good deal excited. Now he looked fagged and tired, and he had also reason to be so. He brought two enormous bundles of plantains as well as three spears. When I in the morning asked him for something from his garden I meant some rootfruits, not plantains, but I forgot to say so. I wanted to see whether he cultivated like the Shom-Beng I met in 1876. The spears he brought were the same wooden spears that the Galathea expedition obtained in the deserted village, and the same as those I obtained in Ganges harbour in 1876, so that I had there a link that connected the three tribes. He said his wife was unwell and could not come, but he promised me that if I would return another time she would come down. After some pretty speeches on both sides and counter-presents on my side we parted. I beg to forward with this paper a specimen of Koal's (the Shom-Beng's) hair, and hair of two Andamanese lads from the neighbourhood of Port Blair, also one of the spears he brought me, which is the typical Shom-Beng spear without any attached spear-head. It will on examination be seen how very different the samples of hair forwarded are in structure and colour.

On talking with the Coast people about his hair I mentioned to them, that at the Ganges harbour I had met a different sort of man, tall, and with smooth hair, and they at once said: "Yes this is a bad Shom-Beng, there are others, but far away, that have hair like us and that look like us, he is a bad specimen."

As the result of my visit I conclude that there is an element of Papuan origin in the island, that it is only found among the people living inland (*i. e.*, cut off from the sea and communication with the outer world) and that this element is strongly mixed with another not curly-haired race. What the proportion is I cannot say, but the assertion I have so often read, but never seen confirmed by ocular evidence, about a curly-haired race in the interior of Great Nicobar is true. Whether the

Andaman Negrito and this tribe are related is very doubtful. The intermixture with another element may have been so strong that only a trace remains of the origin. My opinion is that it is a Papuan and not a Negrito tribe, but I hope by further investigations to settle this matter.

The people of the Nicobars have all black teeth, owing to the chavica leaf which is chewed together with areca nut and quick shell-lime. The teeth of the natives are however, in the islands of Camorta, Nancowry, Trinkut, Katchall, Great and Little Nicobar, often of an enormous size. A very similar case is reported by Mr. v. Mikludo-Maclay who in the Admiralty Islands found a big-toothed people. His paper is interesting, and it is carefully illustrated.*

Mr. v. Mikludo-Maclay shows in his illustrations enlarged teeth, mostly of the upper jaw, but he says expressly, "Häufiger waren es die Schneidezähne des Oberkiefers, die vergrössert waren, aber auch nicht selten zeigten die des Unterkiefers dieselbe Eigenthümlichkeit.

With the Nicobarese, I find the teeth of the lower jaw more commonly enlarged. Mr. v. Mikludo-Maclay states that these enormous teeth serve as "chewing plates" (*kauplatten*) and in every word of his description it suits the Nicobarese except in the one that they are a mixed-Malay tribe and the Admiralty-Islanders Melanesians. The teeth of the Nicobarese are white till they begin to eat chavica at the age of six or seven or even before. The enormous development of the teeth begins to show in middle age. They chew quick shell-lime with their areca and chavica, and this produces the phenomenon. Mr. v. Mikludo-Maclay, could not make a collection of their teeth as they would not submit to have them pulled out. Owing to the lucky circumstance that the Nicobarese keep the big teeth they lose, I have been able to make a collection, part of which I beg to present to the Society. Owing to the enormous growth of their teeth the lips in many persons never meet for years till the last big tooth is lost.

I beg to draw attention to the curious fact that the Nancowry people have wild pigs domesticated. I often wondered why the little pigs born in the villages were striped and marked like the litter of wild sows. This is the explanation. All male pigs that are born in the villages are without fail castrated and the sows are well fed. At night fall all the pigs assemble under the house they belong to and are fed by the woman of the house, but during the day they roam in the jungle. It is during these rambles that they meet the wild boars who are fathers to all the litters in the villages. Although instances have happened that a few pigs have been introduced, this is so rare, that it may be said that it is the wild pig of the Nicobars that lives domesticated.

* Vide Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte; Sitzung von 16 Dec. 1876.

Mr. BALL said :—“ I have heard the paper by Mr. de Roepstorff with very great interest as I have always held* in opposition to his formerly expressed views that there was sufficient testimony in favour of the opinion that the interior of the Great Nicobar was inhabited by a race of people totally distinct from those living on the Coast, and who were most probably closely allied to the Andamanese.

“ Col. Yule in his ‘ Marco Polo’ and Mr. Distant in a late number of the Anthropological Institute’s Journal both state that they had been informed by Col. Mann, late Superintendent of the Nicobar Islands that some Nicobarese on a visit to Port Blair had pointed spontaneously to the Andamanese as being like the inland race of the Great Nicobar. Mr. de Roepstorff says that the so-called Capt. Johnson, a Nicobarese, also saw the same resemblance when he was at Port Blair, though other Nicobarese at Nancowry denied the resemblance.

“ The man whom Mr. de Roepstorff describes in this paper under the title Shom-Beng is clearly not closely allied to the Andamanese. His colour and the character of the hair now exhibited prove that ; but whether he can really be regarded as a typical example of the inland race is of course open to question. No safe generalisation can be made from the characters of a single individual, the more especially of one who seems to have been on terms of intimacy with the coast people. A number of these people who live shut out from intercourse with the coast people must be examined before any conclusive result can be obtained.”

At the close of the meeting the Rev. Mr. Dall read some extracts from a letter describing portions of the work done by the United States Coast Survey officers during the past season.

The following communication has been received :—Notes on Serohi Division, Western Rajputana (S.) Railway, by J. W. Parry, C. E.

LIBRARY.

The following additions have been made to the Library since the meeting held in December last.

TRANSACTIONS, PROCEEDINGS AND JOURNALS,

presented by the respective Societies and Editors.

Berlin. K. preussische Akademie der Wissenschaften,—Monatsbericht, August 1880.

* Vide *Jungle life in India*, p. 379.

- Bombay. The Indian Antiquary,—Vol. X, Pt. 114, January 1881.
- Bordeaux. Société de Géographie Commerciale,—Bulletin, Nos. 22-23.
- Calcutta. Geological Survey of India,—Memoirs, Vol. II, Pts. I-II.
- Geneva. Museo Civico di Storia Naturali,—Annali, Vol. XV.
- Königsberg. Physikalisch-ökonomische Gesellschaft,—Schriften, 1876-79, and Part I of 1880.
- Leipzig. Deutsche morgenländische Gesellschaft,—Zeitschrift, Vol. XXXIV, Parts 2 and 3, 1880.
- Lisbon. Sociedad de Geographia, Boletin,—Second series, No. 1.
- London. Royal Astronomical Society, Monthly Notices, Vol. XL, No. 9.
- . Royal Microscopical Society,—Journal, Vol. III, No. 5, October 1880.
- . Royal Geographical Society,—Proceedings, Vol. II, No. 11, November 1880.
- . The Linnean Society, Journal, Botany,—Vol. XVII, Nos 103-105, Vol. XVIII, Nos. 106-107.
- . ————. Zoology,—Vol. XIV, No. 80, Vol. XV, Nos. 81, 82, and 83.
- . ————. Transactions, Botany,—Vol. I, Pts. VII, VIII, and IX.
- . ————. Zoology, Vol. II, Pt. I.
- . ————. List of Fellows,—November 1st 1879.
- . The Royal Society,—Proceedings, Vol. XXXI, No. 206.
- . Anthropological Institute of Great Britain and Ireland,—Journal, Vol. X, No. 1, August 1880.
- . Statistical Society,—Journal, Vol. XLIII, Part 3.
- . The Academy,—Nos. 444 to 449.
- . The Athenæum, Nos. 2768 to 2772.
- . Nature,—Vol. XXII, Nos. 568-569, 572, and Vol. XXIII, Nos. 576-580, and Index to Vol. XXII.
- Moscow. Société Impériale des Naturalistes,—Bulletin, Vol. LV, No. 1, 1880.
- Paris. Journal Asiatique,—Vol. XVI, No. 2, August to September 1880.
- . La Société de Géographie,—Bulletin, Vol. XX, August 1880.
- Pisa. Società Toscana di Scienze Naturali,—Atti, Vol. IV, 2.
- Roma. Società degli Spettroscopisti Italiani,—Memorie, Dispensa 6, 7 and 8, June to August 1880.
- Washington. Smithsonian Institution,—Miscellaneous Collections, Vols. XVI, and XVII.
- . ————. Contributions to Knowledge,—Vol. XXII,
- . ————. Annual Report for 1878.

- Wien. K. K. Central-Anstalt für Meteorologie und Erdmagnetismus,—
Jahrbücher, Vol. XV, Part I; Vol. XVI, Pt. 1.
- Yokohama. The Asiatic Society of Japan,—Transactions, Vol. VIII,
Pt. 3.

BOOKS,

presented by the Authors.

- TEMPLE, LIEUT. R. C. An Account of the Country traversed by the Second
Column of the Tal Chotiali Field Force in the spring of 1879. With a
map. 8vo. London, 1880.
- WHINFIELD, E. H. Gulshan-i-Raz: the Mystic Rose Garden of Sa'd-
ud din Mahmud Shabistari. The Persian Text, with an English Trans-
lation and Notes, chiefly from the Commentary of Muhammad Bin Yahya
Lahiji. 4to. London, 1880.

MISCELLANEOUS PRESENTATIONS.

- Annual Report on Inland Emigration for the year 1879-80. Fcp., Cal-
cutta, 1880.
- Report on the Administration of the Salt Department for the year 1879-80.
Fcp., Calcutta, 1880.
- Annual Report on Emigration from the Port of Calcutta to British and
Foreign Colonies for 1879-80. Fcp., Calcutta, 1880.
- General Report of Public Instruction in Bengal. Fcp. Calcutta, 1880.
- Indian Forester,—Vol. VI, No. 11, October 1880.

BENGAL GOVT.

- BOSE, P. C. Hindu Matrimony, an Essay written under the explicit
orders of Capt. the Lord William Beresford, V. C., Aide-de Camp to
H. E. the Viceroy. 8vo., Calcutta, 1880.

SURGEON-MAJOR A. F. BRADSHAW.

- WALSINGHAM, LORD. Illustrations of Typical Specimens of Lepidoptera
Heterocera in the collection of the British Museum. Part IV. North-
American *Tortricidæ*. 4to., London, 1879.

BRITISH MUSEUM.

- SEWELL, R. Report on the Amarávati Tope, and excavations on its site
in 1877. 4to., London, 1880.
- MÜLLER, F. MAX. Sacred Books of the East,—Vols. IV, V and VII.
- DARMESTER, J. The Vendidad, Part I.
- WEST, E. W. Pahlavi Texts.
- JOLLY, J. The Institutes of Vishnu.

HOME, REV. AND AGRIL. DEPT.

SEWELL, R. Report on the Amarávati Tope, and excavations on its site in 1877. 4to., London, 1880.

MADRAS GOVT.

DUTT, UDAY CHAND. Nidána, a Sanskrit System of Pathology. Translated into Bengali. 8vo., Calcutta, 1880.

DR. R. L. MITRA.

Report on the Administration of the Government of the North-West Provinces and Oudh for the year ending 31st March 1880. 8vo., Allahabad, 1880.

GOVT., N. W. PROVINCES.

Report on the Sanitary Administration of the Panjab for the year 1879. 4to., Lahore, 1880.

PANJAB GOVT.

CORSSEN, W. Ueber die Sprache der Etrusker, 2 Vols. 8vo., Leipzig, 1874-75.

HON. WHITLEY STOKES.

ALLEN, J. A. History of North-American Pinnipeds; a monograph of the Walruses, Sea-Lions, Sea-Bears and Seals of North America. 8vo., Washington, 1880.

DEPT. OF THE INTERIOR, U. S. AMERICA.

CHAMBERS, F. Brief sketch of the Meteorology of the Bombay Presidency in 1879. 8vo., Bombay, 1880.

CHAMBERS, F. Abnormal Variations of Barometric Pressure in the Tropics, and their relation to Sunspots, Rainfall and Famine. Fcp., Bombay, 1880.

METEOR. REPORTER FOR WESTERN INDIA.

PERIODICALS PURCHASED.

Berlin. Journal für reine und angewandte Mathematik,—Vol. XC, No. 2.

Calcutta. Indian Medical Gazette,—Vol. XV, No. 12, Dec. 1880.

Geneva. Archives des Sciences Physiques et Naturelles,—Vol. IV, No. 11, November 1880.

Göttingen. Gelehrte Anzeigen,—Nos. 47-51.

———. Nachrichten,—Nos. 17-19.

Leipzig. Annalen der Physik und Chemie,—Vol. XI, No. 3.

———. ———. Beiblätter,—Vol. IV, Nos. 10 and 11.

London. Society of Arts,—Journal, Vol. XXVIII, Nos. 1461-64.

———. Journal of Botany,—Vol. IX, No. 215.

———. Chemical News,—Vol. XLII, Nos. 1094-1098.

———. Entomologist,—Vol. XIII, No. 210.

———. Entomologist's Monthly Magazine,—Vol. XVII, No. 198.

- London. Messenger of Mathematics,—Vol. X, No. 6.
 ———. Annals and Magazine of Natural History,—Vol. VI, No. 35.
 ———. Nineteenth Century,—Vol. VIII, No. 45.
 ———. Numismatic Chronicle,—Vol. XIX, No. 74.
 ———. London, Edinburgh and Dublin Philosophical Magazine,—Vol. X, No. 63.
 ———. Publishers' Circular, Vol. XLIII, Nos. 1036 and 1037.
 ———. The Journal of Science,—Vol. II, No. 83.
 New Haven. American Journal of Science, Vol. XX, No. 118.
 New York. Academy of Sciences, Vol. I, Nos. 1-13.
 ———. Lyceum of Natural History,—Vol. XI, No. 13 (Index and Contents).
 Paris. Annales de Chimie et de Physique, Vol. XXI, November 1880.
 ———. Comptes Rendus,—Vol. XCI, Nos. 18-22.
 ———. Revue Critique, Vol. X, Nos. 45-49.
 Paris. Revue de Linguistique,—Vol. XIII, No. 4.
 ———. Revue des deux Mondes,—Vol. XLII, Nos. 2 and 3.
 ———. Journal des Savants,—November, 1880.
 ———. Revue Scientifique,—Vol. XIX, Nos. 20-24.

BOOKS PURCHASED,

- ALBERTIS, L. M. D'. New Guinea: what I did and what I saw. 2 Vols. 8vo., London, 1880.
 GÜNTHER, DR. A. An Introduction to the Study of Fishes. 8vo., Edinburgh, 1880.
 LEGGE, CAPT. W. V. A History of the Birds of Ceylon, Part III. 4to., London, 1880.
 FISCHER, RICHARD. Hemacandra's Grammatik der Prakritsprachen (Siddhahemacandram Adhyāya VIII) mit kritischen und erläuternden Anmerkungen, Pt. I. 8vo., Halle, 1877.
 SWINTON, A. H. Insect Variety: its Propagation and Distribution. 8vo., London.
 WALLACE, A. R. Island Life: or the Phenomena and Causes of Insular Faunas and Floras, including a Revision and attempted Solution of the Problem of Geological Climates. 8vo., London, 1880.
 WARTZ, AD. The Atomic Theory. Translated by E. Cleminshaw. 8m. 8vo., London, 1880.

The publication of the Appendix containing the Annual Accounts is deferred to a subsequent Number.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.

FOR FEBRUARY, 1881.

The publication of the Appendix containing the Annual Accounts is deferred to a subsequent Number.

fall upon myself, it has been discovered at the last moment that some informality has occurred in the preparation of the lists, making it advisable to postpone the election till the April meeting. Meanwhile we must call Rule 47 into operation which provides—that if any such failure should occur, the present Council should continue to hold office until their successors shall be duly appointed.”

The PRESIDENT then called upon the Secretary to read the Annual Report.

ANNUAL REPORT FOR 1880.

The Council, in presenting their usual report, have to congratulate the Society on the satisfactory condition of its affairs, especially as regards the number of members. At the end of December 1880, there was a larger number of *paying* members on its books than there has ever been, with the exception of the year 1874, when there were 312 against 311 of last year.

The total number of elections during the past year has been 46, two of which were cancelled. By withdrawals the Society has lost 10 ordinary members, by death 2, and six by removal under Rules 38 and 40; resulting in a net increase of 26. The total number of members at the close

of the year was thus 355. Of these, 30 are absent from India and pay no subscriptions, 112 are Resident, 184 Non-Resident, 15 Foreign, and 14 Life Members.

The following table shows the fluctuations in the number of Ordinary Members for the past 6 years.

YEAR.	PAYING.				NON-PAYING.		TOTAL.
	Total.	Resident.	Non-resident.	Foreign.	Life.	Absent.	
1875	292	113	179	..	3	50	345
1876	294	119	175	..	5	48	347
1877	290	113	165	14	9	46	345
1878	285	117	153	15	13	29	327
1879	281	111	154	16	12	36	329
1880	311	112	184	15	14	30	355

During the year two members compounded for their future subscriptions, *viz*, Dr. R. A. Barker and Pandit Mohanlal Vishnual Pandia, thus raising the number of Life Members to 14.

The following are the names of the members who died during the year:—Honorary Member, Sir J. W. Colville; Corresponding Member, Rev. M. A. Sherring; Ordinary Members, H. L. Dennys and Thakur Giri Prasad Singh. Of these deceased members whose loss the Society has to regret, Sir J. W. Colville had in former times taken a very active part in the management of the Society's affairs, for he was President for 10 years from 1848 to 1858, besides being on the Council for several years previously. Mr. M. A. Sherring had contributed a paper to the Society in 1870 on the Coins of the Sharqi Kings of Jaunpur, and was well known as the author of the "Sacred City of the Hindus," "Hindu Tribes and Castes," &c.

Indian Museum.

The only presentation made to the Society, and transferred to the Indian Museum, during the year, was the skin and skull of a specimen of *Lagomys rufescens*, from the Safed Koh Range, forwarded to the Society by Dr. J. E. T. Aitchison.

Mr. J. Crawford tendered his resignation as Trustee of the Indian Museum on behalf of the Society in April, and Mr. A. Pedler was appointed in his place.

Dr. A. F. R. Hoernle and Messrs. Tawney and Beverley have acted as Trustees throughout the year, and Dr. T. R. Lewis up to the time of his resignation as member of the Council, in July.

Finance.

The accounts, which will be found in the Appendix, are issued for the first time in a new form. While less voluminous they will be found more complete, as they include the value of the Stock, and show in Statement No. 4 the outstandings, how these have originated, and whether due vigilance has been exercised in getting them in.

It will be seen that the Government grants are not only distinctly accounted for, as required by Government, but they form a portion of a general account. As the Society is strictly liable for these funds, no account of the Society's affairs, proper, could be complete without the incorporation of its liabilities on account of these grants; and if the Society had mismanaged these grants, the fact, that the accounts of them were kept absolutely distinct from those of the Society, would not in any way absolve the Society from its responsibility to Government.

The previous system of keeping an absolutely separate account of each grant and one of the Society's affairs was therefore unnecessary and cumbersome; Statements 4, 7, and 8 are general and state the Society's affairs completely.

The establishment employed, an Accountant and a Cashier, has been reduced to one man only, whereby a saving of about Rs. 30 a month has been effected. The large Cash balance formerly kept has been reduced by the surplus being invested; this has increased the Society's income, at present, by about 450 Rupees a year. The rules prescribe that the investments be kept in two separate funds termed a permanent and a temporary fund. Admission and commutation fees were kept in a separate bank account, and the rules prescribe they be invested as soon as possible after receipt thereof. Trust funds were also kept in separate bank accounts, and the servants' pension fund separately invested.

This complicated way of dealing with these matters is quite unnecessary with complete accounts, and it has the serious objection of introducing complications which hinder clear statements and proper checking of the accounts. Nor does this complication afford any additional security or other advantage. All that is necessary is to keep the Cash balance as low and the investments as high as possible, raise the amount prescribed as a permanent reserve fund as deemed desirable, and if it be desired that commutation and admission fees be added to the permanent reserve, the Council may annually increase the permanent reserve by at least the amount received during the year under these heads. The complete adoption of these suggestions would require some modification of rules 67, 68, 69 and 70.

(For the annual accounts, see Appendix.)

The following is the estimate for income and expenditure for the year 1881.

RECEIPTS.				
Subscriptions	...	...	...	Rs. 7,500
Sale of Publications	...	...	...	1,500
Admission Fees	...	...	...	1,000
Commutations	...	...	...	300
Interest	...	...	...	6,000
				Rs. 16,300

EXPENDITURE.				
Salaries	...	...	...	Rs. 4,250
Printing	...	...	...	3,850
Plates	...	...	...	2,460
Books	...	...	...	1,700
Binding	...	...	...	500
Building	...	...	...	300
Pensions	...	...	...	186
Taxes	...	...	...	780
Freight	...	...	...	50
Meeting charges	...	...	...	100
Periodicals purchased locally	...	...	...	60
Lighting	...	...	...	80
Stationery	...	...	...	300
Contingencies	...	...	...	400
Postage	...	...	...	500
Furniture	...	...	...	50
Commission	...	...	...	250
				Rs. 15,816

London Agency.

Messrs. Trübner and Co.'s account, rendered up to the end of 1879, showed a balance due from the Society of £72-8-3½. The sale of the Society's publications amounted to £62-4-0, and of the Bibliotheca Indica to £40-10-0.

During the year 1880, twenty invoices were received from Messrs. Trübner of books purchased and of publications of different Scientific Societies sent in exchange. The value of the books purchased amounted to £107-12-8.

The number of copies of parts of the *Bibliotheca Indica*, *Journal* and *Proceedings* sent to England for sale amounted to 1803. Of the *Bibliotheca Indica* 687 were despatched, of the *Journal* 832, and of the *Proceedings* 284.

In consequence of the reduction in the postal rates, the Council have decided in future to send all publications, intended for Societies and Members in Europe, by post instead of through Messrs. Trübner and Co.

Library.

The additions to the Library numbered 1619 volumes or parts of volumes ; 784 of which are presentations and 835 purchases.

The Council have much pleasure in announcing that the manuscript Catalogue of the books in the Library is now ready, and that arrangements are being made for printing it. In last year's report it was stated that the Assistant Secretary had done about one fourth of the work of revision. As the Council found that, owing to the pressure of current work, the Assistant Secretary could give but little of his time to the Catalogue, arrangements were made with Mr. Dreyer of the Indian Museum to complete it for Rs. 600.

Copies will be supplied gratis to members and to the Societies with whom the Society exchanges publications.

The Library itself has been put into better order, and four new book cases have been purchased for Rs. 1000.

The state of the Oriental Department of the Library has been investigated by a special Committee appointed for the purpose, consisting of C. H. Tawney, Esq.; Dr. R. L. Mitra, Major H. S. Jarrett, Babu P. C. Ghosha, the President and the Secretaries.

A Pandit and a Munshi have been engaged temporarily on Rs. 35 a month each, to catalogue and arrange the books and MSS., so as to make this Department of the Library more accessible to members than it has hitherto been.

Publications.

Four numbers of Part I of the *Journal* have been published during the year, consisting of 218 pages, with 22 plates and two maps ; also the 4th number of this part for 1879, consisting of 43 pages, with 12 plates.

An extra number of this part of the *Journal* has also been published, being a *Turki Vocabulary* by the late Mr. R. B. Shaw with an appendix by Dr. J. Scully giving a list of *Turki names of Birds and Plants*. This number consists of 226 pages.

Three numbers of the second part of the *Journal* have been published comprising 180 pages of letter press and 11 plates ; and the 4th number completing the Volume, is to be issued in a few days. No number 4 of this part for 1879 was published.

Of the Proceedings, 10 numbers have been issued, amounting to 211 pages with 10 plates.

The stock of the Society's publications and of the works belonging to the Bibliotheca Indica Series has been taken. This has been a very troublesome and heavy work as it has not been attempted for years, and the parts of the different books had to be sorted and arranged before the number of copies of each could be ascertained. The stock in the Society's possession has been shown to be much greater than anticipated, and several copies of old works, which were thought to be completely out of stock, have been brought to light. A new list of books for sale will shortly be printed. The stock amounts to about 2,05,700 separate numbers or fasciculi, representing about 162 different works or volumes of the Journal, Proceedings, &c.

Building.

The amount spent on repairs during the year was Rs. 343-4-0. Four beams had to be changed at a cost of Rs. 112, and Rs. 55 were spent by the Society in substituting 4 iron pillars for the stone ones formerly supporting the staircase.

Coin Cabinet.

There has been a very large number of additions during the year under review; altogether 247. Only four among these, however, were purchased; the remainder, 243 were presentations.

The four coins which were purchased are gold mohurs, one of Jalal-ud-din Feroz Sháh bin Tughlaq. They were obtained from the Magistrate of Budaon under the Treasure Trove Act.

Among the presentations there are four silver (one of Ala-ud-din Muhammad Sháh, the others illegible) and 29 copper coins from Lieut. R. C. Temple, B. S. C., found at a village called Holawali. Also ten gold Viraraya Fanams, part of a Treasure Trove discovered in the Chingleput District, and 200 small lead coins, found in the village of Narsaraopet, from the Madras Government.

Secretary's Office.

Dr. A. F. R. Hoernle, and Mr. J. Wood-Mason have held the posts of Philological and Natural History Secretaries, respectively, throughout the year.

Mr. J. Crawford resigned the General Secretaryship in April, and Mr. A. Pedler was appointed in his place.

Mr. Beverley resigned the Treasurership in April, and was succeeded by Mr. J. C. Douglas.

Mr. W. A. Bion has continued to hold the post of Assistant Secretary, and has given much satisfaction by the diligent and zealous discharge of

his duties. Mr. E. S. Andrews has held the post of Assistant Librarian and has also given satisfaction.

During the year the establishment has been reduced by two men. The services of Babus Kedarnath Bysack, Cashier, and Jogendranath Mitra, Store-keeper, were dispensed with ; the former appointment being given to Babu Ram Jivana Mukerjea, the Assistant Cashier, and the posts of Assistant Cashier and Store-keeper were abolished. After the dismissal of the old Cashier, Babu Ram Jivana Mukerjea, his successor, worked for some months under the direct supervision of Mr. Douglas, the Treasurer. During this time the office was virtually without a Cashier, most of the Cashier's work being done by the Assistant Secretary. Notwithstanding this additional work and the reduction in the establishment, the Assistant Secretary and his assistants have done much in putting the Library, the Records, &c. of the Society into better order.

To put the stock and the accounts into proper order, two temporary hands have been employed, who have now finished taking stock of and arranging the Society's and the Bibliotheca Indica publications. A Babu has also been engaged temporarily in indexing the old records of the Society so as to facilitate reference to them.

Bibliotheca Indica.

In the two Series together twenty-three fasciculi were published during the year ; eight in the Persian and fifteen in the Sanskrit. They belong to eleven different works, of which two in the Sanskrit Series, have been completed and three, two in the Sanskrit, and one in the Persian Series, have been commenced. The former are the *Bhamati*, and the *Gobhiliya Sūtra* ; the latter are the *Kathá Sarit Ságara*, the *Prákṛita Lakshana*, and the *Tarikh ul Khulfa*.

Among these publications, there are four English translations ; the remaining seven are text editions. The former are the translations of the *Tabaqát-i-Násiri*," and of the *Tarikh-ul-Khulfa*, both in the Persian Series ; and of the *Kathá Sarit Ságara* and the *Prithi Ráj Rásau*, both in the Sanskrit Series. Of the text editions, one belongs to the Persian and six belong to the Sanskrit Series.

A. Persian Series.

1. Of the *ISÁBAH* or Biographical Dictionary of persons that knew Muhammad, by Ibn Hajar, one fasciculus has been issued by Moulvie Abdul Hai, Head Professor of the Calcutta Madrassah, after an interruption of three years.

2. Major H. G. Raverty has brought out two fasciculi of his annotated English translation of the *TABAQÁT-I-NÁŠIRI*. There is yet one more fasciculus remaining, which will complete this valuable work.

3. Major H. S. Jarrett has published five fasciculi of his annotated English translation of the *TARÍKH-UL-KHULFA* or the History of the Caliphs by Jaláluddín As Suyúti.

B. Sanskrit Series.

4. Paṇḍit Bála Śástrí of the Benares College has issued the eighth fasciculus of the *BHAMATI*, which is a gloss on Śankara Achárya's commentary on the *Brahma Sútras* by Váchaspati Miśra. This concludes the work.

5. Paṇḍit Chandra Kánta Tarkálankára has published the twelfth fasciculus of the *GOBHILÍYA GRÍHYA SÚTRA* accompanied by a commentary compiled by himself. This work also is now completed.

6. Dr. Rájendralála Mitra has brought out three fasciculi of the *VAYU PURÁNA*. This is a sort of Cyclopædia of Sanskrit Literature, and is the second of that class of works for the publication of which the Society is indebted to the learned Editor. The other is the *Agni Purána*, the most ancient and most authentic of that kind of Sanskrit books, the edition of which was completed last year.

7. The text of the *MÍMÁNSÁ DARŚANA* which is edited by Paṇḍit Mohesachandra Nyáyaratna, the Principal of the Sanskrit College, has been advanced by one fasciculus. This work is a critical commentary on the ritual of the Veda accompanied by the commentary of Śavara Svámin.

8. Of the *PRÁKRITA LAKSHANA* the first fasciculus has been issued by Dr. A. F. Rudolf Hoernle. It contains the text of a Grammar of the ancient *Prákrit* by Chaṇḍa, together with a critical Introduction and Analysis. Another fasciculus, containing an annotated English translation, will complete the work.

9. By the same editor the first fasciculus has been published of his annotated English translation of the *PRITHI RÁJA RÁSAU*, the famous epic of Chand Bardái in old Hindi.

10. Among the works, the forthcoming publication of which was announced in the Annual Report of last year, is the English translation with notes of the *KATHÁ SARIT SÁGARA*, or the Ocean of the Streams of Story, by Mr. C. H. Tawney, M. A., Principal of the Presidency College. The first volume consisting of six fasciculi has now been published. A second volume completing the work, will probably appear in the course of the current year. This work is the celebrated repository of Indian legends which was composed from older sources by Somadeva of Kashmir towards the close of the eleventh century. The stories are illustrated by notes which refer to similar legends current in other collections of folklore.

11. Another of the new publications is the *NIBUKTA*, the well known glossarial explanation of obscure Vedic terms, of which Paṇḍit Satyavrata Sāmaṣramī has issued the first fasciculus, accompanying the text with extracts from various commentaries.

Besides the above named eleven works, there are in course of preparation the following new ones :

1. The *VISHṆU SMṚITI*, by Professor Jolly of Würzburg, containing the text and extracts from various commentaries.

2. The *ĀPASTAMBA ŚRAUTA SŪTRA*, by Professor R. Garbe of Königsberg, containing the text accompanied by the commentary of Rudradatta. This is a very rare and important work connected with the Black Yajur Veda. The edition will be based on a collation of two or three complete and several fragmentary manuscripts.

3. An English translation, with notes, of the *CHARAKA*, the oldest Hindu work on medicine, by Dr. Mohendralála Sarkár.

4. An English translation, with notes, of the *LALITA VISTÁRA*, by Dr. Rájendralála Mitra, to whom the Society is already indebted for a complete edition of the text of that most ancient and important work on the earlier portion of the life of Buddha.

5. The *YOGA SŪTRA* of Patanjali by Dr. Rájendralála Mitra, with the commentary of Bhoja Rájá, and an English translation of both the text and commentary ; also with an English commentary compiled by the Editor himself, including short extracts from the commentaries of Vyása, Vijñána Bhikshu and Váchaspati Miśra. This work will complete the Society's series of the six Darśanas. The texts of four have been already published ; the *Mímámsá* is in a forward state, and the *Yoga* will complete the series.

6. The *BRIHADDEVATÁ*, by Dr. Rájendralála Mitra. This is a very interesting metrical work of Saunaka on the deities invoked in the hymns of the Rig Veda. The edition will be founded on five MSS.

On the other hand, the *MAITREYANI SAMHITÁ*, the forthcoming publication of which, by Dr. L. v. Schroeder, was announced in the annual report of last year has, with the permission of the Society, been withdrawn from the list of the *Bibliotheca Indica* by the editor, who intends to publish it in Germany.

Also the *MAGHÁZÍ EL WÁQIDÍ*, the edition of which was begun by Von Kremer many years ago and was to have been completed by Mr. C. J. Lyall, in conjunction with Dr. Wright of Cambridge (see Proceedings, May 1880, p. 88), has been withdrawn from the *Bibliotheca Indica* in favour of a complete edition of the work which is to be brought out in Germany and will be founded, among others, on two complete and very ancient MSS. in the British Museum.

The following is a detailed list of the publications issued during 1880 :

Persián Series.

1. ISÁBAH, edited by Moulvie Abdul Hai, of the Calcutta Madrassah, No. 242, Fasc. XVIII (old series).
2. TABAQÁT-I-NÁŠIRÍ, by Abú 'Umr-i-'Uḡmán, translated by Major H. G. Raverty, Nos. 392, 393, Fasc. XI and XII.
3. TARÍKH-UL-KHULFA, or, History of the Caliphs, translated by Major H. S. Jarrett, Nos. 440, 441, 443, 446, 451, Fasc. I to V.

Sanskrit Series.

4. BHAMATI, a Gloss on Śankara Achárya's Commentary on the Brahma Sūtras by Váchaspati Miśra, edited by Paṇḍit Bála Śástrí, No. 433, Fasc. VIII.
5. GOBHILÍYA GR̥HYA SÚTRA, with a Commentary by the 'editor, edited by Chandra Kánta Tarkálankára, No. 448, Fasc. XII.
6. VAYU PURÁṆA, a system of Hindu Mythology and tradition, edited by Dr. Rájendralála Mitra, C. I. E., Nos. 434, 437, 445 ; Fasc. IV, V and VI.
7. MÍMÁMSÁ DARŚANA, with the Commentary of Śavara Svámin, edited by Paṇḍit Moheṣa Chandra Nyayaratna, No. 435, Fasc. XV.
8. PRÁKRITA LAKSHAṆA, or Chaṇḍa's Grammar of the Ancient Prákrit, edited by Dr. A. F. Rudolf Hoernle, No. 447, Fasc. I.
9. PRITHIBÁJ RÁSAU, of Chand Bardái, translated from the old Hindi, by Dr. A. F. Rudolf Hoernle, No. 452, Fasc. I.
10. KATHÁ SARIT SÁGARA, or, Ocean of the Streams of Story, translated from the Sanskrit by C. H. Tawney, M. A., Nos. 436, 438, 439, 442, 444, 450, Vol. I, Fasc. I—VI.
11. SABHÁSHYAVRITTI NIRUKTA, with commentaries, edited by Paṇḍit Satyavrata Sámaṣramí, No. 449, Fasc. I.

List of Societies and Institutions with which Exchanges of Publications have been made during 1880.

- Amsterdam :—Royal Zoological Society.
 Batavia :—Batavian Society of Arts and Sciences.
 Berlin :—Royal Academy.
 Berne :—Swiss Entomological Society.
 Bombay :—Bombay Branch, Royal Asiatic Society.
 ——— :—Editor, Indian Antiquary.
 Boston :—Natural History Society.
 Bordeaux :—Bordeaux Academy.
 ——— :—Linnean Society.

- Buenos Ayres :—Public Museum.
 Brussels :—Royal Academy of Sciences.
 ——— :—Geological Society of Belgium.
 Calcutta :—Agricultural and Horticultural Society of India.
 ——— :—Geological Survey of India.
 Cassel :—Natural History Society.
 Cherbourg :—National Society of Natural Science.
 Christiana :—University Library.
 Copenhagen :—Royal Society of Northern Antiquaries.
 Cambridge :—University Library.
 Colombo :—Royal Asiatic Society, Ceylon Branch.
 California :—Californian Academy of Arts and Sciences.
 Dehra-Dun :—Great Trigonometrical Survey.
 Dublin :—Royal Dublin Society.
 ——— :—Royal Irish Academy.
 Edinburgh :—Royal Society.
 Geneva :—Physical and Natural History Society.
 Genoa :—Museum of Natural History.
 Königsberg :—Physical and Economical Institution.
 Leipzig :—German Oriental Society.
 Leyden :—Royal Herbarium.
 Liége :—Royal Society of Sciences.
 London :—Royal Society.
 ——— :—British Museum.
 ——— :—Royal Asiatic Society of Great Britain and Ireland.
 ——— :—Royal Institution.
 ——— :—Institution of Civil Engineers.
 ——— :—Institution of Mechanical Engineers.
 ——— :—Royal Geographical Society.
 ——— :—Zoological Society.
 ——— :—Statistical Society.
 ——— :—Geological Society.
 ——— :—Linnean Society.
 ——— :—Anthropological Institute.
 ——— :—Royal Astronomical Society.
 ——— :—Royal Microscopical Society.
 ——— :—Editor, Academy.
 ——— :—Editor, Athenæum.
 ——— :—Editor, Nature.
 ——— :—Society of Telegraph Engineers.
 Lyon :—Agricultural Society.
 ——— :—Natural History Society.

Lyon :—Museum of Natural History.
 Madras :—Literary Society.
 Manchester :—Literary and Philosophical Society.
 Moscow :—Société des Naturalistes.
 Munich :—Royal Academy.
 Netherlands :—Royal Society.
 New Haven, U. S. :—Connecticut Academy of Arts and Sciences.
 New South Wales :—Royal Society.
 Oxford :—Bodleian Library.
 Paris :—Imperial Library.
 — :—Anthropological Society.
 — :—Asiatic Society.
 Paris :—Geographical Society.
 — :—Zoological Society.
 Philadelphia :—Academy of Natural Science.
 Pisa :—Tuscan Society of Natural Sciences.
 Simla :—United Service Institution of India.
 Stettin :—Entomological Society.
 Stuttgart :—Natural History Society of Württemberg.
 St. Petersburg :—Imperial Library.
 — :—Imperial Russian Geographical Society.
 — :—Imperial Academy of Sciences.
 — :—Imperial Botanical Gardens.
 Stockholm :—Royal Academy of Sciences.
 Trieste :—Adriatic Society of Natural Science.
 Turin :—Academy.
 U. S., America. :—Geological Survey of the Territories.
 Vienna :—Imperial Geological Institute.
 — :—Anthropological Society.
 — :—Imperial Academy of Sciences.
 — :—Zoological Society.
 Washington :—Smithsonian Institution.
 — :—Commissioners of the Department of Agriculture.
 Yokohama :—German Oriental Society.
 — :—Asiatic Society of Japan.
 Zagreb :—Archæological Society.

ABSTRACT OF PROCEEDINGS OF COUNCIL DURING 1880.

January 29th, Ordinary Meeting.

Letters were read from Dr. S. B. Partridge tendering his resignation as Member of the Council, and from Dr. T. R. Lewis and Mr. L. Schwend-

ler expressing their willingness to allow themselves to be nominated Members of the Council for 1880.

The Council sanctioned the recommendation of the Secretary that Islám Khán's pension should be continued for life, and ordered that all such pensions should be paid from the Piddington Pension Fund.

The recommendation of the Finance Committee that one of the collecting Sircars should be discharged, and that the other should be retained on a commission of 5 per cent., was agreed to.

The programme for the Annual Meeting and the Annual Report were read and approved.

February 26th, Ordinary Meeting.

The Members of the Finance and other Committees were elected.

Mr. C. H. Dreyer's offer to complete the Library Catalogue for Rs. 600 was accepted.

Dr. A. F. R. Hoernle's proposals with regard to the rates paid for printing and editing the *Bibliotheca Indica* were agreed to, with an amendment proposed by Dr. Mitra, that the rate at which editing work is to be paid for be fixed simply as it is difficult or easy. It was also directed that Dr. Hoernle's memorandum on the subject should be printed for the use of the Council and of the Finance Committee.

The recommendation of the Finance Committee that 2 pairs of book-cases should be purchased for Rs. 1,000 was ordered to be referred back to the Committee for reconsideration with the annual accounts.

April 1st, Ordinary Meeting.

A letter was read from the Superintendent, Baptist Mission Press, asking if the printing of the *Isabah* is to be continued; also a minute by Dr. Hoernle recommending that the work should be continued, and stating that Mr. O'Kinealy had kindly offered to superintend its printing. The minutes of the Council on a memorandum by the Philological Secretary on the affairs of the O. P. Fund were also read. After a prolonged discussion on the advisability of adopting the proposals made by the Philological Committee for regulating the selection of works for publication in the *Bibliotheca Indica*, it was resolved that formal sanction should be given to the publication of nine works (the names of which have been given in the Proceedings for May 1880), and that it should be left to the Philological Secretary to determine the rate at which each should be published.

An exchange of publications with the Stockholm Academy of History and Antiquities was sanctioned.

April 29th, Ordinary Meeting.

On the resignation of Mr. J. Crawford, Mr. A. Pedler was elected Member of Council, General Secretary and Trustee of the Indian Museum.

A memorandum by the President on the advisability of increasing the number of the Council was read, and the proposed alteration was agreed to. The necessary modifications in the rules were ordered to be proposed at the next meeting of the Society.

An exchange of Part I of the Journal for the Zagreb Archæological Society's publications was agreed to.

The Philological Secretary submitted a statement of rules and rates connected with the publication of the Bibliotheca Indica, Journal and Proceedings, which he had prepared for the press in accordance with the order of Council. Fifty copies were ordered to be printed.

The rates of remuneration at which the newly appointed editors of the Bibliotheca Indica are to be paid were agreed upon. As Mr. C. H. Tawney refused to accept any remuneration, it was ordered that he should be presented with 30 copies of his work.

The Philological Secretary reported that he had made over the printing of Mr. Dames's Baloochi Grammar to the Baptist Mission Press, and that he had written to the Bombay and Punjab Governments asking for aid in printing the work.

The Philological Secretary was asked to institute an enquiry as to whether it was necessary to have a person in charge of the vernacular portion of the Library and to report at a future meeting.

On the resignation of Mr. Beverley as Treasurer and Mr. H. F. Blandford as Member of Council, Mr. J. C. Douglas was elected Member of Council and Honorary Treasurer.

May 29th, Ordinary Meeting.

An exchange of publications with the Linnean Society of Bordeaux and with the United Service Institution of India was sanctioned.

Letters were read from the Secretaries to the Governments of Bombay and of the Panjab subscribing for 5 and 50 copies respectively of Mr. Dames's Baloochi Grammar. A letter was directed to be written to the Secretary to the Foreign Department, Government of India, asking Government to subscribe for copies of the same work.

An order was passed that books from the Library should be issued on the requisition of the officer in charge of the Surveyor General's Office, Calcutta, on the same terms as to Members.

A recommendation of the Finance Committee that in future their Meetings should be held on the 4th of each month, except when that date falls

on a Saturday, Sunday or Monday, when the meeting should be held on the following Tuesday, was agreed to.

It was ordered that the Society's accounts should be kept according to the plan suggested by Mr. Douglas, and a temporary clerk was appointed on Rs. 15 a month to help in preparing the accounts.

July 1st, Ordinary Meeting.

The Minutes of the Council were read on a memorandum by Dr. R. Mitra on the state of the Oriental Library. A Committee was appointed (1) to enquire whether MSS. and books to the extent indicated in Dr. Mitra's Memo. have disappeared and to ascertain, if possible, in what way this loss has occurred, (2) to report how far the MSS. have been catalogued, and (3) to suggest suitable arrangements for the safe custody of the MSS. in the future.

July 29th, Ordinary Meeting.

A letter was read from the Secretary to the Government of India, Foreign Department, subscribing for 40 copies of Mr. Dames's Baloochi Grammar.

A letter was read from Dr. T. R. Lewis tendering his resignation as Member of the Council, and it was resolved that Mr. H. F. Blanford should be re-appointed Member of Council in his place.

A letter was read from the Private Secretary to the Viceroy, stating that Lord Ripon accepts the post of Patron of the Society.

An exchange of the Proceedings for the publications of the Cassel Society of Natural History was sanctioned, and an application from the Editor of the Zeitschrift für Wissenschaftliche Geographie, for an exchange, was declined.

The recommendation of the Oriental Library Committee to appoint temporarily a Munshi and Pandit each on Rs. 35 per mensem, was agreed to.

August 26th, Ordinary Meeting.

Mr. R. W. Nicholson, Lt.-Col. M. G. Clerk, Babus Benod Behary Mullick and Sib Chunder Nag and Khalif M. Hassan were elected ordinary members of the Society.

The Minutes of the Council were read on a letter from Dr. R. Mitra forwarding 2 bills for the editing and printing of his Catalogue of the MSS. in the Library of H. H. the Maharaja of Bikaner. It was ordered that Dr. Mitra's letter with the 2 bills should be forwarded to Government; and that, with reference to the paragraph in the preface of the Catalogue in which Dr. Mitra states that he has worked with imperfect materials, Gov.

ernment should be reminded that the correspondence on this subject has already been before them.

September 30th, Ordinary Meeting.

Messrs. E. M. Sage, and R. O. Lees were elected Ordinary Members of the Society.

A letter was read from Dr. R. Mitra forwarding 10 copies of his report on the Conservation of Sanskrit MSS. for the past year.

A request from the Proprietor of the "Asian" that the Society should subscribe for his paper was declined.

Dr. Garbe's edition of the text of the *Āpastamba Śrauta Sūtra* was ordered to be substituted, in the list of publications undertaken by the Society, for Dr. Schroeder's *Maitrāyaṇī Saṃhitā*.

October 28th, Ordinary Meeting.

A letter from Dr. T. E. Charles, offering translations of the *Nidāna* and *Suśruta* which he has had prepared at his own expense, to the Society if they will undertake to publish them, was ordered to be referred to the Philological Committee.

An application from the Natural History Society of Brunswick, for an exchange of publications, was declined.

The Secretary submitted the report of the Sub-Committee appointed to investigate the condition of the Oriental Library. It was ordered to be circulated to the Members of the Council.

November 25th, Ordinary Meeting.

An exchange of publications with the Royal Dublin Society was sanctioned.

On the recommendation of Mr. H. Rivett-Carnac it was ordered that abstracts of the proceedings at the meetings of the Society should be published in the daily papers.

Babu Thakur Dass Banerji was appointed on trial, on Rs. 30 per mensem, to do the work of indexing the old records of the Society.

It was agreed that all the Journals and Proceedings previously distributed through Messrs. Trübner & Co. should be sent direct by post for the future.

A pension of Rs. 15 per mensem was allowed to Babu Buddhinath Bysack, the Society's old Cashier.

December 20th, Ordinary Meeting.

A letter was read from Mr. H. G. Keene announcing the near completion of Beal's Oriental Biographical Dictionary.

A memorandum by Dr. Mitra was read stating that, in their present condition, the translations of the Suṣruta and Nidána offered by Dr. Charles are unfit for publication, and suggesting that they should be made over to Dr. Uday Chand Dutt for the purpose of editing and revision. It was ordered that the result of Dr. Mitra's investigations should be communicated to Drs. Harvey and Smith, who have been requested by Dr. Charles to act for him in this matter.

The thanks of the Society were ordered to be conveyed to the Oriental Library Committee and to its Secretary for the valuable report submitted by them.

It was ordered that Babu Thakur Dass Banerji should continue indexing the Society's old records.

The Catalogue of the books in the Library, as completed by Mr. Dreyer, was submitted.

The PRESIDENT then delivered the following address:

"I hope the meeting will agree with me in thinking the report a satisfactory one, showing that the affairs of the Society have made good progress during the past year. There has been a large addition to the list of members; the catalogue of the Library is ready to go to press; and the reorganisation of our accounts is an accomplished fact. Last year I mentioned the trouble Mr. Westland had taken to re-cast our system of book-keeping. The greater labour of carrying out the reformation devolved upon our present Treasurer, who further modified the proposed system and brought it into successful operation, as may be judged by the financial statement attached to the report. The Society is under much obligation to Mr. Douglas for the time and skill he has devoted to its service. Our Honorary Secretaries have been no less diligent in the performance of their editorial and administrative functions, and I would ask you to convey to those gentlemen the gratitude of the Society, by a vote of thanks."

A vote of thanks to the Officers of the Society was unanimously carried.

At the suggestion of the President—

Mr. J. Westland and Col. Sconce were appointed to audit the annual accounts.

The Meeting was then resolved into the Ordinary Monthly General Meeting.

H. B. MEDLICOTT, Esq., F. R. S., President, in the Chair.

The minutes of the last Meeting were read and confirmed.

The following presentations were announced—

1. From the Home, Revenue and Agricultural Department,—(1) a Catalogue of Sanskrit MSS. in the Library of H. H. the Maharája of Bika-

neer, by Dr. R. L. Mitra ; (2) Notes on Afghanistan and part of Piluchistan, by Major H. G. Raverty.

2. From M. de Goeje,—(1) *Kitabo 'l Ahdád*, by M. Houtsma, (2) *Al Moschtabih*, by Dr. P. de Jong.

3. From the author,—*Grammar of the Classical Arabic Language*, Parts II and III, by M. S. Howell.

4. From the *Meteorological Reporter to the Government of India*,—*Report on the administration of the Meteorological Department of the Government of India, 1879-80*, by H. F. Blanford.

5. From the Assistant Secretary, P. W. D., British Burmah,—*Report on the Irrawady river*, by R. Gordon.

6. From Dr. G. Leitner,—*Proceedings of the Anjuman-i-Punjab during October, November and December 1880*.

The following Gentlemen, duly proposed and seconded at the last meeting, were balloted for and elected Ordinary Members :—

P. I. Carter, Esq.

Captain T. Morris Jenkins.

Major W. F. Prideaux.

R. C. Laughlin, Esq.

Dr. G. Bomford.

The following are candidates for ballot at the next meeting :

1. Sir Ashley Eden, K. C. S. I., Lieutenant-Governor of Bengal (re-election), proposed by the President, seconded by the Secretary.

2. H. J. Reynolds, Esq., C. S., proposed by the President, seconded by the Secretary.

3. L. King, Esq., Assistant Commissioner of Rohtuk, proposed by Col. C. Minchin, seconded by M. Macauliffe, Esq.

4. F. C. Channing, Esq., C. S., Lahore, proposed by D. Ibbetson, Esq., seconded by A. Pedler, Esq.

5. E. R. Shopland, Esq., Post Master, Akyab, proposed by L. Schwendler, Esq., seconded by A. Pedler, Esq.

6. Captain L. A. C. Cook, 5th Bengal Cavalry, Jamrud, proposed by J. G. Delmerick, Esq., seconded by A. Pedler, Esq.

7. Babu Hem Chunder Gossain, Calcutta, proposed by A. Pedler, Esq., seconded by the Hon'ble P. M. Mukerjea.

8. W. C. Benett, Esq., C. S., Rai Bareilly, proposed by H. Rivett-Carnac, Esq., seconded by Dr. G. Thibaut.

9. Babu Troylokyanath Mitra, B. L., 1st Subordinate Judge, Jessore, proposed by Babu Adharlal Sen, seconded by A. Pedler, Esq.

10. Babu Bhyrub Chunder Chatterjea, Special Sub-Registrar, Jessore, proposed by Babu Adharlal Sen, seconded by A. Pedler, Esq.

11. J. Bridges Lee, Esq., M. A., F. G. S., F. C. S., F. Z. S., proposed by A. Pedler, Esq., seconded by C. H. Tawney, Esq.

12. Babu Peary Mohun Guha, B. L., Pleader, Jessore, proposed by Babu Adharlal Sen, seconded by Dr. R. L. Mitra.

13. Babu Sreenath Chunder, proposed by W. Swinhoe, Esq., seconded by Babu P. C. Ghosh.

The SECRETARY reported that Mr. W. Lambe had intimated his desire to withdraw from the Society.

Mr. J. C. DOUGLAS then exhibited the working of the Gower Bell Telephone, and explained the principles on which it is constructed.

Dr. HOERNLE exhibited and described 10 coins, the property of Mr. R. Nicholson of the Opium Department, sent for the inspection of the Society by Mr. H. Rivett-Carnac, B. C. S. These coins consist of (1) three silver Bactrian hemidrachmas, one of Azilises and two of Zoilos; very similar to those described in Prinsep's *Indian Antiquities*, Vol. II, pp. 190, 211. One of the two Zoilos is of the degraded type, noticed in the *Journal A. S. B.*, Vol. XXIII, p. 692 (Plate XXXV, No. 11) and in the *Numismatic Chronicle*, Vol. X, p. 72. (2) One gold Kumára Gupta; as in Prinsep's *Ind. Ant.*, Vol. I, p. 386 (Class II, a); the legends are: *Obv.*, above the bow *śra (śrī?) mā*; below the arm *ku*; to the right, along the rim, *śrī* (rest illegible). *Rev.*, along right-hand rim, *kumára guptádkhirája*; the letter *dhi* is doubtful. (3) Three silver Kumára Gupta coins of the Sáh series and the peacock type; similar to those described by E. Thomas in the *Archæological Survey of Western India*, p. 65 (Plate VII, Nos. 22-25); two, however, show traces of date-figures in front of the profile, doubtfully read as 1...5. (4) A gold coin (unknown to the exhibitor) showing, on the *obverse*, a bull sitting in front of a Mahádeva (as *linga-yoni*), below them the recumbent figure of a man, dressed in short dhoti; legend in Kutila characters *śrī dhairyyarája*. *Reverse*: cow with sucking calf; below, a cluster of seven dots; in front, a water-vessel (*sarái?*) and a fish; above, a wheel and some other indistinguishable



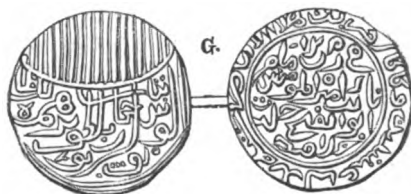
symbols as shown in the woodcut. (6) A gold mohur of the Jaunpur Sultán Ibrahim Sháh Sharqí; dated 823 A. H., apparently similar to the one, noticed by E. Thomas in *Chronicles of the Pathán Kings of Delhi*, p, 321. Legend:—

Obv. في زمن الامام
نائب امير المؤمنين
ابو الفتح خلدت
خلافة

Margin: ضربت هذا الدينار
في سنة ثلثة عشرين وثمانائة

Rev. الواثق
بنائيد الرحمان
ابو المظفر ابراهيم
السلطان

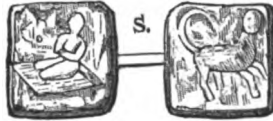
No Margin.



This coin is peculiar on account of the elongated downstrokes of the letters on the reverse, resembling a row of organ pipes. The legend on the obverse is an exact reproduction of that on some of the coins of the Delhi Emperor Feroz Sháh, during whose reign the Jaunpur Sultánat took its rise. (7) A copper coin, the legends of which are too much worn to be distinguished. The head on the obverse has the appearance of being Roman; the figure on the reverse may be Ceres (?), and there appears to be a monogram B.

Dr. Hoernle exhibited and described 12 coins of the later Delhi Emperors. They were selected from a large hoard of 200 coins, found at Nya Doomka in the Santhal Pergunnahs. Among them were four gold mohurs, one of Muhammad Farrukh Sír, dated 1126 A. H., mint Akbarábád, regnal year 2; one of Muhammad Sháh, date 1148 A. H., mint Jahánábád (?) regnal year 18; one of ditto, date 1161 A. H., regnal year 30 (the last of his reign); the latest of his coins, noticed by Marsden in his *Oriental Coins*, p. 669, is four years earlier, of 1157 A. H.); one of Sháh 'Alam, date 1202 A. H., struck by the English Government in Calcutta. The others are silver Rupees of Sháh 'Alam, of various dates, four struck by the English in Calcutta, four other struck by the Nawáb of Oudh. The latter have the symbol (fish) and name of Benares and are dated 1209, 1226, 1228, 1229 A. H.

Dr. Hoernle also exhibited and described two old Hindu coins, found at Sárnáth, near Benares and presented to the Society by Mr. Holgnette. One is a small round silver piece of a well known type (see Prinsep's *Ind. Ant.* p. 291) with the legend *Śrīmad Gangeya*. The other is a square silver piece, showing on one side, the figure of a Rájá sitting in the well-known kneeling posture, on a square carpet; on the other side is a lion;



both figures are in a diagonal position, as shown in the woodcut. Dr. Mitra, however, thinks that they are more punch marks of some kind or other which have been destroyed by rust.

Dr. Hoernle exhibited 4 silver coins sent by Rájá Udayapratápa Siñha, through Dr. R. Mitra, who communicated the following remarks regarding them :

“ Rájá Udayapratápa Siñha, of Bhingá, Oudh, has sent me four silver coins, out of a large number lately found in his táluk. Three of them are of Husain Sháh, and one of Mahmúd Sháh, both of Jaunpur. They are of a type very similar to the copper coin described by Thomas (*Chronicles of Pathán Kings of Delhi*, p. 322) but not exactly alike. They may be thus described :

“ Nos. 1 and 2 silver, weight 141-149 grs.

“ *Obverse*— حسین شاه محمود شاه ابرهیم شاه سلطانی خلد

“ *Reverse*— الخلیفه امیر المومنین خلدت ۸۶۶

“ The inscription is quite clear, but the edges have been filed away, and some of the words have been lost. I guess the remnant of the word *ibn* before Ibráhím in No. 2. The figure 8 in the date is lost in No. 1.

“ No. 3 differs from No. 1 in being thinner and smaller; its weight is 56 grains. The inscription is the same, only very much cut off. No date.

“ No. 4, silver, weight 53 grains.

“ *Obverse*— محمود شاه ابرهیم شاه سلطا (نی) خلد (ت)

“ *Reverse*. The same as in the first three, but no date.

“ As I am not well, and shall not be able to attend the next meeting, will you please exhibit the coins. The typical specimens may be retained for the Society, and the duplicates returned to me.”

Dr. Hoernle exhibited some old Hindi inscriptions found in an 'Idgáh, near Monghyr, and sent by Mr. Martin with the following letter :

" I beg to send you a copy of some inscriptions on a stone used as a door-step to an Idgáh at Chewora, Pergunna Amrethu, Zillah Monghyr ; the only thing I can learn about them is that the stone was a part of a house belonging to some Rájá of Behár.

" Inscriptions 1 and 2 are in the positions as they are on the paper, 3 is written in smaller letters under 2, 4 at one side, upside down as marked, 5 also upside down, but rather more to the left of 1, and 6 as on the paper ; the latter is most roughly scratched and is I should say an attempt to cut the word 'Allah' in Urdu. I am sorry I had neither the time or paper for getting a better rubbing."

" If you can kindly inform me to what king &c. the inscriptions refer, I shall be much obliged, also what the words are."

Dr. Mitra, who had read the inscriptions, communicated the following remarks regarding them—

" The inscriptions must have belonged to some Hindu temple whence they have been transferred to the Idgáh. No. 1 I read with absolute certainty.

ॐ देय धर्माय

" This is a formula which occurs repeatedly at the foot of Buddhist statues, and means " this is dedicated to religion." The name of the donor sometimes precedes and sometimes follows the formula, but not unoften omitted.

" No. 2 gives the name of the donor of the above or of some other object. It reads—

श्रीजषीराकस्य.

" The *shi* must be read *khi* and the name is *Jakkhiráka*.

" No. 3 has been very much spoiled by the attempt to trace the outlines of the letters, and the letters therefore are not reliable. I read it—

सं १९ ८३ अष्ट वदि १

" The doubtful letters are 4, 6 and 7. There is no trace of " Allah" in any of the inscriptions."

The following paper was read—

1. *The Phenomenon commonly called the "Cry of Tin."*—By J. C.

DOUGLAS.

If a piece of tin be bent it emits a sound ; this, being regarded as a property peculiar to tin, has been termed " the cry of tin." This phenomenon is explained by the peculiar crystalline structure of the metal. If the

explanation be the true one, then other metals which are obviously crystalline in structure should also exhibit the phenomenon under favourable conditions, but it is exceedingly difficult to place other metals in a crystalline state under proper conditions, *e. g.*, cast iron and cast zinc in thin rods break before they can be bent sufficiently to emit audible sounds, while rolled zinc has had its crystalline structure destroyed by rolling and so is not in a condition to emit sound when bent. Rolled zinc is very tough as compared with cast zinc, and its fracture is not crystalline, but of an even fine-grained bluish tint destitute of the brilliant lustre presented by this metal in a crystalline state. If, however, a piece of rolled zinc be heated for a few minutes to a temperature somewhat below its melting point, the metal becomes much less tough, and its fracture is decidedly crystalline. On bending a piece of zinc so treated it emits a sound weaker than, but of the same nature as, the sound emitted by tin. Cast zinc cannot be bent readily, but if it be pinched between the teeth or with pliers it emits the sound distinctly.

It appears therefore that the cry of tin is due to crystalline structure, that it is not characteristic of tin as generally accepted, but may be emitted by zinc and probably by other metals when crystalline in texture; that rolling in the case of tin and zinc and probably in other cases, destroys the property with the alteration of texture; that in the case of zinc which has been rolled, the crystalline texture may be produced without melting the metal but by merely heating it, and this is so readily done that it affords a ready illustration of the effects of high temperatures on rolled metal. If as supposed this sound is characteristic of the crystalline structure of metals, it may afford a means of great practical use whereby by the sound a metal emits we may draw conclusions as to its texture and hence its fitness for certain purposes, or by the sound emitted by a beam when bent we may draw conclusions as to its safety, the microphone or other appliance being called in to aid us where the sounds are exceedingly weak.

LIBRARY.

The following additions have been made to the Library since the meeting held in January last.

TRANSACTIONS, PROCEEDINGS AND JOURNALS,
presented by the respective Societies and Editors.

Bombay. The Indian Antiquary,—Vol. IX, Part CXIII, December 1880, and Vol. X, Part CXIV, January 1881.

Bordeaux. Société de Géographie Commerciale,—Bulletin, No. 24, 1880, and No. 1, 1881.

Calcutta. Registers of Original Meteorological Observations for November and December, 1879.

———. Geological Survey of India,—Memoirs, Vol. XVI, Part 3.

London. Royal Asiatic Society of Great Britain and Ireland,—Journal Vol. XII, Part 4, October 1880.

———. Royal Geographical Society,—Proceedings, Vol. II, No. 12, December 1880.

———. Geological Society,—Quarterly Journal, Vol. XXXVI, Part 4, 1880.

F. C. J. Spurrell.—On the discovery of the place where Palæolithic Implements were made at Crayford. *P. H. Carpenter.*—On some new Cretaceous *Comatulae*.

———. ———. List of Fellows, 1880.

London. Institution of Civil Engineers, —Minutes of Proceedings, Vol. LXII, Part 4, 1879-80.

———. The Academy,—Nos. 450—453.

———. The Athenæum,—Nos. 2773—2776.

———. Nature,—Vol. XXIII, Nos. 581, 583, and 584.

Paris. Société de Géographie,—Bulletin, September and October, 1880.

Washington. United States Geological and Geographical Survey of the Territories,—Bulletin, Vol. V, No. 4.

BOOKS AND PAMPHLETS,

presented by the Authors.

BAIRD, CAPT. A. W. Tide-Tables for the Indian Ports for 1881. 12mo., London.

HOWELL, M. S. Grammar of the Classical Arabic Language. Translated and compiled from the works of the most approved native or naturalized authorities. Parts II—III. Royal 8vo., Allahabad, 1880.

MISCELLANEOUS PRESENTATIONS.

Proceedings of the Anjuman-i-Panjab. October to December 1880. Fcp., Lahore, 1880.

PRESIDENT, ANJUMAN-I-PANJAB.

JONG, DR. P. DE. *Al-Moschtabih*, auctore Schamso'd-din Abu Abdallah Mohammed ibn Ahmed. 8vo., Lugduni-Batavorum, 1881.

HOUTSMA, M. TH. *Kitábo-'l—Adhdád sive liber de vocabulis Arabicis quae plures habent significationes inter se oppositas auctore Abu Bekr ibno-'l-Anbári*. 8vo., Lugduni-Batavorum, 1881.

M. J. DE GOEJE.

Report on the Cholera Epidemic of 1879 in Northern India, with special reference to the supposed influence of the Hurdwar Fair. Fcp., Calcutta, 1880.

SANITARY COMMISSIONER WITH THE GOVT. OF INDIA.

BLANFORD, H. F. Report on the Administration of the Meteorological Department of the Government of India in 1879-80. Fcp., Calcutta, 1880.

METEOROLOGICAL REPORTER TO THE GOVT. OF INDIA.

GORDON, R. Report on the Irrawaddy River, Parts I, II, III and IV. Fcp., Rangoon, 1879.

PUBLIC WORKS DEPT., B. BURMAH.

Report on the Administration of the Panjab and its Dependencies for 1879-80. Royal 8vo., Lahore, 1880.

PUNJAB GOVERNMENT.

Report on Public Instruction in the Madras Presidency for 1877-78 and 1878-79. Royal 8vo., Madras, 1879.

MADRAS GOVERNMENT.

Report on the Administration of the Customs Department in the Bengal Presidency for the year 1879-80. Fcp., Calcutta, 1880.

Report on Vaccination in the Province of Bengal for 1879-80. Fcp., Calcutta, 1880.

Report on the Internal Trade of Bengal, for the year 1879-80. Fcp., Calcutta, 1880.

Report on the Administration of Bengal, 1879-80. Royal 8vo., Calcutta, 1880.

Records of the Geological Survey of India,—Vol. XIII, Part 4.

BENGAL GOVERNMENT.

The Indian Antiquary, Vol. IX, Part 113, December 1880.

HOME, REVENUE AND AGRICULTURAL DEPARTMENT.

PERIODICALS PURCHASED.

- Calcutta. Calcutta Review,—No. 143, January 1881.
 ———. Stray Feathers,—Vol. IX, No. 4.
 ———. Indian Medical Gazette,—Vol. XVI, No. 1, January 1881.
 Supplement.
- Geneva. Archives des Sciences Physiques et Naturelles,—Vol. IV, No. 12,
 December 1880.
- Giessen. Jahresbericht über die Fortschritte der Chemie, Part 2 of 1879.
- Göttingen. Gelehrte Anzeigen,—No. 52, 1880, and Nos. 1-2, 1881.
- Leipzig. Annalen der Physik und Chemie,—Vol. XI, Part 4.
 ———. ———. Beiblätter,—Vol. IV, Part 12.
- London. Philosophical Magazine,—Vol. X, No. 64, December 1880.
 ———. The Entomologist's Monthly Magazine,—Vol. XVII, No. 199,
 December 1880.
 ———. The Entomologist,—Vol. XIII, No. 211, December 1880.
 ———. The Ibis,—Vol. IV, No. 16, October 1880.
- Sclater, P. L.*—Remarks on the present state of the *Systema Avium*. *Vogt, C.*
Archæopteryx macrura, an intermediate form between Birds and Reptiles.
Gurney, J. H.—Notes on a 'Catalogue of *Accipitres* in the British Museum',
 by R. B. Sharpe (1874).
- . Messenger of Mathematics,—Vol. X, No. 7, November 1880.
 ———. Journal of Botany,—Vol. IX, No. 216, December 1880.
 ———. Annals and Magazine of Natural History,—Vol. VI, No. 36, De-
 cember 1880.
- Günther, Dr. A.*—Description of *Ophites japonicus*, a new Snake from Japan.
- . Journal of Science,—Vol. II, No. 84, December 1880
- London. Numismatic Chronicle,—Vol. XX, Part 3, 1880.
 ———. Society of Arts,—Journal, Vol. XXIX, Nos. 1465—1468.
 ———. The Publishers' Circular,—Vol. XLIII, Nos. 1038—1039.
 ———. Chemical News,—Vol. XLII, Nos. 1099—1101.
- New Haven. American Journal of Science,—Vol. XX, No. 119, Novem-
 ber 1880.
- Paris. Comptes Rendus,—Vol. XCI, Nos. 23-26.
 ———. Revue Critique,—Vol. X, Nos. 50-52, Vol. XI, No. 1.
 ———. Revue des deux Mondes,—Vol. XLII, Part 4, and Vol. XLIII,
 Part. 1.
 ———. Journal des Savants, December 1880.
 ———. Revue Scientifique,—Vol. XIX, Nos. 25-26; and Vol. XX, No. 1.

BOOKS PURCHASED.

GEIKIE, JAS. Prehistoric Europe. Roy. 8vo., London, 1881.

HUME AND MARSHALL. Game Birds of India, Burmah and Ceylon. Vol. III. Roy. 8vo., Calcutta, 1881.

MUELLEE, MAX. Sacred Books of the East,—Vol. VI, The Qur'an, Part I, and Vol. IX, The Qur'an, Part II. 8vo., Oxford, 1880.

SCHLIEMANN, DR. H. Ilios; The City and Country of the Trojans. Roy. 8vo., London, 1880.



PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.
FOR MARCH, 1881.

The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 2nd March, 1881, at 9 P. M.

C. H. TAWNEY, Esq., M. A., Vice-President, in the Chair.

The minutes of the last Meeting were read and confirmed.

The following presentations were announced—

1. From the Marine Survey Department,—A List of Light-Houses and Light-Vessels in British India, by R. C. Carrington.

2. From the K. B. Akademie der Wissenschaften zu München,—(1) *Das Haus Wittelsbach und seine Bedeutung in der deutschen Geschichte*, by J. v. Döllinger, (2) *Ueber den geologischen Bau der libyschen Wüste*, by Dr. K. A. Zittel, (3) *Die Pflege der Geschichte durch die Wittelsbacher*, by Dr. L. Rockinger.

3. From the Palæographical Society,—Facsimiles of Ancient MSS., Oriental Series, Part V, by W. Wright.

4. From the Surveyor General of India,—(1) *Account of the Operations of the Great Trigonometrical Survey of India, Vol. VI*, (2) *Synopsis of the Results of the Operations of the Great Trigonometrical Survey of India, Vol. VII*.

5. From the authors,—(1) *Report on the Electric Light at the East Indian Railway Company's Station, Howrah (Calcutta)*, by L. Schwendler, (2) *Sketch of the Hindustani Language*, by C. J. Lyall.

6. From the Home, Revenue and Agricultural Department,—*the Sacred Books of the East, Vols. VI and IX*, edited by F. Max Müller.

7. From Mr. Holgnette,—one silver and one copper coin.

8. From Dr. A. F. R. Hoernle,—13 Nos. of the *Deutsche Litteratur Zeitung*.

The following Gentlemen, duly proposed and seconded at the last meeting, were balloted for and elected Ordinary Members :

Sir Ashley Eden, K. C. S. I. Lieut.-Governor of Bengal (re-election.)

H. J. Reynolds, Esq., C. S.

L. King, Esq.

F. C. Channing, Esq.

E. R. Shopland, Esq.

Captain L. A. C. Cook.

Babu Hem Chunder Gossain.

W. C. Benett, Esq., C. S.

Babu Troylokyanath Mitra, B. L.

Babu Bhyrub Chunder Chatterji.

J. Bridges Lee, Esq., M. A., F. G. S., F. Z. S., F. C. S.

Babu Peary Mohun Guha, B. L.

Babu Sreenath Chunder.

The COUNCIL reported that Mr. V. Ball had been appointed Member of Council under Rules 4 and 46 (as amended during the past year), and that he would officiate as Natural History Secretary during Mr. Wood-Mason's absence from Calcutta.

The SECRETARY reported that the following coins had been acquired under the Treasure Trove Act.

1. Four gold and eight silver coins found at Nya Doomka, Santhal Pergunnahs.
2. Six silver coins from Basti.

The SECRETARY read a letter from Lieut.-Col. J. W. H. Johnstone, dated, February 15th, 1881, regarding the supposed identity of the Awans resident in the Salt Range with the Jods of Baber.

“General Cunningham in his Archæological Report on the North-West Panjab wishes to identify the Awans resident in the Salt Range as the Jods of Baber. In fact a tribe of Jods is still located in this part of the country where Baber found them. This tribe is known to be a branch of the Janjúás, and there is no difficulty on the subject of the Jods, except that we now find the possessions of the Jods and Janjúás with the Awans. I have known this for some years, and am sorry I did not before communicate it to the Society. The explanation I would give of the Awans' possession of the country is this. They were resident on both the branches of the Indus below the Salt Range. Baber found the present country of the Marwats in the Bannú district occupied by Isákhil Níázis. Subsequently

a wave of irruption took place from the hills. The Isákhil Níázis were displaced by the present Marwatís. The former ejected the Awans from Isákhil and Mianvali and drove them into the hills compelling them in turn to expel the Jods and Janjúás. The head man of Kálábágh is still Mullah Múzaffar Khán, the Chief of the Awans."

The following papers were read—

1. *A short note on the Shrines of Sitákund in Ohittagong.*—By ADHAR LÁL SEN, Deputy Collector of Jessore, lately of Ohittagong.

(Abstract.)

After describing the geographical situation of Sitá Khund, the author of this paper, explains the derivation of its name "from a hot spring consecrated to Sitá, the deified heroine of the Ramáyana," and relates the various traditions regarding the disappearance of the hot spring which no longer exists in that locality. It is said to have been filled up in consequence of a dispute between the followers of Vishnu and Siva. An attempt was made by the present Mahant of the place to again open up the spring, but without success; and it is supposed that there never really was any hot spring in that locality, on account of its being "devoid of all trace of bitumen, which is invariably discovered in the adjacent hot springs." The author then proceeds to quote large extracts from various Puránas, relating the connection of Ráma and Sitá with the Sitákhund, and shows the untrustworthiness of these Puránic relations by comparing them with the accounts in Valmiki's Ramáyana according to which Ráma and Sitá can never have been in the regions where the Sitákhund is situated. Finally the author traces the pilgrim's journey as he passes from one shrine to another, giving various interesting details of each locality.

Mr. Ball remarked that though it may be true that there never was a hot spring in the locality mentioned, the absence of any trace of bitumen was no proof of its non-existence.

Extracts from this paper will be published in the Journal, Part I.

2. *A list of Earthquakes recorded in Assam during the year 1880.* Communicated by the Meteorological Reporter to the Government of Bengal.

The list will appear in the Journal, Part II.

3. *On the coins of Charibael, king of the Homerites and Sabæans.*—By MAJOR W. F. PRIDEAUX, F. R. G. S., Bombay Staff Corps.

(Abstract.)

This paper gives a description of two Himyaritic coins, which were received by the author from Aden in 1880, and attributed by him to Chari-

bael, who is mentioned in the twenty-third chapter of the *Periplus of the Erythraean Sea* as the paramount Sovereign of the contiguous tribes of the Homerites and Sabæans, and as having been on terms of friendly alliance with the Roman Emperors. This monarch was probably identical with the Himyaritic king *Kariba-él Wattâr Yehan'am*, whose name appears on three of the inscriptions discovered by M. Arnaud in the neighbourhood of Mârib in 1843, as well as on the coins exhibited to the meeting. The paper concludes with a short sketch of the Himyaritic monetary system, which may be classified into three divisions, (1) the thick imitations of the Athenian drachma, (2) the thin imitations of the late Athenian tetradrachma, and (3) the indigenous mintage with two heads, one on the obverse and one on the reverse of the coin (of which, in addition to the coins of Charibael, a few specimens were exhibited to the meeting). This last was probably the precursor of the rare Axumite series in gold, which appears to have remained current until the introduction of Islâm into South Arabia.

This paper will be published in the Journal, Part I, with a Plate.

4. *Comparative Table of the conjugations of the verbs substantive in Eastern Hindî.*—By G. A. GRIELSON, C. S.

5. *On a New Find of Early Muhammadan Coins of Bengal.*—By
DR. A. F. R. HOERNLE.

(Abstract.)

This paper describes 14 early Muhammadan Coins of Bengal, found in November 1880 near Gauhati in Assam. They consist of 4 coins of Shams-ud-dîn Altamsh, 2 of Jalâlat-ud-dîn (Rizîyah), 1 of 'Alâ-ud-dîn Mas'aúd Shâh and 3 of Nâsir-ud-dîn Mahmúd Shâh, all Emperors of Dehli; also 1 coin of Ghiyâz-ud-dîn 'Iwaz and 3 of Mughîq-ud-dîn Yûzbak, both independent Sultâns of Bengal. Among these the coin of 'Alâ-ud-dîn Mas'aúd Shâh appears to be unique, being an exact counterpart (barring, of course, the ruler's name) of the coin of Nâsir ud-dîn, No. 60, in Thomas' *Chronicles of the Pathân Kings of Dehli*, p. 81. It is further important as showing that the last mentioned coin should be ascribed to the younger Nâsir-ud-dîn rather than the elder. The coins of Mughîq-ud-dîn appear to be new. They are also important inasmuch as they help to determine the period of that Sultân's independence, which seems to have lasted only about three years from A. H. 652—655.

This paper will be published in the Journal, Part I, with three Plates.

Mr. Gibbs said that the paper a part of which had just been read was an interesting one; he had been for some years engaged in collecting Pathân and Moghul coins, and had procured many curious and rare speci-

mens. He hoped to be able to draw up a paper from the MS. on the new coins of the Paṭhán kings which had been found since Mr. Thomas' book was published. He might mention two very curious ones: (1) a gold of king No 9, Nāṣir-ud-dín Mahmúd, and (2) a gold of king No. 17, Nāṣir-ud-dín Khushan. The former shows Thomas' remark on page 134 that Ghíáz-ud-dín Balban was the first king that struck gold coins is incorrect. This gold coin is now in the Imperial Academy at Berlin. Mr. Gibbs having exchanged it for some rare Moghul coins with the late Col. Guthrie some years ago, before he collected the Paṭhán series. With regard to the latter king only one silver coin is known. It is in this Society's collection, but the gold one which he obtained through a Marwari in Bombay is of much finer execution than the silver coin.

Mr. Gibbs's experience leads him to the opinion that gold and silver coins will be found of all the Paṭhán kings; it was the custom to coin such for distribution when the monarch was first placed on the throne, and it will be found that even now not more than 12 out of the first 30 Paṭhán kings are without specimens of either large gold or silver coins, often of both. Mr. Gibbs also further noticed that the series of coins of the smaller Muhammadan kingdoms set up after Muhammad bin Tughlaq were curious and worth collecting. He had had the good fortune during the famine in Bombay to get a good many specimens of the Bahmani, Malwah and Muhammadan coins, and as regard the first he had acquired the only 3 gold coins known. A paper with plates of this series will appear in a future No. of the Numismatic Chronicle for which Mr. Gibbs left instructions before he left England.

Mr. Gibbs stated that he had been engaged with Dr. Hoernle in arranging the Society's collection, and he hoped that before long a complete catalogue might be ready which will be of great service to other Museums and collectors in showing what coins were actually extant.

6. *Some Observations on the Standing of Animals, the Perching of Birds and the Walking Pace of Man.*—By J. C. DOUGLAS.

I.—*The Standing of Mammals and Birds.*

A Bird standing on one leg appears so strikingly unstable an object, that most observant persons feel the want of an explanation of first, why the bird chooses to stand on one leg rather than on both; and second, why this position is assumed as one of rest. It is obvious that the raised leg is rested, but it is equally obvious that the other leg has to do the work of both, and there is a decided reduction in stability, when using only one leg; but, from the bird resting in this position, there must be physiologically some economy, which renders the less stable position also less exhausting. This resting the limbs alternately is particularly frequent in natatorial birds

when standing : their legs apparently being very readily fatigued by bearing the weight of their bodies ; but although most striking in birds, it is also common to mammals. Horses particularly may be observed resting one leg at a time, and man does not as a rule stand equally on both legs, but puts his weight on each leg alternately ; even when sitting on a chair he commonly rests his legs alternately by hanging one across the other. I think this phenomenon is explained as follows :—Every muscle must have intervals of rest, and the muscles, supporting an animal which rests standing, must be rested alternately. To render this possible, the law of muscular exhaustion must in certain cases admit of the *load* on a muscle being increased, without proportionately *hastening* exhaustion. A muscle, removed from the body and stimulated to contract, suffers exhaustive loss of irritability, in direct proportion to the rapidity with which the stimuli follow each other, and exhaustion is most readily produced by stimuli following each other so rapidly, as to induce continued contraction, *i. e.*, tetanus ; but the amount of the load, if not too large, does not apparently affect the course of exhaustion, the exhaustion of two muscles bearing different loads being parallel. This being the case, it may be quite possible for an animal to even double the load on one set of muscles, without hastening their exhaustion. The muscles, bearing the additional load, not necessarily being exhausted proportionately sooner than under their own proper load, it is evident a bird resting on one leg does not exhaust it in time shorter in proportion to the increased load ; hence it is enabled to rest its whole system standing, a part at a time, just as completely as it could rest it all at once by laying down. The ease with which a bird stands on one leg is due to the relatively great surface of its base, the length of base, excluding the nails of the toes, reaching in small birds half the bird's height, that is, a man's feet would have to be two and a half to three feet long, to secure a proportional base ; the width of a bird's base in front is also relatively great.

II.—*The Perching of Birds.*

The bird, standing on one leg, is only one instance of a very general case, and it rests itself in that attitude by reason of a physiological law governing muscular exhaustion ; but the case of a bird, sleeping on one leg on a perch, has been considered as differing from the case of a bird sleeping on one leg on the ground, and, while it is obvious the bird on the ground really maintains the upright position by balancing itself, precisely as a man does, this explanation has been considered as insufficient in the case of the perching bird. The explanation commonly accepted appears to have originated with Borelli about two hundred years ago, and is as follows :—

The flexors of the toes pass over the knee and heel in such a manner, that when the leg is bent by the weight of the body, the toes are flexed, the

sleeping bird is thus held securely on his perch by the weight of his own body ; and some authors add " without fatigue." I purposely omit other details such as the structure of the joints by which the leg is stiffened laterally and vertically.

In the first instance, if the toes were flexed by the weight of the body putting tension on the muscles, this could not happen without causing fatigue, for the mere tension of a muscle influences its nutrition and waste, hence muscular exhaustion would result. That exhaustion is felt, is proved by the bird using only one leg while resting the other, also by the fact that it changes the leg from time to time, and that on waking, the foot is opened as if cramped. The evidence in favour of Borelli's explanation is anatomical ; if the leg of a dead bird be bent under certain circumstances, the toes close together, and the foot may be so made to seize the finger of the experimentalist ; if the leg be dissected, the movements of the parts may be clearly seen to bring about the result. But although this takes place in the dead bird, and is therefore possible in the live one, it by no means follows that this is the mechanism of perching. Even this purely anatomical phenomenon, which has been relied on to prove the physiological conditions, is not invariably present, for if a bird die with its leg contracted and its claw extended, the leg may be extended and flexed without closing the toes ; in fact, the production of the phenomenon depends on the condition of the muscles after death. If the bird dies with its claws open and leg extended, the flexor muscles of the toes are not opposed by the extensors, they shrink and lose their elasticity when they die, and the phenomenon is produced ; if they are opposed by the extensors, and the leg is bent, they lose their elasticity but cannot contract, and are therefore, when dead, elongated, and the phenomenon is not produced. It is very obvious in the live bird these muscles are elastic, and their exact length while living may be anything between the above extremes, but whether they act in the manner stated, depends entirely on their condition in the living bird, which is standing with his legs bent at their normal angle, these muscles being opposed by another set of muscles, and both being under the control of the bird's will. Because bending the leg bends the toes in a dead bird, in which the muscles have lost their elasticity and become shortened, to assume that therefore in the live bird, the mechanism acts precisely in the same manner, is an assumption in my opinion which is contradicted by observation of the living bird, and by the consideration of the general laws of which the perching bird is but a particular instance. Mammals and birds, on plane surfaces, maintain the upright attitude by balancing themselves, and birds standing on two legs on a perch do not, unless the perch be shaken, hold the perch, they simply balance themselves ; the birds are prevented from slipping by the soft under-surface of the foot, which gives a foot-hold little liable to slip on the rough bark of a tree, and if the perch

be moved, slipping is still further guarded against, by turning in the nails so that their points touch the perch. If the perch be violently swung, the bird bends his legs, and rests with his breast on the perch, thereby lowering his centre of gravity. If a live bird be perched on the finger, it will be felt that it balances itself and does not grip, but it frequently uses the points of its claws, particularly of the hind ones. If the hand be moved forwards, the bird having a tendency to fall backward, it will be found to actually raise its front toes, and stick in the points of the hind claws; far from gripping tighter, it actually grips less tightly. If a sleeping bird be shaken, it awakes and puts down its second foot. If the perch be swung while the bird is asleep, the bird will be observed to move its body *in advance* of the movements of the perch. Although the sleeping bird usually uses the point of his hind nail, he does not always do so, and sometimes sleeps, obviously *not* holding the perch, but evidently balancing, the perch being stationary, but if the perch be moved slightly, the hind nail is used immediately. I cannot detect any bending of the leg, when the bird goes to sleep, beyond that which exists when it is awake, nor is the flexure of the last joint of the toes accompanied by a bending of the leg under ordinary circumstances. On the other hand there can be no doubt, that, in the live bird, flexure of the toes is independent of bending of the leg; a live bird can open or close its claws, with the leg straightened, or bent close to the body, and if a bird be under the influence of either, the flexure of leg and foot, simultaneously observed in the dead bird, is not observed. Birds commonly rest with the breast on the perch, in these cases, the claws will be found quite open; it is obvious in this case, that flexure of knee and heel does not cause flexure of the toes.

If bending of the leg necessarily caused flexure of the toes, the bird would in some cases evidently be inconvenienced, during incubation for instance. The idea, that the weight of the body tending to bend the leg might so flex the toes as to diminish the fatigue of perching, is obviously erroneous mechanically; for, if the grip of the perch were produced by the contraction of particular muscles, and if the same muscles were employed on the additional labour of preventing flexure of the leg, the two duties would not be so opposed as to make the strain on the muscles less than it would be if they performed but one duty, and the additional duty would increase the load not decrease it. It appears to me, that perching birds really balance themselves, just as mammals and birds on plane surfaces do; that they are enabled to do this just as man is, by means of opposing muscles; that flexure of leg and toes are independently under control of the bird's will as in man; and that the movements found dependent on each other in the dead bird after alteration of the muscles, are independent in the live bird; and that the large surface covered by the toes, the relative lightness

of the body, and the soft under-surface and sharp nails of the toes preventing slipping are sufficient to explain how a bird is enabled to sleep perched, just as a horse or a bird sleeps standing on a plane.

III.—*The Walking Pace in Man.*

Previous observers have assumed that the path traversed by man in walking is a straight one, that each step is alike, and that in natural walking, the complementary motions are evoked regularly and symmetrically. I have made a great number of observations, and have surveyed and plotted out natural paths across an extended plain, and I find the natural path is a wavy line. If the pace be slow, the deviation from the straight line is greater than if the pace be quick, and this deviation is greatest when the walk is very slow. The sinuous walk of a man slightly intoxicated, is an exaggeration of the normal walk; the difficulty of walking slowly beside a second person without occasionally coming against him, unless touch be kept in some way, is a matter of common observation. It appears that the adoption of sinuous paths in laying out gardens, with a view to imitate nature, is an unconscious imitation (often exaggerated) of the foot paths formed naturally, whenever an extended plain has to be crossed by persons on foot, and this sinuosity is a consequence of the natural walk of man being in a sinuous path, probably by reason of the equilibrium being imperfect, and the movements not strictly symmetrical.

7. *List of Diurnal Lepidoptera inhabiting the Nicobar Islands.*—By J. WOOD-MASON, Deputy Superintendent, Indian Museum, and L. DE NICEVILLE.

(Abstract.)

In this paper which will appear in the Journal, Part II, the authors state, that in Mr. F. Moore's paper on the Lepidopterous Fauna of the Andaman and Nicobar Islands, only 23 species of rhopalocerous Lepidoptera are recorded from the Nicobar group.

The Museum has recently received from Mr. F. A. De Røpstorff a collection of Nicobar butterflies consisting of thirty-four species, twenty-five of which are recorded, in the present paper, for the first time, and two are described as varieties of known forms.

This paper will appear in the Journal, Part II.

LIBRARY.

The following additions have been made to the Library since the meeting held in February last.

TRANSACTIONS, PROCEEDINGS AND JOURNALS,

presented by the respective Societies and Editors.

- Berlin. K. preussische Akademie der Wissenschaften,—Monatsbericht, September and October 1880.
- Bordeaux. Société de Géographie Commerciale,—Bulletin, No. 2.
- Calcutta. Geological Survey of India,—Memoirs, Palæontologia Indica, Series XII, Vol. III, Part 1.
- Feistmantel, Dr. O.*—The Flora of the Talchir Karharbari Beds.
- Lisbon. Sociedad de Geographia,—Boletín, Second Series, No. 2.
- London. Royal Microscopical Society,—Journal, Vol. III, Nos. 6 and 6a, December 1880.
- . Royal Astronomical Society, Monthly Notices, Vol. XLI, No. 1.
- . Institution of Mechanical Engineers,—Proceedings, No. 3, 1880.
- . The Academy,—Nos. 443, 454 to 456.
- . The Athenæum,—Nos. 2777 to 2780.
- . Nature,—Vol. XXII, No. 574, and Vol. XXIII, Nos. 585—588.
- München. K. b. Akademie der Wissenschaften,—Sitzungsberichte der mathematisch-physikalischen Classe, Parts 2—4, 1880.
- . ————. philosophisch-philologischen und historischen Classe,—Vol. II, Part 3, 1879; and Parts 1—3, 1880.
- . ————. Abhandlungen,—historische Classe, Vol. XV, Part 2.
- . ————. philosophisch-philologischen Classe,—Vol. XV, Part 2.
- . ————. mathematisch-physikalischen Classe,—Vol. XIII, Part 3.
- New York. American Oriental Society,—Proceedings, October 1880.
- Paris. La Société d'Anthropologie,—Bulletin, Vol. III, Part 3, April to July 1880.
- . La Société de Géographie,—Bulletin, Vol. XX, November 1880.
- Pisa. Società Toscana di Scienze Naturali,—Atti, Processi Verballi, 14th November 1880.
- Rome. Società degli Spettroscopisti Italiani,—Memorie, Dispensa 9, September 1880.
- Roorkee. Professional Papers on Indian Engineering,—Vol. X, No. 39, February 1881.

- Vienna. Kaiserliche Akademie der Wissenschaften,—*Fontes Rerum Austriacarum*, Vol. XLII, Part 2.
- . Archiv für Oesterreichische Geschichte,—Vol. LIX, Parts 1—2, and Vol. LX, Part 1.
- . Sitzungsberichte,—mathematisch-naturwissenschaftliche Classe, Part I, Vol. LXXIX, Nos. 1—5; Vol. LXXX, Nos. 1—5; Part II, Vol. LXXIX, Nos. 4—5; Vol. LXXX, Nos. 1—5; Vol. LXXXI, Nos. 1—3; Part III, Vol. LXXX, Nos. 1—5; Vol. LXXXI, Nos. 1—3.
- . philosophisch-historische Classe,—Vol. XCIV, Nos. 1—2; Vol. XCV, Nos. 1—4, and Vol. XCVI, No. 1.
- . philosophisch-historische Classe, Denkschriften, Vol. XXX.
- . mathematisch-naturwissenschaftliche Classe,—Denkschriften, Vol. XLI.
- Yokohama. Deutsche Gesellschaft für Natur-und Völkerkunde Ostasiens,—*Mittheilungen*, December 1880.
- . Asiatic Society of Japan,—*Transactions*, Vol. VIII, Part 4.
- Zagreb. Arkeologickoga Druzstva,—*Viestnik*, Vol. III, No. 1.

PAMPHLETS,

presented by the Authors.

- LYALL, C. J. Sketch of the Hindustani Language. Sm. 8vo., Edinburgh, 1880.
- SCHWENDLER, L. Report on the Electric Light at the East Indian Railway Company's Station, Howrah (Calcutta). Fcp., Calcutta, 1881.

MISCELLANEOUS PRESENTATIONS.

- CARRINGTON, R. C. List of Light-Houses and Light-Vessels in British India, including the Red Sea and Coast of Arabia (Suez to Singapore). Obl. 4to., Calcutta, 1881.

MARINE SURVEY DEPARTMENT.

- DÖLLINGER, J. v. Das Haus Wittelsbach und seine Bedeutung in der deutschen Geschichte. 4to., Munich, 1880.
- ROCKINGER, DR. L. Die Pflege der Geschichte durch die Wittelsbacher. 4to., Munich.
- ZITTEL, DR. K. A. Ueber den geologischen Bau der libyschen Wüste. 4to., Munich.

K. b. AKAD. DER WISSENS., MÜNCHEN.

- WRIGHT, W. The Palæographical Society. Fascimiles of Ancient MSS. Oriental Series. Part V. Fol., London, 1880.

PALÆOGRAPHICAL SOCIETY.

Report on the Administration of the Land Revenue Department of the Central Provinces for the Revenue year 1879-80. Fcp., Nagpur, 1881.

CH. COM., CENTRAL PROVINCES.

Account of the Operations of the Great Trigonometrical Survey of India, Vol. VI. 4to., Dehra Dun, 1880.

Synopsis of the Results of the Operations of the Great Trigonometrical Survey of India. Vol. VII. 4to., Dehra Dun, 1879.

SURVEYOR GENERAL OF INDIA.

Sixteenth Annual Report of the Sanitary Commissioner with the Government of India, 1879. Fcp., Calcutta, 1881.

SANITARY COMMISSIONER WITH THE GOVERNMENT OF INDIA.

Indian Forester, Vol. VI, No. 3, January 1881.

BENGAL GOVERNMENT.

PALMER, E. H. (Sacred Books of the East, Vols. VI and IX). The Qurân, 2 Vols. 8vo., Oxford, 1880.

FALLON, DR. S. W. New English-Hindustani Dictionary, Part I.

HOME, REVENUE AND AGRICULTURAL DEPARTMENT.

PERIODICALS PURCHASED.

Göttingen. Gelehrte Anzeigen,—Nos. 3—4, and Index for 1880.

———. Nachrichten,—Nos. 20—21, and Index 1880; No. 1, 1881.

Leipzig. Annalen der Physik und Chemie,—Vol. XII, Part 1.

———. Beiblätter,—Vol. V, No. 1.

London. Society of Arts,—Journal, Vol. XXIX, Nos. 1469—1471.

———. Chemical News,—Vol. XLIII, Nos. 1103—6, and Index to Vol. XLII.

———. Publishers' Circular,—Vol. XLIV, Nos. 1040—1.

Paris. Comptes Rendus,—Vol. XCII, Nos. 1—4.

———. Revue Scientifique,—Vol. XXVII, Nos. 2—5.

———. Revue Critique,—Vol. XI, Nos. 2, 4—5.

———. Revue des deux Mondes,—Vol. XLIII, Nos. 2 and 3.

———. Journal des Savants,—January 1881.

———. Annales de Chimie et de Physique,—Vol. XXI, December 1880.

Philadelphia. Manual of Conchology, Part 8.

BOOKS PURCHASED.

GOULD, J. The Birds of Asia. Part XXXII. Fol., London, 1880.

GOULD, J. The Birds of New Guinea and the Adjacent Papuan Islands. Part XI. Fol., London, 1880.

SALLET, A. VON. Die Nachfolger Alexanders des Grossen in Baktrien und Indien. 8vo., Berlin, 1879.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.
FOR APRIL, 1881.

The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 6th April, 1881, at 9·15 P. M.

H. B. MEDLICOTT, Esq., F. R. S., President, in the Chair.

In accordance with the announcement made at the Annual Meeting held in February last, the President ordered the balloting lists for the Election of the Council and Officers for 1881 to be distributed, and appointed Col. J. Sconce and Major H. S. Jarrett Scrutineers.

The PRESIDENT announced that the Scrutineers declared the result of the ballot to be as follows :

President.

The Hon'ble Sir Ashley Eden, K. C. S. I., C. I. E.

Vice-Presidents.

Dr. Rájendralála Mitra, C. I. E.

C. H. Tawney, Esq., M. A.

The Hon'ble H. J. Reynolds, B. A., C. S.

Secretaries and Treasurer.

J. Wood-Mason, Esq.

Dr. A. F. R. Hoernle.

A. Pedler, Esq., F. C. S.

V. Ball, Esq., M. A., F. G. S.

Other Members of Council.

H. B. Medlicott, Esq., F. R. S.

J. Westland, Esq., C. S.

J. Eliot, Esq., M. A.

D. Waldie, Esq., F. C. S.

H. Beverley, Esq., C. S.

Babu P. C. Ghosha.

L. Schwendler, Esq.

Mr. Westland said that he trusted he would be allowed as one of the retiring Vice-Presidents of the Society to propose a vote of thanks to Mr. Medlicott, the out-going President. Mr. Medlicott had unusual qualifications for the post both as a man of science, and as a man of business; other gentlemen could testify to Mr. Medlicott's services rendered to the Society in the former capacity, he himself could say from his own experience, how completely and efficiently Mr. Medlicott managed the business of the Society. The Society was under great obligations to Mr. Medlicott, for the labour he had so successfully and so willingly bestowed on the management of its affairs.

In resigning the President's chair, Mr. Medlicott spoke as follows :

It is very gratifying to me to return thanks for the response this meeting has accorded to the kindly words spoken by Mr. Westland. I shall not cease to endeavour to be of service to the Society.

The brief remarks I wish to make on retiring from the office of President would have been more appropriate had this event taken place at the annual meeting, as is customary. As to the few observations I did make on that occasion, in referring to the report for the preceding year, I was surprised to find that they have been printed in our Proceedings for February as "the President's address." It looks like a stroke of irony on the part of our Secretary; but I acquit him of the charge. I by no means meant to make a mockery of the imposing undertaking known as a Presidential Address. On the contrary, I had come prepared to take my leave of office with a humble apology for what many may look upon as my spontaneous collapse. At the same time I wished to justify the step I had taken in resisting what is an innovation, and as I believe a mistaken one, in the practice of our Society. At the previous annual meeting I gave a notice of motion to that effect; and I think the matter of sufficient importance to recur to it now.

The tendency I would deprecate—that of following the practice of learned bodies elsewhere—is superficially laudable; but I may designate it as unpractical and therefore unscientific. The essence of practical reason is, the intelligent apprehension of conditions, and adaptation thereto; in view, no doubt, of a best conceivable standard, but the premature adoption of that standard may be a fatal form of blunder. I do not allow that my action arises from a defective estimate of what a scientific Society should be: it is rather that the standard I look to is incompatible with ourselves and our circumstances. Let us at all events avoid shams and false pretension. We are by profession a scientific body; but our body has been and is to a large extent non-scientific, or even anti-scientific; and symptoms were not wanting that a marked prominence of the scientific element in the administration would lead to atrophy of the body. Few

will deny that, constituted as we are, our President should often be a man known to the general public. A complete obstacle to this would be, and has been, the innovation of an annual presidential discourse upon science in some form, which performance is by no means worth the sacrifice. The real credit of the Society and of its working members depends on the amount of information to be found in its publications. I would, therefore, ask those members to be content with this solid advantage afforded by the Society, and to forego an ambition of flags and fireworks.

I must not, however, allow it to be said, that I am making a virtue of necessity—shielding my incapacity under the guise of renunciation. Of actual incapacity I cannot speak: but I do confess myself unable, without a great deal more leisure than I can command, to prepare what I should care to offer as an address to a learned Society. This touches, perhaps, the most vital objection to the practice I wish to see held in abeyance for special occasions. You can seldom find a suitable president of any denomination who is not already an overworked official; and very few men thus placed so overflow with knowledge as to undertake so serious a task without inadmissible interference with regular duties. Some of you are aware how difficult it has been of late to find a president. More than one member thoroughly competent to lead and to address the Society have declined the post; and though I cannot speak with certainty, I strongly suspect that the obnoxious innovation had much to say to our disappointment. They have escaped by passive resistance; it has fallen upon me to incur the obloquy of overt rebellion, for which I must crave your indulgence.

I have now the satisfaction of handing over office to a President under whom the Society should flourish in all its branches.

Mr. C. H. TAWNEY, M. A., Vice-President, then took the Chair.

The minutes of the last general Meeting were read and confirmed.

The following presentations were laid upon the table—

1. From the Californian Academy,—Early Discoveries of the Hawaiian Islands in the North Pacific Ocean, by H. A. Peirce.
2. From the Registrar, Calcutta University,—Tagore Law Lectures, 1879,—The Law relating to the Hindu Widow, by Troilokyanath Mitra.
3. From the Bengal Government,—The Wild Silks of India, principally *Tusser*, by T. Wardle.
4. From the Madras Government,—(1) A Classified Index to the Sanskrit MSS. in the Palace at Tanjore, by A. C. Burnell, (2) Photographs of Humpi in the Bellary District, of Amravati, of Undapalli and of Kondapalli in the Kistna District.
5. From the Geographical Society of Lyons,—Rapport Annuel, Séance Solennelle, 23rd December 1880.

6. From the authors,—Table showing the conjugation of the Verb substantive in Eastern Hindi, by G. A. Grierson. A Detailed Analysis of Abdul Ghafur's Dictionary of the Terms used by Criminal Tribes in the Panjáb, and a sketch of the Changars and of their Dialect, by Dr. G. W. Leitner. Bi-Metallism at 15½ a necessity for the Continent, for the United States, for England, by H. Cernuschi.

7. From the Home, Revenue and Agricultural Department,—A Comparative Grammar of the Gaudian Languages with special reference to Eastern Hindi, by Dr. A. F. R. Hoernle.

8. From Dr. A. F. R. Hoernle,—Nos. 5 and 6 of 1890 of the *Deutsche Litteratur Zeitung*, and On the Khorsabad Inscriptions, by Edward Hincks.

9. From the St. Xavier's College Observatory,—Observations taken from July to December 1880.

10. From the Political Agent, Bundelkhand,—14 Copper Coins.

The following Gentlemen are candidates for ballot at the next meeting.—

1. J. Cockburn, Esq., proposed by H. Rivett-Carnac, Esq., seconded by Dr. J. Anderson.

2. Capt. E. Molloy, 5th Ghurkas, Abbotabad, proposed by G. Hughes, Esq., C. S., seconded by H. W. McCann, Esq., M. A., D. Sc.

The SECRETARY reported that the Hon'ble B. W. Colvin and the Bishop of Rangoon had intimated their desire to withdraw from the Society; and that the elections of Mr. J. A. Brown and the Rev. J. S. Doxey had been cancelled under Rule 9.

The COUNCIL reported that Mr. J. C. Douglas had left India, and that Mr. V. Ball had been asked to officiate as Treasurer in his place.

The SECRETARY reported that the following coins had been acquired under the Treasure Trove Act:—

From Deputy Commissioner of Kheri, 4 silver and 4 copper coins.

From Deputy Commissioner of Chhindwara, 6 copper coins.

The SECRETARY announced that the following works had been sanctioned for publication in the *Bibliotheca Indica Series*, on the recommendation of the Philological Committee:

1. The *Paráshara Mádhava Smṛiti*, to be edited by Paṇḍit Chandra Kánta Tarkálankára, who has just completed an able edition of another law book, the *Gobhiliya Sútra*. Several MSS. are available and the work will be edited with Mádhava's commentary.

2. An English Translation of the *Suśruta*, to be prepared by Dr. U. C. Datta. This is an ancient Hindu medical work, hardly less important than the Charaka. A portion of it has been already translated by another Babu, under the supervision of Dr. Charles, who has placed his MS. at the service of the Society.

3. The *Naqaid el Fezazdaq and Jerir*, to be edited by Mr. C. J. Lyall in conjunction with Dr. Wright of Cambridge. This work is extremely interesting both from the philological and historical point of view, as it abounds in references to the old pagan history of the Arabs, and the commentary with which the text is provided elucidates many obscure points of that subject.

Mr. H. F. BLANFORD, F. R. S. exhibited photographs of the Van Rysselberghe Meteorograph, and specimens of the engraved plates produced by it, with proof impressions from them; and gave a general description of the instrument and its working. A specimen of the record obtained will be found in plate I.

After referring to the fact that eye readings of instruments, if taken only 3 or 4 times in the day were insufficient to meet the demands of modern Meteorological enquiry, and if taken hourly and carried on night and day, demanded such an establishment of observers as to practically restrict detailed observation to a few costly observatories, he observed that, for nearly half a century, inventive ingenuity had been directed to the construction of self-registering or autographic instruments. Among the earlier inventions of the kind were Whewell's and Osler's anemographs, King's barograph, &c., and among the more elaborate of later inventions, the Kew thermographs and barographs which register by photography, Theorell's barograph which prints in figures the value of the barometer reading at short intervals, and Beckley's anemograph.

These instruments were designed to register either one element of observation only, or at the utmost two, as in the case of the thermograph and the anemograph. But some inventors had gone beyond this, and had aimed at registering all the more important elements of meteorological observation by means of one and the same recording apparatus. Such instruments are termed meteorographs, and in order to establish communication between the several instruments and the recording apparatus, the former fixed in various parts of the building according to the character of the required exposure, the latter in a secure place in the interior of the building, the aid of electricity had to be called in. A very elaborate instrument of this kind had been in operation for many years at Berne; another, less elaborate, invented by the late Father Secchi, at Rome; and also at Zi-ka-wei near Shanghai and at St. Xavier's College at Calcutta. But the latest and most compact, and at the same time the least costly and

most effective of all, is the very beautiful instrument, originally designed by M. Van Rysselberghe and constructed with many original improvements by the very ingenious mechanician M. Schubert of Ghent.

Two of these instruments have lately been received for use at Allahabad and Lahore; and while awaiting the provision of the requisite accommodation, at the places of their destination, one of them has been set up and is now in operation at the Meteorological office, No. 4 Middleton Row, Calcutta, and is open to the inspection of such members of the Society as may desire to examine it.

The details of the mechanism could hardly be understood without watching the instrument at work, and even then not without some careful study and examination. All that could be attempted would be to give some general idea of its principles.

The instrument registers, at successive intervals of ten minutes, the readings of (1), the dry and wet bulb thermometers; (2), the rain gauge; (3), the direction of the wind; (4), the height of the barometer and (5), the rate of the wind movement in the previous interval. All these are engraved in succession on a thin metallic plate fixed on a revolving cylinder, and, at the same time, the scale of all the instruments is engraved, so that the values may be at once read off; and when the plate is removed from the cylinder and the trace bitten in with etching liquor, it may be printed from in an ordinary copper-plate press, and any required number of copies obtained for distribution.

The principal motive power by which the recording cylinder is made to revolve, and the electric connections with the several instruments made and interrupted in succession, is given by clockwork.

This is set in action, on the completion of each ten minutes interval, by an ordinary clock, the minute-hand of which makes contact with a spring projecting from the brass rim which surrounds the clock face, and completes an electric circuit; the current of which, acting on an electro-magnet releases a detent, allowing the cylinder to revolve, and at the same time causing a shaft to set in action a somewhat complex system of commutators.

Two batteries are employed, each consisting of eight Daniell's elements. One of these serves to work the burin which engraves the trace, by acting on an electro-magnet which pulls back the burin from the cylinder, against which it otherwise presses by means of a spring; the other, the regulating current, is directed through the several instruments in succession by means of the commutators, and then, acting on a series of electro-magnets makes and breaks the engraving current at the proper intervals according to the values indicated by the several instruments. The graduation is effected by passing one or the other current through a brass ring which revolves with the

cylinder and bears a number of deep grooves on its surface corresponding to the graduation of the instruments. A spring which presses on the grooved surface and conveys the current, suffers an interruption of contact when passing over the grooves, and thus produces a minute break in the engraved line, and, when the burin is not engraving, allows it to mark a series of dots corresponding to the graduation.

At the commencement of each revolution and before the registration begins, an endless screw which carries the burin is made to revolve through a sufficient distance to bring the burin about $\frac{1}{10}$ of an inch lower on the plate; and at the end of every two hours through a somewhat greater distance, leaving a broader interval between the engraved lines and furnishing a time-scale.

The first instrument which gives its trace is the dry bulb thermometer. The thermometers are open at top, and the tubes give admission to two probes of platinum wire, which, by means of the mechanism before noticed are made to descend slowly until they form contact with the mercurial columns. As the dry bulb thermometer always (except in an absolutely saturated atmosphere) stands at a higher temperature than the wet bulb, its contact is first made, completing the regulating circuit. This acts on an electro-magnet, which, by attracting an armature, completes the burin current and draws the burin back from the cylinder; and, at the same time, causes a catch to start forward and arrest the further descent of the platinum probe. That of the wet bulb continues to descend, until, on making contact with the mercury, the regulating current acts on another electro-magnet, which interrupts the burin current, releasing the burin, which again presses on and engraves the plate till the regulating current is cut off by the action of the commutator.

Next comes the trace of the rain gauge. The rain gauge is now situated on the roof of the office and communicates with the registering apparatus by two wires, which form a part of the circuit of the regulating current. The regulating current (or a branch of it) can always pass through this circuit, when contact is made in the rain gauge. When rain is falling it passes from the collecting funnel into a tip bucket, and this when full tips and empties itself, at the same time making a metallic contact which allows a momentary current to pass. This current acts on an electro-magnet in the registering apparatus below, the armature of which acting on a ratchet wheel makes a small brass cylinder revolve through a single tooth. One half of this cylinder is of greater diameter than the other, the two surfaces being separated by a helical margin, such as might be produced by applying a wedge-shaped strip of brass plate to the surface of a cylinder, with the two rectangular edges of the wedge respectively parallel to the axis and base of the cylinder, while the hypotenuse forms the helical margin.

A spring, which the mechanism, set in motion by the clockwork, causes to ascend and descend in a direction parallel with the axis of the cylinder, comes in contact with the projecting portion, the breadth of which is the greater the more rain has entered the gauge. During this contact, the regulating current passes, cutting off the circuit of the engraving current, and setting free the graver, which records a line on the plate corresponding to the length of the cylindrical surface in contact with the spring.

Next come the wind directions given by the anemometer. In general construction, the anemometer resembles that of Beckley. The direction of the wind is given by two windmill regulators, which cause to revolve a plate forming the cover of a flat cylindrical box. The plate is metallic and presses on eight insulated springs, set at the eight principal divisions of the compass, and connected with eight wires which lead to the recording apparatus below. There is also a ninth wire always in metallic connection with the revolving plate, and the regulating current passes into the upper plate and down by 6 or 7 of the direction springs and their wires whenever the anemometer wires are brought into circuit by the action of the clockwork. It is never completed through the whole 8 springs. In the upper plate, opposite to the pointer which indicates the wind direction, is let in an insulating piece of glass, and this is always in contact with one and sometimes with two adjacent springs, through which therefore, the communication is cut off.

The eight direction wires communicate with eight small studs; over which the clockwork mechanism causes a small spring to pass, making contact successively. The regulating current, passing through these and acting in the manner already described, allows the graver to make a short mark corresponding to each of them, with the exception of that one (or two) thrown out of circuit by the plate of the anemometer.

Next comes the barometer, and in the case of this instrument, M. Von Rysselberghe has adopted a very beautiful contrivance which dispenses with the usual corrections for temperature, and enables the barometer to give at once its reduced or corrected value. The principle is discussed by M. Van Rysselberghe in his original paper in the volume of the *Bulletins de l'Académie Royale de Bruxelles* for 1873; and I need only describe it in general terms, by saying that in a syphon barometer such as is used in the meteorograph, the quantity of mercury in the instrument may be so adjusted to the diameter of the tube, that the level of the mercury in the shorter or open arm of the tube is unaffected by changes of temperature. In the open arm of the tube, therefore, the changes of level take place under changes of pressure only. The reading of the barometer is communicated by an arrangement similar to that already described in the case of the thermometers; *viz.*, by a steel cylindrical probe which

descends until it makes contact with the mercury, closing the regulating current which, in this case acting on an electro-magnet, completes the burin circuit, and causes the withdrawal of the graver.

Lastly the counter of the revolutions of the anemometer cups is recorded. The cups of the anemometer complete the circuit of a branch of the regulating current, once in each revolution; and this current, acting on a ratchet connected with the mechanism below, causes a graduated metallic rod to be pushed up through staples in which it works stiffly, as long as the recording mechanism is not in action. But coincidentally with the last part of the revolution of the recording cylinder, a catch, in descending, makes contact with a projection on the graduated metallic rod, brings the latter back into its initial or zero position, and during the time of contact completes the regulating current, which cuts off the engraving current, and allows the burin to engrave a line of length proportionate to the displacement of the rod.

Dr. A. F. R. HOERNLE exhibited some copper coins and some antiquities found in the ruined town of Khokhrakoṭe lying a short distance to the north of the present town of Rohtak and read the following account of their discovery written by Durga Pershad, Tehsildar of Rohtak.

“Although nothing has to the present day been discovered either from inscriptions, engraving or plates, which in ancient times used to be put into foundations of buildings, to shew the year in which the towns of Rohtak, Khokhrakoṭe, Lálpúr and Brahmá were built, tradition gives the following brief account.

“This ruined town of Khokhrakoṭe is situated to the north of Rohtak and thousands of years have passed since it was ruined.

“It is said that the town of Rohtak was founded a few thousand years ago by Rájá Rohtás, son of Rájá Prichand, that it has derived its name from him, and that on the side of Khokhrakoṭe was built an extensive fort with a small population. This population on the foundation of Rohtak gradually disappeared, and the materials of the fort were removed for the construction of another to the east of the town of Rohtak which is now inhabited by ‘Sheikhs.’

“It is also said that this ruined town of Khokhrakoṭe, besides the fort alluded to above, consisted of houses of the employés of the State, a market with a few shops of workmen forming a cantonment, and palaces of petty Nawábs and persons of substance, but that from the time of Rájá Rohtás it has ceased to be inhabited.

“Another tradition says that it was ruined some time before the foundation of the town of Rohtak.

“These two traditions, therefore, almost entirely correspond with one

another, as, if at the time Rohtak was inhabited, there was a fort at Khokhrakote, it is very probable that it must have been dismantled and the materials removed to Rohtak.

“To the west of Rohtak lies the town of Lálpúr, which is said to have been founded by Lálichand Seth a millionaire, and was mostly occupied by money-dealers (Mahájans) and Bráhmans, with a small number of Khatries.

“In Sambat 1772 this town had succumbed to an overflowing of a branch river named “Chomang”, owing to the inundation of the Jamna river. The marks as to the existence of the former are still visible in the neighbourhood of maúzás Sánghi and Kheri Ballab, by the presence of a few bridges and the uneven ground on which it flowed. The present Gohána canal which runs towards this ruined town of Lálpúr, into the Rohtak Parganá, has also been constructed on the bed of the said river.

“Large bricks are dug out from the ruined buildings of this town and used in building others at Rohtak.

“With a view to discover objects of antiquity, the Commissioner of the Division and Mr. Wood, Deputy Commissioner, in September or October 1879, inspected these ruined towns and proposed to dig the mound, close to the remains of the old fort, called “Nawabi tilá” by the residents of Rohtak, by reason of its being supposed to be the site on which the palaces of the Nawábs were formerly situated, and also on account of its being the highest of all the mounds in this ruinous tract.

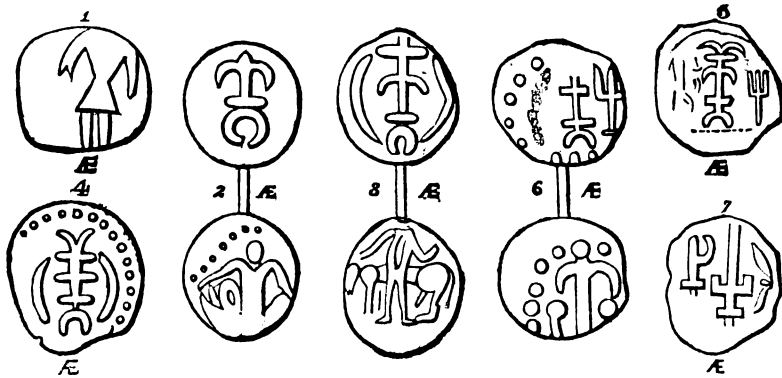
“In November 1879, the District Committee sanctioned an expenditure for the digging of this mound. It was first dug to a depth of 8 or 10 feet below the surface, when a large quantity of earth, which seemed as if it had been thrown in, was dug out, and then ruined walls were disclosed and a quantity of interesting relics, such as pieces of earthen vessels, bones, and rusty iron, as also a few shells. At about 15 feet lower down, the foundations of the walls were at an end, and again earth as above noted was dug out. The diggings continued for 7 or 8 feet, when a second set of ruined walls was discovered and a small room which contained some decayed jawár grain which on being touched at once became dust. This, and an image which, from being disfigured by decay, could not be made out, but presumably of a deity, the face being very much like the representation of Buddhá, were found amongst debris and earth. The foundations of the second set of walls having ended at a depth of about 6 or 7 feet, the remains of a third set of walls appeared at about a depth of 38 feet, and when dug to about 6 feet, a small earthen pot, with the mouth covered over with mud, containing some small coins, was found. On the evening of 3rd January 1881, these coins with other relics, shells &c., that were discovered from the mound in question at Khokhrákoṭe, were produced before His Honor the Lieutenant-Governor when encamped at Rohtak. His Honor

after inspection was pleased to order a few of the coins to be sent to him, together with an account as to their discovery.

"The excavations were carried on to a depth of 60 feet, and the expenditure incurred was Rs. 459."

Dr. Hoernle observed that there was some uncertainty as to the real depth to which the excavations were carried. At the end of the account, it was stated that the depth was 60 feet, but the amount of the depths of the several diggings previously detailed in the account was much larger, about 80 feet.

With regard to the coins, he remarked that they appear to be late Indo-Scythic. In Prinsep's *Indian Antiquities*, p. 417 (Plate XXXIV, Nos. 11, 12, 13) they are classed as Indo-Sassanian; but wrongly. They have no trace of the characteristic Sassanian fire-altar, nor of the head of the king in profile. On plate VIII, No. 8 and Plate IV, No. 10 (*ibidem*), they are classed as Indo-Scythic, which they undoubtedly are, or rather probably late imitations of them. This is shown by the characteristic "Śiva and bull" on the reverse, so well known from the coins of Kadphises and Vasudeva (see *Ariana Antiqua*, Plates X, No. 12, XIV, No. 14). The deterioration from the original type can be distinctly traced, in the present series of coins, on the obverse (see facsimile woodcuts). The coins of Kadphises and Vasudeva have, on the obverse, the full figure of the king with a trident in front.



The full figure is still clear on No. 1 (compare No. 10 on Plate IV of Prinsep's *Indian Antiquities*, Vol. I); on No. 2 it has shrunk into mere crude outlines; in Nos 3 and 4 the outlines are still more attenuated; in Nos. 5 and 6 the trident may be seen in front of the skeleton figure, on

the right ; in No. 7 the same on the left. The reverse of No. 1 resembles that of No. 2. The reverses of Nos. 4, 5, 7 resemble that of No. 3. In No. 6 the same deteriorating process may be observed on the reverse ; the man and bull having been attenuated to mere outlines. It may be noted that on Vasudeva's coins, there is a trident in front of the king on the left, and another in his hand on the right ; and further, that the final skeleton (as in Nos. 4 and 5) closely resembles the old Nágari characters ऩ (i. e., क + ऩ + ॠ in conjunction), which are very much like the characters that are seen under the arm of the king (in full figure) in the earliest Gupta coins (e. g., of Ghatotkacha). This fact would seem to link the present coins on to the Gupta coins.

The antiquities consisted of 16 pieces ; viz., 3 images, 2 pieces of rusty iron, 2 pebbles, 3 globular stones, 3 shells (*cowries*), 4 pieces of "ivory" ornaments. One of the images is a rude, hollow iron figure, broken in 3 pieces representing a squatting man with a top-knot and long pendent ears, another is a very rude full-sized male figure, bow-legged and with arms a-kimbo, unclathed ; apparently a votive figure or a mere child's toy. The third is the full male figure of a divinity, cut in low relief on a small flat piece (apparently) of the well-known Agra soap-stone, with head-dress, necklace and sacred thread, both arms turned upwards and each supporting some conical object. Of the two pebbles one is the exact half of a well-turned globe ; the other is in its natural form. The three globular stones are really spindle-whorls made of clay, of the volcano-shaped kind, described and figured by Mr. Rivett-Carnac in the *Journal Asiatic Society, Bengal, Vol. XLIX, page 127*. The four so-called "ivory" pieces are the broken parts of two armlets. They are not of ivory, however, as described by the finders, but of conch-shell, as pointed out by the Natural History Secretary.

Mr. BALL, Officiating Natural History Secretary, exhibited samples of the sticks used in the hilly districts of Bengal, for producing fire and in connection with them made the following remarks :

Some years ago I exhibited a sample of the fire sticks used by the inhabitants of the Nicobar islands ; these were cut from some soft white wood, possibly from a species of *Bombax*. Subsequently in Sambalpur I found that the inhabitants of the jungles there knew how to make fire in exactly the same way, the sticks used being either of the small solid bamboo or the branches of the *pothur* tree (*Oroton oblongifolium*). In this case my attention was drawn to the fact by finding sticks which had been so used cast away in the jungles. On asking the coolies with me whether they understood the art, they immediately set to work in the following manner.

Breaking off two pieces of dry bamboo which had about twice the diameter of an ordinary lead pencil, they pointed one of them at one end, and on the side of the other they made a small pit to receive the point; from the pit a groove or notch was cut across on the side of the stick. This second stick being placed horizontally in position on some dry grass and leaves, was held there by the toes of the principal operator who squatted down for the purpose. Taking the first stick between the palms of his hands and placing the point in the pit, by rubbing his palms together the stick was made to revolve backwards and forwards, and the second operator relieved the first by commencing at the top as the other worked down to the bottom. They continued thus alternately relieving one another, till, in an incredibly short space of time, the pit became charred and soon began to smoke, the fine dust resulting from the friction falling down the already mentioned slit formed a small pile on the tinder and caught the first spark. This being carefully nursed and blown upon, soon burst into a flame.

At the ethnological section of the British Association meeting in 1878 I exhibited and described some of these sticks and the communication appeared to excite a considerable degree of interest. This, added to the fact that I have found that even in India many people are not aware that the knowledge of how to produce fire with two small sticks, so far from being extinct, is probably universal throughout some wide tracts in this country—has led me to make further enquiries. On the only two occasions upon which I have been in the jungle this year I have asked the first regularly jungly men I met with whether they could make fire; both replied in the affirmative and made good their words by producing a flame in a very short space of time. The first case happened not many miles distant from Deoghur; here the sticks used were the already mentioned *pothur* (*Croton oblongifolium*): these are now exhibited. The second case occurred in the centre of the Kharakpur Hills where I came across a tribe of people called Naya. Their headman, who, by the way, was a most curious and amusing individual, on being asked to produce fire sent one of his companions for the sticks to the jungle close by. He returned, not with the *pothur*, but with the woody stems of a thorny creeper. The thorns having been removed, a pit was made at a node or joint, and then, in the usual way, a very few turns produced a spark; these sticks I also now exhibit. This creeper has three native names, *Kumari* (or *Kumree*) *Dahnee* and *Maskanti*; although I omitted to get leaves or flowers I am fully satisfied that it is a species of the genus *Smilax* and in this opinion Dr. Feistmantel agrees with me. Most of the common species of *Smilax* have scarcely got woody stems, and in this one it is noteworthy that the wood much more closely resembles that of an Endogenous, than that of an Exogenous plant.

So anomalous are the characters of the genus that Lindley long ago proposed a special class, the Dictyogens, for its reception. Among its anomalous characters I do not know whether its woody structure has been specially noticed.

There is every probability that this *Smilax* was the so-called Vine which was known to the ancients as affording the wood with which fire was produced.

Dr. Feistmantel has called my attention to a passage in Sir Emerson Tennent's 'Ceylon' (Vol. II, p. 451) in which the Veddahs are described as making fire in this way with the pieces of an arrow which they broke in two for the purpose.

Mr. Tawney referred to Professor Kuhn's 'Herabkunft des Feuers und des Göttertranks', and mentioned that it appeared from passages quoted by that writer from Greek and Latin authors, that the wood of certain creepers was preferred for kindling fire by friction. Theophrastus states that the lower of the two pieces of wood should be made of ivy, or of a creeper named *ἀθραγένη*, resembling the wild vine. Pliny also tells us that *edera* and *vitis Silvestris*, *alia quam labrusca*, et *ipsa ederae modo arborem scandens* were preferred for the lower of the two fire-sticks, or *πυρέα* as they were called by the Greeks.

It was therefore very interesting to observe that the fire-sticks exhibited by Mr. Ball appeared to be made of the wood of a creeper, and a creeper resembling in appearance the wild vine. Among the Greeks and Romans the upper stick or borer was frequently made of laurel. But it is also stated that both sticks were often of the same wood, and the wood of the thorn, the ilex, and the linden seem also to have been used. Kuhn points out that Greek, Roman, and Indian accounts represent the process of attrition as performed by the help of a thong, and not as Mr. Ball saw it, with the hands alone.

The following papers were read—

1. *On the Relations of Cloud and Rainfall to Temperature in India, and on the opposite variations of Density in the Higher and Lower Atmospheric Strata.* By H. F. BLANFORD, F. R. S., *Meteorological Reporter to the Government of India.*

(Abstract.)

The paper treated of two subjects, which had been incidentally discussed in the author's official Report on the Meteorology of India in 1879,

but which, being of general and not merely temporary interest, the author had thought desirable to recast as the subjects of a special paper for the Society.

The first of these was a discussion of the circumstances which mainly determine those marked variations of temperature, that characterize the corresponding seasons of different years in India. Adverting to a paper recently communicated to 'Nature' by Mr. Douglas Archibald, in which Mr. Archibald had shown some reasons for inferring that the cyclical variations of rock-temperature, brought to light by Prof. Piazzi Smythe, were determined by corresponding cyclical variations of cloudiness in the atmosphere, the author remarked that this view was in part identical with that which he had originally suggested in a paper read before the Society in June 1875; wherein he had endeavoured to show that the temperature of the lower atmosphere on the land surface, in India, depends more on the quantity of cloud and rainfall, than on variations of the solar intensity. Evidence bearing on this subject, drawn from the meteorological observations of the last 6 years, was then brought forward. The temperature of the air and ground as observed at Calcutta in the first five months of 1879 was contrasted with the corresponding temperatures of 1880, and the difference shown to accompany marked variations in the cloud and rainfall. Similar evidence was obtained when the temperature of the N. W. Provinces in the hot months and rains respectively of the years 1877 and 1879 were compared, the variations of the two seasons being in opposite directions in the two years compared; and these were shown, in like manner, to have accompanied very striking variations in the cloud proportion and rainfall.

The action of the different agencies which most powerfully influence temperature at different seasons was discussed briefly, with the result that, only in November and December, is the effect of cloud to raise the temperature above the normal value. At all other seasons, the effect is the opposite, and hence abnormally cloudy and rainy years are abnormally cool years.

The second subject discussed was the variations in the density of the lower and higher strata of the atmosphere, as shown by a comparison of the barometric pressures at hill stations with those on the plains. It was shown that, in many cases, the density of the lower strata of the atmosphere was below the average, when the barometric pressure as a whole was in excess of the average, and *vice versa*; indicating that the higher strata must have an anomaly of the opposite character to that of the lower. It was also shown that a similar opposition of conditions is of annual recurrence at the setting in of the rains, and that it might therefore be probably traceable to some definite play of physical causes. Then adverting to a former discussion, in which it had been shown that the principal cause

affecting the density of the atmosphere is change of temperature, after referring to a recent paper by Mr. Douglas Archibald in the Journal of the Meteorological Society of London, in which this view had been revived and established, some additional evidence was adduced in its support ; and it was finally pointed out that, while, as shown in the former part of this paper, the action of cloud and rain was to lower the temperature of the lower strata of the atmosphere, their effect on the higher strata would probably be of the opposite character, which would explain and reconcile the apparent barometric anomaly in question.

This paper will be published in the Journal, Part II.

2. *Description of a Raingauge with Evapometer for remote and secluded stations (with a Plate).*—By H. F. BLANFORD, F. R. S., *Meteorological Reporter to the Government of India.*

(Abstract.)

The paper described a raingauge, intended for use at stations at which there was no resident observer, and which could only be visited at intervals of a month or more ; such as were certain hill-tops and stations in forest tracts. The idea had been suggested by Mr. Hutchins of the Mysore Forest Department in an official letter, which had been sent to the author for report. He had made some additions to the design sent up by Mr. Hutchins, and a gauge had been constructed in accordance with the modified design at the Mathematical Instrument Department, and had been subjected to a year's verification at the Alipore Observatory. The result of this verification was now communicated to the Society.

The gauge only differed from an ordinary raingauge in having a very large receiver, capable of holding about 30 inches of rainfall. The receiver was surrounded by an outer casing to diminish evaporation, and, in use, was buried in the ground, the mouth being about one foot above the ground level. Accompanying it, was a smaller vessel of the same diameter, but much shallower, and covered with a conical lid having a small perforation at the apex ; which was protected by a small conical cap, to prevent the entrance of rain. This served as an evapometer. In use a measured quantity of water (say = 2 inches of rainfall) was placed in both vessels, and they were then left undisturbed for a month. At the end of that time, the quantity in each vessel was remeasured. The additional water in the gauge being added to the loss in the evapometer was assumed to be the total rainfall of the interval.

A year's verification at Alipore, where the rainfall was also measured daily, showed that the instrument was less accurate than had been hoped,

but was nevertheless calculated to give an approximate result when great accuracy was not important. It had been found that the evaporation from the evaporator exceeded that from the gauge by quantities varying from $\frac{1}{4}$ inch to $\frac{3}{4}$ inch in different months, and the total error in ten months amounted to $4\frac{1}{2}$ inches. The cause of the error being obvious, it appeared probable that it might be greatly reduced or even corrected by increasing the depth of the evaporator, and by enlarging the conical cap, which would diminish the evaporation.

This paper will be published in the Journal, Part II, with a Plate.

3. *On some Lepidopterous Insects belonging to the Rhopaloceros Genera Euripus and Penthema from India and Burmah.*—By J. WOOD-MASON, Deputy Superintendent, Indian Museum.

This paper will be published in the Journal, Part II, No. 2 for 1881.

4. *A list of Butterflies taken in Sikkim in October 1880 with notes on habits, &c.*—By LIONEL DE NICEVILLE.

This paper will be published in the Journal, Part II, No. 1 for 1881.

The following communication has been received—

On the Revenues of the Mughul Empire.—By H. G. KEENE, C. S.

LIBRARY.

The following additions have been made to the Library since the meeting held in March last.

TRANSACTIONS, PROCEEDINGS AND JOURNALS, *presented by the respective Societies and Editors.*

Bombay. The Indian Antiquary,—Vol. X, Parts 116 and 117, March 1881.

Bordeaux. Société de Géographie Commerciale,—Bulletin, Nos. 3, 4 and 5.

Calcutta. Agricultural and Horticultural Society of India,—Journal, Vol. VI, Part 3.

Lennox, P. de Laval.—Remarks on Cattle disease in the district of Kangra, its treatment and remedy. Notes on the preparation of the Rhea Fibre, by certain residents of the Bhagulpore district. Communicated by the Government of Bengal. *Sandys, T.*—Remarks on Rhea cultivation and preparation. *Pogson, Capt. J. F.*—Notes on the introduction of certain Food Grains and Economic Plants into the Himalayas. Notes on some neglected Fibres. Trees yielding India Rubber.

- Leipzig. Deutsche Morgenländische Gesellschaft,—Zeitschrift, Vol. XXXIII, Part 4, 1880.
- Lille. Union Géographique du Nord de la France,—Bulletin, Nos. 1—5, July to November 1880.
- London. Royal Asiatic Society of Great Britain and Ireland,—Journal, Vol. XIII, Part 1, January 1881.
- . Statistical Society,—Journal, Vol. XLIII, Part 4, December 1880.
- . Royal Microscopical Society,—Journal, Vol. I, Part 1, February 1881.
- Summary of current Researches relating to Zoology and Botany (principally Invertebrata and Cryptogamia) Microscopy, &c., including original Communications from Fellows and others.
- . Royal Geographical Society,—Proceedings, Vol. III, Nos. 1—2.
- . Institution of Mechanical Engineers,—Proceedings, No. 4, 1880.
- . Royal Astronomical Society,—Monthly Notices, Vol. XLI, Nos. 2 and 3.
- . ———. Memoirs,—Vol. XLV, 1879-80.
- . Nature,—Vol. XXIII, Nos. 590, 592 and 593.
- . The Athenæum,—Nos. 2781—2785.
- . The Academy,—Nos. 457—462.
- Lyons. Société de Géographie,—Bulletin, Vol. III, No. 19.
- Manchester. Literary and Philosophical Society of Manchester,—Memoirs, Vol. VI.
- . ———. Proceedings, Vols. XVI, XVII, XVIII, and XIX.
- Moscow. Société Impériale des Naturalistes,—Bulletin, Vol. LV, No. 2, 1880.
- Sévretzow, Dr. N.*—Études sur le passage des oiseaux dans l'Asie Centrale particulièrement par le Ferghânah et le Pamir.
- Paris. La Société de Géographie,—Bulletin, Vol. XX, December 1880.
- Pisa. Società Toscana di Scienze Naturali,—Atti, Processi Verbali, 9th January 1881.
- Rome. Società degli Spettroscopisti Italiani,—Memorie, Dispensa 10—11, October und November 1880.
- Schaffhausen. La Société Entomologique Suisse,—Bulletin, Vol. VI, No. 2.
- Simla. United Service Institution of India,—Journal, Vol. IX, No. 46, 1880.
- St. Petersburg. Russian Geographical Society,—Proceedings, 1879.
- . L'Académie Impériale des Sciences de St. Petersburg,—Bulletin, Vol. XXVI, No. 2.
- Martens, E. V.*—Mollusques recueillis en Arménie par M. Alexandre Brandt.
- . ———. Memoires,—Vol. XXVII, Nos. 5—12.
- No. 5. *Möller, Valerian V.*—Die Foraminiferen des Russischen Kohlenkalks.
- No. 7. *Schrenck, Dr. Leop. V.*—Der Erste Fund einer Leiche Von Rhinoceros Merckii Jaeg.

- No. 8. *Bunge, Al.*—Pflanzen-geographische betrachtungen über die Familie der Chenopodiaceen.
- No. 10. *Heer, Dr. O.*—Nachträge zur Jura-Flora Sibiriens gegrundet auf die von Herrn Richard Maak in Ust-Baloi gesammelten Pflanzen.
- No. 12. *Abich, H.*—Ein Cyclus Fundamentalener Barometrischer Höhenbestimmungen auf dem Armenischen Hochlande.
- Vienna. Kaiserliche Akademie der Wissenschaften, Archiv für österreichische Geschichte,—Vol. XL, Part 2; Vol. XLI, Parts 1—2; and Vol. XLII, Part 1.
- . ———. Sitzungsberichte, — Philosophisch-historische Classe, Nos. 2 and 3, Vol. XCVI.
- . ———. Sitzungsberichte,—Mathematisch-Naturwissenschaftliche Classe, Part I, Vol. LXXXI, Nos. 1—5; Vol. LXXXII, Nos. 1—2: Part II, Vol. LXXXI, Nos. 4—5; Vol. LXXXII, Nos. 1—2: Part III, Vol. LXXXI, Nos. 4—5; Vol. LXXXII, Nos. 1—2.
- Vol. LXXXI, Pt. I, Nos. 1-4. *Fuchs.*—Ueber einige tertiäre Echiniden aus Persien.
- . Pt. I, No. 5. *Touta.*—Geologische Untersuchungen im westlichen Theile des Balkan und in den angrenzenden Gebieten.
- Vol. LXXXII, Pt. I, No. 1. *Sieber.*—Zur Kenntniss der nordböhmischen Braunkohlenflora.
- . Pt. I, No. 2. *Steindachner.*—Ueber eine neue Pythonart (Python Breitensteini) aus Borneo.
- Vol. LXXXII, Pt. III, Nos. 1-2. *Langer.*—Die Foramina Thebesii im Herzen des Menschen.
- Vienna. Kaiserliche Akademie der Wissenschaften,—Sitzungsberichte, Mathematisch-naturwissenschaftliche Classe, Register, zu den Baenden 76 Bis 80.
- . ———. Denkschriften,—Mathematisch-naturwissenschaftliche Classe, Vols. XL and XLII.
- Vol. XLII. *Hoernes.*—Materialien zu einer Monographie der Gattung Megalodus mit besonderer Berücksichtigung der mesozoischen Formen.
- . ———. Almanach 1880.

BOOKS AND PAMPHLETS,

presented by the Authors.

- CERNUSCHI, H. Bi-Metallism at 15½ a necessity for the Continent, for the United States, for England, 8vo., London, 1881. Pam.
- LEITNER, DR. G. W. A detailed Analysis of Abdul Ghafur's Dictionary of the Terms used by Criminal Tribes in the Panjab. Fcp., Lahore, 1880.
- . A sketch of the Changars and of their Dialect. Fcp., Lahore, 1880.

MISCELLANEOUS PRESENTATIONS.

Proceedings of the Californian Academy of Sciences at a Reception given to the Capt. and Officers of the U. S. Steamer "Thomas Corwin" and Captains of the Pacific Whaling Fleet on their return from the Arctic. 8vo San Francisco, 1880.

PETRECE, H. A. Early discoveries of the Hawaiian Islands in the North Pacific Ocean. 8vo., San Francisco, 1880.

CALIFORNIAN ACADEMY.

MITRA, TROILOKYANATH. Tagore Law Lectures, 1879. The Law Relating to the Hindu Widow. 8vo, Calcutta, 1881.

THE CALCUTTA UNIVERSITY.

Report on Municipal Taxation and Expenditure in the Lower Provinces of Bengal, for the year 1879-80. Fcp., Calcutta, 1880.

WARDLE, T. The Wild Silks of India, principally Tusser. Fcp., London, 1880.

BENGAL GOVERNMENT.

BURNELL, A. C. A classified Index to the Sanskrit MSS. in the Palace at Tanjore. 4to., London, 1880.

MADRAS GOVERNMENT.

Société de Géographie. Rapport Annuel, Séance Solennelle, 23rd December 1880. 8vo., Lyons, 1881.

GEOGRAPHICAL SOCIETY OF LYONS.

Report on the Judicial Administration (Civil) of the Central Provinces for the year 1880. Fcp., Nagpur, 1881.

CHIEF COMMISSIONER, CENTRAL PROVINCES.

Records of the Geological Survey of India, Vol. XIV, Part 1, 1881. 8vo. The Indian Antiquary, Vol. X, Parts 116 and 117, March 1881. 4to., Bombay, 1881.

HOERNLE, DR. A. F. R. A comparative Grammar of the Gaudian Languages, with special reference to the Eastern Hindi. 8vo., London, 1880.

HOME, REVENUE, AND AGRICULTURAL DEPARTMENT.

Deutsche Litteratur Zeitung, Nos. 5 and 6, of 1880. 4to., Berlin, 1880. HINCKS, REV. DR. On the Khorsabad Inscriptions (from Transactions, Royal Irish Academy). 4to., Dublin, 1850.

DR. A. F. R. HOERNLE.

HAGGERSTON, W. J. Newcastle-upon-Tyne, Public Libraries. Catalogue of the Books in the Central Lending Department. 8vo., Newcastle-upon-Tyne, 1880.

_____. Newcastle-upon Tyne, Public Libraries. Catalogue of the Books in the Juvenile Lending Department. 8vo., Newcastle-upon-Tyne, 1880.

NEWCASTLE PUBLIC LIBRARIES.

PERIODICALS PURCHASED.

- Benares. Fallon's new English-Hindustani Dictionary, Part 2, March 1881.
- Berlin. Journal für reine und angewandte Mathematik,—Vol. XC, Nos. 3—4.
- Calcutta. Indian Medical Gazette,—Vol. XVI, Nos. 2 and 3, February and March 1880.
- Göttingen. Gelehrte Anzeigen,—Nos. 5—11.
- . Nachrichten,—Nos. 2—5.
- Leipzig. Annalen der Physik und Chemie,—Vol. XII, Part 2.
- . ———. Beiblätter,—Vol. V, No. 2.
- London. Quarterly Review,—Vol. CLI, No. 301, January 1881.
- . Westminster Review,—Vol. CXV, No. 227, January 1881.
- . Edinburgh Review,—Vol. CLIII, No. 313, January 1881.
- . Publishers' Circular,—Vol. XLIV, Nos. 1042—1043.
- . Nineteenth Century,—Vol. IX, Nos. 47—48.
- . Messenger of Mathematics,—Vol. X, Nos. 8—9.
- . Quarterly Journal of Pure and Applied Mathematics,—Vol. XVII, No. 67.
- . Mind,—No. 21, January 1881.
- . Quarterly Journal of Microscopical Science,—Vol. XXI, No. 81.
- Brady, H. B.*—Notes on some Reticularian Rhizopoda of the "Challenger" Expedition. *Dowdeswell, G. F.*—On some appearances of red blood-corpuscles of Man and other Vertebrata.
- . Journal of Science,—Vol. III, Nos. 85—86.
- . American Journal of Science,—Vol. XX, No. 120.
- . Ibis,—Vol. V, No. 17.
- Forbes, W. A.*—On the Contributions to the Anatomy and classification of Birds made by the late Professor Garrod. *Ramsay, Capt. R. G. W.*—Description of two new species of Birds. *Biddulph, Maj. J.*—On the Birds of Gilgit. *Shelley, Capt. G.*—On new species of East African Birds. *Gurney, J. H.*—A List of Birds collected at or near Mombasa, East Africa. *Layard, E. L.* and *Layard, E. L. C.*—Notes on the Avifauna of New Caledonia and the New Hebrides. *Nicholson, F.* List of Birds collected by Mr. H. O. Forbes in the Island of Java.
- . Journal of Botany,—Vol. X, Nos. 217—218.
- No. 217. *Agardh, J. G.*—Species, Genera et ordines Algarum, seu descriptiones succinctæ specierum, generum, et ordinum quibus Algarum regnum constituitur. *Kuntze, Dr. Otto.*—Ueber Geysirs und nebenan entstehende verkiesselte Bäume.
- No. 218. *Hance, H. F.*—A new Hong Kong Melastomaceæ.
- . Annals and Magazine of Natural History,—Vol. VII, Nos. 37—38.
- No. 37. *Lütken, Dr. C. F.*—Spolia Atlantica: Contributions to the knowledge of the changes of Form in Fishes during their growth and Development, especially in the Pelagic Fishes of the Atlantic. *Thomas, O.*—Description of

a new species of *Mus* from Southern India. *Butler, A. G.*—Description of new species of Lepidoptera in the collection of the British Museum. *Miers, E. J.*—On a small collection of Crustacea and Pycnogondia from Franz-Josef Land, collected by B. Leigh Smith. *Günther, A. C. L. G.*—An Introduction to the Study of Fishes. *Wood-Mason, J.*—On a new species of *Papilio* from South India, with remarks on the Species allied thereto.

No. 38. *Butler, A. G.*—On a collection of Butterflies from Nikko, Central Japan. *Blanford, W. T.*—Note on a Central Asiatic Field-Mouse (*Mus arianus*).

London. London Edinburgh and Dublin Philosophical Magazine,—Vol. XI, Nos. 65—66.

———. The Entomologist,—Vol. XIV, Nos. 212—213.

No. 212. *Gooch, W. D.*—Notes on the Lepidoptera of Natal. *Fitch, E. A.*—The Mangold-fly.

———. The Entomologist's Monthly Magazine,—Vol. XVII, Nos. 200—201.

No. 200. *Meyrick, E.*—Australian gall-making Lepidopterous larvæ. *Sharp, D.*—Reviews: Avis préliminaire d'une nouvelle classification de *Dytiscidæ*. *Edwards, W. H.*—The Butterflies of North America, second series, pt. 9.

No. 201. Notes on *Cucujidæ* in Japan, with diagnosis of a new Species. *Lewis, G.*—Notes from Japan. Observations on *Vanessa* in Japan.

———. Society of Arts,—Journal, Vol. XXIX, Nos. 1472—1477.

———. Chemical News,—Vol. XLIII, Nos. 1107—1111.

Paris. Annales de Chimie et de Physique,—Vol. XXII, January and February 1881.

———. Revue et Magasin de Zoologie,—Vol. VII, Part 2, 1879.

Fieber, F. X.—Les Cicadines d'Europe, traduit par F. Reiber. *Thomson, J.*—Revue du groupe des Psilapterites. *Fairmaire, L.*—Coléoptères du nord de l'Afrique.

———. Revue de Linguistique,—Vol. XIV, Pt. 1, 15th January 1881.

———. Journal Asiatique,—Vol. XVI, No. 3, and Vol. XVII, No. 1.

———. Journal des Savants,—February 1881.

———. Comptes Rendus,—Vol. XCII, Nos. 6—9.

———. Revue Scientifique,—Vol. XXVII, Nos. 6—11.

———. Revue Critique,—Vol. XI, Nos. 6—10.

———. Revue des deux Mondes,—Vol. XLIII, 15th February 1881, and Vol. XLIV, 1st March 1881.

Philadelphia. Manual of Conchology, Part 9.

BOOKS PURCHASED.

ANDERSON, R. Lightning Conductors, their History, Nature and Mode of Application. Roy. 8vo., London, 1880.

BALFOUR, F. M. A Treatise on Comparative Embryology, Vol. I, 8vo. London, 1880.

- BANESS, J. F. *Index Geographicus Indicus*. 4to., Calcutta, 1881.
- BENTLEY, R. and TRIMEN, H. *Medical Plants, being Descriptions with original Figures of the Principal Plants employed in Medicine and an account of their Properties and Uses*. Parts 12—42 (incl.). 4to., London, 1876-1880.
- BRUGSCH-BEY, DR. H. *A History of Egypt under the Pharaohs derived entirely from the monuments, to which is added a discourse on the Exodus of the Israelites*. Translated and Edited from the German by Philip Smith, B. A. 2 Vols. 8vo., London, 1881.
- . *Hieroglyphisch-demotisches Wörterburch enthaltend in wissenschaftlicher Anordnung und Folge den Wortschatz der heiligen und der Volks-sprache und Schrift der alten Aegypter*, Vol. V. 4to., Leipzig, 1880.
- BUDGE, E. A. *Archaic Classics. Assyrian Texts, being Extracts from the Annals of Shalmaneser II, Sennacherib and Assur-banipal, with Philological Notes*. 4to., London, 1880.
- CLAUSIUS, R. *The Mechanical Theory of Heat*. Translated by W. R. Browne, M. A. 8vo., London, 1879.
- CLIFFORD, W. R. *Lectures and Essays*, edited by Leslie Stephen and Frederic Pollock. Vols. I and II, 8vo., London, 1879.
- DAWKINS, W. B. *Early man in Britain and his place in the Tertiary Period*. 8vo., London, 1880.
- DUTT, SHOSHEE CHUNDER. *India, Past and Present; with Minor Essays on Cognate subjects*. 8vo., London, 1880.
- EDKINS, REV. J. *Chinese Buddhism: A Volume of Sketches, Historical, Descriptive and Critical*. 8vo., London, 1880.
- EGGELING, J. *Sanskrit Text Society. Vardhamâna's Ganaratna-Mahodahi, with the author's Commentary, Part I*, 8vo., London, 1879.
- FABER, REV. E. *Introduction to the Chinese Religion. A Critique of Max Müller and other authors*. 8vo., Hong-Kong.
- GAMGEE, A. *A Text Book of the Physiological Chemistry of the Animal Body*, Vol. I. Roy. 8vo., London, 1880.
- HOUZEAU, J. C. and LANCASTER, A. *Bibliographie Générale de l'Astronomie ou Catalogue Méthodique des Ouvrages, des Mémoires et des Observations Astronomiques publiés depuis l'origine de l'imprimerie jusqu'en 1880*. Vol. II, fasc. 1. Roy. 8vo., Brussels, 1880.
- HOWORTH, H. H. *History of the Mongols from the 9th to the 19th Century, Part II, Divisions 1 and 2*. Roy. 8vo., London, 1880.
- KEANE, A. H. *Monograph on the Relations of the Indo-Chinese and Inter-Oceanic Races and Languages*. 8vo., London, 1880.
- LEGGE, J. *The Religions of China. Confucianism and T'aoism described and compared with Christianity*. 8vo., London, 1880.

- MAXWELL, J. C. *The Electrical Researches of the Honourable Henry Cavendish, F. R. S. written between 1771 and 1781; Edited from the original MSS. in the possession of the Duke of Devonshire, K. G.* 8vo. Cambridge, 1879.
- MÜLLER, F. MAX. *Sacred Books of the East, Vols. IV, V and VII, 8vo., Oxford, 1880.*
- OPPERT, DR. G. *On the Weapons, Army Organisation, and Political Maxims of the ancient Hindus, with special reference to Gunpowder and Firearms.* 8vo., Madras, 1880.
- RENAN, E. *The Hibbert Lectures, 1880. Lectures on the Influence of the Institutions, Thought, and Culture of Rome, on Christianity and the Development of the Catholic Church.* 8vo., London, 1880.
- RENOUF, P. C. P. *The Hibbert Lectures, 1879. Lectures on the Origin and Growth of Religion as illustrated by the Religion of Ancient Egypt.* 8vo., London, 1880.
- ROSCOE, H. E. and SCHORLEMMER, C. *A Treatise on Chemistry, Vol. I and Vol. II, Parts 1 and 2.* 8vo., London, 1878-80.
- SACHAU, DR. C. E. *The Chronology of Ancient Nations (of Albiruni). Translated and Edited.* Roy. 8vo., London, 1879.
- SAYCE, A. H. *Introduction to the Science of Language. Vols. I and II.* 8vo., London, 1880.
- SCHÖMANN, G. F. *The antiquities of Greece. Translated by E. G. Hardy and J. S. Mann.* 8vo., London, 1880.
- SEMPER, KARL. *The Natural Conditions of Existence as they affect Animal Life.* 12mo., London, 1881.
- SLEEMAN, C. W. *Torpedoes and Torpedo Warfare containing a complete and concise account of the Rise and Progress of Submarine Warfare; also a detailed description of all matters appertaining thereto, including the latest Improvements.* Roy. 8vo., Portsmouth, 1880.
- SPENCER, H. *Descriptive Sociology; or Groups of Sociological Facts, classified and arranged. Hebrews and Phœnicians, by R. Scheppegg, Ph. D.* Fol., London, 1880.
- STENZLEE, A. F. *Sanskrit Text Society. The Institutes of Gautama, edited with an Index of Words.* 8vo., London, 1876.
- STOKES, MAIVE. *Indian Fairy Tales. Collected and Translated.* 8vo., London, 1880.
- TRENCKNER, V. *The Milindapañho: being Dialogues between King Milinda and the Buddhist sage Nāgasena. Edited.* 8vo., London, 1880.
- . *Pali Miscellany, Part I, 8vo., London, 1879.*



PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.

FOR MAY, 1881.

The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 4th of May 1881, at 9. 15 P. M.

The Hon. H. J. REYNOLDS, C. S., Vice-President, in the Chair.

The minutes of the last Meeting were read and confirmed.

The following presentations were announced—

1. From the Lisbon Geographical Society,—(1) Moçambique, by J. J. Machado, (2) Explorações Geológicas e mineiras nas Colonias Portuguezas, by L. Malheiro.

2. From the Department of the Interior, U. S.—Annual Report of the U. S. Geological and Geographical Survey of the Territories for the year 1877.

3. From the Meteorological Reporter to the Govt. of India—Description et notices sur l' installation et l'entretien des Météorographes Graveurs de von Rysselberghe et Schubart, construits pour compte du Ministère des Indes Britanniques, by Th. Schubart.

4. From the authors,—(1) Notice sur une collection de Monnaies Orientales de M. le Comte S. Stroganoff, by Prof. W. de Tiesenhausen, (2) The Tea Cyclopædia, by F. Wyman, editor of the Indian Tea Gazette.

5. From the Home, Revenue and Agricultural Department,—Selections from the Records of the Government of India, Home, Revenue and Agricultural Department, No. 174.

6. From the Museo Publico of Buenos Aires,—(1) Bericht über die Feier des 50 Jahrigen Doctor Jubilaeums des Prof. Dr. Hermann Burmeister begangen der 19th December 1879 in Buenos Aires, (2) Description Physique de la République Argentine, Vol. III, and Atlas Part 2, by Dr. H. Burmeister.

7. From the Royal Society of New South Wales,—Report of the Council of Education of New South Wales for 1879, (2) Annual Reports of the Department of Mines, New South Wales, for 1878 and 1879.

8. From Dr. A. F. R. Hoernle,—*Bibliotheca Orientalis* for 1877, by R. Frederici.

The following Gentlemen, duly proposed and seconded at the last meeting, were balloted for and elected Ordinary Members of the Society :

J. Cockburn, Esq.

Major E. Molloy.

The COUNCIL reported that Mr. V. Ball had been asked to officiate as Natural History Secretary during Mr. J. Wood-Mason's absence on deputation.

The COUNCIL also reported that Mr. Alexander Pedler had resigned the post of Honorary Secretary and Member of Council and that Dr. H. W. McCann had been appointed in his place.

The COUNCIL also reported that Mr. Pedler had resigned the post of Trustee of the Indian Museum on behalf of the Society and that Mr. J. Eliot had been elected a Trustee.

The SECRETARY reported that Babu Mahendra Chandra Mukhopadhyaya had been appointed as a temporary copyist in the office on Rs. 15 per mensem.

The SECRETARY read the names of the following Gentlemen appointed by the Council to serve on the several Committees during the year 1881.

FINANCE COMMITTEE.

Dr. Rájendralála Mitra, C. I. E.

J. Westland, Esq., C. S.

H. B. Medicott, Esq., F. R. S.

H. Beverley, Esq., C. S.

J. Eliot, Esq., M. A.

LIBRARY COMMITTEE.

Dr. Rájendralála Mitra, C. I. E.

H. B. Medicott, Esq., F. R. S.

Col. J. F. Tennant, R. E., F. R. S.

Dr. D. D. Cunningham.

C. H. Tawney, Esq., M. A.

Babu Prannath Pundit, M. A.

H. F. Blanford, Esq., F. R. S.

Dr. O. Feistmantel.

J. Eliot, Esq., M. A.
 H. Beverley, Esq., C. S.
 Dr. Mohendralal Sircar.
 Babu Pratapa Ch. Ghosha, B. A.

PHILOLOGICAL COMMITTEE.

Dr. Rájendralála Mitra, C. I. E.
 C. H. Tawney, Esq., M. A.
 Major-General A. Cunningham, C. S. I.
 J. Beames, Esq., B. C. S.
 F. S. Growse, Esq., M. A., C. S.
 Rev. K. M. Banerjea, LL. D.
 Dr. Mohendralala Sircar.
 Dr. G. Thibaut.
 Hon'ble Whitley Stokes, C. S. I., C. I. E.
 C. J. Lyall, Esq., B. A., C. S.
 G. A. Grierson, Esq., C. S.
 H. Rivett-Carnac, Esq., C. S., C. I. E.
 Nawab Abdul Latif, Khan Bahadur.
 Moulvie Kabiruddin Ahmed.
 Babu Dijendranath Thakur.
 Babu Prannath Pandit, M. A.
 Babu Protapa Ch. Ghosha, B. A.
 Major H. S. Jarrett, S. C.

NATURAL HISTORY COMMITTEE.

Dr. O. Feistmantel.
 A. O. Hume, Esq., C. S.
 G. Nevill, Esq., C. M. Z. S.
 Dr. D. D. Cunningham.
 Dr. G. King, F. L. S.
 Dr. D. Brandis, F. L. S., F. R. S.
 S. E. Peal, Esq.
 R. Lydekker, Esq., B. A.
 Capt. G. F. L. Marshall, R. E.
 L. Schwendler, Esq.
 Dr. T. R. Lewis.

PHYSICAL SCIENCE COMMITTEE.

H. B. Medlicott, Esq., F. R. S.
 Major-General J. T. Walker, R. E., F. R. S.
 H. F. Blanford, Esq., F. R. S.
 A. J. L. Cappel, Esq.

J. Eliot, Esq., M. A.
 Col. J. F. Tennant, R. E., F. R. S.
 Commander A. D. Taylor.
 L. Schwendler, Esq.
 F. Fedden, Esq.

COINS COMMITTEE.

Dr. Rájendralála Mitra, C. I. E.
 Col. J. F. Tennant, R. E., F. R. S.
 Major-General A. Cunningham, C. S. I.
 H. Rivett-Carnac, Esq., C. S., C. I. E.
 Hon'ble J. Gibbs, C. S. I., C. I. E.
 C. H. Tawney, Esq., M. A.
 Major W. F. Prideaux, S. C.

The SECRETARY read the following table of predictions for Northern India for the Eclipse of the sun May 16th, 17th, 1882, sent by Col. J. F. Tennant, F. R. S.

ECLIPSE OF THE SUN, MAY 16, 17, 1882.
 PREDICTIONS FOR NORTHERN INDIA.

Places.	COMMENCEMENT.		GREATEST ECLIPSE.		END.	
	Mean Time.	Position.	Mean Time.	Magni- tude.	Mean Time	Position.
	h. m.		h. m.	Digits.	h. m.	
Allahabad	0 ,, 24.1	121° R.	1 ,, 54.8	6.314	2 ,, 15.3	14° R.
Calcutta	1 ,, 14.9	142 R.	2 ,, 38.8	5.780	3 ,, 50.7	20 R.
Delhi	23 ,, 48.0	72 R.	1 ,, 22.6	7.800	2 ,, 49.4	5 R.
Jubbulpore	0 ,, 13.2	119 R.	1 ,, 42.1	5.687	3 ,, 02.8	24 R.
Kurrachee	22 ,, 37.1	9 R.	0 ,, 08.8	6.730	1 ,, 41.1	19 R.
Lahore	23 ,, 28.3	61 R.	1 ,, 03.0	8.878	2 ,, 32.0	4 R.
Lucknow	0 ,, 15.6	109 R.	1 ,, 47.9	7.154	3 ,, 00.5	10 R.
Mooltan	23 ,, 07.3	39 R.	0 ,, 46.8	7.040	2 ,, 14.1	4 R.
Mussooree	23 ,, 53.5	82 R.	1 ,, 27.4	8.480	2 ,, 54.5	1 L.
Patna	0 ,, 47.0	133 R.	2 ,, 16.0	6.786	3 ,, 34.6	12 R.
Peshawar	23 ,, 09.7	62 R.	0 ,, 44.4	10.136	2 ,, 15.9	16 L.
Shillong	1 ,, 33.1	142 R.	2 ,, 57.8	7.146	4 ,, 11.2	8 R.
Simla	23 ,, 46.6	78 R.	1 ,, 21.7	8.740	2 ,, 48.7	3 L.

N. B.—Positions are measured on the circumference of the Sun and to the Right or Left of the Highest point.

Dr. HOERNLE exhibited a collection of relics which had lately been found by Mr. Beglar in the course of an excavation carried on in the Great Temple of Buddha Gaya. Permission to exhibit them to the Society had been re-

ceived from the Lieutenant-Governor, shortly before the meeting ; and Dr. Hoernle explained that he was not in a position to give more information about them than what he had been able to gather in a short conversation with Mr. Wickes from whom he had received the relics. They were said to have been found in the Great Temple at a spot where according to local tradition the throne of Aṣoka once stood, after digging to a depth of about 20 feet. They consisted of fragments of various kind of gems, corals, gold and silver foil, small pearls, &c. A very large number of them were perforated, showing apparently that they were originally strung on threads. Dr. Hoernle added, that it appeared to him that the theory of their connexion with Aṣoka's throne required a great deal of confirmation ; and that it would be well to wait for General Cunningham's report, to whom, he understood, the relics had been already submitted, before accepting the local tradition.

Mr. Ball, who had examined the relics, concurred with Dr. Hoernle as to the doubtfulness of their connection with any throne of Aṣoka. The result of his examination, as communicated in a letter after the meeting, is as follows :

“ The collection includes sapphires, (whole and broken), rubies, emeralds (broken), pearls, coral, cornelian, garnet, quartz crystals, lapis lazuli, &c. There are also some heart-shaped pieces of emerald-like glass which have become crusted over from lying in the soil.

“ There are at least two specimens, one large, of a rare mineral called Iolite or Dichroite. These have been identified by Mr. Mallet to whom I shewed them. They at first sight look like sapphires.

“ The larger one would be a valued specimen in our mineralogical collection if it could be obtained.

“ The smashing of the sapphires into small pieces is remarkable. There are a few, however, which are intact.”

Mr. WESTLAND exhibited four old maps of Calcutta and Bengal which he explained had been lithographed for issue with Mr. Sandeman's continuation of Mr. Seton-Karr's extracts from old Calcutta Gazettes. Mr. Sandeman had left them behind him, in his, now Mr. Westland's, office, and Mr. Westland thought he would best dispose of them if he offered them to such members of the Society as had any interest in the subject.

The first was a map of the Sunderbuns in 1724, apparently a rough sketch by some Dutch skipper. It had been occasionally referred to as evidence of the extension of cultivation in these regions ; but some difficulties had been found in identifying some of the settlements named in it. One of them called “ Cuiptavai ” he identified as “ Khalifatabad ” the pergunna in which Bagahat was situate, near which there were some ancient and large buildings, indicating an early cultivating settlement. “ Noldy ” farther east

was no doubt meant for Pergunna Nuldi in Jessore, which, however, was a good way north of its position in the map, and did not properly belong to the Sunderbuns at all. The "Jessore" mentioned in the map was probably either the original "Jessore" in the 24-Pergunna district, or the place now known as Khoolna. The present "Jessore" was not known by that name till 1780 or 1790 at the earliest.

Another map was a reproduction of a map of Bengal engraved in 1776 from surveys in 1769. Mr. Westland drew attention to the fact that the various districts all bore their territorial names as distinguished from their official ones,—thus, Pachete for Manbhoom, Ramgur for Hazaribagh. He drew attention also to the great change in the Gangetic Delta which had occurred since the date of the map. The Brahmaputra river which the map shewed as flowing east of the Maddapur jungle, Dacca, and the Gangetic Delta, now flows west of the jungle and Dacca, and breaks in on the north of the Delta. He connected this with another change of which he had independent historical evidence, namely, the opening of the Madhumati branch of the Ganges, a petty stream in this map, but now receiving by far the largest share of the Ganges water. The Ganges had now ceased to find its way farther east, being interrupted and thrown back by the irruption of the altered Brahmaputra into the Megna. He dated these changes between 1795 and 1805, which were years of excessive inundation in the northern district of the Madhumati.

The two other papers were, one a sketch of Calcutta in 1756, and the other a plan of it in 1757. He drew attention to the grouping of the settlement round the Fort (on the present Customs House site) and the Park (now Tank or Dalhousie Square); and to the creek running up along the line now occupied by the High Court, Government House, and Dhurumtolla; the recollection of which he believed was still preserved in the name of a small street "Creek Row".

Mr. Beverley said that the two maps of Calcutta exhibited by Mr. Westland were apparently reprints of maps that were first published in Orme's *History of the War in Bengal*. They had been treated of by him (Mr. Beverley) in para. 104 of his *Report on the Census of the Town of Calcutta* (1876), which he read. Mr. Beverley believed that all the old maps of the Town now in existence in Calcutta had been referred to in that *Report*. He had hoped that Mr. Westland had come across Holwell's map of 1756, described by him in a letter to the Court of Directors as "an exact plan of your Settlement and of every house in it." That map ought to be in the India Office, and its publication would throw considerable light on the early history of the town. Possibly the Society might take steps to have it traced out, and to have copies sent to this country.

The following papers were read—

1. *On the Revenues of the Mughul Empire.*—By H. G. KEENE, C. S.

(Abstract.)

The Journal of the Asiatic Society of Bengal, Part I, No. IV, 1880, contained a paper by Mr. C. J. Rodgers on the copper coins of Akbar. The object of the present paper is to show that Mr. Rodgers' views regarding the amount of Akbar's revenue are not tenable, and for this purpose various evidence is adduced from historical writings (*e. g.*, the *Bádsháh-námah*) and general considerations. The conclusion at which the author arrives is, that "ten krores are the right figure of Akbar's Revenue, and that the *murádi tankah* is neither the one-fifth of a *dím*, nor the modern 'double pyce,' but an imaginary integer of copper accounts, whereof sixty-four equal one silver Rupee."

This paper will be published in the Journal, Part I.

2. *On the origin of the Myth about Kerberos.*—By DR. R. MITRA.

The earliest notice of dogs as warders at the entrance of Hades occurs in the *Saṅhitá* of the *Ṛig Veda*. Yama, the regent of that region, it is said, had two canine attendants, each having four eyes, and these brought the dead from the earth to the nether regions. The passages in which they are mentioned are short and sometimes obscure, but their purport is clear enough. The most important of those passages runs thus "(O Agni) hasten on by an auspicious path, avoiding the two four-eyed brindled dogs, the offspring of Saramá. Then approach the bountiful Pitris who dwell in festivity and with Yama. (To Yama) place the spirit under the care of thy two four-eyed dogs which guard the roads and thy mansion, and whom men avoid, and keep it in ease and free from disease. The two brown messengers of Yama, broad of nostrils, delighting in other's life, and of great power, wander about among men. May they give us again the auspicious breath of life, that we may again behold the sun." (*R. V. XV, 10—12*). These are quoted in the *Yajur Veda*, and their counterparts occur in the *Atharva Veda*. The later literature of the Hindus casually, but very obscurely, refers to them. Thus in the *Mahábhárata*, Yudhisthira in his way to heaven is said to have been led by a dog. These dogs are either called *Svánau* "two dogs," or *Sárameyau*, "the two sons of Saramá," the Dawn.

In Greek mythology the story of the dogs occurs repeatedly, and is well known to classic scholars; but for purposes of comparison it is necessary that a few of its salient points should be noticed here. The oldest notice of a dog as the warder of Hades is to be found in the *Iliad* of Homer where Héraklés refers to his "Haling out hateful Pluto's dog from darksome Erebos."

ἐξ Ἑρέβους ἄζοντα κύνα στυγεροῦ Ἀΐδαο. (θ 368).

In the *Odyssey* (XI, 626) the subject is referred to when Héraklés tells Odysseus that his sufferings are but a reflection of the toils which Héraklés himself had undergone.

“Of all which one was, to descend this strand
And hale the dog from thence. He could not think
An act that danger could make deeper sink,
And yet this depth I drew, and fetch'd as high,
As this was low, the dog.”

(*Chapman's translation.*)

In neither place the name of the dog is given; but Hesiod (III, 11) calls him Kerberos, and assigns him fifty heads. Apollodoros, Euripides and Virgil reduce the number of heads to three; while some poets prefer to call the animal “many-headed” or “hundred-headed” (Horat. *Carm.* II, 13, 34. Tzetz. *Lycoph.* VI, 78. Seinec. *Herc. fur.* 784). Apollodoros says that the tail of this animal was formed by a serpent, and the mane by a number of snakes of various kinds. It was begotten by Typhon and Echidna. Hesiod describes another dog of the same parentage, and assigns him to Geryones (293). Thus the Greeks had two dogs, the counterparts of the Vedic Sárameyau. Orthros was the shepherd dog which Héraklés destroyed, and was frightful enough to be reckoned a monster whose destruction would reflect credit on the great hero: the feat represents his eighth labour. This dog is the counterpart of the Vṛitra of the Vedic legend. He did not, however, attain to any distinction, and was soon forgotten. Kerberos, on the other hand, played a prominent part in Hellenic mythology. As the three-headed monster watching the gate of Hades, it was very much dreaded, and as a dog, like every other dog, was detested by the Greeks.

The belief was that he did no harm to those who entered the mansion of Pluto, but tore up those who attempted to escape from it. This is, however, not in keeping with the legend which says that he growled fiercely when Orpheus was entering the portals of Hades, and had to be lulled by the enchanting music of that gifted harper. One of the greatest feats of Héraklés was the dragging out of the monster from his nook, and this could not be effected without the assistance of such divine personages as Athéné and Hermés.

The three heads of the animal were not peculiarly its own, for Hermés had the same number of heads, whence his name ‘Trikephalos,’ and so had Hekaté ‘triformis.’ According to Bryant the meaning of Kerberos is “darkness” (ἐρεβος)—the darkness of Hades or of night, the Sanskrit equivalent being *Sarvara* or *Sambara*, night slain by Indra.

In Norse legends—as in Baldur's Dream in the elder Edda—the animal is described as “spotted with blood on his front and chest.”

In the Vendidad it finds a prominent place; nor was it unknown among some of the Turanian and Semitic nations.

The belief in it turns up, curiously enough, among Algonquin tribes of the North American Indians, who say that at the further approach of the snake bridge across the river of the dead there is a warder in the form of a great dog.*

Local colouring and minor details apart, the myth is the same everywhere, and its wide dispersion bespeaks its extreme antiquity.

But what it means has not yet been satisfactorily settled. According to some Kerberos is a symbol of all-devouring time, and the three mouths of the animal represent the present, the past, and the future. Milton accepted it in the sense of man's conscience, which preyed within him for his past misdeeds. Others believed it to be the symbol of earth, or of the human passions, the victory of Héraklés denoting the conquest which he achieved over his passions. Bryant takes Kerberos to be the name of a place—and it signified the temple of the sun, deriving it from *Kir-abor* “the place of light.” The temple was also called *Tor-caph-el*, which, it is alleged, changed to Trikephalos.

The latest theory is that it is an offshoot of the far-reaching solar myth which peopled the eastern and the western heavens with such an endless variety of gods and goddesses. According to this theory, the gloom of the morning and the evening represents the two dogs. (Max Müller, ‘Science of Language,’ Second Series, p. 478.) The learning, ingenuity and tact with which this theory has been worked out leaves little to be desired. Philological evidence on the subject is overwhelming, and the coincidences are most remarkable. And yet the enquiry does not seem to be complete. The myth of Kerberos may be due to Saramá = Echidna, the prolific mother of so many romantic stories; but the question remains why was the story elaborated? and what gave occasion to its repulsive character? The Dawn is justly associated with every thing that is charming and full of life; why should it be brought into contact with death and destruction? Divested of its mythological surroundings, the substance of the story is made up of the presence of dogs at the time of transition from life to eternity; this is ill explained by the melting of the gloom of night by the appearance of Dawn. The dog is made the son of Dawn, or darkness proceeding from light, and not light proceeding from darkness. Solar influence moreover always typifies exuberant vivification, and not death. It is by itself quite inexplicable why the glorious and resplendent Dawn should bring forth two ugly puppies. If we take man's life to be the counterpart of the life of the

* Tanner's Narrative, p. 290; Schoolcraft, Indian Tribes, III, 233.

sun, in dawning beauty, in midday glory, in evening death, and the myth of the sunset to represent the close of life, the dogs could scarcely be called the sons of Dawn, for they would come with the gloaming, and not with the rising sun. It may be said that the word U'shá = Dawn is used for all the three stages of the sun's course, and the succession of the night to the splendence of the setting sun is what is meant by the affiliation; but neither Saramá, nor Hermés, nor Echidna, is associated with the gloaming. I am disposed to think, therefore, that the solar theory is not by itself sufficient to solve the question. There was something else—something gross and material—in the life of the ancient Aryans which gave rise to the story, and which was subsequently associated with the current solar mythology. And this something I fancy was connected with the funeral rites of the time.

In the most primitive state of human society the simplest and most convenient mode of disposing of the dead was to fling it into the nearest jungle or wild place, either to rot there, or to be eaten up by wild animals. Carrion birds, jackals, foxes and dogs were the animals which were attracted by such castings, and dogs, which had been domesticated at a very early age, were necessarily associated with the disposal of the dead. In this plan of funeral the element of chance predominated, for it was quite uncertain when the destruction would be completed by stray animals. To obviate this uncertainty, the most primitive form of funeral was, it would seem, at one time so far modified as to facilitate the consumption of the dead in a short time by enticing wild dogs, or employing domestic dogs, for the purpose. Such an expedient would not be by any means extraordinary. In the present day the Pársis carry vultures to such places where there are none, in order that they may be ready at hand to consume the dead in their Towers of Silence. Such enticement or employment of dogs often repeated would consolidate into a tribal or national custom, and the cutting up of the corpse to facilitate rapid consumption would be an innovation that would be easily introduced.

That such a horrible form of funeral did obtain, and still obtains, in some places is unquestionable. According to Herodotus (Lib. I) "the body of a male Persian is never buried until it has been torn either by a dog or a bird of prey. That the Magi have this custom is beyond a doubt, for they practice it without any concealment". (Rawlinson's Herodotus I, 140 §). We have the authority of Strabo (Lib. XV) to show that the practice of exposing corpses to be devoured by dogs was current among the Sogdians and the Bactrians, who on this account named their dogs "buriers." Cicero noticed the same among the Hyrcanians. He says—"In Hyrcania plebs publicos alit canes; optimates, domesticos. Nobile autem genus canum illud scimus esse. Sed pro suâ quisque facultate

parat, a cuius lanietur: eamque optimam illi esse censent sepulturam." (Quart. Tuscul. Lib. I, 45.) The same custom also obtained among the Parthians, and Justin says "Sepultura vulgò aut avium aut canum laniatus est." (Lib. XLI, cap. 3.) Prejvasky has seen it among the Northern Mongolians, where "the dead bodies, instead of being interred, are flung to the dogs and birds of prey. An awful impression is produced on the mind by such a place as this, littered with heaps of bones, through which packs of dogs prowl like ghosts to seek their daily repast of human flesh." (Mongolia. translated by E. D. Morgan, I, p. 14.) Horace della Penna, a Capuchin friar, found at Lhasa, in 1719, the practice of cutting up corpses to be given to dogs to be very common; and Abbé Huc found it among the Tibetans only a few years ago. At the last named place Huc noticed four different forms of sepulture, of which he says, "la quatrième, qui est la plus flatteuse de toutes, consiste à couper les cadavres par morceau et à les faire manger aux chiens. Cette dernière méthode est la plus courue". A reminiscence of this practice is still extant among the Pársís. Their funeral ritual requires that when a corpse is brought to the Dakhmá, or the place where it is to be given up to vultures, it should be first exhibited to one or more dogs, which, I noticed at Bombay, are kept there for the purpose. This ceremonial is called *Sagdíd*, and is strictly observed as it is enjoined in their scriptures. (Vendidad, Farg. VII, v. 3.) That this is a relic of the former detestable custom noticed by Herodotus is evident from the fact of the said scriptures enjoining the exposure of corpses on tops of hills that dogs and carrion birds may see and devour them (Vendidad Farg. VII, vv. 73. 74).

And since this detestable practice exists now, and did exist three thousand years ago and earlier, there is nothing very presumptuous in the supposition that it existed among the Aryans in their common home in central Asia, before their dispersion to Europe and India, between four and five thousand years ago. From these Aryans the Pársís have derived their custom of giving up their dead to be devoured by vultures, and exhibiting them to dogs, and from them has come the myth of dogs at the portal of death.

If on the strength of these arguments it could be assumed that the custom of consigning corpses to dogs did at one time prevail among the Aryans, the details of the myth could be easily and very consistently explained. The idea of Eurytheus sending Héraklés to destroy a dog that did not exist on earth, and consequently did no harm to any body is a very fanciful, not to say an unmeaning one. But if the above theory be accepted, it would follow that the story is a mythical representation of Héraklés having been the first to set about putting a stop to the barbarous practice of casting the dead to dogs, though the attempt did not prove

ultimately successful, for, according to the fable, Héraklés restored the dog to its place at the infernal gate. Not that Héraklés was an entity, for even Herodotus rejected some of his exploits on physical grounds, but the mythical embodiment of the good actions of man. Similarly the Orpheus myth would suggest the idea of the repugnance which men must have felt in allowing their loved ones (symbolised in the story in the person of Eurydiké) to be eaten up by such hateful animals, and of an attempt—an unsuccessful one again—to put down that custom. It might be that the myth of Orpheus belongs to the same class with that of Bacchus recovering his mother Semelé from Hades, and of Ulysses, Odin and others visiting Hades, in which the original idea is of Hades being accessible to mortals under certain circumstances. The three or more heads of Kerberos may be accepted as implying plurality, or many-sided watchfulness, or both; and the quadruple eyes of the Vedic legend typify the same idea. The serpent's tail and the snaky mane of the dog would be the instruments with which corpses were cut up into small morsels. The association of Kerberos with the Dawn by making him the son of Dawn = Saramá = Echidna implies that the removal of the dead in primitive times was generally effected at early morn. It was so among the Greeks; it is still the case with the Parsis and Tibetans. Ancient Hindus absolutely prohibited cremation at night, and in a verse of Yama, quoted in the Nirṇayasindhu, it is said, "Let not cremation, the first śráddha and travelling be performed at night or at dusk, for if done they would be fruitless."* This is not now strictly followed, and to provide for it, a later authority, the Skanda Purāṇa, ordains that "should the cremation be commenced at night it should not be completed until day dawns, so that the offering of water and other rituals may be accomplished in daylight".† The idea was carried further by declaring death at night to be unwelcome. Thus in the Bhagavadgítá, "Should a person die in gloom, at night, during wane, or in course of the six months of the southern declension of the sun, he would go to the region of the moon, and then return to the earth, (but never attain salvation)".‡ Manu indirectly explains the

* सन्ध्यायां वा तथा रात्रौ दाहः पाथेयकर्त्तव्यं च ।
नवश्राद्धं नो कुर्यात् छतं निष्कलतां व्रजेत् ॥
यमवचनं ।

† यदि रात्रौ दहेत् तस्य समान्निर्दहनस्य तु ।
परेश्वन्दुदिते सूर्ये कार्यो तस्योदकक्रिया ॥
आम्बवचनं ।

‡ धूमो रात्रिस्तथा ह्यहः षष्मासा दक्षिणावचनं ।
तत्र चाम्बमसं श्चोतिर्योगी प्राप्य निव्रजे ॥
मीतावचनं ।

object of the prohibition by saying that night is the time for sleep and day for work, and since the wane represents the night of the Pitris, and the southern course of the sun the night of the Devas, offerings at those times are not received by them. Most Smṛitikāras have quoted these verses as authorities.

With these elements at hand the construction of the myth would be perfectly intelligible, and the course of its development would be easily accounted for. That such was really the case it would be impossible in the present state of our information to assert with absolute certainty; but that the theory affords a natural and consistent solution of a very puzzling question, I am disposed to fancy, will be generally admitted. Were it otherwise, still there would be little to undo the explanation here attempted. It is not necessary to look for entire and absolute consistency in all the details of the story. Neither Hindu nor Greek Mythology was a system designed to be consistent in all its parts. The fables took their rise from various causes, under different circumstances, to elaborate particular facts or ideas, impressive sights or vivid impressions, play on words or poetical thoughts, and gradually they came to be digested, very crudely at best, as a system. Or, as Max Müller very aptly says, "there were myths before there was Mythology, and it is in this, their original and unsystematic prevalence, that we may hope to discover the genuine and primitive meaning of every myth". ("Chips" II, p. 147.) The question is, did the first germ of the story proceed from a very obtrusive fact, a funeral, which was afterwards worked out into a story, or a mere poetical idea, from the first start? and all I contend for is, that the former branch of the alternative appears more likely to be true than the latter.

Mr. Westland remarked on the fanciful nature of the two derivations given by the learned doctor, one of which would make Kerberos mean "The darkness of Erebus" and the other "the temple of Light". He objected to Hercules, himself a solar myth, being clothed with flesh and made to appear as an actual reformer of funeral customs. He also pointed out that whether the solar-myth theory was right or wrong, nothing in the learned doctor's paper came in proof or in disproof of it; inasmuch as that paper was devoted to shewing the origin of the idea of the dog himself, whereas the Solar-myth theory only pretended to shew how the dog, having been originated, was clothed with certain attributes.

Dr. Mitra explained that the derivations were not his own, but obtained from leading authors, and that the mythical character of Hercules did not in any way affect the question at issue. The attempt was to resolve one or more myths into their primary elements and not to preserve their entity.

3. *An account of the excavation of a mound called Jowhri Di, near the village of Imadpur, in the Muzafferpore District.—*

By J. E. LINCKE, C. E.

(Abstract.)

The mound is some 100 feet square and some 10 feet high with a few very ancient peepul trees growing on it. A drift which was run from the east at the level of the natural ground into the mound brought to light a wall, 4 feet deep and 4 feet broad, and beyond it a flooring of bricks on a thin layer of sand. Similar drifts were made from other sides, with a similar result. Thus the three sides of a square fort were laid bare, with a sort of solid bastion at the south-west corner and a porch in the centre of the east wall. On the fourth side of the fort, no remains of a wall were discovered. Part of the brick flooring in the middle of the fort was removed and a well dug 4 feet deep, disclosing evidences in the shape of broken brick and pottery of the mound having been artificially made. Of the superstructure nothing certain is known. There is said to have been once a tower, three stories high. Tradition says that there was a fort and town of the Cherú Rája at this spot, long anterior to the Muhammadan conquest, and that the last Cherú Rája having been defeated in battle destroyed himself and his family and treasure with the castle which was burnt. Specimens of the antiquities found during the excavations were sent with the paper and exhibited to the meeting. They consisted of highly glazed pieces of broken pottery, remains of clay-toys or votive figures, clay spindle whorls (such as noticed by Mr. Rivett-Carnac, in the Journal of 1880), pieces of bone, etc. The last were identified as those of a turtle. Two brass figures of Vishnu and Ganeṣa were also sent to be exhibited. They had been obtained by Mr. Lincke from a villager, who said he had dug them up in a field near the mound. The figures bear, at the foot, short inscriptions, the form of the letters of which shows that they are comparatively modern. The inscription on the figure of Krishṇa reads हरिनिवे० दे० धर्म० abbreviated for हरिनिवेदन देय धर्म० *i. e.*, "a religious gift dedicated to Hari". That on the figure of Ganeṣa is too badly cut to be clearly read, but the first word appears to be *Kanha* the name of the donor; the last two are *deya dharmma* "a religious gift".

Specimens of the antiquities found in or near the mound were exhibited at the meeting.

This paper will be published in the Journal, Part I.

LIBRARY.

The following additions have been made to the Library since the meeting held in April last.

TRANSACTIONS, PROCEEDINGS AND JOURNALS,
presented by the respective Societies and Editors.

- Berlin. K. preussische Akademie der Wissenschaften,—Monatsbericht, November 1880.
- Bombay. The Indian Antiquary,—Vol. X, Part 118, April 1881.
- . Bombay Branch of the Royal Asiatic Society,—Journal, Vol. XIV, No. 38.
- Bordeaux. Société de Géographie Commerciale,—Bulletin, No. 6, 1881.
- Calcutta. Registers of Original Meteorological Observations for January, February and March 1881.
- Dresden. Sitzungs-Berichte der Naturwissenschaftlichen Gesellschaft Isis, January to December 1880.
- Dublin. Royal Geological Society of Ireland,—Journal, Vol. V, Part 3.
- Haughton, Rev. S.*—Notes on the Annual Water-discharge of Large Rivers, with Indications of some new Methods of Calculation. *Ball, V.*—On Spheroidal Jointing in Metamorphic Rocks in India and elsewhere, producing a Structure resembling Glacial “Roches Moutonnées”. *Haughton, Rev. S.*—On Rossetti's Law of Cooling, applied to the consideration of the relative effects of Sun-heat, Earth-heat, Star-heat, and Atmospheric Conditions, upon Climates during Geological Time. *Ball, V.*—On the Evidence in favour of the belief in the existence of Floating Ice in India, during the deposition of the Talchir (Permian or Permio-Triassic) Rocks. *Ball, V.*—On the Coal Fields and Coal Production of India. *Ball, V.*—On the mode of occurrence and Distribution of Gold in India.
- London. Society of Telegraph Engineers,—Journal, Vol. IX, No. 34.
- . Geological Society,—Quarterly Journal, Vol. XXXVII, Part 1.
- Carrall, J. W.*—On the Locality of some Fossils found in the Carboniferous Rocks at T'ang Shan, China.
- . Royal Society,—Proceedings, Vol. XXXI, Nos. 207 to 209.
- . Royal Astronomical Society,—Monthly Notices, Vol. XLI, No. 4.
- . Royal Geographical Society,—Proceedings, Vol. III, No. 3.
- . The Academy,—Nos. 463—466.
- . The Athenæum,—Nos. 2786-2789.
- . Nature,—Vol. XXIII, Nos. 582, 594, 596—597.
- Rome. Società degli Spettroscopisti Italiani,—Memorie, Vol. IX No. 12, December 1880; Index to Vol. IX, 1880; and Vol. X, No. 1, January 1881.
- Shanghai. North-China Branch of the Royal Asiatic Society, Journal, Nos. 13 and 14.

St. Petersburg. L'Académie Impériale des Sciences,—Bulletin, Vol. XXVI, No. 3.

Dorn, B.—Sur les monnaies des Heks ou anciens Khans de Turkestan.

———. ———. Mémoires,—Vol. XXVII, Nos. 13—14.

Dansky, J. and *Kostenitsch, J.*—Ueber die Entwicklungsgeschichte der Keimblätter und des wölf'schen Ganges in Hühneroi.

———. Russian Geographical Society,—Proceedings, Vol. XVI, 1880, and Vol. XVII, 1881.

———. Acta Horti Petropolitani,—Vol. VII, Part 1.

Sydney. Royal Society of New South Wales,—Journal and Proceedings, Vol. XIII, 1879.

Trieste. Società Adriatica di Scienze naturali Bollettino,—Vol. VI, No. 1.

Yokohama. Asiatic Society of Japan,—Transactions, Vol. IX, Part 1.

BOOKS AND PAMPHLETS,

presented by the Authors and Editors.

TIESENHAUSEN, Prof. W. de. Notice sur une collection de monnaies Orientales de M. le Comte S. Stroganoff. 4to., St. Petersburg, 1880.

WYMAN, F. The Tea Cyclopædia, a volume of Selections from leading and original articles, correspondence and papers collated from the last eight volumes of the Indian Tea Gazette and from several other valuable sources. Roy. 8vo., Calcutta, 1881.

MISCELLANEOUS PRESENTATIONS.

Bericht über die Feier des 50 Jahrigen Doctor-Jubilæums des Prof. Dr. Hermann Burmeister begangen der 19 December 1879 in Buenos Aires Als Manuscript gedruckt. 8vo., Buenos Aires, 1880.

BURMEISTER, DR. H. Description Physique de la République Argentine. Vol. III, Part 1. 8vo., Buenos Aires, 1880.

———. ———. Atlas, Part 2, Lepidoptères, Fol., Buenos Aires, 1880.

MUSEO PUBLICO DE BUENOS AIRES.

Eleventh Annual Report of the U. S. Geological and Geographical Survey of the Territories embracing Idaho and Wyoming, being a Report of Progress of the exploration for the year 1877. By F. V. Hayden. 8vo. Washington, 1879.

DEPARTMENT OF THE INTERIOR, U. S. AMERICA.

FALLON's new English-Hindustani Dictionary, Part II, March 1881.

The Indian Antiquary, Vol. X, No. 118, April 1881.

Selections from the Records of the Government of India, Home, Revenue and Agricultural Department, No. 174. Reports on publications issued and registered in the several Provinces of British India, during the year 1879. 8vo., Calcutta, 1881.

HOME, REVENUE AND AGRICULTURAL DEPARTMENT.

- FREDEICL, K. *Bibliotheca Orientalis* for 1877. Dem. 4to., London.
 DE. A. F. R. HOERNLE.
- MACHADO, J. J. *Moçambique*, 8vo., Lisboa, 1881.
- MALHEIRO, L. *Explorações Geologicas e Mineiras nas colonias Portuguezas*. 8vo., Lisboa, 1881.
- GEOGRAPHICAL SOCIETY OF LISBON.
- Records of the Geological Survey of India, Vol. XIV, Part 1, 1881.
 BENGAL GOVERNMENT.
- Report on the Judicial Administration (Criminal) of the Central Provinces for the year 1880, Fcp., Nagpur, 1881.
 CHIEF COMMISSIONER, CENTRAL PROVINCES.
- Report on the Administration of the Madras Presidency, during the year 1879-80, 8vo., Madras, 1880.
 MADRAS GOVERNMENT.
- Reports of the Council of Education upon the condition of the Public Schools, and of the certified Denominational Schools for the year 1879, 8vo., Sydney, 1880.
- Annual Report of the Department of Mines, New South Wales, for the year 1878-79, 4to., Sydney, 1879-80. With a map.
 ROYAL SOCIETY OF NEW SOUTH WALES.
- SCHUBART, TH. Description et notices sur l' installation et l' entretien des Météorographes graveurs de von Rysselberghe et Schubart, construits pour compte du Ministère des Indes Britanniques. 8vo., Gand, 1880.
 METEOR. REPORTER, GOVT. OF INDIA.

PERIODICALS PURCHASED.

- Calcutta. *The Indian Medical Gazette*,—Vol. XVI, No. 4, April 1881.
- . *The Calcutta Review*,—Vol. LXXII, No. 144, April 1881.
- Göttingen. *Gelehrte Anzeigen*,—Nos. 12—16, 1881.
- . *Nachrichten*,—Nos. 6-7, 1881.
- Leipzig. *Annalen der Physik und Chemie*,—Vol. XII, Part 3.
- . *Beiblätter*,—Vol. V, Part 3.
- London. *The Nineteenth Century*,—Vol. IX, No. 49, March 1881.
- . *Journal of Botany*,—Vol. X, No. 219, March 1881.
- Jackson, B. D.*—On some recent tendencies in Botanical Nomenclature. *Campanula rotundifolia*, L., in Japan.
- . *Journal of Science*,—Vol. III, No. 87, March 1881.
- . *Messenger of Mathematics*,—Vol. X, No. 10, February 1881.
- . *The Entomologist*,—Vol. XIV, No. 214, March 1881.
- Gooch, W. D.*—Butterfly hunting in Natal, on the Coast-Lands.
- . *The Entomologist's Monthly Magazine*,—Vol. XVII, No. 202, March 1881.

- London. *Annals and Magazine of Natural History*,—Vol. VII, No. 39, March 1881.
- Wallich, Surgeon-Major*.—On Siliceous Sponge-Growth in the Cretaceous Occan.
- . London, Edinburgh and Dublin *Philosophical Magazine*,—Vol. XI, No. 67, March 1881.
- . *The Publishers' Circular*,—Vol. XLIV, Nos. 1044—1045.
- . *Society of Arts*,—*Journal*, Vol. XXIX, Nos. 1478—1481.
- . *The Chemical News*,—Vol. XLIII, Nos. 1112—1115.
- . *Journal of Conchology*,—Vol. III, No. 4, October 1880.
- . Report of the British Association for the Advancement of Science, 1880.
- New Haven. *American Journal of Science*,—Vol. XXI, Nos. 121—122, January and February 1881.
- Paris. *Comptes Rendus*,—Vol. XCII, Nos. 10—13, 1881.
- . *Journal des Savants*, March 1881.
- . *Revue Scientifique*,—Vol. XXVII, Nos. 12—15.
- . *Revue Critique*,—Index to Vol. X, and Vol. XI, Nos. 3, 11—14, 1881.
- . *Revue des deux Mondes*,—Vol. XLIV, Parts 2 and 3.
- . *Annales de Chimie et de Physique*,—Vol. XXII, March 1881.

BOOKS PURCHASED.

- GILL, CAPT. W. *The River of Golden Sand; the Narrative of a Journey through China and Eastern Thibet to Burmah. With an Introductory Essay by Col. H. Yule.* 2 Vols. 8vo., London, 1880.
- REDHOUSE, J. W. *The Mesnevi (usually known as the Mesneviyi Sherif, or Holy Mesnevi) of Mevlana (our Lord) Jelalu-'d-din, Muhammed, Er-Rumi. Book the First. Together with some account of the Life and Acts of the author, of his ancestors, and of his descendants; illustrated by a selection of characteristic anecdotes, as collected by their historian, Mevlana Shemsu-'d-din Ahmed, El Eflaki, El 'Arifi. Translated and the Poetry versified.* 4to., London, 1881.
- ROSENTHAL, DR. J. *General Physiology of Muscles and Nerves (Second Edition).* Dem. 8vo., London, 1881.
- STEWART, A. and LONG, G. *Plutarch's Lives, translated from the Greek.* Vol. II. 8vo., London, 1881.

Errata in the Proceedings for April.

Page 64, line 2 from foot, *after* "available" *insert* full stop.

„ 64, „ 2 from foot, *for* "and the work will be edited with Mádharma's commentary", *read* "The work will be an edition of Parásara's lawbook with Mádharma's commentary".

„ 65, line 6, *for* "Fezazdaq" *read* "Ferazdaq".

„ 66, „ 3, *for* "Schubert" *read* "Schubart".

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.

FOR JUNE, 1881.

The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 1st June, at 9-15 P. M.

The Hon'ble H. J. REYNOLDS, C. S., Vice-President, in the Chair.

The minutes of the last Meeting were read and confirmed.

The following presentations were announced—

1. From the Marine Survey Department,—Chart of Bankot and entrance to Mhar or Savitri River.
2. From the Bengal Government,—(1), Report on the Amaravati Topo and excavations on its site in 1877, by R. Sewell; (2), Selections from the Records of the Government of India, Home, Revenue and Agricultural Department, No. 174.
3. From the Authors,—(1), Kaiser Akbar, Part II, by Graf. F. A. Noer; (2), Report on the Census of Calcutta taken on the 6th April 1876, by H. Beverley; (3), The Indo-Aryans, their History, Creed and Practice, by Ramachandra Ghosha.
4. From the Magistrate of Fatehpur,—A pice of Shah Alam's reign.

The following Gentleman is a candidate for ballot at the next meeting—

Prince Firukh Shah, proposed by Moulvie Kabiruddin Ahmad, seconded by J. Eliot, Esq.

The SECRETARY reported that Mr. C. E. Buckland had intimated his desire to withdraw from the Society.

The COUNCIL reported that during Dr. M'Cann's absence for a month from Calcutta, Mr. J. Eliot had been asked to officiate as Honorary Secretary.

Mr. C. H. TAWNEY exhibited a rare coin of Sophytes and said—

“While looking through a bag of coins, brought me by Dr. Hoernle, who is engaged in arranging the Society’s collection, I found a coin of Sophytes, precisely resembling that described by General Cunningham in the VIth volume of the Numismatic Journal, p. 220 and ff. General Cunningham says the coin is extremely rare. Von Saket in his *Nachfolga Alexander’s des grossen*, p. 87, marks it as RRRR. The coin seems to me to be genuine, and I have therefore thought it advisable to exhibit it to the members of the Society. I should propose that it be sent to General Cunningham for his opinion.”

The following papers were read—

1. *On the Voles (Arvicola) of the Himalayas, Tibet and Afghanistan.*—By W. T. BLANFORD, F. R. S., &c., with two plates.

(Abstract.)

In this paper the author gives an account of all the Himalayan, Tibetan and Afghan Voles (9) which have hitherto been described, and for this purpose the author has examined all the type specimens.

The molar teeth of the available forms are figured and described in this paper.

Mr. Blanford considers it very doubtful that any Vole has ever been found in the Oriental region.

This paper will be printed in the current volume of the Journal, Part II, No. 2.

2. *On Myospalax fuscicapillus, Blyth.*—By W. T. BLANFORD, F. R. S., &c.

(Abstract.)

This is a description of a small rodent which was named by Mr. Blyth 40 years ago. The original specimen was obtained at Quetta and another from Afghanistan having been recently found among the collections of the East India Company which have been transferred to the British Museum, Mr. Blanford has compared them and gives a very full description of the species and its affinities.

This paper will also appear in the Journal, Part II, No. 2.

3. *Notes on the Inhabitants of the Nicobars.*—By F. A. DE ROEPSTORFF.

In the Proceedings of the Asiatic Society of Bengal for July 1876 and for January 1881 will be found two papers in which I called attention to the inland tribe of the Nicobars. Since my paper was printed in January, a very interesting expedition was made by Colonel T. Cadell, V. C., Chief Commissioner of these islands, and myself, interesting to us and I hope also to the members of the Society. After my success in visiting an

uninhabited village and in opening communication with a Shombeng in October last, Colonel Cadell visited Galathea bay in December with the special intention of visiting the inland tribe on the Galathea river, which had been proved to be there by the members of the Danish Expedition in 1845. The weather was, however, very boisterous, and the coast people could not be prevailed on to act as guides, and the attempt had to be given up.

In March last Colonel Cadell went on another inspecting expedition to the Nicobars, and I was attached to it. After visiting Little Brother, Andamans, Car Nicobar, we anchored at Nancowry and provided ourselves with a guide from there. Next day we visited Pulo Condul, and I prevailed on one of the principal men there to come with us: here we bought a canoe. On the evening of the 15th March, we anchored near the village Laful and at once made arrangements with the natives that they should next day conduct us inland, but this time right up into the country of the Shombengs. During the night we had some heavy showers, and when we started in the early morning it was with doubt as to whether we would be troubled with rain. The rain did not fall and the clouds made our ascent cool and nice. As there was a little surf, we had to land in a canoe that the guides had brought on board the evening before. The Coast-people are as a rule not quick in their movements, but this morning they were very punctual, and within ten minutes after landing we had the luggage deposited on a canoe and we with our two men and five Laful guides were carrying the canoe over the bar at the entrance to the creek. The ascent we made was over the same ground that I had gone over in October and mentioned in my paper of January. The only difference was that we had then ascended the stream in a pouring rain, the stream was swollen, the boulders slippery, I was then panting with fever, and we were neither provided with food nor with clothes. Now the stream was dry, the sky clouded, we were well provided with all we needed ourselves, and, although we left too quickly to provide our guides with any thing, we trusted to the gardens of the Shombengs to supply them.

We passed up the creek, landed, saw the village of the Coast-people, went through the same deserted village of the Shombengs that I visited in October, struck the dry stream and ascended it as on my former visit. Near the spot where we then halted, we came across a little new clearing of the Shombengs which was not there in October. There was only one hut, and here we saw for the first time the very curious cooking arrangement of the Shombengs, which the Galathea Expedition in 1845 came across and describes as follows: "Such a sheet of bark also formed the substance of their cooking-pot, which stood on a stand formed of four little sticks with cross-sticks, under which the fire was laid." Under the little hut in this place there was a bark-pot. It was formed of one sheet of bark bent together.

The open seams were closed by two little sticks on each side which were tied together and had a crosstree to hold them in position. The seams were tightened with clay and the bottom was steadied with ribs like those of a boat. This pot had been exposed to fire. After resting a little here we went on and came at last to the point where we should leave the main stream. Our party was by this time smaller, as two of our Laful guides had gone on ahead to warn the Bengs of our approach. Where a steep hill-waterfall (now dry) opened into the stream-bed, the men deposited the luggage, saying that they would leave it here for the Shombengs to carry up as the hills were too steep.

This boded well, for it showed that they expected the Shombengs would be friendly, that we were not very far off, and also that they put confidence in the people we were going to. We then went up the side-branch and ascended what in the rains must be an inaccessible fortress. The path we found some 1000' up the nullah and it led us up nearly perpendicularly. Along the path were creeping bamboos that were very trying. The road was very steep and straight, and the distance was not proportionate to the fatigue in ascending. At the top of the hill we came on an enclosed village of three houses lying just on the outskirt of an extensive clearing that had been made quite lately, for many of the trees were not yet dry.

The distance we had gone over was computed as follows :

In canoes up the creek about	1½ mile.
Up the stream to first Beng village	1 "
Up the stream to second "	1 "
To where the luggage was deposited	½ "
Up the steep hills	1½ "
The total was thus 5½ miles in a west, slightly south, direction.	
Height ascended above the sea :	
Ascending the stream more than	300'
By the hill ascent about	1200'
<hr/>	
Total probable ascent ...	1500'

The village was enclosed by a stockade consisting of split logs, a horizontal piece alternately with one where the logs were in a vertical position. There was no entrance to this enclosure and it had to be climbed: it was about 3' high. The space inside was well cleared and was planted with plantain shoots each surrounded by little protecting sticks. Inside this rail were three huts of the same construction as those described by the "Galathea" Expedition and as those we had seen on our way up but rather bigger. These were raised 3' from the ground, 6' × 6'. The posts were very thin bullies: the roof consisted of back-sheets and a few rattan leaves. Only one house of three was provided with a bark cooking-

pot, but in this it was fixed at the southern end and was on the platform, and not on the ground as was the first one I mentioned. The pot consisted of three sheets of bark, one stuck inside and over the others like roofing: it had been exposed to fire.

We had to climb over some fallen trees, and when we came up to the village we found inside "Koal" the man I had met in October, and an old man suffering from hydrocele. "Koal" recognized me and promised to bring our luggage, and in a little while we were with our guides in sole possession of a Shombeng village. The inhabitants had evidently left on our approach, but they had had time to take away all their valuables, for they only offered us shelter, which, however, was an important point.

Colonel Cadell took possession of one house and I of another. The difference in size was not very great, but it was quite balanced by the cooking pot at the one end that shortened it considerably, so that only two small persons could find shelter in it. After a while our luggage was brought up. Koal and the old hydrocele, however, disappeared again after having brought our guides a few Gunyas. After a while we were informed that the Shombengs were afraid of us and would not come in, so we had to put pressure on. Our guides had no food, and when we declared that we would not leave till we had made friends with the inland tribe they began to bestir themselves. They went off after Koal and after a long explanation he at last promised to bring in some of his friends, saying that they would be with us at 2 P. M., pointing to the sun. We waited patiently till 2 and impatiently after that time, and when it was nearly dark we were beginning to fear that our visit had been all in vain, even our guides were in a bad humour, when we were cheered up by the arrival of a party of this curious people, headed by Koal. We remained seated where we were and took no notice of them till they had come inside the enclosure and stood round us. We then gave them peace-offerings of strings of little glass beads, and in a very short time we were on the best of terms. They submitted to our examining them and to our taking locks of their hair. These little glass beads are the only valuable property they care for and ours were considered very nice. Money they did not even know. Seated near a smoking fire that nearly blinded us, and delighted at our success, we proceeded to examine them, and, to make sure of the accuracy of our notes, they were drawn up by Colonel Cadell on the spot and contain what we agreed about. I give our notes verbatim. The first man mentioned I will refer to later on.

"Koal, Mr. de R's old friend with the bushy hair has already been described.

"No. 1, Alles—height 5' 3", chest 36", age about 30 or 35—hair thin, straight, black, eyes black—well built, but rather bony—parts

loosely tied, as if not often covered at all—pubes sparse—toes spread out—small sparse moustache—a few hairs in beard—teeth discolored but not enlarged—head appears as if flattened behind but this is said not to be customary with Shombengs—color slightly, very slightly, lighter than that of the Coast-people—ears bored, and pith, $\frac{1}{2}$ " diam., through one of them. Double string of white seeds from over left shoulder and below right arm—on both arms strings of dark and light fibre intertwined.

"No. 2, Towkow—height 5' $2\frac{1}{2}$ ", chest 36"—age about 16 or 18—hair straight, plentiful, cut square over eyebrows—black-brown eyes, Mongolian shape—high forehead—face long, narrow—nose straight with slight bend—mouth small—teeth slightly discolored—a pleasant face altogether—parts well developed and scarcely concealed—necklace of white seeds—string on arm as No. 1—right ear bored but not enlarged—left with bamboo and leaves through lobes—small strip of red chintz round head.

"No. 3, Ahéan—son of No. 4—age 16—height 4' $11\frac{1}{2}$ ", chest 35"—hair straight, long, thin, black—eyes well defined, Mongolian type, but not so much as No. 2—prominent cheek-bones—upper lip thin but protruding—a few single hairs on chin—both ears pierced—a round piece of stick pointed (1" diameter) through one lobe and pith through other—parts small and loosely tied—a well made youth.

"No. 4, Tang—age about 40—height 5' 3"—chest 36"—hair straight, thin, tinged with grey—moustache almost invisible and no other hair on face—both ears pierced—through right, pith $\frac{1}{2}$ " diameter, through left, round piece of stick $\frac{3}{4}$ " diam. as No. 3—teeth discolored, but not enlarged—a well built man—parts small, loosely tied—round neck necklace of white and red seed with fringe of pieces of plantain leaf curled—some neatly woven straw in his hand.

"No. 5, Kéal, a priest—age about 30—height 5' $4\frac{1}{2}$ ", chest 36 $\frac{1}{2}$ "—eyes small, brown—hair straight, long, black—slight trace of moustache—ears bored, rolled leaf in one—two front upper teeth $\frac{5}{8}$ " long, but no foreign substance on them—necklace of small beads—band of white bark round head."

The following was added next morning :

"No. 6, an old man with hydrocele }
"No. 7, ditto ditto } whom we did not describe.

"No. 8, Khoál, wife of Koal—about 25—height 5' 1"—chest 31 $\frac{1}{2}$ "—hair straight, coarse, black with brownish tint, parted over eyes, narrow band of white bark round it—both ears pierced, one with a hollow bamboo through it, the other with a stick—teeth discolored but not enlarged—necklace of several rows of small beads—striped red and white cloth round loins, and a loose piece of blue cloth over shoulder or anywhere where

fancy pleased. She brought with her a boy of about 6, a nice intelligent-looking lad, and, afterwards, on her back and hanging to her neck, a small boy of about 2.—T. CADELL.”

It will be seen from the above notes that the people is a comparatively big race with straight hair and Mongolian twisted eyes, and in them Col. Cadell agrees with me that every trace of Papuan or Negrito features is quite absent.

There remains, however, Koal the man I met in October. I described him in the paper of Jan. 1881 thus :

“One look at him sufficed to assure me that I had now come across a specimen of a curly-haired race, Papuan or Negrito. His hair was bushy and with rather a bend, and was very abundant. It covered the whole surface of his head and was not, like the hair of an Andaman Negrito, of the Papuan of New Guinea or of the Negro, found in tufts or patches. It had, however, the Papuan quality of being long, longer than the hair of the Andamanese ever is. The hair was, or appeared to be, brownish, interspersed with white, very coarse and stiff, and gave an exaggerated appearance of size to his head....His face was pleasant, especially when smiling, his forehead was high, his eyes were black, his nose well formed and arched, his upper lip was remarkably prominent from the base, his underlip small, his teeth were black but of natural size....His colour was copper-brown and a shade fairer than our Great Nicobar and Camorta guides. His complexion did not at all remind me of the deep shining black of the Andaman Negrito....He had his private parts tied up, but in such a loose way that it was evident that the Coast-people are right when they assert that the male Shom-Bengs go quite naked in their own haunts.” This description I still maintain is correct. Colonel Cadell states that he noticed that he was quite different from the others and that, if searching for Papuan or Negrito elements, he would most certainly have made the mistake of taking him to be such, if he had seen him alone.

He is quite a phenomenon, but, I think, a *lusus naturæ*, for we saw his children and neither of them had the slightest curl in their hair nor any feature recalling the Papuan. All the others agreed in appearance. They were all scanty-haired on the face and on the body, and we only saw one man (not described in the list) who had a fairly well developed moustache. They seemed of mixed Malay-Mongolian origin, and they were doubtlessly a different race from the Coast-people, being slightly fairer and with lighter hair and darker eyes than they, but yet the difference is not so great that it would be impossible to meet a Shombeng among the Coast-people and not notice the difference.

They are great cultivators and had cleared big tracts of land but in a very slovenly manner. No attempt had been made to burn the fallen trees

nor any to get rid of the branches. They do, however, cultivate deeply, for I got in 1876 from the Shombeng in Ganges harbour a very big yam and some Gunya which must have been carefully grown. One great clearing Col. Cadell and I went over. It was fenced all round, evidently to keep out pigs. The clearing stretched over a small valley from hill top to hill top. The only road across the confused masses of *débris* lying on the ground was a continual bridge of fallen logs, which seemed well suited to Shombeng feet but less so to boots, and we found it rather difficult to cross. On the top of the other hill we came to two huts. The one was circular and $8\frac{1}{2}$ ' from the ground. They were very dilapidated and did not look fit to withstand the heavy storms of the S. W. Monsoon. Col. Cadell went alone with Koal down a precipice with just space here and there for a naked Shombeng foot and he saw there another big clearing. To me it appeared as if the Shombengs with these clearings were making preparations for next year's operations, and that they leave any occupied piece of land when the virgin-soil fertility is exhausted. As the only domestic animal they keep is the pig, they have no means of manuring the exhausted soil, and they would therefore have to go to new grounds. The little villages near the stream below the hills seemed to me intended for the rainy season as they were in sheltered places and were newly made. After the meeting with Koal the first time, I thought that my idea that the Shombengs were not a Papuan or Negrito race was erroneous. I therefore made haste to publish a report of my meeting and of my doubts. Now that I have met the Shombengs in greater numbers, I beg to revert to my old theory that they are a race different from the Coast-people, without any Papuan or Negrito blood, and I beg again to suggest that they may be the same race originally as the inhabitants of the little Island of Schowra, who live by cultivation whereas all the islanders around them are keen fishermen. They are *also* supposed to be fairer than the Coast-people and have a Mongolian cast about their eyes.

I would have preferred that the report of our visit to the Shombeng country had come from the pen of Colonel Cadell, who would have given a better description of all we saw and heard, especially as the Expedition was originated and carried through by him, but he has suggested that I should write it.

Mr. BALL said: "The proverbial difficulty of proving a negative is well illustrated by Mr. de Roepstorff's paper, which is a further contribution on the subject of the inland inhabitants of the Great Nicobar. His researches do not disprove the supposed existence of a race in the interior of that Island having Negrito affinities; though it must be confessed that they render it less probable than it was thought to be before.

“A thorough scientific exploration of the islands included in the Andaman and Nicobar groups is a great desideratum, not only for the purpose of setting at rest such Anthropological questions, but also in order to completely elucidate the Zoology and Geology.

“With reference to the latter there are two questions of considerable economic importance which have yet to be determined. The first of these is whether coal in workable quantities exists. Hitherto, such coal as has been found in the Andamans and Nicobars only occurs in small nests of limited extent and not in regular seams. The rocks of the Andamans are, so far as is known, of older Tertiary (Eocene) and perhaps partly Cretaceous ages: they are probably closely allied to some of the groups which include workable coal in upper Burma and Assam. In the Nicobars there are rocks of the same age and together with them some which are younger, probably Miocene. There are believed to be distinct points of resemblance between the former and the coal-bearing rocks of Sumatra, Borneo and Java. So that, arguing from analogy, there appear to be grounds for believing that a useful discovery of coal may be made in these islands.

“Some years ago I appended to a paper on the Geology of Port Blair, which was printed in the *Journal*,* three allusions, two distinct, and one less clear, to a rumour that mercury has been found in the Andamans. The mode of occurrence and the age of the rocks with which mercury occurs in different parts of the world vary a good deal; for present purposes it is only necessary to refer to California where the deposits afford two-thirds of the mercury of commerce. These deposits occur in altered Cretaceous rocks with which serpentine is associated, the ore of mercury, cinnabar, being sometimes found in the serpentine itself. It is believed, as above stated, that some of the rocks in the Andamans will prove to be of Cretaceous age, and it is an ascertained fact that serpentine occurs in some abundance associated with them. Now it is known, all the world over, that similar associations of rocks are often accompanied by the occurrence of similar minerals. It seems therefore to be quite justifiable to express a hope that research may prove the existence of mercury in these islands. It is needless to remark that owing to its high value such a discovery would be of great importance.

“It is now ten years since I directed the attention of some of the officials in the Andamans to the possibility of such a discovery being made and Mr. Homfray, then protector of the Andamanese, shewed them some metallic mercury, but they appeared to be unacquainted with it and nothing was elicited. A much more likely way of being successful would be to make search for cinnabar which is the common ore of mercury.

“The red pigment commonly used by the Andamanese was some years ago analyzed by Dr. Waldie and found to consist of red oxide of iron.

* Vol. XXXIX, 1870, p. 239.

This need not be taken as proving that no source of cinnabar was available to them, because they may have found by experience that the use of the latter was injurious to their health.

“An expedition to explore these islands should be thoroughly well officered and equipped. Speaking from personal experience, I can say that the risk of fever is very great, and those who remain on shore at night will have to take every precaution to avoid its attacks; but, as I have endeavoured to show, there are reasons, both scientific and practical, which encourage the belief that such an exploration would prove fruitful in good results.”

4. *Note on a photograph of a Buddhist sculpture found at Bulandshahr.*—By F. S. GROWSE, C. I. E.

The Buddhist sculpture, shown in the accompanying photograph, was discovered a few days ago at Bulandshahr, in the garden of a native gentleman, Munshi Gopál Rái, close to the Id-gah, between the city and the civil station. It had originally been dug up some 20 years previously in the old Khera known as the Moti Bazar, which is now being levelled. It is of interest as being, so far as I know, the only unquestionable proof that has yet come to light of the ancient prevalence of Buddhism in this neighbourhood. The sculptured pillars that I found in the town of Bulandshahr, and of which a notice and illustration were given in the Society's Journal for 1879, may have belonged either to a Buddhist or to a Brahmanical temple; it is impossible to say which, the style of architecture affected by both being essentially the same and differing chiefly in ground plan. The stone, in which the sculpture is cut, is a square block measuring in its mutilated state 1 foot $4\frac{1}{2}$ inches either way, the material being a black slate, not the *sang-músa* or black marble of Jaypur. The principal figure represents the Buddha, enveloped in a thin robe reaching to the wrists and ankles and falling over the body in a succession of narrow folds. His arms are slightly raised in front of his breast and the thumb and fore-finger of his left hand are joined at the tips, while with his right hand he touches his middle finger, as if summing up the points of an argument. On either side of his throne is a rampant hippogriff, with its back to the sage and rearing its head over a devotee seated in an attitude of prayer. The throne is supported on two recumbent lions, flanked by Hindu caryatides with impossibly distorted limbs as usual; and at the base again are other devotees kneeling on either side of the footstool, the front of which is carved with the mystic wheel between two couchant deer. The upper part of the stone has been broken off, carrying with it the head of the principal figure, but what remains is in good preservation and has been well executed. On a ledge in a line with

the feet is an inscription in characters apparently of the 9th or 10th century, of which I sent a rubbing to Dr. Hoernle, who reads it as follows:

Ye dharmá hetu-prabhavá hetus teshán tathagato hyavadat teshám cha yo nirodha. evam-vádi mahásramanah.

This would be in English "All things that proceed from a cause, says the Tathágata, their cause is identical with their destruction; such is the dictum of the great philosopher."* If this is the form of words that is always used, it is curious that a popular symbol of faith should have been framed with so much tautology in so short a compass.

5. *Note on some curiosities found at Bulandshahr.*—By F. S. GROWSE, C. I. E.

In the course of some excavations in the plateau of high ground immediately outside the town of Bulandshahr, mentioned in the previous note under its popular name of the Moti Bazar, I have come upon the remains of an old local manufacture, of which I send six specimens for the inspection of the Society. They may be described as earthenware flasks or vases, but the purpose for which they were intended is by no means obvious, and I should be glad of suggestions. They are all alike in general shape, being pointed at the bottom like a Roman amphora and with a very small orifice for the mouth; but they vary very much in the patterns with which they have been ornamented, and are of different size, weight and thickness. Some have apparently been squeezed out of shape, before the material of which they are made had time to dry. The spot where they were found is evidently that where they were baked, as the number that have been dug up entire amounts to several scores, besides a multitude of broken pieces, all mixed in a deep deposit of ashes and the other refuse of a potter's kiln.

At the same level have also been uncovered many fragments of wall and pavement, constructed of large and well-burnt bricks measuring as much as 1 ft. 7 in. in length by 11 inches in breadth and 3 in. in thickness. Most of these bricks are marked on one side with two lines drawn by the workman's fingers in the damp clay, and they are, I should say, of great antiquity. At first, however, I did not suppose that the flasks were at all of the same age. The site might have been originally occupied by a fort and then deserted for centuries before the potters came and set up their kilns upon it, making use—for their houses—of any old building materials that they happened to light upon. The traditional name by which the piece of ground is popularly known is, as I have said, the

* [Or rather: "all things that proceed from a cause, their cause as well as their destruction the Tathágata has declared; such is the dictum of the great philosopher." ED.]

Moti Bazar, and there is much vague talk of coins and solid bars of silver having been discovered there in former years. It is bounded on one side by a deep ravine, which I am now filling up in order to convert the entire area into a public garden, which will be called the Moti Bágh, thereby perpetuating the old tradition.

Most natives who have seen the flasks think they were meant to hold either gunpowder or oil, which is what the shape suggests; but the material, on account of its weight, seems unsuitable for such a purpose, if the flask was to be carried about on the person, while the pointed bottom makes it awkward for storing. The idea has also been hazarded that they were meant to be filled with gunpowder and then exploded as a kind of fire-works; but, if this were their object, there would scarcely have been so much trouble spent on their ornamentation. A third theory, which has found much favour on the spot, but which at first I was inclined to reject as altogether untenable, is that they were intended to form a balustrade for a balcony or the roof of a house. Perhaps after all this is not so very far wrong; being found at the same level as the Buddha and the bricks and also a seal apparently of the 5th century A. D., an impression of which will be exhibited at the next meeting of the Society, the presumption is that they are of about the same date, and they may be the finials of miniature Buddhist stupas.

A specimen of the bricks, of which upwards of a thousand have been found, is sent also with the vases.

LIBRARY.

The following additions have been made to the Library since the meeting held in May last.

TRANSACTIONS, PROCEEDINGS AND JOURNALS,

presented by the respective Societies and Editors.

Berlin. K. preussische Akademie der Wissenschaften,—Monatsbericht, December 1880.

Bombay. The Indian Antiquary,—Vol. X, Pt. 119, May 1881.

Bordeaux. Société de Géographie Commerciale,—Bulletin, Nos. 7—9.

Calcutta. Register of Meteorological Observations for April 1880.

———. Indian Meteorological Memoirs,—Vol. I, Part 5.

Dresden. Kais. Leopoldinisch-Carolinische Deutsche Akademie der Naturforscher,—Nova Acta. Vols. XXXIX—XL.

- Geneva. Museo Civico di Storia Naturali,—Annali, Vol. XVI.
- Liège. Société Géologique de Belgique,—Annales, Vol. VI.
- Lisbon. Sociedad de Geographia,—Boletin, Second series, No. 3.
- London. Royal Society,—Proceedings, Vol. XXXI, No. 210.
- . Royal Geographical Society,—Proceedings, Vol. III, No. 4, April 1881.
- . Anthropological Institute of Great Britain and Ireland,—Journal Vol. X, No. 2, November 1880.
- . The Academy,—Nos. 467—470.
- . The Athenæum,—Nos. 2790—2793.
- . Nature,—Vol. XXIII, Nos. 589 and 599.
- Paris. La Société de Géographie,—Bulletin, Vol. I, January 1881.
- . *Rhins, J. Dutreuil de.*—Routes entre la Chine et l'Inde.
- Roma. Società degli Spettroscopisti Italiani,—Memorie, Vol. X, Dispensa 2, February 1881.
- Turin. R. Accademia delle Scienze,—Atti, Vol. XVI, Disp. 1—3.
- Washington. United States Geological and Geographical Survey of the Territories,—Bulletin, Vol. VI, No. 1.
- . *Gray, A. and Hooker, J. D.*—The vegetation of the Rocky mountain Region and a comparison with that of other parts of the world. *Cope, E. D.*—On some new *Batrachia* and *Reptilia* from the Permian Beds of Texas. *Cope, E. D.*—On a wading Bird from the Amyzon Shales. *Schufeldt, R. W.*—Osteology of *Speotyto Cunicularia* var. *Hypogæa*. *Schufeldt, R. W.*—Osteology of *Eremophila Alpestris*. *Grote, A. R.*—Preliminary List of the North American Species of *Agrotis*, with descriptions. *Cope, E. D.*—On the *Nimravida* and *Canida* of the Miocene Period. *Cope, E. D.*—On the Vertebrata of the Wind River Eocene Beds of Wyoming.
- Zagreb. Arkeologickoga Druzstva,—Viestnik, Vol. III, No. 2.

BOOKS AND PAMPHLETS,

presented by the Authors.

- BEVERLEY, H. Report on the Census of the Town of Calcutta taken on the 6th April 1876. Fcp., Calcutta, 1876.
- GHOSHA, RAMACHANDRA. The Indo-Aryans, their History, Creed and Practice. Demi 8vo., Calcutta, 1881.
- NOER, GRAF. F. A. Kaiser Akbar ; ein Versuch über die Geschichte Indiens in sechzehnten Jahrhundert, Part 2. 8vo., Leiden, 1881.

MISCELLANEOUS PRESENTATIONS.

- SEWELL, R. Report on the Amaravati Tope, and excavations on its site in 1877. 4to., London, 1880.
- Report of the Calcutta Court of Small Causes for the year 1880. Fcp., Calcutta, 1881.

Selections from the Records of the Government of India, Home, Revenue and Agricultural Department, No. 174. Reports on publications issued and registered in the several provinces of British India during the year 1879. 8vo., Calcutta, 1881.

The Indian Forester, Vol. VI, No. 4.

BENGAL GOVERNMENT.

The Indian Antiquary, Vol. X, Part 119, May 1881.

FALLON, S. W. A new English-Hindustani Dictionary, Part 3, May 1881. 8vo., Benares, 1881.

HOME, REVENUE AND AGRICULTURAL DEPARTMENT.

Report on the Police Administration of the Central Provinces for the year 1880. Fcp., Nagpur, 1881.

Report on the Jails of the Central Provinces for the year 1880. Fcp., Nagpur, 1881.

CHIEF COMMISSIONER, CENTRAL PROVINCES.

Annual Report on the Civil Hospitals and Dispensaries in the Madras Presidency for the year 1879. Fcp., Madras, 1880.

MADRAS GOVERNMENT.

Reports of Prof. Joseph Henry, Secretary of the Smithsonian Institution, 8vo., Washington, 1867-76.

SMITHSONIAN INSTITUTION,

PERIODICALS PURCHASED.

Calcutta. Indian Medical Gazette,—Vol. XVI, No. 5, May 1881.

Göttingen. Gelehrte Anzeigen,—Nos. 17—19.

Leipzig. Annalen der Physik und Chemie,—Vol. XII, No. 4.

———. Beiblätter,—Vol. V, No. 4.

London. Journal of Botany,—Vol. X, No. 220.

Clarke, C. B.—A revision of the Indian species of *Leea*. The Coffee-leaf Disease.

———. London, Edinburgh and Dublin Philosophical Magazine, Vol. XI, No. 68.

———. The Journal of Science,—Vol. III, No. 88.

———. Annals and Magazine of Natural History,—Vol. VII, No. 40.

Distant, W. L.—Description of a new Longicorn Beetle from Java. *Carter, H. J.*—On the Kunker Formation of the Alluvium in India compared with the Flint Formation in the chalk of England. *Wood-Mason, J.*—Description of *Parantirrhæa Marshalli*, the Type of a new Genus and Species of Rhopalocerous Lepidoptera from South India. A History of the Birds of Ceylon, by Capt. W. V. Legge.

———. Entomologist,—Vol. XIV, No. 215.

———. Entomologist's Monthly Magazine,—Vol. XVII, No. 203.

Fryer, W. B.—Tropical notes. *Distant, W. L.*—Description of a new species of *Lycaenide* from Penang. *Lewis, G.*—New species of *Helotidae* from Japan.

- London. Mind,—No. 22, April 1881.
 ———. Numismatic Chronicle,—Vol. XX, No. 80.
 ———. Publishers' Circular,—Vol. XLIV, Nos. 1046—1047.
 ———. Chemical News,—Vol. XLIII, Nos. 1116—1119.
 No. 1118. *Pickering, S. U.*—Notes on the Oxides of Manganese.
 ———. Society of Arts,—Journal, Vol. XXIX, Nos. 1482—1485.
 No. 1485. *Maclagan, Gent.*—Indian Section. The Building Arts of India.
 New Haven. American Journal of Science,—Vol. XXI, No. 123.
 Paris. Comptes Rendus,—Vol. XCII, Nos. 14—17.
 No. 16. *Marey, M.*—Inscription microscopique des mouvements qui s'observent en Physiologie. *Gylden, M.*—Sur l' intégrale eulérienne de seconde espèce.
 No. 17. *Faye, M.*—Sur une question de Métrologie ancienne; origine du mile anglais.
 ———. Revue Scientifique,—Vol. XXVII, Nos. 16—19.
 No. 18. *Vélain, Ch.*—L' Algérie et la Pays des Kroumirs. *Rochas, de.*—Le Traité des gaz, par Héron d'Alexandrie.
 No. 19. *Verneuil.*—Du paludisme considéré au point de vue chirurgical.
 ———. Revue des deux Mondes,—Vol. XLIV, No. 4, Vol. XLV, No. 1.
 ———. Revue Critique,—Vol. XI, Nos. 15—18.
 ———. Journal des Savants,—April 1881.

BOOKS PURCHASED.

- BOULGER, DEMETRIUS CHARLES. History of China, Vol. I. 8vo., London, 1881.
 MÜLLER, MAX. Sacred Books of the East, Vol. X. 8vo., Oxford, 1881.
 TYLOR, EDWARD B. Anthropology: an Introduction to the Study of Man and Civilization. Demi 8vo., London, 1881.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.

FOR JULY, 1881.

The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 6th July 1881, at 9.15 P. M.

C. H. TAWNEY, Esq., M. A., Vice-President, in the Chair.

The minutes of the last Meeting were read and confirmed.

The following presentations were announced—

1. From the Home, Revenue and Agricultural Department,—Shering's Hindu Tribes and Castes, vol. III.

2. From the authors,—(1) *Die Culturländer des alten America ; Die Voelker des oestlichen Asien : Studien und Reisen*, vols. I, II and IV ; *Beiträge zur Ethnologie und darauf begründete Studien ; Mexico : Vortrag*, gehalten in der Sing-Academie am 18 Januar 1868 ; and *Remarks on the Indo-Chinese Alphabets*, by Dr. A. Bastian, (2) *Report on accessions to our knowledge of the Chiroptera during the past two years (1878-80) ; Report on the Geographical Distribution of the Chiroptera ; and Sur quelques espèces de Chiroptères provenant d'une collection faite en Algérie par M. Fernand Lataste*, by Dr. G. E. Dobson, (3) *Bibliographie Générale de l'Astronomie*, vol. II, pt. 2, by J. C. Houzeau and A. Lancaster, (4) *Govinda Gitika* by Raja Mahendralala Khan.

3. From the Panjab Government,—*Glossary of the Multani Language compared with the Panjabi and Sindhi*, by E. O'Brien.

4. From the Geological Society of London,—*Catalogue of the Library of the Geological Society of London*.

5. From A. W. Franks, Esq.,—*List of Drawings from the Amravati Topo, Southern India, made for Col. C. Mackenzie, 1816-19, and preserved in the Library of the India Office*.

6. From the Political Agent and Superintendent, Charkhasee,—*twelve copper coins*.

The following Gentleman, duly proposed and seconded at the last meeting, was elected an Ordinary Member of the Society :

Prince Firukh Shah.

The following Gentleman is a candidate for election at the next meeting :

H. C. Barstow, Esq., C. S., Magistrate and Collector, Cawnpore, proposed by H. Rivett-Carnac, Esq., C. S., seconded by Dr. G. Thibaut.

The COUNCIL announced that the report of the Auditors of the Society's Accounts had been received, and that the suggestion of the Auditors, that the stock of Books be not entered as an Asset, had been approved.

Dr. HOERNLE exhibited a wax impression of a curious old seal of baked clay, found by Mr. Growse at Bulandshahr, and read the following note on the same and on the vases exhibited at the last meeting by Mr. Growse :

“My excavations at the Moti Bagh are still in progress and this morning the workmen turned up a curious old seal of baked clay, of which I enclose an impression. The oval is divided by two parallel lines into two equal compartments, in the upper of which are two devices, the one a conch shell, the other—which is raised on a little stand—looks like a wing and may possibly be intended for a *chakwá*. In the lower compartment is a name in early characters, probably of about the 5th century A. D., which I read as Sattila.

I have no doubt now that the vases exhibited at the last meeting are the finials of miniature Buddhist stupas, such as are not unfrequently found in old *kheras*. At first I looked upon them as too modern to allow of this suggestion holding good ; but this discovery, on the same spot and at no greater depth, first of a Buddhist sculpture with an inscription in characters of about the 8th century A. D., and now of this seal which may be some 2 or 3 centuries older still, renders it probable that they too may be referred to a period equally remote, when Buddhism was the predominant religion of the neighbourhood.”

Mr. BALL exhibited an ancient stone implement made of magnetic iron ore, and said that he was indebted for it to Mr. W. G. Olpherts, to whom it had been sent simply as a specimen of iron ore. Its history had not yet been fully ascertained but it was believed to have been obtained somewhere in the Narbada valley.

The material, magnetic oxide of iron, containing perhaps from 60 to 70 per cent. of iron, though admirably suited on account of its weight and toughness for making into a chipped implement, does not appear to have been often so employed. The present is in fact the only known specimen.

It might be suggested by some that the use of this material was a step in the direction of the substitution of iron for stone, but it would be difficult to prove such a proposition.

The following papers were read—

1. *The Revenues of the Mughal Empire in India.*—By EDWARD THOMAS, F. R. S., late Bengal C. S.

(Abstract.)

In Volume XLIX of the Journal of the Society a paper was published by Mr. C. J. Rodgers on the "Copper Coins of Akbar," in which he entered into some speculations on the amount of the State Revenue of that monarch, based upon new interpretations of the legends of his coins, and considerably differing from the calculations of Mr. E. Thomas, in his "Revenue resources of the Mughal Empire." The present paper is a brief reply by Mr. Thomas. After mentioning that his calculations have been accepted as correct by Dr. Hunter, Mr. C. Markham and others, he shows that one of Mr. Rodgers' main arguments, based on his reading the word *dám* on Coin No. 4, falls to the ground, inasmuch as the word is not *dám*, but *damrá* (i. e., a double *damri*). He similarly shows that Mr. Rodgers' second main argument is based on a confusion of the terms *tankah* and *tánke*.

This paper will be published in full in the Journal, Pt. I, No. 2, for 1881.

2. *Description of a new species of Butterfly belonging to the genus Dodona.*—By LIONEL DE NICEVILLE.

[Received June 24th ; Read July 6th, 1881.]

DODONA LONGICAUDATA, n. sp.

♂ UPPERSIDE deep shining brown. *Fore wing* crossed before the middle by a broad white band which does not quite reach the costa, being narrowest at that point and divided by the nervules into two small spots. This band has its inner margin straight, the outer margin evenly convex. A submarginal series of six white spots placed irregularly. An indistinct marginal series of linear spots. *Hind wing* with the white band of the fore wing continued in a wedge-shaped figure across the disc of the wing, ending in a point just below the first submedian nervure. Abdominal

area paler, with an indistinct white band from the base, and another short transverse one above the anal angle. Incomplete submarginal and marginal bands of white linear spots. Anal lobe black, encircled by a white line and thickly irrorated with white scales. *Tail* long, black; tip and cilia white.

UNDERSIDE rich bright brown, crossed by several silvery-white bands. *Fore wing* with narrow basal and subbasal bands, then a broad median band coincident with the band above but not reaching the costa; a short narrow costal band; then a very irregular broad band which is broken up into spots on the inner side below its middle; and lastly a marginal series of seven spots, the two upper ones rounded and out of line, the rest increasing, linear. The ground-colour near the outer angle becoming darker and almost forming two dark brown spots. *Hind wing* with the two basal and broad median bands as in the fore wing, but all meeting above the anal angle, at which point they are joined by two other white bands traversing the abdominal area. There is also a fourth band from the costa, short, narrow, submarginal, reaching the discoidal nervule, between which and the broad median band there is another narrow white line not reaching the costa, in continuation of which is an orange fascia terminating on the abdominal margin in a black linear spot, and bearing two black rounded spots at its upper extremity. Submarginal and marginal white lines. Anal lobe jet-black, surmounted by a black, white-irrorated space ending in a black spot on the abdominal margin, which space is divided from the lobe by a white line.

CILIA of *fore wing* brown, except a small portion near the inner angle; of the *hind wing*, alternately brown and white.

BODY above deep brown, with a somewhat rufous collar; beneath, white, with a black median abdominal line.

LEGS. The atrophied fore legs are pure white, the two posterior pairs have their tibiae and tarsi ocraceous.

ANTENNÆ black, annulated with white.

A single specimen taken by the late Mr. J. P. Cock near Shillong, Assam, in November.

This species seems nearest allied to *Dodona deodata*, Hewitson, from Moulmein, figured in Plate I of Moore's "Desc. new Indian Lep. from coll. Atkinson," Part I, 1879, from which species it may readily be distinguished on the upperside in having only one median white band, being in fact altogether a much darker insect. *D. deodata* is apparently tailless, or the tails are rudimentary.

This is only the eighth species of this very interesting and compact little genus (all of which occur in India) as yet described. It is remark-

1881.] O. Feistmantel—*Sketch of the history of the Gondwana fossils.* 123

able for the length of its tails, which are quite twice as long as those of *D. egeon*, Doubl. Hew., which species has them the next longest of the genus. It will be figured in the forthcoming work on 'The Butterflies of India, Burmah and Ceylon,' by Captain Marshall and myself.

3. *Sketch of the history of the fossils of the Indian Gondwana system.*—By O. FEISTMANTEL, M. D., *Palæontologist, Geological Survey of India.*

(Abstract.)

The fossils of the Indian Gondwana system, the most important series of sedimentary rocks in Peninsular India, have been now under examination for several years, and various memoirs have been published containing descriptions and illustrations of the vegetable and animal remains of this important rock-system. These fossils have been, however, hitherto treated of in a stratigraphical order only, according to the groups from which they were procured. A general review of the fossils in a biological order was hitherto wanting, and as only lately Mr. R. Lydekker gave a sketch of the history of the fossil Vertebrata in India in the Journal of the Asiatic Society of Bengal, the author thought it would prove of some use to write a similar sketch of the Gondwana fossils for publication in the same Journal.

A general review of the literature referring to Gondwana fossils is given, also a review of the various groups of the system with regard to the occurrence of fossils in them; then follows the enumeration of the fossils (vegetable and animal) in a systematical (biological) order, with indication of their geological and geographical distribution, and a few general remarks on the peculiarities of the fossils of this system conclude the paper.

This paper will be published in full in the Journal, Pt. II, No. 3, for 1881.

4. *New and little known Mollusca belonging to the Indo-Malayan Fauna.*—By GEOFFREY NEVILL, C. M. Z. S.

(Abstract.)

This paper contains complete descriptions of certain species of Mollusca which were only briefly described in the author's 'Hand-list.'

The plates include figures of most of the shells previously described by Mr. Nevill, but of which no illustrations have hitherto been published: thus one of the plates represents the brackish-water shells described in the Journal, Pt. II, No. 3, 1880.

In addition to the above there are descriptions of many new and important species lately discovered by Surgeon-Major R. Hungerford at

the Philippines, in Formosa, &c., as well as of some new *Rissoina* which are being figured by Dr. Weinkauff for the forthcoming monograph in the new edition of the well known standard work, the 'Conchylica Cabinet.'

A new species of the brackish-water genus *Fairbankia*, which was discovered by Mr. F. Fedden 10 feet below the surface in Káthiáwár, is also described.

In his preface Mr. Nevill alludes to the unmerited oblivion into which some upper cretaceous *Helicidæ* described by Dr. Stoliczka appear to have fallen. The author also makes some observations on the distribution and probable origin of the land Mollusca of the Madagascar region in connection with some remarks by Mr. A. R. Wallace in his recent work 'Island Life.'

This paper will be published in the Journal, Part II, No. 3, for 1881.

Mr. FEDDEN said:—I may mention that the Rissoid shell from the Rann, described in Mr. Nevill's paper, and placed by him somewhat doubtfully in the genus *Fairbankia*, was obtained, together with about a dozen other semi-fossil shells, from a clay bed ten feet below the surface of the "Little Rann" (as it is called, on the north side of Káthiáwár)—the bed from which the brine is obtained at the salt works near Kúṛa (or Kúḍa) in the Dhrangadra State. There is first the surface soil, an earthy clay, then a dark plastic clay, thirdly a brown clunch, a close stiff clay, and fourthly the fossiliferous clay, which is dark bluish and plastic, highly saline and gypseous (crystals of gypsum). The base was not reached in the brine pits. From this lower clay I obtained by washing a number of small shells, among which are the following:—

Pirenella, probably two species of this prettily marked shell, the most numerous.

Along with these a few specimens of *Tympanotomus fluviatilis*, (one of the *Cerithidæ*), now common on the coast near the mouths of streams.

Assiminea, a sub-genus of *Rissoa*, and one or two other Rissoids.

A pretty little *Melampus*, probably a variety of *M. striatus*.

Then there are apparently two species of the minute shell *Stenothyra*; one species is *minima*, the other I should call *major*, if new.

There is also a little shell that Mr. Nevill thinks may be a new species of the rare genus *Theora*, and of bivalves a *Glaucomya* (*Glaucanome*), near, if not identical with, the Chinese species (*Chinensis*), a common borer in tidal mud banks, and one or two other shells not yet examined.

It will be seen that the collection, though small, is of some interest to the Conchologist as well as the Geologist. The general *facies* presents a mingling of brackish-water with marine forms, and, considering that the locality is situated 65 miles from the present head of the Gulf of

Kachh, tends strongly to confirm the supposition that the Rann was an annex of the sea not very long ago, but was given up, and, on being evacuated, became silted up.

5. *Additional remarks on the Identification of Ancient Diamond Mines in India.*—By V. BALL, M. A., F. G. S.

(Abstract.)

In this paper the author finally adopts the view that the mine called Raolconda by Tavernier is identical with the modern Ramulkota. In his previous paper he named this as the alternative in the event of Rawduconda not being the place. With the aid of Mr. King the localities mentioned by Tavernier as intervening between Golconda and Raolconda have been fully identified with places between Golconda and Ramulkota where there are still traces of former extensive mines.

One consequence of this is that the measure of distance called the *gos* by Tavernier must have been 8 miles, and the league of Tavernier was not the French league, but a paraphrase for the elastic *cos*.

The present paper confirms the previous identifications as to other mines and includes information illustrative of several points in the original communication.

This paper will be published in the Journal, Pt. II, No. 3, for 1881.

The following communication has been received :

“The Electric Telegraph and Natural History” by W. MacGregor.

LIBRARY.

The following additions have been made to the Library since the meeting held in June last.

TRANSACTIONS, PROCEEDINGS AND JOURNALS,

presented by the respective Societies and Editors.

Batavia. *Natuurkundig Tydschrift voor Nederlandsch Indië*, Vol. XL.

Berlin. *K. preussische Akademie der Wissenschaften*,—*Monatsbericht*, January 1881.

Bombay. *The Indian Antiquary*,—Vol X, Part 120, June 1881.

Bordeaux. *Société de Géographie Commerciale*,—*Bulletin*, Nos. 10 and 11.

Brussels. *L'Académie Royale des Sciences, des Lettres et des Beaux Arts de Belgique*,—*Annuaire*, 1879, 1880 and 1881.

- Brussels. L'Académie Royale des Sciences, des Lettres et des Beaux Arts de Belgique,—Bulletins, Vol. XLVI—L, 1878—1880.
- . ———. Mémoires Couronnés,—Vols. X—XIV, XXIX—XXX and XXXII.
- . ———. Mémoires Couronnés et des savants étrangers,—Vols. XXVIII—XXX, XXXIX, Part 2, XLII and XLIII
- . ———. Mémoires,—Vols. XXXI—XXXIII, and XLIII, Part 1.
- Calcutta. Registers of Original Meteorological Observations,—May 1880.
- Copenhagen. Société Royale des Antiquaires du Nord,—Mémoires, 1878-79.
- . Tillæg til Aarboger for Nordisk Oldkyndighed og Historie, 1877 and 1878.
- Edinburgh. Royal Society of Edinburgh,—Transactions, Vol. XXIX, Part 2, 1879-80.
- Schulze, Prof. F. E.*—On the structure and arrangement of the soft parts in *Euplectella aspegillum*. Communicated by Sir Wyville Thomson.
- . ———. Proceedings,—Vol. X, Nos. 105—107.
- Brander, Surgeon E. S.*—Remarks on the Aboriginies of the Andaman Islands.
- . Botanical Society,—Transactions and Proceedings, Vol. XIV, Part 1.
- Traill, Dr. W.*—On the growth of the New Zealand Flax Plant (*Phormium tenax*) in the Orkney Islands. *Christison, Sir R.*—On the exact measurement of Trees (Part 4). The Influences of the unfavourable Season of 1879 on the growth of Trees. *Thomson, G. M.*—The flowering plants of New Zealand, and their relation to the Insect Fauna. Communicated by Professor Balfour.
- Geneva. Société de Physique et d'Histoire Naturelle,—Mémoires, Vol. XXVII, Part 1.
- Duby, M. J. E.*—Choix de mousses exotiques nouvelles ou mal connues. Monographie des *Echinides* contenus dans les couches nummulitiques de l'Égypte.
- Leipzig. Deutsche morgenländische Gesellschaft,—Abhandlungen für die Kunde des morgenlandes,—Vol. VII, No: 2.
- London. Society of Telegraph Engineers,—Journal, Vol. X, No. 35, March 1881.
- . Royal Microscopical Society,—Journal, Vol. I. Part 2, (Ser. II) April 1881.
- . Royal Geographical Society,—Proceedings, Vol. III, No. 5, May 1881.
- . Royal Asiatic Society of Great Britain and Ireland,—Journal, Vol. XIII, Part 2, April 1881.
- . Royal Institution,—Proceedings, Vol. IX, Part 3, No. 72.
- . ———. List of Members, 1880.

- London. Royal Astronomical Society,—Monthly Notices, Vol. XLI, No. 5, March 1881.
- . The Academy,—Nos. 471—475.
- . The Athenæum,—Nos. 2795—2798.
- . Nature,—Vol. XXIII, No. 595, and Vol. XXIV, Nos. 602—605.
- Munich. K. b. Akademie der Wissenschaften,—Sitzungsberichte der philosophisch-philologischen und historischen Classe,—Vol. I, Parts 4—5, 1880.
- . ————. Mathematisch-physikalische Classe, Vol. XXIII, Part 1, 1881.
- . ————. Abhandlungen, philosophisch-philologische Classe, Vol. XV, Part 3.
- . ————. Historische Classe, Vol. XV, Part 3.
- Paris. La Société de Géographie,—Bulletin, February 1881.
- . La Société Zoologique,—Bulletin, Parts 5 and 6, July to December 1880.
- Pisa. Società Toscana di Scienze Naturali,—Atti, Processi Verbali, 13th March 1881.
- Rome. Società degli Spettroscopisti Italiani,—Memorie, Vol. X, Nos. 3 and 4, March and April 1881.
- Roorkee. Professional Papers on Indian Engineering,—Vol. X, No. 40, April 1881.
- Schaffhausen. Société Entomologique Suisse,—Bulletin, Vol. VI, No. 3, February 1881.
- Rougemont, Ph. de.*—Observations sur l'organe détonant du *Brachinus crepitans*
- Oliv. Puton, Dr.*—Enumeration des Hémiptères recoltés en Syrie par M. Abeille de Perrin avec la description des espèces nouvelles. *Gessner E. Frey.*—Syrische Hemiptern.
- The Hague. Bijdragen tot de Taal-Land-en Volkenkunde von Nederlandsch-Indië, Vol. III, No 3, and Vol. IV, Nos. 3 and 4.
- Turin. R. Accademia delle Scienze,—Atti, Vol. XVI, Disp. 4, March 1881.
- Vienna. Anthropologische Gesellschaft,—Mittheilungen, Vol. X, Nos. 8—9.
- . K. K. Geologische Reichsanstalt,—Abhandlungen, Vol. XII, Part 2.
- Hoernes, R. and Auinger, M.*—Die Gasteropoden der Meeres-Ablagerungen der ersten und zweiten Miocänen Mediterran-Stufe in der österreichisch-ungarischen Monarchie.
- . ————. Jahrbuch, Vol. XXX, No. 4.
- . ————. Verhandlungen, Jahrgang, 1880, Nos. 12—18.
- Wellington. New Zealand Institute,—Transactions and Proceedings, Vol. XIII, 1880.
- Yokohama. Deutsche Gesellschaft für Natur und Völkerkunde Ostasiens,—Mittheilungen, April 1881.

BOOKS AND PAMPHLETS

presented by the Authors.

- BASTIAN, Dr. Adolf. Die Culturländer des alten America, 2 vols. 8vo., Berlin, 1878.
- . Die Voelker des oestlichen Asien. Studien und Reisen, Vols. I, II, and IV, 8vo., Leipzig, 1866-68.
- . Beiträge zur Ethnologie und darauf begründete Studien, 8vo., Berlin, 1871.
- . Mexico. Vortrag, gehalten in der Sing-Academie am 18 Januar 1868, 8vo., Berlin, 1874. Pam.
- . Remarks on the Indo-Chinese Alphabets. 8vo., London, 1867. Pam.
- DOBSON, G. E. Report on accessions to our Knowledge of the *Chiroptera* during the past two years (1878—80). 8vo., London. Pam.
- . Report on the Geographical Distribution of the *Chiroptera*. 8vo., London. Pam.
- . Sur quelques espèces de Chiroptères provenant d'une collection faite en Algérie par M. Fernand Lataste. 8vo., Paris, 1881. Pam.
- FRANKS, A. W. List of drawings from the Amaravati Tope, Southern India, made for Colonel C. Mackenzie 1816-19, and preserved in the Library of the India Office. (Privately printed.) 8vo., Westminster 1881. Pam.
- HOUZEAU, J. C. and LANCASTER, A. Bibliographie Générale de l'Astronomie, ou Catalogue Méthodique des Ouvrages, des Mémoires et des Observations Astronomiques publiés depuis l'origine de l'imprimerie jusqu'en 1880. Vol. II, Part 2. 8vo., Brussels, 1881.

MISCELLANEOUS PRESENTATIONS.

- Tables des Mémoires des Membres, des Mémoires Couronnés et des Mémoires des Savants E'trangers (1858—78). Sm. 8vo., Brussels, 1879.
ACAD. ROYALE DES SCIENCES DE BELGIQUE.
- Report of the Alipore Reformatory School for the year 1880. Fcp., Calcutta, 1881.
- Annual Report of the Police Administration of the Town of Calcutta and its Suburbs for the year 1880. Fcp., Calcutta, 1881.
- Annual Report on the Insane Asylums in Bengal for the year 1880. Fcp., Calcutta, 1881.
- Records of the Geological Survey of India, Vol. XIV, Part 2, 1881.

Report on the Calcutta Medical Institutions for the year 1880. Fcp., Calcutta, 1881.

BENGAL GOVERNMENT.

KIELHORN, Dr. F. Report on the search for Sanskrit MSS. in the Bombay Presidency during the year 1880-81. 8vo., Bombay, 1881.

BHANDARKAR, R. G. Report on Sanskrit MSS. Fcp., Bombay, 1880.

BOMBAY GOVERNMENT.

Report on the Lunatic Asylums in the Central Provinces for the year 1880. Fcp., Nagpur, 1881.

Report on the Nagpur School of Medicine, Central Provinces, for the year 1880-81. Fcp., Nagpur, 1881.

Report on the Working of the Registration Department in the Central Provinces for the year 1880. Fcp., Nagpur, 1881.

Report on the Working of the Charitable Dispensaries in the Central Provinces for the year 1880. Fcp., Nagpur, 1881.

CH. COMMISSIONER, CENTRAL PROVINCES.

DALLAS, J. Catalogue of the Library of the Geological Society of London. 8vo., London, 1881.

GEOLOGICAL SOCIETY, LONDON.

General Report on the Operations of the Survey of India during 1879-80. Fcp., Calcutta, 1881.

Records of the Geological Survey of India, Vol. XIV, Part 2, 1881.

The Indian Antiquary, Vol. X, Part 120, June 1881.

HOME, REVENUE AND AGRICULTURAL DEPARTMENT.

General Report on the Operations of the Marine Survey of India for the year 1879-80. Fcp., Calcutta, 1881.

MARINE SURVEY DEPARTMENT.

O'BRIEN, E. Glossary of the Multani Language compared with Panjabi and Sindhi. 4to., Lahore, 1881.

PANJAB GOVERNMENT.

PERIODICALS PURCHASED.

Benares. Fallon's New English-Hindustani Dictionary, Part 3, May 1881.

Calcutta. Indian Medical Gazette,—Vol. XVI, No. 6, June 1881.

Giessen. Jahresbericht über die Fortschritte der Chemie, Part 3 of 1879.

Göttingen. Gelehrte Anzeigen,—Nos. 20-24, 1881.

———. Nachrichten,—No. 8, April 1881.

Leipzig. Annalen der Physik und Chemie,—Vol. XIII, Part 1.

London. Journal of Conchology,—Vol. III, No. 5, January 1881.

———. Journal of Botany,—Vol. X, No. 221, May 1881.

Clarke, C. B.—A revision of the Indian Species of *Leea*. *Hance, H. F.*—On a new Chinese *Senecio*.

- London. Journal of Science,—Vol. III, No. 89, May 1881.
- . Quarterly Review,—Vol. CLI, No. 302, April 1881.
- . Edinburgh Review,—Vol. CLIII, No. 314, April 1881.
- . The Ibis,—Vol. V, No. 18, April 1881.
- Hargitt, E.*—Notes on Woodpeckers.—No. 1, On the *Piculets* of the Old World.
- Gurney, J. H.*—Notes on a 'Catalogue of the *Accipitres* in the British Museum,' by R. Bowdler Sharpe (1874). Burbridge's 'Gardens of the Sun,' Sharpe on New Birds from New Guinea.
- . Quarterly Journal of Microscopical Science,—Vol. XXI, No. 82, April 1881.
- Cunningham, D. D.*—On the development of Certain Microscopic Organisms occurring in the Intestinal Canal.
- . Annals and Magazine of Natural History,—Vol. VII, No. 41, May 1881.
- Günther, Dr. A.*—Seventh Contribution to the Knowledge of the Fauna of Madagascar. *Nicéville, Lionel de.*—Note on *Papilio nebulosus*, Butler. *Butler, A. G.*—On a collection of Nocturnal *Lepidoptera* from the Hawaiian Islands. *Waterhouse, C. O.*—Description of two new Longicorn *Coleoptera* and a new Genus of *Dynastida*. *Waterhouse, C. O.*—Description of a new species of the Coleopterous Genus *Dryops* from Pekin (Family *Parnidae*). *Wood-Mason, J.*—Description of a new Cornuted Species of *Cetoniida* from North-Eastern India.
- . Philosophical Magazine,—Vol. XI, No. 69, May 1881.
- . Messenger of Mathematics,—Vol. X, No. 11, March 1881.
- . The Entomologist,—Vol. XIV, No. 216, May 1881.
- Gooch, W. D.*—Butterfly hunting in Natal, on the Coast-lands.
- . The Entomologist's Monthly Magazine,—Vol. XVII, No. 204, May 1881.
- . The Nineteenth Century,—Vol. IX, No. 50—51. April and May 1881.
- . Society of Arts,—Journal, Vol. XXIX, Nos. 1486—1489.
- No. 1486. *Westgarth, W.*—Foreign and Colonial Section:—Trade Relations of the Colonies and the mother Country.
- . The Publishers' Circular,—Vol. XLIV, Nos. 1048—1049.
- . Chemical News,—Vol. XLIII, Nos. 1120—1124.
- No. 1120. *Pickering, S. U.*—Notes on the Oxides of Manganese. *Prud'Homme, Maurice.*—Dyeing Reds with Artificial Alizarin.
- No. 1121. *Pickering, S. U.*—Notes on the Oxides of Manganese. *Romanis, E.*—Analyses of Rice Soils from Burmah.
- New Haven. American Journal of Science,—Vol. XXI, No. 124, April 1881.
- Paris. Annales de Chimie et de Physique,—Vol. XXII, April 1881.
- Bertin, M. A.*—Étude sur les Miroirs magiques.
- . Revue de Linguistique,—Vol. XIV, Fasc. 2, April 1881.
- Vinson, J.*—Les premiers Grammairiens basques.—Notes de Silvain Pouvreau.
- Vinson, J.*—Les basques du XII^e siècle.—Leurs mœurs et leur langue.
- Vinson, J.*—Spécimen de la poésie cavaïste du sud de l'Inde.

- Paris. Journal Asiatique, —Vol. XVII, No. 2, February—March 1881.
- . Revue Critique,—Vol. XI, Nos. 19—22, May 1881.
- . Revue des deux Mondes,—Vol. XLV, 15th May and 1st June 1881.
- . Comptes Rendus,—Vol. XCII, Nos. 18—22, May 1881.
- No. 18. *Jamin, J.*—Sur la force électromotrice inverse de l'arc électrique.
- Gylden,*—Sur les inégalités à longues périodes dans les mouvements des corps célestes.
- . Revue Scientifique,—Vol. XXVII, Nos. 20—24.
- No. 20. *Rolland, G.*—Les grandes dunes de Sable du Sahara. De certaines immunités physiologiques de la race Juive.
- . Journal des Savants, May 1881.
- Philadelphia. Tryon's Manual of Conchology, Part 10.

BOOKS PURCHASED.

- DAVIDS, T. W. REYS. Buddhist Birth Stories; or Jataka Tales. The oldest collection of Folk-Lore extant, being the Jatakathāvannana. Translation. Vol. I. 8vo., London, 1880.
- Encyclopædia Britannica, ninth edition, Vol. XII, Hir.—Ind. 4to., Edinburgh, 1881.
- FAULMANN, C. Das Buch der Schrift enthaltend die Schriftzeichen und Alphabete aller Zeiten und aller Völker des Erdkreises. 4to., Vienna, 1880.
- LE CONTE, J. Sight: An Exposition of the Principles of Monocular and Binocular Vision. Dy. 8vo., London, 1881.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.

FOR AUGUST, 1881.

The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 3rd August 1871, at 9-15 P. M.

C. H. TAWNEY, Esq., Vice-President, in the Chair.

The minutes of the last Meeting were read and confirmed.

The following presentations were announced—

1. From the Bengal Government,—(1) General Rules and Circular Orders of the High Court of Judicature at Fort William in Bengal (Appellate Side; Civil and Criminal), (2) Archæological Survey Reports, Vols. X and XI.

2. From the Bombay Government,—Archæological Survey of Western India, Reports, No. 10, by J. Burgess and Bhagawanlal Indraji.

3. From the German Oriental Society,—(1) *Qolasta*, by Dr. J. Euting, (2) *Epistolæ Novi Testamenti Coptice*, by P. Bötticher, (3) *Indische Studien*, Vol. X, Nos. 1, 2 and 3.

4. From the Institution of Mechanical Engineers,—Library Catalogue, May 1881.

5. From the Authors,—*Sanskrit Wörterbuch in kürzerer Fassung*, Pt. II, 2, by O. Böhtlingk; *The Precedents of Princess Thoodamma Tsari*; *Prince Weezaya*, a Burmese drama, translated by Chr. J. Bandow; *The Revenue Resources of the Mughal Empire in India, from A. D. 1593 to A. D. 1707*, by E. Thomas.

6. From K. Zoologisch Genootschap *Natura Artis Magistra*,—*Catalogus der Bibliotheek*.

7. From the Home Department,—(1) Archæological Survey of India, Reports, Vols. X and XI, (2) *On the Manufacture of Iron and the Future of the Charcoal Iron Industry in India*, (3) *Samaveda Sanhita*, Pt. 2.

8. From the Smithsonian Institution,—*Annual Report for the year 1879*.

9. From the Editing Committee,—The Norwegian North Atlantic Expedition ;—Zoology, Fishes ; and Chemistry.

10. From F. C. Black, Esq.,—A stone slab bearing an inscription, found among the ruins of the old fort of Deogarh.

The following Gentleman, duly proposed and seconded at the last meeting, was balloted for and elected an Ordinary Member :

H. C. Barstow, Esq., C. S.

The following Gentleman is a candidate for ballot at the next meeting :

H. M. Percival, Esq., Professor, Presidency College, proposed by C. H. Tawney, Esq., seconded by A. W. Croft, Esq.

The SECRETARY reported that Dr. G. E. Dobson and Babus Dijendra-nath Tagore and Jogesh Chunder Dutt had intimated their desire to withdraw from the Society.

The SECRETARY reported that the following coins had been acquired under the Treasure Trove Act :

From the Deputy Commissioner of Bahraich,—16 copper coins of Sikander Lodi.

Dr. R. MITRA exhibited a MS. of the Bhaṭṭi Kāvya in Bengali characters, 478 years old, and read the following note regarding it.

Note on a Manuscript of the Bhaṭṭi Kāvya.—By DR. R. MITRA.

I have lately received from my travelling Paṇḍit a MS. of the Bhaṭṭi Kāvya, bearing date Śaka 1326. It is written on yellow paper of Indian manufacture, and comprises 130 folia, each folium measuring $13\frac{1}{2} \times 2\frac{1}{2}$ inches. The writing is in well-formed Bengali letters, differing in no respect from the Bengali writing by Paṇḍits of the last century. The leaves are all stained with water marks, and the colour of the yellow orpiment with which they are dyed is very much faded, bearing unmistakable testimony to the age of the MS. The number of lines on each page is 6, except on a few pages where only 5 lines are written. The colour of the ink is well preserved, except in the marginal notes written at different times by different persons. The name of the scribe is Puru-shottama Deva Sarmá. A facsimile of the last page is given in plate II.

The work is a standard text-book on grammar in Indian schools, and has already been printed several times, but the codex under notice is the oldest that has yet been discovered, and is worthy of notice from the fact of its being remarkably correct and containing some new readings.

There are two other circumstances in connexion with the codex which are worthy of note. The first is the name of the work, and the second, the

name of its author. In all the modern MSS. of the work that I have seen the name of the book always appears to be Bhaṭṭi; and the six commentators whose works are accessible to me in Calcutta either call it Bhaṭṭi, or “an epic (*Mahākāvya*) on the history of Rāma.” Nowhere is any specific name given for the work. European orientalists, commenting on the work, have invariably used the name Bhaṭṭi, without any doubt or qualification. The MS. under notice, however, gives the specific name *Rāvāna-badha* or “the Destruction of Rāvāna,” and in the colophon of the Serampur edition the same name is to be met with, though it is not given on the title-page. The disuse of the specific name can be attributed to one of two causes; either the author left an only work to posterity, and therefore his name was held enough to indicate his work, as in the cases of *Sisupāla-badha* and the *Kirātārjunīya*, which are best known by the names of their authors, Māgha and Bhāravi; or to the fact of there having been another work of the same name of great renown, the *Rāvānabādha* of Pravarasena, and the necessity thence arising for a mark of distinction.

As regards the name of the author, commentators are very much divided in opinion. The MS. under notice makes Bhaṭṭi, son of Śrīdhara Svāmī, to be the author. Its words are इति बङ्गमीवास्तवश्रीधरस्वामिन्दुर्गाभट्टिनास्तवस्य उत्तमो रावणवधे महाकाव्ये तिरुमलाख्ये सट्टप्रदर्शने नाम द्वाविंशतितमः सर्गः । The oldest commentator, Jayamañgala, calls him Bhaṭṭi, son of Svāmī. His words are सख्यं सख्यं बोधयन्केन विदुषः प्रदर्शितुं श्रीस्वामिन्दुः कविः महिमाना रामकथाश्रयं महाकाव्यं चकार । Harihara, the next in age, follows his predecessor verbatim. Puṇḍarikāksha, the 3rd in order of age, in his *Kalāpa-dīpikā*, calls the poet Bhaṭṭi, but gives no specific name for the work. The fourth, Kandarpa Chakravartī, calls the work Bhaṭṭi, and the author Bharṭṭihari. His words are अत्र तावन्महामहोपाध्याय श्रीमहेश्वरिक्विना मन्त्रकाण्डयोर्लक्षणं । The fifth, Vidyāvinoda, makes the author Bharṭṭihari, son of Śrīdhara Svāmī: अत्र कविना श्रीधरस्वामिन्दुना महेश्वरिणा सर्गवन्धः । And lastly, Bharata Mallika, who lived at Kānchrāpara in the Hooghly district about 150 years ago, names Bharṭṭihari, but does not notice the name of his father: महेश्वरिनामकविः श्रीरामकथाश्रयं महाकाव्यं चकार ।

Turning now to the writers of this century, I find the opinion to be equally divided. Colebrooke, in his essay on ‘Sanskrit and Prakṛit Poetry,’ follows the later commentators and says, “The author was Bharṭṭihari, not, as might be supposed from the name, the celebrated brother of Vikramāditya, but a grammarian and poet who was son of Śrīdhara Svāmī as we are informed by one of his scholiasts, Vidyāvinoda. (Essays, vol. II, p. 116). Professor Aufrecht, in his Bodleian Catalogue, speaks of Bharṭṭihari, “*cujus liber grammaticus, minime vero Bhaṭṭikāvyaṃ memoratur,*” (p. 175 b)

but in his notices of the *Praudha-manoramá*, (p. 162 *b*), of the *Subodhá*, (p. 175 *a*), of the *Amara-kosha*, (p. 182 *b*), and of the *Sarasvatī-kaṇṭhábharana*, he cites Bhaṭṭi. In the last named work both Bhaṭṭi and Bhartṛihari have been separately cited. Dr. Bhau Dájí observes that Bhaṭṭi "is popularly believed to have been a son of Bhartṛihari," (*Journal*, Bombay B. R. A. S., J. 1862, p. 219). Bohlen, reciting a tradition which says "Vikrama in fact got possession of the kingdom and took to himself Bhaṭṭi as prime minister," remarks, "in this again they seem to have gone wrong, confounding both persons and times. For there exists a grammatical poem called Bhaṭṭi Kāvya, describing at the same time the exploits of Ráma, which has been attributed to a certain grammarian belonging to a later age called Bhartṛihari, and from the name of this poem, I think, Bhaṭṭi seems to have been considered as the brother of this our Bhartṛihari." (Preface to his edition of the *S'atakas* of Bhartṛihari, p. 6). In a note in the *Indian Antiquary* (I, p. 319) Paṇḍit Śeshagiri Śástrí gives a story (noticed also by Bohlen) which says that "a Bráhmaṇ, named Chandra-gupta, had four wives, one of the Bráhmaṇ caste, another of the Kshatriya, the third of the Vaiśya, the fourth of the Súdra caste. They were called Bráhmaṇí, Bhánumatí, Bhágyavatí and Sindhumatí. Each of the four bore him a son. Vararuchi was born of the first wife, Vikramárka of the second, Bhaṭṭi of the third, and Bhartṛihari of the fourth. Vikramárka became king, while Bhaṭṭi served him in the capacity of Prime-minister."

A critical survey of these several diverse opinions shows that the balance of evidence rests with those who take Bhaṭṭi to be distinct from Bhartṛihari. The three oldest scholiasts take Bhaṭṭi to be the name of the author of the Bhaṭṭi-kāvya, so does the MS. under notice, which is 478 years old. The old authors cited by Aufrecht all cite Bhaṭṭi and one of them Bhojadeva, author of the *Sarasvatī-kaṇṭhábharana*, who lived over a thousand years ago, quotes from the works of both Bhaṭṭi and Bhartṛihari, showing clearly that in his time they were two distinct persons and not one with two names. It would not be critical to set aside their opinion on the authority of the three later Bengali scholiasts, none of whom lived at an earlier date than 250 years from this time. Colebrooke avowedly followed these later scholiasts, and does not seem to have made any careful enquiry on the subject. Professor Aufrecht's quotations should have created in him a doubt on the subject; but they did not. On the same page (175) he has given the two names without a remark. Bhau Dájí, Bohlen and Śeshagiri Śástrí recognise Bhaṭṭi to be distinct from Bhartṛihari. The traditions quoted by them are at best of little worth, but they are, as far as they go, opposed to the latest scholiasts.

Nor is it difficult to make out how the confusion has arisen. Bhaṭṭa

is an honorific title, meaning a learned man or a professor, and its derivative form Bhaṭṭi is very unlike a proper name, and the latter commentators felt the necessity of searching for something to replace it. How they fell upon Bharṭṛihari it is not easy to guess. It may at first sight appear that they thought that Bhaṭṭi must be a corruption of some other word, and as *Bhatti* is the vernacular form of Bharṭṛi the conclusion was drawn that Bhaṭṭi stood for Bharṭṛihari. This is, however, not philologically correct, inasmuch as *Bhatti*, the corruption of *Bharṭṛi*, takes the dental and not the cerebral t, and Bhaṭṭi is invariably written with the cerebral and not the dental letters. To Englishmen, most of whom cannot pronounce the dental letters, this may not appear a serious objection, but to Indians the distinction is so marked that it is difficult to conceive a confusion in this respect. There must have been some other cause, but I know not what it was. There is nothing, however, to preclude the use of Bhaṭṭi as a proper name. The diminutive of Bhaṭṭa would be Bhaṭṭi, and the young son of a Bhaṭṭa may well be called by the affectionate diminutive "the little professor" or "teacherling." Indian languages abound in such affectionate epithets, and they are not unknown in Europe. By long usage such epithets stick fast, and cannot afterwards be cast off. In many instances they have absolutely set aside the names given at christening. It may be added that nick-names have often been used as proper names, and the question then naturally arises, is Bhaṭṭi the proper or the nick-name of the author, but there is nothing to decide it. It might have been the one or the other, but certain it is that it was the most popular name, and the author was best known by it.

The next question refers to the name of the author's father. The authorities quoted above give Svámí or Srisvámí, Śrīdhara Svámí, Bharṭṛihari and Chandragupta. The last two occur in aphocryptical stories, and may at once be rejected as false. Jaymaṅgala is the oldest, and appears to be a very cautious and critical scholiast, and he gives the first name which may be accepted as the most authentic. Svámí is certainly a title, but there is nothing to prevent its use as a proper name, and if we accept the Śrī which precedes it as a part of the name and not an honorific epithet, there would be nothing to object to it. It may, however, be more reasonably taken to be an abbreviation, or the use of the literary title instead of the proper name. The use of titles for proper names is by no means uncommon.

The poet at the end of his work gives a stanza in which he describes his patron who, he says, was king Śrīdhara-sena of Balabhi. The stanza runs thus :—

काव्यमिदं विदितं मया बहूभ्यां श्रीधरसेनजरैरुपास्त्रितायां ।

कौर्त्तिरिदं भवतादत्तौ ऋपस्य सेनङ्करः चित्तिपो यतः प्रजानाम् ॥ स २९ श्लोक २५ ॥

“ May this poem, written by me in Balabhi, the protected of the great king Śrīdharasena, be to the glory of the king, since the king is the well-doer of the people.”

The Balabhi here mentioned is obviously Balabhipura, the capital of the Sauráshtra kingdom, and we know from Wathen's copper-plates that there were three Śrīdharasenas in the Balabhi, Balahara, or Balaráis dynasty.

The first of them reigned in A. D. 319. He was followed by Siláditya I, Charagriha I, and then by a second Śrīdharasena. We have then a Dhruva-sena and then a third Śrīdhara-sena. Which of these three kings was the patron of the poet cannot be made out, but there is no reasonable doubt that one of them was; and we may, therefore, safely place the time of our poet to be the middle or end of the fourth century A. D. As regards the name of the father, the first idea suggested by this stanza is that the commentators confounded the patron with the father of the poet, but, seeing that Śrīdhara in the case of the king is followed by the epithet *sena*, and in the case of the father by *Svámí*, it might reasonably be urged that Śrīdhara the father was distinct from the king of that name. The poet has named the king, and the scholiasts have given the name of the poet's father. Anyhow it is obvious from the epithets assigned to him, and from the way in which he refers to the king, that the poet was not a king, nor the son of a king, nor a prime-minister. He was a Bráhmaṇ poet and grammarian of Balabhipura, and had no relation whatever to Vikramárka, Chandragupta, Vararuchi or Bhartrihari. The time usually assigned to Bhartrihari is the 3rd century of the Christian era, whereas my deductions bring Bhaṭṭi to the middle or end of the 4th century, showing a difference of about a hundred years—a slight difference in the case of oriental literary history, and by no means such as to prevent scholiasts of the 16th or the 17th or the 18th century from easily confounding the two authors.

Dr. A. F. R. HOERNLE read the following extracts from a letter from General A. Cunningham on some of the Antiquities exhibited at previous meetings of the Society.

“ The gold coin with a ring, of which an engraving is given in the Proceedings for February, is quite new to me. I should like to have read the legend as

Sri Champa Raja

but there seems to be a vowel over the first letter of the name—unless indeed it be only an ornament. Can it be *Chaidya* Raja—The Raja of Chadi ?

"I read Mr. Growse's seal as *Mattila*, which is a known name; see Samudra Gupta's Allahabad Pillar inscription, line 18 of Prinsep's Plate in the Journal of the Asiatic Society of Bengal, November 1837. It is the second name in the line. The first letter cannot by any possibility be s."

Dr. HOERNLE communicated a new reading of the Arian Páli Inscription on the so-called Sue Vihára copperplate. He stated that this inscription had already been read, though imperfectly, by Sir E. C. Bailey and Professor Dowson, in 1870. (See J. A. S. B., vol. XXXIX, pp. 65-70, and J. R. A. S., Vol. IV, pp. 497-502.) Having recently had occasion to examine the copperplate, which forms part of the collection of this Society, he found that some of the letters had hitherto been misread. The rectification of these errors made the meaning of the inscription clear and consistent. Literally translated it is as follows: "On the 20th day of the month Daisios, in the 11th year of the great king, the Overking of kings, the son of the gods, Kanishka; On the said day, to the mendicant Nágadatta, learned in the Sánkhyá (philosophy), the disciple of the Áchárya Damatrátá, the disciple of the disciple of the Áchárya Bhava, putting up his staff (or pillar); here the owner of the Dámána Vihára, a female lay-devotee, Balanandí, (who is) much given to penances, and Balajayá, her mother, give a shrine for the staff, and the customary accessories. May it be for the health and wealth of all beings." The paper will be published in the *Indian Antiquary*.

The following papers were read:—

1. *On the Temples of Deoghar.*—By DR. RÁJENDRALÁLA MÍTRA, C. S. I. (Abstract.)

The paper opens with a description of Deoghar, its situation, extent and population. Then follow some extracts from the Puráñas on the origin of the Vaidyanátha temple. The substance of the legend is that Rávana, king of Ceylon, was in the habit of daily paying a visit to a lingam on the Kailása mountain, but, feeling the self-imposed task too troublesome, once sought the permission of the lingam to remove it to Ceylon. The lingam assented on the condition that the removal should be effected by Rávana without a break in the journey, or a deposition of the lingam on the ground any where in the way. Rávana agreed, but when bringing it through mid-air, was obliged to hand it over to a Bráhmañ, who deposited it at Deoghar. The principal temples of the place are all located in a courtyard in the north-east quarter of the town. The largest and most sacred one is barely 400 years old, and was erected by one of the Rájás of Gidhor. The rest are of later dates. The presiding divinity of the principal temple is a lingam about $3\frac{1}{2}$ inches high,

and 4 inches in diameter. It is held in the highest veneration, and pilgrims by thousands resort to the place from all parts of India. During the principal festivals, the number of pilgrims varies from 40 to 60 thousand. The lingam is noted for effecting miraculous cures. On the north, the south and the west sides of the temple, there are verandas, in which from 40 to 60 persons are to be daily seen lying in absolute fast for days, in the hope of the divinity disclosing to them in dreams the remedy for their ailments. Most people are blessed with the dream on the 3rd, 4th or 5th day of their fast, but those who are not so blessed even on the 7th day are generally driven away on the 8th to prevent death by starvation. Cures are frequent, particularly of nervous diseases, such as hysteria and the like.

Some of the images in the minor temples are of Buddhist origin. In one temple a figure of Padmapāni is worshipped as Sūrya, and the image of a Bodhisattva does duty in another temple for the goddess of Dawn, Sandhyá. The author is of opinion that the place was originally the site of a Buddhist sanctuary which has been, since the expulsion of the Buddhists, appropriated to Hindu worship. The paper includes texts and translations of all the inscriptions available at the place, as also a drawing of the principal temple and a ground-plan.

This paper will be published in the Journal, Part I.

2. *On the origin of the so-called Kharakpur Meteorite.*—By V. BALL, M. A., F. G. S.

[Received 28th July; Read 3rd August, 1881.]

In the year 1848 a mass of iron supposed to be of meteoric origin, which had been found embedded in the soil on the top of the Kharakpur hills, was forwarded to the Asiatic Society. It was stated that it had been exhumed by the hillmen and had been an object of worship for many years.

Mr. Piddington, who had invited Capt. Sherwill to procure it for the Society, after a physical and chemical examination which is fully detailed in the Journal,* pronounced it to be a veritable meteoric iron. The chemical examination was believed to have revealed the presence of nickel, cobalt and chromium, which metals commonly occur in meteoric irons. The metal was stated to exhibit the damasked lines known as Wiedmannstatten figures which are specially characteristic of meteoric irons.

The result was, in short, that this mass of metal weighing nearly 156½ pounds became renowned as the Kharakpur meteorite and for many years it held a place of honour in the case of meteoric stones in the Society's Museum. About the year 1860 a sample cut from it was

* Volume XVII, p. 538.

sent to Dr. Haidinger in Vienna and possibly specimens were also sent to other Museums in Europe.

Dr. Haidinger* declared the iron to be of non-meteoritic origin, an opinion which was founded not only on the absence of true Wiedmann-statten figures, but also on an analysis of the metal by Herr Karl Ritter von Hauer which gave 98 per cent. of iron with a residue of silica and carbon; but no trace of either nickel or cobalt.

Recently, when writing the Chapter on Iron for the forthcoming volume on the Economic Geology of India, it occurred to me that it was necessary that the true nature of this iron should be discussed, for, if it were really native iron, it was, though not of meteoritic origin, still worthy of notice. On enquiry I found that the specimen had been removed from the meteorite cases in consequence of its having been shown to be not entitled to its place there; but it seems that its true origin has never been declared. In conjunction with several of my colleagues, I am fully satisfied that it is nothing more nor less than an abnormally large ball or bloom of iron from a native furnace. This view affords a means of explaining the origin of the foot-like portion projecting from the mass which Mr. Piddington endeavoured to explain in connection with the meteorite theory. This foot was simply produced by the impress of the base of the chimney shaft over the hearth which became filled with the iron; such a projection, which is in other words a cast of the form of the bottom of the shaft, is to be seen on the majority of blooms, which resemble in shape inverted 'button' mushrooms with a portion of the stalk remaining.

The Kharakpur iron differs from the native smelter's ordinary bloom in being somewhat larger and in being of less symmetrical shape than is usual. Its preservation and employment as an object of worship were doubtless connected with these facts. It is possible that the hearth may have been of the ordinary size but by a subsidence, due perhaps to an unobserved hollow or ant burrow in the soil underneath, it became enlarged on one side; and thus a long time elapsed after the smelting had commenced before the accumulated metal rose to the usual level at the base of the shaft, when the smelter's custom is to stop the blast, break down the front of the furnace, and pull out, hammer and cut the bloom in two. It may have been that the smelters, already alarmed by the unusual consumption of ore and fuel, were fairly frightened out of their senses when they saw the size of the bloom and thought it was the old *Bhút* himself, and at once proceeded to perform homage, which continued to be offered by their descendants till the time when the bloom was

* Sitzung. der Kais. Akad. Wien, XLV, p. 672.

carried off by an Indigo Planter who presented it to the Society through Capt. Sherwill.

Another simpler explanation of the cause of its having escaped the usual treatment of blooms may possibly be attributable to the fact that its large size, and the comparatively cold state of a great portion of it, rendered it impossible for the smelters to hammer it out.

That the first suggestion, however, is not an extravagant one may be gathered from the fact that recently, when in the close vicinity of the locality where this iron was obtained, I was shown an iron mine which had been deserted for the following reason. Some of the ore had been treated in the usual way, and on the smelters tapping the furnace, so the story goes, two streams, one of blood and the other of milk, flowed from it. Several deaths happened shortly after in the families of the smelters, and since that time, now twelve years ago, no more of that unlucky ore has been used in the furnaces.

As a possible explanation for the origin of the stream of milk, it may be suggested that the ore may have been partly of tin or lead, and the white metal which flowed forth may have suggested milk. The stream of blood may have been imaginary, the idea being simply added to improve the story.

3. *Second List of Rhopalocerous Lepidoptera from the Andaman Islands, with Descriptions of new or little-known Species and Varieties.*—By J. WOOD-MASON, Deputy Superintendent, Indian Museum, Calcutta, and L. DE NICEVILLE.

(Abstract.)

Since the publication of their first list of Andamanese Butterflies, the authors have received from their active correspondent, Mr. A. R. de Roepstorff, 17 additional species, 13 of which have not been previously recorded therefrom, thus bringing up the total of species from these islands to 125.

The following are the species which are new to the islands or upon which notes are given :—

1. *Cyrestis horatius*, n. sp. Allied to *O. cocles*, which it closely resembles in the character of the markings, but from which it differs in the ground-colour of the upperside being pure white marked with different shades of sepia-brown, in having a pale fulvous patch at the anal angle of the posterior wings, and, on the underside, in having only the lightest portions of the sepia markings absent. Nine males from S. Andaman.

2. *Cyrestis thyodamas*, var. *andamanica*, nova. Differs from all continental examples in the bright fulvous, almost ferruginous, anal region of the posterior wings, &c. A large series of males from S. Andaman.

3. *Neptis jumba*, Moore.

4. *Lampides malaya*, Horsfield.

5. *Arrhopala amantes*, Hewitson.

6. *Amblypodia* (? *Narathura*) *fulla*, var. *andamanica*, nova. Has the wings above brilliant violet-cyaneous and rather more broadly bordered with black-fuscous: below, pale subochraceous-fuscous with very faint discocellular marks on both pairs and basal marks on posterior ones. Intermediate between *A. fulla*, Hewitson, from Bouru, and *A. arsenius*, Felder, from Luzon. A minute tooth-like tail to posterior wing. One male from S. Andaman.

7. *Papilio rhodifer*, Butler. Female described.

8. *Papilio læstrygonum*, W.-M. Female described.

9. *Papilio prexaspes*, Felder. Female described.

10. *Ismene malayana*, Felder. Female described.

11. *Ismene exclamationis*, Fabr.

12. *Ismene harisa*, Moore.

13. *Ismene badra*, Moore.

14. *Telegonus acroleucus*, n. sp. Anterior wings above tipped with ashy-white and bearing three large diaphanous and lustrous yellow discal spots arranged as in *T. thrax*, than which it is much smaller, &c. Numerous males from S. Andaman.

15. *Plesioneura paralysos*, n. sp. Close to *P. alysos*, but differing therefrom in its broader and less irregularly-margined white band and in having only a single small spot on anterior wings, but two on posterior wings below. Three males and a female from South Andaman. Continental specimens differ in having no trace of the white spots on the underside of the posterior wings.

16. *Plesioneura dan*, Fabr. Differences between Andaman and continental specimens pointed out.

17. *Plesioneura leucocera*, Kollar. Separable by no constant character from several other species since described from other localities.

18. *Tagiades bhagava*, Moore. Female described and notes on male given.

19. *Hesperia sala*, Hewitson. Re-described and stated to be nearest allied to *H. divodasa*, Moore.

20. *Hesperia praba*, Moore.

21. *Telegonus thyrasis*, Fabr. The secondary sexual characters of male described.

The paper, which is illustrated by a coloured plate, will be published in the Journal, Part II, No. 4 for the current year.

LIBRARY.

The following additions have been made to the Library since the meeting held in July last.

TRANSACTIONS, PROCEEDINGS AND JOURNALS,

presented by the respective Societies and Editors.

- Baltimore. American Chemical Journal, Vol. I. Nos. 1—6; Vol. II, Nos. 1—6; Vol. III, Nos. 1—3.
- . American Journal of Philology, Vol. I, Nos. 1—4; Vol. II, No. 5.
- . Register of the Johns Hopkins University, for 1880-81.
- . American Journal of Mathematics, Vol. III, Nos. 1—3.
- Berlin. K. preussische Akademie der Wissenschaften,—Monatsbericht, February 1881.
- Bombay. The Indian Antiquary,—Vol. X, Part 121, July 1881.
- Bordeaux. Société de Géographie Commerciale,—Bulletin, Nos. 12-13.
- Calcutta. Geological Survey of India,—Memoirs, Vol. XVIII, Part 1.
- . Register of Meteorological Observations for June 1880.
- Colombo. Royal Asiatic Society, Ceylon Branch,—Proceedings, 1875-80.
- . ———— Journal,—Part II, 1880; and Vol. VII, Part 1, No. 23, 1881.
- Copenhagen. Aarbøger for Nordisk Oldkyndighed og Historie, Nos. 3 and 4, 1880.
- Frankfurt. Senckenbergische Naturforschende Gesellschaft,—Abhandlungen, Vol. XII, Nos. 1 and 2.
- . ————. Bericht, 1879-80.
- Florence. Archivio per l'Antropologia e la Etnologia, Vol. III, Parts 1—4; Vol. IV, Parts 1—4; Vol. V, Parts 1—4; Vol. VI, Parts 1—4; Vol. VII, Parts 1—4; Vol. VIII, Parts 1—4; Vol. IX, Parts 1—3; and Vol. X, Parts 1—3.
- Leipzig. Wissenschaftlicher Jahresbericht,—Part 1, 1878.
- . Deutsche Morgenländische Gesellschaft,—Zeitschrift, Vol. XXVI, Parts 3—4; Vol. XXXV, Part 1.
- . Abandlungen für die Kunde des Morgenlandes, Vol. I, Nos. 4—5; and Vol. VI, Nos. 1—4.
- London. Royal Astronomical Society,—Monthly Notices, Vol. XLI, No. 6, April 1881.
- . Institution of Civil Engineers,—Minutes of Proceedings, Vol. LXIII, Part 1, 1880-81.

- London. Society of Telegraph Engineers,—Journal, Vol. X, No. 36.
 ———. Institution of Mechanical Engineers,—Proceedings, No. 1, January 1881.
 ———. Anthropological Institute of Great Britain and Ireland,—Journal, Vol. X, No. 3, February 1881.
 ———. ———. List of Members, April 1881.
 ———. Statistical Society,—Journal, Vol. XLIV, Part 1, March 1881.
 ———. Royal Society,—Proceedings, Vol. XXXI, No. 211.
 ———. Zoological Society of London,—Proceedings, Part 4, 1880.
 ———. ———. Transactions,—Vol. XI, Parts 3—4.
 ———. Royal Geographical Society,—Proceedings, Vol. III, No. 6, June 1881.
 ———. Nature, Vol. XXIII, Nos. 591, 595, 598 and 600; Vol. XXIV, Nos. 601, 607—610.
 ———. The Academy, Nos. 476—479.
 ———. The Athenæum, Nos. 2799—2802.
 Lyon. Société de Géographie,—Bulletin, Vol. III, No. 20, 1880.
 Melbourne. Royal Society of Victoria,—Transactions and Proceedings, Vol. XVII.
 Munich. Repertorium für Experimental-Physik, Vol. XVII, Nos. 1—7.
 Paris. La Société de Géographie,—Bulletin, March 1881.
 ———. La Société d'Anthropologie,—Bulletin, Vol. III, Part 4, July to December 1880.
 Simla. United Service Institution of India,—Journal, Vol. X, No. 47, 1881.
 St. Petersburg. L'Académie Impériale des Sciences de St. Petersburg,—Mémoires, Vol. XXVIII, Nos. 1 and 2.
 ———. ———. Bulletin, Vol. XXVII, Nos. 1—2.
 Pisa. Società Toscana di Scienze Naturali,—Atti, Processi Verbali, 8th May, 1881.
 Turin. R. Accademie delle Scienze,—Atti, Vol. XVI, No. 5.
 ———. Osservatorio della Regia Università,—Bollettino, 1880.
 Vienna. Anthropologische Gesellschaft,—Mittheilungen, Vol. X, Nos. 10—12.
 ———. K. k. geologische Reichsanstalt,—Jahrbuch, Vol. XXXI, No. 1, January to March, 1881.
 ———. ———. Verhandlungen, Nos. 1—7, 1881.

BOOKS AND PAMPHLETS,

presented by the Authors.

- BANDOW, CHR. J. The Precedents of Princess Thoodamma Tsari. Translated with numerous explanatory notes, and a vocabulary of the Pali and difficult Burmese words in the text. Demy 8vo. Rangoon, 1881.

- BANDOW, CHR. J. Prince Weezaya, a Burmese Drama. Translated. Demy 8vo. Rangoon, 1872.
- BÖHTLINGK, DR. O. Sanskrit Wörterbuch in kürzerer Fassung, Part II, 2. 4to. St. Petersburg, 1881.
- THOMAS, EDWARD. The Revenue Resources of the Mughal Empire in India from A. D. 1593 to A. D. 1707. A supplement to the Chronicles of the Pathan Kings of Delhi. 8vo. London, 1871.

MISCELLANEOUS PRESENTATIONS.

- General Rules and Circular Orders of the High Court of Judicature at Fort William in Bengal (Appellate Side, Civil). 8vo. Calcutta, 1881.
- ” ” (Appellate Side, Criminal). 8vo. Calcutta, 1881.
- Report on the Charitable Dispensaries under the Government of Bengal for the year 1880. Fcp. Calcutta, 1881.
- Administration Report on the Jails of Bengal for the year 1880. Fcp. Calcutta, 1881.
- Thirteenth Annual Report of the Sanitary Commissioner for Bengal, 1880. Fcp. Calcutta, 1881.
- Archæological Survey of India, Reports, Vols. X and XI. 8vo. Calcutta, 1880.

BENGAL GOVERNMENT.

- BURGESS, J. and INDRAJI, BHAGWANLAL.—(Archæological Survey of Western India, Reports, No. 10.) Inscriptions from the Cave Temples of Western India, with Descriptive notes, &c. 4to. Bombay, 1881.

BOMBAY GOVERNMENT.

- Report on the Excise Revenue in the Central Provinces, for the year 1880-81. Fcp. Nagpur, 1881.
- Report, with the Chief Commissioner's Review, on Education in the Central Provinces, for the year 1880-81. Fcp. Nagpur, 1881.

CHIEF COMMISSIONER, CENTRAL PROVINCES.

- TORNOE, H. The Norwegian North-Atlantic Expedition, 1876-78. Chemistry. 4to. Christiana, 1880.
- COLLETT R. The Norwegian North-Atlantic Expedition, 1876-78. Zoology,—Fishes. 4to. Christiana, 1880.

THE EDITING COMMITTEE.

- EUTING, DR. J. Qolasta, oder Gesänge und Lehren von der Taufe und dem Ausgang der Seele als mandäischer Text mit sämtlichen Varianten nach Pariser und Londoner Manuscripten, mit Unterstützung der deutschen morgenländischen Gesellschaft in Leipzig. Fol. Stuttgart, 1867.
- BOETTICHER, PAULUS. Epistolæ Novi Testamenti Coptice. 8vo. Halæ, 1852.

Indische Studien, Vol. X, Nos. 1, 2 and 3. 8vo. Leipzig, 1867-68.

GERMAN ORIENTAL SOCIETY.

Archæological Survey of India, Reports, Vols. X and XI. 8vo. Calcutta, 1881.

On the Manufacture of Iron and the Future of the Charcoal Iron Industry in India. Fcp. Allahabad.

The Indian Antiquary,—Vol. X, Part 121, July 1881.

HOME DEPARTMENT.

Institution of Mechanical Engineers. Library Catalogue, May 1881.

With Subject Index of Papers in the Proceedings, 1847-80. 8vo. London, 1881.

INSTITUTION OF MECHANICAL ENGINEERS.

Catalogus der Bibliotheek van het K. Zoölogisch Genootschap, Natura Artis Magistra, te Amsterdam. Roy. 8vo. Amsterdam, 1881.

K. ZOÖLOGISCH GENOOTSCHAP.

Annual Report of the Board of Regents of the Smithsonian Institution for the year 1879. 8vo. Washington, 1880.

SMITHSONIAN INSTITUTION.

PERIODICALS PURCHASED.

Boston. Journal of Natural History,—Vol. VI, Nos. 1—4.

Calcutta. Indian Forester,—Vol. VII, No. 1, July 1881.

———. Calcutta Review,—Vol. LXXIII, No. 145, July 1881.

———. Indian Medical Gazette,—Vol. XVI, No. 7, July 1881.

Geneva. Archives des Sciences Physiques et Naturelles,—Vol. V, Nos. 1—6.

No. 2. *Beyer*.—Reproduction artificielle de l'indigo. Voyage sur le "Challenger:" Zoologie.

No. 4. *Wartmann, M. le Prof. E.*—Recherches sur la végétation.

No. 5. *Marsh*.—Les *Odontornithes*, ou oiseaux fossiles à dents de l'Amérique du Nord, décrits.—*Gnehm, R.*—Essais sur la transformation de la cumarine et de ses dérivés en dérivés du groupe de l'indigo. *Lunge, G.*—Détermination du soufre dans les pyrites.

No. 6. *Renevier, L.*—Congrès géologique international à Bologne: Rapport du Comité suisse sur l'unification de la nomenclature.

Göttingen. Gelehrte Anzeigen,—Nos. 25—28.

———. Nachrichten,—No. 10, 1881.

Leipzig. Annalen der Physik und Chemie,—Vol. XIII, No. 6.

———. Beiblätter,—Vol. V, No. 5

London. Nineteenth Century,—No. 52, June 1851.

———. Messenger of Mathematics,—Vol. X, No. 12, April 1881.

———. Journal of Botany,—Vol. X, No. 222, June 1881.

———. Entomologist,—Vol. XIV, No. 217, June 1881.

———. Entomologist's Monthly Magazine,—Vol. XVIII, No. 205, June

1881.

- London. *Annals and Magazine of Natural History*,—Vol. VII, No. 42, June 1881.
- . *London, Edinburgh and Dublin Philosophical Magazine*,—Vol. XI, Nos. 70—71.
- . *Journal of Science*,—Vol. III, No. 90, June 1881.
- . *Publishers' Circular*,—Vol. XLIV, Nos. 1050—51.
- . *Chemical News*,—Vol. XLIII, Nos. 1125—1126, Index ; and Vol. XLIV, Nos. 1127—1128.
- . *Society of Arts*,—*Journal*, Vol. XXIX, Nos. 1490—1494.
- Paris. *Annales de Chimie et de Physique*,—Vol. XXIII, May and June 1881.
- . *Comptes Rendus*, Vol. XCII, Nos. 23—26, and Index to Vol. XCI.
- . *Revue Scientifique*, Vol. XXVII, Nos. 25—26, and Vol. XXVIII, Nos. 1—2.
- . *Revue Critique*, Vol. XI, Nos. 24—26, and Vol. XII, No. 27.
- . *Revue des deux Mondes*—Vol. XLV, No. 4 ; Vol. XLVI, No. 1.
- . *Journal des Savants*,—June 1881.

BOOKS PURCHASED.

- BADGER, GEO. PERCY. *An English-Arabic Lexicon, in which the Equivalents for English Words and Idiomatic Sentences are rendered into Literary and Colloquial Arabic.* 4to. London, 1881.
- BOWERBANK, J. S. *A Monograph of the British Spongiadæ*, Vol. III. 8vo. London, 1874.
- BRADY, G. STEWARDSON. *A Monograph of the Free and Semi-Parasitic Copepoda of the British Islands*, Vols. I—III. 8vo. London, 1878—80.
- BUCKTON, GEO. BOWDLER. *Monograph of the British Aphides*, Vols. I, II and III. 8vo. 1876—81.
- St. E'tienne. *Congrès Provincial des Orientalistes Français*,—*Egyptologie*, I Bulletin, Vol. II. 8vo. Saint-E'tienne, 1880.
- DAVIDS, T. W. Rhys. *Buddhist Sutras, translated from Pali.* (F. Max Müller's "Sacred Books of the East," Vol. XI.) 8vo. Oxford, 1881.
- HEWITSON, WILLIAM C. *Exotic Butterflies.* Part 82, April 1st 1872 ; and Part 83, July 1st 1872. 4to. London, 1872.
- MURRAY, JAMES A. *The Plants and Drugs of Sind ; being a Systematic Account with Descriptions of the Indigenous Flora, and Notices of the Value and Uses of their Products in Commerce, Medicine and the Arts.* Roy. 8vo. London and Bombay, 1881.
- SOWERBY, G. B. *Thesaurus Conchyliorum*, Parts 35 and 36. 4to. 1880. *The Zoological Record for 1879* (Vol. XVI). 8vo. London, 1881.
- WRIGHT, DR. WILLIAM. (Palæographical Society.) *Facsimiles of Ancient MSS.* Oriental Series, Part VI. Fol. London, 1881.

३७०

कनठकुषांशस्य
निगमांकीष्टिय
नष्टिद्विवाकनम
तापुदसोउमदव

VYA, DATED ŚAKA 132



PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.
FOR NOVEMBER, 1881.

The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 2nd November, at 9 P. M.

C. H. TAWNEY, Esq., M. A., Vice-President, in the Chair.

The minutes of the last Meeting were read and confirmed.

The following presentations were announced—

From St. Xavier's College Observatory,—Results of Observations, January to June 1881.

From the Hungarian Academy of Sciences,—(1) Codex Cumanicus Bibliothecæ ad Templum divi Marci Venetiarum, by Comes Géza Kuun, (2) Nyelveléktár. Régi Magyar Codexek és Nyomtatványok, Vols. VII and VIII, by J. Budenz, G. Szarvas, and A. Szilády.

From the British Museum,—(1) Catalogue of the Persian Manuscripts in the British Museum, Vols. I and II, by Chas. Rieu, (2) Catalogue of Oriental Coins in the British Museum, Vol. VI, (3) Catalogue of the Birds in the British Museum, Vol. V, by R. B. Sharpe, (4) Illustrations of Typical specimens of *Lepidoptera Heterocera* in the collection of the British Museum, Pt. V, by A. G. Butler.

From the Editing Committee, The Norwegian North Atlantic Expedition 1876-78, Zoology, *Gephyrea*, by D. C. Danielssen, and Johan Koren.

From the Johns Hopkins University,—On the Mechanical Equivalent of Heat, with Subsidiary Researches on the Variation of the Mercurial from the Air Thermometer and on the Variation of the Specific Heat of Water, by Henry A. Rowland.

From the Home Department,—Sacred Books of the East, Vols. X and XI, edited by Max Müller.

From the Society,—Katalog der Bibliothek der deutschen Morgenländischen Gesellschaft, II.

From the Authors,—(1) On the Land Shells of the Island of Socotra collected by Professor Bayley Balfour, by Lieut.-Col. H. H. Godwin-Austen, (2) Bilingual Coins of Bukhara, by Edward Thomas.

From the Indian Museum,—Annual Report for April 1880 to March 1881.

From the Geological Survey of India,—Popular Guides to the Geological collections in the Indian Museum No. 1, Tertiary Vertebrata, by R. Lydekker, No. 2, Minerals, by F. R. Mallet, and No. 4, Palæontological Collections, by Dr. O. Feistmantel.

From the Marine Survey Department,—Return of Wrecks and Casualties in Indian waters for the year 1880, and charts of (1) Stewart's Sound, (2) Sadashivgad Bay including Port Karwar and Beitkul Cave, (3) Arabian Sea.

From J. V. Juggarrow's Observatory,—Results of Meteorological Observations, 1880.

From Lieut. R. C. Temple,—Note on two Maps of the Andaman Islands (with Maps), by E. H. Man and Lieut. R. C. Temple.

From the Meteorological Reporter to the Government of India,—Report on the Meteorology of India in 1879, 5th year.

From the Panjab Government,—(1) A complete Dictionary of the Terms used by Criminal Tribes in the Panjab together with a short History of each Tribe, and the Names and Places of Residence of individual Members, by Muhammad Abdul Ghafur, (2) Appendix—A detailed Analysis of Abdul Ghafur's Dictionary of the Terms used by Criminal Tribes in the Panjab, by Dr. G. Leitner, (3) A sketch of the Changars and of their Dialect by Dr. G. W. Leitner.

From the Société Zoologique de France,—De la Nomenclature des Êtres Organisés.

From the Society,—Catalogue de la Bibliothèque de la Société Nationale des Sciences Naturelles et Mathématiques de Cherbourg, Pt. I, by Auguste le Jolis.

From Mr. J. de Goeje,—The History of the Almohades by Abdo-'l-Wáhid al-Marrékoshi, by R. Dozy.

From the Government, N. W. P.—Notes on the Economic Products of the North-Western Provinces, Pt. V.

The SECRETARY read the following extracts from a letter from Dr. R. Mitra forwarding a presentation copy of his work entitled: "Indo-Aryans: Contributions towards the Elucidation of their Ancient and Mediæval History."

"Will you do me the favour to present the accompanying two volumes to the Asiatic Society at its next meeting? The Library of the Society afforded me the materials for my researches; the kind consideration shown me by the Society enabled me to persevere in my undertaking; and the publications of the Society provided me the means of bringing to light the fruits of my labours. I am now bringing out a new edition of my

essays, I cannot allow the opportunity to pass without expressing my grateful acknowledgments to the Society."

The **PRESIDENT** announced that, according to Rule 7, the following Gentlemen had been elected Ordinary Members of the Society by the Council during the recess:—

H. M. Percival, Esq., proposed by C. H. Tawney, Esq., seconded by A. W. Croft, Esq.

Chr. J. Bandow, Esq., proposed by Dr. A. F. R. Hoernle, seconded by Dr. H. W. M'Cann.

These elections were confirmed by the meeting.

The **SECRETARY** reported that since the last meeting in August, the following Gentlemen had intimated their desire to withdraw from the Society:—

Dr. D. B. Smith, H. K. W. Arnold, Esq., and that the elections of the following Gentlemen had been cancelled under Rule 9, as they had not paid their admission fee and first quarter's subscription:—

R. O. Lees, Esq., proposed by L. Schwendler, Esq.

Babu Peary Mohan Guha, proposed by Babu Adharlal Sen.

Babu Trailokyanath Mitra, proposed by Babu Adharlal Sen.

The following Gentleman duly proposed and seconded at the September meeting of the Council was elected an Ordinary Member:—

L. de Nicéville, Esq., proposed by H. B. Medlicott, Esq., seconded by Dr. J. Anderson.

The following Gentlemen are candidates for ballot at the next meeting:

R. Logan, Esq., proposed by Hon. H. J. Reynolds, seconded by J. Westland, Esq.

J. J. Monteath, Esq., M. D., proposed by J. Wood-Mason, Esq., seconded by Dr. D. D. Cunningham.

The **COUNCIL** reported that, in consequence of the deaths of Sir John Philippiart, the Count de Noe, Professor Isaac Lea, Colonel W. Munro, and Sir J. W. Colville, there were five vacancies in the list of Honorary Members, and recommended to the Society the four following gentlemen for election as Honorary Members at the next meeting:—

Dr. William Wright, Professor of Arabic in the University of Cambridge, on account of his distinguished services to Arabic scholarship.

Dr. Rudolph v. Roth, Professor of Sanskrit in the University of Tübingen, for his services to Sanskrit scholarship, especially in co-editing the St. Petersburg Sanskrit Dictionary and the Atharva Veda Sanhita.

Sir William Thomson, Professor of Natural Philosophy in the University of Glasgow, and Hermann L. F. Helmholtz, Professor of Physics in the

University of Berlin, for their numerous and important contributions to Science, both theoretical and practical.

The COUNCIL also recommended that the remaining vacancy be left unfilled for the present.

The COUNCIL reported that the bust of the late Mr. Henry Blochmann had been received, and that a suitable pedestal had been ordered for it.

The SECRETARY announced that the following works had been sanctioned for publication in the Bibliotheca Indica, on the recommendation of the Philological Committee :—

The text of the *Lâmiyyet-el-Arab*, accompanied by two translations, one in prose and the other in verse, by C. J. Lyall, B. A., C. S.

A translation of the 2nd Volume of Abd-ul-Kadir's *Muntakhab-ul-Tawarikh*, by Rev. W. H. Lowe, M. A.

The COUNCIL reported that Mr. V. Ball had tendered his resignation as Honorary (Natural History) Secretary and Treasurer, on his departure for England, and that Mr. Wood-Mason had resumed the Natural History Secretaryship and Mr. J. Eliot had consented to act as Treasurer.

The COUNCIL recommended that, in consideration of Mr. Ball's long services to the Society, and his numerous and valuable contributions to Indian Science, he be presented with the Society's publications gratuitously for the rest of his life.

This was unanimously agreed to.

The SECRETARY read a letter from Col. J. F. Tennant, F. R. S., dated 21st October, forwarding four photographs of the Tierra del Fuego savages at the Bois de Boulogne, Paris, together with a short account of them in French. Owing to a famine which last year depopulated Tierra del Fuego, these savages were compelled to beg for food from the Captain of a German vessel, and were induced by the promise of a plentiful supply of provisions to allow themselves to be brought to Europe. Although belonging to the most degraded and ferocious of savage races, under kindly treatment they have become fairly docile, and by appealing to their love of imitation have been induced to adopt various civilized habits. For example, although the instinct of modesty is dormant within them, they have become particular about their clothes, through noticing that all the visitors to the Jardin d'Acclimatation are scrupulously covered from the neck to the feet. The photographs exhibited were obtained by first photographing some *employés* of the Garden, and thus inducing them out of a love of imitation to submit to the same process. So also, after some of the *employés* had been vaccinated in their presence, they complacently submitted to the same operation.

At first they satisfied their thirst by plunging their faces into water and drinking like cattle: but they have now learned to drink out of a glass or from a tap. They have made no improvement, however, in the matter of food, which is principally flesh-meat either eaten raw or rudely cooked by placing it for a few minutes on hot cinders. When coins were first presented to them by visitors, they mistook them for food and tried to eat them: on finding out their mistake, they threw them away in disgust. They refuse to sleep on anything but a rude bed of straw, which they take no trouble to renew. They remain generally quite silent, rarely speak to one another, and then only in a low voice, and only show any vivacity of expression when they are eating their meals.

COL. TENNANT says of these photographs—

“Low as their intellect is said to be, I do not think that the photographs show any great want of natural intelligence, and in this respect they agree with my own impression. Indeed, I think they are not unfair likenesses of the people.”

The SECRETARY read the following letter from Mr. J. B. N. Hennessey, F. R. S., Deputy Superintendent, Survey of India, on an outburst of sun-spots observed at Dehra Dun:—

“The following particulars of an outburst of sun-spots may be of interest to the Society not only on account of the magnitude of the occurrence but because the time of the event is known within *small* limits.

“I premise briefly, that a Photoheliograph is in daily use at the office of the Trigonometrical Branch Survey of India, Dehra Dun, of which I have executive charge. At present the instrument yields only 4-inch pictures. At least two negatives are taken daily of the sun when visible.

“On the 25th July 1881, the earliest negative obtained was at 3h. 58m. P. M. (Local Apparent Time): it exhibited several sun-spots as is now usual and of which therefore little need be said, for it is no doubt known to the Society that the sun for some months past has resumed a state of considerable energy in respect to development of features: this negative for the sake of distinction may be understood by N_1 . The second negative or N_2 was taken at 4h. 47m. P. M. On comparing N_1 and N_2 , it was at once seen that in the interval of 49m. a considerable group of spots had appeared in the neighbourhood of the sun's centre. It is difficult to reproduce with fidelity such features from so small a negative even by means of a silver print. I, however, enclose a hand-tracing of the negative N_2 (Plate III), in which the new group of spots is shown in red, so that the position of the group may be nearly inferred.

“This new group consists of 16 spots of which no individual spot is notably large, but there is this peculiarity about them all that they exhibit hardly any penumbra but consist almost entirely of well defined umbra:

what penumbra appears is confined chiefly to two spots, where it is seen only to the S. E.

"As to magnitude, the spots are scattered over an area of some 6000 millions of square miles, while the collective area of the spots themselves is about 630 millions of square miles, or, say, 6 times the area presented by the earth to a distant spectator.

"Unhappily the sun remained invisible till the 30th July, when two negatives were taken, *i. e.*, after an interval of just 5 days; so far as solar rotation could effect, the so-called new group of N_2 should have been visible not far from the sun's western edge; but the entire group had vanished leaving no trace behind. In the interim of 5 days, 2 new spots had come out; of *one* of these I may add that the umbra is about 200 millions of square miles and the penumbra some 700 millions, presenting in all a single feature of more than 900 millions square miles, or say 9 times the area exhibited by the earth to a distant spectator.

"It will be seen from the foregoing that a considerable group of sun-spots burst into view about the centre of the sun on 25th July 1881 between the hours of 3h. 58m. P. M. and 4h. 47m. P. M. local apparent time, Dehra Dun."

DR. M'CANN drew the attention of the Society to some letters which had appeared in "Nature" from Professor Piazzi Smyth, which were of interest in connection with the outburst of sun-spots observed by Mr. Hennessey. It appears that on January 26th of this year, a most peculiar series of clouds formed in the upper regions of the atmosphere above Madeira. These clouds resembled closely the appearances observed in vacuum-tubes through which electrical discharges are passing: and Professor Smyth attributes their formation to the passage of electrical discharges from the earth through the upper rarefied regions of the atmosphere. Professor Smyth, who had an observatory fitted up at Madeira, found that, simultaneously with this extraordinary cloud phenomenon, there was a sudden outburst of sun-spots in the centre of the sun's disc. A month afterwards, on July 26th, a precisely similar series of clouds was formed over Madeira. From its exact resemblance to that of June 26th, Professor Smyth formed the opinion that there would probably be a similar outburst of sun-spots: but, as his observatory was by this time dismantled, he was unable to verify this inference. Now, however, Mr. Hennessey's independent observation at Dehra Dun shows that Professor Smyth's inference was correct, and that in this case also the appearance of the electrical cloud was immediately preceded by a sudden outburst of sun-spots, indicating a sudden increase of solar activity.

The SECRETARY read a communication from the Under-Secretary to the Government of Bengal, Judicial Department, giving some particulars of the tenets, habits, customs, and places of residence of the sect of Hindu

dissenters called "Kumbhupatias," who recently made an attack on the Temple of Jaggannath in Puri, with the object of burning the idol of Jaggannath, during which one of them was killed. The Chief Commissioner of the Central Provinces gives the following account of the sect.

"There is a peculiar sect of Hindu dissenters in the Sambulpore district, known as Kumbhupatias. The word Kumbhupatia is derived from 'kumbhu,' the name of a kind of tree, and 'pat,' the bark of a tree, and the sect is so called because its followers make ropes from the bark of the tree and wear them round their waists. The religion is also known as that of *Alekh*, and its followers claim revelation as its foundation. Alekhsamy, the god incarnate, used, it is said, to reside in the Himalayas, but about the year 1864 he came to Malbaharpore in Banki, zillah Cuttack, and revealed the religion professed by the Kumbhupatias to 64 persons, the principal of whom was Govind Dass; and it is chiefly owing to the exertions of these disciples that the religion was propagated. Alekhsamy (which signifies 'the lord whose attributes cannot be described in writing') removed to Dhenkanal, a feudatory State in Cuttack, where, for three years immediately preceding his death, he led the life of a mendicant and wanderer. Although the religion originated in Cuttack, it spread more rapidly in the district of Sambulpore, and men of all classes and castes, except the Uriya Brahmans, are freely embracing it. It is not so much the peculiarity of the rules of any particular caste or sect that tends to increase the number of converts to it as the position in life of the converts themselves: thus in Khinda the people of a whole village embraced the Kumbhupatia religion because the Gaontia had done so. The names of some thirty villages are given as those in which the Kumbhupatias chiefly reside.

"There are three sects of Kumbhupatias—(1) the Kumbhupatias proper, who wear ropes made of the bark of trees; (2) the Kanapatias, who wear rags; and (3) the Ashritas or Grosthes, who lead a family life. The first two sects renounce the world and make no distinction of caste. They eat food given by people of any caste, except by a Raja, who is supposed to accumulate his wealth by oppressing and torturing his subjects; by a Bráhmaṇ or *bhandari*, because he accepts gifts made in *shradh* ceremonies; by a washerman, because he washes the clothes of all classes of people; and by a *hadi*, because his occupation is filthy. The third sect do not renounce the world nor deem celibacy essential, nor are they turned out of caste. They look up to the other two sects as their '*gurus*' or spiritual guides, and follow their religion. They bathe in the early morning.

"Each sect has a separate temple or place of prayer. They believe in one Supreme Being, who is called Alekh; truthfulness, obedience to spiritual guidance, and faith are the principal tenets of their religion. They believe in the existence of the thirty-three crores of Hindu gods and god-

desses, but they do not respect their images, as they argue that it is impossible to represent the form of the Supreme Being, whom no one has ever seen, nor do they worship the Hindu gods and goddesses; there is indeed reason to think that, unlike the followers of Ramanand, Kabir, and Chaitunya, they have an antipathy to them, as they dislike to touch the *tulsi* plant, because it is held sacred by the Hindus, and will not eat the flesh of a goat, because it is offered in sacrifice to the Hindu goddess Kali. They eat and drink only in the daytime; if they feel hungry or thirsty at night they can drink water only. They pray in the open air every day (morning and evening) with their faces turned towards the sun, and with their hands folded and held at the nose. If four or more persons join in the prayer, one of them recites, in humble words and suppliant voice, the praises of the Almighty, the others repeating the words after him. They bow down, prostrating themselves to the ground, 64 times, corresponding to the number of disciples of their god. Their habits are very filthy. They take no medicine, but rely on the help of their god alone for recovery: in case of severe illness, they take a little earth from the prayer-ground, mix it with rice-water, and drink the mixture. During the past two years the Kumbhupatias have divided into two sections. Formerly Bhima Kondh of Sonapore was the leader of the sect. Bhima was born blind, but he appears to have been endowed with natural talents of a superior order. Though unable to read and write, he had some Uriya religious books, such as the Mahabharat and Srimat Bhagbat, read to him; and the education he thus received enabled him to compose two or three volumes of verses in praise of the Almighty, which, it asserted, would do credit to any Uriya scholar of the present day. He exercised great influence over his followers. The relations existing between him and a female companion, however, excited suspicion among his adherents, who, however, did not venture to question the purity of his conduct until the woman became pregnant. Bhima endeavoured to deceive his followers by telling them that the woman would give birth to Arjun, who would root out all unbelievers. They believed this story, and waited until the child was born, when, to their great surprise, they found that the woman gave birth to a girl. Bhima accounted for this by saying that it had recently been revealed to him that the woman would give birth to a female, who would destroy all the unbelievers by means of her charms. The child, however, died a few days later, and Bhima then tried to mislead his followers still further by saying that the fairy had quitted this world because she had found it filled with the vices of mankind. He was now deserted by most of his followers, who formed a separate faction, but he is still highly adored and honoured by the remainder. He has erected an altar, over which he and his wife sit in the morning. His followers worship them and move round the altar until the time for their morning meal arrives, when their feet are washed

with milk, which is afterwards drunk by their adherents. Another cause of dissension was because Bhima pretended that he himself was their god.

“The Kumbhupatias who made a crusade against Jaggannath were residents of Chunderpore. Dasa Ram, the leader of the party which proceeded to Puri, and who was killed in the scuffle at the temple, thought that, if Jaggannath were burnt, it would convince the Hindus of the futility of their religion, and that the whole world would thereby embrace the true religion. This account is given by some of the Kumbhupatias who reside in Sambulpore; and it is not improbable that the man was actuated by dreams, in which the Kumbhupatias firmly believe. If any member of the fraternity breaks any of the rules, speaks an untruth, or commits a crime, he is excommunicated. A man undergoes an examination before he is admitted into the sect. It is stated that the tehsildar of Ungul in Cuttack has been successful in reducing crime within his jurisdiction by encouraging a criminal class called “Pans” to embrace the Kumbhupatia religion.”

The PHILOLOGICAL SECRETARY read a Memorandum on some coins by Mr. T. A. M. Gennoe, with notes by General A. Cunningham and Dr. Rájendralála Mitra.

These coins were five in number, but in the opinion of General A. Cunningham and Dr. Hoernle only two of them were genuine: and these are already noticed in Marsden's *Oriental Coins*, pp. 735 ff. and, according to General Cunningham, can be procured readily in every large town in Northern India.

The following papers were read—

1. *On a Silver coin of Shams-ud-din Kaimurs.*—By J. G. DELMERICK.
With a note by GENERAL A. CUNNINGHAM.

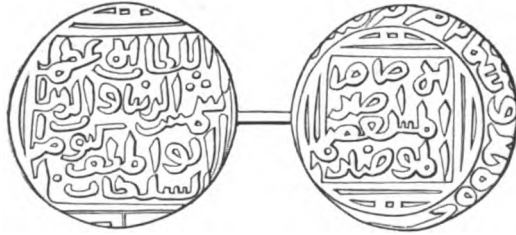
Mr. DELMERICK says:

“After the murder of Muíz-ud-din Kaikobad on the 18th Shavval A. H. 689 (October A. D. 1290), Jallal-ud-din Firoz, in order to gratify the people and silence the opposition of the army, having obtained possession of the murdered king's only child, an infant of three years of age, placed him upon the throne, and caused the Khutba to be read and coins to be struck in the name of Shams-ud-din Kaimurs, but a few days afterwards Firoz sent this child to follow his father Kaikobad, and Firoz himself ascended the throne of Delhi on Friday the 25th Zilhijja (December) of the same year.

“Ferishtah says that Jallal-ud-din Firoz was guilty of no further acts of cruelty after the death of the young prince, but became distinguished for his humanity and benevolence.

“A coin of this unfortunate child, struck during his nominal reign, exists at Delhi and is in the possession of Pañdit Rattan Narain, Názir of the Deputy Commissioner's Court.

“ I subjoin a drawing and description of it—



Silver. Weight 167 grains. Unique A. H. 6

Square areas.

الامام	السلطان الاعظم
المستعصم امير	شمس الدنيا والدين
المومنين	ابوالمظفر كيومرث

Margin * * * * * وستمائة ”ضرب عدو“

GENERAL CUNNINGHAM writes :

“ I have seen this silver coin of *Shams-ud-din Kaimurs* in the possession of Pandit Ratan Náráyan. It is genuine and unique. This young Prince is mentioned by Ziá-ud-din Barui by his title only : see Elliot's *Muhammadian Historians*, III, 133, ‘The Sultan's child was seated on the throne, under the title of Sultán Shams-ud-din.’ * * ‘The sons of Jalál-ud-din went publicly at the head of 500 horse to the royal palace, seized upon the infant Sultán, and carried him off to their father.’ Ferishta notes that Jalál-ud-din, after he had been proclaimed king ‘caused the young Prince to be put to death.’ ”

2. *On Relics from Ancient Persia in gold, silver and copper.*—By

GENERAL A. CUNNINGHAM, C. S. I., C. I. E.

(Abstract.)

In the year 1877, on the north bank of the Oxus, near the town of Takht-i-Kuwát, opposite Khulm and two days' journey from Kunduz, there was found a large treasure of gold and silver figures, ornaments and coins, most of which have been brought to India for sale. This paper gives a description of most of the articles found, and is illustrated with 9 plates. The coins, so far as General Cunningham has seen them, range over a period of about 300 years, from the time of Darius to that of Antiochus the Great and Euthydemus of Bactria. The gold and silver figures

also seem to belong to different ages, as some are decidedly archaic, more especially a small statuette of a king in silver which the author of the paper thinks may be as old as the time of Darius.

This paper will be published in full, with plates, in the Journal Pt. I, No. 3, for 1881.

3. *The Bon (Pon) Religion.*—By BABOO SARAT CHANDRA DÁS,
Deputy Inspector of Schools, Darjiling.

(Abstract.)

This paper is a literal translation of the 8th and 11th portions of the well-known Tibetan work, *Dub-thab Selkyi Melong*, written by the Lama *Je-tsun-lossang Chhoikyí Nyima pal Ssangpo* about 1740 A. D. It contains a brief account of the history, sacred books, doctrines and ceremonies of the Bon religion, which anciently prevailed in Tibet, before the introduction of Buddhism. Three periods of the Bon religion are distinguished, called the Jola Bon, the Khyar Bon and the Gyur Bon respectively. During the Jola period, it appears to have been a kind of simple Shamaism; in the Khyar period, it was mixed up with the Saiva doctrine of the Tirthikas; in the Gyur period, it was largely assimilated to Buddhism, which had been introduced into Tibet in the meantime.

This paper will be published in full in the Journal, Pt. I, No. 3, for 1881.

4. *The Early History of Tibet* —By BABOO SARAT CHANDRA DÁS,
Deputy Inspector of Schools, Darjiling.

(Abstract.)

This paper contains an account of the earlier history of Tibet, compiled from original sources, such as the *Debther-ngon-po*, *Chhojung*, *Ga-nag-gi-tsi*, *Ngon-gyi-yig-tshang-nying-pa*, etc. It is divided into two Parts. The first part narrates the earliest history of Tibet, from 416 B. C. to 917 A. D. The second part relates its history in the Middle Ages, from 917 to 1645 A. D.

This paper will be published in full in the Journal, Pt. I, No. 3, for 1881.

LIBRARY.

The following additions have been made to the Library since the Meeting held in August last.

TRANSACTIONS, PROCEEDINGS AND JOURNALS,
presented by the respective Societies and Editors.

- Baltimore. American Journal of Mathematics,—Vol. III, No. 4.
 ———. American Journal of Philology,—Vol. II, No. 6.
 Batavia. Natuurkundig Tijdschrift voor Nederlandsch-Indië, Vol. XL.
 ———. Tijdschrift voor Indische Taal-, Land- en Volkenkunde,—Vol. XXVI, Nos. 2-6, Vol. XXVII, No. 1.
 ———. Bataviaasch Genootschap van Kunsten en Wetenschappen,—Notulen, Vol. XVIII, Nos. 1-4, 1880; Vol. XIX, Nos. 1-2, 1881.
 ———. ———. Verhandelingen,—Vol. XLI, No. 2.
 Berlin. K. preussische Akademie der Wissenschaften,—Monatsbericht, March, April and May 1881.
 Bombay. The Indian Antiquary,—Vol. X, Pts. 123-125, August-October 1881.
 ———. Bombay Branch, Royal Asiatic Society,—Journal, Vol. XV, No. 39, 1881, and Index to Vol. XIV, 1878-80.
 Bordeaux. Société de Géographie Commerciale,—Bulletin, Nos. 14-20.
 Budapest. Royal Hungarian Academy,—Evkönyvei, Vol. XVI, No. 6.
 ———. ———. Ertesítője Nos. 7-8, 1879; and Nos. 1-8, 1881.
 ———. ———. Ertekezések,—Vol. VIII, Nos. 5-10, 1879; Vol. IX, Nos. 1-2, 1880.
 ———. ———. Régi Magyar Költők Tára,—Vols. II and III, 1880-81.
 ———. ———. Literarische Berichte aus Ungarn,—Vol. IV, 1-4, 1880.
 ———. Ungarische Revue, Parts 1-4, 1881.
 ———. ———. Nyelvtudományi Közlemények,—Vol. XV, Part 3; Vol. XVI, Part 1.
 ———. ———. Almanach, 1881.
 Calcutta. Geological Survey of India,—Memoirs, Vol. XVIII, Part 3.
 ———. ———. Memoirs, Palæontologia Indica,—Series II, XI and XII, Vol. III, conclusion of Pt. 2; Series XIII, Vol. I, Part 3.
 ———. Original Meteorological Observations,—July-October 1881.
 Cherbourg. Société Nationale des Sciences Naturelles et Mathématiques,—Mémoires, Vol. XXII.

- Dublin. Royal Irish Academy,—Proceedings (Polite Literature and Antiquities), Vol. II, Ser. II, No. 2, December 1880: and (Science), Vol. III, Ser. II, Nos. 5 and 6, December 1880 and April 1881.
- . ————. Transactions (Polite Literature and Antiquities), Vol. XXVII, June 1881: and (Science), Vol. XXVIII, Parts 1-4 December 1880, February and March 1881.
- Geneva. Museo Civico di Storia Naturali,—Annali, Vol. XVII.
- Leipzig. Deutsche morgenländische Gesellschaft,—Abhandlungen für die Kunde des Morgenlandes, Vol. VII, No. 4.
- Lisbon. Sociedade de Geographia,—Boletim, Second Series, No. 5.
- Liverpool. Literary and Philosophical Society of Liverpool,—Proceedings, Vols. XXXIII and XXXIV.
- London. The Academy,—Nos. 480-493.
- . The Athenæum,—Nos. 2803-2816.
- . Geological Society,—Quarterly Journal, Vol. XXXVIII, Parts 2-3.
- . Institution of Civil Engineers,—Minutes of Proceedings, Vols. LXIV and LXV.
- . ————. Charter, By-Laws and Regulations, and List of Members, August 1st 1881.
- . Institution of Mechanical Engineers,—Proceedings, No. 2, April 1881.
- . Nature,—Vol. XXIV, Nos. 606, 611-617 and 619-624.
- . Royal Society,—Proceedings, Vol. XXXII, Nos. 212, 213, and 214.
- No. 212. *Ferrier, David, and Yeo, G. F.*—The functional relations of the Motor Roots of the Brachial and Lumbo-Sacral Plexuses.
- . Philosophical Transactions,—Vol. CLXXI, Parts 2-3; Vol. CLXXII, Part 1.
- . ————. List of Members,—30th Nov. 1881.
- . Royal Astronomical Society,—Monthly Notices, Vol. XLI, Nos. 7-8, May and June 1881.
- . Royal Asiatic Society,—Journal, Vol. XIII, Part 3.
- . Royal Geographical Society,—Proceedings, Vol. III, Nos. 7-8, July and August, 1881.
- . Royal Microscopical Society,—Journal, Vol. I (New Series), Parts 3-4.
- . Statistical Society,—Journal, Vol. XLIV, Part 2, June 1881.
- . Society of Telegraph Engineers,—Journal, Vol. X, No. 37.
- . Zoological Society,—Transactions, Vol. XI, Part 5.
- . ————. Proceedings,—Parts 1-2, 1881.
- Lyon. Société d'Agriculture,—Annales, Vol. II, 1879.
- . Société de Géographie,—Bulletin, Vol. IV, No. 21, 1881.

- Madras. Journal of Literature and Science for 1880.
- Moscow. Société Impériale des Naturalistes,—Bulletin, Nos. 3-4, 1880.
- Mozambique. Sociedade de Geographia,—Boletim, Nos. 1-4, June to September, 1881.
- Munich. Repertorium für Experimental-Physik,—Vol. XVII, Nos. 8-10.
- New Haven. American Oriental Society,—Journal, Vol. XII.
 ———. ———. Proceedings,—May 1881.
- Paris. Société Zoologique de France,—Bulletin, Parts 1-2, January to April, 1881.
 ———. Société d'Anthropologie,—Bulletin, Vol. IV, Part 1, January to February, 1881.
- Prague. Astronomische magnetische und meteorologische Beobachtungen, 1880.
- Rome. Società degli Spettroscopisti Italiani,—Memorie, Vol. X, Nos. 5-8, May to August, 1881.
- Roorkee. Professional Papers on Indian Engineering,—Vol. X, Nos. 41 and 41a.
- San Francisco. California Academy of Sciences,—Proceedings for June, 1881.
- Shanghai. North-China Branch of the Royal Asiatic Society,—Journal, No. 15, 1880.
- Stockholm. Kongliga Svenska Vetenskaps-Akademiens,—Handlingar, Vol. XIV, Pt. 2, 1876; Vol. XV, 1877; Vol. XVI, 1878; Vol. XVII, 1879.
 ———. ———. Meteorologiska Iakttagelser,—Vol. III, 1875; Vol. IV, 1876; Vol. V, 1877.
- Stuttgart. Verein für vaterländische Naturkunde,—Jahreshefte, 1881.
- Turin. Reale Accademia delle Scienze,—Memorie, Vols. XXXII and XXXIII.
 ———. ———. Atti,—Vol. XV, Nos. 1-8; Vol. XVI, No. 6.
 ———. Osservatorio della Regia Università,—Bollettino, 1879.
- Vienna. K. k. zoologisch-botanische Gesellschaft,—Verhandlungen, Vol. XXX, 1880.
- Washington. Smithsonian Miscellaneous Collections,—Vols. XVIII-XXI.
 ———. Smithsonian Contributions to Knowledge,—Vol. XXIII.
- Yokohama. Deutsche Gesellschaft für Natur-und Völkerkunde Ostasiens,—Mittheilungen, Heft XXIV, July 1881.
 ———. Asiatic Society of Japan,—Transactions, Vol. IX, Part 2.
- Zagreb. Arkeologickoga Druztva,—Viestnik, Vol. III, No. 3, 1881.

BOOKS AND PAMPHLETS,

presented by the Authors.

- GODWIN-AUSTEN, LT.-COL. H. H. On the Land shells of the Island of Socotra collected by Professor Bayley Balfour. 8vo. London, 1881. Pam.
- MAN, E. H., and TEMPLE, LIEUT. R. C. Note on two Maps of the Andaman Islands. 8vo. London, 1881. Pam.
- MITRA, DR. RAJENDRALALA. Indo-Aryans: Contributions towards the Elucidation of their Ancient and Mediæval History. 2 Vols. 8vo. Calcutta, 1881.
- THOMAS, EDWARD. Bilingual Coins of Bukhara. 8vo., London, 1881, Pam.

MISCELLANEOUS PRESENTATIONS.

- Report of the Rent Law Commission, Vols. I and II. Fcp. Calcutta, 1881.
- Report on the Legal Affairs of the Bengal Government for the year 1880-81. Fcp. Calcutta, 1881.
- Administration Report of the Meteorological Reporter to the Government of Bengal for the year 1880-81. Fcp. Calcutta, 1881.
- Report on the Police of the Lower Provinces of the Bengal Presidency for the year 1880. Fcp. Calcutta, 1881.
- Report on the Law Revenue Administration of the Lower Provinces for the Official year 1880-81. Fcp. Calcutta, 1881.
- Report on Vaccination in the Province of Bengal for 1880-81. Fcp. Calcutta, 1881.
- Report on the Administration of the Salt Department for the year 1880-81. Fcp. Calcutta, 1881.
- Report on the Administration of the Registration Department in Bengal for the year 1880-81. Fcp. Calcutta, 1881.
- Supplement to the Report on Charitable Dispensaries under the Government of Bengal for the year 1880. Fcp. Calcutta, 1881.
- Records of the Geological Survey of India,—Vol. XIV, No. 3, 1881.

BENGAL GOVERNMENT.

- Magnetical and Meteorological Observations made at the Government Observatory, Bombay, 1871-78, 4to. Bombay, 1881.

BOMBAY GOVERNMENT.

- RIEU, CHARLES. Catalogue of the Persian Manuscripts in the British Museum. Vols. I-II. 4to. London, 1879-81.
- Catalogue of Oriental Coins in the British Museum. Vol. VI. 8vo. London, 1881.

Catalogue of the Birds in the British Museum. Vol. V. 8vo. London, 1881.
Illustrations of Typical Specimens of Lepidoptera Heterocera in the collection of the British Museum. Part V. 4to. London, 1881.

BRITISH MUSEUM.

Annual Report of the Sanitary Commissioner of the Central Provinces for the year 1880. Fcp. Nagpur, 1881.

Report on the Vaccine Operations in the Central Provinces for 1880-81. Fcp. Nagpur, 1881.

Report on the Administration of the Central Provinces for the year 1880-81. 8vo. Nagpur, 1881.

CHIEF COMMISSIONER, CENTRAL PROVINCES.

DANIELSSEN, D. C., and KOREN, JOHAN. The Norwegian North Atlantic Expedition, 1876-78. Zoology:—Gephyrea. 4to. Christiania, 1881.

THE EDITING COMMITTEE.

Administration Report of the Government Central Museum for the year 1880-81. Fcp. Madras, 1881.

GOVERNMENT CENTRAL MUSEUM, MADRAS.

Notes on the Economic Products of the North-Western Provinces. Part V. 4to. Allahabad, 1881.

GOVERNMENT, N. W. P.

Popular Guide to the Geological collections in the Indian Museum, Calcutta. No. 1:—Tertiary Vertebrate Animals, by R. Lydekker. No. 2:—Minerals, by F. R. Mallet. No. 4:—Palæontological Collections, by Dr. O. Feistmantel. 8vo. Calcutta, 1879-81. Pam.

GEOLOGICAL SURVEY OF INDIA.

Review of the Forest Administration in the several Provinces under the Government of India, for the year 1879-80. Fcp. Simla, 1881.

MUELLEB, MAX. Sacred Books of the East. Vols. X and XI. 8vo. Oxford, 1881.

The Indian Antiquary,—Vol. X, Parts 122-124, August to October, 1881.

Records of the Geological Survey of India,—Vol. XIV, Part 3, 1881.

HOME DEPARTMENT.

KUUN, COMES GE'ZA. Codex Cumanicus Bibliothecæ ad Templum divi Marci Venetiarum. Roy. 8vo. Buda-Pestini, 1880.

BUDENZ, J., SZABVAS, G., and SZILADY, A. Nyelvelméltar. Régi Magyar Codexek és Nyomtatványok. Vols. VII and VIII. 8vo. Buda Pest, 1881.

HUNGARIAN ACADEMY OF SCIENCES.

Indian Museum: Annual Report, List of Accessions, and selected Extracts of Minutes. April 1880 to March 1881, Vol. XII. Calcutta, 1881.

INDIAN MUSEUM.

ROWLAND, HENRY A. On the Mechanical Equivalent of Heat, with subsidiary researches on the variation of the mercurial from the air thermometer and on the variation of the specific heat of water. 8vo. Cambridge, 1880.

JOHNS HOPKINS UNIVERSITY.

DOZY, R. The History of the Almohades by Abdo-'l-Wáhid al-Marréko-shí. 2nd Edition. 8vo. Leyden, 1881.

MON. J. DE GOEJE.

Report on Public Instruction in the Madras Presidency for the year 1879-80. 8vo. Madras, 1880.

MADRAS GOVERNMENT.

Return of Wrecks and Casualties in Indian Waters for the year 1880. Fcp. Calcutta, 1881.

MARINE SURVEY DEPARTMENT.

Report on the Meteorology of India in 1879, 5th year. 4to. Calcutta, 1881.

Report on the Administration of the Meteorological Department of the Government of India in 1880-81. 4to. Calcutta, 1881.

METEOR. REPORTER TO THE GOVERNMENT OF INDIA.

GHAFORE, MUHAMMAD ABDUL. A complete Dictionary of the Terms used by Criminal Tribes in the Panjab, together with a short History of each Tribe, and the names and places of residences of individual members. 8vo. Lahore, 1879.

LEITNER, DR. G. W. Appendix. A detailed Analysis of Abdul Ghafur's Dictionary of the terms used by Criminal Tribes in the Panjab. Fcp. Lahore, 1880.

———. A sketch of the Changars and of their Dialect. Fcp. Lahore, 1880.

PUNJAB GOVERNMENT.

Results of Observations, January-June 1881.

ST. XAVIER'S COLLEGE OBSERVATORY.

De la Nomenclature des Êtres Organisés. 8vo. Paris, 1881.

SOCIÉTÉ ZOOLOGIQUE DE FRANCE.

G. V. Juggarow's Observatory, Daba Gardens, Vizagapatam. Results of Meteorological Observations, 1880. 8vo. Madras, 1881.

THE OBSERVATORY.

JOLIS, AUGUSTE LE. Catalogue de la Bibliothèque de la Société Nationale des Sciences Naturelles et Mathématiques de Cherbourg. Pt. I. 8vo. Cherbourg, 1881.

THE SOCIETY.

Katalog der Bibliothek der deutschen morgenländischen Gesellschaft, II. 8vo. Leipzig, 1881.

THE SOCIETY.

PERIODICALS PURCHASED.

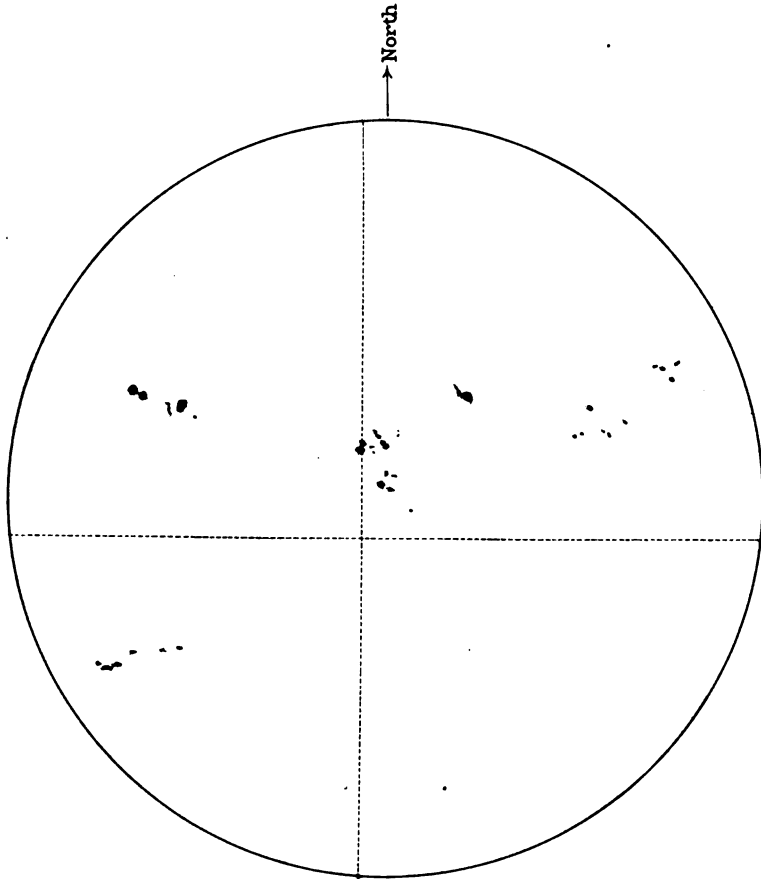
- Benares. Fallon's New English-Hindustani Dictionary,—Parts IV and V.
- Bombay. The Indian Antiquary,—Vol. X, Part 125, November 1881.
- Boston. Society of Natural History,—Proceedings, Vols. X and XI.
- Calcutta. Calcutta Review,—Vol. LXXIII, No. 146, October 1881.
- . Indian Medical Gazette,—Vol. XVI, Nos. 8-10, August to October, 1881.
- Edinburgh. Edinburgh Review,—No. 315, July 1881.
- Geneva. Archives des Sciences Physiques et Naturelles,—Vol. VI, Nos. 7-9.
- Giessen. Jahresbericht über die Fortschritte der Chemie,—Part 1, 1880.
- Göttingen. Gelehrte Anzeigen,—Nos. 29-40.
- . Nachrichten,—Nos. 11-13.
- Leipzig. Annalen der Physik und Chemie,—Vol. XIII, Nos. 3-4 ; Vol. XIV, No. 1.
- . ———. Beiblätter,—Vol. V, Nos. 6-9.
- . Botanisches Centralblatt,—Vol. V, Nos. 1-13 ; Vol. VI, Nos. 1-13 ; Vol. VII, Nos. 1-7.
- . Literarisches Centralblatt,—Nos. 1-34, January to August, 1881.
- London. Nineteenth Century,—Nos. 53-54, July and August, 1881.
- . Messenger of Mathematics,—Vol. XI, Nos. 1-3.
- . Journal of Botany,—Vol. X, Nos. 223-224, July and August, 1881.
- . Entomologist,—Vol. XIV, Nos. 218-219, July and August, 1881.
- . Entomologist's Monthly Magazine,—Vol. XVIII, Nos. 206-207, July and August, 1881.
- . Annals and Magazine of Natural History,—Vol. VIII, Nos. 43-44, July and August, 1881.
- . London, Edinburgh and Dublin Philosophical Magazine,—Vol. XII, Nos. 72-73, July and August, 1881.
- . Journal of Science,—Vol. III, Nos. 91-92, July and August, 1881.
- . Publishers' Circular,—Vol. XLIV, Nos. 1052-1057.
- . Chemical News,—Vol. XLIV, Nos. 1129-1142.
- . Society of Arts,—Journal, Vol. XXIX, Nos. 1495-1508.
- . The Ibis,—Vol. V, No. 19, July 1881.
- . Journal of Conchology,—Vol. III, No. 6, April 1881.
- . Mind,—No. 23, July 1881.
- . Numismatic Chronicle,—Vol. I, Part 1, 1881.
- . Quarterly Journal of Microscopical Science,—Vol. XXI, No. 83, July 1881.

- London. Quarterly Journal of Pure and Applied Mathematics,—Vol. XVIII, No. 69, June 1881.
- . Quarterly Review,—No. 303, July 1881.
- New Haven. American Journal of Science,—Vol. XXI, Nos. 125-126, May and June, 1881; Vol. XXII, Nos. 127-128, July and August, 1881.
- Paris. Annales de Chimie et de Physique,—Vol. XXIII, July and August, 1881; Vol. XXIV, September and October, 1881.
- . Journal Asiatique,—Vol. XVII, No. 3, April to June 1881.
- . Comptes Rendus,—Vol. XCIII, Nos. 1-14.
- . Revue Scientifique,—Vol. XXVIII, Nos. 3-16.
- . Revue Critique,—Vol. XI, No. 23, and Index; Vol. XII, Nos. 28-41.
- . Revue des deux Mondes,—Vol. XLVI, Nos. 2-4; Vol. XLVII, Nos. 1-2.
- . Revue de Linguistique,—Vol. XIV, No. 3.
- . Journal des Savants,—July to August, 1881.
- Philadelphia. Tryon's Manual of Conchology,—Vol. III, Part 11.

BOOKS PURCHASED.

- A Dictionary of the Panjabi Language, prepared by a Committee of the Lodianna Mission. 4to. Lodianna, 1854.
- BALFOUR, FRANCIS M. A Treatise on Comparative Embryology. Vol. II. 8vo. London, 1881.
- EDWARDS, H. MILNE. Leçons sur la Physiologie et l'Anatomie Comparée de l'Homme et des Animaux. Vols. X-XIV. 8vo. Paris, 1874-81.
- EDALJI, SHÁPURJI. A Dictionary, Gujarátí and English. 8vo. Bombay, 1868.
- FERGUSON, JAMES. Tree and Serpent Worship, or Illustrations of Mythology and Art in India in the First and Fourth Centuries after Christ. From the Sculptures of the Buddhist Topes at Sanchi and Amravati. Second Edition. 4to. London, 1873.
- HOUZEAU, J. C., and LANCASTER, A. Bibliographie Générale de l'Astronomie. Vol. II, Fasc. 3. 8vo. Bruxelles, 1881.
- HUXLEY, THOMAS H. A Manual of the Anatomy of Vertebrated Animals. 8vo. London, 1871.
- . A Manual of the Anatomy of Invertebrated Animals. 12mo. London, 1877.
- JUDD, JOHN W. Volcanoes: what they are and what they teach. 12mo. London, 1881.
- MOHL, JULES. Vingt-sept ans d'Histoire des E'tudes Orientaux. Rapports faits à la Société Asiatique de Paris de 1840 à 1867. 2 Vols. 8vo. Paris, 1879-80.

- SENART, E'. Les Inscriptions de Piyadasi. Vol. I. 8vo. Paris, 1881.
- SHERRING, REV. M. A. Hindu Tribes and Castes, as represented in Benares. Vol I. 4to. London, 1872.
- SULLY, JAMES. Illusions: a Psychological Study. 12mo. London, 1881.
- THOMSON, SIR C. WYVILLE. Report on the Scientific Results of the Voyage of H. M. S. "Challenger" during the years 1873-76; under the Command of Captain George S. Nares, R. N., F. R. S., and Captain Frank Turle Thomson, R. N. Zoology: Vols. I-II. 4to. London, 1880-81.
- TOD, LT.-COL. JAMES. Travels in Western India, embracing a visit to the Sacred Mounts of the Jains and the most Celebrated Shrines of Hindu Faith between Rajputana and the Indus; with an Account of the Ancient City of Nehrwalla. 4to. London, 1839.
- WATTS, HENRY. A Dictionary of Chemistry. Third Supplement, Part II. 8vo. London, 1881.
- ZIMMER, HEINRICH. Altindisches Leben. Die Cultur der Vedischen Arier nach den Samhita dargestellt. 8vo. Berlin, 1879.
-



Tracing from Sun Negative taken at Dehra Observatory, Great Trigonometrical Survey of India.

Latitude $30^{\circ}-19'-29''$ N. Longitude $78^{\circ}-5'-42''$ E. Height above Sea 2232 feet, on July 25th 1881, at 4h.-47m. P.M., local apparent time.

Spots visible in previous Negative taken on the same day at 3h.-58m. P.M., are shewn in *Black*.

And the new spots which appeared between 4 and 5 P.M., are shewn in *Red*.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.
FOR DECEMBER, 1881.

The Monthly General Meeting of the Asiatic Society of Bengal was held on the 7th of December at 9 P. M.

The HON'BLE H. J. REYNOLDS, Vice-President, in the Chair.

The minutes of the last Meeting were read and confirmed.

The following presentations were announced :—

1. From the Home Department,—Oldenberg's *Vinayapitakam*, Vol. III.
2. From the Home Department, Forest Branch,—(1) Report of a visit to the Torrent Regions of the Hautes and Basses Alpes, and also to Mount Faron, Toulon, by E. McA. Moir,—(2) Suggestions regarding the management of the leased Forests of Busáhir in the Sutlej Valley of the Panjab, by Dr. D. Brandis.
3. From Raja Sourindro Mohun Tagore,—A set of his works in English, Sanskrit, Bengali and Hindi.
4. From the Authors,—(1) The adoption of a Prime Meridian to be common to all nations. The establishment of Standard Meridians for the Regulation of Time, by Sandford Fleming,—(2) An Address to the Fifth International Oriental Congress, 1881, by Dr. Ram Das Sen,—(3) Versuch einer Erklärung der auf einer Gemme im Besitze des Grafen S. Stroganov befindlichen Pehlewi-Inschrift, by B. Dorn,—(4) The Epoch of the Guptas, by Edward Thomas,—(5) On the Land-shells of the Island of Socotra collected by Prof. I. Bayley Balfour, Pt. II, by Lieut.-Col. H. H. Godwin-Austen,—(6) Readings from the Arian Pali, by Dr. A. F. R. Hoernle.
5. From the Superintendent, Marine Survey Department,—Chart of Curves of Equal Magnetic Variation in the Indian Ocean for 1880.
6. From the Surveyor General of India,—(1) A copy of the 5th Edition of the Map of Turkestan, and the countries between the British and Russian Dominions in Asia,—(2) Synopsis of the Results of the Opera-

tions of the Great Trigonometrical Survey of India, Vols. X, XI, XII, and XIII.

7. From the Government of Bengal,—Brief Summary of the Meteorology of Bengal, 1880.

The following Gentlemen, duly proposed by the Council at the last meeting, were balloted for and elected Honorary Members of the Society :

1. Dr. William Wright.
2. Dr. Rudolph v. Roth.
3. Sir William Thomson.
4. Prof. Hermann L. F. Helmholtz.

The following Gentlemen, duly proposed and seconded at the last meeting, were balloted for and elected Ordinary Members of the Society :

R. Logan, Esq.
J. J. Monteath Esq., M. D.

The following Gentleman is a candidate for ballot at the next meeting :

Babu Girijabhushana Mukerji, M. A., proposed by Babu Protapa Chandra Ghosha, seconded by J. Wood-Mason, Esq.

The SECRETARY reported that the following Gentlemen had intimated their desire to withdraw from the Society :

Major M. Protheroe.
Herr W. Joest.
Munshi Ganga Pershad.

The following papers were read—

1. *A numerical Estimate of the Species of Animals, chiefly Land and Freshwater, hitherto recorded from British India and its Dependencies.*—By WILLIAM T. BLANFORD, F. R. S.

(Abstract.)

This paper is an attempt to obtain a rough estimate of the number of species belonging to the animal kingdom hitherto recorded in British India and its Dependencies. The marine fauna inhabiting the seas around India being very imperfectly known, Mr. Blanford has confined himself, in all the sub-kingdoms except the Vertebrata, to the land and freshwater fauna alone. Although the data obtained are very imperfect, Mr. Blanford publishes them because they lead to some very curious results. The number of recorded species in each order of the various classes is given, together with the authorities from whom the data have been collected : and from this a final table giving the number of species in each class is compiled.

On this Mr. Blanford remarks: "The figures given are, I believe, a fair approximation to the truth, and the result is one that I think should make Anglo-Indian naturalists endeavour to improve our knowledge of the fauna. It is scarcely creditable that, in a perfectly accessible country, with facilities for travelling and for living in different parts of the area unrivalled within the tropics, we should remain so ignorant of the zoology. It is ridiculous to suppose that the Indian *Coleoptera* are scarcely more numerous than the *Lepidoptera*, that the *Hymenoptera* (which very probably rival, and may excel, each of the other orders) are only between $\frac{1}{2}$ and $\frac{1}{3}$ as numerous, or that the *Neuroptera*, of which, Mr. McLachlan tells me, about 1000 are known from Europe, are only represented by 350 species. As to the spiders, it is no exaggeration to say that in most parts of India 108 species (which is the total number hitherto described for the whole of India) might be collected in a few days' search. It is to be hoped that the next 5 years will witness a very considerable increase in our knowledge of the fauna of India."

This paper will be printed in full in the Journal, Part II, No. 4, for 1881.

2. *Notes on an apparently undescribed Varanus from Tenasserim, and on other Reptilia and Amphibia.*—By W. T. BLANFORD, F. R. S.

(Abstract.)

This paper gives a detailed description of a *Varanus* found in Tenasserim in the neighbourhood of Tavoy, which Mr. Blanford cannot identify with any known species. It may be immediately distinguished from all other Indian forms by its peculiar nostril, situated in a single scale, by the larger scales on the upper part of the body, and especially by the scales of the nape being larger than those above the head, or those on the back. There is also a description of a cobra differing in colour and to some slight extent in structure from any Indian form known to Mr. Blanford, the colouration being remarkably similar to that in the Central Asiatic type described by Eichwald under the name of *Tomyris oxiana*. This snake was found in Gilgit where several birds and mammals belonging to Central Asiatic types occur.

The paper also contains notes on specimens of *Draco taniopterus* found near Tavoy in Tenasserim, and on a species of *Pseudophidian*, *Ichthyophis glutinosus*, found near Darjeeling, being the first *Pseudophidian* recorded from the Himalayas.

This paper will be published in full in the Journal, Pt. II, No. 4, for 1881.

3. *Description of a new Species of Rostellaria, from the Bay of Bengal.*—By GEOFFREY NEVILL, C. M. Z. S.

This paper contains a description of a highly interesting and very characteristic form, quite unlike any of the other seven known living species of the genus, which was dredged in deep water off Cheduba, Arrakan Coast, by Surgeon J. Armstrong, late Naturalist to the Indian Marine Survey.

It will be published in full in the Journal, Pt. II, No. 4, for 1881.

4. *Description of a new Species of the Lepidopterous genus Euripus from North Eastern India.*—By J. WOOD-MASON, Deputy Superintendent, Indian Museum, Calcutta.

This paper will be published in full in the Journal, Pt. II, No. 4. for 1881.

LIBRARY.

The following additions have been made to the Library since the Meeting held in November last.

TRANSACTIONS, PROCEEDINGS AND JOURNALS,

presented by the respective Societies and Editors.

Berlin. K. preuss. Akad der Wissenschaften, Monatsbericht, June 1881.

Bombay. Royal Asiatic Society,—Journal, Vol. X, No. 28, 1871-72.

Bordeaux. Société de Géographie Commerciale, Bulletin, No. 21, 7th November 1881.

Calcutta. Geological Survey of India,—Memoirs, Vol. XVIII, Part 2.

Dresden. Kais. Leopoldinisch—Carolinische Deutsche Akademie der Naturforscher,—Nova Acta, Vol. XLI, Parts 1-2.

Leipzig. Deutsche morgenländische Gesellschaft,—Zeitschrift, Vol. XXXV, Parts 2 and 3.

Lisbon. Sociedade de Geographia,—Boletim, Second Series, No. 6.

Colonias portuguezas em paz Estrangeiro. VIII. Em Marrocos, pelo consular geral e encarregado de negocios José Daniel Colaço.

London. The Academy;—Nos. 494-497.

———. The Athenæum,—Nos. 2817-2820.

———. Linnean Society,—Journal, Botany, Vol. XVIII, Nos. 108-113.

No. 108. *Murray, Geo.*—On the application of the Results of Pringsheim's recent Researches on Chlorophyll to the Life of the Lichen.

No. 109. *Brown, N. E.*—On some new *Aroidæ*; with Observations on other known forms:—Part I.

No. 110. *Bentham, Geo.*—Notes on *Orchidæ*.

No. 111. *Watt, Geo.*—Notes on the Vegetation, &c., of Chumba State and

- British Lahoul; with Descriptions of new species. *Darwin, Francis*.—The Theory of the Growth of Cuttings; illustrated by observations on the Bramble, *Rubus fruticosus*.
- No. 112. *Darwin, Francis*.—On the power possessed by Leaves of placing themselves at Right Angles to the direction of Incident Light. *Bidie, William*.—Remarks on the Indian Coffee-Leaf disease. *Cooke, M. C.*—The Coffee Disease in South America. *Clarke, C. B.*—On Right-hand and Left-hand Contortion.
- No. 113. *Masters, Maxwell T.*—On the Conifers of Japan. *Clarke, C. B.*—On *Arnebia* and *Macrotomia*.
- London. Linnean Society.—Journal, Zoology, Vol. XV, Nos. 84-85.
- No. 84. *Carpenter, P. Herbert*.—On the Genus *Solanocrinus*, Goldfuss, and its Relations to recent *Comatule*. *Watson, Rev. Robert Boog*.—Mollusca of H. M. S. 'Challenger' Expedition.—Part VI. *Turritellidæ*.
- No. 85. *Macdonald, John Denis*.—On the Classification of *Gasteropoda*. Part II. *Watson, Rev. Robert Boog*.—Mollusca of H. M. S. 'Challenger' Expedition.—Part VII.
- . ———. Transactions,—Zoology, Vol. II, Part 2.
- Collingwood, Cuthbert*.—On some new species of Nudibranchiate Mollusca from the Eastern Seas. *Lubbock, Sir John*.—On the Anatomy of Ants. *Haddon, Alfred C.*—On the Extinct Land Tortoises of Mauritius and Rodriguez.
- . ———. List of the Linnean Society, January, 1881.
- . Nature,—Vol. XXIV, Nos. 625-626; Vol. XXV, Nos. 627-628.
- . Royal Geographical Society,—Proceedings,—Vol. III, No. 9, September, 1881.
- Stewart, Lt.-Col. C. E.*—The Country of the Tekke Turkomans, and the Tejend and Marghab Rivers.
- Mozambique. Sociedade de Geographia,—Boletim, N^o. 5, October, 1881.
- Munich. Repertorium für Experimental-Physik, Vol. XVII, Nos. 11 and 12.
- Weber, W. and Zöllner, F.*—Elektrodynamische Widerstandsmessungen nach absolutem Maasse. *Puluj, Dr. J.*—Strahlende Elektrodenmaterie.—Neue Methode zur Bestimmung der magnetischen Declination auf Reisen nach Dom. Ragona.
- Roma. Società degli Spettroscopisti Italiani,—Memorie, Vol. X, No. 9, September 1881.
- Fizee, Ch.*—Recherches sur l'élargissement des raies spectrales de l'hydrogène. *Fizee, Ch.*—Note sur l'analyse de la lumière de la comète de (δ) 1881. *Groneman, H. I. H.*—Recherches sur la nature de la lumière zodiacale.
- Schaffhausen. La Société Entomologique Suisse,—Bulletin, Vol. VI, No. 4.
- Simla. United Service Institution of India,—Journal, Vol. X, No. 48.
- Stockholm. Kongliga Svenska Vetenskaps-Akademiens Förhandlingar,—Ofversigt, Vols. XXXIV-XXXVII, 1877-80.

- Stockholm. Kongliga Svenska Vetenskaps-Akademiens,—Bihang, Vol. IV, Pts. 1 and 2; Vol. V, Parts 1 and 2.
- . ———. Beskyddare Hans Maj. T. Konungen, May 1878 to May 1881.
- . ———. Lefnadsteckningar, Vol. II, Part 1.
- Zagreb. Arkeologickoga Druztva,—Viestnik, Vol. III, No. 4.

BOOKS AND PAMPHLETS,

presented by the Authors.

- DORN, B. Versuch einer Erklärung der auf einer Gemme im Besitze des Grafen S. Stroganov befindlichen Pehlewi-Inschrift. 4to. St. Petersburg, 1881.
- FLEMING, SANDFORD. The adoption of a Prime Meridian to be common to all nations. The establishment of Standard Meridians for the regulation of time. Read before the International Geographical Congress at Venice, September 1881. 8vo. London, 1881. Pam.
- GODWIN-AUSTEN, LT.-COL. H. H. On the Land-shells of the Island of Socotra collected by Prof. I. Bayley Balfour. Part II. 8vo. London, 1881. Pam.
- HOERNLE, DR. A. F. R. Readings from the Arian Pâli. 16mo. Bombay, 1881. Pam.
- SEN, DR. RAM DAS. An Address to the Fifth International Oriental Congress, 1881. 8vo. Calcutta, 1881. Pam.
- TAGOBE, SOURINDRO MOHUN. A Brief Account of the Tagore Family. 8vo. Calcutta, 1868.
- . Short Notices of Hindu Musical Instruments. 32mo. Calcutta, 1877.
- . A few Lyrics of Owen Meredith set to Hindu Music. 8vo. Calcutta, 1877.
- . Six Principal Râgas, with a Brief View of Hindu Music. 4to. Calcutta, 1877.
- . Fifty Tunes composed and set to music. 8vo. Calcutta, 1878.
- . A Vedic Hymn. Fcp. Calcutta, 1878.
- . A few specimens of Indian Songs. 8vo. Calcutta, 1879.
- . Mani-Mâlâ, or a Treatise on Gems, Parts I and II. 8vo. Calcutta, 1879-81.
- . Veni-Sanhâra Nâtaka, or the Binding of the Braid, a Sanskrit Drama by Bhatta-Nârâyana, done into English. 8vo. Calcutta, 1880.
- . Roma-Kavya, or a short sketch of Roman History, from the Earliest Days of Antiquity to the present time, in Sanskrit versæ. 8vo. Calcutta, 1880.
- . Eight Tunes, composed by. 8vo. Calcutta, 1880.

TAGOBE, SOUBINDRO MOHUN. The Eight Principal Rasas of the Hindus, with Murtti and Vrindaka, or Tableaux and Dramatic Pieces illustrating their character. 4to. Calcutta, 1880.

———. The Ten Principal Avatárs of the Hindus, with a short history of each incarnation and directions for the representation of the Múrttis as Tableaux Vivants. 4to. Calcutta, 1880.

———. The Dramatic Sentiments of the Aryas. 8vo. Calcutta, 1881.

———. The Five Principal Musicians of the Hindus, or a brief exposition of the Essential Elements of Hindu Music, as set forth by the five Celestial Musicians of India, an offering to the Fifth International Congress of Orientalists, to be held at Berlin in September 1881. 4to. Calcutta, 1881.

THOMAS, EDW. The Epoch of the Guptas. Pamphlet, 8vo. London, 1881.

MISCELLANEOUS PRESENTATIONS.

The Indian Forester, Vol. VII, No. 2, October 1881. 8vo. Calcutta, 1881.

Report on the External Trade of Bengal with Nepal, Sikkim and Bhutan, for the year 1880-81. Fcp. Calcutta, 1881.

Report on the Administration of the Customs Department in the Bengal Presidency for the official year 1880-81. Fcp. Calcutta, 1881.

Annual Report on Emigration from the Port of Calcutta to British and Foreign Colonies for 1880-81. Fcp. Calcutta, 1881.

Brief Summary of the Meteorology of Bengal, 1880. Fcp. Calcutta, 1881.

BENGAL GOVERNMENT.

The Indian Antiquary, Vol. X, Part 125, November 1881. 4to. Bombay, 1881.

Fallon's New English-Hindustani Dictionary, Part V, September 1881. 8vo. Benares, 1881.

MOIR, E. McA. Report of a visit to the Torrent Regions of the Hautes and Basses Alpes, and also to Mount Faron, Toulon. Fcp. Calcutta, 1881.

OLDENBERG, DR. H. The Vinayapitakam, Vol. III. 8vo. London, 1881.

BRANDIS, DR. D. Suggestions regarding the management of the leased Forests of Busahir in the Suttlej valley of the Punjab. Fcp. Simla, 1881.

HOME DEPARTMENT.

Annual Report on the Civil Hospitals and Dispensaries in the Madras Presidency for the year 1880. Fcp. Madras, 1881.

Annual Medical Report of the Madras Government Lying-in Hospital for the year 1880. Fcp. Madras, 1881.

MADRAS GOVERNMENT.

Synopsis of the Results of the Operations of the Great Trigonometrical Survey of India, Vols. X, XI, XII and XIII. 4to. Dehra Dun, 1880.
SURVEY OF INDIA.

PERIODICALS PURCHASED.

- Calcutta. Indian Medical Gazette,—Vol. XVI, No. 11, November 1881.
———. Stray Feathers,—Vol. IX, Nos. 5 and 6, 1880.
- Geneva. Archives des Sciences Physiques et Naturelles,—Vol. VI, No. 10.
Pringsheim.—Recherches sur le rôle de la chlorophylle dans les végétaux.
- Göttingen. Gelehrte Anzeigen,—Nos. 41-44.
- Leipzig. Annalen der Physik und Chemie,—Vol. XIV, No. 10.
———. ————. Beiblätter,—Vol. V, No. 10.
———. Botanisches Centralblatt,—Vol. VII, Nos. 8-10.
———. Literarisches Centralblatt,—Nos. 35-38.
- London. Annals and Magazine of Natural History,—Vol. VIII, No. 45, September 1881.
Bate, C. Spence.—On the *Penæidea*. *Miers, Edward J.*—On a collection of Crustacea made by Baron Hermann-Maltzam at Goree Island, Senegambia.
Smith, Edgar A.—Remarks upon Mr. Wood-Mason's Paper "On the Discrimination of the Sexes in the Genus *Paludina*." *Cartier, H. J.*—On *Spongiophaga* in *Spongilla*. *Scully, J.*—On some Mammals from Kandahar.
- . Chemical News,—Vol. XLIV, Nos. 1143-1146.
No. 1144. *Braham, Philip.*—On Crystals produced by the Action of Metals sealed up in Carbon Disulphide.
- . Entomologist,—Vol. XIV, No. 220, September 1881.
———. Entomologist's Monthly Magazine,—Vol. XVIII, No. 208, September 1881.
Hellins, Rev. J.—On the variable number of moults in larvæ from the same batch of eggs.
- . Journal of Botany,—Vol. X, No. 225, September 1881.
———. Journal of Science,—Vol. III, No. 93, September 1881.
Slater, J. W.—On *Diptera* as Spreaders of Disease.
- . London, Edinburgh and Dublin Philosophical Magazine,—Vol. XII, No. 74, September 1881.
Gray, Thomas.—On Instruments for measuring and Recording Earthquake-Motions.
- . Messenger of Mathematics,—Vol. XI, No. 4, August 1881.
Cox, H.—On the distance of rainbows.
- . Nineteenth Century,—No. 55, September 1881.
Bevington, Louisa S.—How to eat bread. *Laveleye, E'mile de.*—The future of gold.
- . Publishers' Circular,—Vol. XLIV, Nos. 1058-1059.

London. Quarterly Journal of Pure and Applied Mathematics,—Vol. XVII, No. 68.

———. Society of Arts,—Journal, Vol. XXIX, Nos. 1509-1512.

No. 1509. *Carter, R. Brudenell*.—Cantor Lectures :—Colour Blindness.

Paris. Comptes Rendus,—Vol. XCIII, Nos. 15-18.

No. 15. *Avignon*.—Sur l'emploi du goudron, comme préservatif contre le Phylloxera. Note concernant l'utilisation des eaux mères des marais salants pour les bains destinés à la liquation du soufre, dans leur procédé d'extraction industrielle de ce corps. *Coggia*.—Comète découverte par M. Denning, le 4 Octobre 1881 ; observation faite à l'Observatoire de Marseille. *Lalagade, G. de*.—Sur les bruits qui se produisent dans un circuit téléphonique, par les temps d'orage. *Yung, E.*—De l'innervation du cœur et de l'action des poisons chez les Mollusques lamellibranches. *Sudour, E.* and *Caraven-Cachin, A.*—Empoisonnement par les graines de l'*Euphorbia lathyris* (L.), et nouvelles expériences sur leur usage thérapeutique.

No. 17. *Bell, Al. Graham*.—Sur un appareil permettant de déterminer, sans douleur pour le patient, la position d'un projectile de plomb ou d'autre métal dans le corps humain. *Laveran, A.*—De la nature parasitaire des accidents de l'impaludisme. *Letellier, A.*—Note sur les précautions à prendre pour éviter les falsifications du lait. *Duponchel*.—Note concernant l'influence du mouvement des grosses planètes dans la périodicité des taches Solaires.

———. Journal des Savants,—October 1881.

———. Revue Critique,—Vol. XII, Nos. 42-45.

———. Revue des deux Mondes,—Vol. XLVII, No. 4 ; and Vol. XLVIII, No. 1.

No. 4. *Janet, Paul*.—La Philosophie de la Croyance, à l'occasion d'un livre récent. *Lasègue, Ch.*—Le Braidisme. *Brunetière, F.*—La Déformation de la Langue par l'Argot, à propos de livres récents.

———. Revue de Linguistique,—Vol. XIV, 15th October 1881.

———. Revue Scientifique,—Vol. XXVIII, Nos. 17-20.

BOOKS PURCHASED.

BENFEY, TH. *Vedica und Linguistica*. 12mo. Strassburg, 1880.

CUSHING, J. N. *A Shan and English Dictionary*. 8vo. Rangoon, 1881.

GESENIUS, GUIL. *Scripturæ Linguæque Phœnicæ monumenta quot quot supersunt*. 4to. Lipsiæ, 1837.

GOLDSMID, MAJ.-GEN. SIR F. J. *James Outram : a Biography*, 2 Vols. 8vo. London, 1881.

LOW, CHARLES RATHBONE. *The Afghan War, 1838-42, from the Journal and Correspondence of the late Major-General Augustus Abbott*. 8vo. London, 1879.

OLDFIELD, HENRY A. *Sketches from Nipal, Historical and Descriptive, with Anecdotes of the Court Life and Wild Sports of the Country in the*

- time of Maharaja Jung Bahadur, G. C. B., to which is added an Essay on Nepalese Buddhism, and illustrations of Religious Monuments, Architecture, and Scenery from the Author's own Drawings. 2 Vols. 8vo. London, 1880.
- PALMER, E. H. The Arabic Manual, comprising a condensed Grammar of both the Classical and Modern Arabic ; reading lessons and exercises, with analyses ; and a vocabulary of useful words. 12mo. London, 1881.
- SHADWELL, LIEUT.-GENL. LAWRENCE. The Life of Colin Campbell, Lord Clyde. Illustrated by extracts from his Diary and Correspondence. 2 Vols. 8vo. London, 1881.
- TOD, LIEUT.-COL. JAMES. Annals and Antiquities of Rajasthan, or the Central and Western Rajpoot States of India. 2 Vols. Second Edition. (Reprint.) 4to. Calcutta, 1877-79.
- TYNDALL, JOHN. Essays on the Floating Matter of the Air in relation to Putrefaction and Infection. 8vo. London, 1881.
- WHEELER, J. TALBOYS. The History of India from the Earliest Ages. Vol. IV, Pt. 2. 8vo. London, 1881.
-

I N D E X

TO

PROCEEDINGS, ASIATIC SOCIETY OF BENGAL,

FOR 1881.

	<i>Page</i>
'Abd-ul-Kádir's Muntakhab-ul-Tawarikh, second volume of ...	152
'Abd-ur Rashid, coin of	4
Afghanistan, the Voles of	104
Ahmad (Kabiruddin), member of the Philological Committee ...	87
'Alam Shah, coins of	40
'Alá-ud-dín Mas'aud Sháh, coin of	52
Alekh, religion of	155
<i>Amblypodia arsenius</i>	143
,, <i>fulla</i>	<i>ib.</i>
Andamans, Rhopalocerous Lepidoptera from	142
Annual Meeting	21
Annual Report for 1880	<i>ib.</i>
Āpastamba Srauta Sūtra	29
Apcar (J. G.), withdrawal of... ..	2
Arnold (H. K. W.), withdrawal of... ..	151
<i>Arrhopala amantes</i>	143
Arvicola	104
Assam during the year 1880, a list of Earthquakes recorded in ...	51
<i>Assiminea</i>	124
Awans of the Salt Range	50
Azilises, coin of	39
Bactrian hemidrachmas	<i>ib.</i>
Ball (V.), appointed member of Council... ..	50
,, appointed Natural History Secretary... ..	<i>ib.</i>
,, appointed Treasurer	61
,, exhibition of stone implement of magnetic iron ore by... ..	120

	<i>Page</i>
Ball (V.), officiates as Natural History Secretary	86
" " on identification of Diamond Mines visited by Tavernier	2, 125
" " on the nature and use of Fire Sticks	72
" " on the occurrence of the Lion in Palamow	3
" " on the paper on Shrines of Sitákund	51
" " on the so-called Kharakpur Meteorite	140
" " presentation of Society's publications to	152
" " remarks on papers on inhabitants of the Nicobars ...	15, 110
" " remarks on relics from Buddha-Gaya	89
" " resignation of Natural History Secretaryship and Treasurership by	152
Bandow (Chr. J.), elected an Ordinary Member	151
Banerjea (K. M.), member of Philological Committee	87
Basti, coins from	50
Beames (J.), member of Philological Committee	87
Beglar, relics found by Mr.	88
Beiragurh	3
Benett (W. C.), elected an Ordinary Member	50
Bengal, early Muhammadan coins of	52
" in 1769, map of	90
Beverley (H.), member of Finance and Library Committees ...	86, 87
" " re-elected member of Council	61
" " remarks on old maps of Calcutta and Bengal	90
Bhamati, completion of	27, 28
Bhāṭṭi Kavya, manuscript of the	134
Bibliotheca Indica Series, report on	27
" " " works sanctioned for publication in the... ..	64
Blanford (H. F.), member of Library and Physical Science Committees	86, 87
" " on a raingauge with evapometer	76
" " on the relation of cloud and rainfall to temperature	74
" " on the Van Rysselberghe meteorograph	65
Blanford (W. T.), a numerical estimate of the species of animals recorded from British India and its dependencies	170
" " on an apparently undescribed <i>Varanus</i> from Tenasserim, and on other <i>Reptilia</i> and <i>Amphibia</i>	171
" " on <i>Myospalax fuscicapillus</i>	104
" " on the Voles of the Himalayas, Tibet and Afghanistan	ib.
Blochmann (Henry), bust of the late	152

	<i>Page</i>
<i>Bombay</i>	72
Bomford (Dr. G.), elected an Ordinary Member	38
Brandis (Dr. G.), member of Natural History Committee	87
Bṛihaddevatā	29
British India, numerical estimate of animals recorded from	170
Buckland (C. E.), withdrawal of	103
Buddha Gaya, relics from	88
Buddhist sculpture	112
Building, report on	26
Bulandshahr, Buddhist sculpture found at	112
" curiosities found at	113, 120, 139
Calcutta in 1756 and 1757, sketch and plan of	90
Cappel (A. J. L.), member of Physical Science Committee	87
Carter (P. J.), elected an Ordinary Member	38
Cerberus, origin of myth about	91
<i>Oerithidæ</i>	124
Channing (F. C.), elected an Ordinary Member... ..	50
Charaka	29
Charibael, coins of	51
Chatterji (Bhyrub Chunder), elected an Ordinary Member	50
Cheduba, <i>rostellaria</i> from off	171
Chittagong, shrines of Sitákund in	51
Chunder (Sreenath), elected an Ordinary Member	50
Cockburn (John), elected an Ordinary Member	86
Cockerell (H. A.), withdrawal of	2
Coin Cabinet, report on	26
Coins 4, 6, 26, 39, 40, 41, 49, 50, 51, 52, 64, 69, 103, 104, 119, 134, 139 157, 158	
" Committee	88
Colvin (B. W.), withdrawal of	64
Committees, appointment of	86
Cook (Capt. L. A. C.), elected an Ordinary Member	50
Council, abstract of proceedings of	32
<i>Croton oblongifolium</i>	72
"Cry of tin"	42
Cunningham (Dr. D. D.), member of Library and Natural History Committees	86, 87
Cunningham (Major-Gen. A.), member of Philological and Coins Committees	87, 88
" note on Coin of Shams-ud-din Kaimurs	158
" on antiquities exhibited	138
" on relics from ancient Persia	158

	<i>Page</i>
<i>Cyrestis cocles</i>	142
" <i>horatius</i>	<i>ib.</i>
" <i>thyodamas</i>	<i>ib.</i>
Dás (Sarat Chandra), on the Bon (Pon) religion	159
" " on the early history of Tibet	<i>ib.</i>
Dehra Dun, outburst of sun-spots observed at	153
Delmerick (J. G.), on a silver coin of Shams-ud-din Kaimurs	157
Deoghar, on the temples of	139
Diamond mines visited by Tavernier	2, 125
Dichroite or Iolite	89
Dobson (Dr. G. E.), withdrawal of	134
<i>Dodona deodata</i>	122
" <i>egeon</i>	123
" <i>longicaudata</i>	121
Donglas (J. C.), exhibition of telephone by	39
" on the phenomenon commonly called the "Cry of Tin"... ..	42
" on the standing of animals, the perching of birds and the walking pace of man	53
" resignation of Treasurership by	64
<i>Draco tenuiopterus</i>	171
Dutt (Jogesh Chunder), withdrawal of	134
Earthquakes in Assam during 1880, a list of	51
Eclipse of sun, May 1882, predictions for	88
Eden (Sir Ashley), elected an Ordinary Member	50
" " elected President	61
Election of members	88, 50, 64, 86, 120, 134 151, 170
Eliot (J.), appointed Treasurer	152
" " elected member of Council	61
" " elected Trustee of the Indian Museum	86
" " member of Finance, Library and Physical Science Committees	86, 87, 88
" " officials as General Secretary	103
Estimate for income and expenditure	24
<i>Euripus</i>	77, 172
Evapometer, raingauge with	76
<i>Fairbankia</i>	124
Farrukhzád, coin of	4
Fedden (F.), member of Physical Science Committee	88
" " remarks on Indo-Malayan mollusca	124
Feistmantel (Dr. O.), member of Library and Natural History Committees	86, 87

	<i>Page</i>
Feistmantel (Dr. O.), sketch of the history of the fossils of the Indian Gondwana System by ...	123
Finance Committee	86
" report on	23
Fire-sticks	72
Firukh Shah (Prince Mahomed), elected an Ordinary Member ...	120
Fossils of the Indian Gondwana System, history of the ...	123
Gani-coulour	
Gazni Sultans, coins of	4
Gennoe (T. A. M.), memorandum on coins by	157
Ghiyaz-ud-dín 'Iwaz, coin of	52
Ghosha (P. C.), member of Library and Philological Committees ...	87
" " re-elected member of Council	61
Gibbs (Hon'ble J.), member of Coins Committee	88
" " remarks on Pathan and Moghul coins	52
<i>Glaucomya</i>	124
Gobbiliya Grihya Súra, completion of	27, 28
Gobind Sháhi rupees	6
Gondwana System, history of the fossils of the Indian	123
Gossain (Hem Chunder), elected an Ordinary Member	50
Grierson (G. A.), member of Philological Committee	87
" " on conjugation of verbs substantive in Eastern Hindi	52
Growse (F. S.), member of Philological Committee	87
" " on a photograph of a Buddhist sculpture found at Bulandshahr	112
" " on a seal of baked clay	120
" " on curiosities found at Bulandshahr	113, 120
Guha (Peary Mohun), elected an Ordinary Member	50
" " election cancelled	151
Gupta coins	39
<i>Helicidæ</i>	124
Helmholtz (Prof. H. L. F.), recommended as Honorary Member ..	151
" " elected an Honorary Member	170
Hennessey (J. B. N.), on an outburst of sun-spots	153
<i>Hesperia divodasa</i>	143
" <i>praba</i>	<i>ib.</i>
" <i>sala</i>	<i>ib.</i>
Himalayas, voles of the	104
Himyaritic coins	51
Hindi, comparative table of the conjugations of the verbs substantive in Eastern	52

	<i>Page</i>
Hindu Coins	41
Hoernle (Dr. A. F. R.), exhibition of coins sent by Mr. H. Rivett-Carnac	89
" " exhibition of Hindu coins found at Sárnáth	41
" " exhibition of inscriptions from Chewora ...	42
" " exhibition of relics found by Mr. Beglar at Buddha Gaya	88
" " exhibition of 12 coins of the later Delhi Emperors	40
" " on a new find of early Muhammadan coins of Bengal	52
" " on copper coins and antiquities from Kholhrakote	69
" " on the Sue Vihára copper-plate	139
" " re-elected Philological Secretary	61
Holgnette (Mr.), coins presented by	41, 49
Honorary Members, election of	151, 170
Hume (A. O.), member of Natural History Committee	87
Husain Sháh	41
Ibrahim, coin of	4
<i>Ichthyophis glutinosus</i>	171
Imadpur, excavation of mound near	98
Indian Museum, presentations made to the	22
" " trustees of the	<i>ib.</i>
Indo-Scythic coins	71
Inscriptions	42, 134, 139
Iolite or Dichroite	89
Işábah, progress of	27
<i>Ismene badra</i>	143
" <i>exclamationis</i>	<i>ib.</i>
" <i>harisa</i>	<i>ib.</i>
" <i>malayana</i>	<i>ib.</i>
Jalálat-ud-din, coins of	52
Janjúás	50
Jarrett (Major H. S.), member of Philological Committee	87
Jenkins (Capt. T. M.), elected an Ordinary Member	38
Jods of Baber, identity of Awans of Salt Range with the	50
Joest (A.), withdrawal of	170
Johnstone (Lieut.-Col. J. W. H.), on the Awans of the Salt Range	50
Jowhri Dih, excavation of mound called	98

	<i>Page</i>
Kaimurs, coin of Shams-ud-dín	157
Karibâ-el Wattâr Yehan'am	52
Kathá Sarit Sâgara	27, 28
Keene (H. G.), on the revenues of the Mughul Empire ...	91
Kerberos, origin of the myth about	<i>ib.</i>
Kharakpur meteorite	140
Khokhrakote, coins, &c., from	69
King (Dr. G.), member of Natural History Committee ...	87
King (L.), elected an Ordinary Member	50
Kumâra Gupta, coins of	39
Kumbhupatias, tenets, habits, customs and places of residence of...	154
Lahore, coins struck by Gazni Sultans in	4
Lalita Vistara	29
Lambe (W.), withdrawal of	39
Lâmiyyet-el-Arab	152
<i>Lampides malaya</i>	143
Latif (Nawab Abdul), member of the Philological Committee ...	87
Laughlin (R. C.), elected an Ordinary Member	38
Lee (J. B.), elected an Ordinary Member	50
Lees (R. O.), election cancelled	151
Lepidoptera	57
Lewis (Dr. T. R.), member of Natural History Committee ...	87
Library, additions to the ... 15, 44, 58, 77, 99, 114, 125, 144, 160, 172	86
" Committee	25
" report on the	98
Lincke (J. E.), on the excavation of a mound called Jowhri Di ...	3
Lion in Palamow, occurrence of the	170
Logan (R.), elected an Ordinary Member	24
London Agency, report on the	87
Lyall (C. J.), member of Philological Committee	<i>ib.</i>
Lydekker (R.), member of Natural History Committee	86
M'Cann (Dr. H. W.), appointed Honorary Secretary and member of Council	154
" " remarks on paper on outburst of sun-spots	125
MacGregor (W.), receipt of paper entitled "The Electric Telegraph and Natural History," by	29
Magházi el Wâqidí	120
Magnetic iron ore, stone implement of	41
Mahmúd Shâh	92
Maitráyani Sambhitá	87
Marshall (Capt. G. F. L.), member of Natural History Committee	

	<i>Page</i>
Martin (Mr.), inscriptions sent by	4
Masa'ud I, coins of	<i>ib.</i>
Maudúd, coin of	61
Medlicott (H. B.), elected member of Council...	86, 87
" " member of Finance, Library and Physical Science Committees	62
" " vote of thanks to	1, 37, 49, 61, 85, 103, 119, 133, 149, 169
Meeting, monthly general ... 1, 37, 49, 61, 85, 103, 119, 133, 149, 169	124
<i>Melampus</i>	28
Mímánsá Darśana, progress of	86, 87, 88
Mitra (Dr. R. L.), member of the Finance, Library, Philological, and Coins Committees	184
" " on a manuscript of the Bhatti Kavya	41
" " on coins sent by Rájá Udayapratápa Siñha	42
" " on inscriptions from Chewora	91
" " on the origin of the myth about Kerberos	139
" " on the temples of Deoghar	61
" " re-elected Vice-President	50
Mitra (Trailokyanath), elected an Ordinary Member...	151
" " election cancelled	86
Molloy (Major E.), elected an Ordinary Member	123
Mollusca of the Indo-Malayan fauna	170
Monteath (J. J.), elected an Ordinary Member	7
Morá Sháhi rupees	91, 121
Mughal Empire, revenues of the	52
Mughis-ud-dín Yuzbak, coins of	<i>ib.</i>
Muhammadan coins of Bengal, early	40
Muhammad Farrukh Sír, coin of	<i>ib.</i>
Muhammad Shah, coin of	86
Mukhopadhyaya (Babu Mohendra Chandra), appointed temporarily as copyist	152
Muntakhab-ul-Tawarikh, second volume of	104
<i>Myospalax fuscicapillus</i>	6
Nának Sháhi rupees	65
Naqáid of el Ferázdaq and Jerir	52
Naşir-ud-dín Mahmúd Sháh, coins of	87
Natural History Committee...	142
<i>Neptis jumba</i>	87
Nevill G.), member of Natural History Committee	171
on a new species of <i>Rostellaria</i>	123
on mollusca belonging to the Indo-Malayan fauna	

	<i>Page</i>
Nicéville (L. de), and Wood-Mason (J.), list of diurnal lepidoptera inhabiting the Nicobars... ..	57
„ and Wood-Mason (J.), on rhopalocerous lepidoptera from the Andamans	142
„ elected an Ordinary Member	151
„ on butterflies taken in Sikkim	77
„ on new species of genus <i>Dodona</i>	121
Nicobars, on the inhabitants of the	7, 104
Nirukta	29
Nya Doomka, coins found at	40, 50
Palamow, occurrence of the lion in	3
Pandit (Babu Prannath), member of Library and Philological Committees	86, 87
<i>Papilio læstrigonum</i>	<i>ib.</i>
„ <i>prexaspes</i>	<i>ib.</i>
„ <i>rhodifer</i>	143
Parásara Mádhava Smṛiti	64
Patanjali, Yoga Sútra of	29
Peal (S. E.), member of Natural History Committee	87
Pedler (A.), re-elected Honorary Secretary	61
„ resignation of Honorary Secretaryship by	86
„ resignation of Trusteeship of Indian Museum by	<i>ib.</i>
PentHEMA	77
Percival (H. M.), elected an Ordinary Member... ..	151
Pershad (Durga), on discovery of coins at Khokhrakote	69
Pershad (Ganga), withdrawal of	170
Persia, relics from ancient	158
Philological Committee	87
Physical Science Committee	<i>ib.</i>
<i>Pirenella</i>	124
<i>Plesioneura alysos</i>	143
„ <i>dan</i>	<i>ib.</i>
„ <i>leucocera</i>	<i>ib.</i>
„ <i>paralysos</i>	<i>ib.</i>
Prákṛita Lakshana	27, 28
Presentations 1, 37, 49, 63, 85, 103, 119, 133, 149, 169	
Prideaux (Major W. F.), elected an Ordinary Member	38
„ member of Coins Committee	88
„ on the coins of Cháribael	51
Prithi Rája Rásau, progress of	28
Protheroe (Major M.), withdrawal of	170

	<i>Page</i>
<i>Pseudophidian</i>	171
Publications, report on... ..	25
Ramulkota	125
Raolconda... ..	2, 125
Raingauge with evapometer	76
Rangoon (Bishop of), withdrawal of	64
Reynolds (Hon. H. J.), elected an Ordinary Member... ..	50
" elected Vice-President... ..	61
Rhopaloceros lepidoptera from the Andamans	142
Rissoid shell.,	124
Rivett-Carnac (H.), member of Philological and Coins Committees	87, 88
Riziáh, coins of	52
Rodgers (C. J.), on a find of coins struck by Gazni Sultans in Lahore	4
" on coins of the Sikhs	6
Roepstorff (F. A. de), on the inhabitants of the Nicobars	7, 104
<i>Rostellaria</i> , new species of	171
Roth (Dr. R. v.), recommended as Honorary Member	151
" elected an Honorary Member	170
Schwendler (L.), member of Natural History and Physical Science Committees	87
" re-elected member of Council	61
Sconce (Col. J.), appointed auditor	37
Secretary's Office, report on	26
Sen (Adharlal), on the shrines of Sitákund in Chittagong	51
Shams-ud-dín Altamsh, coins of	52
Shams-ud-dín Kaimurs, coin of	157
Sharqí, coin of Sultan Ibrahim Sháh	40
Shombengs	7, 105
Shopland (E. R.), elected an Ordinary Member	50
Sikhs, coins of the	6
Sikkim, on butterflies taken in	77
Sircar (Dr. Mohendralala), member of Library and Philological Committees	87
Sitákund, shrines of	51
<i>Smilax</i>	73
Smith (Dr. D. B.), withdrawal of	151
Societies, &c., with which publications have been exchanged	30
Sophytes, coin of	104
Soumelpore	2
Spindle-whorls	72

	<i>Page</i>
<i>Stenothyra</i> ...	124
Stokes (Hon. Whitley), member of Philological Committee	87
Sue Vihára copper-plate	139
Sunderbuns in 1724, map of	89
Sun, predictions for eclipse of	88
Sun-spots, outburst of	153
Susruta	65
Ṭabaqát-i-Nāṣirí, progress of	27
<i>Tagiades bhagava</i>	143
Tarikh-ul-Khulfa	27, 28
Tavernier, diamond mines visited by	2
Tawney (C. H.), exhibition of a rare coin of Sophytes	104
" member of Library, Philological and Coins Committees	86, 87, 88
" re-elected Vice-President	61
" remarks on fire-sticks exhibited by Mr. Ball	74
Taylor (Com. A. D.), member of Physical Science Committee	88
<i>Telegonus acroleucus</i>	143
" <i>thrax</i>	<i>ib.</i>
" <i>thyrsis</i>	<i>ib.</i>
Temperature, the relation of cloud and rainfall to	74
Tenasserim, an apparently undescribed <i>Varanus</i> from...	171
Tennant (Col. J. F.), member of Library and Physical Science Com- mittee	86, 88
" on eclipse of the sun, May 1882	88
" photographs of Tierra-del-Fuego savages for- warded by	152
Thakur (Dijendronath), member of Philological Committee	87
" withdrawal of...	134
<i>Theora</i>	124
Thibaut (Dr. G.), member of Philological Committee	87
Thomas (Edward), on the revenues of the Mughal Empire in India	121
Thomson (Sir Wm.), recommended as Honorary Member	151
" elected an Honorary Member	170
Tibet, voles of	104
Tierra-del-Fuego savages, photographs of	152
Tin, the cry of	42
<i>Tomyris oxiana</i>	171
Treasure Trove Act, coins acquired under the	50, 64, 134
<i>Tympanotomus fluviatilis</i>	124

	<i>Page</i>
Van Rysselberghe Meteorograph	65
<i>Varanus</i> from Tenasserim, an apparently undescribed ...	171
Váyu Purána, progress of	28
Vishnu Smṛiti	29
Voles (<i>Arvicola</i>)... ..	104
Waldie (Dr.), re-elected member of Council	61
Walker (Major-Gen. J. T.), member of Physical Science Committee	87
Webb (W. T.), cancels resignation... ..	2
Westland (J.), appointed auditor	37
" elected member of Council	61
" exhibition of old maps of Calcutta and Bengal ...	89
" member of Finance Committee	86
" remarks on origin of Kerberos	97
Wood-Mason (J.), and Nicéville (L. de), list of diurnal lepidoptera inhabiting the Nicobar Islands ...	57
" and Nicéville (L. de), on rhopalocerous lepidoptera from the Andamans	142
" on a new species of <i>Euripus</i>	172
" on insects belonging to the genera <i>Euripus</i> and <i>Penthema</i>	77
" re-elected Natural History Secretary	61
" resumes Natural History Secretaryship	152
Wright (Dr. Wm.), recommended as Honorary Member	151
" elected an Honorary Member	170
Yoga Sútra of Patanjali	29
Zoilos, coins of	39

[APPENDIX.]

LIST OF MEMBERS
OF THE
ASIATIC SOCIETY OF BENGAL.
ON THE 31ST DECEMBER, 1880.

LIST OF ORDINARY MEMBERS.

~~~~~  
 R. = Resident. N. R. = Non-Resident. N. S. = Non-Subscribing.  
 L. M. = Life Members. F. M. = Foreign Members.  
 ~~~~~

N. B.—Members who have changed their residence since this list was drawn up, are requested to give intimation of such a change to the *Secretaries*, in order that the necessary alteration may be made in the subsequent edition. Errors or omissions in the following list should also be communicated to the *Secretaries*.

Members who are about to leave India and do not intend to return, are particularly requested to notify to the *Secretaries*, whether it be their desire to continue as members of the Society; otherwise, in accordance with Rule 40 of the Bye-laws, their names will be removed from the list at the expiration of three years from the time of their leaving India.

Date of Election.		
1860 Dec. 5.	R.	Abdul-Latif, Khán Bahádúr, Nawab. <i>Calcutta.</i>
1868 Sept. 2.	N.S.	Adam, R. M., Depy. Commissioner, Salt Revenue. <i>Europe.</i>
1880 Dec. 1.	N.R.	Ahmad, Maulawi Dilawar Hasein. <i>Brahmanbariah.</i>
1860 July 4.	N.R.	Ahmad Khán Bahádúr, Sayyid, c. s. i. <i>Aligarh.</i>
1872 April 3.	N.R.	Ahsan-ullah, Nawáb. <i>Dacca.</i>
1860 April 4.	N.R.	Aitchison, J. E. T., M. D., Surgeon-Major, 29th N. I. <i>Pewar Khotel.</i>
1871 June 7.	N.R.	Alexander, J. W., Mayo College. <i>Ajmere, Rajpootana.</i>
1878 Mar. 6.	N.R.	Allen, G. W., c. i. e., <i>Pioneer Press, Allahabad.</i>
1874 June 3.	N.S.	Amir Alí, Sayyid, Barrister at Law. <i>Europe.</i>
1865 Jan. 11.	R.	Anderson, John, M. D., F. R. S., F. L. S., Superintendent, Indian Museum. <i>Calcutta.</i>
1875 June 2.	R.	Apcar, J. G., Barrister at Law. <i>Calcutta.</i>
1875 Feb. 3.	N.R.	Armstrong, J., Surgeon, Beng. Army. Marine Survey Department.
1877 June 6.	N.R.	Arnold, Henry Kerchever Walter. <i>Bombay.</i>
1877 July 4.	R.	Ashgar Alí Khán, Nawáb Diler Jang Bahadúr, c. s. i. <i>Calcutta.</i>
1871 Sept. 6.	N.R.	Atkinson, Edwin Felix Thomas, B. A., c. s., Offg. Acct. General, N. W. P. <i>Allahabad.</i>
1869 Feb. 3.	N.R.	Attar Singh Bahádúr, Sirdár, c. i. e., M. U. F., Chief of Bhadour. <i>Ludiana.</i>
1870 Feb. 2.	N.R.	Baden-Powell, Baden Henry, c. s., Conservator of Forests. <i>Lahore.</i>
1873 Aug. 6.	N.R.	Badgley, Major William Francis, s. c., Offg. Deputy Superintendent of Surveys. <i>Shillong.</i>

Date of Election.		
1862 Feb. 5.	N.R.	Baisák, Gaurdás, Depy. Magistrate. <i>Maldah.</i>
1859 Aug. 3.	R.	Balaichand Siñha. <i>Calcutta.</i>
1865 Nov. 7.	R.	Ball, Valentine, M. A., F. G. S., Geol. Survey of India. <i>Geological Survey Office, Calcutta.</i>
1860 Nov. 1.	R.	Banerjea, Rev. Kristno Mohun, LL. D. <i>Calcutta.</i>
1878 July 3.	N.S.	Barbe, H. L. St., c. s. <i>Europe.</i>
1869 Dec. 1.	L.M.	Barker, R. A., M. D., Civil Surgeon. <i>Bogra.</i>
1879 Aug. 28	N.R.	Barkley, D. G., M. A., c. s., Offg. Commissioner. <i>Lahore.</i>
1860 July 4.	R.	Batten, George Henry Maxwell, c. s., Barrister at Law. <i>Calcutta.</i>
1859 May 4.	L.M.	Bayley, The Hon. Sir Edward Clive, B. C. S., K. C. S. I., C. I. E. <i>Europe.</i>
1878 June 5.	N.B.	Bayley, C. S., c. s., Asst. Secretary to the Chief Com- missioner of Assam. <i>Shillong.</i>
1873 Feb. 5.	R.	Bayne, R. R., M. B. I. B. A., Draughtsman, Chief Engineer's Office, E. I. Railway. <i>Calcutta.</i>
1864 Sept. 7.	N.R.	Beames, John, B. C. S., Offg. Commissioner. <i>Burdwan.</i>
1878 Sept. 25.	N.B.	Beighton, T. D., c. s., Offg. Judge. <i>Rangpur.</i>
1862 Oct. 8.	N.R.	Bernard, Charles Edward, c. s., Offg. Chief Com- missioner. <i>British Burmah.</i>
1872 Aug. 7.	R.	Beverley, Henry, M. A., c. s., District and Sessions Judge, 24-Pergunnahs and Hughli. <i>Calcutta.</i>
1876 Nov. 15	N.R.	Beveridge, Henry, c. s., District and Sessions Judge. <i>Bankipur.</i>
1878 Oct. 4.	N.R.	Bhakta, Krishna Gopal. <i>Buddungunge.</i>
1879 Mar. 5.	N.R.	Biddulph, Major J., B. S. C., Officer on special duty. <i>Gilgit, Kashmir.</i>
1875 July 7.	N.R.	Black, F. C., Asst. Engineer. <i>Hamirpur, N. W. P.</i>
1873 Dec. 3.	R.	Blackburn, J., Manager, Oriental Gas Company. <i>Calcutta.</i>
1857 Mar. 4.	L.M.	Blanford, H. F., A. B. S. M., F. E. S., F. G. S., Mete- orological Reporter, Govt. of India. <i>Calcutta.</i>
1859 Aug. 3.	F.M.	Blanford, W. T., A. B. S. M., F. E. S., F. G. S., Depy. Supdt., Geological Survey of India. <i>Europe.</i>
1873 April 2.	N.R.	Blissett, T., Superintendent, Telegraph Stores. <i>Nagpur.</i>
1879 Aug. 28.	R.	Blyth, W. D., B. A., c. s., Offg. Joint Magistrate and Depy. Collector, 24-Pergunnahs. <i>Calcutta.</i>
1880 Nov. 3.	N.R.	Bose, Pramatha Nath, B. Sc., F. G. S., Geological Survey of India. <i>Dhar, C. I.</i>
1877 May 2.	R.	Bourdillon, James Austin, c. s., Inspector General of Registration. <i>Calcutta.</i>
1876 Nov. 15.	N.R.	Bowie, Major M. M., Depy. Commissioner. <i>Nagpur.</i>
1868 Jan. 15.	N.S.	Boxwell, John, c. s., Offg. Deputy Commissioner. <i>Europe.</i>
1876 May 4.	N.B.	Bradshaw, Surgeon-Major A. F., Surgeon to the Commander-in-Chief. <i>Simla.</i>
1860 Mar. 7.	R.	Brandis, Dietrich, P. H. D., F. L. S., F. R. S., Inspector- General of Forests. <i>Calcutta.</i>

Date of Election.		
1880 Aug. 4.	N.R.	Brown, J. A. <i>Benares.</i>
1879 Jan. 8.	R.	Browne, J. F., c. s., M. E. A. S., Offg. District and Sessions Judge, 24-Pergunnahs. <i>Calcutta.</i>
1879 Mar. 5.	R.	Buckland, C. E., c. s., Magistrate. <i>Howrah.</i>
1879 April 2.	R.	Calcutta, The Rt. Rev., the Lord Bishop of. <i>Calcutta.</i>
1869 Jan. 20.	N.R.	Cadell, Alan, B. A., c. s., Settlement Officer. <i>Banda.</i>
1873 Mar. 5.	R.	Cappel, A. J. L., Offg. Director General of Telegraphs. <i>Calcutta.</i>
1880 Mar. 3.	N.R.	Carlleyle, A. C., Archæological Survey of India. <i>Mirzapur.</i>
1876 Nov. 15.	R.	Cayley, Surgeon-Major H., Surgeon, Mayo Native Hospital. <i>Calcutta.</i>
1875 April 4.	R.	Chambers, Dr. E. W. <i>Calcutta.</i>
1879 Nov. 5	N.S.	Charles, T. E., M. D., F. R. C. P. <i>Europe.</i>
1880 Jan. 7.	R.	Chaudhuri, Govinda Kumara. <i>Calcutta.</i>
1861 Mar. 1.	N.R.	Chaudhuri, Harachandra, Zamindar. <i>Sherpur, Maimansingh.</i>
1880 Nov. 3.	N.R.	Chaudhuri, Khirode Chandra Roy. <i>Jessore.</i>
1874 Aug. 5.	N.R.	Chennell, A. W., Asst. Surveyor, Survey Department. <i>Shillong.</i>
1877 Aug. 30.	N.S.	Clarke, Capt. Henry Wilberforce, R. E., Depy. Consulting Engr., Govt. of India, for Guaranteed Railways. <i>Europe.</i>
1878 Feb. 6.	N.S.	Clarke, Colonel Sir A., B. E., K. C. M. G., C. B., C. I. E. <i>Europe.</i>
1880 Aug. 26.	F.M.	Clerk, Lieut.-Colonel Malcolm G. <i>Europe.</i>
1880 July 7.	R.	Coates, J. M., M. D. <i>Calcutta.</i>
1878 Mar. 6.	R.	Cockerell, H. A., c. s. <i>Calcutta.</i>
1877 Mar. 7.	R.	Colvin, The Hon. Bazett Wetenhall, c. s., Member of the Governor-General's Council. <i>Calcutta.</i>
1874 Nov. 4.	N.R.	Constable, Archibald, Personal Asst. to Chief Engineer, Railway Dept. <i>Lucknow.</i>
1876 Mar. 1.	R.	Crawford, James, B. A., c. s., Barrister at Law, Registrar, High Court. <i>Calcutta.</i>
1877 June 6.	R.	Croft, A. W., M. A., Director of Public Instruction. <i>Calcutta.</i>
1874 Mar. 4.	N.R.	Crombie, Alexander, M. D., Civil Surgeon. <i>Simla.</i>
1877 Feb. 7.	N.R.	Crooke, William, c. s. <i>Awagarh, N. W. P.</i>
1873 Aug. 6.	R.	Cunningham, David Douglas, M. B., Surgeon-General of the Indian Medical Department. <i>Calcutta.</i>
1847 June 2.	F.M.	Dalton, Major-General Edward Tuite, c. s. I., s. G. (retired). Queen Anne's Mansions, St. James's Park, S. W. <i>London.</i>
1873 Dec. 3.	N.R.	Dames, Mansel Longworth, c. s., Asst. Commissioner. <i>Rajanpur, Panjab.</i>
1877 June 6.	N.R.	Darbhanga, Mahárájá of. <i>Darbhanga.</i>
1865 June 7.	N.R.	Dás, Rája Jaykishan, Bahádur, c. s. I. <i>Bijnor.</i>

Date of Election.		
1879 April 2.	N.R.	Dás, Rám Saran, M. A., Grant <i>Ramsarandaspúr</i> , near <i>Burragaon, Fyzabad, Oudh.</i>
1869 April 7.	F.M.	Day, Dr. Francis, F. L. S., F. Z. S. <i>Europe.</i>
1856 June 4.	N.R.	DeBourbel, Lieut.-Col Raoul, R. E. <i>Lucknow.</i>
1859 Oct. 6.	N.R.	Delmerick, J. G., Extra Asst. Commissioner. <i>Amballa City.</i>
1862 May 7.	N.R.	Dhanapati Singh Dughar, Raí Bahádur. <i>Azamganj.</i>
1853 Sept. 7.	N.S.	Dickens, Major-General Craven Hildesley, R. A., C. S. I. <i>Europe.</i>
1870 May 4.	F.M.	Dobson, G. E., B. A., M. B., F. L. S., <i>Royal Victoria Hospital. Netley. Southampton.</i>
1875 Mar. 3.	N.B.	Dodgson, Walter. <i>Rangpur.</i>
1878 May 2.	N.R.	Donaldson, P., Superintendent of the Jail. <i>Buxar.</i>
1875 Mar. 3.	R.	Douglas, J., Supdt. of Telegraphs, Check Office. <i>Calcutta.</i>
1880 June 2.	N.R.	Doxey, The Rev. J. S. <i>Multan.</i>
1879 Feb. 5.	N.R.	Duthie, J. F., Superintendent, Govt. Botanical Gardens. <i>Saharunpore.</i>
1873 Aug. 6.	R.	Dutt, Jogesh Chunder. <i>Calcutta.</i>
1877 Aug. 30.	N.R.	Dutt, Kedarnath, Personal Asst. to the Rajshahye Commissioner. <i>Rampore Bauleah.</i>
1873 April 2.	R.	Dutt, Umesh Chunder. <i>Calcutta.</i>
1870 Mar. 8.	L.M.	Edinburgh, H. R. H. The Duke of. <i>Europe.</i>
1863 May 6.	N.R.	Edgar, John Ware, C. S., C. S. I., Offg. Commissioner. <i>Dhaka. Champaran.</i>
1879 Mar. 5.	R.	Eetvelde, E. van, Consul General for Belgium. <i>Calcutta.</i>
1874 Dec. 2.	N.R.	Egerton, The Hon. Robert Eyles, C. S., K. C. S. I., C. I. E., Lieut.-Governor of the Panjab. <i>Lahore.</i>
1880 April 7.	N.R.	Elias, Ney. <i>Leh, Kashmir.</i>
1871 Dec. 2.	R.	Eliot, J., M. A., Meteorological Reporter to Govt. of Bengal. <i>Calcutta.</i>
1871 Oct. 4.	N.R.	Evezard, Major-General G. E. <i>Deesa, Gujarat.</i>
1859 Dec. 7.	R.	Fath Alí, Maulawí. <i>Calcutta.</i>
1863 Jan. 15.	N.R.	Fedden, Francis, Asst., Geological Survey of India.
1876 Jan. 5.	R.	Feistmantel, Ottokar, M. D., Palæontologist, Geological Survey of India. <i>Calcutta.</i>
1880 April 7.	N.R.	Fiddian, W., M. A., C. S. <i>Kattak.</i>
1879 July 2.	N.R.	Finucane, M., C. S., Joint Magistrate. <i>Gaya.</i>
1869 Sept. 1.	N.R.	Fisher, John Hadden, C. S., Offg. Collector. <i>Mirath.</i>
1872 Dec. 4.	N.R.	Forbes, Major John Greenlaw, R. E., Supdg. Engineer, N. W. P. & Oudh Irrigation Branch. <i>Lucknow.</i>
1876 July 5.	N.R.	Foulkes, The Rev. Thos., F. L. S., M. B. A. S., F. R. G. S., Chaplain. <i>Bangalore.</i>
1869 Sept. 1.	N.R.	Fryer, Lieut.-Col. G. E., Deputy Commissioner. <i>Maulmain, B. Burmah.</i>
1867 Sept. 4.	N.S.	Fyfe, The Rev. W. C., M. A., Principal, Free Church College. <i>Europe.</i>

Date of Election.		
1880 April 7.	N.R.	Gajapati, Ananda Ram, Raja of Vizianagram. <i>Vizianagram.</i>
1873 Dec. 3.	N.R.	Gamble, J. S., B. A., Asst. to Inspector General of Forests. <i>Darjiling.</i>
1871 Aug. 2.	N.R.	Gangaprasad, Munshi, Depy. Collector. <i>Mathura.</i>
1874 July 1.	N.S.	Gardner, David Mason, c. s., Offg. Magistrate and Collector. <i>Europe.</i>
1879 Mar. 5.	R.	Garrett, A. W., M. A., Inspector of Schools, Presy. Circle. <i>Calcutta.</i>
1859 Aug. 3.	L.M.	Gastrell, Major-General James Eardley (retired). <i>7, Landsowne Road, Wimbledon.</i>
1867 Dec. 4.	N.R.	Gay, E., M. A., c. s., Depy. Comptroller General. <i>Bombay.</i>
1877 Aug 30.	R.	Ghosha, Jnanendra Chandra. <i>Calcutta.</i>
1871 May 3.	R.	Ghosha, Káliprasanna. <i>Calcutta.</i>
1877 Dec. 5.	N.R.	Ghosha, Dr. Krishna Dhana. <i>Rangpur.</i>
1869 Feb. 3.	R.	Ghosha, Pratápachandra, B. A. <i>Calcutta.</i>
1870 May 4.	R.	Ghoshál, Rájá Satyánand. <i>Calcutta.</i>
1880 Aug. 4.	R.	Gibbs, The Hon. James, c. s. I., C. I. E., F. R. G. S., M. B. A. S., Member of the Governor General's Council. <i>Calcutta.</i>
1875 July 7.	N.R.	Girdlestone, Charles Edward Ridgway, c. s., Resident. <i>Katmandu, Nepal.</i>
1861 Feb. 5.	F.M.	Godwin-Austen, Lieut.-Colonel H. H., F. R. S., F. Z. S., F. R. G. S. <i>United Service Club, St. James', London.</i>
1862 July 2.	N.R.	Gordon, Robert, c. E., Executive Engineer, P. W. D., <i>Henzada, B. Burmah.</i>
1869 July 7.	N.R.	Gordon, James Davidson, c. s., c. s. I., Offg. Chief Commissioner. <i>Mysore.</i>
1875 July 7.	N.S.	Gouldsbury, J. R. E. <i>Europe.</i>
1863 Nov. 4.	F.M.	Gowan, Major-General J. Y. <i>Woodlands, Wimbledon, London.</i>
1879 Jan. 8.	F.M.	Gowan, Capt. W. E., 21st Nat. Infy. <i>Europe.</i>
1877 Nov. 7.	L.M.	Grant, Alexander, M. I. C. E., Director of State Railways. <i>Europe.</i>
1876 Nov. 15.	N.R.	Grierson, George Abraham, c. s., Offg. Inspector of Schools, Behar Circle. <i>Bankipur.</i>
1861 Sept. 4.	N.R.	Griffin, Lepel Henry, B. C. S., Depy. Commissioner and Offg. Secy. to the Govt. of the Punjab. <i>Lahore.</i>
1878 May 2.	N.R.	Griffith, R. <i>Allahabad.</i>
1861 Feb. 6.	N.R.	Growse, Frederick Salmon, M. A., c. s., C. I. E., Joint Magistrate. <i>Bulandshahr, N. W. P.</i>
1880 Feb. 4.	R.	Gupta, Behárilál, c. s. <i>Calcutta.</i>
1867 July 3.	N.R.	Hacket, Charles Augustus, Assistant, Geol. Survey of India.
1879 Mar. 5.	R.	Harraden, S. <i>Calcutta.</i>
1861 Feb. 2.	N.R.	Harrison, A. S., B. A., Principal, Muir Central College. <i>Allahabad.</i>

Date of Election.		
1877 Sept. 27.	R.	Hart, J., Attorney at Law. <i>Calcutta.</i>
1880 Aug. 26.	N.R.	Hassan, Khalif Syad Mahomed, Khan Bahádur, Prime Minister. <i>Puttiala.</i>
1875 Mar. 3.	N.R.	Hendley, Dr. Thomas Holbein, Residency Surgeon, and Offg. Political Agent, Eastern Rajpootana States. <i>Jaipur, Rájputáná.</i>
1879 Mar. 5.	N.S.	Herschel, Major J., Survey of India. <i>Europe.</i>
1875 Aug. 4.	N.R.	Hewitt, James Francis Katherinus, c. s., Commissioner. <i>Chota Nagpur.</i>
1872 Dec. 4.	R.	Hoernle, Rev. A. F. R., PH. D. <i>Calcutta.</i>
1878 Mar. 6.	N.R.	Hoey, W. <i>Lucknow, Oudh.</i>
1868 Nov. 4.	N.R.	Holroyd, Lieut.-Col. William Rice Morland, Director of Public Instruction. <i>Lahore, Punjab.</i>
1873 Jan. 8.	L.M.	Houstoun, G. L., F. G. S. <i>Johnstone Castle, Benfrewshire, Scotland.</i>
1863 Jan. 15.	N.R.	Howell, Mortimer Sloper, c. s., Judge. <i>Jaunpur.</i>
1867 Aug. 7.	N.R.	Hughes, T. H., A. B. S. M., F. G. S., Geol. Survey of India. <i>Kutní.</i>
1866 Jan. 17.	N.R.	Hughes, Captain W. G., M. S. C., Depy. Commissioner, Hill Tracts. <i>Arracan.</i>
1878 Sept. 25.	N.R.	Hughes, G., c. s., Assistant Commissioner. <i>Abbotabad, Hazara.</i>
1870 Jan. 5.	N.R.	Hume, Allan Octavian, c. B., c. S. <i>Allahabad.</i>
1872 Dec. 4.	N.R.	Ibbetson, Denzil Charles Jelf, c. s., Deputy Commissioner of the Punjab Census. <i>Simla.</i>
1866 Mar. 7.	N.R.	Irvine, William, c. s., Joint Magistrate. <i>Ghazipur.</i>
1871 Mar. 8.	N.S.	Isaac, T. S., C. E. <i>Europe.</i>
1853 Dec. 7.	N.R.	Isvariprasad Singh, Raja. <i>Benares.</i>
1874 Feb. 4.	R.	Jackson, Surgeon Major Charles Julian. <i>Calcutta.</i>
1878 May 2.	N.S.	Jackson, Sir L. S. <i>Europe.</i>
1880 Dec. 1.	N.R.	Jackson, William Grierson, B. C. S. <i>Mirzapur, N. W. P.</i>
1876 July 5.	F.M.	Jarrad, Lieut. F. W., B. N., F. B. A. S., Marine Survey Dept. <i>Hydrographic Office, Admiralty, London.</i>
1879 Mar. 5.	R.	Jarrett, Major H. S., B. S. C., Secy. to the Board of Examiners. <i>Calcutta.</i>
1879 Aug. 6.	F.M.	Joest, Herr W. <i>Cologne.</i>
1866 Feb. 7.	N.R.	Johnson, W. H., C. E. <i>Dera Ismail Khan.</i>
1862 Mar. 5.	N.R.	Johnstone, Lieut.-Colonel James William Hope, Commissioner. <i>Jallandhar.</i>
1867 Dec. 4.	N.R.	Johnstone, Lieut.-Col. James, Depy. Commissioner. <i>Assam.</i>
1878 Aug. 7.	N.R.	Johnstone, P. DeLacy, c. s. <i>Amritsar.</i>
1880 Jan. 7.	N.S.	Johnstone, Capt. W. H., B. E., A. I. C. E. <i>Europe.</i>
1873 Dec. 3.	N.R.	Johore, H. H., Maharaja of, K. C. S. I. <i>New Johore, Singapore.</i>
1873 April 2.	N.R.	Jones, Frederick, c. s., Magistrate and Collector. <i>Tipperah.</i>

Date of Election.		
1875 Nov. 3.	N.R.	Jones, Samuel Simpson, B. A., C. S., Asst. Commissioner. <i>Rajmahal.</i>
1869 April 7.	R.	Kabiruddin Ahmad, Maulawí. <i>Calcutta.</i>
1876 April 5.	R.	Kantichandra Singh, Kumara. <i>Calcutta.</i>
1878 Mar. 6.	N.R.	Keene, H. G., C. S. <i>Agra.</i>
1874 Dec. 2.	N.R.	Khudábakhsh Khan, Maulawí. <i>Patna.</i>
1867 Dec. 4.	R.	King, G., M. B., F. L. S., Supdt., Royal Botanical Gardens. <i>Sibpur, Calcutta.</i>
1862 Jan. 15.	N.R.	King, W., Jr., B. A., F. G. S., Depy. Supdt. for Madras, Geol. Survey of India. <i>Yercaud, Shevaroy Hills, Madras.</i>
1880 Dec. 1.	R.	Kirton, Surgeon-Major William Henry, F. L. S. <i>Calcutta.</i>
1880 Jan. 7.	R.	Kisch, H. M., M. A., C. S. <i>Calcutta.</i>
1877 Jan. 17.	N.R.	Kishor, Kumara Radha Deb, Juvraj of Hill Tipperah. <i>Tipperah.</i>
1875 Dec. 1.	R.	Knight, Hon'ble J. B., C. I. E. <i>Calcutta.</i>
1878 Oct. 4.	N.R.	Lachman Singh, Raja. <i>Bulandshahr.</i>
1880 Aug. 4.	N.R.	Lambe, W., C. S. <i>Jaunpur, N. W. P.</i>
1877 Sept. 27.	N.R.	La Touche, James John Digges, B. A., C. S., Offg. Joint Magistrate. <i>Moradabad.</i>
1878 Aug. 7.	N.R.	Lawrie, Dr. E. <i>Lahore.</i>
1880 Sept. 30.	R.	Lees, R. O. <i>Calcutta.</i>
1879 Dec. 3.	N.R.	Leonard, G. S., Offg. Traffic Supdt., N. B. State Ry. <i>Saidpur.</i>
1870 July 6.	R.	Lethbridge, E. Roper, M. A., C. I. E. <i>Calcutta.</i>
1879 Mar. 5.	R.	Levinge, H. C., C. E., Joint Secy. to the Govt. of Bengal, D. P. W. <i>Calcutta.</i>
1880 July 7.	N.R.	Lewis, Rev. Arthur, B. A. <i>Dera Ghazi Khan.</i>
1873 Feb. 5.	R.	Lewis, Timothy Richards, M. B., Special Asst. to the Sanitary Commissioner with the Government of India. <i>Calcutta.</i>
1864 Nov. 2.	R.	Locke, H. H., Principal, School of Art. <i>Calcutta.</i>
1866 Jan. 17.	N.R.	Low, James, Surveyor, G. T. Survey. <i>B. Burmah.</i>
1869 July 7.	N.R.	Lyall, Charles James, B. A., C. S., Offg. Secy. to the Chief Commissioner of Assam. <i>Shillong.</i>
1875 Jan. 6.	R.	Lydekker, Richard, Asst., Geol. Survey of India. <i>Geological Survey Office, Calcutta.</i>
1870 April 6.	L.M.	Lyman, B. Smith. <i>Japan.</i>
1880 Dec. 1.	R.	McCann, H. W., M. A., D. Sc., Prof., Presidency College. <i>Calcutta.</i>
1868 Dec. 2.	N.R.	Macauliffe, Michael, B. A., C. S., Depy. Commissioner. <i>Hissar, Punjab.</i>
1866 June 6.	N.S.	Macdonald, Lieut.-Col. J., B. S. C., Depy. Superintendent of Surveys. <i>Europe.</i>
1880 June 2.	N.R.	Macdonald, James, C. E. <i>Aligarh.</i>

Date of Election.		
1879 Feb. 5.	N.R.	Macgregor, Capt. C. R., 44th N. I., Transport Officer. <i>Kabul.</i>
1876 Jan. 5.	N.R.	Macgregor, W., Supdt., Telegraphs. <i>Dhubri, Assam.</i>
1843 April 5.	L.M.	Maclagan, Major-General Robert, R. E., F. R. S. E., F. R. G. S. <i>Europe.</i>
1873 Dec. 3.	R.	MacLeod, Surgeon-Major Kenneth, M. D. <i>Calcutta.</i>
1880 May 5.	N.R.	MacLeod, Roderick Henry, B. C. S. <i>Benares.</i>
1879 Aug. 28.	N.R.	Maconachie, R., C. S., Settlement Secy. to the Financial Commissioner. <i>Lahore.</i>
1874 Jan. 7.	N.R.	Magrath, Charles Frederick, B. A., C. S., Offg. Magistrate and Collector. <i>Rangpur.</i>
1867 April 3.	R.	Mainwaring, Lieut.-Col. George Byres, S. C. <i>Seram-pur.</i>
1880 Mar. 3.	R.	Maliáh, Ramesvar. <i>Howrah.</i>
1876 Dec. 6.	N.S.	Malleson, Col. G. B., C. S. I. <i>Europe.</i>
1878 April 3.	R.	Mallet, F. R., Geological Survey of India. <i>Calcutta.</i>
1864 July 6.	R.	Mallik, Coomar Devendra. <i>Calcutta.</i>
1869 Sept. 1.	R.	Mallik, Yadulál. <i>Calcutta.</i>
1872 Nov. 6.	N.R.	Man, E. H., Asst. Supdt. <i>Port Blair, Andamans.</i>
1880 May 5.	N.R.	Mandalik, The Hon. Rao Sahib Visvanath Narayana, C. S. I. <i>Bombay.</i>
1877 Dec. 5.	N.R.	Mandelli, L. <i>Darjiling.</i>
1869 July 7.	N.R.	Markham, Alexander Macaulay, C. S., Offg. Magistrate and Collector. <i>Allahabad.</i>
1873 July 2.	N.R.	Marshall, C. W. <i>Gonatra, Synthea.</i>
1873 Aug. 6.	N.R.	Marshall, Lieut.-Col. William Elliot.
1877 Feb. 7.	R.	Marshall, Capt. Geo. Fred. Leycester, R. E., Asst. Secy., Govt. of India, P. W. D. <i>Calcutta.</i>
1860 Mar. 7.	R.	Medlicott, H. B., M. A., F. R. S., F. G. S., Supdt., Geological Survey of India. <i>Calcutta.</i>
1877 Mar. 7.	R.	Medlycott, The Rev. Adolphus. Edwin, P.H. D., 3, <i>Cullen Place, Howrah.</i>
1871 Sept. 6.	N.R.	Miles, Lieut.-Colonel S. B., S. C., Political Agent. <i>Muscat.</i>
1870 July 6.	R.	Miller, A. B., B. A., Barrister at Law, Official Assinee. <i>Calcutta.</i>
1874 May 6.	N.R.	Minchin, F. J. V. <i>Aska, Ganjam.</i>
1875 Aug. 4.	N.R.	Minchin, Lieut.-Col. C. C. <i>Hissar, Panjab.</i>
1856 Mar. 5.	R.	Mitra, Rájendralála, Rái Bahádur, LL. D., C. I. E. <i>Calcutta.</i>
1876 Dec. 6.	N.S.	Mockler, Major E., Political Agent. <i>Europe.</i>
1874 July 1.	R.	Molesworth, G. L., C. E., Consulting Engineer to Govt. of India for State Railways. <i>Calcutta.</i>
1878 May 2.	R.	Moyle, J. O., Barrister at Law, High Court. <i>Calcutta.</i>
1864 Nov. 2.	N.R.	Mukerjea, Bhudeva, Inspector of Schools. <i>Chinsurah.</i>
1879 May 7.	N.R.	Muir, J. W., M. A., C. S., Barrister at Law. <i>Main-puri, N. W. P.</i>
1867 Mar. 6.	R.	Mukerjea, The Hon. Pearimohan, M. A. <i>Uttarpara.</i>
1880 Aug. 26.	R.	Mullick, Benod Behari. <i>Calcutta.</i>

Date of Election.		
1880 Aug. 26.	N.R.	Nag, Sib Chunder. <i>Chittagong.</i>
1880 Dec. 1.	R.	Napier, J. R. <i>Calcutta.</i>
1876 May 4.	R.	Nash, A. M., M. A., Professor, Presidency College. <i>Calcutta.</i>
1865 Feb. 1.	R.	Nevill, G., C. M. Z. S., Indian Museum. <i>Calcutta.</i>
1880 Aug. 26.	N.R.	Nicholson, Richardson Walter, Sub-Deputy Opium Agent. <i>Sultanpur, Oudh.</i>
1869 July 7.	N.R.	Nursing Rao, A. V. <i>Vizagapatam.</i>
1871 July 5.	N.R.	Oates, E. W., C. E., Engineer, P. W. D., Garrison Div., Sittang Canal. <i>Rangoon, Pegu.</i>
1874 Oct. 4.	N.S.	O'Kinealy, The Hon'ble James, C. S., District and Sessions Judge, 24-Pergannahs. <i>Europe.</i>
1879 Aug. 28.	N.R.	Oldham, Surgeon-Major C. F., F. E. G. S. <i>Dhurm-sala, Panjab.</i>
1880 Dec. 1.	N.R.	Oldham, R. D., A. B. S. M., Asst., Geological Survey of India.
1873 Aug. 6.	N.R.	Olpherts, W. J., C. E., Manager, Kaharbari Collieries. <i>Giridhi, E. I. R.</i>
1880 Aug. 4.	L.M.	Pandia, Pandit Mohanlall Vishnulall, F. T. S., Member and Secy., Royal Council of Meywar. <i>Oodeypur.</i>
1880 Jan. 7.	R.	Pargiter, Frederick E., B. A., C. S., Officiating Commissioner of the Sunderbands. <i>Calcutta.</i>
1873 Aug. 6.	R.	Parker, J. C. <i>Calcutta.</i>
1880 Jan. 7.	N.R.	Parry, J. W., C. E., Assoc. M. I. C. E., Asst. Engineer. <i>Gwalior.</i>
1862 May 7.	L.M.	Partridge, Surgeon-Major Samuel Bowen, M. D. <i>Europe.</i>
1879 Mar. 5.	N.R.	Pawsey, R., C. S., Collector. <i>Cuttack.</i>
1871 Dec. 6.	N.R.	Peal, S. E., Manager, Sapakati Tea Estate. <i>Sibsagar, Assam.</i>
1860 Feb. 1.	N.R.	Pearse, Major-General G. G., B. H. A. <i>Bangalore.</i>
1873 Aug. 6.	R.	Pedler, Alexander, F. C. S., Professor of Chemistry, Presidency College. <i>Calcutta.</i>
1864 Mar. 2.	N.R.	Pellew, Fleetwood Hugo, C. S., Offg. Commissioner. <i>Dacca.</i>
1865 Sept. 6.	N.R.	Peppe, T. E. <i>Ranchi.</i>
1877 Aug. 1.	F.M.	Peters, C. T., M. B., Offg. Agency Surgeon. <i>Zanzibar.</i>
1868 May 6.	N.R.	Peterson, F. W., Bombay Mint. <i>Bombay.</i>
1835 July 1.	F.M.	Phayre, Sir Arthur Purves, K. C. S. I., C. B., c/o H. S. King and Co. <i>London.</i>
1872 Dec. 4.	R.	Pránnáth Sarasvati, Pandit, M. A., B. L. <i>Bhowanipur.</i>
1880 June 2.	N.R.	Prasad Sinh, Thakur Garuradhawaya, Raja of Beswan. <i>Beswan Fort, Aligarh.</i>
1877 Aug. 30.	N.R.	Pratapnarayan Singha, Depy. Magistrate. <i>Bankoor.</i>
1878 Feb. 6.	R.	Prinsep, the Hon'ble H. T., Judge of the High Court. <i>Calcutta.</i>
1874 Dec. 2.	N.R.	Protheroe, Major M., Depy. Supdt. of Port Blair and the Nicobars.

Date of Election.		
1871 June 7.	R.	Ramkrishna. <i>Calcutta.</i>
1878 Aug. 29.	N.R.	Rangoon, Right Rev., Bishop of. <i>Rangoon.</i>
1877 May 2.	N.R.	Ravenshaw, Thomas Edw., c. s., Commissioner of Burdwan Division. <i>Chinsurah.</i>
1880 April 7.	N.R.	Rai, Bipina Chandra, B. L., Munsiff. <i>Netrokona, Maimansingh.</i>
1868 April 1.	N.R.	Rái, Rájá Pramathanath. <i>Digapati.</i>
1877 Aug. 1.	N.R.	Rees, J. C., Asst. Engr., P. W. D. <i>Thonzai, British Burmah.</i>
1871 July 5.	N.S.	Reid, James Robert, c. s. <i>Europe.</i>
1880 Aug. 4.	N.R.	Reynolds, Herbert William Ward, c. s. <i>Jaunpur.</i>
1860 Jan. 3.	N.R.	Rivett-Carnac, John Henry, c. s., C. I. E., F. S. A., Opium Agent. <i>Ghazipur.</i>
1863 April 1.	N.R.	Robertson, Charles, c. s., Secretary to the Govt., N. W. P. and Oudh. <i>Allahabad.</i>
1878 Sept. 25.	R.	Robertson, Rev. J. <i>Calcutta.</i>
1865 Feb. 1.	R.	Robinson, S. H. <i>Calcutta.</i>
1876 Dec. 6.	N.S.	Rodon, Lieut. G. S., Royal Scots. <i>Europe.</i>
1870 Jan. 5.	N.R.	Ross, Major Alexander George, Staff Corps, 2nd in Comd., 1st Sikh Infy. <i>Dera Ghazi Khan, Panjab.</i>
1880 Sept. 30.	N.R.	Sage, E. M. <i>Rangoon.</i>
1877 May 2.	N.R.	Sandford, W., Assistant Traffic Manager, Nizam's State Railway. <i>Secunderabad, Deccan.</i>
1878 Jan. 2.	R.	Sawyer, Capt. H. A., Military Department. <i>Calcutta.</i>
1870 May 4.	N.R.	Schlich, Dr. W. <i>Lahore.</i>
1879 May 7.	N.S.	Schroder, J. <i>Europe.</i>
1869 Feb. 3.	R.	Schwendler, L., Telegraph Store Department. <i>Calcutta.</i>
1879 Feb. 5.	R.	Sconce, Lt.-Col. J., B. S. C. <i>Calcutta.</i>
1876 July 5.	N.R.	Scott, Ross, c. s., Assistant Magistrate and Collector. <i>Furrakhabad.</i>
1874 July 1.	F.M.	Scully, Dr. John, c/o H. S. King and Co. <i>London.</i>
1878 Mar. 6.	N.R.	Sen, Adharlal, B. A., Offg. Depy. Magistrate and Collector. <i>Jessore.</i>
1874 Dec. 2.	N.R.	Sen, Dr. Rám Dás. <i>Berhampur.</i>
1879 Jan. 8.	N.R.	Sewell, R., M. S. C., c/o Messrs. Arbutnot and Co. <i>Madras.</i>
1878 May 2.	R.	Sharpe, C. J. <i>Calcutta.</i>
1879 May 7.	N.R.	Sheridan, C. J., C. E. <i>Lucknow.</i>
1878 April 3.	R.	Simson, A. <i>Calcutta.</i>
1867 April 3.	R.	Sirkár, Dr. Mahendralála. <i>Calcutta.</i>
1872 Aug. 7.	N.R.	Skrefsrud, Rev. L. O., India Home Mission to the Santhals. <i>Dúmka, Santhal Purgunnahs.</i>
1864 Sept. 7.	N.S.	Sladen, Col. E. B., M. S. C., Commissioner, Arracan Division. <i>Europe.</i>
1865 July 5.	R.	Smith, David Boyes, M. D. <i>Calcutta.</i>
1874 June 3.	N.R.	Smith, Vincent Arthur, C. S., Asst. Settlement Officer. <i>Bareilly, N. W. P.</i>

Date of Election.		
1879 Mar. 5.	N.S.	Someren, Capt. G. J. van. <i>Europe.</i>
1878 Mar. 6.	R.	Souttar, W. M., Chairman of the Corporation. <i>Calcutta.</i>
1877 April 4.	N.R.	Spens, The Rev. A. N. W., Chaplain. <i>Sialkot.</i>
1872 July 3.	N.R.	Stephen, Carr, B. L., Judl. Asst. Commr. <i>Ludianah.</i>
1879 Oct. 2.	R.	Sterndale, R. A., F. B. G. S., Asst. Comr. of Currency. <i>Calcutta.</i>
1875 July 7.	R.	Stewart, M. G. <i>Calcutta.</i>
1876 Aug. 2.	N.R.	St. John, Lieut.-Col. Oliver Beauchamp, B. E., C. S. I., Political Officer. <i>Kandahar.</i>
1861 Sept. 4.	R.	Stokes, The Hon'ble Whitley, C. S. I., C. I. E. <i>Calcutta.</i>
1869 Feb. 3.	N.S.	Strachey, Sir J., K.C.S.I., C. I. E. <i>Europe.</i>
1859 Mar. 2.	N.R.	Stubbs, Lieut.-Col. Francis William, Royal Artillery.
1880 Nov. 3.	N.R.	Sturt, Lieut. Robert Ramsay Napier, B. S. C., Panjab Frontier Force. <i>Edwardesabad, Panjab.</i>
1864 Aug. 11.	R.	Swinhoe, W., Attorney-at-Law. <i>Calcutta.</i>
1880 Nov. 3.	N.R.	Swynnerton, Rev. Charles. <i>Naushera.</i>
1880 June 2.	N.R.	Sykes, John Gastrell, LL. B., Barrister-at-Law and Advocate, High Court, N. W. P. <i>Allahabad.</i>
1871 Mar. 1.	R.	Tagore, Dvijendranath. <i>Calcutta.</i>
1871 Jan. 4.	R.	Tagore, Gunendranath. <i>Calcutta.</i>
1868 June 3.	R.	Tagore, The Hon'ble Maharaja Jotendra Mohun, C. S. I. <i>Calcutta.</i>
1865 Sept. 6.	R.	Tawney, C. H., M. A., Principal, Presidency College. <i>Calcutta.</i>
1874 Mar. 4.	R.	Taylor, Commander A. D., late Indian Navy. <i>Calcutta.</i>
1860 May 2.	N.S.	Temple, Sir R., Bart., K. C. S. I., C. I. E., B. C. S. <i>Europe.</i>
1878 June 5.	N.R.	Temple, Lieut. R. C., S. C., Cantonment Magte. <i>Ferozepore, Punjab.</i>
1876 Feb. 2.	R.	Tennant, Col. James Francis, B. E., F. B. S., C. I. E. Mint Master. <i>Calcutta.</i>
1875 June 2.	N.R.	Thibaut, Dr. G., Prof. Sanskrit College. <i>Benares.</i>
1869 Oct. 6.	N.R.	Thomson, A., The College, <i>Agra.</i>
1875 Nov. 3.	N.R.	Thomson, Robert George, C. S., Asst. Commr. <i>Jhelum, Panjab.</i>
1847 June 2.	L.M.	Thuillier, Major-Genl. Sir Henry Edward Landor, B. A., C. S. I., F. B. S. <i>Care of Messrs. Grindlay and Co., 55, Parliament St., London.</i>
1865 July 5.	N.R.	Tolbort, Thos. Wm. Hooper, C. S., Offg. Deputy Commissioner. <i>Gujranwala.</i>
1871 April 5.	F.M.	Treffitz, Oscar. <i>Care of Messrs. E. D. Keilhorn and Co., 16, St. Mary Axe, London.</i>
1861 June 5.	L.M.	Tremlett, James Dyer, M. A., C. S. Addl. Commissioner. <i>Jallandhar, Panjab.</i>
1872 July 3.	N.R.	Trevor, Lieut.-Col. William Spottiswoode, B. E., Chief Engineer and Secy. to Chief Commissioner. <i>Bangoon.</i>

Date of Election.		
1880 Mar. 3.	N.R.	Tufnell, Lieut. R. H. C., 30th M. N. I. 7, <i>High Road, Nungambanun, Madras.</i>
1873 April 6.	R.	Turnbull, Robert, Secretary to the Corporation. <i>Calcutta.</i>
1863 May 6.	N.R.	Tyler, J. W., M. D., F. B. C. S., Supdt., Central Prison. <i>Agra.</i>
1869 Aug. 4.	R.	Wáhid Alí, Prince Jahán Qadr Muhammad, Bahádur. <i>Garden Reach.</i>
1865 Nov. 1.	R.	Waldie, David, F. C. S. <i>Calcutta.</i>
1861 May 1.	R.	Walker, Major-Genl. James T., R. E., C. B., F. B. S., Surveyor General of India. <i>Calcutta.</i>
1875 April 7.	N.S.	Wall, Dr. Alfred John. <i>Europe.</i>
1863 Oct. 7.	R.	Waller, Walter Kerr, M. B. <i>Calcutta.</i>
1865 May 3.	F.M.	Waterhouse, Major James, B. S. C., Dy. Supdt., Survey of India. <i>Europe.</i>
1874 July 1.	N.S.	Watt, Dr. George, Professor. <i>Europe.</i>
1876 Dec. 6.	R.	Webb, W. T., M. A., Professor, Presidency College. <i>Calcutta.</i>
1879 Mar. 5.	N.R.	Weekes, A., c. s., Collector. <i>Faridpur.</i>
1869 Sept. 1.	R.	Westland, James, c. s., Offg. Comptroller General. <i>Calcutta.</i>
1867 Feb. 6.	N.R.	Westmacott, Edward Vesey, B. A., C. S., Offg. Magte. and Collr. <i>Noakholly.</i>
1862 Oct. 8.	N.S.	Wheeler, James Talboys. <i>Europe.</i>
1878 Aug. 29.	N.R.	Wheeler, P. C., c. s., Asst. Magistrate. <i>Ghazipur.</i>
1875 Feb. 3.	N.R.	Whiteway, Richard Stephen, c. s., Asst. Settlement Officer. <i>Muttra.</i>
1878 Aug. 29.	N.R.	Whittall, R., Forest Dept. <i>Hoshangabad, Central Provinces.</i>
1873 May 7.	N.R.	Williams, George Robert Carlisle, B. A., C. S., Magte. and Collr. <i>Farakhabad.</i>
1867 Jan. 16.	N.R.	Williamson, Capt. William John, C. I. E., Insp.-Genl. of Police. <i>Shillong, Khasi Hills.</i>
1880 Feb. 4.	R.	Wilson, The Hon. Arthur. <i>Calcutta.</i>
1870 Aug. 3.	N.S.	Wilson, Robert Henry, B. A., C. S., Offg. Secy. to Board of Revenue. <i>Europe.</i>
1878 Mar. 6.	N.R.	Wilson, J. <i>Sirsa, Punjab.</i>
1866 Mar. 7.	L.M.	Wise, Dr. J. F. N. <i>Rostellan, County Cork. Ireland.</i>
1867 July 3.	N.R.	Wood, Dr. Julius John, Supdt. of Vaccination. <i>Darjiling Circle.</i>
1870 Jan. 5.	R.	Wood-Mason, James, Depy. Supdt., Indian Museum. <i>Calcutta.</i>
1873 Aug. 6.	N. R.	Woodthorpe, Capt. Robert Gossett, B. E., Asst. Supdt., Survey of India. <i>Frontier Expeditionary Force. Kabul.</i>

HONORARY MEMBERS.

1821 Mar. 6.	Sir John Phillippart. <i>London.</i>
1826 July 1.	Count de Noe. <i>Paris.</i>
1834 May 6.	Professor Isaac Lea. <i>Philadelphia.</i>
1847 Sept. 1.	Col. W. Munro. <i>London.</i>
1847 Nov. 3.	His Highness the Nawáb Nazim of Bengal. <i>Europe.</i>
1848 Feb. 2.	Dr. J. D. Hooker, B. N., F. R. S. <i>Kew.</i>
1853 April 6.	Major-Gen. Sir H. C. Rawlinson, K. C. B. <i>London.</i>
1858 July 6.	B. H. Hodgson. <i>Europe.</i>
1860 Mar. 7.	Professor Max Müller. <i>Oxford.</i>
1860 Nov. 7.	Edward Thomas. <i>London.</i>
1860 „ 7.	Dr. Aloys Sprenger. <i>Bern.</i>
1860 „ 7.	Dr. Albrecht Weber. <i>Berlin.</i>
1868 Feb. 5.	General A. Cunningham, C. S. I. <i>India.</i>
1868 „ 5.	Professor Bápu Déva Sástri. <i>Benares.</i>
1868 „ 2.	A. Grote. <i>London.</i>
1871 „ 7.	Charles Darwin. <i>London.</i>
1872 „ 1.	Sir G. B. Airy. <i>London.</i>
1872 June 5.	Professor T. H. Huxley. <i>London.</i>
1875 Nov. 3.	Dr. O. Böhtlingk. <i>Jena.</i>
1875 „ 3.	Professor J. O. Westwood. <i>Oxford.</i>
1876 April 5.	Col H. Yule, B. E., C. B. <i>London.</i>
1876 „ 5.	Dr. Werner Siemens. <i>Berlin.</i>
1877 Jan. 17.	Dr. John Muir. <i>Edinburgh.</i>
1879 June 4.	Prof. E. B. Cowell, D. C. L. <i>Cambridge.</i>
1879 „ 4.	Dr. A. Günther, V. P. R. S. <i>London.</i>
1879 „ 4.	Dr. J. Janssen. <i>Paris.</i>
1879 „ 4.	Prof. H. Milne-Edwards. <i>Paris.</i>
1879 „ 4.	Prof. P. Regnaud. <i>Lyons.</i>
1879 „ 4.	M. E. Renan. <i>Paris.</i>

CORRESPONDING MEMBERS.

1844 Oct. 2.	Macgowan, Dr. J. <i>Europe.</i>
1856 June 4.	Krämer, Herr A. von. <i>Alexandria.</i>
1856 „ 3.	Porter, Rev. J. <i>Damascus.</i>
1856 „ 4.	Schlagintweit, Herr H. von. <i>Berlin.</i>
1856 „ 4.	Smith, Dr. E. <i>Beyrout.</i>
1859 „ 4.	Taylor, J., Esq. <i>Bussorah.</i>
1857 Mar. 4.	Nietner, J., Esq. <i>Ceylon.</i>
1858 „ 3.	Schlagintweit, Herr R. von. <i>Berlin.</i>
1859 Nov. 2.	Frederick, Dr. H. <i>Batavia.</i>
1860 Feb. 1.	Baker, The Rev. H. <i>E. Malabar.</i>
1861 July 3.	Gösche, Dr. R.
1862 Mar. 3.	Murray, A., Esq. <i>London.</i>
1863 July 4.	Barnes, R. H., Esq. <i>Ceylon.</i>
1866 May 7.	Schlagintweit, Prof. E. von. <i>Berlin.</i>
1868 „ 5.	Holmböe, Prof. <i>Christiania.</i>

ASSOCIATE MEMBERS.

1865 May 3.	| Dall, Rev. C. H. <i>Calcutta.</i>
1874 Feb. 4.	| Schaumburgh, J., Esq. <i>Calcutta.</i>
1874 April 1.	| Lafont, Rev. Fr. E., s. J., C. I. E. <i>Calcutta.</i>
1875 Dec. 1.	| Bate, Rev. J. D. <i>Allahabad.</i>
1875 ,, 1.	| Maulawí Abdul Hai, Madrasah. <i>Calcutta.</i>

LIST OF MEMBERS WHO HAVE BEEN ABSENT FROM INDIA
THREE YEARS AND UPWARDS.*

* *Rule 40.*—After the lapse of 3 years from the date of a Member leaving India, if no intimation of his wishes shall in the interval have been received by the Society, his name shall be removed from the list of Members.

The following Members will be removed from the next Member List of the Society under the operation of the above Rule.

Major-Gen. C. H. Dickens, B. A., C. S. I., ...	1877.
J. R. E. Gouldsbury, Esq.,	1877.
Lieut.-Col. J. Macdonald,.....	1877.
Col. G. B. Malleson, c. s. I.,	1877.
Lieut. G. S. Rodon,	1877.

LOSS OF MEMBERS DURING 1880.

BY RETIREMENT.

W. E. Brooks, Esq. <i>Muddapur.</i>
H. Buckle, Esq. <i>Tounggoo.</i>
Col. H. A. Browne. <i>Rangoon.</i>
C. D. Field, Esq. <i>Burdwan.</i>
J. C. Macdonald, Esq. <i>Naini Tal.</i>
Hon. G. G. Morris. <i>Calcutta.</i>
E. O'Brien, Esq. <i>Muzaffargarh.</i>
Dr. D. O'C. Raye. <i>Calcutta.</i>
Dr. V. Richards. <i>Goalundo.</i>
Hon. J. Sewell White. <i>Calcutta.</i>

BY DEATH.

Ordinary Members.

H. L. Dennys. <i>Damoh, C. P.</i>
Thakur Giriprasad Singh. <i>Aligarh.</i>

Honorary Members.

Hon. Sir J. W. Colvile, Kt. *Europe.*

Corresponding Member.

Rev. M. A. Sherring, M. A. *Benares.*

BY REMOVAL.

Under Rule 40.

J. Smidt. *Europe.*

R. Taylor, C. S. *Europe.*

Under Rule 38.

J. F. Baness, Esq. *Calcutta.*

P. Dejoux, Esq. *Calcutta.*

J. S. Gunn, Esq., M. B. *Sanáwar.*

W. Porter, Esq. *Akyab.*



[APPENDIX.]

ABSTRACT STATEMENT
OF
RECEIPTS AND DISBURSEMENTS
OF THE
ASIATIC SOCIETY OF BENGAL
FOR
THE YEAR 1880.

STATEMENT,
Asiatic Society of

Dr.

To ESTABLISHMENT.			
Salaries, ... ..	...	...	Rs. 4,421 15 1
Commission, ... ..	...	...	... 269 15 2
Pensions, ... ..	...	...	... 102 0 0
			4,793 14 3
CONTINGENCIES.			
Stationery, ... ..	...	...	... 304 11 9
Lighting, ... ..	...	...	... 86 8 0
Building, ... ..	...	...	... 343 4 0
Taxes, ... ..	...	...	... 780 0 0
Postage, ... ..	...	...	... 496 5 9
Freight, ... ..	...	...	... 36 0 0
Meetings, ... ..	...	...	... 96 12 0
Miscellaneous, ... ..	...	...	... 409 12 1
			2,553 5 7
LIBRARY AND COLLECTIONS.			
Books, ... ..	...	...	... 1,695 1 6
Local Periodicals, ... ..	...	...	... 66 12 0
Book-cases, ... ..	...	...	... 1,036 0 0
Binding, ... ..	...	...	... 529 14 0
Coins, ... ..	...	...	... 138 9 1
			3,466 4 7
PUBLICATIONS.			
Printing, ... ..	...	...	... 3,849 8 0
Plates, ... ..	...	...	... 2,465 12 3
			6,315 4 3
To PERSONAL ACCOUNT (Writes off and Miscellaneous),...			954 6 5
		Total Expenditure,	18,083 3 1
To Balance, ... ..	...	...	... 1,44,416 14 11
			Total, Rs. ... 1,62,500 2 0

No. 1.
Bengal.

Cr.

By Balance from last Report,	...	...	Rs. 1,43,434	0	11
BY CASH RECEIPTS.					
Publications sold for Cash,	...	...	223	1	6
Interest on investments, ...	...	...	6,179	0	0
Coins, ...	...	...	1	15	6
Contingencies, ...	...	...	4	1	6
Furniture (sale of old show cases),	...	...	23	4	6
			<hr/>		
			6,431	7	0
			<hr/>		
BY PERSONAL ACCOUNT.					
Admission Fees, ...	...	...	1,168	0	0
Subscriptions, ...	...	...	7,695	0	0
Sales on credit, ...	...	...	1,570	14	0
Miscellaneous (chiefly old outstandings and omissions brought to credit), ...	...	...	2,200	12	1
			<hr/>		
			12,634	10	1
Total Income,			<hr/>		
			19,066	1	1

Total, Rs. ... 1,62,500 2 0

JOHN C. DOUGLAS,
Hony. Treasurer, Asiatic Society.

J. WESTLAND, }
J. SCONCE, } *Auditors.*

STATEMENT,
Oriental Publication Fund in Account

Dr.

To CASH EXPENDITURE.			
Printing charges,	...	...	Rs. 5,230 2 3
Plates,	...	...	... 84 0 0
Editing charges,	...	...	... 973 8 0
Salaries,	...	...	... 866 3 2
Advertising,	...	...	... 120 0 0
Freight,	...	...	... 16 2 6
Contingencies,	...	...	... 94 12 0
Postage,	...	...	... 38 8 3
Commissions on collecting bills,	...	...	... 1 8 3
			7,424 12 5
To PERSONAL ACCOUNT (Writes off and Miscellaneous),			... 138 7 0
Total Expenditure,			7,563 3 5
To Balance,	...	...	... 10,540 9 11
			Total, Rs. 18,103 13 4

No. 2.

with the Asiatic Society of Bengal.

Cr.

By Balance from last Report, ...	...	...	Rs. 5,004 13 10
BY CASH RECEIPTS.			
Government allowance, ...	...	... 9,000 0 0	
Publications sold, ...	...	... 2,105 2 0	
Advances recovered, ...	...	... 103 11 9	
		11,208 13 9	
BY PERSONAL ACCOUNT.			
Sales on credit, ...	...	... 1,758 1 9	
Miscellaneous, ...	...	... 132 0 0	
		1,890 1 9	
Total Income, —————			13,098 15 6
			Total, Rs. 18,103 13 4

JOHN C. DOUGLAS,
Hony. Treasurer, Asiatic Society.

J. WESTLAND, }
J. SCONCE, } *Auditors.*

STATEMENT,
Sanskrit Manuscripts Fund in Account

Dr.

To CASH EXPENDITURE.					
Salaries,	...	...	...	Rs. 1,388	2 0
Travelling expenses,	...	...	...	291	6 0
Printing,	...	...	...	489	4 0
Plates,	...	...	...	116	14 0
MSS. purchased,	...	...	...	1,103	7 0
Stationery,	...	...	...	19	12 0
Postage,	...	...	...	0	13 6
Copying,	...	...	...	10	2 0
Contingencies,	...	...	...	26	7 0
Total Expenditure,					3,441 3 6
To Balance,	...	...	...	2,131	14 2
Total, Rs.					5,573 1 8

No. 3.

with the Asiatic Society of Bengal.

		Cr.		
By Balance from last Report,	Rs. 2,339	14 8
BY CASH RECEIPTS.				
Government allowance,	3,200	0 0
Balance of petty cash recovered,	1	1 0
Publications sold for cash,	8	2 0
			3,209	3 0
BY PERSONAL ACCOUNT.				
Publications sold on credit,	24	0 0
Total Income,			3,233	3 0
			Total, Rs. 5,573	1 8

JOHN C. DOUGLAS,

Hony. Treasurer, Asiatic Society.

J. WESTLAND,	}	<i>Auditors.</i>
J. SCONCE,		

STATEMENT,
Personal

Dr.			
To Balance from last Report,			4,612 3 4
To CASH EXPENDITURE.			
Advances for purchase of Sanskrit MSS., postage of books			
to Members, &c.,			1,339 8 5
To Asiatic Society,			12,634 10 1
To Oriental Publication Fund,			1,890 1 9
To Sanskrit Manuscripts Preservation Fund,			24 0 0
			<hr style="width: 100%;"/>
Total, ..			<hr style="width: 100%;"/> 20,500 7 7 <hr style="width: 100%;"/>

STATEMENT,
Invest

Dr.		Nominal.	Actual.
To Balance, .. .. .	..	1,48,300 0 0	1,47,618 0 0
Total, ..		1,48,300 0 0	1,47,618 0 0

STATEMENT,
Trust

Dr.		Nominal.	Actual.
Remitted for Blochmann Memorial,	1,268 4 6
To Balance (being servants' pension fund only),	1,007 11 4
Total,	2,275 15 10

STATEMENT,
Cash.

Dr.		Nominal.	Actual.
To Balance from last Report,	10,974 9 11
RECEIPTS.			
To Personal account,	12,427 4 3
To Asiatic Society,	6,431 7 0
To Oriental Publication Fund,	11,208 13 9
To Sanskrit Manuscripts Fund,	3,209 3 0
Total,	44,251 5 11

By an error of transcription the Dr. figures in Statement No. 5, Investments, have been written on the right side, and the Cr. figures on the left side: they should be transposed.

STATEMENT, No. 8.

Balance Sheet.

	Dr.	Cr.
To Asiatic Society, ...	1,44,416 14 11	By Personal Account, ... 6,980 5 11
To Sanskrit Manuscripts Fund, ...	2,131 14 2	By Cash, ... 8,498 12 5
To Oriental Publication Fund, ...	10,540 9 11	By Investments, ... 1,47,618 0 0
To Trust Funds, ...	1,007 11 4	
	Total, ... 1,58,097 2 4	Total, ... 1,58,097 2 4

xii

JOHN C. DOUGLAS,

Hon. Treasurer, Asiatic Society.

J. WESTLAND,
J. SCORCE, } *Auditors.*

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.

EDITED BY

THE HONORARY SECRETARIES.



JANUARY TO DECEMBER,

1882.



CALCUTTA :

PRINTED BY J. W. THOMAS, BAPTIST MISSION PRESS, .

AND PUBLISHED BY THE

ASIATIC SOCIETY, 57, PARK STREET.

1882.

CONTENTS.

	<i>Page</i>
Proceedings for January, 1882	1-20
Do. for February, including Annual Report	21-54
Do. for March, 1882	55-74
Do. for April, „	75-88
Do. for May, „	89-92
Do. for June, „	98-102
Do. for July, „	103-106
Do. for August, „	107-136
Do. for November, „	137-154
Do. for December, „	155-168
Index	169-186
List of Members of the Asiatic Society of Bengal on the 31st December, 1881, Appendix to February Proceedings	i-xvi
Abstract Statement of Receipts and Disbursements of the Asiatic Society of Bengal for the year 1881, Appendix to February Proceedings	xvii-xxviii

LIST OF PLATES.

- I.—Map of the Singpho-Kampti country (p. 64).
- II.—Bank-note of the Ming Dynasty (p. 77).

2200
.1333

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.
FOR JANUARY, 1882.

The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 4th January, 1882, at 9 P. M.

The HON'BLE SIR ASHLEY EDEN, K C. S. I., President, in the Chair. The minutes of the last Meeting were read and confirmed.

The following presentations were announced :—

1. From the Home Department,—Archæological Survey of India. Reports, Vol. XII.
2. From the Revenue and Agricultural Department,—Punjab Customary Law, Vols. I—III, by C. L. Tupper.
3. From the Foreign Department,—Notes on Afghanistan and part of Biluchistan, Section III, by Major H. G. Raverty.
4. From the Bengal Government,—Archæological Survey of India. Reports, Vol. XII.
5. From the Geological Survey of India,—A Manual of the Geology of India. Vol. III (Economic Geology), by V. Ball.
6. From the Surveyor General of India,—Map of India, 1881.
7. From the Superintendent in charge, Tidal and Levelling Operations, Survey of India,—(1) Tide-Tables for the Indian Ports for 1882, by Capt. A. W. Baird and E. Roberts.—(2) Tide-Tables for the River Hooghly, Diamond Harbour, Fort Gloster and Kidderpore, for 1882, by Capt. A. W. Baird and E. Roberts.—(3) Tide-Table for the River Hooghly, 1882, by Capt. A. W. Baird and E. Roberts.
8. From the Meteorological Reporter for Western India,—Brief sketch of the Meteorology of the Bombay Presidency in 1880.
9. From the Authors,—(1) On the Land Molluscan Genus *Durgella*, W. T. Blanford; with notes on its anatomy and description of a new species, by Lieut.-Col. H. H. Godwin-Austen.—(2) Description of the Animal of *Durgella christianæ*, a species of Land-shell from the Andaman

Islands, by Lieut.-Col. H. H. Godwin-Austen.—(3) Address before the American Association for the Advancement of Science at Cincinnati, Ohio, August 1881, by Col. G. Mallery.—(4) The Hindu and Roman Law of Adoption, by D. M. Gardner.—(5) Report on the Census of the Town and Suburbs of Calcutta, taken on 17th February 1881. Compiled by H. Beverley.

10. From the Secretary, Clarendon Press, Oxford,—Anecdota Oxoniensia. Texts, Documents, and Extracts chiefly from MSS. in the Bodleian and other Oxford Libraries. Aryan Series, Vol. I, Pt. I. Buddhist Texts from Japan, by F. Max Müller.

11. From the Munich Academy,—(1) Gedächtnisrede auf Leonhard von Spengel, by Wilhelm von Christ.—(2) Die Wittelsbacher in Schweden, by Karl Theodor Heigel.

12. From the Department of Agriculture, U. S., America,—Annual Report for 1878 and 1879.

13. From the Smithsonian Institution,—A memorial of Joseph Henry.

14. From the Boston Society of Natural History,—Anniversary Memoirs of the Boston Society of Natural History, 1830-1880.

The following gentleman was balloted for and elected an Ordinary Member:—

Babu Girijabhusan Mukerji.

The following gentlemen have intimated their desire to withdraw from the Society:—

D. M. Gardner, Esq.

J. W. Alexander, Esq.

H. G. Keene, Esq.

Ramesvar Maliah, Esq.

Major A. G. Ross.

The COUNCIL announced that Mr. A. Pedler had consented to act as Treasurer during the temporary absence of Mr. J. Eliot.

The SECRETARY read a letter from the Under-Secretary to the Government of Bengal forwarding a copy of a letter from the Commissioner of the Orissa Division, reporting on the origin and growth of the sect of the Hindu Dissenters who profess to be the followers of Alekh.

The Commissioner of the Orissa Division writes:—

“1. The founder of the sect is said to have been one Mukund Dás.

He lived for a long time in Puri as an *Āchāri* Vaishnava, and was known as the *Dhula Bābājī* from the fact of his daubing his body with ashes.

"2. About thirty years ago he left Puri and came to Dhenkanal, one of the Tributary States of Cuttack, where he selected as his dwelling-place the *Kapilās* hills near a shrine of *Mahādev*. During the first twelve years of his residence at *Kapilās*, *Mukund Dās* lived on fruits and accordingly was known as the *Phalāhāri Bābājī*. The next twelve years were passed on milk and water which secured him the cognomen of *Kshira-nira-pāyi*.

"During his sojourn at *Kapilās*, he was known to be a devout worshipper of the local idol, and took much pains in improving the place by cutting the jungle, making gardens, looking after the *Bhog* or sacred food of the idol, and taking care of the pilgrims who visit the hills periodically. This procured him the respect of the mother of the late *Mahārājā* of Dhenkanal, who supplied his food. He gradually succeeded in securing the respect of the people of the surrounding villages, and the popular belief was that he was in secret communion with the idol and could successfully intercede with it on behalf of its votaries. The currency of this belief was further facilitated by the fact of his taking special care of the sick people who resorted to *Kapilās* for the benefit of their health, and very generally succeeded in getting it restored, and his visiting the temple at the dead of night while every one had retired to rest.

"3. After thus remaining at *Kapilās* for several years, and finding that he had sufficiently established his reputation and secured the respect of the people, *Mukund Dās* left the place and began to preach that *Mahādev* and the other idols worshipped by the Hindus were nothing else but stone and wood, and that the worship of these destructible articles was useless and of no avail, that the Creator of the universe was *Alekh* or *Mahimā* (which literally means 'glorious') a spiritual Being without form, omnipresent and omniscient, and that he alone could hold communion with him and get his prayers granted. He eschewed his *kaupin* (waist cloth) and *kanthi* (wooden beads worn round the neck), the two distinctive features in the raiment of a Vaishnava, and wore *kumbhipat* (the bark of a tree called *kumbhi*) to cover his nakedness.

"4. From *Kapilās*, *Mukund Dās* went to Puri, where he remained for some time in a hut on the sands near the temple of *Lokanāth Mahādev*. He next came to *Daruteng* in the Government state of *Khorda* in Puri where he built a *tungī* (a place of worship), and commenced to propagate the new doctrine. It was at this place that *Mukund Dās* was deified and began to be addressed as the *Mahimā Gosain*. It appears that one *Gobind Dās* was his first, and *Narsing Dās* his second disciple; others followed their example, and in course of time all these followers dispersed on all sides for

the propagation of the new doctrine ; shortly after a place of worship was established at Malbehárpur in Kellah Banky ; other places were opened in some of the remaining Tributary States as well as in Sambalpur, Purí and Cuttack. At some of these places of worship, the Mahimá Gosain gave large feasts, which were numerously attended. In 1875 in the month of Kártic on the day of the full moon, a fair was held at Jacka in Dhenkanal, where a large number of the followers of the Gosain assembled with rich presents including valuable clothes, silver utensils, &c. It is said that the Bábájí, or Swámi as he was also addressed, offered these presents to the late Mahárájá of Dhenkanal, and on his declining to accept them they were openly burnt in the fire of the sacred *Dhuni* (fire kept up by religious mendicants). Thus in a few years the Mahimá Gosain succeeded in making many disciples and followers, and on the days of the full moon thousands of men and women from distant parts of the country might have been seen wending their way to the tungís, with bangy loads of ghee, sugar and other valuable presents. It is said that at present the new faith is more popular in Sambalpur than in any other district. It is confined mostly to the ignorant and illiterate people of the lower classes of the Hindu community, who were, it is said, induced to adopt the new religion by hopes of enjoyment if they followed, and threats of perdition if they did not follow, its precepts.

“5. The disciples of the Mahimá Swámi inculcate self-denial and resignation to God as the sources of salvation ; they do not aspire after worldly greatness or pleasure ; extreme humility is one of their characteristics. They have no prescribed mode of worship except praise of God and prayer for His mercy. They recognise the Bhágavata, one of the religious books of the Hindus, but interpret it in a different way from the Hindus. They have a Malika, or book of predictions, which treats of the incarnation of Alekh in the shape of Mahimá Swámi to redeem the world from sin and to indicate the way to salvation. Besides this they have got another book containing songs and dialogues interpreting the truth of Alekh. Most of these songs, &c., are said to have been composed by Bhíma Bhoi, a Khond, who is said to have been born blind, and afterwards endowed with sight by the Mahimá Swámi.

“6. The following extract from the report of the Manager of Dhenkanal throws some light on the real sentiments of the Swámi.

““The man who was at first called the Phalábari Gosain was afterwards designated Mahimá Gosain, and was believed to be an incarnation of the Almighty God. In the year 1874, while I was on tour in the interior of Dhenkanal, the founder of the Mahimá or Alekh religion went with me from place to place and was with me for about a week, and I also saw him on several other occasions, but I never heard from him that he professed to be the Creator of the world as his disciples and followers believed him

to be. From what I heard from him, I concluded that he believed that the Creator of the world was a spiritual Being, omnipresent and omniscient, without any form, whom he called Mahimá and also Alekh Prabhu, and that he alone could communicate with the Alekh Prabhu and get down what he wished. He believed in the existence of the Hindu gods and goddesses, but said that they were under his commands, and that they were bound to obey whatever he wished them to do.'

"7. The followers of the Alekh Swámí are divided into three sects:

"(1) The Kumbhipatiás, (2) The Konapatiás, and (3) the Ásritas.

"The first two have renounced the world and deem celibacy essential. The males are called 'Bábás' and the females 'Mátás.' The difference between these two sects is that a Kumbhipatiá wears the bark of the kumbhi tree, and a Konapatiá pieces of rag. They beg from door to door, have no distinction of caste, and take their food only during the day-time at an open place beside a public road. They eat food cooked by people of any caste except the Rájá, a Bráhmañ and a washerman, whom they consider as sinful beings in this world, the Rájá as he is responsible for the sins committed in his state, the Bráhmañ as he accepts all sorts of gifts from sinful persons, and the washerman as he washes sinful people's dirty clothes. They are not accustomed to live at any one place for more than a day, or to beg twice from the same house. They wear long matted hair, and do not bathe. They turn their head towards the sun at the time of rising and setting, and prostrate themselves several times to beg shelter and mercy of the Alekh Swámí. The Ásritas do not forsake the world, nor do they deem celibacy essential; they bathe generally early in the morning, and clean their teeth with cowdung; they do not wear long hair, nor do they use kumbhipat or káñapat like their confrères, but use geruá basan or cloth coloured with geru or red earth like the Brahmacháris of the Hindus; they do not observe any Hindu ceremony or festival, neither do they respect the gods of the Hindus. They perform their marriage ceremony in a very simple way by the side of a public road or thoroughfare; the bride puts a garland of flowers round the neck of the bridegroom in token of offering herself to him, and the friends and relatives of both loudly call upon their Alekh Swámí to protect the new pair in their career through life. Polygamy is prohibited among the Ásritas. For any misconduct an offender is made to do penance by drinking a solution of cowdung. The Ásritas consider the other two sects as their gurus or spiritual guides. The Tehsildár of Ungul reports that the new faith of Mahimá has wrought a change for the better on the Páns of that killah, who are notorious for their thieving proclivities. Those who have accepted the new faith regard theft with abhorrence.

"8. In 1875, Mahimá Swámí, who was believed to be immortal, died at Joranda in Dheukanal, and the tungis, together with the gods and

c chattels they contained, were sold as intestate property. Most of the followers of the new faith, finding that the Swámí was no better than an ordinary mortal, disbelieved what he had inculcated and reverted to Hinduism. Those of his disciples and followers who had left their homes and friends and had been outcasted continued to practise the new faith they had embraced.

"9. At present there are only two places of worship in Dhenkanal, one at Joranda where Mahimá Swámí died and was interred, and another at Mahalpára where Narsing Dás now lives. The Kumbhipatiás resort to the former and the Kánapatiás to the latter of these places; they are reported not to be on good terms with each other. During the lifetime of Mahimá Swámí, the Kumbhipatiás and Kánapatiás were not regarded as distinct sects. Any person who wished to adopt the new religion first became an *Aśrita*, which literally means protected. He was not required to leave his house and friends; afterwards if he wished to forsake the world he was required to eat with every person without distinction of caste and to remain at one of the places of worship called tungís. In this noviciate, he was allowed to wear cloth and was therefore called Kánapatiá. If after trial any of the Kánapatiás was considered fit to be a Kumbhipatiá, Mahimá Swámí favoured him with a kumbhipat bark of the kumbhi tree, and from that time he was prohibited to wear cloth.

"10. The followers of Mahimá Swámí appear to have had no leader since his death; they are scattered throughout the Gurjats of Orissa, in the Chattisgar Division of the Central Provinces, in the regulation districts of Orissa and in Ganjam, the adjoining district of the Madras Presidency. The system has, however, taken more in Sambalpur than elsewhere."

Mr. H. RIVETT-CARNAC exhibited a large number of stone implements, some of well known, and others believed to be of entirely new types, found by Mr. J. Cockburn and himself in the Banda District of the North West Provinces. The celts or stone hatchets of which the collection is chiefly composed were, he said, of a type long familiar to the Society, and many specimens had been figured and described at different times in the Society's Journal by Messrs. H. P. Le Mesurier, Ball, Cockburn and others. The old types resembled in every respect the implements found in Europe and other parts of the world and figured by Evans in his 'Ancient Stone implements,' and by Stephens in 'Flint Chips.' Some celts found in Banda by an officer of the Revenue Survey had come into Mr. Rivett-Carnac's possession some time ago and were presented by him through Mr. Francks, F. R. S., F. S. A., to the British Museum. Mr. Evans, F. R. S., the well known author of 'Ancient Stone Implements,' had seen these specimens and had urged the importance of a careful search being made for more

specimens and for new types. Mr. Cockburn, who had been recently employed in the Banda District, had kindly undertaken to conduct this search, and the careful and complete manner in which he had worked was shewn by what might fairly claim to be the magnificent collection of implements now submitted for the Society's inspection. During his cold weather tour in the Banda District, Mr. Rivett-Carnac had been fortunate enough to find a considerable number of celts *in situ* and a very fine specimen of a stone hammer or ring stone included in the collection. But by far the greater number of these most interesting specimens had been collected by Mr. Cockburn or men employed by him. In addition to the larger implements, Mr. Cockburn had found quantities of flint flakes some of a new and all of the most interesting types. It had been arranged that Mr. Rivett-Carnac should do his best to exhibit and describe the larger and commoner types and that Mr. Cockburn should undertake the description of the more delicate and most interesting specimens of flint flakes. Mr. Cockburn's recent severe accident would, it had been apprehended, have prevented him from attending the meeting, but Mr. Rivett-Carnac was glad to see him present and hoped that he would add a fuller description of the chief specimens of this interesting collection. Specimens of the celts or stone hatchets would be figured in the Society's Journal together with a full description of their size and weight which is of importance for the sake of comparison with those found in other parts of the world. It would hardly be necessary, however, to take up the time of the meeting now with these details. It would be sufficient to point out first that the number of implements of this type was extraordinarily large, there being in all 366 celts or axes or portions of axes. The largest of these being 12·25 in. long and 4·70 in. broad and weighing 8 lb. 3 oz. The smallest 2·50 in. long and 2·15 in. broad and weighing only 3¼ oz. Two distinct types of this axe, or whatever the implement really was, were to be noticed, *viz.*, what are classified by Evans (1) as the chipped or rough hewn celts, and (2) polished celts.

The chipped celts are exactly similar to the European specimens, and, as is the case also in Europe, are not so numerous as the latter class, the number in the collection being 100 chipped against 168 polished. It is generally supposed that these chipped celts are but the celts of class 2 in an unfinished stage, and that it was intended eventually to grind and polish them. The edges of some had been ground and may perhaps have been used in this unfinished state.

As regards the polished celts, they also are exactly similar to this class of implement found in Europe. Evans in his work has shewn the manner in which they were hafted and Mr. Cockburn will have something to say on the subject with respect to an old stone carving discovered by him in the Banda District on which a figure is to be seen holding in its hand a

stone implement of this sort inserted into a handle exactly after the manner shewn in the ancient stone implements of Great Britain. In shape they nearly resemble the iron hatchet or little axe with its iron bands discovered in one of the circular tumuli of the Central Provinces and figured and described by Mr. Rivett-Carnac at page 6 of Vol. XLVIII of the Society's Journal. The stone celts were probably in some cases fixed on to the handle with bands of tude or string in the manner of the iron axe. A weapon of this shape was to be seen sculptured in one of the slabs of the Sanchi Topes, (photographed in Fergusson's 'Tree and Serpent Worship') in the hand of what Fergusson had described as a *Dasyu*, a description in which it was, however, believed Dr. Rájendralála Mitra did not agree.

The stone selected for the celts is generally greenstone of various degrees of fineness, in some cases nearly approaching the porphyry. The extreme of this class of rock is a hard black material resembling basalt. Very rarely this black material is found perfectly polished. One or two of the smaller specimens have been recently polished on one side and an edge given to them in order to shew the condition in which it is believed they were used, and it would be seen that a really practical axe or hatchet could be made out of this rough stone.

The collection also contained celts with depressions similar to those found in Europe, hammer or ring-stones, two remarkable stone hammers of an entirely new type, a stone pestle and a stone ploughshare.

The last class comprises some dozen stones of peculiar shape, the exact use of which it was difficult to suggest. They were perhaps intended for pivots for doors. The best specimens of the collection will be selected for description in the Society's Journal.

Mr. John Cockburn read extracts from a paper about to be published in the Society's Journal under the joint authorship of Mr. J. H. Rivett-Carnac, C. I. E., and himself. He explained the forms, uses, and manufacture of stone implements and exhibited a collection of celts, arrow heads, knives, chisels, rasps, planes, and borers. The results of the authors' researches were epitomized under three heads:—

Firstly, the discovery of flint implements of types hitherto only found in Egypt and the islands of the Greek Archipelago.

Secondly, the discovery of fossil bones found associated with stone implements, and in one instance bearing cuts supposed to have been made by such.

Thirdly, the finding of a bit of sculpture representing a man armed with a stone axe in its handle which has been assigned to a period between the 6th and 10th centuries. This date, if accepted by antiquarians, will, the authors are of opinion, be an important land-mark in the unwritten history of ancient India.

The following papers were read—

1. *Note on a Copper-plate Grant from Cuttack.*—By RĀJENDRALĀLA MITRA, LL. D., C. I. E.

In August last Mr. C. H. Tawney sent me, for decipherment, an inscription recorded on three plates of copper, which, he informed me, had been found at Cuttack by J. Winterscale, Esq. As Mr. Winterscale left Calcutta soon after, no information could be obtained as to the exact locale of the discovery of the plates, nor of the circumstances under which it was found.*

The plates measure 8.8 × 5.6 inches each, their thickness being one-tenth of an inch. They are held together by a thick copper ring with a clasp over the point where the two ends of the ring join. There is a misshapen knob on the clasp on which was formerly fixed a seal, which, however, having been badly soldered, has fallen off, and is now lost.

The plates are inscribed longitudinally, the first and the last on the inner side only, and the middle one on both sides. The number of lines inscribed on each side is thirteen, except on the last plate, on which there are thirteen lines and a half. The letters are of the Kuṭiḷa type, and in an excellent state of preservation, except in a few places on the first and the last plates.

The language of the record is Sanskrit, and the purport, the gift of a village named Yantralenu, in district Sammānī, in the province of Kośala, to one Uttamasāddhārāṇa, a Yajur Vedic Brāhman of Tākara. The donor was ostensibly Mahārājā Mahādevagupta, son of S'ivagupta, but really a petty chief of Kośala, of the name of Kandarpadeva, who, not being himself competent according to the Smṛiti to grant land, which theoretically belongs to the paramount power, invokes his name, and dates it after him on the 13th of the waxing moon in the month Mārgas'irsha (November-December), in the 31st year of his reign.

The name of the ostensible donor has nowhere else been met with, but that of his father occurs in a copper-plate grant noticed by Bābu Rangalāla Bānurji in the Journal for 1877 (XLVI, Pt. I, pp. 149f.). That record was

* Since writing the above I have seen a letter from Mr. Winterscale to the Secretary to the Society in which he gives the following account of his discovery of the plate :

'The copper plate was found by me in 1879 at a place called Chowdwār, about 3 miles from the left bank of the river Mahānadi. About the year 1600 Chowdwār was the stronghold of the Maharattas. I believe a copper plate was found about 1875 near the same place ; it was deciphered by Bābu Rangalāla Banurji, a Deputy Collector and Deputy Magistrate. The plate found by me was only about 3 feet underground, and was covered with verdigris, &c. I tried to get the writing deciphered here, and had the plate cleaned by the aid of limes, &c., but otherwise it has not been meddled with in any way : the seal was damaged when I found it.'

found in an old box in the office of the Cuttack Collectorate, where it had lain since 1810, when it was filed as an exhibit in support of a claim for some rent-free land. That the two plates refer to the same person is borne out also by the fact that the same person, Mádhava, was the engraver of both the records, and the style of the letters is closely alike. If this identification be accepted we get three names of the same dynasty, thus—

- I. Bhava-gupta.
- II. Śiva-gupta.
- III. Mahádeva-gupta.

Bábu Rangalála Bánurji assumed that the first two were scions of the later Gupta kings of Magadha, and that Yayáti the actual donor was a lieutenant of Śiva-gupta, and I have already accepted these assumptions to be correct.* Without them it is not possible to explain why Yayáti, who was well known as a most powerful king of Orissa and founder of the Keśarí line, should, in a solemn religious patent, recite the name of Śiva-gupta as the paramount sovereign. We know from the Apsár inscription that there was a long line of Gupta kings in Behar, and they called themselves the lords of the three Kaliᅅgas, and that Bhava-gupta was one of them, while there is nothing to show that there were any Gupta kings to the west or south of Orissa who could claim supremacy in that country. The progress of Yayáti was from the north; he first took Yájapur, then Bhuvanes'vara, and then Puri, and a paramount sovereign for him can be looked for only on the north, and that is Behar. And such being the case, the date of the record must be about the middle of the 6th century. Yayáti's reign extended from A. D. 474 to 526, and he lived in the time of Śiva-gupta, and the plates under notice are dated on the 31st of Mahádeva-gupta, the immediate successor of Śiva-gupta. Had Yayáti been living then, it is certain that so powerful a chieftain would have been named in the record, to give it weight, and as his name does not occur we must look for the date some time after A. D. 526.

The most serious objection to this identification would be the style of writing, which being Kuᅇila, the inference would at once be drawn by some that the record is of the 10th century; but as I have already elsewhere shown that the Kuᅇila character had a much wider range than a single century, it is not necessary to notice it here. The history of Orissa from the 7th century upwards is well known, and we have no Yayáti son of Janamejaya in the Orissan history after that date. We must, therefore, accept the Yayáti of the plate to be the founder of the Keśarí line, and since his name is associated with the Kuᅇila character in an unquestionably

* Vide my *Antiquities of Orissa*, II, p. 58. The district of Kośála obviously was situated in Orissa, and did not form, as supposed by Bábu Rangalála Bánurji, a part of Oudh.

authentic record, the arbitrary assumption of the Kuṭila being confined to a single century, and that the 10th, must be set aside.

- १ । खलि श्रीमदारामसमावासिनः श्रीमतेो विजयकटकान् । पर-
 २ । महारकमहाराज धिराजपरमेश्वरश्रीशिवगुप्तदेवपादानुथा-
 ३ । तपरममाहेश्वरपरममहारकमहाराजाधिराजपरमेश्वरसोम-
 ४ । कुलतिलकविकल्पिनाधिपतिमहाराजाधिराजश्रीमहादेवगुप्तदेवः कु-
 ५ । शशी कोशलदेवो सखानी विश (ष) यी यन्मलेगुपामे । ब्राह्मणान् स-
 ६ । मल्लत + म + यान् यथाकालाथासिनः समा + + सविधाहविप्र +
 ७ । + धिकारिकदाण्डपात्रिक चाटभट + मधिचिकाधरीभजन-
 ८ । राहकराजपुत्रराजवज्रभादीन् सर्वान् समाज्ञापयति । विदित-
 ९ । मसु भवता यथास्त्राभिरयकुामः सनिधिः सोपनिधिः सद्भाप-
 १० । राधः सर्वबाधाविवर्जितः सखोपधिककरादानसहितश्चतुःसि(षी)भापर्यन्तः
 ११ । साधमधुकः समर्पोपरः सजलः स्थलसहितः प्रतिनिषिद्धचाटभटाप्रवेशः
 १२ । टाकराविनिर्गताय कोशले सर्वबाधाप्रून्याय भरद्वाजगोपाय वार्ह-
 १३ । स्यात्वाहिरसप्रवराय वाजसेनशाखाध्यायिने भद्रश्रीमहत्तम-
 १४ । साधारणाय । भद्रश्रीखनदेवसुताय । सखिलधारापुरस्वरमाचन्द्रनारका-
 १५ । क्वचित्समकालीयभोगाय । मातापिचोरात्मनश्च पुण्ययथोभिश्च-
 १६ । ये तावद्वाग्नेनाकरीक्षत्य प्रतिपादितमित्यवगम्य सत्यमितभोगभान-
 १७ । करहिरण्यादिप्रत्यायमपनयद्विर्भवद्विः सुखेन प्रतिवक्ष्यमिति । भादि-
 १८ । भिष भूपतिभिर्दण्डिरेयमस्त्रदीयधर्मोत्तरेवादस्यदन् + + + खदति-
 १९ । रिवानुपालनीया ॥ तथा चोक्तं धर्मशास्त्रे । बद्धभिरवसुधा मुक्ता रा-
 २० । जभिः समगादिभिः यस्य यस्य यदा भूमिलस्य तस्य तदा फलं ॥
 २१ । माभूदक्षत्रशुभा नः परदत्तिनि (?) पार्थिवाः । सदानात् फलमा-
 २२ । नन्थं परदानानुपालने ॥ षट्ं वर्षसहस्रं चि स्वर्गोदति भूमिदः ।
 २३ । आखेप्रा चानुसम्मा च हितयं नरकं व्रजेत् ॥ अग्रैरपत्यः प्रथमः सु-
 २४ । सुभाग्यमावः । यः काञ्चनश्रीश्च मशीश्च दद्यात्
 २५ । दत्तास्यसंज्ञं भवन्ति लोकैः ॥ आखोदयन्ति पितरः प्रवक्ष्यन्ति पिता-
 २६ । महाः । भूमिदाता कुलो जातः स नक्षता भविष्यति ॥ भूमिं यः प्रतिश्ट-
 २७ । ष्ठाति यश्च भूमिं प्रयच्छति । उभौ तौ पुण्यकर्मासौ नियतं स्वर्गगामिनौ ॥
 २८ । तद्दामानां सचक्षाधि वाजपेयशतानि च । मवां कोटिप्रदानेन भूमिदर्ता
 २९ । न प्रश्रुति ॥ चरेत् चारयेत्सु मन्दबुद्धिस्तु मोहतः । सुभक्तो वाचसैः पा-
 ३० । शैक्षिद्यंशोभिं स नश्चति ॥ सुवर्णमेकं गामेकां भनेरखर्कमङ्गलं । च-
 ३१ । रत्नरकमाप्नोति यावदाभूतसंज्ञवं ॥ सद्दत्तात्परदत्तां वा यो चरेत् वसु-
 ३२ । रतां । स विद्यायाः क्षमिर्भूत्वा पित्रभिः सह पश्यते ॥ आदित्यो-
 ३३ । ववशा विष्वाङ्गया सोमो गजाननः । प्रुष्टगाधिश्च भगवा-
 ३४ । नभिमन्दति भूमिदं ॥ सामान्योयं धर्मसेतुर्द्वेषाणां । काले का-
 ३५ । लो पाण्डनीयो भवद्विः । सर्वानेवं भाविनः पार्थिवेन्द्रान् भूयो भूयो याचते रा-

- ३९ । मभद्रः ॥ इति कमलदलाभ्यविन्दुलोकां त्रियमनक्षत्रस्य मनुष्यजीवितस्य ।
 ४० । सकलमिदमुदाहृतस्य बुद्ध्या न हि पुत्रैः परकि(की)र्तव्या विशोष्याः ॥ सक-
 ४८ । लभूपालमौलिमालाधिलयम्भाचिक्रमयूकत्राताभिमण्डिताङ्गिकमल-
 ४९ । युगलः प्रचण्डोद्दिष्टमण्डलायण्डितारातिमगमातङ्गिभ्यकुम्भ-
 ४० । रत्नफलप्रसाधिताशेषरत्नसमीपफलः ॥ यस्माधारणनाच्चि मन्त्रितिल-
 ४१ । के विन्वस्य सन्नागामं धैर्योदन्ति तीव्रतेजसि धराराज्यस्य विप्रोत्तमे । माना-
 ४२ । स्थानकविसारास्ततरासादादमन्द् स्फुरन् सन्तोषात् सुखमन्वभूद्विर-
 ४३ । तं श्वशीशूडामणिः ॥ श्लोकाशेषार्थशालकृतिविमलधिया वेदवेदाङ्गि-
 ४४ । र्थां शिवां कल्पं जिह्वासुः प्रकठसुरगुहः प्राप्तभूमिष्ठघाञ्जा । साञ्जा साधार-
 ४५ । सेन द्विजवरविधिना मन्त्रिणा यस्य राज्यं नित्याद्यं वीर्यसद्विजयज-
 ४६ । ति विदितो वर्त्मकन्दर्पदेवः ॥ धरमसाहेसरपरमभद्रारक-
 ४७ । महाराजाधिराजपरमेश्वरसोमकुलतिलकचिकलिङ्गाधि-
 ४८ । पति श्रीमहादेवगुप्तदेवपादपद्मप्रवर्द्धमानविजयराज्ये एकविंशतमे
 ४९ । संवत्सरे । मार्गशुद्धि तिस्रो चयोदश्यां स्रष्टाङ्केनापि संवत् ११ मार्ग-
 ५० । शुद्धि ११ । लिखितमिदं विफलीताघमासर्गं महाभाविपद्मीराजकत्रीम-
 ५१ । षदतप्रिःशुद्धकायस्यश्रीमा + किल प्रियङ्करादित्यसुतेनेति ॥ प्रणीतं कोश-
 ५२ । सेन्द्रेण प्रतिबोध महत्तमं । आदत्तपुष्टरीकाचः श्रावणं ताघनिर्मितं ॥
 ५३ । अत् कि (की) निर् (र्षि) तं भाषवेन वाशप्रति + + ।

TRANSLATION.

May it be auspicious! From the victorious camp (or from the victorious town of Kāṭaka) of his majesty sojourning in his garden.

The great worshipper of Mahésvara, his august majesty, the superior of great kings, the great lord, the ornament of the race of the moon, the sovereign of the three Kālīngas, the superior of great kings, the auspicious Mahādeva-gupta Deva; son and successor of his august majesty, the superior of great kings, the great lord, the auspicious Śivagupta Deva, prospers. In the village of Yantralenu, in the district of Sammānī, in the province of Kośala, he thus proclaims to the Brāhman—? who perform their worship —? —? ministers of justice, soldiers—? mountaineers, Rānakas, princes, courtiers and all others. Be it known unto you, that this village with its mines, deposits, ten judicial powers, and freedom from all incumbrances, along with its rights, privileges, rents, and dues within its four bounds, together with all mango and mahūā trees and hollows, wastes, waters and dry lands, with exemption from the entrance of soldiers, has been given by me to Bhaṭṭa Uttamasādhāraṇa, an inhabitant of Tākara, in Kośala, of the Gotra of Bharadvāja and the Pravara of Vārhaspatyaṅgirasa, a reader of the Vājasaneyī śākhā (of the White Yajur Veda), and son of Bhaṭṭa Khagadeva. This is confirmed by being recorded in a copper plate

patent, preceded by sanctification with water,* and intended for enjoyment during the duration of the moon, the stars, the sun, and the earth, and for the enhancement of the virtue and fame of my parents and my own self. Knowing all this you should render all dues, usufructs, shares, rents, gold, &c., and dwell in peace. Taking this gift of mine as that of their own, out of respect for righteousness, future kings should uphold this grant. Thus has it been ordained in the *Dharma-sástra*—

“Many kings, like Sagara and others, have enjoyed the earth; to him accrued the fruit to whom belonged the earth for the time being.

“Let there be no suspicion, kings, that others’ gifts are fruitless, for the preservation of others’ gifts is more fruitful than gifts made by one’s ownself.

“The donor of land enjoys in heaven for sixty thousand years, while the two, the abrogator and the destroyer of it, repair to hell.

“The first is the son of fire. He who bestows gold, wealth and land to him in this world—†

“The fathers are elated, the grandfathers are filled with pride, when a donor of land is born in their family, one who will be to their redemption.

“Both, he who accepts land and he who bestows it, are performers of virtuous deeds, and are destined to go to heaven.

“Not even the excavation of a thousand tanks, nor even the performance of the *Vájapeya* sacrifice a thousand times over, nor even the gift of ten million head of cattle, can redeem the resumer of a land-grant.

“Whoever, from wicked motives or delusion, resumes, or causes to be resumed, a land-grant, is bound by the fetters of *Varuṇa*, and is born a brute.

“The robber of a *suvarṇa*,‡ or of land not exceeding even half a finger’s breadth in area, dwells in hell until the next entire destruction of the earth.

“Whoever resumes land, whether given by himself or by another, becoming a maggot, rots in ordure along with his ancestors.

“*Āditya*, *Varuṇa*, *Vishṇu*, *Brahmá*, *Soma*, the elaphocephalic god, and the wielder of the trident bepraise the donor of land.

“This is the common bridge of virtue for kings; it should be at all times protected by you; this is the prayer which *Ráma*, the auspicious, repeatedly addresses to all future kings.

“Knowing prosperity and human life and all and every thing that is here done to be as unsteady as a drop of water on a lotus leaf, no good man should efface the virtuous acts of others.”

* Lit. by the pouring of water.

† The distich is incomplete, and I cannot fully make out its purport.

‡ A sovereign, a gold coin.

He, the crest jewel of kings, whose two lotus feet are irradiated by the glory of the rubies sparkling on the diadems of kings; who, the fierce valiant one, has bestrewed battle-fields with pearls reft from the heads of herds of inimical elephants; who, reposing the revenue of his kingdom in the hands of the chief minister named Sádharma, a noble Bráhmaṇ, patient as the ocean, and most rigorous, enjoyed the pleasures of contentment by tasting the nectar of joy by travelling in various places; who without knowing the Vedas, the Vedáṅgas, the S'ikshás, and the Kalpas, became, by his clear understanding and knowledge of political economy and law, like the chief priest of the gods located on earth; whose kingdom is always thriving through the conciliatory action towards the public and the observance of Bráhmīc rules on the part of his minister—even he is the wealthy Varma, Kandarapadeva, renowned in the three spheres.

In the year thirty-one of the reign of the thriving and victorious lotus feet of the great worshipper of Maheśvara, of his noble majesty, the superior of great kings, the lord, the ornament of the lunar race, the sovereign of the three Kaliṅgas, the auspicious Mahádevagupta Deva, on the 13th day of the waxing moon of Marga (November-December),—in clear figures Samvat 31, Marga Sudi 13—was composed the text of these three copper tablets by the chief minister of war and peace, Malladatta, a Káyastha of pure lineage, the son of Priyañkaráditya. It was executed by the chief of Kośala with the knowledge of the great chief. This copper-made patent was witnessed by Puṇḍarikáksha,* and engraved by Mádhava.

2. *Memoir of the author of the Tabaqat-i-Násiri.*—By MAJOR G. H. RAVERTY.

This paper is an extract from the preface to the author's translation of the Tabaqat-i-Násiri, and will be published in the Journal, Part I, for 1882.

3. *On some new and rare Rhopalocerous Lepidoptera from the Indian Region.*—By MAJOR G. F. L. MARSHALL, R. E.

This paper will be published in the Journal, Part II, for 1882.

4. *On a collection of Japanese Clausiliae made by Brigade Surgeon R. Hungerford in 1881.*—By O. F. VON MOLLENDORFF, Ph. D., Vice-Consul for Germany, Hongkong. Communicated by J. WOOD-MASON, Natural History Secretary.

This paper will be published in the Journal, Part II, for 1882.

* The word Puṇḍarikáksha stands unconnected, and I have put in the words "witnessed," not knowing how otherwise to deal with it.

LIBRARY.

The following additions have been made to the Library since the Meeting held in December last.

TRANSACTIONS, PROCEEDINGS AND JOURNALS,

presented by the respective Societies and Editors.

- Baltimore. American Chemical Journal,—Vol. III. No. 4.
 ———. American Journal of Philology,—Vol. II, No. 7.
- Berlin. Journal für die reine und angewandte Mathematik,—Vol. XCI, Parts 1-4.
 ———. K. preussische Akademie der Wissenschaften,—Monatsbericht, July to October 1881.
- Bombay. The Indian Antiquary,—Vol. XI, Part 128, January 1881.
- Bordeaux. Société de Géographie Commerciale,—Bulletin, Nos. 22 and 23.
- Calcutta. Indian Meteorological Memoirs,—Vol. I, Part 6.
 ———. Original Meteorological Observations,—November and December 1880, January and February 1881.
- Dresden. Naturwissenschaftliche Gesellschaft Isis,—Sitzungsberichte und Abhandlungen, January to June 1881.
- Leipzig. *Ernepos*,—Vol. I, Nos. 1-10.
- London. Academy,—Nos. 498-501.
 ———. Athenæum,—Nos. 2821-2824.
 ———. Anthropological Institute of Great Britain and Ireland,—Journal, Vol. X, No. 4, May 1881.
 ———. Nature,—Vol. XXV, Nos. 630-632.
 ———. Royal Asiatic Society of Great Britain and Ireland,—Journal, Vol. XIII, Part 4, October 1881.
 ———. Royal Microscopical Society,—Journal, Vol. I, Part 5, October 1881.
- Stewart, Charles.*—On a supposed new Boring Annelid. Summary of current researches relating to Zoology and Botany.
- . Royal Geographical Society,—Proceedings, Vol. III, No. 10, October 1881.
 ———. Zoological Society of London,—Proceedings, Part 3, 1881.
- Munich. K. b. Akademie der Wissenschaften, mathematisch-physikalische Classe,—Sitzungsbericht, Parts 2 and 3, 1881.
 ———. ———. ———. Abhandlungen,—Vol. XIV, Part 1.
 ———. ———. philosophisch-philologische Classe,—Sitzungsbericht, Supplement, Part 6, 1880; Vol. I, Parts 1-2, 1881; and Vol. II, Part 1, 1881.
 ———. ———. ———. Abhandlungen,—Vol. XVI, Part 1.

- Munich. Repertorium für Experimental-Physik,—Vol. XVIII, Part 1.
- Paris. Journal Asiatique,—Vol. XVIII, No. 1, July 1881.
- . Société de Géographie—Bulletin, April 1881.
- . Société Zoologique de France—Bulletin, Parts 3-4, April to July 1881.
- Thomas, Ph.*—Recherches sur les Bovidés fossiles de l'Algérie. *Gasco, Dr. F.*—
Les Amours des Axolotls.
- Philadelphia. Academy of Natural Sciences,—Journal, Vol. VIII, (Second Series), Part 4.
- . ———. Proceedings, Parts I-III, January to December 1880.
- . American Philosophical Society,—Proceedings, Vol. XIX, Nos. 107-108.
- . ———. Transactions,—Vol. XV. Part III.
- Rome. Società degli Spettroscopisti Italiani,—Memorie, Vol. X, No. 10, October 1881.
- Roorkee. Professional Papers on Indian Engineering,—Vol. X, No. 42.
- Simla. United Service Institution of India,—Journal, Vol. X, No. 49.
- St. Petersburg. L'Académie Impériale des Sciences,—Mémoires, Vol. XXVIII, Nos. 3-7.
- Washington. Geological and Geographical Survey of the Territories, Bulletin,—Vol. VI, No. 2.

BOOKS AND PAMPHLETS,

presented by the Authors.

- GARDNER, D. M. The Hindu and Roman Law of Adoption. 8vo. London, 1881. Pam.
- GODWIN-AUSTEN, LT.-COL. H. H. On the Land Molluscan Genus *Durgella*, W. T. Blanford; with notes on its anatomy and description of a new species. 8vo. London. Pam.
- . Description of the Animal of *Durgella christiana*, a species of landshell from the Andaman Islands. 8vo. London, 1881. Pam.
- MALLERY, COL. GARRICK. Address before the American Association for the Advancement of Science at Cincinnati, Ohio. August 1881. 8vo. Salem, 1881.
- Report on the Census of the Town and Suburbs of Calcutta, taken on 17th February 1881. Compiled by H. Beverley. Fcp. Calcutta, 1881.

MISCELLANEOUS PRESENTATIONS.

- Archæological Survey of India, Reports, Vol. XII. 8vo. Calcutta, 1879.
- Annual Report on Inland Emigration for the year 1880-81. Fcp. Calcutta, 1881.

Report of the Internal Trade of Bengal for 1880-81. Fcp. Calcutta, 1881.
BENGAL GOVERNMENT.

Anniversary Memoirs of the Boston Society of Natural History, 1830-80.
4to. Boston, 1880.

BOSTON SOCIETY OF NATURAL HISTORY.

MUELLER, F. MAX. Anecdota Oxoniensia. Texts, Documents, and Extracts,
chiefly from MSS. in the Bodleian and other Oxford Libraries. Aryan
Series. Vol. I, Pt. I:—Buddhist Texts from Japan. 4to. Oxford, 1881.

CLARENDON PRESS, OXFORD.

Annual Report of the Commissioner of Agriculture for 1878 and 1879.
8vo. Washington, 1879-80.

DEPARTMENT OF AGRICULTURE, U. S., AMERICA.

RAVERTY, MAJOR H. G. Notes on Afghanistan and part of Biluchistan,
Section III. Fcp. London, 1881.

FOREIGN DEPARTMENT.

BALL, V. A Manual of the Geology of India. Vol. III (Economic Geo-
logy). 8vo. Calcutta, 1881.

GEOLOGICAL SURVEY OF INDIA.

Achæological Survey of India. Reports, Vol. XII. 8vo. Calcutta, 1879.

The Indian Antiquary, Vol. XI, Part 128, January 1882.

HOME DEPARTMENT.

Brief Sketch of the Meteorology of the Bombay Presidency in 1880. 8vo.
Bombay, 1881.

METEOROLOGICAL REPORTER FOR WESTERN INDIA.

CHRIST, WILHELM VON. Gedächtnisrede auf Leonhard von Spengel. 4to.
München, 1881.

HEIGEL, KARL THEODOR. Die Wittelsbacher in Schweden. 4to. München
1881.

MUNICH ACADEMY.

Report on the Administration of the N. W. P. and Oudh, ending 31st
March 1881. 8vo. Allahabad, 1881.

GOVERNMENT, N. W. PROVINCES.

TUPPER, C. L. Punjab Customary Law. Vols. I—III, 8vo. Calcutta,
1881.

Records of the Geological Survey of India, Vol. XIV, Part 4, 1881.

REVENUE AND AGRICULTURAL DEPARTMENT.

A Memorial of Joseph Henry. 8vo. Washington, 1880.

SMITHSONIAN INSTITUTE.

BAIRD, CAPT. A. W., AND ROBERTS, E. Tide-Tables for the Indian Ports
for 1882. 8vo London.

———. Tide-Tables for the River Hooghly, Diamond Harbour, Fort
Gloster and Kidderpore (Calcutta) for 1882. 8vo. London.

SUPT., TIDAL AND LEVELING OPERATIONS, SURVEY OF INDIA.

PERIODICALS PURCHASED.

- Berlin. Deutsche Litteraturzeitung,—Vol. II, Nos. 1-41.
- Calcutta. Indian Medical Gazette,—Vol. XVI, No. 12, December 1881 ;
and Vol. XVII, No. 1, January 1882.
- Edinburgh. Edinburgh Review,—No. 316, July to October 1881.
- Geneva. Archives des Sciences Physiques et Naturelles,—Vol. VI, No. 11.
- Giessen. Jahresbericht über die Fortschritte der Chemie,—Part 2, 1880.
- Göttingen. Gelehrte Anzeigen,—Nos. 45-48.
- . Nachrichten, No. 14.
- Leipzig. Annalen der Physik und Chemie,—Vol. XIV, No. 3.
- . ———. Beiblätter,—Vol. V, No. 11.
- . Botanisches Centralblatt,—Vol. VII, Nos. 11-13 ; and Vol. VIII,
No. 1.
- . Literarisches Centralblatt,—Nos. 39-41, September to October
1881.
- London. Annals and Magazine of Natural History,—Vol. VIII, No. 46,
October 1881.
- Carter, H. J.*—Contributions to our knowledge of the *Spongida*. Order I.
Carnosa.—*Miers, Edward J.*—On a collection of *Crustacea* made by Baron
Hermann Maltzan at Goree Island, Senegambia.
- . Chemical News,—Vol. XLIV, Nos. 1147-1150.
- . Entomologist,—Vol. XIV, No. 221, October 1881.
- . Entomologist's Monthly Magazine,—Vol. XVIII, No. 209, Octo-
ber 1881.
- Osten-Sacken, C. R.*—A brief notice of Carl Ludwig Doleschall, the Dipterolo-
gist.
- . Journal of Botany,—Vol. X, No. 226, October 1881.
- . Journal of Conchology,—Vol. III, No. 7, July 1881.
- . Journal of Science,—Vol. III, No. 94, October 1881.
- . London, Edinburgh, and Dublin Philosophical Magazine,—Vol.
XII, No. 75, October 1881.
- . Messenger of Mathematics,—Vol. XI, No. 5.
- . Mind,—No. 24, October 1881.
- . Nineteenth Century,—Vol. X, No. 56, October 1881.
- . Numismatic Chronicle,—Vol. I, Part 2, 1881.
- . Publishers' Circular,—Vol. XLIV, No. 1060.
- . Quarterly Journal of Microscopical Science,—Vol. XXI, No. 84,
October 1881.
- Klein, E.*—The Organ of Jacobson in the Rabbit. *Bower, F. O.*—On the fur-
ther development of *Welwitschia mirabilis*. *Mitsukuri, K.*—On the Struc-
ture and Significance of some aberrant forms of Lamellibranchiate Gills.
Lankester, E. Ray.—Limulus an Arachnid.

- London. Society of Arts,—Journal, Vol. XXX, Nos. 1513-1516.
 New Haven. American Journal of Science,—Vol. XXII, No. 129.
 Paris. Annales de Chimie et de Physique,—Vol. XXIV, November 1881.
 ———. Comptes Rendus,—Vol. XCIII, Nos. 19-22.
 ———. Journal des Savants, November 1881.
 ———. Revue Critique,—Vol. XII, Nos. 46-49.
 ———. Revue des deux Mondes,—Vol. XLVIII, No. 2.
 ———. Revue Scientifique,—Vol. XXVIII, Nos. 21-24.

BOOKS PURCHASED.

- BARTH, A. The Religions of India. 8vo. London, 1882.
 BELLEW, SURGEON-MAJOR H. W. The Races of Afghanistan, being a brief account of the principal nations inhabiting that country. 8vo. Calcutta, 1880.
 DARWIN, CHARLES. The Formation of Vegetable Mould. 12mo. London, 1881.
 FOULKES, REV. THOS. The Hindu Law of Inheritance, according to the Sarasvati-Vilása. 8vo. London, 1881.
 Gleanings in Science. Vols. I-III. 8vo. Calcutta, 1829-31.
 HARVEY, WILLIAM. The works of William Harvey, M. D. Translated from the Latin with a Life of the Author by Robert Willis, M. D. 8vo. London, 1847.
 JACOB, MAJOR G. A. A Manual of Hindu Pantheism. The Vedántasára. 8vo. London, 1881.
 ROSCOE, H. E., AND SCHOBLEMMER, C. A Treatise on Chemistry. Vol. III:—Organic Chemistry, Part 1. 8vo. London, 1881.
 STACK, CAPT. GEORGE. A Dictionary, English and Sindhi. 8vo. Bombay, 1879.
 STEBENDALE, ROBERT A. Denizens of the Jungles: a series of sketches in pen and pencil. Obl. Folio. Calcutta, 1881.
-

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.
FOR FEBRUARY 1882.

The Annual Meeting of the Asiatic Society of Bengal was held on Wednesday, the 18th February 1882, at 9 P. M.

DR. RAJENDRALALA MITRA, C. I. E., Vice-President, in the Chair.

According to the Bye-Laws of the Society the Chairman ordered the voting papers to be distributed for the election of Officers and Members of Council for 1882; and appointed

DR. D. WALDIE and MR. J. ELIOT, Scrutineers.

The CHAIRMAN then called upon the Secretary to read the Annual Report.

ANNUAL REPORT FOR 1881.

The Council have much pleasure in submitting the following Report of the state and progress of the Society during the past year.

During the year 1881, 24 gentlemen were elected members of the Society. The elections of two of these and of three of those elected in 1880 were cancelled. Thirteen members withdrew from the Society, seven died, and the names of 5 were removed from the Member list in accordance with the provisions of Rule 40. The total number of Members therefore at the close of 1881 was 350 against 356* of the previous year. Of these 110 are Resident, 168 Non-Resident, 17 Foreign, 14 Life, and 41 Non-Subscribing Members.

* The total number of Members at the close of 1880 was 356, and not 355, as stated in the last Annual Report, the name of one Member being by an oversight omitted in the last Member List.

The following table shows the fluctuations in the number of Ordinary Members for the past 6 years.

YEAR.	PAYING.				NON-PAYING.			GRAND TOTAL.
	Resident.	Non-resident.	Foreign.	Total.	Life.	Absent.	Total.	
1876	119	175	...	294	5	48	53	347
1877	113	165	14	290	9	46	55	345
1878	117	163	15	285	13	29	42	327
1879	111	154	16	281	12	36	48	329
1880	112	185	15	312	14	30	44	356
1881	110	168	17	295	14	41	55	350

To fill four of the vacancies in the Honorary Member List caused by the deaths of Sir John Phillipart, Count de Noe, Professor Isaac Lea, Colonel W. Munro and Sir J. W. Colvile, the following Gentlemen were, on the recommendation of the Council, elected Honorary Members:—Professor Hermann L. F. Helmholtz, Dr. Rudolph von Roth, Sir William Thomson and Professor William Wright. The remaining vacancy has been left unfilled for the present.

The Society has lost the following Ordinary Members by death during the year 1881:—Major-General Edward Tuite Dalton, the author of the "Ethnology of Bengal," and of several papers on the Geography and Ethnology of Assam published in the Society's Journal and Proceedings, Captain W. H. Johnstone, Kumar Kantichandra Singh, Mr. L. Mandelli, Mr. C. Magrath and Mr. W. M. Souttar.

Indian Museum.

Sir Ashley Eden, President, (from the date of his election in March), Mr. C. H. Tawney, Mr. H. Beverley and Dr. A. F. R. Hoernle have acted as Trustees on behalf of the Society. On Mr. A. Pedler leaving India in May, Mr. J. Eliot was elected Trustee in his place.

The following presentations have been made to the Museum, through the Society, during the year:—(1) Weapons from the Andamans and the Nicobars presented by Mr. F. A. de Roepstorff; (2) Spindle whorls, fragments of clay figures, pieces of pottery and other antiquities found in excavations carried on at Jowhri Dih, presented by Mr. J. E. P. Lincke; (3) Hollow earthenware structures probably used as ornaments on a balustrade, and a brick from Moti Bazar, Bulandshahr, presented by Mr. F. S. Growse.

Finance.

The accounts (which will be found in the Appendix) have been kept in the mode introduced during the year 1880, and the Summaries are issued in the same form as was adopted last year.

The method has worked very satisfactorily during the year, and has, as was anticipated, considerably reduced the labour of their preparation and added to their clearness and precision.

An estimate of income and expenditure was prepared last year and laid before the Society at its Annual Meeting. According to this it was anticipated that the income would amount to Rs. 16,300 and the expenditure to Rs. 15,816 and that there would probably be a small balance on the favourable side of the accounts. This has not been realized. Owing largely to the exertions of the officers of the Society, on the one hand a much larger amount of the subscriptions for this year and the outstanding debts was collected than was estimated, and on the other a searching examination of the books showed that a larger amount was due from Members than was indicated by the accounts before this revision.

The income of the Society was Rs. 19,588-10-2 or Rs. 2,688 in excess of the anticipated amount.

The expenditure of the Society has, the Council regrets to state, been not only considerably in excess of the estimate but also of the income. The total for the year was Rs. 21,464-11-7 or Rs. 1,876-1-5 in excess of income.

This large expenditure is mainly due to increase in the important item of Publications. The estimate passed by the Council was Rs. 6,310, whilst the actual expenditure was Rs. 9,195-14-7.

As the income of the Society barely suffices to pay the expenses as shewn by estimate, it is, we consider, essential that measures should be taken to secure due control over expenditure under this head, so that the Honorary Secretaries in charge of publications may limit their expenditure to the amount allowed for the year.

The only other item in which the increase is very marked is that of postage. This is due to the fact that the Society's Journals and Periodicals are now forwarded by post in all cases to Members, whether in India or in Europe.

With the exception of this point the financial condition of the Society is on the whole satisfactory. The Cashier recently engaged under arrangements made by Mr. Douglas has taken much trouble and has performed his duties satisfactorily.

The following is the estimate of income and expenditure for the year 1882.

RECEIPTS.

Subscriptions	...	...	...	...	Rs. 8,250
Sale of Periodicals	...	...	...	...	1,000
Admission Fees	...	...	...	...	1,000
Interest on Investment	...	...	...	...	6,650
					<hr/>
					Rs. 16,900
					<hr/>

EXPENDITURE.

Salaries	...	...	...	...	Rs. 4,570
Commission	...	...	...	...	350
Pensions	...	...	...	...	228
Stationery	...	...	...	...	250
Lighting	...	...	...	...	80
Building	...	...	...	...	600
Taxes	...	...	...	...	720
Postage	...	...	...	...	1,000
Freight	...	...	...	...	50
Meetings	...	...	...	...	100
Contingencies	...	...	...	...	400
Books	...	...	...	...	1,500
Local Periodicals	...	...	...	...	60
Binding	...	...	...	...	500
Coins	...	...	...	...	50
Printing and Publications	...	...	...	...	8,850
Plates	...	...	...	...	2,450
					<hr/>
					Rs. 16,758
					<hr/>

London Agency.

Messrs. Trübner and Co.'s accounts showed a balance at the end of 1880 of £49-9-0½ in their favour. The sale proceeds of the Society's publications sold by Messrs. Trübner and Co. during that year amounted to £79-19-2, and of the Bibliotheca Indica to £67-11-0. Fifteen invoices of books purchased and of publications of different Scientific Societies sent in exchange were received from Messrs. Trübner and Co. during 1881. The value of the books purchased amounted to £181-5-6: 524 copies of the Journal, 961 copies of the Proceedings and 822 copies of parts of the Bibliotheca Indica were sent to Messrs. Trübner and Co. for sale.

The copies of the *Journal*, *Proceedings* and *Bibliotheca Indica* for 1881, intended for Societies and Members in Europe, were sent by post instead of through Messrs. Trübner and Co. as has hitherto been done.

Library.

The additions to the Library during the year amount in all to 1,845 volumes or parts of volumes, 1,092 of which were presentations or were received in exchange for the Society's publications, and 753 were purchases.

The Catalogue of the Library is now passing through the press under the superintendence of Mr. H. B. Medicott. The Council regret that the work is progressing very slowly owing to the inaccuracy and want of arrangement in the manuscript Catalogue. In consequence of this, the Catalogue had to be almost entirely re-arranged before it could be sent to press: and it is necessary for the Assistant Secretary in revising the proofs to check the correctness of the titles of the books by comparing them with the books themselves. The Council, however, hope that the Catalogue will be published and distributed to Members in the course of the ensuing year.

The work of cataloguing the Sanskrit books and manuscripts, for which a special Pandit was engaged, is nearly completed, and satisfactory progress has been made by the Munshi engaged to catalogue the Persian and Arabic books and manuscripts. For the purpose of preserving the manuscripts from the ravages of insects, it was decided on the proposal of Dr. Mitra to treat certain of them with a preparation of arsenic, and a duftry was temporarily engaged for that purpose.

Publications.

During the past year the following Nos. of the *Journal* and *Proceedings* were published: *Journal* Part I, Nos. 1—4 of 1881, containing 251 pages of letterpress and 20 plates; Extra No. to the *Journal*, Part I for 1880 containing 171 pages; *Journal* Part II, No. 4 of 1880, and Nos. 1—4 of 1881, containing 354 pages and 17 plates.

Proceedings, No. 10, of 1880 and Nos. 1—8 of 1881, containing 176 pages and 3 plates.

Building.

The sum spent on repairs during 1881 was very trifling, amounting to Rs. 461-8-9. Of this amount Rs. 350 was paid for the repairs of the road in the compound.

Coin Cabinet.

Altogether 95 coins were acquired during the past year: of these 62 were purchased; the remainder, 33, are presentations.

Among the purchases there are 4 gold (see *Proceedings* 1880, p. 40),

32 silver (including the 14 early Muhammadan coins found near Gauhati, *ibid.* p. 52), and 26 copper coins.

Among the presentations are: 2 Jaunpûri silver coins from Rájá Udayapratápa Sinha of Bhinga, Oudh (*ibid.*, p. 41); 2 old Hindi and one Khalífa silver and one unknown copper coin from Mr Holgnette (*ibid.*, pp. 41, 42); 14 copper coins from the Political Agent, Bundelkhand; one copper coin from the Magistrate of Fatehpur; 12 copper coins from the Political Agent, Charkharee.

Secretary's Office.

Dr. A. F. R. Hoernle has continued to act as Philological Secretary throughout the year.

During Mr. Wood-Mason's absence from Calcutta, from January to September, Mr. V. Ball officiated as Natural History Secretary, and on the resignation of Mr. J. Douglas in March he also took up the duties of Treasurer.

On Mr. Ball's leaving India in September, Mr. J. Wood-Mason resumed the Natural History Secretaryship and Mr. J. Eliot was appointed Treasurer. Mr. H. F. Blanford and Mr. A. Pedler officiated as Treasurer on two occasions when Mr. Eliot was absent from Calcutta.

Mr. A. Pedler resigned the General Secretaryship in April and Dr. H. W. M'Cann was appointed in his place. During Dr. M'Cann's absence from the middle of May to middle of June, Mr. Eliot officiated as General Secretary: and during Dr. M'Cann's absence in November, Mr. Wood-Mason officiated as Secretary.

Mr. W. A. Bion and Mr. E. S. Andrews have continued to hold the posts of Assistant Secretary and Assistant Librarian respectively.

Babu Ram Jivan Mukerji, the Cashier, was dismissed in January, and Babu Nriya Gopal Basu was appointed Cashier. The services of the Babu employed temporarily to index the Society's old Records were dispensed with at the end of January, as it was found advisable to do so on financial grounds. A copyist was appointed in May on Rs. 15 per mensem.

Bibliotheca Indica.

Twenty fasciculi were published during the year; sixteen in the Sanskrit and four in the Arabic-Persian Series. They belong to thirteen different works, of which three belong to the Arabic-Persian and ten to the Sanskrit Series. Among them two in the Sanskrit and one in the Arabic-Persian Series have been completed, and four, all in the Sanskrit Series, have been commenced. The former are the *Taittiríya Saṁhitá*, and the *Taríkh-ul-Khulfi*; the latter are the *Pátanjala Yoga Sútra*, the *Apastamba Srauta Sútra*, and the English Translation of the *Lalita-Vistara*. One work, the *Vishṇu Smṛiti*, has been both commenced and completed during the year.

Among these publications there are four English Translations ; *viz.*, of the *Tarīkh-ul Khulfa* in the Arabic-Persian Series, and of the *Kathá Sarit Ságara*, the *Lalita Vistara* and the *Pátanjala Yoga Sútra*, in the Sanskrit Series. There are also ten text editions, two in the Arabic-Persian and eight in the Sanskrit Series. Of the *Pátanjala Yoga Sútra* both text and translation are being published *pari passu*.

A. Arabic-Persian Series.

1. Of the **ИŞÁBAH** or Biographical Dictionary of persons that knew Muhammad, by Ibn Hajar, one fasciculus has been published by Maulvi 'Abdul Hai, Head Professor of the Calcutta Madrasah.

2. Major H. S. Jarrett has published the sixth fasciculus of his annotated English translation of the **ТАРИХ-УЛ-КХУЛФА**, or the History of the Caliphs by Jalál-ud-dín as Suyúti. This concludes the work.

3. Of the **АКБАРНАМАH**, edited by Maulvi 'Abdur Raḥím, two fasciculi have been published. These commence the third Volume of that work.

B. Sanskrit Series.

4. Pandit Maheśachandra Nyayaratna, Principal of the Sanskrit College, has brought out the thirty-second fasciculus of his edition of the **ТАИТТИРІYA SAMHITÁ**, containing the earliest recensions of the mantras of the Black Yajur Veda together with the commentary of Mádhava Áchárya. This completes the fourth volume of that work.

5. The same editor has issued one more fasciculus of the text of the **МІМАМСÁ DARŚANA**, a critical commentary on the ritual of the Veda, accompanied by the commentary of Śavara Svámin. This is the fifth of the Society's series of the six Darśanas. The texts of four have been already published ; and the sixth is the *Yoga Sútra* of Patanjali, mentioned below (No. 12).

6. Dr. Rájendralála Mitra has advanced his edition of the text of the **ВАYU PURÁNA** by one fasciculus, the first of the second volume. This is the second of the Society's Series of the Puráṇas, a sort of Cyclopædias of Sanskrit Literature. The first is the *Agni Puráṇa*, a complete edition of which has already been published by the same learned editor.

7. Mr. C. H. Tawney, M. A., Principal of the Presidency College, has published three fasciculi of the second volume of his English translation with notes of the **KATHÁ SARIT SÁGARA** or the Ocean of Streams of Story. Four more fasciculi will probably complete this work, which is the celebrated repository of Indian legends composed from older sources by Somadeva of Kashmír toward the close of the eleventh century. The stories are illustrated by notes which refer to similar legends current in other collections of folklore.

8. Pandit Satyavrata Sāmaśramī has brought out three fasciculi of his edition of the NIRUKTA, the well known glossarial explanation of obscure Vedic terms, together with extracts from various commentaries.

9. One fasciculus has been published of Hemadri's CHATURVARGACHINTAMANI by the joint-editors, Pandits Yogeśvara Smṛitiratna and Kāmākhyanātha Tarkaratna. This commences the fifth part of the work, the Paśiśha Khaṇḍa ; it is, however, the third volume of the Society's series, manuscripts for two parts being wanting.

Among the works which were announced in the Annual Report of last year to be in course of preparation (see Proceedings 1880, p. 29), are the following, portions of which have been published :—

10. The VIŠṆU SMṚITI, by Professor Jolly of Würzburg, containing the text with extracts from various commentaries. The whole work has been already completed in two fasciculi.

11. The ĀPASTAMBA ŚRAUTA SŪTRA, a very rare and important work connected with the Black Yajur Veda, edited by Professor R. Garbe of Königsberg, together with the Commentary of Rudradatta. Two fasciculi of this work have been issued.

12. The YOGA SŪTRA of Patanjali, of which the first fasciculus has been published by Dr. Rājendralāla Mitra. The text is accompanied by the commentary of Bhoja Rājā and an English translation of both the text and commentary ; also by an English commentary compiled by the editor himself, including short extracts from the commentaries of Vyāsa Vijñāna Bhikshu and Vachaspati Mīśra.

13. The same editor has issued the first fasciculus of his English translation of the LALITA-VISTARA, one of the most ancient and important works on the earlier portion of the life of Buddha.

Continuations of the following works are being prepared :—

1. ṬABAQĀT-I-NĀṢĪBĪ by Abū 'Umar-i-Uṣmān, translated by Major H. G. Raverty. One more fasciculus will complete this valuable work.

2. The PRĀKRITA LAKṢHAṆA by Chaṇḍa, a Grammar of the Ancient Prakrit, edited by Dr. A. F. Rudolf Hoernle. The second fasciculus, containing translation and notes, is nearly ready.

3. The PRITHIRĀJ RĀSAU, by Chand Bardāī ; text and translation, by Dr. A. F. Rudolf Hoernle.

4. The KĀTANTRA, with the Commentary of Dūrga Simha, edited with notes and indexes, by Dr. Julius Eggeling. One fasciculus with the introduction remains.

The following works are in course of preparation :

5. The BRIHADDEVATĀ, a very interesting metrical work of Saunaka on the deities invoked in the hymns of the Rig Veda, edited by Dr. Rājendralāla Mitra.

6. The **CHARAKA**, the oldest work on Hindú Medicine translated with notes, by Dr. Mahendralála Sarkár.

The following works have been newly sanctioned for publication, and are being prepared :—

7. The **PARÁSARA MÁDHAVA SMṚITI**, to be edited by Pandit Chandra-kánta Tarkálankára, who has just completed an able edition of another law book, the **Gobhiliya Sútra**.

8. The **SÚŚRUTA**, an ancient Hindú Medical work, hardly less important than the **CHARAKA**, to be translated with notes, by Dr. U. C. Datta.

9. The **NAQÁTD** of el Ferazdáq and Jerir ; an extremely interesting work, both from the philological and historical point of view ; text and commentary ; to be edited by Professor Wright of Cambridge (see Proceedings, 1880, p. 65).

10. The **LÁMIYYET-EL-ÁRAB**, text, with two English translations, one in prose and the other in verse, by Mr. C. J. Lyall, B. A., C. S.

11. The **MUNTAḤḤAB-UL-TAWARÍKH** by 'Abdul-Ḷádir, second volume, by Rev. W. H. Lowe, M. A., of Cambridge. The text, in 3 volumes, has been already published by the Society.

The following is a detailed list of the publications issued during 1881:—

Arabic-Persian Series.

1. **IŞÁBAH**, edited by Maulvi 'Abdul Hai of the Calcutta Madrasah, No. 253 (old Series) Fasc. XIX (Vol. III, No. 2).

2. **TARÍKH-UL-ḶHULFA** or History of the Caliphs, translated by Major H. S. Jarrett ; No. 453, Fasc. VI.

3. **AKBARNÁMAH**, by Maulvi 'Abdur Raḥím, of the Calcutta Madrasah ; Nos. 467, 468, Vol. III, Fasc. I.

Sanskrit Series.

4. **TAITIRÍYA SAMHITÁ**, of the Black Yajur Veda, with the commentary of Mádhava Áchárya, edited by Pandit Maheśachandra Nyayaratna. No. 466, Fasc. XXII.

5. **MÍMÁMSÁ DARŚANA**, with the Commentary of Śavara Svámin, edited by Pandit Maheśachandra Nyayaratna, No. 470, Fasc. XVI.

6. **VÁYUPURÁNA**, a system of Hindú mythology and tradition, edited by Dr. Rájendralála Mitra, C. I. E. ; No. 457, Vol. II, Fasc. I.

7. **KATHÁ SARIT SÁGARA** or Ocean of the Streams of Story, translated from the Sanskrit by C. H. Tawney, M. A. Nos. 456, 459, 465, Vol. II, Fasc. VII—IX.

8. **NIBUKTA**, with commentaries, edited by Pandit Satyavrata Sámaśramí ; Nos. 454, 460, 471, Vol. I, Fasc. II—IV.

9. **CHATURVARGA CHINTAMANI**, by Hemádri, edited by Pandits

Yogésvara Smṛitiratna, and Kámákhyanátha Tarkaratna. Nos. 464, Vol. III, Fasc. I.

10. VISHṆU SMṚITI or the Institutes of Vishnu, edited by Dr. Julius Jolly, Professor of Sanskrit, Würzburg. Nos 458, 463. Fasc. I and II.

11. ĀPASTAMBA ŚRAUTA SŪTRA, belonging to the Black Yajur Veda with the Commentary of Rudradatta, edited by Dr. Richard Garbe, Professor of Sanskrit, Königsberg. Nos. 461, 469, Fasc. I and II.

12. PĀTANJALA JOGA SŪTRA or the Yoga Aphorisms of Patanjali, with the commentary of Bhoja Rájá and an English translation, by Dr. Rájendralála Mitra, C. I. E. No. 462, Fasc. I.

13. LALITA-VISTARA or Memoirs of the early life of Sákya Siñha, translated from the original Sanskrit by Dr. Rájendralála Mitra, C. I. E. No 455, Fasc. I.

Related with the Bibliotheca Indica is the publication, by the Society, of the ORIENTAL BIOGRAPHICAL DICTIONARY, by the late Thomas William Beale. It has been proceeding for some years under the superintendence of Mr. H. G. Keene, C. S., M. R. A. S., and has been brought to a successful termination during the past year. This is a work of considerable value; it is "intended to be used as a work of reference on matters "connected with Oriental History, and has been compiled by the author "with the greatest care to ensure accuracy in the narrative as well as in "the dates of births, deaths and other events."

List of Societies, Institutions, &c. with which exchanges of Publications have been made during 1881.

Amsterdam :—Royal Zoological Society.

Baltimore :—Johns Hopkins University.

Batavia :—Society of Arts and Sciences.

———— :—Kon. Natuur Kundige Vereeniging in Nederlandsch-Indië.

Berlin :—Royal Academy.

Berne :—Swiss Entomological Society.

Bombay :—Bombay Branch, Royal Asiatic Society.

———— :—Editor, Indian Antiquary.

Boston :—Natural History Society.

Bordeaux :—Bordeaux Academy.

———— :—Linnean Society.

Brussels :—Royal Academy of Sciences.

Buenos Ayres :—Public Museum.

Calcutta :—Agricultural and Horticultural Society of India.

———— :—Geological Survey of India.

Cambridge :—University Library.

Cassel :—Natural History Society.

- Cherbourg :—National Society of Natural Science.
 Christiana :—University Library.
 Colombo :—Royal Asiatic Society, Ceylon Branch.
 Copenhagen :—Royal Society of Northern Antiquaries.
 Dehra-Dun :—Great Trigonometrical Survey.
 Dublin :—Royal Dublin Society.
 ——— :—Royal Irish Academy.
 Edinburgh :—Royal Society.
 Florence :—Società Italiana di Antropologia di Etnologia.
 Geneva :—Société de Physique et d' Histoire Naturelle.
 Genoa :—Museum of Natural History.
 Halle :—Bibliothek der deutschen Morgenländischen Gesellschaft.
 ——— :—Die Kais. Leopoldinisch-Carolinische Akademie.
 Königsberg :—Physical and Economical Institution.
 Leyden :—Royal Herbarium.
 Liége :—Royal Society of Sciences.
 ——— :—Geological Society of Belgium.
 Liverpool :—Literary and Philosophical Society.
 London :—Anthropological Institute.
 ——— :—British Museum.
 ——— :—Editor, Academy.
 ——— :—Editor, Atheneum.
 ——— :—Editor, Nature.
 ——— :—Geological Society.
 ——— :—Institution of Civil Engineers.
 ——— :—Institution of Mechanical Engineers.
 ——— :—Linnean Society.
 ——— :—Royal Society.
 ——— :—Royal Asiatic Society of Great Britain and Ireland.
 ——— :—Royal Astronomical Society.
 ——— :—Royal Geographical Society.
 ——— :—Royal Institution.
 ——— :—Royal Microscopical Society.
 ——— :—Society of Telegraph Engineers.
 ——— :—Statistical Society.
 ——— :—Zoological Society.
 Lyon :—Agricultural Society.
 ——— :—Museum of Natural History.
 Madras :—Literary Society.
 Manchester :—Literary and Philosophical Society.
 Moscow :—Société des Naturalistes.
 Munich :—Royal Academy.

Munich :—Editor, *Repertorium für Experimental-Physik.*
Netherlands :—Royal Society.
New Haven, U. S. :—Connecticut Academy of Arts and Sciences.
Oxford :—Bodleian Library.
Paris :—Anthropological Society.
 — :—Asiatic Society.
 — :—Geographical Society.
 — :—Imperial Library.
 — :—Zoological Society.
Philadelphia :—Academy of Natural Science.
Pisa :—Tuscan Society of Natural Science.
St. Petersburg :—Imperial Library.
 — :—Imperial Russian Geographical Society.
 — :—Imperial Academy of Sciences.
San Francisco :—Californian Academy of Arts and Sciences.
Shanghai :—North China Branch, Royal Asiatic Society.
Simla :—United Service Institution of India.
Stellin :—Entomological Society.
Stockholm :—Royal Academy of Sciences.
Stuttgart :—Natural History Society of Württemberg.
Sydney :—Royal Society of New South Wales.
Trieste :—Adriatic Society of Natural Science.
Turin :—Royal Academy of Sciences.
Vienna :—Anthropological Society.
 — :—Imperial Academy of Sciences.
 — :—Imperial Geological Institute.
 — :—Zoological Society.
Washington :—Commissioners of the Department of Agriculture.
 — :—Smithsonian Institution.
Yokohama :—Asiatic Society of Japan.
 — :—German Oriental Society.
Zagreb :—Archæological Society.

ABSTRACT OF PROCEEDINGS OF COUNCIL DURING 1881.

January 27th. Ordinary Meeting.

A note by Dr. R. Harvey and Dr. D. B. Smith was read on the subject of Dr. Charles's MSS. of the *Nidana* and *Suśruta*, and the plan suggested by Dr. Mitra that the MSS. should be revised and edited by Dr. Uday Chand Dutt was approved of.

A letter was read from the Private Secretary to Sir Ashley Eden, stating that Sir Ashley Eden would be glad to accept the office of President ;

and a letter from the Hon'ble H. J. Reynolds was also read expressing his willingness to be nominated one of the Vice-Presidents.

In accordance with an order passed by the Council the Secretary submitted estimates for printing the Library Catalogue. The matter was referred to a Committee consisting of the officers of the Society, with power to act.

The Council, after consideration, decided not to adopt suggestions made by Mr. J. Burgess for the joint publication by scholars throughout India of a monthly Oriental Journal.

It was resolved that Rs. 20 of the Moulvie's and Rs. 20 of the Pandit's pay should be charged to the Oriental Publication Fund from the date of their engagement.

The Annual Report and Accounts, the budget estimate, and the programme for the Annual Meeting were submitted. The babu employed for indexing the Society's old Records was discharged on the recommendation of the Finance Committee.

The Treasurer submitted a statement showing the Stock of Publications possessed by the Society and the Oriental Publication Fund.

February 24th. Ordinary Meeting.

With reference to a proposal made by Dr. G. W. Leitner that the Society should write to Government and recommend that he should be granted leave to Europe to elaborate the materials he had collected on the languages and races of the N. W. Frontier, it was resolved that the Society could not take the initiative in such a matter, but that the Council would be prepared to express their opinion on the subject if they should be applied to by Government.

A suggestion made by Mr. J. Beames that the Society should endeavour to obtain copies of some of the Jain MSS., mentioned in Dr. Mitra's "Catalogue of Bikaner MSS," was approved of; and the Philological Secretary was empowered to enter into negotiations with Mr. Beames, and was requested to submit a report to the Council when the cost of making the copies was ascertained.

On the recommendation of Dr. J. Anderson, an exchange of publications with the Anthropological and Ethnological Society of Florence was sanctioned.

Mr. V. Ball was appointed Natural History Secretary during Mr. Wood-Mason's absence from Calcutta.

On the recommendation of the Coins Committee, the purchase of some Coins, selected from a lot of 200 found at Nya Doomka, was sanctioned.

The Secretary reported that the Sub-Committee appointed at the last

meeting had resolved that the printing of the Library Catalogue should be entrusted to the Britannia Press, who had agreed to undertake the work at the rate of Rs. 2-2-0 per page, inclusive of binding, for 750 copies. The binding to be of black cloth with the following title on the back "Catalogue of the Library of the Asiatic Society of Bengal, 1881."

It was resolved that the present editor of the Hemádri, whose work had not been found satisfactory, should be allowed to continue the edition on the understanding that Dr. Mitra accepts the responsibility of supervising the work.

Babu Nriya Gopal Bose was appointed Cashier on a salary of Rs. 25 a month rising to Rs. 40 in 10 years' time, in addition to which he is to get 1 per cent. on the collection of subscriptions, entrance fees, credit sales, charges for extra copies of papers, and postage and packing charges.

March 31st. Ordinary Meeting.

Read the Minutes of the Council on the list of instructions drawn up by Mr. J. C. Douglas for keeping and auditing the accounts of the Society. The suggestions made by the Members of Council were adopted and 100 copies of the instructions were ordered to be printed off.

A circular was read from the German Oriental Society inviting the President or one of the Council of the Asiatic Society to be present at the Fifth International Congress of Orientalists to be held in Berlin on the 12th to the 17th September 1881. The Secretary was requested to convey the thanks of the Asiatic Society for the invitation, and to express their good wishes for the success of the Congress and their regret that the Council are unable to send a representative.

The publication, in the Bibliotheca Indica Series, of the Parásara Mádava Smṛiti and Naqáid of el Ferazdáq and Jerir and of the continuation of the Hemádri and Akbarnámah was sanctioned.

On the submission of the Indian Museum's Register of Presentations made to it by the Society, for signature in accordance with section 12 of Act XXII of 1876, the Council recommended that in future a preliminary inventory should be sent with the specimens, and that the final record in the Society's Register should be copied from the Museum Register; and also that the signature of the Society's Secretary on the one side and that of the Secretary to the Trustees on the other should be held sufficient. A copy of this resolution was ordered to be forwarded to the Trustees of the Indian Museum for consideration; and the Society's Register of objects transferred to the Indian Museum up to date was ordered to be copied from the Indian Museum Register.

The elections of Mr. J. A. Brown and Rev. J. S. Doxey were cancelled as they had not paid their admission fee and first quarter's subscription.

Mr. V. Ball was appointed Treasurer in the place of Mr. J. Douglas who had left for England.

April 28th. Ordinary Meeting.

A letter was read from the Under-Secretary to the Government of Bengal, Revenue Department, stating that the Lieutenant Governor approves of the manner in which the Government grants to the Oriental Publication and Sanskrit Manuscripts Funds have been spent, and that he accepts the suggestion made that the accounts of the latter fund should, for the future, be submitted to Government once, instead of twice, in the year.

An exchange of publications with the North-China Branch of the Royal Asiatic Society and the Johns Hopkins University of Baltimore was sanctioned.

On the resignation of Mr. A. Pedler as Honorary Secretary, Member of Council, and Trustee of the Indian Museum, it was resolved that Dr. H. W. M'Cann should be asked to become a Member of the Council and to take up the Secretaryship and that Mr. J. Eliot should be asked to become Trustee of the Indian Museum on behalf of the Society.

A vote of thanks was given to Mr. A. Pedler for his services as Honorary Secretary.

The Members of the various Committees for the year 1881 were appointed.

The appointment of a copyist, on Rs. 15 a month, was sanctioned.

May 26th. Ordinary Meeting.

An exchange of publications with the Kais. Leopoldinisch-Carolinische Akademie of Halle was sanctioned.

At the request of the Superintendent, the casts of the inscriptions from the rock-cut Temples of Orissa were ordered to be made over to the Indian Museum.

A Report submitted by Mr. J. Westland and Col. J. Sconce, the auditors of the Society's accounts for 1880, was ordered to be forwarded to the Treasurer for circulation to the Council with any remarks he may wish to add.

Dr. A. F. R. Hoernle, Dr. R. Mitra, Mr. J. Beames and Mr. C. H. Tawney were requested to select two or three of the Jain MSS. in the Library of His Highness the Maharaja of Bikaner and to make arrangements for having them copied with the assistance of the Maharaja's Pandits.

Read the Minutes of the Philological Committee on a letter from Professor E. B. Cowell offering for publication in the Bibliotheca Indica

a translation of Vol. II of Abdul Kádír's *Muntakhab ul Tawarikh*, prepared by the Rev. W. H. Lowe. It was resolved that the question should be postponed until the receipt of the reply to a letter from the Philological Secretary asking Mr. E. B. Cowell for further particulars.

On the recommendation of the Philological Secretary, the new rule passed by the Oriental Library Committee that not more than one MS. could be lent out to any member at a time was rescinded, and it was resolved to revert to the old rule which allowed the issue of two MSS. at a time.

A recommendation of the Finance Committee that the Society should subscribe annually for the future numbers of the Ray Society's publications was approved of.

June 30th. Ordinary Meeting.

A letter was read from Mr. A. Grote stating that two gentlemen, *viz.*, Count de Noe and Col. W. Munro, still on the list of the Society's Honorary Members, were certainly dead; and giving reasons for believing that two other Honorary Members, *viz.*, Sir John Pillippart and Professor Isaac Lea were also dead. It was resolved that the Philological, Natural History and Physical Science Committees should each be requested to select and nominate three gentlemen as Honorary Members.

A letter was read from the Honorary Secretary to the Trustees, Indian Museum, stating that the Trustees approve of and will adopt the suggestions made by the Council of the Asiatic Society for recording the transfer of specimens to the Museum.

In reply to a letter from Mr J. Dawson, the Secretary was requested to inform him that the Council have no objection to his paper published in the Journal for 1870 being reprinted by the Government of the Central Provinces.

A vote of thanks to Mr J. Westland and Col. J. Sconce, the auditors of the Society's accounts for 1880, for the report they had submitted was passed; and their suggestion that the value of the stock of books be not entered in the accounts as an asset was adopted.

The Philological Secretary reported that, at the request of Mr. J. E. P. Lincke, he had made over to the Indian Museum the Antiquities found at Jowhri Dih; and that Mr. F. S. Growse had requested him to present the curiosities he had forwarded to illustrate his paper, read at the June Meeting, to the Indian Museum.

A copy of Mr. Douglas's Memorandum of Instructions was ordered to be sent to each Member of the Council in Calcutta.

A recommendation of the Finance Committee that the budget allowance of Rs. 500 for postage for the year 1881 be increased to Rs. 1,000, as the grant had been exceeded in consequence of changes in the mode of distributing the Society's publications, was sanctioned.

July 28th. Ordinary Meeting.

A stone slab bearing an inscription, presented to the Society by Mr. F. C. Black, was ordered to be acknowledged with thanks.

Messrs. Mackintosh, Burn & Co.'s estimate for Rs. 350 for repairing the road in the Society's compound and raising the gate, was accepted.

August 25th. Ordinary Meeting.

Mr. H. M. Percival was elected an Ordinary Member of the Society.

A letter was read from the Under-Secretary to the Government of Bengal conveying the Lieutenant-Governor's approval of the manner in which the Government grants on account of the Oriental Publication and Sanskrit Manuscripts Funds have been applied.

The Secretary reported that the bust of the late Mr. Blochmann had been received, and requested instructions as to its disposal. The Secretary was requested to ascertain whether the bust could with safety be placed on the upper floor and to make enquiries as to the cost of a suitable pedestal.

An exchange of the Proceedings and Journal, Part II, for the Journal of the K. Natuurkundige Vereeniging in Nederlandsch Indië was sanctioned.

A letter was read from Professor Wright of Cambridge expressing his thanks to the Society for appointing him to edit the Naqáid of Jerir and el Ferazdaq in the Bibliotheca Indica, but regretting that he will not be able to do so for a year or two, owing to other engagements. The Philological Secretary was requested to inform Professor Wright that the Society had no objection to his commencing the work at his own convenience.

Mr. C. J. Lyall's offer to edit for the Bibliotheca Indica the Arabic poem Lámiyyet-el-Arab was accepted with thanks.

A letter was read from Mr. E. B. Cowell, stating that Mr. W. H. Lowe agrees to prepare a translation of the 2nd volume of Abdul-Kádir's Muntakhab-ul-Tawarikh and to publish the work in Calcutta, for a fee of Rs. 2 per page. This arrangement was sanctioned.

Read the Minutes of the Council regarding additions to be made to the distribution list of the Bibliotheca Indica. It was resolved that the extended distribution list should be used in the future; and that the Foreign Office should be requested to give such information as will assist in framing a list of native Rajahs and Chiefs to whom the publications of the Bibliotheca Indica may be distributed gratuitously.

September 22nd. Ordinary Meeting.

Mr. Chr. J. Bandow was elected an ordinary Member of the Society.

A request of the Batavian Society of Arts and Sciences that they

might be supplied with some Nos. of the Journal and Bibliotheca Indica which were wanting in their sets of these publications was agreed to, and it was ordered that the name of the Batavian Society should be entered on the free distribution list of the Bibliotheca Indica.

An advance of Rs. 600 applied for by Dr. R. Mitra to be expended in the search for Sanskrit Manuscripts was sanctioned.

The Secretary reported that he had ascertained that the bust of the late Mr. Blochmann could with safety be placed on the upper floor with certain precautions, and submitted estimates for the cost of a pedestal. Messrs. Llewelyn & Co.'s estimate for Rs. 300 was accepted.

The elections of Mr. R. O. Lees, Babu Peary Mohun Guha and Babu Troilokyanath Mitra were cancelled in accordance with the provisions of Rule 9, as they had failed to pay their admission fees and first quarter's subscriptions.

October 27th. Ordinary Meeting.

A letter was read from the Superintendent, Marine Survey Department, enquiring if the Society was prepared to make over the deep sea dredging apparatus referred to in the Society's letter dated 14th May 1878. It was ordered that the apparatus be made over to the Marine Survey Department and that the Natural History Secretary be requested to prepare for the assistance of Council a Memorandum on the Society's position with reference to deep sea dredging, with a view to communicating with the Government of India on the subject.

A letter was read from Mr. W. T. Blanford giving particulars regarding the cost of printing the plates illustrating his paper on the Arvicola. It was resolved that the Society should pay all Mr. Blanford's expenses for these plates.

The thanks of the Council were ordered to be conveyed to Mr. V. Ball for his services as Treasurer and Natural History Secretary, and it was resolved to recommend the Society to present him with its publications for the rest of his life.

The nominations of the Philological, Natural History and Physical Science Committees of 3 gentlemen each as Honorary Members were submitted, and the following 4 gentlemen were selected for recommendation to the Society for election as Honorary Members:—Professor W. Wright, Dr. R. von Roth, Sir William Thomson and Professor H. L. F. Helmholtz. It was resolved to recommend that the fifth vacancy in the list of Honorary Members should be left unfilled for the present.

December 1st. Ordinary Meeting.

A vote of thanks was passed to his Highness the Maharajah of Bikaner for two MSS. presented by him to the Society.

On the recommendation of Dr. R. Mitra, a set of the *Bibliotheca Indica* was ordered to be presented to the Carmichael Library, Benares.

Two letters from the Superintendent, Marine Surveys were read, requesting that certain articles of the sea dredging apparatus should be made over to Dr. J. Anderson and the remainder sent to the Marine Survey Department. Also requesting that he may be favoured with copies of the communications that may be made to the Government of India, relative to the Society's position as regards the dredging operations that are to be carried on in the "Investigator;" and stating that he intends to apply for the services of Mr. Murray as Naturalist to the vessel.

The Treasurer reported that the Finance Committee had resolved that the Commission for collecting bills on account of the Oriental Publication Fund should be paid out of that Fund and that the question of charging a portion of the Cashier's pay to the Oriental Publication Fund should be submitted to the Council for consideration and orders. It was decided that it was unnecessary to charge any portion of the Cashier's pay to the Oriental Publication Fund.

The Secretary reported that a beam required changing. It was ordered that the beam should be changed and that Messrs. Mackintosh, Burn & Co. should be requested to examine the other beams and report on their condition.

December 29th. Ordinary Meeting.

An increase of Rs. 10 per mensem in the pay of the Assistant Librarian was sanctioned.

The Secretary reported that certain articles of the deep sea dredging apparatus had been made over to Dr. J. Anderson and that the remainder had been sent to the Marine Survey Department.

The CHAIRMAN announced that the Scrutineers reported the result of the election of Officers and Council as follows:—

President.

Sir Ashley Eden, K. C. S. I., C. I. E.

Vice-Presidents.

Dr. Rájendralála Mitra, C. I. E. The Hon. J. Gibbs, C. S. I., C. I. E.
The Hon. H. J. Reynolds, B. A., C. S.

Secretaries and Treasurer.

J. Wood-Mason, Esq. Dr. A. F. R. Hoernle. Dr. H. W. M'Cann.
J. Eliot, Esq., M. A.

Other Members of Council.

H. B. Medlicott, Esq., F. R. S. J. Westland, Esq., C. S. D. Waldie,
Esq., F. C. S. H. F. Blanford, Esq., F. R. S. Nawáb Abdul Latif, Khan
Bahadur. Major J. Waterhouse, B. S. C.

At the suggestion of the Chairman, it was resolved to ask Mr. J. Westland and Major Waterhouse to audit the Annual Accounts.

The Meeting was then resolved into the Ordinary Monthly General Meeting.

Dr. RÁJENDRALÁLA MITRA, C. I. E., Vice-President, in the Chair.

The minutes of the last Meeting were read and confirmed.

The following presentations were announced—

1. From Prof. A. Weber,—Verhandlungen des Fünften International Orientalisten Congresses gehalten zu Berlin im September 1881. Erster Theil.
2. From Dr. R. Mitra,—Emlékbeszéd William Stephen Atkinson külső tag felett, by Dr. Theodore Duka.
3. From A. Constable, Esq.,—A Selection from the Illustrations which have appeared in "The Oudh Punch" from 1877-81.
4. From the Home Department,—(1) Major General Sir Thomas Munro, Bart., K. C. B., Governor of Madras. Selections from his minutes and other official writings; (2) The Imperial Gazetteer of India, vols. I-IX by W. W. Hunter.
5. From Lieut. R. C. Temple,—The Sassí Punnún of Háshim Sháh in 3 Parts.
6. From the author,—Sanskrit-Wörterbuch in kürzerer Fassung, Part III, by Otto Böhlingk.
7. From the Committee,—Verhandlungen des Fünften International Orientalisten-Congresses gehalten zu Berlin im September 1881. Erster Theil.
8. From Mr. J. Winterscale,—A copper plate grant from Cuttack.

The following gentlemen are candidates for ballot at the next meeting :

Syed Amir Hussain Khan Bahadur, Deputy Magistrate, Suburban Police, proposed by Dr. A. F. R. Hoernle, seconded by Dr. H. W. M'Cann.

Pringle Kennedy, Esq., M. A., proposed by H. Rivett-Carnac, Esq., C. S., seconded by Dr. A. F. R. Hoernle.

J. M. Douie, Esq., C. S. Lahore, proposed by D. Ibbetson, Esq., seconded by Jas. Wilson, Esq.

The following Gentlemen have intimated their desire to withdraw from the Society :

H. H. Locke, Esq.

Captain H. A. Sawyer.

The CHAIRMAN announced that a letter had been received from Major L. A. Huguet-Latour, Vice-President of the Natural History Society of

Montreal, stating that a Scientific Congress would be held at Montreal in August, 1882, under the auspices of the American Association for the advancement of Science, and inviting Members of the Asiatic Society to attend the Congress, or to send papers to be read at its meetings. Arrangements had been made with various Steamship Companies to convey guests invited to the Congress free of charge.

The Chairman also read a letter from Prof. Ch. Lindeman, Secretary to the "Société Impériale des Naturalistes" of Moscow, inviting members of the Asiatic Society to take part in a Congress to be held in May, 1882, in honour of their Vice-President, M. Charles Renard.

Dr. RÁJENDRALÁLA MITRA exhibited a collection of coins of the Shah Kings of Suráshṭra, received from Mr. H. Rivett-Carnac, and read the following notes on them :

Some time ago I received from our enthusiastic and indefatigable associate, Mr. Rivett-Carnac, a necklace made of three large and sixty-two small silver coins, which he wished me to examine. The coins had little loops so soldered on their edges as not in any way to injure them; but they were mostly in a bad state of preservation, with the legends obliterated in many cases. I have availed myself of my friend's permission to separate the coins, which were held together by small silver links, whose points not having been soldered could be easily detached.

The three large coins belong to the mintage of Nepal. One of them (No. 1) is of Rájendra-vikrama Sháh, and bears date Sáka 1738, and the other two are of Surendravikrama Sháh, dated, No. 2 Saka 1776 and No. 3, Saka 1792, respectively.

The small coins are obviously from Guzarat, but the exact locality where they were found is not known. They all belong to the Sháh kings of Suráshṭra, but 19 of them are so defaced that no name can be read on them. The others represent the following reigns :

1. Rudra Siñha, son of Rudradáma (the 3rd king of the line according to Mr. Newton's list).
2. Rudra Sáh, son of Rudra Siñha (4th king).
3. Yasadáma, son of Dáma Sáh (6th king).
4. Ísvaradatta. (9th king).
5. Vijaya Sáh, son of Dáma Sáh (10th king).
6. Rudra Sáh, son of Viradáma (12th king).
7. Viśva Siñha, son of Rudra Sáh (13th king).
8. Atridáma, son of Rudra Sáh (14th king).
9. Viśva Sáh, son of Atridáma (15th king).
10. Rudra Sáh, son of Jinadáma (16th king).
11. Ásadáma, son of Rudra Sáh (17th king).

James Prinsep was the first to bring to public notice this class of coins, and to prepare a sketch which has since been filled up, by the labours principally of Mr. Thomas and Mr. Newton, with notices of nineteen kings whose names do not occur in any historical record. Mr. Newton's paper, in the 7th volume of the *Journal of the Bombay Asiatic Society*, is, I believe, the latest contribution on the subject, and it is so full, having been written after a very careful examination of several hundred specimens, that little remains to be added, as regards the coins that have been already discovered. The coins before me do not contribute any new name; nor do they throw any additional light on the history of the kings noticed. There are, however, some points in the decipherment of the legends which suggest a few remarks.

The first point is the title *Kshatrapa* which the kings assume. When Prinsep first read the legends, he found, after the initial title *rājā* "of a king," certain letters which he read *kṛitrima*, in others *mahākṛitrima*. Commenting upon them he said, "The second word of the title I read कृत्रिमस for कृत्रिमस्य *kṛitrimasya*, genitive of *kṛitrima*, which is translated in Wilson's Dictionary "made, factitious, an adopted son" (for *kṛitrima-putra*). The latter sense was inadmissible, because it so happened that the name of the actual father was, in every case, inserted and the same title was also applied to him. The only manner, therefore, in which the term could be rendered was by 'elected,' 'adopted'—(by the people, or by the feudal chiefs of the country)—a designation entirely new in Indian numismatics, and leading to a highly interesting train of reflection, to which I must presently recur. Sometimes the epithet *mahā* is affixed—not to *rājā*, but to *kṛitrima*, as *rājā mahākṛitrima*, the 'great or specially elected king'—as if in these cases he had been the unanimous choice of his people, while in the others he was installed merely by the stronger party in the state." He had, however, to change this opinion when he deciphered the *Júnagar* inscription of Rudradāma. There the reading was distinctly and most unquestionably *mahākshatrapa* (Thomas' Prinsep, II, p. 63), and this reading has since been generally adopted. It is worthy of note, however, that the crucial letter in the word is the 3rd. If we read it *m* (म) the reading should be *kṛitrima*, but if we take it for *p* (प) the reading would be *kshatrapa*, the mechanical configuration of the first two compound letters being such that they admit of either reading. Now the letter *p* occurs on all the coins either as a square with the top open and a perpendicular stroke at the anterior corner, thus प, or as a perpendicular line with a curved spur at the middle on the left side, thus प. The curvature of the spur varies greatly in different specimens, but the leading perpendicular line is constant. This is, however, not the letter that we meet in the title; there it occurs like the English letter V formed of two oblique lines with the

lower ends in some cases projecting below the angle, thus X. It is generally found in the same form in the word *mahá*, but in some cases thus V. In unquestionable test words such as *putrasa* or *prathama* the *p* never assumes this form in any of the 62 specimens now before me, nor in some 50 specimens that I had seen before, nor also in the various plates published by Wilson, Prinsep, Thomas and Newton. Mr. Newton had between five and six hundred specimens before him, and was, therefore, in a much better position to pronounce authoritatively on the subject than I am; the evidence at hand would suggest the idea that there is room yet to raise the question as to whether the word should be read *kritrima* or *kshatrapa*; but, bearing in mind the fact that the evidence of the coins is doubtful and unsatisfactory while that of the inscription is unquestionable, adherence must be given to the latter.

The next point is as to whether the word *dama* should be read with two long vowels, or with the first vowel long and the second short. The original form of the word in the Sanskrit language is *dáman*, a "garland," and that this is the word used in the coin is evident from the possessive form in which it is used being *dámna*. In the nominative singular *dáman* becomes *dámá*, but when it is a member of a compound term, as in *Vira-dáma*, the last vowel should be short, and the word declined as a theme ending in *a* and not *n*. The writers of the legends, however, seem to have been unmindful of this grammatical distinction. In the coin of *Rudra-dáma*, the possessive is as it should be *Rudradámasa*, but in those of *Atri-dáma* and *Asádáma* the corrupt forms of *Atridámna* and *Asadámna* have been used.

The last point to which I wish to refer is as to the religion of the *Sáh* kings. According to Prinsep it was Buddhism. He said—"It is remarkable that, in the long string of epithets applied even to *Rudra Dámá*, the chosen Satrap, there is none which bears the slightest allusion to Hindu mythology; while, on the other hand, the coins of the whole dynasty bear an emblem we have hitherto considered either of Mithraic or of Buddhist import. The name of *Jina Dámá* ('Wearing Buddha as a necklace') is decidedly Buddhistic; and the epithet applied in the inscription to *Rudra Dáma*—who from right persuasion never put any living creature to death—proves that *Rudra's* opinions were at any rate influenced by the proximity of the important Buddhist establishment at *Girnar*." Mr. Thomas demurs to this. He says, "As it is not proposed to show that the *Sáhs* were Brahmanical Hindus, the first point requires neither comment nor answer; in respect to the second, as the word *Jina* can now be proved to have been incorrectly read in the place of *Jiwa* the argument founded on the previous interpretation at once falls to the ground; and for the third position, it also is equally based on error, arising from an inaccurate render-

ing of the original passage in the inscription; notwithstanding all this, there is some reason to concur in the idea itself, that the Sáh kings were 'influenced by the opinions of the Buddhists, though this by no means implies a complete desertion of the old faith.'" (J. R. A. S., XII, p. 28.)

The first argument of Prinsep appears to be unaccountably hasty. The word Rudra is positively and unquestionably Hindu. It occurs in the Vedas as the name of a god, and for the last two thousand years and more has been accepted as an *alias* of Siva; and this name is just what the Sáh kings most affected. The word *Íśvara* in *Íśvaradatta* is also another positively Hindu word which the Buddhists never recognised. It is the name of the Supreme divinity, which the Buddhists, at least the early Buddhists, never acknowledged; and these two words should leave no doubt in the mind that the earlier Sáh kings were Hindus. The word Atri, the name of a Hindu sage, supports this inference.

As regards the second argument the correction suggested by Mr. Thomas seems not to be tenable. The letter in my specimen is *n* and not *v*, and in the numerous specimens which Mr. Newton had before him he found *n*; at least he, having Mr. Thomas's essay before him, did not accept the reading Jiva. Jina, however, does not necessarily imply Buddhism. Seeing that Jainism prevailed and still prevails in Western India, the presumption is strong that Jainism is what is implied by the term, and not Buddhism. Jinadáma was not one of the Sáh kings; his title is *svámí*, or a priest, a learned Bráhmaṇ, or a saint, whose son Rudra Siṅha became the 16th king, and the inference these facts would suggest is, that the earlier kings were all Brahmanical Hindus, and on a change of dynasty the 16th king became a Jain, and the three subsequent kings with whom we are acquainted followed his faith. Nor need the symbolic indications or the obverse stand in the way of this inference. The central symbol is a tumulus formed of three segments of circles placed on a curved or wavy line, and Prinsep took it for a chaitya, which at once allied the kings with Buddhism; but on the other hand the crescent moon, the sun, and the stars associated with it are decidedly Hindu; and if the symbols be of a religious character it is difficult to reconcile them with the assumption that the tumulus means a chaitya. I am disposed, therefore, to accept the tumulus to stand for a mountain, "the sunrise hill," *Udayagiri*, over which the celestial luminaries are placed, or "the hill city," (*Girinagara* referred to in the Girnár record), which formed the capital of this dynasty of kings. The simplest way of depicting a hill is by putting together segments of circles, and this is exactly what has been done on the coins; there was neither space enough on the coins, nor talent sufficient at command to do any thing better. If this conjecture be accepted it would follow that the earlier Sáh kings were heliolaters, and from that the later ones passed to the worship of the Tírthankaras.

LIST OF COINS.

NEPALESE COINS.

- No. 1. Rájendravikrama Sháh, of Nepal, Saka 1738.
 No. 2. Surendravikrama Sháh, of Nepal, Saka 1776.
 No. 3. Ditto ditto Saka 1792.

SÁH COINS.

Rudra Siñha, 2nd King.

No. 4. Rudra Siñha, son of Rudradáma. *Obverse*, head disfigured, no Greek legend, nor date. *Reverse*, Legend imperfect—Rájña kshtrapasa—~~Rudra Siñhasa.~~

Rudra Sáh, 3rd King.

No. 5. Rudra Sáh, son of Rudra Siñha. *Obverse*, head in low relief. No Greek, nor date. *Reverse*, legend imperfect.

Yasadáma, 6th King.

No. 6. Yasadáma, son of Dáma Sáh. *Obverse*, head as usual, Greek legend illegible, Date, 3—figures with tops cut off. *Reverse*, legend imperfect. Rájña mahá kshatrapasa Dámasáhaputrasa rájna.

No. 7. Ditto. *Obverse*, no Greek, nor date. *Reverse*, ditto.

Ísvaradatta, 9th King.

No. 8. Ísvaradatta. *Obverse*, head in good relief, Greek legend illegible, no date. *Reverse*, legend complete. Rájña mahákshtrapasa Ísvaradattasa varshe prathame.

Vijaya Sáh, 10th King.

Nos. 9 and 10. Vijaya Sáh, son of Dáma Sáh. Greek legend on the *obverse* illegible. *Reverse*, Rájña mahákshatrapara Vijaya Sáhaha rájna mahákshatrapasa Dáma Sáhaha putrasa.

Rudra Sáh, 12th King.

No. 11. Rudra Sáh, son of Viradáma. *Obverse*, head in good relief. Date imperfect; no Greek. *Reverse*, Rájña khatrapasa Viradámaputrasa rajna mahá kshtrapasa Rudra Sáhaha.

Nos. 12 to 24. Ditto ditto *Reverse*, legend in most specimens imperfect.

Viśva Siñha, 13th King.

No. 25. Viśva Siñha, son of Rudra Sáh. *Obverse*, head in low relief, very much defaced, remnants of Greek letters. *Reverse*, legend defaced. Rájña kshtrapasa Visva Siñhasa rajna kshtrapasa Rudra Sáhaha.

No. 26. Ditto ditto Latter half of the legend wanting.

Atridáma, 14th King.

No. 27. Atridáma, son of Rudra Sáh. *Obverse*, head very much defaced. *Reverse*, imperfect. Rájna kshatrapasa Atridámna rájna—.

Viśva Sáh, 15th King.

No. 28. Viśva Sáh, son of Atridáma. *Obverse*, head bad, remnants of date and Greek. *Reverse*, Rájna kshatrapasa Viśva sáhása Atridáma-putrasa.

No. 29. Ditto ditto, only half of the die has struck the blank.

Nos. 30 to 32. Ditto ditto imperfect.

Rudra Sáh, 16th King.

No. 33. Rudra Sáh, son of svámi Jinadáma. *Obverse*, head coarse, no Greek, nor date. *Reverse*, Rájna kshatrapasa Rudra Sáhása svámi Jinadáma ———.

No. 34. Ditto ditto

No. 35. Ditto ditto

No. 36. Ditto. *Obverse*. Head in good relief, with remnant of Greek legend. *Reverse*, supplies the concluding part of the legend.

No. 37. Ditto ditto

Asádama, 17th King.

No. 38. Asádama, son of Rudra Sáh. *Obverse*, traces of Greek legend. *Reverse*, Rájna kshatrapasa Asádámna rájna kshatrapasa Rudra Sáhása putrasa.

Uncertain.

Nos. 39 to 43. ——— ? son of Rudra Sáh. Rájna kshatrapasa Rudra sáhása putrasa ——— ?

Nos. 44 and 45. ——— ? son of Rudra Sáh. *Reverse*, Rájna kshatrapasa ——— Rájna maha kshatrapasa Rudra sáháputrasa. S'ri Sáh, Dámajāta S'ri, Visva Siñha, Atridáma and Asádama, were sons of different Rudra Sáhás, but there is nothing to determine to which of them these coins should be assigned.

Nos. 46 to 65. No name legible.

Mr. GIBBS said he thought the Society was much indebted to Dr. Mitra for the trouble he had taken with reference to the coins on the table which were in as bad a condition as any he (Mr. Gibbs) had seen. He had come hoping that the necklace which Mr. Rivett-Carnac had sent was one belonging to his connection Mrs. Temple which Mr. Gibbs had examined at Poona in 1877 or 1878, and which contained two or three new varieties, but he had been disappointed. Coins of this series had of late years become common. He had a good many himself, and Mr. Newton

had from time to time acquired large numbers: it was only some few that were difficult to procure, but Dr. Mitra had given them an interesting paper on very poor materials.

Mr. Gibbs then exhibited a gold Ramtinki which was handed round. It was cup-shaped, $1\frac{1}{4}$ in. in diameter, and had in the interior Ram and Sita seated on a musnud, with three attendants on the left of the spectator, and four on the right; on the back was Hanuman the monkey god, and round him an inscription which had not been read; weight 1 tola 2 annas. Mr. Gibbs explained that he had been led to bring this coin as he had noticed in a recent volume of the Proceedings that his friend General Pearce at Madras had sent one which had been figured; but this was an imitation, and one of those flat ones now made for pilgrims at one of the shrines near Bellary. During the famine of 1876-77, Mr. Gibbs had obtained 7 or 8 of these curious pieces, two of 4 tolas each, the rest of 1 tola; 3 of them had been known to have been part of the treasure of a temple in the S. M. country for 600 years, and were sold during the time of distress; there is a 2 tola one in the Museum of the Bombay Branch of the R. A. Society, which formed part of the late Mr. W. E. Trevor's collection. Mr. Gibbs had not had time to prepare a paper on these curious objects of worship rather than coins. They were used in washing the idol with gold which was done by pouring gold coins over it. But he had seen sufficient to know that the older ones were of the poorer gold, being much alloyed with silver, whereas the modern ones are nearly all of very good if not pure gold. He hoped before long to be able to bring out a paper on this subject, and in the mean time should be glad of any information he could get regarding these pieces.

Dr. MITRA exhibited four silver coins lately received from Mr. Cockburn, who obtained them from E. Rose, Esq., C. S., Joint-Magistrate of Kirwee, in the vicinity of which town they were discovered. The coins were in a very bad state of preservation, and originally had been very badly prepared, the disks being about half the size of the dies with which they had been struck. From slight remains of the legend one of the coins appeared to belong to the class of the Varáha coins, and the others to the Kanauj group of the 11th century with two balusters on the reverse, as figured in Prinsep's *Indian Antiquities*, Vol. I, plate XXIV, fig. 17.

Mr. J. COCKBURN exhibited a Panchamukha Lingam, and said:—

The object exhibited this evening is a multiple Phallus of an uncommon shape known as a Panchanan or Panchmukhi ling. It was found by me along with a heap of fragments of sculpture, celts &c. on a

small platform just outside the village of Uchah in the Augassie pergunnah of the Banda district. There was another larger specimen in the same place which varied a good deal in detail, but was too heavy to remove easily. They both lay comparatively unnoticed among the other fragments, and it would not appear that the people of this village attached any importance to them, though worshippers of Shiva and Parvati in the personifications of the Ling and Yoni. The significance of these latter emblems I have found to be fully understood by every intelligent Hindu I have questioned on the subject.

The glorious science of Anthropology marks the dawn of a new era in philosophy, and no apology is I conceive needed for describing an emblem worshipped in some shape or other by two-thirds of those professing the Hindu religion.

The only reference I have been able to find to the Panchanan ling is by Lieut. F. Maisey in his account of the antiquities of Kalinjar, J. A. S. Vol. XVII, pp. 177, 187, 198, Pl. XIII, fig. 22. No description has been given and the specimen figured in Plate XIII is a purer and more conventional form than any I have come across.

The specimen figured by Lieut. Maisey may be described as a group of five hemispherical prominences arranged in a quinquarticular shape in the centre of a square: with four smaller similar groups at the four angles. The slab is often thick and the surface is excavated while a small spout projects on one face for the purpose of draining off water. This spout may represent the fourchette of a yoni formed by the inscribed square.

The specimen found by me is a block of mottled sandstone about $6\frac{1}{2}$ inches square on the surface and $3\frac{1}{4}$ inches thick. The side faces are ornamented with the usual moulding which has the effect of giving it the appearance of a miniature altar. Slots in the basal angles indicate that it was clamped to some larger object. The upper surface is excavated to the depth of a quarter of an inch and the spout has been broken off. It thus forms a bagha or yoni. This inner square is occupied by four hemispherical prominences $2\frac{1}{4}$ inches in diameter arranged in a quartette, one in each angle of the square while in the centre is a similar hemisphere more prominent than the others and raised about half an inch higher. The arrangement is thus quinquarticular. Attached to the central hemisphere is a small perpendicular Priapus, which in the specimen left behind had evidently a well marked glans. Between each of the hemispheres is a small ridged keel an inch in length. This keel, the central portion of which is concealed, is in the shape of a *crux ansata*.

Without any offence to delicacy I will attempt to interpret this symbol. The central hemisphere and erect projection represent a basal view

of the male generative organ. The four outer hemispheres taken in conjunction with the central one represent a pair of testes in any direction it is possible to view the sculpture. The ridged keels represent the median raphe of the scrotum. This last surmise has received unexpected confirmation in a specimen of a PUNCHANAN ling from Kalinjar in the collection of the Indian Museum. In this specimen the artist has hit upon the expedient of serrating the ridge in imitation of the plications of the scrotum when contracted by cold.

Dr. INMAN in his work 'Ancient Faiths and Modern' has collected much curious and forgotten lore regarding the prevalence of a Phallic element in past and existing religions. A note bearing on the subject I here quote: "The godhead among the Mesopotamians was a quartette equivalent to the Hebrew Arba signifying four."

According to Dr. INMAN the *crux ansata* is a symbol of the union of the sexes, and the *Fleur de lys* represents the male triad. I have just come across a picture of a Pope by GUERCINO engraved by BARTOLOZZI where the Pontiff is represented holding in his hand a book on which rest three spheres in a triangular arrangement. The picture bears no name and the date of work is not given.

MR. COCKBURN read the following note on torsion in the awns of Spear Grass, which he had contributed to the "Asian."

"Enclosed are some spikes of a small species of spear grass, in which I observed a remarkable property of spontaneous movement. The subject is one of some economic importance, as this grass threatens to overrun the entire district, and is very difficult to eradicate. On the 16th March 1881, while camped at Ackbye (ten miles north east of Banda, N. W. P.), I had occasion to wash my hands, the water used saturating the ground. Looking down, I happened to observe some minute objects in motion, which I took for some form of animal life. I accordingly knelt down and examined them closely.

"I found that the objects were these grass seeds. As soon as the earth in the vicinity was moistened, they began to unravel themselves with a peculiar spiral motion, the effect of which was to bury the entire seed in the soil till only the extreme (filiform) tip remained visible. By this process, they became perfectly straight, and as they invariably went down point first perpendicularly, they not inappropriately resembled arrows when pulled out again.

"I tried a series of experiments within a radius of 200 yards of my tent, and found that the ground was simply alive with these seeds, and that they began their burrowing movements whenever the soil was moistened.

“The soil was mar (black cotton) in a partly pulverised condition on the surface. I shall be happy to furnish further particulars if the subject has not been observed before, and is of interest.

“Dr. King, the eminent botanist, was so kind as to reply to my letter and I take the liberty of quoting a portion of his letter :—

“Your observations are of much interest. The phenomenon of torsion in the appendages of seeds has been observed before, and an elaborate paper on the mechanism of the torsion in seeds by Mr. Francis Darwin appeared in the Linnæan Transactions in 1876. In that paper Mr. Darwin suggests that the use of torsion to a seed may be to enable it to bury itself in the soil. You have seen the seeds in the act of being buried, and it would be of much interest if you continued your observations.’”

The following papers were read :—

1. *The Rise and Progress of Buddhism in Thibet.*—By SARAT CHANDRA DAS.

2. *The Lives of the Tas'i Lamas.*—By SARAT CHANDRA DAS.

These papers will be published in full in the Journal, Pt. I, for 1882.

3. *On the habits of a little known lizard, Brachysaura ornata.*—By J. COCKBURN, Indian Museum.

This paper begins with a résumé of the literature relating to this hitherto rare species of lizard. Its range as at present known is then discussed. A minute description of the reptile follows with measurements and details of coloration. The author has been enabled to make a large number of interesting observations on the habits of *Brachysaura*, among which may be mentioned the discovery of the erectile nature of the tissue below the nuchal and dorsal crests and the faculty of voice. Perhaps the most important of these remarks is the supposition that *Brachysaura* possesses a protective odour and taste.

This paper will be published in the Journal, Pt. II, for 1882.

LIBRARY.

The following additions have been made to the Library since the Meeting held in January last.

TRANSACTIONS, PROCEEDINGS AND JOURNALS,
presented by the respective Societies and Editors.

- Baltimore. American Journal of Mathematics,—Vol. IV, No. 1.
- Batavia. Observations made at the Magnetical and Meteorological Observatory, 1879-1880.
- . Rainfall in the East Indian Archipelago, 1880.
- Berlin. Entomologische Zeitschrift,—Vol. XXV, Part 2, 1881.
- . K. preussische Akademie der Wissenschaften,—Monatsbericht, November 1881.
- Bombay. The Indian Antiquary,—Vol. X, Parts 126-127, December 1881.
- Bordeaux. Société de Géographie Commerciale,—Bulletin, No. 24 (1881), and No. 1 (1882).
- Calcutta. Original Meteorological Observations,—March 1881.
- . Results of Autographic Registration in 1880 at the Alipore Observatory.
- Cassel. Verein für Naturkunde,—Bericht, No. XXVIII.
- Leipzig. Deutsche morgenländische Gesellschaft,—Abhandlungen für die Kunde des Morgenlandes,—Vol. VIII, No. 1.
- . Hesperos,—Vol. I, Nos. 11-13.
- London. The Academy,—Nos. 502-505.
- . The Athenæum,—Nos. 2825-2828.
- . Geological Society,—Quarterly Journal, Vol. XXXVII, Part 4, and List of Fellows.
- . Institution of Civil Engineers,—Minutes of Proceedings, Vol. LXVI.
- . ————. Index to Vols. I-LVIII.
- . Institution of Mechanical Engineers,—Proceedings, No. 3, 1881.
- . Nature, Vol. XXV, Nos. 632-636.
- . Royal Astronomical Society,—Monthly Notices, Vol. XLI, No. 9.
- . Royal Geographical Society,—Proceedings, Vol. III, Nos. 11-12, November and December, 1881.
- . Royal Society,—Proceedings, Vol. XXXII, No. 215.

- London. Society of Telegraph Engineers,—Journal, Vol. X, No. 38; and a Special Number.
- . Statistical Society,—Journal, Vol. XLIV, Part 3, Sept. 1881.
- Moscow. Société Impériale des Naturalistes,—Bulletin, No. 1, 1881.
- Munich. Repertorium für Experimental-Physik,—Vol. XVIII, No. 2.
- New Haven. American Oriental Society,—Proceedings, October 1881.
- Paris. Société d'Anthropologie,—Bulletin, Vol. IV, Part 2, February to May, 1881.
- . Journal Asiatique,—Vol. XVIII, No. 2, August to September, 1881.
- . Société de Géographie,—Bulletin, May, 1881.
- Rome. R. Accademia dei Lincei,—Atti, Vol. VI, Part 2.
- Trieste. Società Adriatica di Scienze Naturali,—Bollettino, Vol. V, No. 2.
- Turin. Reale Accademia delle Scienze,—Atti, Vol. XVI, No. 7.
- Washington. United States Geological Survey,—First Annual Report.
- Yokohama. Deutsche Gesellschaft für Natur und Völkerkunde Ostasiens,—Mittheilungen, Heft XXV, December 1881.

BOOKS AND PAMPHLETS,

presented by the Authors.

- BOEHTLINGK, OTTO. Sanskrit-Wörterbuch in kürzerer Fassung. Part III. 4to. St. Petersburg, 1881.
- TEMPLE, LIEUT. R. C. The Sassí Punnún of Háshim Sháh. 3 Parts. 8vo. Pam.

MISCELLANEOUS PRESENTATIONS.

- Report on the Administration of Bengal, 1880-81. 8vo. Calcutta, 1881.
- General Report on Public Instruction in Bengal for 1880-81. Fcp. Calcutta, 1881.

BENGAL GOVERNMENT.

- Report on the Administration of the Land Revenue Department of the Central Provinces for the revenue year 1880-81. Fcp. Nagpur, 1882.

CHIEF COMMISSIONER, CENTRAL PROVINCES.

- A Selection from the Illustrations which have appeared in "The Oudh Punch" from 1877-81. With an Introduction, Explanatory Notes to each plate, and a Postface, all in English. Fcp. Lucknow, 1881.

A. CONSTABLE, ESQ.

- ARBUTHNOT, SIR ALEX. J. Major-General Sir Thomas Munro, Bart., K. C. B., Governor of Madras. Selections from his Minutes and other Official Writings. 2 Vols. 8vo. London, 1881.

HUNTER, W. W. The Imperial Gazetteer of India. Vols. I—IX. 8vo.
London, 1881.

The Indian Antiquary, Vol. X, Parts 126-127, December 1881.

HOME DEPARTMENT.

DUKA, DR. THEODORE. Emlékbeszéd William Stephen Atkinson külső
tagfelett. 8vo. Buda Pest, 1881. Pam.

DR. RÁJENDRALÁLA MITRA.

General Report on the Operations of the Marine Survey of India for the
year 1880-81. Fcp. Calcutta, 1882.

SUPERINTENDENT, MARINE SURVEY OF INDIA.

Verhandlungen des Fünften Internationalen Orientalisten Congresses
gehalten zu Berlin im September 1881. Theil I. 8vo. Berlin, 1881.

THE COMMITTEE.

The same.

DR. A. WEBER.

PERIODICALS PURCHASED.

Benares. Fallon's New English-Hindustani Dictionary,—Part VI.

Berlin. Deutsche Litteraturzeitung,—Nos. 42-48 and 51.

Calcutta. Calcutta Review,—Vol. LXXIV, No. 147, January 1882.

Geneva. Archives des Sciences Physiques et Naturelles,—Vol. VI, No. 12.

Göttingen. Gelehrte Anzeigen,—Nos. 49 and 50 (1881); and No. 1 (1882).

———. Nachrichten,—No. 15.

Leipzig. Annalen der Physik und Chemie,—Vol. XIV, No. 4.

———. Botanisches Centralblatt,—Vol. VIII, Nos. 2-8.

———. Literarisches Centralblatt,—Nos. 42-48, October to Novem-
ber, 1881.

London. Annals and Magazine of Natural History,—Vol. VIII, Nos.
47-48, November and December, 1881.

———. Chemical News,—Vol. XLIV, Nos. 1151-1153; and Vol. XLV,
No. 1154.

———. Entomologist,—Vol. XIV, Nos. 222-223.

———. Entomologist's Monthly Magazine,—Vol. XVIII, Nos. 210-211.

———. Journal of Botany,—Vol. X, Nos. 227-228, November and
December, 1881.

———. Journal of Science,—Vol. III, Nos. 95 and 96, November and
December, 1881.

———. London, Edinburgh and Dublin Philosophical Magazine,—Vol.
XII, Nos. 76 and 77, November and December, 1881.

———. Messenger of Mathematics,—Vol. XI, Nos. 6 and 7.

———. Nineteenth Century,—Vol. X, Nos. 57 and 58.

———. Publishers' Circular,—Vol. XLIV, No. 1061-1063.

- London. Quarterly Review,—Vol. CLII, No. 304, October 1881.
 ———. Society of Arts,—Journal, Vol. XXX, Nos. 1517-1519.
 ———. The Ibis,—Vol. V, No. 20, October 1881.
- New Haven. American Journal of Science,—Vol. XXII, Nos. 130-131,
 October and November, 1881.
- Paris. Comptes Rendus,—Vol. XCIII, Nos. 23-26, and Index to Vol.
 XCII.
 ———. Journal des Savants,—December 1881.
 ———. Revue Critique,—Vol. XII, Nos. 50-52.
 ———. Revue des deux Mondes,—Vol. XLVIII, No. 4; Vol. XLIX,
 No. 1.
 ———. Revue Scientifique,—Vol. XXVIII, Nos. 25-27; and Vol.
 XXIX, No. 1.
- Philadelphia. Tryon's Manual of Conchology,—Vol. III, Part 12.

BOOKS PURCHASED.

- Encyclopædia Britannica. Vol. XIII. 4to. Edinburgh, 1881.
- SPENCER, HERBERT. Descriptive Sociology; or Groups of Sociological
 Facts. No. 8. French. Compiled and abstracted by James Collier. Fol.
 London, 1881.
- STEWART, A., and LONG, G. Plutarch's Lives. Vol. III. 8vo. London,
 1881.
-

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.
FOR MARCH, 1882.

The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 1st March, at 9 P. M.

THE HON'BLE H. J. REYNOLDS, B. A., C. S., Vice-President, in the Chair.

The minutes of the last Meeting were read and confirmed.

The following presentations were announced :—

1. From the Public Museum, Buenos Aires, Atlas de la Description Physique de la République Argentine. Section I, Vues Pittoresques.

2. From the authors,—(1) Ancient India as described by Ktésias the Knidian, by J. W. McCrindle; (2) Jâwedân i Khirad, and Izhâr i Ihqâq ul Haq, by Mahammad Hussain.

3. From the Home Department,—(1) Supplément aux Dictionnaires Arabes, Parts 1—8, by R. Dozy; (2) An Arabic-English Lexicon, derived from the best and the most copious Eastern Sources, Book I, Parts 1—6, by E. W. Lane; (3) Lane's Arabic-English Lexicon, edited by Stanley Lane Poole, Vol. VII, Fasc. I; (4) A Tibetan-English Dictionary, by H. A. Jäschke.

4. From G. Nevill, Esq.,—(1) Das Clima von Süd-Afrika mit besonderer Rücksicht auf die Culturfähigkeit des Landes, by Dr. Gustav Fritsch; (2) Inscriptions Romaines de Vence (Alpes Maritimes), by J. R. Bourguignat.

5. From Paolo Mantegazza, President of the Anthropological and Ethnological Society of Florence,—(1) Studii Antropologici sui Lapponi, by Paolo Mantegazza and Stephen Sommier; (2) La riforma craniologica; (3) Il terzo molare nelle razze umane; (4) Saggio sulla trasformazione delle forze psichiche; (5) Della capacità delle fosse nasali e degli indici rinocefalico e cerebrofacciale nel cranio umano; (6) Dei caratteri gerarchici del cranio umano; (7) Experimentelle Untersuchungen über den Ursprung

des Faserstoffs und über die Ursache der Blutgerinnung, by Paolo Mantegazza; (8) Alcune osservazioni sull'epoca relativa della saldatura dei frontali in diversi mammiferi; (9) Sul rapporto fra la massima larghezza del cranio e della faccia; (10) Sulle cause delle anomalie di numero delle vertebre, by Ettore Regalia; (11) Nuovi studi craniologici sulla Nuova Guinea, by Paolo Mantegazza and Ettore Regalia.

6. From A. Simson, Esq.,—6 Silver Coins from Waga Serra Estate, near Chandragona, Chittagong Hill Tracts, and a minute gold coin found near Ganjam.

7. From the Hon'ble J. Gibbs,—12 modern Persian silver coins and 5 coins of the Andhrabharitya Dynasty.

8. From the Marine Survey Department,—List of Light-houses and Light-vessels in British India, including the Red Sea and Coast of Arabia (Suez to Singapore), corrected up to 1st January, 1882; and Charts of (1) the Indian Ocean, and (2) the Port of Maulmain.

The following gentlemen duly proposed and seconded at the last meeting were balloted for and elected Ordinary Members:—

Syed Amir Hussain Khan, Bahadur.

P. Kennedy, Esq., M. A.

J. M. Douie, Esq., C. S.

The following gentlemen have intimated their desire to withdraw from the Society:—

Hon'ble Whitley Stokes.

Major W. R. M. Holroyd.

J. Blackburn, Esq.

Hon'ble J. B. Knight.

The CHAIRMAN announced that as only 14 Members of Council had been elected at the last meeting, the Council had elected Mr. A. Pedler to fill the vacancy, subject to the confirmation of the Society. The election was confirmed.

The SECRETARY read the names of the following gentlemen appointed by the Council to serve on the several Committees during the ensuing year:

Finance Committee.

Dr. Rájendralála Mitra.

J. Westland, Esq.

H. B. Medlicott, Esq.

A. Pedler, Esq.

R. Logan, Esq.

Library Committee.

Dr. Rájendralála Mitra.
 H. B. Medlicott, Esq.
 Col. J. F. Tennant.
 Dr. D. D. Cunningham.
 A. W. Croft, Esq.
 Babu Prannath Pandit.
 H. F. Blanford, Esq.
 Dr. O. Feistmantel.
 Major J. Waterhouse.
 Dr. D. Waldie.
 Dr. Mohendralal Sircar.
 Babu Pratapa Chandra Ghosha.

Philological Committee.

Dr. Rájendralála Mitra.
 Hon'ble J. Gibbs.
 Major-General A. Cunningham.
 J. Beames, Esq.
 F. S. Growse, Esq.
 Rev. K. M. Banerjea.
 Dr. Mohendralal Sircar.
 Dr. G. Thibaut.
 C. J. Lyall, Esq.
 G. A. Grierson, Esq.
 H. Rivett-Carnac, Esq.
 Nawab Abdul Latif Khan, Bahadur.
 Moulvie Kabiruddin Ahmad.
 Babu Prannath Pandit.
 Babu Protapa Chandra Ghosha.
 Major H. S. Jarrett.
 A. M. Nash, Esq.
 Wm Swinhoe, Esq.
 Hon'ble Syad Amir Ali.
 Hon'ble J. O'Kinealy.

Natural History Committee.

Dr. O. Feistmantel.
 A. O. Hume, Esq.
 Dr. J. Anderson.
 Dr. D. D. Cunningham.
 Dr. G. King.

Dr. D. Brandis.
 S. E. Peal, Esq.
 R. Lydekker, Esq.
 Capt. G. F. L. Marshall
 W. T. Blanford, Esq.
 Dr. T. R. Lewis.
 H. B. Medlicott, Esq.
 R. D. Oldham, Esq.

Physical Science Committee.

H. B. Medlicott, Esq.
 Lieut.-Genl. J. T. Walker.
 H. F. Blanford, Esq.
 A. J. L. Cappel, Esq.
 A. Pedler, Esq.
 Col. J. F. Tennant.
 Commander A. D. Taylor.
 Major J. Waterhouse.
 F. Fedden, Esq.
 Dr. D. Waldie.

Coins Committee.

Dr. Rájendralála Mitra.
 Col. J. F. Tennant.
 Major-Genl. A. Cunningham.
 H. Rivett-Carnac, Esq.
 Hon'ble J. Gibbs.
 Major W. F. Prideaux.

The CHAIRMAN reported that Major J. Waterhouse was unable to spare the time for auditing the Society's accounts for 1881; and he appointed Mr. F. W. Peterson auditor in his place.

DR. A. F. R. HOERNLE read the following note by the Hon'ble J. Gibbs on five coins of the Andhrabhritya Dynasty, presented by him to the Society.

"Coins of the *Andhrabhritya* Dynasty.

See Bom. Br. R. A. Society's Proceedings, Vol. XIII, p. 303.

Indian Antiquary, Vol. VI, „ 274.

„ „ IX, „ 61.

"I beg to present to the Society some coins of the above dynasty. They were found close to Kolapore, the capital of the State of that name, in the

Southern Mahratta country: they consist of two descriptions, lead and copper, the former small, the latter large.

The list of kings is as follows:

1. Gotami putasa I, cir. A. D. 135.
2. Vasitho „
3. Maduri „
4. Gotami „ II.

All that is known of them will be found in the references at the head of this note.

“I regret I have no spare coin of No. 2, Vasitha-putasa, but there were fewer found of this king.

“They are curious coins and may be acceptable to the Society.

“I have placed the names in the order in which Pandit Bhugwunlal Indragi puts them and the date of Gotami putasa I, 135 A. D., is that assigned by him. There were no coins found belonging to this first king.”

The following papers were read—

1. *Notes on the Anatomy of the Scorpion-spiders* (Thelyphonus). *Part I The Scent-glands.*—By J. WOOD-MASON.

(Abstract.)

The remarkable Arachnidan genus *Thelyphonus* is confined in its distribution to South America and Southern Asia and their islands. Of its internal anatomy nothing but the nervous system is known. The French zoologist Lucas states that the *Thelyphoni* are called *Vinaigriers* by the inhabitants of Martinique on account of the strong vinegary odour which they emit when touched or handled. Stoliczka, who examined living specimens of one of the Indian species, states that a peculiar but *inodorous* fluid issues from two internal pyloric (!) appendages. These Arachnides, according to Lucas, live in damp places under stones on the ground. Stoliczka and Mr. Peal found them beneath the bark of decayed trees in groups. The author of the present paper was only able to obtain specimens for dissection during the heaviest rain, when all vegetation and the ground is saturated with water, and the animals come forth from their holes in the rocks, and he had found that death quickly followed their removal from their humid haunts, air saturated with moisture being apparently necessary for the due performance of their respiratory functions. All the specimens he had met with emitted, when touched, a most powerful and lasting odour exactly like that of a highly concentrated essence of pears, but which when deeply inspired had all the characteristic smell and pungency of strong acetic acid. This odour did not emanate from the general surface of the body, but proceeded from a pellucid fluid which exudes from the neighbourhood of the anus and is secreted by special glands. These are paired

and tubular organs of huge size, extending from the 19th somite of the body (on which they open by two minute valvular apertures placed at the sides of the anus) to the front end of the 13th in the male, but to the middle of the 11th in the female (whose glands are consequently the larger), and being, with the exception of the voluminous liver, the most conspicuous of the viscera. They are two subpellucid bags shaped somewhat like an Indian club, striped longitudinally with white, and filled to distension with a thin and clear fluid. They are not quite equal nor are they placed symmetrically in the body-cavity, but the one or the other lies between the nervous chain and the ventral body wall in the middle line between the two rows of vertical muscles, and the other between the row of muscles and the lateral wall of the side of the body to which it properly belongs. They apparently consist of a strong and structureless basement membrane invested externally by a layer of delicate striped muscular fibres arranged circularly and of an inner membrane; the walls of the short (1 mm. long) ducts are transversely thickened so as to resemble the tracheae of insects; the glandular tissue is arranged between the two membranes in longitudinal plaited stripes so as to permit of the expansion of the lumen of the tubular organ into a receptacle or bladder for the storing up for use of the secreted fluid, to which apparent arrangement of the glandular substance the striped appearance of the organs is due.

The secretion doubtless serves to protect the animals from attack, and it is interesting to find that the female in this, as in so many other animals which are similarly protected by their offensive odour, is, as being for obvious reasons the more important sex, more perfectly protected than the male by having, not indeed, so far as could be detected, a stronger and ranker, and therefore more disagreeable scent, as in many insects, but larger scent-secreting glands. Another point of interest brought out by this investigation is that the two glands exhibit a tendency to coalesce and form a single unpaired median organ, the two being always unequal and occasionally partially united and the one in the middle line invariably the larger.

These structures seem to belong rather to the category of excretory organs than to be highly developed skin-glands; and they are probably homologous with the silk-glands of other Arachnida and of Insects, with the green-gland of the Crayfish, and with the segmental organs of Worms and Peripatus.

2. *On the Structure of the 'Foot' in certain Terrestrial Gasteropoda.*—
By J. WOOD-MASON.

(Abstract.)

In this paper the author describes the structure of the part of the foot called by German writers on Malacology the 'Fusssaum,' which, as no

technical name for it appears to exist in the English language, he proposes to call the *peripodium* in allusion to its relation of position to the locomotor ventral surface or foot of the mollusks possessing it, but which he thinks may be homologous with the lateral folds (epipodia) of many marine mollusks (*Haliotis*, e. g.) Very frequently the peripodium is provided at its posterior extremity with a capacious pit, the capacity of which may be increased by the prolongation upwards of its anterior margin in the form of a horn, which not being specially sensitive is not a tentacle; often it is without this terminal pit; it is invariably richly ciliated throughout from the mouth on one side round to the mouth again on the other side dorsally; equally invariably it is limited off from the side of the body (and very frequently also from the muscular foot) by a peripheral groove, which deepens anteriorly. Its office is to assist in lubricating the foot, the pit when present receiving the effete lubricating fluid and throwing it off in gelatinous lumps.

The foot-gland, as is well known, pours out its abundant and constantly flowing secretion through an aperture which is situated below and a little behind the mouth into a hollow whence it naturally fall into the deep anterior end of the dorsal peripheral groove, whence again it is carried by the cilia with which the surface of the peripodium is beset (being distributed to the foot as it goes) to the terminal pit. In those forms in which this pit does not exist, the secretion that has subserved lubrication is merely left behind by the crawling mollusk.

As Pulmonata possessing a ciliated peripodium with and without a terminal pit were to be found in every quarter of the globe, and as it was in the highest degree improbable that so highly specialized a structure subserving such an important purpose in the animal economy as this evidently did had arisen independently many times in many different forms in many widely separated areas of the earth's surface, he considered that it had a higher taxonomic value than had hitherto been assigned to it, and he felt strongly inclined to distinguish those forms that possessed it and those that did not (or had lost it) from one another by calling them *CRASPEDOPHORA* and *LIPOCRASPEDA* respectively.

Order PULMONATA.

Suborder STYLOMMATOPHORA.

CRASPEDOPHORA.

Peripodial pit present.

<i>Arion.</i>	<i>Nanina.</i>	<i>Macroceras.</i>
<i>Geomalacus.</i>	<i>Microcystis.</i>	<i>Xesta.</i>
<i>Dendrolimax.</i>	<i>Macrochlamys.</i>	<i>Rhysota.</i>
<i>Cryptosoma.</i>	<i>Sitala.</i>	<i>Ventridens.</i>

<i>Austenia.</i>	<i>Ariophanta.</i>	? <i>Thalassia.</i>
<i>Tennentia.</i>	<i>Rotula.</i>	<i>Sesara.</i>
<i>Parmarion.</i>	<i>Euplecta.</i>	<i>Durgella.</i>
<i>Girasia.</i>	<i>Eurypus.</i>	<i>Odontoprion (succineus).</i>
' <i>Helicarion.</i> '	<i>Martensia.</i>	? <i>Caldwellia (philyrina).</i>
		<i>Ferussacia (pars); &c.</i>

Peripodial pit absent.

<i>Limax.</i>	<i>Vitrinopsis.</i>	<i>Gastrodonta.</i>
<i>Oopelta.</i>	<i>Vitrinoconus.</i>	<i>Trochomorpha.</i>
<i>Parmacella.</i>	<i>Vitrina.</i>	<i>Plectopylis (plectostoma).</i>
<i>Anadenus.</i>	<i>Hyalina.</i>	<i>Videna, &c.</i>
<i>Philomycus.</i>		

LIPOCRASPEDA.

Family HELICIDÆ.

<i>Hyalimax.</i>	? <i>Caldwellia</i>	<i>Helix</i> et subgen.
<i>Omalonyx.</i>	(<i>philyrina</i>).	<i>Achatina.</i>
<i>Simulopsis.</i>	<i>Bulinulus</i>	<i>Bulinus.</i>
<i>Pellicula.</i>	<i>Pupa.</i>	<i>Cochlostyla.</i>
<i>Lithotis.</i>	<i>Clausilia.</i>	<i>Glessula.</i>
<i>Succinea.</i>	<i>Zua</i>	<i>Hadra.</i>
<i>Janella.</i>		<i>Orthalicus.</i>
<i>Athoracophorus.</i>		<i>Macroceramus; &c.</i>
<i>Aneitea.</i>		
<i>Triboniophorus.</i>		

Family TESTACELLIDÆ.

<i>Testacella.</i>	<i>Streptaxis.</i>
<i>Daudebardia.</i>	<i>Ennea.</i>
<i>Strebelia.</i>	<i>Streptostele.</i>
<i>Glandina.</i>	<i>Elma.</i>
<i>Oleacina, &c.</i>	<i>Oæliaxis.</i>
	<i>Gibbus, &c.</i>

Family VAGINULIDÆ.

Vaginulus. Veronicella.

3. *Remarks on a Nematoid Hæmatozoon discovered by Dr. Griffith Evans in a Camel.*—By SURGEON-MAJOR T. R. LEWIS, M. B.

Dr. Lewis observed that the occasional presence of nematoid organisms in the blood of various animals had long been ascertained, and that it would be known to some of the members that, about ten years ago, he had drawn attention to the fact that in India a somewhat similar condition was observable in man, and that this condition was associated with certain forms of grave disease. Since this period the literature of the subject had very rapidly increased and numerous confirmatory observations had been made in various parts of the world. Our knowledge of the hæmatozoa of lower animals had also been very greatly extended during the same period and of recent observations of this kind the most important which he knew of was one which had been made by Dr. Griffith Evans, the present head of the Veterinary Department in Madras, who, whilst making a post-mortem examination of a camel at Dera Ismail Khan, in October 1880, found that the blood of the animal swarmed with the brood of a nematoid parasite resembling the hæmatozoon found in man. Dr. Evans found, further, that the parental form existed in the lungs, the pulmonary arteries of which were plugged by tangled masses of the thread-like parasites. They were also found in the mesentery. A comparison of these hæmatozoa with those found in man shows that whereas the embryonal forms of both kinds are indistinguishable under the microscope, nevertheless the mature form as met with in the camel differs, both as to size and structure, from the only male and female specimen of the mature form met with in man which has hitherto been obtained in India, and so far as the speaker was aware this hæmatozoon of the camel differs from any hitherto described parasite. Should further enquiry confirm the supposition that the parasite is new to science he proposed that it should be called *Filaria Evansi*.

Dr. Lewis submitted mature specimens of the *Filaria Evansi* and of the *Filaria sanguinis-hominis* to the meeting, as well as samples of the microscopic embryos of both kinds; and furnished the following preliminary description of the mature hæmatozoon of the camel.

FILARIA EVANSI, sp. nov.

The *male* measures from 3" to 4½" in length and from $\frac{1}{80}$ " to $\frac{1}{40}$ " transversely at the widest part. At the oral end the width is about $\frac{1}{320}$ " and about one-third of an inch lower down the width equals $\frac{1}{160}$ ". The tail tapers to a blunt point and is curled into two or three coils. There are two spicules; the longer measures $\frac{1}{32}$ " and the shorter $\frac{1}{160}$ ". The cloaca is situated at $\frac{1}{32}$ " from the end of the tail. The bursa is small and is characterised by four pairs of pre-anal and two pairs of post-anal papillæ, with a fifth post-anal papilla close to the tip of the tail. The mouth does

not manifest any well marked lips. The œsophagus is $\frac{1}{4}$ " long by about $\frac{1}{800}$ " wide; and the cæcal commencement of the sperm tube may, in well prepared specimens, be detected lying near the junction of the œsophagus and the intestine. The sperm tube measures about $\frac{1}{400}$ " transversely, and the intestinal canal about $\frac{1}{170}$ "—both measurements being made towards the middle of the body of the worm.

The *female* is, speaking generally, about double the size of the male. It is from 6" to 8" long and from $\frac{1}{50}$ " to $\frac{1}{34}$ " across, at the widest part. The mouth is simple and somewhat pointed, the width of the parasite at this part averaging $\frac{1}{248}$ ". The tail is blunt—terminating in a slightly clubbed or funnel shaped enlargement; its width at the extreme end averages $\frac{1}{136}$ ", but a little higher up its diameter is somewhat less— $\frac{1}{200}$ ". The œsophagus averages .3" in length and $\frac{1}{180}$ " in width, and the intestine about $\frac{1}{170}$ ". The anus terminates at a spot about $\frac{1}{100}$ " from the caudal end. The genital orifice is about $\frac{1}{40}$ " from the mouth. For about a quarter of an inch from the orifice the genital tube presents nearly the same diameter, *viz.*, about $\frac{1}{80}$ ", and then it rapidly widens to $\frac{1}{100}$ " and subdivides into two utero-ovarian tubules, each measuring $\frac{1}{80}$ " transversely. The tubules are generally packed with embryos averaging $\frac{1}{25}$ " in length by $\frac{1}{450}$ " in width. Lower down, ova, in various stages of differentiation, and embryos are mixed together.

The specimens examined had been for a short time in spirit; they were of a yellowish-white appearance and female specimens more numerous than males. There was no marked difference as to firmness of texture between them. A fuller description of the minute anatomy of the parasites has been prepared and is nearly ready for publication.

4. *Arab Voyages to India in the Ninth Century.*—By E. THOMAS.

This paper will be published in the Journal, Part I.

5. *Notes on the Singpho and Kampti country, North-Eastern Frontier.*—

By CHAS. H. LEPPER, F. R. G. S., M. R. A. S. (vide Map.)

General Walker has desired me to write a short paper on the tract of country beyond our extreme North-Eastern Frontier, the tract between us and China, about which so little is known, in fact I may almost say about which nothing more is known than was brought to light by Wilcox more than fifty years ago. Even that indomitable and admirably correct explorer had to leave a strip of country between us and China totally unvisited and unreported upon. Having in those days to start from a point much further within our frontier than would be necessary now-a-days, he and his party were tired out and at the end of their energies and supplies before getting more than half-way between our present frontier and China, and felt obliged to return. Since his time we have got, literally speaking,

no further in our knowledge of the country beyond our frontier. In the seventeenth century we had a factory at old Bhamo, a few miles to the east of present Bhamo, and it is only natural to suppose that the Europeans then residing at old Bhamo knew at least as much if not more of the country north and west of their settlement than we do now.

For many years I have been occupying my leisure by collecting all the information I could of this exceedingly interesting tract, and have frequently made little excursions across the frontier. But this last cold season I had the great good fortune of having as my companion a gentleman whose name from political reasons I am not permitted to mention, but whom you will immediately recognize under the initials A. D. Having in him all the information extant on the China side of this tract I was able to ask the people we met such questions as would tend towards obtaining correct information, as we thus had the means of checking some of the statements made us.

To take up the geographical points first, I will condense into as few words as possible the most important details we collected. We knew from Wilcox's account, which we had with us for reference, the country up to Manchi and the Nam Kin branch of the Irrawaddi. To fix this extreme point of our knowledge from the west, I had better state that Wilcox gives from "several observations" the latitude of Manchi (it should be spelt Mán Khi) as $27^{\circ} 29' 16'' \cdot 5$: he does not give its longitude unfortunately. The latitude of Sadiya, our present outpost, is I believe given as $27^{\circ} 49' 44''$ and longitude $95^{\circ} 43' 6''$. We may take then Mán Khi as roughly speaking about $20'$ to the south and 2° to the east of Sadiya. On Wilcox's map of his trip is traced the upper portion of a river to the east of the Nam Kin and running for some distance almost parallel to the Nam Kin *viz*, north and south. He marks this the Nam Disang (nam = river in Kampti as in Siamese, sometimes menam): we heard it also called the Khan Kha (kha = river in Singpho) by the Singphos. This river was described to us from drawings on the sand as joining the Nam Kin by taking a somewhat sudden bend at no great distance below the entry of the Sit Kha into the Nam Kin. Between these two rivers, and north of the latitude of Mán Khi, live the Khannungs, a distinct people, very quiet, and rather skilful workers in metal: these are the makers of the best Kampti daos. Below these and still between the two rivers Nam Kin and Khan Kha or Nam Disang is the Dooling clan of Singphos, belonging to the Kaku division of Singphos.

In one of Wilson's maps, again, a trace of which I have, he shows a short trace of a river to the north east of Mán Khi and beyond the Khan Kha or Nam Disang. On another map published in 1828 by Wilcox I see he has, from hearsay or by guess, prolonged this little bit down till it joins

the Irrawaddi a little above the 25th parallel of latitude, and calls it the Shoomae. In his letter-press he gives its different names as being Shumai Kha, Pongmaï, or Sinmaï Kha. I heard it called Phongmai by the Singphos, Nam Kin lung (big Nam Kin by the Kamptis) and in an old map published at the Surveyor General's Office I see it called the Seng Kha. Now this latter name is important, perhaps, as it bears a significant resemblance to the Song^uga Kin of Thibet. The Song^uga Kin in Thibet passes the village of Song^uga kin Dzong, which is somewhere on or about 28° 30' of latitude, and runs in a direction which leads one again to suppose that the Song^uga Kin and the Seng Kha are one, apart from the resemblance of name. Then again the Seng Kha or Phongmaï, or Shumai or Sinmaï, having been described to us as the Nam Kin lung, *i. e.*, the big Nam Kin, points to its being bigger than the Nam Kin, at the same latitude as Mán Khi, *i. e.*, before the latter had received the waters of the Nam Lang, and Sit Kha, western tributaries, and the Khan Kha its eastern tributary. This would be quite consistent with its greater length and yet would be consistent with the statements of Major Sandeman's surveyor, who makes the eastern branch of the Irrawaddi above Maing na as smaller than the western, the western (*i. e.*, Nam Kin) having before this latter point received the tributaries Nam Lang and Sit Kha, and Khan Kha or Nam Disang.

Dr. Clements Williams put the junction of the two Nam Kins (let me so call them to speak in one language at a time) at a place called Mainla about 26° N. lat. This Mainla is evidently the Maing na of Major Sandeman's surveyor, which is given as 16 miles north of Kacho, and the latter place is given as latitude 25° 6'. His "eastern branch" must be the Nam Kin Lung, as we know it cannot enter the Irrawaddi lower down, as the surveyor must have noticed its mouth, and it cannot have passed across Capt. Gill's route without his having entered it, unless it could be either the Shué li, the Taping, or the Nampoung, which is not to be seriously considered.

If this reasoning be correct we must make the Khan Kha or Nam Disang join the Nam Kin shortly below the mouth of the Sit Kha, as there is no room for it much lower down, and this again quite agrees with the accounts I have brought back, and already stated above. The Nam Kin at about the latitude of Man Khi is not more than 80 yards wide and fordable even when swollen by the melting snows, according to Wilcox. The Khan Kha is said to be much the same size by the Singphos, but I have my doubts on that point.

I think we can now accept the Nam Kin lung or Phongmai Kha as the real source-stream of the Irrawaddi; and if the Song^uga Kin and Seng Kha are one, then the Song^uga Kin and our Nam Kin lung or Phongmai are therefore one: in that case the Irrawaddi rises in Thibet above the 30° of N. latitude, and I think we may claim this as a reasonable solution of the Irrawaddi problem.

Let me next take up the people inhabiting this tract. Between these two important streams the Nam Kin and the Phongmai or Nam Kin lung, or may I say the Irrawaddi "proper," and from their junction to about the latitude of the junction of the Sit Kha with the Nam Kin are the Laphais a Singpho clan, represented to me as being quiet people and "zemindars," *i. e.*, probably cultivators: they also extend east of the Irrawaddi "proper" to the mountains bordering quasi Chinese territory, *i. e.*, to the country inhabited by the Latongs, also a Singpho clan, which from enquiries we are able to recognize as the Lissous of our best authority on the country on the Chinese side *viz.*, A. D. We therefore meet China on known ground here.

North of the Laphais and between the Nam Kin and the Irrawaddi "proper" are the ^{ns} Kumsangs another Singpho clan. These extend again east as far as the Latongs or Lissous. We meet China here again. North of the ^{ns} Kumsangs, and between the Nam Kin and Irrawaddi "proper" are the Murans, another Singpho clan, but these do not, it is said, pass the Irrawaddi "proper" to its east.

These Murans are interesting as being the parent stock of the Muran or Muttocks of the Lackimpur District of Assam, and are said to be a section of the Loosoo or Lissou clan of A. D., but this dates from 800 years ago. The word "Muttuck" signifies "capable of resistance," and was given them by the Kamptis and Singphos in contradistinction to the other Assamese who were termed Mooloons, and who were taken as slaves. The equivalents for "Muttuck" and "Mooloon" are given as "sukut" and "nurum." They are now, these same Muttucks, probably the most effete and slothful people in existence.

North of the Murans and still between the Nam Kin and the Irrawaddi "proper," at the foot of the Himalayas and about the eastern source of the Khan Kha or Nam Disang, are the Maruv, a distinct tribe, who are described as a quiet inoffensive people. They must be a very small body judging from the space allowed them. They are said not to pass the Khan Kha or Nam Disang to the west, nor the Irrawaddi "proper" to the east.

Coming back to the country north of the ^{ns} Kumsangs, on the east bank of the Irrawaddi "proper," we have the Mussu Tchi Keyt clan of Singphos, and east of these again the Dainu Tribe, a distinct people. These are on the western slope of the range of mountains bordering the Lutze Tribe of A. D. We therefore meet China again here. But between the Mussu Tchi Keyt clan and the Dainu Tribe in the Terai there is the Dgi Tribe and these extend north up into the Hills. Possibly these may be the Didju Tribe of A. D., as they are about where he places that tribe, though on this point I have only the similarity in name and situation to go upon.

Thus from the Thibetan Frontier in the north down to already described country in the south we have now been able to fill in the clans and tribes between our frontier and China, and of these it is satisfactory to learn that the majority are described as very quiet people, and those, *viz.*, the Lissus, who are from native sources described as the worst, are described by A. D. as being well disposed to Europeans, though subject enough to disputes amongst themselves.

It is seen from the above what a very small area is allotted to the Kamptis of Bor Kampti visited by Wilcox over 50 years ago. They may be said to be contained in the basin between the Nam Lang and the Nam Kin, a few detached villages being found scattered along the river banks, a little to the north of Kacho, by Major Sandeman's surveyor.

The clan of Kamptis that was in power in Wilcox's time in Bor Kampti, *viz.* the Lung Kins, have been expelled by the other Kampti clan called Luk Khun, and their town Kallang of Wilcox's map destroyed. Of those that escaped of the Lung Kins some went south down the Nam Kin, others are settled along the Tenga Pani, and near the mouth of the Noa Dehing in our territory. This exodus occurred about 30 years ago. They left none of their clan behind them except the orphans of the slain that were too young to march. There are several khéls or small clans amongst the Kamptis. These Kamptis in our territory have still a greater respect for Burmah than for us, and imagine Burmah stronger than we are. I met two Burmese, I firmly believe officials, amongst them. They send presents to the Burmese kings, having to send them through British country to do so. The Kamptis of Bor Kampti also send presents as tribute once in about three years to Burmah.

Looking at the Kamptis from a China route point of view they can be perfectly ignored by passing to the south and round them. In any case they would do nothing but offer passive resistance. But as, owing to the jealousies existing between the Kamptis and Singphos, it would be impolitic to have a mixed following of Kampti and Singpho guides, and as Kampti guides alone could not lead an explorer to China, and Singpho guides properly selected from the different Singpho clans could do so, it is easily seen of how little importance to us any kind of feeling towards us on the part of the Kamptis need be.

The Kampti language is undoubtedly a patois of Siamese as is easily detected by a glance at a comparative vocabulary. They use characters almost identical in general appearance with those of Burmah, but having a difference in value and pronunciation. As regards the Singpho language, this seems, after a comparison I have made with some 14 languages of these parts (vocabularies of which I have already collected, with hopes of adding some 14 to 16 more to their number), to be a distinct language. It is

true I can find words quite similar and of the same meaning in several of the other frontier languages, but these few are so very rare out of a good number, that they can only be called coincidences, and they tend to make the differences all the more marked. There is one coincidence, however, of sufficient interest to mention, *viz.*, the word for the numeral *five*; this in Singpho is mungar, in Manipuri is munga, in Kuki Lushai is punga, in Angami Naga is pengu.

Both the Kamptis and Singphos belong to the Thibeto-Burmah non-Aryan division.

There has possibly been too great a tendency to mark down new languages on this frontier amongst philologists, and from a letter I have just received from Mr. Sam. Peal I find he is of the same opinion as myself. I cannot do better than quote his letter which explains the case admirably in a few words; he says "I may tell you at once, however, that there is no hard and fast boundary for the Naga dialects this side any more than for the Irish brogue at home; contiguous tribes (of Nagas) generally converse easily and it becomes more difficult with distance. The Philologists at home make this mistake. It is, however, not so much a dialectic variation as that actual words do change *radically* with the distance, the percentage increasing with it."

Of course here we only speak of languages belonging to individual races, which languages are subject to much change in themselves, sufficient to give rise to the error of classing them as distinct patois or languages instead of as blended patois.

The Singpho language is perfectly distinct from the Kampti or as we might call it that Siamese patois spoken by the Kamptis.

This Singpho language is not purely monosyllabic though nearly so and has no tones *à la Chinoise* so far as I have gone into it at present. The Kampti patois is on the other hand apparently monosyllabic and has got tones *à la Chinoise*.

The Singphos were originally all one people, but some time back split up into two great divisions, say the Eastern and the Western, called Kakus and Ts'Sans. This localisation, *viz.* Eastern and Western, is only fit for general application, as families and villages of either may be, and are frequently, found situated amongst families and villages of the other. Both have representative villages within our frontier.

These divisions are subdivided into clans, and the clans into families, and the families again into villages, till the whole appears indeed a difficult problem to work out when an attempt is made to localize and distinguish them all. What adds to the confusion is that in Assamêse they only use the word *khél* to describe both the clan and the family. Perhaps the most important clan of the Ts'San Division is the Ga Kieng (called by

travellers in Burmah Ka Kyungs, &c., &c.) This clan is also called Dapha, from its having originally been located on the Dapha pani, a tributary of the Dehing a tributary again of the Brahmaputra within our frontier. Ga Kieng signifies red, and they are supposed to have got this name from the red colour of the soil near the Dapha: probably the red sandstone rocks about there gave the name.

This clan is of course again divided into a lot of families and villages. The Kaku Division again claims several large clans such as the Laphais, Latangs or Lissous and the Kumsangs, &c. The Kaku division is found chiefly in the trans Nam Kin country and the Ts'San division on this side of the Nam Kin, in the Hokong valley, and between the Irrawaddi and the Kandywen. *A propos* of the Lissous, although they actually pay tribute to China, *i. e.*, those of them immediately adjacent to China, they are not allowed at Pekin to be in existence, nor their name to appear on the Chinese maps, but this is an interesting detail which it would take too long to relate here.

The Singphos pay tribute to nobody, neither to Burmah nor to China, thus forming a neutral ground between us and China. All these tracts, especially towards the south and south-west and those in the further west of our frontier station Sadiya, are extremely rich in the precious metals, and the amber mines of Hokong, only a few days' journey from our frontier, are famous. Serpentine, jade, salt and other valuable minerals, as well as precious stones, are found in these tracts in no insignificant quantities. The Chinese come a long way towards us, in the country just below the junction of the Nam Kin and the Irrawaddi "proper," *i. e.*, on the neutral ground referred to, for trading purposes, and there used to be large settlements of them even on this side of the Irrawaddi. This seems to point very distinctly to the easy opening of trade communications with China on this neutral ground, seeing that the Singphos would welcome us gladly if properly treated in the first instance.

As regards our actual distance from the Chinese frontier, if we put the extreme point of our further line at about 70 miles east of Sadiya, then we cannot be more than 80 miles from the limit where Chinese influence commences or their "outer line" must be, which latter follows the range of mountains on the right bank of the Saluen or Loutze Kiang (river of the Loutzes). This 80 miles contains more of interest in itself than is easily explained in a short paper of this nature, but time and space do not allow me to deal, but in a most general way, with a subject that might fill volumes before being exhausted.

General WALKER remarked that, in the absence of actual survey operations, geographers had much reason to be indebted to gentlemen—as Mr. Lepper, and our friend A. D. to whom we are already indebted for previous

communications—who, while residing in the neighbourhood of any region which has not yet been explored by Europeans and is still a *terra incognita* to the world at large, devote themselves to enquiries regarding its inhabitants, their actual subdivisions, and the general run of the rivers and mountain ranges which separate them from each other and from the outer world. In this way the broad facts of the geography of the country become elicited even without actual survey.

The information now furnished by Mr Lepper and A. D. regarding the Singphu Kampti country and the regions between eastern Assam and western China tends to strengthen the probabilities in favour of the sources of the Irrawaddy river lying wholly in a system of mountain ranges on or about the parallel of 28°. On the other hand we have already learnt from A. D. that the Salwin river—which may be regarded as a sister to the Irrawaddy, the two flowing parallel to each other for a considerable distance, and eventually entering the same ocean—takes its rise in the great plateau of eastern Thibet, probably about the parallel of 32°, and very considerably to the north of the sources of the Irrawaddy. This is a fact of considerable geographical importance, of which we might long have remained in ignorance but for these communications.

6. *On an abnormality in the horns of the Hog-deer, Hyelaphus porcinus, Zim, with a theory on the Evolution of Antlers in Ruminants.*—By JOHN COCKBURN.

(Abstract.)

The abnormality which was unilateral was described and attributed to reversion to an ancestor of both *Rusinae* and *Elaphinae*. The arguments for and against this decision were then discussed.

Mr. Cockburn alluded to Prof. Garrod's theory of development from a typical antler which might be described as a bifurcate beam with a brow antler at the basal portion.

The author regards this typical antler as already a complex organ, inasmuch as certain existing species of deer show a far more elementary type, *Cervulus* and *Coassus rufus* for example, the horns of the latter animal never proceeding beyond the condition of a simple spike.

The important fact that the antlers of all ruminants exhibit the elementary character of a simple spike in the first year's growth has caused the author to assume as a hypothesis that the development of the antlers of individual species of *Cervinae* is a recapitulation of the history of the development of antlers in the group. The details of the theory are then explained and Prof. Boyd Dawkin's latest researches alluded to.

LIBRARY.

The following additions have been made to the Library since the Meeting held in February last.

TRANSACTIONS, PROCEEDINGS AND JOURNALS,
presented by the respective Societies and Editors.

- Baltimore. American Chemical Journal,—Vol. III, No. 5.
 Bombay. The Indian Antiquary,—Vol. XI, Part 129, February 1882.
 Bordeaux. Société de Géographie Commerciale,—Bulletin, No. 2.
 Brunswick. Verein für Naturwissenschaft,—Jahresbericht, 1880-81.
 Calcutta. Geological Survey of India,—Memoirs, Palæontologia Indica,
 Series X, Vol. II, No. 1; and Series XIV, Vol. I, Part iii, No. 1.
 ———. Original Meteorological Observations,—April and May 1881.
 Leipzig. Hesperos,—Vol. I, No. 14.
 Liège. Société Géologique de Belgique,—Annales, Vol. VII.
 London. Nature,—Vol. XXV, Nos. 637-640.
 ———. Royal Astronomical Society,—Monthly Notices, Vol. XLII, No. 1,
 November 1881.
 ———. The Academy,—Nos. 506-509.
 ———. The Athenæum,—Nos. 2829-2832.
 Mozambique. Sociedade de Geographia,—Boletin, No. 6, November 1881.
 Munich. Repertorium für Experimental-Physik,—Vol. XVIII, No. 3.
 Pisa. Società Toscana di Scienze Naturali,—Atti, Processi Verbali, 13th
 November 1881.
 Paris. Société de Géographie,—Bulletin, June and July 1881.
 Rome. R. Accademia dei Lincei,—Atti, Vol. VI, Part 3.
 ———. Società degli Spettroscopisti Italiani, Memorie, Vol. X, No. 11,
 November 1881.
 St. Petersburg. Hortus Petropolitanus,—Acta, Vol. VII, No. 2.
 Yokohama. Asiatic Society of Japan,—Transactions, Vol. XI, Part 3.
 Zagreb. Hrvatskoga Arkeologickoga Druztva,—Viestnik, Vol. IV, No. 1.

BOOKS AND PAMPHLETS,

presented by the Authors.

- MCCRINDLE, J. W. Ancient India as described by Ktésias the Knidian.
 12mo. Calcutta, 1882.

MISCELLANEOUS PRESENTATIONS.

- Report on the Trade and Resources of the Central Provinces for the year
 1880-81. Fcp. Nagpur, 1882.

CHIEF COMMISSIONER, CENTRAL PROVINCES.

- DOZY, R. *Supplément aux Dictionnaires Arabes*. Vols. I-VIII. 4to. Leyde, 1877-80.
- FALLON, S. W. *A New English-Hindustani Dictionary*. Parts 4, 6 and 7. 8vo. Benares, 1881-82.
- Indian Antiquary*, Vol. XI, Part 129, February 1882.
- LANE, EDWARD WILLIAM. *An Arabic-English Lexicon, derived from the best and the most copious Eastern Sources, in two books*. Book I, Parts 1-6. 4to. London, 1863-77.
- LANE'S *Arabic-English Lexicon*. Edited by Stanley Lane Poole. Vol. VII, fasc. 1. 4to. London, 1881.
- JAESCHKE, H. A. *A Tibetan-English Dictionary with special reference to the prevailing dialects. To which is added an English-Tibetan Vocabulary*. 8vo. London, 1881.

HOME DEPARTMENT.

- Annual Report of the Madras Medical College, Sessions 1880-81*. Fcp. Madras, 1881.
- Annual Report on the Lunatic Asylums in the Madras Presidency during the year 1880-81*. Fcp. Madras, 1881.

MADRAS GOVERNMENT.

- List of Light-houses and Light-vessels in British India, including the Red Sea and Coast of Arabia (Suez to Singapore), corrected up to 1st January, 1882*. Obl. 4to. Calcutta, 1882.
- General Report on the Operations of the Marine Survey of India, for the year 1880-81*. Fcp. Calcutta, 1882.

MARINE SURVEY DEPARTMENT.

- BURMEISTER, DR. H. *Atlas de la Description Physique de la République Argentine*. Section I. *Vues Pittoresques*. Fol. Buenos Aires, 1879.

MUSEO PUBLICO, BUENOS AIRES.

- FRICTSCH, DR. GUSTAV. *Das Clima von Süd-Afrika mit besonderer Rücksicht auf die Culturfähigkeit des Landes*. 8vo. Pamphlet.
- BOURGUIGNAT, J. R. *Inscriptions Romaines de Vence (Alpes Maritimes)*. 8vo. Paris, 1869. Pamphlet.

G. NEVILL, Esq.

- MANTEGAZZA, PAOLO. *Della capacità delle fosse nasali e degli indici rinocefalico e cerebrofaciale nel cranio umano*. 8vo. Firenze, 1873.
- . *Dei caratteri gerarchici del cranio umano*. 8vo. Firenze, 1875.
- . *Il terzo molare nelle razze umane*. 8vo. Firenze, 1878.
- . *La riforma craniologica*. 8vo. Firenze, 1880.
- . *Saggio sulla trasformazione delle forze psichiche*. 8vo. Pam.
- . *Experimentelle Untersuchungen über den Ursprung des Faserstoffs und über die Ursache der Blutgerinnung*. 8vo. Giessen.
- MANTEGAZZA, PAOLO; and REGALIA, ETTORRE. *Nuovi studi craniologici sulla Nuova Guinea*. 8vo. Firenze, 1881.

MANTEGAZZA, PAOLO ; and SOMMIER, STEPHEN. *Studii Antropologici sui Lapponi*. 4to. Florence, 1880.

REGALIA, ETTORE. *Alcune osservazioni sull'epoca relativa della saldatura dei frontali in diversi mammiferi*. 8vo.

———. *Sulle cause delle anomalie di numero delle vertebre*. 8vo. Firenze.

———. *Sul rapporto fra la massima larghezza del cranio e della faccia*. 8vo. Firenze.

PRESIDENT, ANTHROPOLOGICAL SOCIETY OF FLORENCE.

PERIODICALS PURCHASED.

Berlin. *Deutsche Litteraturzeitung*,—No. 49.

Calcutta. *Indian Medical Gazette*,—Vol. XVII, No. 2, February 1882.

Geneva. *Archives des Sciences Physiques et Naturelles*,—Vol. VII, No. 1.

Göttingen. *Gelehrte Anzeigen*,—Nos. 51-52 (1881) ; and No. 5 (1882).

———. *Nachrichten*,—No. 16.

Leipzig. *Annalen der Physik und Chemie*,—Vol. XV, No. 1.

———. *Beiblätter*,—Vol. V, No. 12 ; and Vol. VI, No. 1.

———. *Botanisches Centralblatt*,—Vol. VIII, No. 9.

———. *Literarisches Centralblatt*,—No. 49.

London. *Chemical News*,—Vol. XLV, Nos. 1155-1158.

———. *Publishers' Circular*,—Vol. XLV, Nos. 1064-1065.

———. *Quarterly Journal of Pure and Applied Mathematics*,—Vol. XVIII, No. 70, October 1881.

———. *Society of Arts*,—*Journal*, Vol. XXX, Nos. 1520-1524.

Paris. *Annales de Chimie et de Physique*,—Vol. XXIV, December 1881, and Vol. XXV, January 1882.

———. *Comptes Rendus*,—Vol. XCIV, Nos. 1-4.

———. *Revue Critique*,—Vol. XIII, Nos. 1-5.

———. *Revue des deux Mondes*,—Vol. XLVII, No. 3 ; and Vol. XLIX, Nos. 2-3.

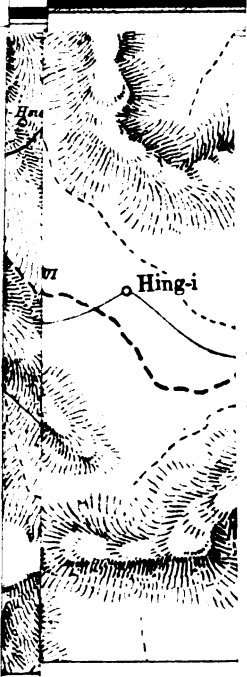
———. *Revue Scientifique*,—Vol. XXIX, Nos. 2-4.

BOOKS PURCHASED.

GOULD, JOHN. *The Birds of New Guinea*. Part XII. Folio. London, 1881.

LUYS, J. *The Brain and its Functions*. 12mo. London, 1881.

MORSELLI, HENRY. *Suicide: an Essay on Comparative Moral Statistics*. 12mo. London, 1881.



PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.
FOR APRIL, 1882.

The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 5th April, at 9-15 P. M.

The HON'BLE SIR ASHLEY EDEN, K. C. S. I., C. I. E., President, in the Chair.

The minutes of the last Meeting were read and confirmed.

The following presentations were announced :—

1. From the Panjab University College,—Elements of Hydrostatics, Hydraulics and Pneumatics in Hindi, by Navina Chandra Rai.

2. From the Surveyor General of India,—Supplement to the Catalogue of Maps, Plans, and Charts of the Survey of India.

3. From the British Museum,—Catalogue of the Birds in the British Museum, Vol. VI.

4. From the authors,—(1) Note sur la photographie de la Comète δ 1881, obtenue à l'Observatoire de Meudon, by J. Janssen ; (2) On the Origins of Caste and Tribal Names and the practical value of ascertaining them, by Lt. R. C. Temple.

5. From W. Bonnaud, Esq.,—A Biographical Sketch of the first Indigo Planter in India, the late Monsieur Louis Bonnaud, by H. James Rainey.

6. From the Government, N. W. P. and Oudh,—Statistical, Descriptive, and Historical Account of the North-Western Provinces of India, Vol. VI.

7. From Messrs. Thacker, Spink and Co.,—Hindu Tribes and Castes, Vol. III, by Rev. M. A. Sherring.

8. From the Director, St. Xavier's College Observatory,—St. Xavier's College, Calcutta, Solar Observatory. Observations for the months of December 1881, January and February 1882.

9. From the Public Museum, Buenos Aires,—Atlas de la Description Physique de la République Argentine. 2nd Section, Mammifères, Text; and 2nd Section, Mammifères, Pt. 1., Die Bartenwale der Argentinischen Küsten, Plates, by Dr. H. Burmeister.

10. From the Home Department; Forest Branch;—A Manual of Indian Timbers: an account of the Structure, Growth Distribution, and Qualities of Indian Woods, by J. S. Gamble; (2) Suggestions regarding Forest Administration in the North-Western Provinces and Oudh, by Dr. D. Brandis.

11. From the North China Branch, Royal Asiatic Society,—Report on the third International Geographical Congress, Venice, September 1881, by Lieut. G. Kreitner.

12. From H. F. Blanford, Esq.,—(1) Habitations Lacustres de la Savoie. Album, by L. Rabut; (2) Prehistoric Remains of Caithness, with notes on the Human Remains by Thomas H. Huxley, by Samuel Laing; (3) Aristotle: a Chapter from the History of Science, including analyses of Aristotle's scientific writings, by George Henry Lewes.

13. From Dr. Winckle,—Verzeichniss von Münzen und Denkmünzen der Erdtheile Australien, Asien, Afrika und verschiedener mohammedanischer Dynastien der Jules Fonrobert'schen Sammlung, by Adolph Weyl.

14. From Sir John Pope Hennessey,—Photograph of a screen painted for Tyko Sama of the first European ship that visited Japan.

15. From Nawab Siddiq Hasein Khan—14 Arabic books.

The following gentlemen are candidates for ballot at the next meeting.

1. H. E. Sir Donald M. Stewart, Bart., G. C. B., G. C. S. I., Commander-in-Chief, proposed by H. F. Blanford, Esq., seconded by J. Wood-Mason, Esq.

2. Kaviraj Shyamaldass, proposed by Pandit Mohunlal Vishnunal Pandia, seconded by Dr. H. W. M'Cann.

3. H. H. Nawab Alijah Amir-ul-Mulk Syud Mahomed Siddeek Hus-san Khan, Bahadur, Consort of H. H. the Begum of Bhopal, proposed by Nawab Abdul Latif Khan, Bahadur, seconded by Dr. A. F. R. Hoernle.

4. Maulvi Golam Sarwar, proposed by Maulvi Kabiruddin Ahmad, seconded by Dr. A. F. R. Hoernle.

5. James B. Chalmers, Esq., C. E., Bengal Central Railway, proposed by J. Wood-Mason, Esq., seconded by H. B. Medicott, Esq.

The SECRETARY reported that Dr. G. Bomford and Dr. E. W. Chambers had intimated their desire to withdraw from the Society.

The COUNCIL reported that Messrs. J. Westland and F. W. Peterson had completed their audit of the Society's Accounts and furnished a report. A vote of thanks was passed to the Auditors.

The COUNCIL recommended that the Society should subscribe Rs. 50 to the fund now being raised for a Memorial for Mr. L. Schwendler at the Zoological Gardens. The recommendation was approved.

THE PRESIDENT said the Governor of Hongkong, whom he had brought to the meeting, possessed a very rare Chinese Bank note which he would be kind enough to show to the Society.

SIR POPE HENNESSY, in laying the note upon the table, reminded the members that in the 2nd Book of Marco Polo's travels is a chapter entitled "How the great Kaan causeth the bark of trees, made into something like paper, to pass for money over all his country."

Marco Polo describes those bank notes as something resembling sheets of paper but black and of different sizes. He says they are made from the bark of the mulberry tree.

Four hundred years after Marco Polo wrote, the accuracy of his work was questioned on this very ground, it being imagined that the Chinese could not possibly have had paper money at a time when paper money was unknown in Europe. None of the notes seen by Marco Polo in the thirteenth century appears to have been preserved, but a few notes of the fourteenth century are in existence, of which this is one.

Col. Yule in his edition of Marco Polo says, "I have never heard of the preservation of any note of the Mongols; but some of the Ming dynasty survive and are highly valued as curiosities in China. The late Sir George Staunton appears to have possessed one; Dr. Lockhart formerly had two, of which he gave one to Sir Harry Parkes, and retains the other. The paper is so dark as to explain Marco's description of it as black. By Dr. Lockhart's kindness I am enabled to give (says Col. Yule) a reduced representation of this note, as near a facsimile as we have been able to render it, but with some restoration, *e. g.*, the seals of which in the original there is the barest indication remaining."

A facsimile of the note exhibited to the Society has been made by the Lithographic Branch of the Surveyor General's Office and will be issued with the Proceedings for April.

On comparing the original with the engraving in Col. Yule's edition it was seen to be twice the length and breadth of the latter, of a darker shade and with some variation in the conventional ornamentation.

The Plate annexed is as close a facsimile as was possible under the circumstances. The upper line of Chinese characters on the bank note

exhibited shows that it was printed in the Hung Woo period of the Ta Ming dynasty (A. D. 1368) so that it is about five hundred years old.

Col. Yule was under a misapprehension in thinking Sir Harry Parkes was one of those who possessed a copy of these rare notes. Sir Thomas Wade the present British Minister in Peking, on being shown this note, also said it was the only one of the Ming dynasty he had ever seen.

In reply to questions asked by some of the members, Sir Pope Hennessy explained that the note was "valued for one thousand," that is, 1000 cash, or one dollar. It bore the seals of the revenue officials, and appeared to be of Imperial currency as distinguished from the local or provincial paper money now used in some parts of China. The inscription on it denoted that any one convicted of forging the note would be punished by decapitation and any informer would receive a reward. This copy was got from the Chinese a few years ago by a European official of the Customs service who was well known as a collector of Chinese coins and old books, and on whose death in 1878 it was sold in Hongkong. His collection of Chinese coins was purchased by the Japanese Government. The note appeared to be printed from a block. The seals, of which a slight vermilion impression was visible, were similar to those now in use on official documents.

The following papers were read :—

1. *The Spirit-Levelling Operations executed in connection with the Tidal Observations of the Indian Survey Department.*—By LIEUT.-GENERAL J. T. WALKER, C. B., F. R. S., *Surveyor-General of India.*

The tidal stations at Madras and Bombay have now been connected by a line of spirit-levels carried directly across the peninsula, for the most part in the vicinity of the line of railway. The mean-sea level has been determined very approximately at each of the two tidal stations, and it would appear from the spirit-levelling operations that the mean-sea level is about 3 feet higher at Madras than at Bombay. That there are variations in the general level of the surface of the ocean at different places, so that, if compared with the surface of the spheroid or other geometrical figure which most closely corresponds to the figure of the earth, the surface of the ocean will in some places be above and in other places below that of the figure, is probable enough; and indeed this must certainly happen, whenever the attractive influences of mountains and other irregularities of the earth's surface on the waters of the ocean are not counteracted by deficiencies of density in the strata below the elevated masses. But as the surface of the ocean is everywhere maintained in equilibrium, there can be no flow of water from one point to another; thus there can be no sensible differences of level, though some points on the surface may be materially

higher than other points, as referred to a hypothetical geometrical surface, or, say, to the earth's centre. The differences of height, however considerable, must be insensible, because they cannot be measured by instrumental means; for the causes by which they would be produced must equally affect both the spirit-levels of the instruments and the water-levels of the ocean, whenever both are subjected alike to the same influences. Thus if in the present instance the spirit-levels had been carried, without error, along the coast line, from Bombay round *vid* Cape Comorin to Madras, they must have shown identity of mean-sea level at Bombay and Madras, just as has been met with in the Red Sea and the Mediterranean on opposite sides of the Isthmus of Suez, and in the Atlantic and the Pacific Oceans, on opposite sides of the Isthmus of Panama. And this identity would be obtained even if there were actually a considerable difference of height, as is very possible; for the Western Ghats, and the generally greater elevation of the western as compared with the eastern half of the peninsula, are sources of attraction which, if not counteracted, must raise the mean-sea level at Bombay no less than 31 feet (as computed by Mr. Hennessey) above the mean-sea level at Madras.

The spirit-levels, however, were taken across the continent and not along the coast-line; they were carried from Bombay up the short and abrupt ascent to the crest of the Western Ghats, and then down the long and gentle decline to the east coast. Thus, while subject to the same general attractive influence of the continental masses as the ocean levels, they are also subject to the more proximate influences of local irregularities in the configuration of the ground passed over. The closing discrepancy of 3 feet at Madras is materially greater—both absolutely, and relatively to the distance levelled from Bombay—than any error previously met in the course of the levelling operations of this survey, which have been carried over many thousand miles and tested at a number of closing points and junctions of circuits, and have been conducted with special precautions to guard against errors of all kinds, whether accidental or cumulative. Moreover, a very similar discrepancy, almost identical in sign and magnitude, is stated to have been met with at the close of the railway levels between Madras and Bombay. Thus it has been surmised that the discrepancy may be due to the proximate and local attractions of the hills and table-lands over which the lines of level were carried, and which must exercise some influence on the instrumental levels, over and beyond the general influence that is exerted alike on both the instrumental and the ocean levels. Problems of this nature have been investigated mathematically by Colonel A. R. Clarke, C. B., R. E., and formulæ for their calculation are given in his recent valuable treatise on Geodesy. Mr. Hennessey has calculated the attractions with these formulæ, making such assump-

tions as regards the general configuration of the ground levelled over as appeared to be most reasonable and probable; and he has arrived at the conclusion that the levelling operations cannot have been influenced by the proximate and local attractions experienced on the line of operation to anything like the amount of the discrepancy met with.

Thus the discrepancy is possibly due chiefly to error in the levelling operations. As the most probable locus of such error was believed to lie in the section over the Ghâts, where the ascents were very steep and the staves were sometimes so close to the levelling instrument that the foot-marks could not be seen in the field of the telescope, that section was re-levelled; but the results of the two measurements were identical. And indeed it seems highly improbable that the discrepancy can be due to any accidental gross errors, seeing the special precautions which have been taken—by the employment of independent operators and instruments, and the use of double-faced staves—to guard against such errors.

But it has long been known that all spirit-levelling operations are liable to an accumulation of small errors which, though individually so minute as to be barely appreciable at any single station where the instrument is set up, have a tendency to be repeated at successive stations, and may therefore attain a considerable magnitude at the end of a long line of levels. In the operations of this Survey it is customary to guard, as much as possible, against such errors by various expedients,—such as observing the back staff first at one station and the forward staff first at the next, alternating the direction of operation on successive days, or at least executing half the work of a field season in the direction of the terminus and the other half in that of the origin; invariably setting up the staves at equal distances from the instrument at every station; and tilting the instrument occasionally, to guard against the heating influence of the sun—or the cooling influence of winds—acting on one side more than another, and causing dislevelments which would be frequently repeated if not counteracted, and thus create an accumulation of error. There is, however, a liability to personal misapprehension in reading the bubble of the spirit-level which may tend to produce a considerable accumulation of error on lines of which the general direction is either towards the sun or opposite to the sun. Owing to the level being placed above the telescope, the observer gets a side view of the bubble, refracted obliquely through the thickness of the glass tube, which is not so sharply defined as the look-down view from above. The rim round the bubble, caused by the adhesion of the liquid to the sides of the tube, becomes so prominent that its extremities may be observed instead of those of the bubble. When light falls obliquely and not vertically on the instrument, and either end of the telescope is pointed towards the light, the outer-edge of the rim at the end

of the bubble towards the light is more clearly defined than the inner, while at the opposite end of the bubble the inner-edge of the rim is more clearly defined than the outer. Consequently there is a tendency to assume the instrument to be level when in reality the end towards the light is depressed; and though this tendency would probably vary in magnitude with different observers, it is likely to affect all persons more or less. Obviously it is uninfluenced by reversing the direction of operation, though it disappears whenever the direction is at right angles to that of the light.

This personal error in reading the spirit-level and setting the instrument would obviously produce a maximum effect on lines of which the general direction is meridional, when the operations are carried on equally before and after noon; when carried on between sunrise and midday, as is more usual in this country, the direction of the line of maximum effect would be south-east by north-west. The result would be apparently to raise the southern stations relatively to the northern ones. Now this has been found to occur in a greater or less degree in all our lines of levels connecting tidal stations, and not only on the direct line from Bombay to Madras,—to the following extent in each instance:—

(1) From the mean sea level of the tidal station of Okha, at the entrance to the Gulf of Cutch, to that of Bombay, there is an apparent rise of $\cdot 33$ feet, length of line 580 miles.

(2) From the mean sea level of Bombay to that of Karwar, there is an apparent rise of $\cdot 93$ feet; length of line 530 miles.

(3) From the mean sea level of Karwar to that of Madras, there is an apparent rise of $\cdot 92$ feet; length of line 560 miles.

The apparent rise of 3 feet at Madras as compared with Bombay was generated on a line of 730 miles in length; it is thus materially greater in proportion to the length of line traversed than the discrepancies met with on the three other lines. But as all the discrepancies are in the same direction, and all agree in raising the southern points relatively to the northern, it appears possible that all the operations may have been influenced by oblique illumination of the bubbles of the spirit-levels. It is to be noted that Madras is meridionally 400 miles to the south of Bombay, and that an error of level adjustment amounting in arc to only $1''\cdot 2$, and recurring with the same sign at only one-fourth of the stations at which the instruments were set up—the operations being otherwise errorless—would produce a discrepancy of the magnitude which has been met with.

It has been considered desirable to enter very fully into the matter of this discrepancy, because long lines of level so frequently close without any appreciable error that disappointment may naturally be felt at the occurrence of so large a discrepancy as this, and the re-levelling of the entire line may be considered desirable. But the weakest section has already been

re-levelled and no error has been detected in it, and this would probably be also found to happen in all the other sections. It is to be remembered that to whatever extent the levels already taken may be influenced by variations of local attraction, or by oblique instrumental illumination, a second measurement over the same ground would be influenced to exactly the same extent by the first cause and somewhat similarly by the second, and therefore would probably close with a similar discrepancy.

In the general reduction of the spirit-levelling operations it will be assumed that the mean sea level, as determined at each tidal station, is the datum to which the spirit-levels should be referred in each instance. Any discrepancies which may be met with on closing a line at a tidal station will be dispersed over the line and treated as errors generated in the levelling operations.

2. *Description of a new species of Clausilia from the Nicobars.*—By O. F. VON MÖLLENDORFF, *Vice-Consul for Germany, Hongkong.*

This paper will be published in full in the Journal, Part II, for 1882.

3. *Life and Legend of Tson Khapa.*—By BABU SARAT CHUNDER DAS.

4. *Rise and Progress of Buddhism in Mongolia.*—By BABU SARAT CHUNDER DAS.

5. *The Indian Balhará, and the Arabian Intercourse with India in the ninth and following centuries.*—By EDWARD THOMAS, F. R. S.

The preceding three papers will be published in full in the Journal Part I, for 1882.

SIR ASHLEY EDEN, in resigning the office of President of the Society, said: As this is the last occasion on which I shall have the pleasure of presiding at your meetings, in consequence of my departure from India, I must ask you to let me thank you for the very great honor which you have done me in twice electing me to be your President. I am sensible of the very incomplete and inefficient manner in which I have performed the duties of that office, but I need not assure you that this has not been the result of any indifference on my part to the interests of the Society but of unavoidable circumstances. It so happens that at the time when I am down in Calcutta, and should otherwise be able to preside at your meetings, I am prevented by the numerous engagements of the winter season from attending the Society's meetings as frequently as I should wish to do. I now resign the office to which you did me the honor to elect me, and it will fall to the Council to appoint some one to take my place as President for the remainder of the year.

The Hon'ble H. J. REYNOLDS said: Sir Ashley Eden,—On behalf of the members who are here to-night—and I am sure I may also speak for those who are absent—I desire to express our regret at the approaching severance of your connection with the Society, and at the same time our satisfaction at your appointment by Her Majesty to the responsible post of a Member of the Council of India. We all feel, Sir, that that Presidential Chair, in which you have had so many illustrious predecessors, has seldom, if ever, been more worthily occupied than by the successful administrator whose name will long be memorable for much good work done for the progress and development of the Province of Bengal. In the name of the Asiatic Society, I beg to tender you the cordial good wishes of us all.

LIBRARY.

The following additions have been made to the Library since the Meeting held in March last.

TRANSACTIONS, PROCEEDINGS AND JOURNALS,

presented by the respective Societies and Editors.

- Berlin. K. preussische Akademie der Wissenschaften,—Monatsbericht, December 1881.
- Bombay. The Indian Antiquary,—Vol. XI, Part 130, March 1882.
- Bordeaux. Société de Géographie Commerciale,—Bulletin, Nos. 3-5.
- Bruxelles. Société Royale des Sciences de Liège,—Mémoires, Vol. IX.
- Calcutta. Agricultural and Horticultural Society of India,—Journal, Vol. VI, Part 4.
- . Geological Survey of India,—Memoirs, Vol. XIX, Part 1.
- . Original Meteorological Observations, for June 1881.
- Dresden. Naturwissenschaftliche Gesellschaft, Isis,—Sitzungsbericht und Abhandlungen, July to December, 1881.
- Dublin. Royal Dublin Society,—Proceedings, Vol. II, Part 7; and Vol. III, Parts 1-4.
- . ———. Transactions,—Vol. I, Nos. 13-14.
- . Royal Geological Society of Ireland,—Journal, Vol. VI, Part 1, 1880-81.
- Lahore. Anjuman-i-Punjab,—Journal (English Section), Vol. II, Nos. 12-13.
- London. The Academy,—Nos. 510-513.

- London. The Athenæum, Nos. 2833-2837.
 ———. Anthropological Institute,—Journal, Vol. XI, Nos. 1 and 2.
 ———. Institution of Mechanical Engineers,—Proceedings, No. 4, October 1881.
 ———. Nature, Vol. XXV, Nos. 629, 641-645.
 ———. Royal Society,—Proceedings, Vol. XXXIII, No. 216.
 ———. Royal Astronomical Society,—Monthly Notices, Vol. XLII, No. 2, December 1881.
 ———. Royal Geographical Society,—Proceedings, Vol. IV, Nos. 1 and 3, January and March 1882.
 ———. Royal Microscopical Society,—Journal, Vol. I, (New Series), Part 6.
 ———. Society of Telegraph Engineers,—Journal, Vol. X, No. 39.
- Lyon. Société de Géographie,—Bulletin, Vol. IV, No. 22, 1881.
- Paris. Société de Géographie,—Bulletin, August 1881.
 ———. ———. Compte Rendu des Séances, 6th and 20th January ; and 3rd and 17th February, 1882.
 ———. ———. List of Members, 31st December 1881.
 ———. Société Zoologique de France,—Bulletin, No. 5, 1881.
- Rome. R. Accademia dei Lincei,—Atti, Vol. VI, Nos. 4-6.
 ———. Società degli Spettroscopisti Italiani,—Memorie, Vol. X, No. 12 ; and Index to Vol. X.
- St. Petersburg. L'Académie Impériale des Sciences de St. Pétersbourg,—Bulletin, Vol. XXXVII, No. 3.
 ———. ———. Mémoires, Vol. XXVIII, Nos. 8-9 ; and Vol. XXIX, No. 1.
 ———. Russian Geographical Society,—Proceedings, 1881.
- Turin. R. Accademia delle Scienze,—Atti, Vol. XVII, No. 1.
- Vienna. Kaiserliche Akademie der Wissenschaften,—Sitzungsberichte, mathematisch-naturwissenschaftliche Classe, Part i, Vol. LXXXII, Nos. 3-5 ; Vol. LXXXIII, Nos. 1-4 : Part ii, Vol. LXXXII, Nos. 3-5 ; Vol. LXXXIII, Nos. 1-4 : Part iii, Vol. LXXXII, Nos. 3-5 ; Vol. LXXXIII, Nos. 1-2.
 ———. ———. Philosophisch-historische Classe,—Vol. XCVII, Nos. 1-3 ; Vol. XCVIII, Nos. 1-2.
 ———. ———. Denkschriften,—philosophisch-historische Classe, Vol. XXXI.
 ———. ———. Almanach, 1881.
- Yokohama. Deutsche Gesellschaft für Natur und Völkerkunde Ostasiens,—Mittheilungen, February 1882.

BOOKS AND PAMPHLETS,

presented by the Authors.

JANSSEN, J. Note sur la Photographie de la Comète *b* de 1881, obtenue à l'Observatoire de Meudon. 8vo. Paris, 1882.

TEMPLE, LIEUT. R. C. On the Origins of Caste and Tribal Names and the practical value of ascertaining them. 8vo. Lahore, 1882.

MISCELLANEOUS PRESENTATIONS.

Report on Municipal Taxation and Expenditure in the Lower Provinces of Bengal for the year 1880-81. Fcp. Calcutta, 1882.

BENGAL GOVERNMENT.

LAING, SAMUEL. Prehistoric Remains of Caithness; with Notes on the Human Remains, by Thomas H. Huxley. 8vo. London, 1866.

LEWES, GEORGE HENRY. Aristotle: a chapter from the History of Science, including analyses of Aristotle's Scientific Writings. 8vo. London, 1864.

RABUT, L. Habitations Lacustres de la Savoie. Album. 4to. Chambery, 1864.

H. F. BLANFORD, ESQ.

RAINEY, H. JAMES. Biographical Sketch of the First Indigo Planter in India, the late Monsieur Louis Bonnaud. 8vo. Calcutta, Pam.

W. BONNAUD, ESQ.

Catalogue of the Birds in the British Museum. Vol. VI. 8vo. London, 1881.

BRITISH MUSEUM.

St. Xavier's College, Calcutta, Solar Observatory. Observations for the months of December 1881, January and February 1882. 4to. Calcutta, 1882.

DIRECTOR, ST. XAVIER'S COLLEGE OBSERVATORY.

BRANDIS, DR. D. Suggestions regarding Forest Administration in the North-Western Provinces and Oudh. Fcp. Calcutta, 1882.

GAMBLE, J. S. A Manual of Indian Timbers: an Account of the Structure, Growth, Distribution, and Qualities of Indian Woods. 8vo. Calcutta, 1881.

HOME DEPARTMENT, FOREST BRANCH.

The Indian Antiquary,—Vol XI, Part 130, March 1882.

HOME DEPARTMENT.

Report on the administration of the Madras Presidency during the year 1880-81. 8vo. Madras, 1881.

MADRAS GOVERNMENT.

KREITNER, LIEUT. G. Report on the Third International Geographical Congress, Venice, September 1881. 8vo. Pam.

NORTH CHINA BRANCH, ROYAL ASIATIC SOCIETY.

Statistical, Descriptive, and Historical Account of the North-Western Provinces in India. Vol. VI. 8vo. Allahabad, 1881.

GOVERNMENT OF THE N. W. PROVINCES.

Report on the Sanitary Administration of the Panjab for the year 1880. 4to. Lahore, 1882.

Report on the Administration of the Panjab and its Dependencies for 1880-81. 8vo. Lahore, 1881.

PANJAB GOVERNMENT.

RAI, NAVINA CHANDRA. Elements of Hydrostatics, Hydraulics and Pneumatics in Hindi. 8vo, Lahore, 1882.

PANJAB UNIVERSITY COLLEGE.

BURMEISTER, DR. H. Atlas de la Description Physique de la République Argentine. 2nd Section, Mammifères (Text). 4to. Buenos Aires, 1881.

———. 2nd Section, Mammifères; Part 1, Die Bartenwale der Argentinischen Küsten (Plates). Fol. Buenos Aires, 1881.

PUBLIC MUSEUM, BUENOS AIRES.

Seventh Annual Report of the Sanitary Commissioner with the Government of India, 1880. 4to. Calcutta, 1882.

LEWIS, SURGEON-MAJOR T. R. A Memorandum on the Diets of Labouring Prisoners in Indian Jails. Fep. Calcutta, 1882.

SANITARY COMMISSIONER, GOVERNMENT OF INDIA.

SHERBING, REV. M. A. Hindu Tribes and Castes. Vol. III. 4to. Calcutta, 1881.

MESSRS. THACKER, SPINK AND CO.

WEYL, ADOLPH. Verzeichniss von Münzen und Denkmünzen der Erdtheile Australien, Asien, Afrika und verschiedener mohammedanischer Dynastien der Jules Fonrobert'schen Sammlung. 8vo. Berlin, 1878.

DR. WINCKLE.

PERIODICALS PURCHASED.

Benares. Fallon's New English-Hindustani Dictionary,—Part VII.

Berlin. Sanders' Ergänzungs-Wörterbuch der deutschen Sprache,—Parts 5-14.

Calcutta. Indian Medical Gazette,—Vol. XVII, No. 3, March 1882.

Edinburgh. Edinburgh Review, No. 317, January 1882.

Geneva. Archives des Sciences Physiques et Naturelles,—Vol. VII, No. 2.

Göttingen. Gelehrte Anzeigen,—Nos. 6-10.

———. Nachrichten,—Nos. 2-3.

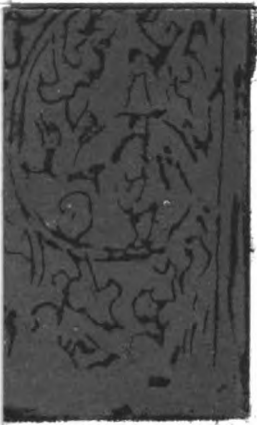
- Leipzig. *Annalen der Physik und Chemie*,—Vol. XV, No. 2.
 ———. *Beiblätter*,—Vol. VI, No. 2.
 ———. *Botanisches Centralblatt*,—Vol. VIII, Nos. 10-13.
 ———. *Deutsche Litteraturzeitung*, Nos. 50-52, 1881; and Nos. 1-2, 1882.
 ———. *Hesperos*,—Vol. I, Nos. 15-17.
 ———. *Litterarisches Centralblatt*,—Nos. 50-52, 1881; and Nos. 1-3, 1882.
- London. *Annals and Magazine of Natural History*,—Vol. IX, No. 49, January 1882.
 ———. *Chemical News*,—Vol. XLV, Nos. 1159-1163.
 ———. *Entomologist*,—Vol. XV, No. 224, January 1882.
 ———. *Entomologist's Monthly Magazine*,—Vol. XVIII, No. 212, January 1882.
 ———. *Journal of Botany*,—Vol. XI, No. 229, January 1882.
 ———. *Journal of Conchology*,—Vol. I, Nos. 4-16.
 ———. *Journal of Science*,—Vol. IV, No. 97, January 1882.
 ———. *London, Edinburgh and Dublin Philosophical Magazine*,—Vol. XIII, No. 78, January 1882.
 ———. *Messenger of Mathematics*,—Vol. XI, No. 8.
 ———. *Mind*,—No. 25, January 1882.
 ———. *Nineteenth Century*,—Vol. XI, No. 59, January 1882.
 ———. *Numismatic Chronicle*,—Vol. I (3rd Series), Part 3, 1881.
 ———. *Publishers' Circular*,—Vol. XLV, Nos. 1066-1067.
 ———. *Quarterly Journal of Microscopical Science*,—Vol. XXII, No. 85, January 1882.
 ———. *Quarterly Review*,—Vol. CLIII, No. 305, January 1882.
 ———. *Society of Arts*,—*Journal*, Vol. XXX, Nos. 1525-1529.
 ———. *The Ibis*,—Vol. VI, No. 21, January 1882.
- New Haven. *American Journal of Science*,—Vol. XXII, No. 132, December 1881; and Vol. XXIII, No. 133, January 1882.
- Paris. *Annales de Chimie et de Physique*,—Vol. XXV, February 1882.
 ———. *Comptes Rendus*,—Vol. XCIV, Nos. 5-9.
 ———. *Journal Asiatique*,—Vol. XVIII, No. 3, October to December, 1881.
 ———. *Journal des Savants*,—January 1882.
 ———. *Revue Critique*,—Vol. XIII, Nos. 7-10; and Index to Vol. XII.
 ———. *Revue des Deux Mondes*,—Vol. XLIX, No. 4; Vol. L, No. 1.
 ———. *Revue de Linguistique*,—Vol. XV, Fas. 1.
 ———. *Revue Scientifique*,—Vol. XXIX, Nos. 5-10.

BOOKS PURCHASED.

- BUEHLER, DR. GEORG. The Pāiyalachchhī Nāmamālā, a Prakrit Kosha, by Dhanapāla, 8vo. Göttingen, 1879.
- FORBES, CAPT. C. J. F. S. Comparative Grammar of the Languages of Further India : a fragment. And other Essays. 8vo. London, 1881.
- GORDON, J. E. H. A Physical Treatise on Electricity and Magnetism. Vols. I-II. 8vo. London, 1880.
- GRASSMAN, H. Wörterbuch zum Rig-Veda. Part IV. 8vo. Leipzig, 1874.
- MAXWELL, JAMES CLERK. A Treatise on Electricity and Magnetism. Vols. I-II. 8vo. Oxford, 1881.
- MUELLER, DR. E. Beiträge zur Grammatik des Jainaprākrit. 8vo. Berlin, 1876. Pam.
- MUELLER, EDUARD. Der Dialekt der Gāthās des Lalitavistara. 8vo. Weimar, 1874. Pam.
- POWELL, J. W. Introduction to the Study of Indian Languages, with words, phrases and sentences to be collected. 2nd Edition. 4to. Washington, 1880.
- STRACHEY, SIR J.; and STRACHEY, LIEUT.-GENL. R. The Finances and Public Works of India, 1869-1881. 8vo. London, 1881.
- SUBHUTI, WASKADUWE. Abhidhānappadipikā; or Dictionary of the Pali Language, by Moggallāna Thero. With English and Singhalese Interpretations, Notes, and Appendices. 8vo. Colombo, 1865.
- YARBOW, DR. H. C. Introduction to the Study of Mortuary Customs among the North American Indians. 4to Washington, 1880. Pam.



Plate II.



PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.
FOR MAY, 1882.

The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 3rd May, at 9.15 P. M.

H. B. MEDLICOTT, Esq., F. R. S., in the Chair.

The minutes of the last Meeting were read and confirmed.

The following presentations were announced—

1. From the authors,—(1) *Le mouvement économique en Portugal et le Vicomte de San Januairio*, by Eugène Gibert; (2) *Les Explorateurs du Cambodge*, and (3) *Les monuments de l'ancien Cambodge classés par provinces*, by M. le Marquis de Croizier; (4) *Sign Language among North American Indians, compared with that among other peoples and deaf-mutes*, by Garrick Mallery.

2. From the *Société Académique Indo-Chinoise de Paris*,—*Rapport sur la possibilité d'établir des relations commerciales entre la France et la Birmanie*, by Louis Vossion.

3. From the Panjab University College,—*Elements of Statics and Dynamics in Hindi*, by Navina Ch. Rai.

4. From Sir Lepel Griffin,—*Catalogue of Sanskrit Works and MSS. in the possession of the Rewah State*.

5. From H. F. Blanford, Esq.,—*A System of Mechanical Philosophy*, by John Robison.

6. From the Government, North-Western Provinces,—*Gazetteer of the North-Western Provinces. Vol. X:—The Himalayan Districts of the North-Western Provinces, Vol. I*.

7. From the Madras Government,—*Chronological Tables for Southern India from the sixth century, A. D.*, by R. Sewell.

8. From the U. S. Coast and Geodetic Survey,—*Methods and Results. The Currents and Temperatures of Bering Sea*.

9. From the Madras Literary Society,—Madras Journal of Literature and Science, Vol. V (1st Ser.).

10. From F. A. de Roepstorff, Esq.,—A collection of Andamanese Butterflies.

The following gentlemen duly proposed and seconded at the last meeting were balloted for and elected Ordinary Members :

1. H. E. Sir Donald M. Stewart, Bart., G. C. B., G. C. S. I.
2. J. B. Chalmers, Esq., C. E.
3. H. H. Nawab Alijah Amir-ul-Mulk Syud Mahomed Siddeek Husan Khan, Bahadur.
4. Kabiraj Shyamaldass.
5. Moulvie Golam Sarwar.

The following gentlemen are candidates for ballot at the next meeting :

1. Professor E. Senart, proposed by Dr. A. F. R. Hoernle, seconded by Nawab Abdul Lutif Khan, Bahadur.
2. Maharajah Kumar Harendra Kishore Singh, Bahadur, Bettiah, proposed by Nawab Abdul Latif Khan, Bahadur, seconded by Rajah Satyanand Ghoshal, Bahadur.

The following gentleman has intimated his desire to withdraw from the Society :

Babu Jnanendra Chunder Ghosha.

The SECRETARY reported that Mr. W. T. Blanford had compounded for all his future subscriptions.

The CHAIRMAN announced that the Council recommended that the following gentlemen should be elected Associate Members, and that they would be balloted for at the next meeting of the Society :

F. A. de Roepstorff, Esq., Assistant Superintendent, Port Blair, in recognition of his long continued and successful labours as a collector, by which the knowledge of the interesting fauna of the Andaman and Nicobar Islands has been so much extended, as well as of his contributions to the Ethnology of the Islands.

Herbert Giles, Esq., of H. M. Consular Service in China, on account of his services to Chinese scholarship, especially in translating Fa Hian, and one of the Buddha Gaya Chinese inscriptions.

The COUNCIL reported that they had elected the Hon'ble H. J. Reynolds as President in the place of Sir Ashley Eden who had resigned ; Mr.

H. F. Blanford as Vice-President in the place of Mr. H. J. Reynolds, and Mr. A. W. Croft as Member of Council in place of Mr. H. F. Blanford.

The elections were confirmed by the meeting.

DR. A. F. R. HOERNLE exhibited three Gupta Coins found near Mahanad, received from the Rev. K. S. Macdonald, and described them as follows :

I. *Kumára Gupta.*

Much like that described in Indian Antiquities, p. 384, class E, b. *Obverse* : standing figure of king ; legend : *Sri Mahārājādhirāja śrī Kumāra Gupta* ; under the arm : *Ku.* *Reverse* : Seated female figure on lotus ; legend, almost illegible : *Sri Mahendra.*

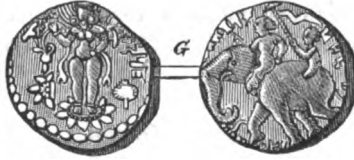
II. *Skanda Gupta.*

Somewhat like that described in Indian Antiquities, p. 386, class E, b. *Obverse* : standing figure of king ; legend, under the arm, *skanda* ; marginal legend worn away. *Reverse* : female figure seated on lotus ; legend, scarcely legible : *Sri Skanda Gupta (?)*. The legend under the arm might be *Chandra* ; in which case the coin would be one of Chandra Gupta II.

III. *Unknown.*

In general appearance it much resembles the Gupta coins. *Obverse* : Walking elephant, mounted by two persons, *viz.*, king on the neck, carrying ankus ; behind him, on the back of the elephant, an attendant holding a state umbrella over the king, with long pennant attached to umbrella. Around the whole margin a long inscription in Gupta characters, most of which are half worn away. *Reverse* : Nude, bejewelled female figure standing to front, on a lotus, with halo round the head, right forearm upturned, holding some indistinguishable object, left hand placed on hip and holding apparently a lotus or cornucopia ; round her shoulders and dependant on both sides a long scarf ; by side of right foot of female figure, the conventional sign of a *chetiya*, placed on edge, *i. e.*, with its base parallel to the leg of the figure ; on left of figure, something resembling a conch-shell (or perhaps a *bodhi*-tree). A circle of dots round the margin. To left of figure a short, partly illegible, inscription in Gupta characters ; only *ja* or perhaps *rāja* can be read. The outline of the female figure differs somewhat from that on the ordinary Gupta coins ; it is shorter and stouter and resembles the corresponding figures on the later Indo-Scythian coins. Impressions

of this coin have been sent to General Cunningham, whose identification, when received, will be communicated to the Society.



The following papers were read—

1. *Rise and Progress of Buddhism in Mongolia.*

By BABU SARAT CHANDRA DASS.

This paper will be published in the Journal, Pt. I, for 1882.

2. *Second List of Diurnal Lepidoptera inhabiting the Nicobar Islands.—*

By J. WOOD-MASON, Deputy Superintendent, Indian Museum, and LIONEL DE NICÉVILLE.

71 species, none new, are recorded.

This paper will be published in the Journal, Part II, for the current year, with one plate illustrative of new species described in a previous paper.

3. *Descriptions of some new Asiatic Clausiliæ.*

By DR. O. F. VON MÖLLENDORFF.

(Abstract.)

In this paper the author describes three new species of *Clausilia*, one from Mergui obtained by Dr. Anderson, and two from Japan by Brigade-Surgeon Hungerford.

1. *Clausilia andersoniana*, n. sp., allied to *C. insignis*, Gould, from which it differs in its smaller size, less ventricose shape, more elongate and oblique aperture, freer and more protruding peristome, paler colouring, in the closing apparatus, in having one whorl less, etc.

2. *Clausilia (Cylindrophaedusa) micropeas*, n. sp., near to *C. gracilispira*, differing in the smaller number of whorls, less slender shape, larger aperture, shorter principal, and usually single palatal, plait.

HAB. Chinsingi.

3. *Clausilia (Hemiphaedusa) subulina*, n. sp., slender, fusiform, whorls 10, peristome free, expanded, somewhat reflected, thickened, white-lipped, etc.

HAB. Chinsingi.

This paper will be published in the forthcoming number of the Journal Part II, for the current year.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.

FOR JUNE, 1882.

The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 7th June, at 9.15 P. M.

The HON'BLE H. J. REYNOLDS, President, in the Chair.

The Chairman briefly expressed his acknowledgments to the Society for the honour conferred upon him by his election as President.

The minutes of the last Meeting were read and confirmed.

The following presentations were announced :—

1. From E. Colborne Baber, Esq., Chinese Secretary to H. M.'s Legation, Peking,—A copy of a Lolo Manuscript.

2. From the authors,—(1) A. Ivánoff's Russian Grammar. Translated, enlarged and arranged for the use of English Students of the Russian Language, by Major Walter E. Gowan ; (2) Sur l'Origine des Calcaires Devoniens de la Belgique, by Ed. Dupont ; (3) The International Numismata Orientalia. Vol. III, Part 1.—Coins of Arakan, of Pegu, and of Burmah, by Sir Arthur P. Phayre ; (4) Ueber die Bewohner des Nicobaren, by F. A. de Roepstorff.

3. From the Royal Library, Munich,—Catalogus Codicum Latinorum Bibliothecæ Regiæ Monacensis, Vol. II, Part 4, by Carolus Halm and Gulielmus Meyer.

4. From E. Dupont, Esq.,—(1) Sur l' Origine des Calcaires Devoniens de la Belgique, by G. Dewalque ; and Sur une revendication de priorité introduite devant l' Académie par M. G. Dewalque à propos de ma note sur l'origine des Calcaires Devoniens de la Belgique.

5. From the Bataviaasch Genootschap van Kunsten en Wetenschappen,—Tabel van Oud- en Nieuw- Indische Alphabetten, by K. F. Holle.

6. From the Revenue and Agricultural Department,—Handbook of the collection illustrative of the Wild Silks of India, in the Indian Section

of the South Kensington Museum, with a catalogue of the collection and numerous illustrations, by Thomas Wardle.

7. From the Honorary Secretary to the Museum,—Jeypore Economic and Industrial Museum. First Report.

8. From the Calcutta University,—Tagore Law Lectures:—1881. The Law of Trusts in British India; with an appendix, by William F. Agnew.

9. From the Australian Museum, Sydney,—Catalogue of the Australian Stalk- and Sessile-eyed Crustacea, by William A. Haswell.

The following gentlemen duly proposed and seconded at the last meeting were ballotted for and elected Ordinary Members:—

Prof. E'. Senart.

Maharaja Kumar Harendra Kishore Singh, Bahadur.

The following gentleman has intimated his desire to withdraw from the Society:—

P. Donaldson, Esq.

The following gentlemen duly proposed at the last meeting were ballotted for and elected Associate Members:—

F. A. de Roepstorff, Esq.

Herbert Giles, Esq.

The SECRETARY reported that the following work had been accepted for publication in the Bibliotheca Indica Series:—

Text of the *Parīṣhṭaparvan*, with introduction. Edited by Hermann Jacobi, Sanskrit Professor, Academy of Münster.

The SECRETARY read a letter from Mr. C. E. Fendall describing the manner in which Thibetans prepare their paper.

The following papers were read:

1. *Some Hindu Folksongs from the Panjab.*

BY LIEUT. R. C. TEMPLE, B. S. C., F. R. G. S., M. R. A. S., etc.

(Abstract.)

This paper consists of 64 songs and catches popularly sung in the Panjab, especially in Kangra and Chamba, treated from a philological point of view. The language of some of them is Hindī, but most of them are in the current village Panjābī of the day. The language of those from Kangra and Chamba does not differ in the main from that of the songs from the plains of the Panjāb. Lieut. Temple has divided the songs into classes according to the following subjects: (1) Religion, (2) Religious Customs, (3) Love, (4) Marriage, (5) Home Customs, (6) Nursery Rhymes, (7) Localities, (8) Riddles and facetiæ, and (9) Politics.

This paper will be published in the Journal, Part I, for 1882.

2. *Essays on Bihári Declension and Conjugation.*

By G. A. GRIERSON, B. C. S.

(Abstract.)

Hitherto only two dialects of the Bihári language have been thoroughly investigated and each of these in one special form. These two dialects are—the Bhojpúri as spoken near Benares, treated of by Dr. A. F. Rudolf Hoernle in his “Comparative Grammar of the Gaudian Languages” and the Maithilí, the standard dialect of the centre of Mithila, investigated by Mr. G. A. Grierson in his “Maithilí Grammar.” The Mágadhí dialect has not been treated of in any form, but it is a very interesting subject for study as showing the stepping-stone between the somewhat archaic forms contained in standard Maithilí, and the more phonetically attrited forms found in Bhojpúri.

The author’s object in these essays is to bring to a common focus all the information which he has collected concerning the dialects of Bihár. The dialects mainly treated of are the following :—

A. Bhojpúri, spoken in Western Bihár.

B. Mágadhí, spoken in South Bihár.

C. Maithilí, spoken in North-East Bihár.

Of the last, there are two sub-dialects :

(1.) North Maithilí of North Tirhut and Bhagulpur.

(2.) South Maithilí of South Tirhut and North Munger.

Besides these, the dialects of language border lands have been considered, *viz.*,

(A.) The Baiswári of the Ramáyana of Tulsi Dás, which is the border dialect between Bihári (Bhojpúri) and Hindí ;

(B.) The dialects of the border land between Bihári (Maithilí) and Bengálí.

This paper will be published in Journal, Part I, for 1882.

3. *Notes on Buddhist Sculptures with reference to the handling of Celts and other weapons.*—By JOHN COCKBURN.

(Abstract.)

This paper gives a new interpretation of Pl. XXXII of Fergusson’s ‘Tree and Serpent Worship,’ which is a representation of the 3rd bas-relief from the top on the inner face of the left hand pillar of the eastern gateway, Plate XIV. Mr. Fergusson explains the sculpture as representing a family of Dasyus following their usual avocations. Mr. Cockburn is of opinion that it is intended to represent the workshop of a Bronze Smith of the period, and shows how all the different figures are consistent with this explanation. In the plate there are two men on the right, who, both in Mr. Fergusson’s and in Mr. Cockburn’s interpretation, are taken

to be cleaving wood with axes, the heads of the axes being tied on to the shafts with cross ligatures. Mr. Cockburn discusses the question why in an age of considerable mechanical ability the men of the bronze age did not cut their axes with a transverse hole through which the handle might pass. He concludes that this arose neither from a want of the requisite skill nor for want of a proper conception of the pattern, but simply from the fact that the eyeletted axe required a comparatively extravagant expenditure of metal, which, although not generally uncommon at the period indicated, would be so amongst the mixed aboriginal class, who were poor as a rule and possessed of the simplest implements procurable. To show that the people of this age were acquainted with the modern method of making the axe-head, Mr. Cockburn instances Plate XLIII, fig. 2, from the coping of the Bharhut stupa, where a hunter is represented bearing on his left shoulder an axe clearly of the eyeletted pattern, differing in no respect from the modern axe. The paper concludes with some remarks on the saw-like implement in Plate XXVI, fig. 6, of the Bharhut sculptures, and on the arrows of that period.

LIBRARY.

The following additions have been made to the Library since the Meeting held in April last.

TRANSACTIONS, PROCEEDINGS AND JOURNALS,

presented by the respective Societies and Editors.

- Baltimore. Johns Hopkins University,—American Chemical Journal, Vol. III, No. 6, February 1882.
- . ———. American Journal of Mathematics,—Vol. IV, No. 2.
- . ———. American Journal of Philology,—Vol. II, No. 8.
- . ———. Circulars,—No. 13, February 1882.
- . ———. Studies from the Biological Laboratory,—Vol. II, No. 2.
- Batavia. Bataviaasch Genootschap van Kunsten en Wetenschappen,—Notulen, Vol. XIX, Nos. 2-4, 1881.
- . ———. Verhandelingen,—Vol. XLI, Nos. 1 and 3.
- . Tijdschrift voor Indische Taal-, Land- en Volkenkunde,—Vol. XXVII, Nos. 1-5.
- . Magnetical and Meteorological Observatory,—Observations, Vol. V, Part 6.
- . ———. Rainfall in the East Indian Archipelago, 1881.

- Bombay. The Indian Antiquary,—Vol. XI, Parts 131-132, April and May, 1881.
- Bordeaux. Actes de la Société Linnéenne,—Vols. XXV-XXXIII; and Atlas.
- . Société de Géographie Commerciale,—Bulletin, Nos. 6-9.
- Calcutta. Geological Survey of India,—Records, Vol. XV, Part 2, 1882.
- Colombo. Royal Asiatic Society,—Ceylon Branch, Proceedings, 1881.
- Florence. Archivio per l'Antropologia e la Etnologia,—Vol. XI, Part 3.
- Leipzig. Deutsche morgenländische Gesellschaft,—Zeitschrift, Vol. XXXV, Part 4.
- London. The Academy,—Nos. 514-521.
- . The Athenæum,—Nos. 2838-2845.
- . Anthropological Institute of Great Britain and Ireland,—Journal, Vol. XI, No. 13, February 1882.
- . Geological Society,—Quarterly Journal, Vol. XXXVIII, No. 149, Part 1, 1882.
- . Nature,—Vol. XXV, Nos. 646-652; and Vol. XXVI, No. 653.
- . Royal Society,—Proceedings, Vol. XXXIII, No. 217.
- . Royal Asiatic Society,—Journal, Vol. XIV, Part 1.
- . Royal Astronomical Society,—Memoirs, Vol. XLVI, 1880-81.
- . ———. Monthly Notices,—Vol. XLII, Nos. 3-4, January and February, 1882.
- . Royal Geographical Society,—Proceedings, Vol. IV, No. 2, February 1882.
- . ———. Supplementary Papers, Vol. I, Part 1.
- . Royal Microscopical Society,—Journal, Vol. II (2nd Series), Part 1.
- . Society of Telegraph Engineers,—Journal, Vol. XI, No. 40.
- . Statistical Society,—Journal, Vol. XLIV, Part 4, December 1881.
- Madras. Journal of Literature and Science,—Vol. V (1st Ser.).
- Munich. Repertorium für Experimental-Physik,—Vol. XVIII, No. 4.
- New Haven. American Oriental Society,—Journal, Vol. XI, No. 1.
- Paris. Journal Asiatique,—Vol. XIX, No. 1, January 1882.
- . Société Académique Indo-Chinoise,—Actes, compte rendu des séances, Vol. I (1877-78-79), Part 1.
- . ———. Mémoires,—Vbl. II.
- . Société d'Anthropologie,—Bulletin, Vol. IV (3rd Series), No. 3.
- . Société de Géographie,—Compte Rendu des Séances, 3rd and 17th March; and 14th April, 1882.
- . ———. Bulletin, September and October, 1881.
- . Société Zoologique de France,—Bulletin, Parts 5-6, 1877; Parts 1-4, 1878; Parts 5-6, 1879; and Parts 1-4, 1880.
- . ———. Statuts et Réglements, 1876.

- Rome. R. Accademia dei Lincei,—Atti, Vol. VI, Parts 7-10.
 ——. Società degli Spettroscopisti Italiani,—Memorie, Vol. XI, Nos. 1-3,
 January to March, 1882.
 St. Petersburg. L'Académie Impériale des Sciences,—Mémoires, Vol.
 XXIX, Nos. 2-3.
 Schaffhausen. La Société Entomologique Suisse,—Bulletin, Vol. VI,
 No. 5.
 Shanghai. North China Branch of the Royal Asiatic Society,—Journal,
 Vol. XVI, Part 1, 1881.
 Simla. United Service Institution of India,—Journal, Vol. XI, No. 50.
 Sydney. Royal Society of New South Wales,—Journal and Proceedings,
 Vol. XIV, 1880.
 Trieste. Atti della Società Toscana di Science Naturali,—Processi Verbali,
 Vol. III, January 1882.
 Turin. R. Accademia delle Scienze,—Atti, Vol. XVIII, No. 2.
 Vienna. Anthropologische Gesellschaft,—Mittheilungen, Vol. XI, Parts
 1 and 2.
 ——. K. k. geologische Reichsanstalt,—Jahrbuch, Vol. XXXI, Nos.
 2-11.
 ——. Verhandlungen, Nos. 8-18 of 1881.
 Zagreb. Viestnik Hrvatskoga Arkeologickoga Druztva,—Vol. IV, No. 2.

BOOKS AND PAMPHLETS,

presented by the Authors.

- CROIZIER, M. LE MARQUIS DE. Les monuments de l'ancien Cambodge,
 classés par provinces. 16mo. Paris, 1878. Pam.
 ——. Les Explorateurs du Cambodge. 8vo. Paris, 1881. Pam.
 DUPONT, ED. Sur l'Origine des Calcaires Devoniens de la Belgique. 8vo.
 Brussels. Pam.
 GIBERT, EUGENE. Le mouvement économique en Portugal et le Vicomte
 de San Januairio. 8vo. Paris, 1881. Pam.
 GOWAN, MAJOR WALTER E. A. Ivánoff's Russian Grammar. Translated,
 enlarged and arranged for the use of English Students of the Russian
 Language. 8vo. London, 1882.
 MALLERY, GARRICK. Sign Language among North American Indians, com-
 pared with that among other peoples and deaf-mutes. 4to. Wash-
 ington, 1881.
 PHAYRE, SIR ARTHUR P. The International Numismata Orientalia, Vol.
 III, Part 1.—Coins of Arakan, of Pegu, and of Burmah. 4to. Lon-
 don, 1882, Pam.
 ROEPSTORFF, F. A. R. DE. Ueber die Bewohner der Nicobaren. 8vo.
 Berlin, 1881. Pam.

MISCELLANEOUS PRESENTATIONS.

HASWELL, WM. A. Catalogue of the Australian Stalk- and Sessile-Eyed Crustacea. 8vo. Sydney, 1882.

AUSTRALIAN MUSEUM, SYDNEY.

HOLLE, K. F. Tabel van Oud- en Nieuw-Indische Alphabetten. 8vo. Batavia, 1882.

BATAVIAASCH GENOOT. VAN KUNSTEN EN WETENSCHAPPEN.

ROBISON, JOHN. A system of Mechanical Philosophy. 4 vols. 8vo. Edinburgh, 1822.

H. F. BLANFORD, ESQ.

Records of the Geological Survey of India. Vol. XIV, Pt. 4. 1881.

BENGAL GOVERNMENT.

Report on the Judicial Administration (Civil) of the Central Provinces for the year 1881. Fcp. Nagpur, 1882.

Report on the Judicial Administration (Criminal) of the Central Provinces for the year 1881. Fcp. Nagpur, 1882.

Report on the Jails of the Central Provinces for the year 1881. Fcp. Nagpur, 1882.

Report on the Police Administration of the Central Provinces for the year 1881. Fcp. Nagpur, 1882.

Report on the working of the Government Charitable Dispensaries in the Central Provinces for the year 1881. Fcp. Nagpur, 1882.

CHIEF COMMISSIONER, CENTRAL PROVINCES.

AGNEW, WILLIAM FISCHER. Tagore Law Lectures:—1881. The Law of Trusts in British India; with an Appendix. 8vo. Calcutta, 1882.

CALCUTTA UNIVERSITY.

Sur l'Origine des Calcaires Devoniens de la Belgique, par G. Dewalque; et sur une revendication de priorité introduite devant l'Académie par M. G. Dewalque à propos de ma note sur l'origine des Calcaires Devoniens de la Belgique, par E. Dupont. 8vo. Brussels, 1882.

E. DUPONT, ESQ.

Gazetteer, N. W. Provinces. Vol. X. The Himalayan Districts of the North-Western Provinces, Vol. I. 8vo. Allahabad, 1882.

GOVERNMENT, N. W. PROVINCES.

Catalogue of Sanskrit Works and MSS. in the possession of the Rewah State. Fcp.

SIR LEPEL GRIFFIN.

FALLON, S. New English-Hindustani Dictionary, Part 8. 8vo. Benares, 1882.

Indian Antiquary. Vol. XI, Pts. 131-132, April and May, 1882.

HOME DEPARTMENT.

Jeypore Economic and Industrial Museum. First Report. Fep. Calcutta, 1882.

JEYPORE ECONOMIC AND INDUSTRIAL MUSEUM.

SEWELL, ROBERT. Chronological Tables for Southern India, from the Sixth Century, A. D. 4to. Madras, 1881.

MADRAS GOVERNMENT.

RAI, NAVINA CHANDRA. The Elements of Statics and Dynamics in Hindi.

PANJAB UNIVERSITY COLLEGE.

Records of the Geological Survey of India. Vol. XV, Pt. 1, 1881.

WARDLE, THOMAS. Handbook of the collection illustrative of the Wild Silks of India, in the Indian Section of the South Kensington Museum. with a Catalogue of the collection and numerous illustrations. 8vo. London, 1881.

REVENUE AND AGRICULTURAL DEPARTMENT.

HALM, CAROLUS; and MEYER, GULIELMUS. Catalogus Codicum Latino-rum Bibliothecæ Regiæ Monacensis, Vol. II, Part 4. 8vo. Monachii, 1881.

ROYAL LIBRARY, MUNICH.

VOSSION, LOUIS. Rapport sur la possibilité d'établir des relations commerciales entre la France et la Birmanie. 8vo. Paris, 1879. Pam.

SOCIÉTÉ ACADÉMIQUE INDO-CHINOISE DE PARIS.

United States Coast and Geodetic Survey. Methods and Results. The Currents and Temperatures of Bering Sea. 4to. Washington, 1882.

UNITED STATES COAST AND GEODETIC SURVEY.

PERIODICALS PURCHASED.

Benares. Fallon's New English-Hindustani Dictionary,—Part 8.

Berlin. Journal für die reine und angewandte Mathematik,—Vol. XCII, No. 1.

———. Sander's Ergänzungs-Wörterbuch der deutsche Sprache,—Parts 15 and 16.

Calcutta. Calcutta Review,—Vol. LXXIV, No. 148, April 1882.

———. Indian Medical Gazette,—Vol. XVII, Nos. 4-5, April and May, 1882.

———. Stray Feathers,—Vol. X, Nos. 1-3, 1881.

Geneva. Archives des Sciences Physiques et Naturelles,—Vol. VII, Nos. 3-4.

Göttingen. Gelehrte Anzeigen,—Nos. 11-18.

———. Nachrichten,—Nos. 4-8.

Leipzig. Annalen der Physik und Chemie,—Vol. XV, Nos. 3-4.

———. Beiblätter,—Vol. VI, No. 3.

———. Deutsche Litteraturzeitung,—Vol. III, Nos. 3-11, 1882.

———. Hesperos,—Vol. I, Nos. 18-21.

———. Litterarisches Centralblatt,—Nos. 4-12.

- London. *Annals and Magazine of Natural History*,—Vol. IX, Nos. 50-51, February and March, 1882.
- . *Chemical News*,—Vol. XLV, Nos. 1164-1171.
- . *Entomologist*,—Vol. XV, Nos. 225-226, February and March, 1882.
- . *Entomologist's Monthly Magazine*,—Vol. XVIII, Nos. 213-214, February and March, 1882.
- . *Journal of Botany*,—Vol. XI, Nos. 230-231, February and March, 1882.
- . *Quarterly Journal of Conchology*,—Vol. I, No. 17.
- . *Journal of Conchology*,—Vol. II, Nos. 1-12; and Vol. III, No. 8.
- . *Journal of Science*,—Vol. IV, Nos. 98-99, February and March, 1882.
- . *London, Edinburgh and Dublin Philosophical Magazine*,—Vol. XIII, Nos. 79 and 80, February and March, 1882.
- . *Messenger of Mathematics*,—Vol. XI, Nos. 9-10, January and February, 1882.
- . *Nineteenth Century*,—Nos. 60-61, February and March, 1882.
- . *Numismatic Chronicle*,—Vol. I (3rd Series), No. 4.
- . *Publishers' Circular*,—Vol. XLV, Nos. 1068-1071.
- . *Society of Arts*,—*Journal*, Vol. XXX, Nos. 1530-1537.
- New Haven. *American Journal of Science*,—Vol. XXIII, Nos. 134 and 135, February and March, 1882.
- Paris. *Annales de Chimie et de Physique*,—Vol. XXV, March and April, 1882.
- . *Comptes Rendus*,—Vol. XCIV, Nos. 10-17.
- . *Journal des Savants*,—February 1882.
- . *Revue Archéologique*,—Vols. XXXIII-XLII.
- . *Revue Critique*,—Vol. XIII, Nos. 11-14, and 16-18.
- . *Revue des deux Mondes*,—Vol. L, Nos. 2-4; and Vol. LI, No. 1.
- . *Revue Scientifique*,—Vol. XXIX, Nos. 11-18.
- Philadelphia. *Tryon's Manual of Conchology*,—Part 13.

BOOKS PURCHASED.

- Parasara Smriti, with Madhavacharya's Commentary (Telugu characters). 4to. Madras, 1875.
- VIGNOLI, TITO. *Myth and Science: An Essay*. 12mo. London, 1882.
- YOUNG, C. A. *The Sun*. 12mo. London, 1882.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.

FOR JULY, 1882.

The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 5th July, at 9-15 P. M.

THE HON'BLE H. J. REYNOLDS, President, in the Chair.

The minutes of the last Meeting were read and confirmed.

The following presentations were announced :—

1. From the Meteorological Reporter to the Government of India,—Indian Meteorological Memoirs, Vol. I.
2. From the Revenue and Agricultural Department,—General Report on the Operations of the Survey of India during 1880-81.
3. From the Calcutta University,—Tagore Law Lectures, 1880. The Principles of the Hindu Law of Inheritance, by Rajkumar Sarvadhikari.
4. From the Secretary of State for India,—Hakluyt Society's Publications, Vols. 61, 63 and 64.
5. From the Home Department,—(1) Ashé Pyee, the Superior Country; or the great attractions of Burma to British Enterprise and Commerce, by Col. W. F. B. Laurie; (2) Archæological Survey of India Reports, Vol. XIII.
6. From the Authors,—(1) Latin and Greek Verse Translations, by C. D. Maclean; (2) Steinsculpturen aus Guatemala, by A. Bastian.
7. From the India Office,—Vinayapitakam, Vol. IV, by Dr. H. Oldenberg.
8. From the British Museum,—Catalogue of the Batrachia Salientia s. Ecaudata in the collection of the British Museum. Second Edition, by George Albert Boulenger.
9. From Messrs. Trübner and Co.,—Catalogue of Dictionaries and Grammars, 2nd Edition.
10. From the Bengal Government,—Archæological Survey of India Reports, Vol. XIII.

11. From the Panjab Government,—(1) Appendix to "Changars" and Linguistic Fragments. Words and Phrases illustrating the Dialects of the Samé and Mé, as also of Dancers, Mirásis and Dôms, by Dr. G. W. Leitner; (2) Section I of Linguistic Fragments discovered in 1870, 1872 and 1879 by G. W. Leitner, LL. D., relating to the Dialect of the Magadds and other wandering Tribes, the argots of Thieves, the Secret Trade-Dialects and Systems of Native Cryptography in Kabul, Kashmir and the Panjab, followed by an account of Shawl-weaving &c., by Dr. G. W. Leitner.

The following gentlemen are candidates for ballot at the next meeting:—

1. The Hon'ble Moulvie Mohammad Yusuf, proposed by Moulvie Kabiruddin Ahmad, seconded by the Hon'ble Syad Amir Hussain.

2 Moulvie Serajul Islam, B. A., B. L., proposed by Moulvie Kabiruddin Ahmad, seconded by Moulvie Golam Sarwar.

3. Rajah Ram Narain Singh of Khyrah in Monghyr, proposed by Nawab Abdul Latif Khan, Bahadur, seconded by Pandit Prannath Saraswati.

DR. HOERNLE again exhibited the gold coin from Mahanada mentioned in the May Proceedings, together with a sealing wax impression of a duplicate belonging to Rev. J. Long, and read the following extracts from letters from General A. Cunningham, regarding them.

"I cannot make anything out of the gold coin with the Raja riding an Elephant. I have already got an impression of a similar coin, which belonged to Mr. J. Long, who took it to England. This coin also has all the letters clipped so that not one of them is readable with certainty. I will send you my impression." (26th May, 1882.)

"I now enclose the sealing wax impressions of Mr. Long's gold coin with the Raja riding an Elephant. I do not suppose that it is later than A. D. 400 or 500. It may therefore belong to one of the Gupta dynasty." (3rd June, 1882.)

"As well as I can remember the two seem to be the same. On the female side I think it is nearly certain that the inscription ends in *gaja*. Perhaps *Sri Sámanta Gaja*—the last three letters being nearly certainly *गज*. The Raja is driving his own Elephant—and he may have taken a title referring to his skill, in the same way that Samudra Gupta calls himself *Aprati-ratha*." (5th June, 1882.)

"I think that the legend on the female side begins with *Sri*—*श्री* * * * *गज*. On the Elephant side this same title has perhaps been repeated, as I see the *ग* letter. The letters in front of the Elephant seem

the most promising, गसनक *gomitaka*. The Elephant is drawn with much spirit—and I should like to know to what king we owe this fine coin." (15th June, 1882.)

Dr. Hoernle remarked that, so far as it was possible to judge from the impression of Mr. Long's coin, it seemed to be a duplicate of the Mahanada coin. He had not been able to learn where Mr. Long's coin was found; that and the Mahanada coin seemed to be the only two specimens of this kind known; and he thought an effort should be made to secure the Mahanada coin for the Society's collection. The general type of the coin certainly seemed to be Gupta; but the female figure appeared to be rather more Indo-Scythian than Gupta. He, therefore, thought that if the coin belonged to the Guptas, it should probably be assigned to one of the earliest kings of that dynasty; and if General Cunningham's new initial date of the Gupta era, 167 A. D., was correct, the coin may have to be assigned to as early a date as the 2nd or 3rd century A. D.

Babu P. N. Bose exhibited some earthen vessels discovered in a well (about 18 feet deep and covered above by some 15 feet of the alluvium) at Mahesar and fragments of pottery, bones, teeth, freshwater shells, &c, found in the well and its vicinity, and read a note on the same. The vessels had their mouths directed downward; some were quite empty; others were filled partially or entirely with an indurated marl presenting a peculiar vesicular texture (the vesicles being lined with a brownish incrustation, probably the remains of decomposed cereal grains) and containing bones of birds and small mammals and bits of charcoal. Babu P. N. Bose concluded his note with speculations on (1) the antiquity of the well, (2) the purpose for which it was sunk, and (3) the cause of its inhumation. The most eligible hypothesis that has presented itself to him about the *gharás* (earthen vessels) is that they were dedicated to the dead, with cooked cereals and meat and the ashes after cremation.

This note will be published in full in the Journal, Part I.

Mr Coekburn remarked that he regarded the stone implement referred to by Babu P. N. Bose as a natural water-worn pebble of quartzite which had been utilized as a rude chopper or hammer by man. Its chipped and battered edges were unequivocally of artificial origin. Specimens of the same type as that exhibited had been found by himself in the Banda District and others very closely resembling it were described and figured by Abbott in his recent work on Primitive Industry (Boston, 1881). Of these the specimen figured at page 427, fig. 401, came nearest the Narbudda implement, but figures 24 and 130 were also not far removed.

With regard to the pottery exhibited, the clay vessels were perhaps of antique types, but it would not be safe to assert that these patterns were no

longer in use: the glazed fragment, however, tended to show that only the rudest vessels were selected for purposes of interment, and the shape of the vessels would not alone stamp the antiquity of the find.

With regard to their position in the wells, Mr. Cockburn was disposed to agree with the author that the vessels had been intentionally introduced into the wells. In the course of village inspection as an Opium officer during the season of 1880-81, which was a year of partial drought in the Banda District, Mr. Cockburn observed numerous wells literally choked with potsherds, the fragments of vessels that had either slipped from the line used for letting them down, &c., or which had broken by coming in contact with the sides of the well. Many of these wells only contained from 3 to 4 feet of water, and after a few hours' use a pile of potsherds became visible at the bottom at the portion of the margin corresponding to that most frequented at the mouth. He had often occasion to superintend the cleaning of these wells and had invariably found the pottery in fragments, sometimes in well defined layers.

The following papers were read—

1. *Folk-tales from the Upper Panjab.*—By REV. CHARLES SWYNNERTON, M. R. A. S., *Chaplain, Naushera.*

(Abstract.)

This paper contains 30 short tales collected by the author from the peasantry of the Upper Panjab, and probably never hitherto printed. Most of the stories were told to the author at the little village of Ghazi on the Indus, thirty miles above Attock. This paper contains the shorter tales of the Series, consisting of fables and short stories, and is to be followed by another containing longer and more ambitious tales such as those in the "Arabian Nights."

This paper will be published in the Journal, Part I.

2. *Notes on the habits and instincts of some animals.*—By JOHN COCKBURN.

(Abstract.)

This paper describes the injuries inflicted on a cobra by a mungos, (*Herpestes auropunctatus*, Hodg.), which included the destruction of both fangs. The author proceeds to state his grounds for believing the destruction of the fangs to be a deliberate act of reason and not accidental.

An instance of the Crested serpent Eagle (*Spilornis cheela*, Lath.) destroying the maxillary bones of a snake is given, and the development of the specially protected tarse of *Circaetus gallicus*, Gm., speculated upon.

The author observes that it would be of much interest if from questions of this kind we could discover how animals acquire their experiences.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.
FOR AUGUST, 1882.

The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 2nd of August, at 9-15 P. M.

The HON'BLE H. J. REYNOLDS, President, in the Chair.

The minutes of the last Meeting were read and confirmed.

The following presentations were announced:—

1. From the Muséum des Sciences Naturelles de Lyon,—Rapport sur les travaux exécutés pendant l'année 1881.
2. From the Curator, Government Central Book Depot, Bombay,—List of Sanskrit MSS. purchased for Government during the years 1877-78 and 1879-80, and from May to November, 1881.
3. From the Meteorological Reporter to the Government of India,—Report on the Meteorology of India in 1880.
4. From the Home Department,—(1) Selections from the Records of the Government of India, Home Department, No. 185; (2) Archæological Survey Reports, No. XIV.
5. From the Authors,—(1) Notes on the Zoology of the Himalayan Districts of the North-Western Provinces, by E. T. Atkinson; (2) The Bombay National Mahomedan Association, by Shaik Hyder Cassim; (3) On a fossil species of *Camptoceras*, by Lieut.-Col. H. H. Godwin-Austen, F. R. S.
6. Ten small coins from the Deputy Commissioner of Chhindwara.

The following gentlemen duly proposed and seconded at the last meeting were ballotted for and elected Ordinary Members:

1. The Hon. Moulvie Mohammad Yusuf.
2. Moulvie Serajul Islam, B. A., B. L.
3. Raja Ram Narain Singh.

The following gentleman is a candidate for election :

Dr. A. Barclay, proposed by Major J. Waterhouse, seconded by Dr. H. W. M'Cann.

The SECRETARY read a letter from the Rev. K. S. Macdonald announcing that the Rev. Jagadiswar Bhattacharjya, the owner of the Mahanad coin referred to in the Proceedings for May and July, had been kind enough to present it to the Society. It appeared also that the Rev. J. D. Bhattacharjya had some years ago lent his coin to Mr. Long, who had sent it to General Cunningham for identification : so that it was the same coin as that of which General Cunningham had forwarded an impression, and was in consequence unique.

Dr. HOERNLE exhibited a remarkable birch-bark Manuscript, found at Bakhshálí, in the Yusufzai District, in the Panjáb, and made the following remarks :

"The MS. which I have the pleasure of showing to the Society this evening is a very remarkable one. It was found in a ruined enclosure, near Bakhshálí, a village of the Yusufzai District, in the Panjáb, by a man who was digging for stones ; and it was sent to me by the Panjáb Government, in order to be carefully examined and photographed. With the kind assistance of Major Waterhouse I had photographs of four leaves prepared at the Surveyor General's Office ; of which photographs I have also the pleasure of exhibiting a copy to-night. The MS. is written on leaves of birch-bark, which have become so dry by age as to be like tinder, and, unless very carefully handled, they crumble into pieces. Hence, unfortunately, by far the largest portion of the MS. was destroyed when the finder took it up ; and even the small portion that now remains is in a very mutilated state. With much care and trouble I have succeeded in separating all the leaves, and have found that 66 of them still remain, of none of which, however, much more than one half is preserved. For the purpose of reading and photographing them, I fixed them between two panes of glass ; and afterwards, for permanent preservation, I mounted each leaf separately between two pieces of 'talc.'

"The MS. is written in the so-called Śáradá characters, which are still used in Kashmir, and which, as they occur on the coins of the Mahárájas of Kashmir, are of a not inconsiderable age. Some of the forms, which very frequently occur in the MS., especially of vowels, very closely resemble the forms used in the Aśoka and early Gupta inscriptions. I have not observed those particular ancient forms in other MSS. written in the Śáradá characters, *e. g.*, in the Mahárñava MS. published in the Cambridge Palæographic Series. Hence I am inclined to look on them as an evidence of great age in the Bakhshálí MS. ; and as the West Indus Districts were

early lost to Hindú civilization through the Muhammadan conquests, during which it was a common practice to bury MSS. to save them from destruction, the Bakhshálí MS. may be referred to the 8th or 9th century A. D.

"I have looked over all the leaves of the MS. that remain, and have carefully read and transcribed about one-third. I have thus seen enough of the fragment to make sure that the whole of it treats of Arithmetic (including apparently Mensuration), though incidentally a few rules of Algebra are noticed. The latter refer to the solution of indeterminate problems (*kuṭṭaka*). The arithmetical problems are of various sorts; *e. g.*, on velocity, alligation, profit and loss, etc. I may give one or two examples: thus "A and B run 5 and 9 *yojanas* a day respectively, and A is allowed a start of 7 days or 35 *yojanas*; when will A and B meet?" Or, "A and B earn $2\frac{1}{2}$ and $1\frac{1}{2}$ *dínaras* a day respectively; A makes a present of 10 *dínaras* to B; how soon will their possessions be equal?" An example of an algebraical problem is: "A certain quantity, whether 5 be added to it or 7 be subtracted from it, is a square; what is that quantity?" The solution, given in this case, is 11; for $11 + 5 = 16$ or 4^2 , and $11 - 7 = 4$ or 2^2 . The fragment, however, evidently does not contain the whole of the treatise on Arithmetic; for many subjects, commonly treated in Hindú arithmetical works, do not appear to occur in it; and this is confirmed by the numbers of the rules (or *sútras*, as they are called). The earliest numbered *sútra* that I have noticed is the 9th, and from internal evidence I conclude,—though the numbers are lost,—that the 7th and 8th rules are also preserved. The latest number I have met is the 57th.

"The method observed in the treatment of the problems is as follows: first a rule is given, introduced by the word *sútra*; next follow one, or more, examples, introduced by *tadá*, and stated both in words and in arithmetical notation; the latter is sometimes indicated by the term *sthápana*; next follows a solution in words, which is always called *karana* "operation"; and lastly comes the proof, generally expressed in notation, and called *pratyáyana* or *pratyaya*. This method differs considerably from that used in other Hindú arithmetical treatises, *e. g.*, in those of Bháskara and Brahmagupta. The latter also use different terms; instead of *tadá*, examples are called by them *uddeśa* or *udáharana*; instead of *sthápana* they have *nyása*; *karana* and *pratyáyana* or *pratyaya* are not used at all. The term *sútra* they employ occasionally, but in most cases they say *karana-sútra*; which latter term may contain a reference to a *karana*-work such as that in the Bakhshálí MS. There are, also, some differences in the method of notation as used in this MS. and as commonly established. Division is indicated by placing one quantity under another without a line

between them; *e. g.*, $\frac{5}{8}$ ($= \frac{5}{8}$): multiplication, by placing one quantity beside the other; *e. g.*, $\frac{5}{8}$ 32 ($= \frac{5}{8} \times 32 = 20$): addition, by writing *yu* (abbreviated for *yuta* "added") before or after the additive quantity and placing the latter either *by the side of* or *below* the other quantity; *e. g.*, 11 5 *yu* or 11 *yu* 5 ($= 11 + 5 = 16$): subtraction, by writing the negative sign + after the subtractive quantity and placing the latter beside or below the other quantity; *e. g.*, $\frac{1}{3}$ ($= 1 - \frac{1}{3} = \frac{2}{3}$), or 11 7 + ($= 11 - \frac{1}{3} +$

7 = 4). This negative sign is the most remarkable difference between the Bakhshálí MS. and the works of Bháskara and others. The MS. uses a cross + (exactly resembling our modern *plus*-sign), while the sign which is commonly used is a dot, placed above the quantity; *e. g.*, 11 7̇ ($= 11 - 7 = 4$). I may add that the cipher is used (as in the Lílávati) to indicate an unknown quantity, the value of which is sought; *e. g.*, $\begin{array}{r|l} 0 & 5 \text{ } yu \text{ } mú \text{ } 0 \\ 1 & 1 \end{array} \quad \begin{array}{r|l} 0 & 7 + \text{ } mú \text{ } 0 \\ 1 & 1 \end{array} \quad \left\| \right.$

(for $\frac{x}{1} + \frac{5}{1} = \frac{y^2}{1}$ and $\frac{x}{1} - \frac{7}{1} = \frac{z^2}{1}$; here $x = 11$, $y = 4$, $z = 2$; *mú* abbreviated for *múlada* "square.") It is, however, also employed, in the usual way as the tenth figure of the decimal notation. A proportion is expressed thus: $\begin{array}{r|l} 1 & 13 \\ 1 & 6 \end{array} \quad \begin{array}{r|l} 30 & 0 \\ 1 & 1 \end{array} \quad \left| \text{ } pha \text{ } 65 \right. \quad \left(\text{for } 1 : \frac{13}{6} = 30 : 65 ; pha \text{ abbrevia-} \right.$

ted for *phalam*). All these peculiarities of method, terminology and notation, differing as they do from those in common use since the time of Brahmagupta (about 628 A. D.) and Aryabhata (about 500 A. D.), whose mathematical treatises are the earliest known, tend to show that the work contained in the Bakhshálí MS. is more ancient than any of those I have just mentioned.

"There is another remarkable feature in the MS., which points in the same direction, namely, the language in which it is written. This is what is now commonly called the Gáthá dialect, because it was first noticed in ancient Buddhist works (such as the Lalita Vistara) written in verses or gáthás. The term, Gáthá dialect, however, is no more appropriate now, because that dialect is now known to be also used in ancient Buddhist works, which are partly written in prose, such as the Mahávastu, of which M. Senart has just published an excellent edition. However that may be, it is generally admitted that this species of language is a very ancient one. It is a kind of ungrammatical Sanskrit, (judged, that is, by the standard of what is commonly called Sanskrit), interspersed to a large extent with ancient Prákrit or Páli forms. There is some dispute as to the exact origin, time and locality of this species of ancient irregu-

lar Sanskrit. But in all probability it was current in the early centuries just before and after the commencement of the Christian era, as a literary or cultivated form of the ancient Vernacular Prákrit of North Western India, in the countries to the east and west of the Indus, till it came to be superseded by the classical Pāṇinian Sanskrit. It is this language which is employed in the Bakhshálí MS. It would be out of place here to enter into philological details; but I may mention that the language of the MS. is marked by all the peculiarities in orthography, etymology, syntax, etc., of the so-called Gáthá dialect. The evidence of the language, then, would tend to show that the work contained in the Bakhshálí MS. must be ascribed, in all probability, to the earliest centuries of the Christian era, and further, since the Gáthá dialect has hitherto only been met with in Buddhist literature, to a member of the Buddhist community. If the latter supposition be correct, we should have in this MS. the first Buddhist Arithmetical work which, so far as I am aware, has hitherto become known.

There are, further, some specific points in the work contained in the Bakhshálí MS. which tend to point to a peculiar connection between it and the mathematical portion of the Brahma Sphuṭa Siddhánta, the famous astronomical work of Brahmagupta, which was compiled in 628 A. D. Thus an algebraical rule in the MS. occurs in strikingly similar language in Brahmagupta's algebra; again the foreign terms *dínára* (Latin *denarius*) and *drammá* (Greek *drachme*) occur in both, etc. The mathematical treatise in the Bakhshálí MS is undoubtedly older than that of Brahmagupta; but what the exact connection between the two works may be, I am not as yet in a position to say. From the language, as already remarked, it would seem to follow that the Bakhshálí MS. contains a Buddhist treatise on arithmetic. All these are points which require further investigation, in which I am still engaged, and the results of which I hope to have a future opportunity of communicating to the Society. My present remarks are not intended to be more than a preliminary notice of the MS. In conclusion I will only repeat that the questions of the age of the MS. and of the work contained in it are entirely distinct; and that the date of the work is certainly very much earlier than the MS. copy of which a fragment has been found.

DR. HOERNLE exhibited a number of coins and clay figures, found at Toomluk and forwarded for inspection by R. H. Wilson, Esq., Collector of Midnapur. Amongst them there was a gold coin about which the sub-divisional officer of Toomluk sends the following account:

"This coin was accidentally discovered in a pit five feet below the surface of the ground at the village of Shaurpur in thana Dehra. The place

of discovery was formerly the bed of the Cossye river: close to it is a tank at the excavation of which wrecks of a boat were found at a great depth from the surface of the ground, thus clearly indicating that the Cossye overflowed over the site of the tank. The pit itself was originally dug for the making of bricks: afterwards the villagers used to take the fine sandy earth from the pit for plastering houses. Dinabandhoo Mitter caught sight one morning of a glittering substance attached to the side of the pit. He took it out and, examining, it found it to be a gold coin. He fancied it to be a Ramchundri mohur (a gold coin of the reign of Rama) and regularly worshipped it. The coin was discovered about the time of the Dussera in the Bengali year 1275. It came to the notice of the undersigned in March last and Dinabandhoo was disabused of his belief that it was a mohur of the reign of Rama. It is clearly a Greek coin."

With regard to the last statement, Dr. Hoernle remarked that it was a mistake. The coin is not a Greek, but a Gupta, coin of *Kumára Gupta*.

Obv. King on horseback. *Legend*, partially legible only: round the head of horse apparently *Kshatrapati*; under its legs: *Vijaya Kumára*.

Rev. Nude, bejewelled female, sitting on "mórá" and feeding peacock: *Legend*, *Ajita Mahendra*.

Similar coins are figured and described in Prinsep's Indian Antiquities; see p. 385, (Vol. 1), Plate XXX, No. 3.

Of the other coins, one is of silver and is a specimen of the early Hindú punch-marked coins: see Indian Antiquities, Vol. I, p. 211; and Plate XX, Nos 25-29. The marks are probably Buddhist, the wheel and swastika being recognizable.

The rest which are of copper are all Buddhist, bearing distinct Buddhist symbols. Among them there are some similar to those found at Behat; see Indian Antiquities, Vol. I, p. 82 ff, p. 209 ff, Plates IV, No. 8, and XX, No. 39.

Obv. Full figure of elephant, referring to the story of Buddha's conception.

Rev. Conventional figure of *chetiya*.

Others are somewhat similar to the coins figured in Indian Antiquities, Plate XX, Nos. 50, 51.

Obv. Elephant within Buddhist rails; over him ornamental *svastika*.

Rev. Lion (representing Buddha as Sákya Simha); in front *bodhi* tree; over him, common *svastika*.

There is another to which there is none in the Indian Antiquities exactly like; but cf. Plate XX, Nos. 37, 48.

Obv. Elephant.

Rev. Stag or deer; one of the commonest *játakas* of Buddha.

Others, again, are like the coins figured and described in Indian Antiquities, Pl. IV, 22 and Pl. XIX, 18.

Obv. Elephant, standing over *toran* and *svastika*, and fronting *chetiya*.

Rev. *Bodhi* tree; cross; *chetiya* and *triratna*.

Among these, there are some which differ in the relative position of the symbols with regard to the two sides.

Obv. Elephant, over Buddhist rails, fronting Buddhist *toran*; over him *svastika* and *chetiya*.

Rev. Various Buddhist symbols: *bodhi* tree, *svastika*, *chetiya*.

Or: *Obv.* Elephant, fronting Buddhist *toran* (above) and *svastika* (below); over him cross.

Rev. *bodhi* tree, *Chetiya*, *triratna*, *toran*.

These coins were not struck, but cast, as shown by their shape, which still shows marks of the mould.

There are also five early Hindú punch-marked coins; but the marks are indistinguishable; one is square; the others round. See the specimens in Indian Antiquities, Vol. I, Plate XX.

Lastly there is one copper Indo-Scythian *Kanerki*, like those figured and described in Indian Antiquities, Vol. V, Pl. VI, 30, Pl. XXI.

Obv. Standing figure of king *Kanerki*; just distinguishable.

Rev. Indistinguishable.

There is also one brass Chinese coin of the Manchu Tartars. See Marsden's Numismata Orientalia, p. 829, No. MCCCXIX; and Plate LVI, Nos. MCCXCIX and MCCCXIX.

Dr. Hoernle read the following letter from General Cunningham regarding the gold Gupta coin:

"I have compared your coin of Kumára Gupta with three specimens in my possession, and I make out the following:

? *bhupati rájati Vijaya Kumára Gupta*,
the *pt* being *tp*. On the reverse the legend is simply

Ajita Mahendra.

"We have Horseman coins of Chandra Gupta with the reverse title of *Ajita Vikrama*. Now we know that Chandra Gupta bore the title of *Sri Vikrama*. I infer therefore that, as Kumára Gupta certainly bore the title of Mahendra (see his silver coins *Sri Kumára Gupta Mahendrasya*), the gold coins with the title of *Ajita Mahendra* must certainly belong to him. The present gold coins with the Horseman obverse, and the goddess Kumára Devi on the reverse, confirm this attribution as they give the name of Kumára Gupta under the horse quite distinctly."

"The gold coins of the Guptas require to be carefully re-examined. I have several unpublished specimens some of which certainly belong to the later Gupta dynasty, which ruled from about 500 to 750 A. D. I return the coin of Kumára Gupta enclosed."

Dr. Hoernle remarked, that what General Cunningham read [*gu*] *pta bhípati*, he had read as *kshatrapati* or *kshítipati*; but he admitted that the letters were sufficiently worn to admit of various interpretations. Immediately preceding the word which he read as *kshítipati*, there were three letters the last of which was distinctly *ja*, and the whole of which he was inclined to read as *Srí rája*, so that the whole legend would run: *Srí rája kshítipati rájati Vijaya Kumára*. After *Kumára* there might have been the word *Gupta*, as the rim of the coin at that place was very much worn; but no trace of its letters remained.

With regard to the figures Dr. Hoernle read the following note by Dr. R. Mitra:

"As regards the terracotta figures the only one of interest is the female head with a profusion of ornaments. The ornaments are the counterparts of what we see on the Sanchí, Bharat and Buddha Gaya gateways, but quite unlike more recent sculptures. I am disposed therefore to assign a Buddhist origin and very early date (about the first three or four centuries of the Christian era) to the relics."

Dr. Hoernle exhibited 10 silver coins, presented to the Society by J. W. Tawney, Esq., Deputy Commissioner of Chhindwara. He remarked that the coins were of a well-known kind, and were variously called "*Sáha*" or "*Suráshtra*" or "*Satrap*" coins. Similar coins (sent by Mr. Rivett-Carnac for inspection) have been before the Society not long ago, when they were described by Dr. R. Mitra. It would suffice therefore, this time, merely to state the names of the rulers to whom the present coins must be ascribed, and to refer to Prinsep's *Indian Antiquities* and E. Thomæ's *Dissertation in the Archæological Survey of Western India* (pp. 44 ff.) where they will be found fully described and figured.

No. I are three coins of *Rudra Sena* the son of *Víradáma*; see *Indian Antiquities*, Vol. II, p. 85, fig. 5. Two of them show faint numerals which General Cunningham reads as 137.

No. II are three coins of *Atridáma*, the son of *Rudra Sena*; see *ibid.*, fig. 8.

No. III is a coin of *Dáma Játa Srí*, the son of *Rudra Sena*. So the name is read by General Cunningham who says that these coins are rare. They are not noticed in the *Indian Antiquities*.

No. IV is a coin of *Viśva Sáh*, the son of *Atridáma*; see *ibid.*, fig. 9.

No. V is a coin of *Vijaya Sáh*, the son of *Dáma Sáh*. See *ibid.*, fig. 3.

No. VI is a coin the names on which are illegible.

Dr. Hoernle exhibited three clay-seals, which had been found at Sunat and sent by Carr Stephen, Esq., and read the following note on them by Dr. R. Mitra:

“The seals I read—

No. 1. *Srissama Guptasya.*

No. 2. *Rati mutta.*

No. 3. *Tega sinha.*

The first is your reading. I explain the double *s* by splitting the words thus: *Srī* auspicious epithet, *Ṛs-sama* equal (*sama*) to the Lord (*Ṛs*).

The second means “he who has got rid of concupiscence,” from *rati* “concupiscence,” and *mukta*, “free from.”

In the third the nasal is not an *anusvāra*, but the nasal of the first group of letters ऋ.”

MR. COCKBURN brought before the Society an interesting case of Polydactylism in a horse, observed by him in the streets of Calcutta.

“The animal was a black pony about 11 hands high, with a second toe developed on each fore leg. The inner metacarpal of the manus, corresponding to digit number 2 of the typical mammalian five-fingered hand, bore a long supernumerary hoof, which must have interfered to some extent with the animal’s movements. He had ascertained by digital examination that the supernumerary digits were composed of the usual number of bones, *viz.*, a proximal median and distal phalanx, and that the articulations possessed a certain amount of mobility. The hind limbs did not show any external indications of abnormal development. Unfortunately he could only make a very hurried examination, and has not been able to trace the animal since.

“Polydactylism in the horse would not appear to be of common occurrence in India. Mr. Wood-Mason had previously recorded an instance in the Proceedings of the Society for January 1871, (page 18, plate I,) and the preparation described by him formed one of the most interesting objects in the Mammal Gallery of the Indian Museum. The development of the existing Equines which are monodactyle out of polydactyle Hippotheroid ancestors is now as widely known as the Darwinian theory itself, and affords an excellent popular illustration of that theory. The researches of Professor Marsh in America had thrown much light on the subject. The extinct polydactyle Hippotheroids alluded to were *Orohippus*, *Meohippus*, *Anchitherium* and *Hipparion*, which formed a perfect gradation from a four toed to a single toed horse.”

Mr. Wood-Mason remarked that this was a kind of monstrosity of which many instances had been brought forward, and the significance of which had been many years ago pointed out by himself, and since very fully explained by Professors Huxley and Marsh in connection with their researches in the Natural History of extinct Horses; and that the present

instance of it was well worthy of being briefly recorded in the Proceedings, although no anatomical examination had been possible.

The following papers were read—

1. *On new and little-known Mantodea.*—By J. WOOD-MASON.

This paper contains descriptions of the following new species: *Chœradodis brunneri*, *Tarachodes insidiator*, *Tarachodes dissimulator*, *Gonypeta authæmon*, *Hierodula (Sphodromantis) arabica*, *Hierodula (Sphodromantis) muta*, *Hierodula sternosticta*, *Mantis callifera*, *Iris orientalis*, and *Polyspilota insignis*. Other species described are the following: *Amorphoscelis annulicornis*, *Eremophila arabica*, *Didymocorypha ensifera*, *Episcopus chalybeus*, *Dysaules longicollis*, *Eucomena thoracica*, *Hierodula (Sphodropoda) quinquedens*, *Hierodula (Sphodromantis) bicarinata*, *Hierodula (Rhombodera) atricoxis*, var. *grandis*, *Hierodula (Rhombodera) flava*, *Hierodula (Rhombodera) basalis*, *Mesopteryx alata*, and *Mesopteryx platycephala*.

2. *Note on the Páli Grammarian Kachcháyana.*—By LIEUT.-COL.

G. E. FRYER, M. S. C., *Burma Commission.*

The Páli referred to in this paper is the language in which the sacred literature of the Buddhists of Burma and Ceylon is written.* It is found inscribed on palm leaves in the characters of the vernacular speech peculiar to those countries. *Mágadha-bhásá*, or *Mágadhí*, is the appellation given to it by the native writers, who assert it to be the original language, as will be seen from the subjoined stanza from *Rúpasiddhi*, II, 1, the authorship of which has hitherto been unknown :

sá mágadha-múla-bhásá nará yáy' ádikappiká
brahmáño ch' assutálápá sambuddhá chápi bhásare

which may be rendered thus—"that by which men of former ages, Brahmas, and such as had never heard speech, expressed themselves, is the original *Mágadha* language."

With regard to the question what this Páli is, I cannot do better than refer to the remarks of that distinguished orientalist Dr. Muir, on the Páli, its early introduction into Ceylon, and its relations to Sanskrit and Prákrit, in the 2nd Volume of his *Sanskrit texts*, pp. 56-73, 104, 108, 109 (second edition).

The use of the *e* for *o*, peculiar to the dialect employed in the pillar inscriptions which resembles the *Mágadhí* of Dhauli, is common to the Páli; for, in the 85th aphorism of chapter XX of the *Sadda Níti*, mention is made of this peculiarity: thus, *ti-lingato þháne si-yonam e*, "in the three genders *e* instead of *si*, *yo*," i. e., in the nom. sing., and nom. acc. plural; as,

* The word *páli* signifies a line or row: a sacred text.

vanappagumbe for vanappagumbo, 'the forest shrub,'
 sukhe dukkhe for sukham dukkham, 'health and sickness,'
 viratte kosiáyane for virattá kosiáyani, 'the impassible kosiya-
 brahminess.'

[*cf.* Clough's Gr., p. 15. Cowell, p. 180, aphorisms 10-13, chap. XI, Var.].

I think it may be affirmed that the Páli of Ceylon and Burma is the language Buddha used in Mágadha; but, from having been arrested in its downward course, and preserved from the prevailing corrupting influences of vernacular use, it differs from the modern Mágadhí, and from the dialect employed in the pillar inscriptions which resembles the Mágadhí of Dhauri.

There are extant in Burma and Ceylon several grammatical treatises upon the Páli language, which may be said to represent two different schools. The one is represented by the grammar of Kachcháyana; the other by the grammar of Moggallána.

Moggallána, the representative of the more modern schools, flourished in Ceylon during the reign of Prákrama Báhu I, *circa* 1153-1186 A. D. He was also the author of a Páli dictionary, or rather vocabulary, entitled the Abhidhána, after the model of the Sanskrit Amarakośa. On entering the priesthood, he dropped his patronymic, and assumed the name of Sangharakkhita Thera, 'The Protected of the Congregation,' under which title he wrote four treatises, the first two of which are in verse:—*viz.*,
 Subodhálankára, 'Easy rhetoric,'
 Vuttodaya, 'Exposition of Metre,'
 Sambandhachintá, 'Reflections on relation (of cases),'
 Khuddasikkhá tiká, 'a gloss in prose on Dhammasiri's "Minor duties (of a priest)."'

He dedicates the last of these to the learned priest Sáriputta, and the second to Síla Thera. They probably represent one and the same person. The treatises on Rhetoric and Metre are merely adaptations from Sanskrit works on the same subject, *viz.*, Sáhitya-Darpaṇa and Vṛttaratnákara, and his grammar exhibits similar indications of having been formed upon a Sanskrit model.

There are several points of difference, both in substance and arrangement, between this grammar and Kachcháyana's work; for instance, Moggallána affirms that there are ten and not eight vowels in the Páli alphabet, thus increasing the number of the letters from forty-one to forty-three. Again, the book on case relation (*káraka*) is excluded from the grammar, and made the subject of a separate treatise. The grammar contains 1,043 aphorisms arranged under seven books as follows:—

	Name of Book.	Subject.	No. of Aphorisms.
1	Sandhi,	euphonic combination.	58
2	Syādi 1,.....	{ words simple, and compound.	243
3	Syādi 2,.....		115
4	Nādi,.....	secondary affixes (<i>taddhita</i>).	142
5	Khādi,	primary affixes (<i>kita</i>).	179
6	Tyādi,	verbs.	78
7	Nvādi,	affix of <i>ṇu</i> , etc.	228
			Total, 1043

The same writer has left behind a large commentary on this work. Ānanda, otherwise called Piyadasi, a pupil of Moggallāna, has produced an abridgment of his master's work called Padasādhana, which he dedicates to Moggallāna under his priestly titles of Sangharakkhita Thera, and Medhankāra of Udumbaragiri, (the glomerous fig tree hill).

The other and somewhat older school is represented by the grammar ascribed to Sāriputta Mahā Kachchāyana. It is called in Burma the eight-book-grammar of Mahā Kisi, and contains 675 aphorisms. In his 'Kaccāyanā Specimen,' [Halle, 1869,] M. Kuhn inserts, between the 13th and 14th aphorisms in the third (Kāraka) book, an additional one, and the Nyāsa introduces into the Kāraka book four others, all of which are represented in the Kāraka book of the Kātānta, though none of them appear in Kachchāyana, nor in any commentary upon it. The 675 aphorisms are thus arranged under eight books:—

	Name of Book.	Subject.	No. of Aphorisms.
1	Sandhi,	euphonic combination.	51
2	Nāma,	nouns.	221
3	Kāraka,	case-relation.	45
4	Samāsa,.....	compound words.	28
5	Taddhita,	secondary affixes.	62
6	Ākhyāta,	verbs.	118
7	Kita,.....	primary affixes.	100
8	Uṇādi,	Uṇ affixes, etc.	50
			Total, 675

According to native tradition, Kachcháyana, also called Sáriputta,* pursuant to the declaration of Buddha that 'sense is represented by letters,' proceeded with Buddha's permission to Himavanta and there composed this grammar,† which, from this reputed origin, is considered sacred. It is to be found in every monastery in Burma. The arrangement of the work is irregular. The aphorisms follow each other without any regard to system. As in Sanskrit grammars, the rules are given in the form of concise aphorisms or sentences hanging together like threads (*suttas*): the right understanding of which chain of rules depends upon a knowledge of the *adhikára*, or heading rule, and its influence on those that follow; thus Kachch. Nám. 2. 12. *itthipumanapunnasaka-sankhyanam*, '(the rules about to follow relate to) nouns of number (and are alike applicable to the three genders) masc., fem., neut.' is a heading rule, which is said to exercise an authority over other aphorisms, inasmuch as these heading rules consist of terms which other aphorisms, in order to complete their sense, are under the necessity of borrowing. They are said to be of three kinds, namely, *shagatika* 'lion's gait' (applied to the habit of constantly pausing and looking back, *pubbaparavilokanato*); *mandúkaatika* 'frog's leap' (the passing over, or skipping of, several aphorisms and supplying from a previous aphorism); *yathánupubbika* 'in regular or successive order.' As brevity is regarded as a primary requisite, the following abbreviations are resorted to in the aphorisms. A word in the genitive case is generally governed by *tháne* understood (*i. e.*, *instead of* such a word or letter another is to be used); a word in the ablative by *param* (*i. e.*, *after* such a word or letter, etc.); a word in the instrumental by *saha* (*i. e.*, *together with* such, etc.); a word in the locative by *pare* understood (*i. e.*, *when such a word or letter follows*, the rule refers to that which immediately precedes it); [*cf.* Cowell, pp. xvii—xviii]. *Vá* signifies 'option,' of which there are two kinds; namely, *vikappa*, the allowing a rule to be observed or not at pleasure, optionally enforced: and *vavatthita-vibhásá*, a fixed option, or one applicable throughout, the prescribed operation being in the one case carried out throughout, and in the other omitted throughout.

There are several commentaries on Kachcháyana's work, of which the most important are, the *Nyása* or *Mukhamattadípáni*, by *Vimalabuddhi*, an enlarged counterpart of Kachcháyana, but with five additional aphorisms in the 3rd (or *káraka*) book, which are to be found in the *Kátantra*; the

* So called in a Talain work called *Mûlamûle*. In the commentary on the *Rúpasiddhi*, Buddha is said to have selected Sáriputta Kachcháyana to elaborate the rules of grammar propounded by him. (Mahá. xxvii)

† *Suttaniddeśa* by Chappada saddhammajoti-pála at Pagan in A. D. 1279 during the reign of king Kyau-tswá.

Rúpasiddhi, by *Dípankara*, otherwise called *Buddhapiya*, a clear and well arranged digest of the grammar in seven books, the last two books of the grammar being joined into one; the *Bálávatára* by *Dhammakitti*, a compendium also in seven books, of which the third (or *káraka*) book is placed last, and divided into two chapters; lastly, the *Saddaníti*, a prolix and bulky volume containing twenty-five books, divided into four parts (*málá*),—*linga m.*, *dhátu m.*, *vuddhi m.*, and *sutta m.*; the aphorisms are styled *lakkhaṇas* (rules). It is a comparatively modern work, having been composed by *Aggavaṃsa Thera* at Pagan during the reign of king *Kyautswa*, A. D. 1279—1298.

It has long been suspected by Páli scholars that the Páli grammar of Kachcháyana is based upon the *Kátantra*, a Sanskrit grammar of about the tenth century A. D. I see no reason to doubt this; for, it seems to me, no one, who has examined the native treatises belonging to this school, can help arriving at this conclusion

The author of the *Rúpasiddhi*, in his comment on *parasamaññá payoge* (Kachch. I. 9) says that Kachcháyana adopts certain grammatical terms to be found 'in Sanskrit, or in the works of other grammarians:' one of those terms is *linga*, which, in its usual sense, means 'gender, sex'; but, as the same writer has it, in his comment on *lingathe pathamá* (Kachch. III, 15) *idha*, *patipadiká paranámadheyam*, 'in this grammar (it is) another term for (the Sanskrit) *prátipadiká*,' *i. e.*, the crude form or base of a noun. Subjoined are given the rulings on this term in *Páṇini*, the *Kátantra*, and the Páli grammars:—

arthavad adhátur apratyayaḥ prátipadikaṃ. Páṇ. 1. 2. 45.

dhátuvibhaktivarjam arthaval lingam. Kát. Nám. 1.

dhátupachchayavibhattivajjitassa atthavato saddassa 'parasamaññá payoge' ti paribhásato lingasaññáyam. Rúp. Nám. 2.

dhátupachchayavibhattivajjitam atthayuttam saddarúpam lingam náma.

Báláv. p. 8, l. 20. [Senart, p. 34.*]

dhátupachchayavibhattivajjitam atthavam lingam. Sad. Níti. ch. xx. 5.

Hence, we see, as *M. Kuhn* justly remarks, that amongst the *Kátantras*, and in Kachcháyana's grammar, the word *linga* has the same signification, a nominal base. But there are numerous other instances of agreement between the aphorisms of Kachcháyana and those of the *Kátantra*; indeed, in the *Káraka* book nearly every aphorism has a greater or less similarity with those in the same book in the *Kátantra*. To take for instance the first aphorism of the *Káraka* book of Kachcháyana, and the corresponding (eighth) aphorism of the same book in the *Kátantra*:—

* Separate edition. Paris, 1871.

KACHCHĀYANA.

1. yasmād apeti bhayaṃ ádatte vá tad apádānaṃ.

Comm. yasmá vá apeti yasmá vá bhayaṃ jáyate yasmá vá ádatte taṃ kárakaṃ apádánasaññaṃ hoti.

KÁTANTRA.

8. yato 'paiti bhayaṃ ádatte va tad apádānaṃ.

Comm. yasmād apaiti yasmád bhayaṃ bhavati yasmád ádatte vá taṃ kárakaṃ apádánasaṃjñaṃ bhavati.

It is evident from this, as M. Senart says, (p. 125)* that the author of the Pāli aphorism must have had before him not only the text of the Kátantra ruling, but even the commentary of Durgasinha upon it.

Again, *Pancamí* and *Sattamí* for the Imperative and Potential moods are terms peculiar to Kachchāyana and the Kátantras (v. Kát. Kár. 18 and 20.) The Bálavatára explains that they are 'the terminology of former teachers,' and Sadda Níti states that those terms are 'in accordance with Sanskrit grammars such as the Kátantra.' [D'Alwis, Cat. p. 61.]

We may infer, therefore, from his having the Kátantra before him, that the author of Kachchāyana's grammar did not live prior to the tenth century A. D.

It may be accepted as an historical fact that Buddhaghosa, bearing the Buddhist scriptures from Ceylon, came to Thahtun, which is situated a few miles north of Martaban, and which was then the capital city of one of the Talaing states. The year given for his arrival in the histories is A. D. 403, but probably he came within the period included in A. D. 410—432. At this time there does not appear to have been much intercourse between the Talaings and Burmese. Buddhism was in a very corrupt state. We read of no effort being made to disseminate copies of these scriptures, and the Burmese people in the central Irrawaddy country appear to have remained isolated for some centuries.

About six hundred years after, in the early part of the eleventh century A. D., the great hero of the later Burmese history, Anaurahtá, ascended the throne, and restored the ancient power of the Burmese monarchy. That this king conquered Thahtun, and procured the Buddhist scriptures from thence, cannot be doubted. His reform of religion is minutely and graphically described. He reigned forty-two years.†

About seven years after the death of Anaurahtá, certain Malabar princes invaded Ceylon, and obtained sovereignty over the island for twelve years, viz., 1059—1071 A. D. They were the most determined foes of Buddhism, and are stated to have systematically effected the destruction of all the sacred books they could lay hands on. These were afterwards replaced from Burma.

* Separate edition. Paris, 1871.

† Cf. History of the Burma race, by Sir A. P. Phayre, J. A. S. B. 1868, pp. 105, 106.

It has been satisfactorily proved by D'Alwis that Kachcháyana's grammar was not known to Buddhaghosa ; he makes no allusion to it, nor is there any agreement between the terminology of Buddhaghosa and Kachcháyana. The Burmese acknowledge that they received it from Ceylon, and since it appeared after Buddhaghosa, it must have been composed subsequent to the date of the destruction of the sacred books in 1071 A. D., *i. e.*, towards the close of the eleventh century. But for many years the island was torn by internal dissensions, and it was not until the close of the twelfth century, during the reign of king Parákrama Báhu I, a monarch who is styled "the most martial, enterprising, and glorious in Sinhalese history", that a new impulse was given to Páli grammatical literature, and that we hear the names of the earliest disciples of Buddha revived in the persons of eminent priests, whose literary tastes found encouragement under that enlightened monarch.

Thus the founders of the two schools of Páli Grammar assumed respectively the names of the right and left hand disciples of Gotama, *viz.*, Sáriputta, and Moggallána. This may have given rise to the tradition that Kachcháyana's grammar was written about 500 years before the Christian era.

It is probable that Sáriputta was some years older than Moggallána, as the latter acknowledges his obligations to the former as his preceptor, and dedicates some of his works to him. It is true that the dedication might have been made in honour of the memory of some eminent priest of ancient times, yet the fact remains that the first distinguished priest, bearing that name, of whom mention is made subsequent to the age of the Kátantras, is Sáriputta, the author of the Vinaya-sangaha and other works, and the contemporary of Moggallána.

It is hoped that the foregoing statements will prove to the reader that the Páli grammar of Kachcháyana is based on the Kátantra, and that Kachcháyana lived in or about the twelfth century of the Christian era.

A list is appended of some of the treatises, on grammar, rhetoric and prosody, which are to be found in the monasteries of Burma.

No.	Probable date.	'Name of Treatise.	Reputed author.	Reputed place of abode.	Reigning Sovereign.	Authority.
38	"	Sadda bindu.	King Kyátawá.	"	"	Sásana.
39	"	Saddá bhata.	"	"	"	"
40	"	Saddá kwunhvá.	"	"	"	Pit. trad.
41	"	Sambandhachintá tíká.	Abbaya thera.	"	"	"
42	"	Vuttodaya tísá.	Nava Vimala buddhi.	"	"	"
43	"	Saddattha bheda chintá.	Saddhamma Siri.	"	"	"
44	"	"	Abbaya thera.	"	"	"
45	"	Káriká.	Dhamma Sena.	"	"	"
46	"	Káriká tíká.	"	"	"	"
47	"	Akkhara kosalla.	Saddhamma Nitti. [rājá.	"	"	"
48	1279	Vuttodaya nissaya.	Saddhamma Mahádhamma	"	Kyau-tswá.	"
49	"	Abhidhána nissaya.	Nánava. [tipala.	"	"	"
50	"	Suttaniddesa.	Chhappado Saddhamma jo-	"	"	Pit. trad.
51	"	Balavatara tíká.	Uttama thera.	"	"	Sásana.
52	"	Saddantí.	Aggavamsa thera.	"	"	"
53	"	Sadda vuttí.	Saddhamma.	"	"	"
54	"	" tíká.	Sariputta.	"	"	"
55	1298	Sankhyápakasa tíká.	Nánavilása. [known.	Pányá.	Shan interregnum.	Sásana and Pit. trad.
56	"	Upadasandhi.	A Shan priest, name un-	"	"	Pit. trad.
57	"	Mukhamatca Sára.	Gunasagara thera.	"	"	"
58	1312	Vachakapadesa.	Saddhamma Guro.	Pányá.	Thhathá Tsa-tsi-sheng.	Sásana.
59	"	Vachhaváchuka.	"	"	"	Pit. trad.
60	"	Nirutti majjúsá.	"	"	"	"
61	1342	Kachcháyana vappaná.	Mahá jivita.	"	"	"
62	"	Saddattha jáliní tíká.	Nágita.	"	Kyautawá.	"
63	"	"	"	"	"	Sásana.
64	"	Abhidhána tíká.	Chaturangabala thera.	"	"	Pit. trad.
65	1367	Sambandha (6 in number).	Dakkinávamsa.	Ava.	Meng kyí tswá.	Sásana.
66	"	Kavisára.	Dhammananda.	"	"	Pit. trad. [1877.
67	"	"	Buddha dháta.	"	"	Vuttodaya, J. A. S. B.
68	1422	Sadda nissaya.	Aggadhammabankára.	"	Thhathá Tshengbyusheng	Pit. trad.
69	1426	Kachcháyana-sára tíká.	Sirisaddhamma-vilása.	"	Meng-ula-ngai.	"
70	1439	bheda tíká.	Ariyavamsa.	"	Mengrai kyau tswá.	"
71	"	Netti nissaya.	Sílayamsa.	"	"	"
72	1442	Netti tíká.	Puppha thera.	"	"	"
73	1468	Sadda-netti.	Nánava.	"	"	"
74	1501	Kachcháyana nissaya.	Dakkiná tsayá.	"	Shwe Nan Sheng.	"
75	"	Nyasatiká nissaya.	Pachchhimá tsayá.	"	"	"
76	"	Ativappaná.	Ittong Phlá.	"	"	"
77	1516	"	"	"	The han bwa.	Pit. trad.

NOTE.—It will be seen that according to the Sásanálankára, Kachcháyana is the reputed author of the Netti-atthakathá, whereas the Pika traditions assign the authorship to Dhammapála.

Dr. Hoernle remarked that he had listened with great interest to Col. Fryer's paper, but he could not say that his arguments had convinced him. Col. Fryer's position was, that the well-known grammar of Kachcháyana was composed about the 12th century of the Christian era by a Ceylonese priest, called Sáriputta. But the Ceylonese themselves ascribed to the grammar an Indian origin. Col. Fryer said, that in the 12th century there lived two Ceylonese priests, bearing the names of the two famous disciples of Buddha, Sáriputta and Moggallána ; to the latter, it appeared, the composition of a grammar was ascribed by the Ceylonese themselves, but not to the former, Sáriputta. But Col. Fryer maintained that the Ceylonese were mistaken with respect to Sáriputta, and that they erroneously ascribed Kachcháyana's grammar, which was really written by the Ceylonese Sáriputta, to the famous Indian Sáriputta, simply because of the identity of the two names. But if that were so, it was not easy to understand why a similar mistake was not made in the case of Moggallána. If Ceylonese tradition was correct in ascribing a grammar to the Ceylonese Moggallána, it may be accepted to be also correct, in not ascribing Kachcháyana's grammar to the Ceylonese Sáriputta, but to an Indian Kachcháyana.

He had been informed by Dr. Mitra that Kachcháyana was already mentioned in the Mahávamśa, in the 5th century A. D. In that case, it would be impossible that Kachcháyana should have lived in the 12th century A. D. But he did not recollect any such passage in the Mahávamśa, and was inclined to suspect a misunderstanding. The mere mention of a famous person called Katyáyana was not sufficient to identify him with the Grammarian. The Chinese pilgrim Hwentsang, in the 8th century, also mentioned a certain Katyáyana, famous for his learning, the author of an *Abhidharma* and a *Kośa*, who was said to have lived 300 years after Buddha's *nirvána*. It was not impossible that he might have been the Grammarian ; but there was no direct evidence to identify them.

Col. Fryer's arguments in support of his theory were, in the main, two. First, that there was a striking correspondence between Kachcháyana's grammar and the Sanskrit Kátantra grammar with regard to grammatical terminology. This circumstance was a well-known one ; the question had been discussed by Dr. Burnell in his "Aindra School of Sanskrit Grammarians," with which work Col. Fryer appeared to be unacquainted. Dr. Burnell showed that the terminology in question was one common to the Aindra or pre-Pāṇinian School of Sanskrit Grammarians ; whence it followed that, when it was used in two grammars, it did not necessarily show that one borrowed from the other, but only that they both belonged to the same school. Not long ago he (Dr. Hoernle) had published an edition of Chaṇḍa's grammar of the Ancient Prákrit, in which the same terminology (*e. g.*, *linga* in the

sense of "nominal base") occurred; yet the work must be very much older than the 10th century; it had been revised and recast over and over again, at various times, and in its latest revised form it was known to Hema Chandra, who lived in the middle of the 12th century. This simply showed that Chaṇḍa's grammar also belonged to the Aindra School. Col. Fryer ascribed the composition of the Kátantra grammar to the 10th century, but it did not appear on what grounds. Like many other ancient works, Kachcháyana's grammar may have passed through revisions; the commentary to it, in which Col. Fryer had pointed to one striking agreement with Durga Siṃha's commentary on the Kátantra, was not ascribed to Kachcháyana, but to Sanghanandí (as quoted by Dr. Burnell); and it might be possible that the commentary or one of the revisions of the grammar was made so late as the 12th century. Thus, while Kachcháyana's rule enjoined certain words (as *divvate*) to be spelled with *v*, in agreement with the ancient practice of the Inscriptions, his commentator, after a much later fashion, spells them with *b* (*dibbate*). The circumstance that Kachcháyana's grammar was not known to Buddhagosa had been satisfactorily explained by Dr. Burnell in his work on the Aindra Grammarians.

Col. Fryer's second argument was an historical one, but he (Dr. Hoernle) could not quite understand how it precluded the traditional ascription of the composition of the grammar in question to an *Indian* Kachcháyana. On the whole, he thought, therefore, that the question as to the identity of Kachcháyana must still be considered an open one.

Col. Fryer still thought that the Páli of Ceylon and Burma was the language of Buddha used in Magadha. But most Páli scholars were now agreed that this was not so, though they were not quite agreed to which exact locality in India it should be referred. The reasons against Páli being Mágadhi were very strong; the exceptional (by no means "common," as Col. Fryer said) occurrence of *e* for *o*—a fact not unknown hitherto—was not at all decisive.

The following note was subsequently received from Col. Fryer:—

"According to Ariyavaṃsa—who in 1439 A. D. wrote Kachcháyana bheda ṭiká—the commentator Sanghanandi and Kachcháyana are the same person, and the illustrations are ascribed by him to Brahmádatta: for he says 'imání suttání mahákachcháyanaena katání, vuttí ca sanghanandísaukhátana mahákachcháyanen' eva katá, payogo brahmádattena kato ti Vuttam c'etaṃ :—

Kachcháyanakato yogo vuttí ca sanghanandino, payogo brahmádattena nyáso vimalabuddhiná [App. D'Alw. Introd. p. 104]

Omitting the illustrations '*dibbate*' &c. ascribed to Brahmádatta, Kachcháyana's rule, and Sanghanandi's comment thereon, singularly alike, are subjoined :—

Rule, tassa chavaggayakáarakáratam sadhátvantassa.

Comm., tassa yappachchayassa chavaggayakáarakáratam hotí dhátvantena saha yathásambhavam [Kacc. VI, 2, 10].'*

3. *An Examination of the Trade Dialects of the Naqqásh or painters on papier-maché in the Panjáb and Kashmír.*—By LIEUT. R. C. TEMPLE, B. S. C., F. R. G. S., M. R. A. S.

(Abstract.)

In the Selections from the Records of the Panjáb Government, Section I, 1882, are some "Linguistic Fragments" by Dr. Leitner. Among these "fragments" are some words and phrases used by the Naqqásh or papier-maché painters of the Panjáb and Kashmír as a trade dialect or *argót*, and also a long list of numerals used by the shawl-weavers of Kashmír and the Panjáb. Lieutenant Temple lately had an opportunity of testing both these lists, and found them to be in the main correctly recorded, *i. e.*, according to his own ear, though in two or three instances he observed discrepancies. He discusses these differences and gives a list of additional words and phrases which he was enabled to record. He then enters into the question whether these words are part of a *bonâ fide* dialect or merely an *argót*, a more or less conscious formation of words for the purposes of secrecy; and gives his reasons for believing that, when there are more data available than at present, the bulk of the words will be found to be really dialectic and traceable to surrounding idioms or to the former stages of the modern Aryan languages, but that in some cases words have been inverted and nonsense-syllables prefixed or affixed in order to hide their true form. In conclusion, Lieutenant Temple remarks that if Dr. Leitner's hope, that the Trade Dialects will be found to preserve an ancient language, is to become a reality, the enquiry must be taken up by more than one person. The range of knowledge required is too wide, and the investigations necessary too minute and searching, to admit of one individual solving the problem presented in a satisfactory manner.

The PRESIDENT announced that the next meeting of the Society would be held on the 1st of November.

* [Fausböll's system of transliteration had been followed by Col. Fryer in his paper. But as some letters of that system do not exist in the Society's Press, it has been thought better to preserve uniformity by substituting the system adopted by the Society in all their publications. ED.]

LIBRARY.

The following additions have been made to the Library since the Meeting held in June last.

TRANSACTIONS, PROCEEDINGS AND JOURNALS,

presented by the respective Societies and Editors.

- Baltimore. Johns Hopkins University,—American Chemical Journal, Vol. IV, Nos. 1-2, April and June, 1882.
- . ———. American Journal of Mathematics,—Vol. IV, No. 3.
- . ———. American Journal of Philology,—Vol. III, No. 9.
- . ———. Circular, No. 15, May, 1882.
- Berlin. Entomologische Zeitschrift,—Vol. XXVI, Part 1, 1882.
- Bombay. The Indian Antiquary,—Vol. XI, Parts 133-134, June and July, 1882.
- Bordeaux. Société de Géographie Commerciale,—Bulletin, Nos. 10-12 (1882).
- Bruxelles. Société Royale Malacologique,—Procès-Verbaux des Séances, 8 Jan., 1881 to 5 Mar., 1882.
- Calcutta. Geological Survey of India,—Records, Vol. XV, Part 1.
- . ———. Memoirs, Palæontologia Indica, Ser. VII, Vol. I, Part I; and Ser. X, Vol. II, Part 3.
- . Indian Evangelical Review,—Vol. IX, No. 33, July, 1882.
- . Indian Meteorological Memoirs,—Vol. I, 1876-81.
- . Meteorological Observations,—July to September, 1881.
- Edinburgh. Botanical Society,—Transactions and Proceedings, Vol. XIV, Part 2.
- . Royal Society,—Proceedings, Vol. XI, No. 108.
- . ———. Transactions,—Vol. XXX, Part 1.
- Florence. Archivio per l'Antropologia e la Etnologia,—Vol. XII, Part 1.
- Lahore. Journal of the Anjuman-i-Panjab,—Vol. II, Nos. 15-30.
- Leipzig. Deutsche morgenländische Gesellschaft,—Zeitschrift, Vol. XXXVI, Part 1.
- . Wissenschaftliche Jahresbericht über die morgenländischen Studien,—1879.
- London. Academy,—Nos. 523-531.

London. Athenæum,—Nos. 2846-2854.

———. Institution of Civil Engineers,—Minutes of Proceedings, Vol. LXVII.

———. Institution of Mechanical Engineers,—Proceedings, No. 1, 1882.

———. Nature,—Vol. XXVI, Nos. 654-662.

———. Royal Astronomical Society,—Monthly Notices, Vol. XLII, No. 5.

———. Royal Geographical Society,—Proceedings, Vol. IV, Nos. 4-5, April and May, 1882.

———. Royal Microscopical Society,—Journal, Vol. II, Part 2, April, 1882.

———. Royal Society,—Proceedings, Vol. XXXIII, No. 218.

———. Society of Telegraph Engineers,—Journal, Vol. XI, No. 41, April, 1882.

———. Statistical Society,—Journal, Vol. XLV, Part 1, March, 1882.

———. Zoological Society,—Proceedings, Part 4, 1881.

———. Transactions,—Vol. XI, Part 6; and Index to Vols.

I-X.

Lyon. Muséum des Sciences Naturelles,—Rapport pour l'année 1881.

Montreal. Geological and Natural History Survey of Canada,—Reports of Explorations and Surveys, 1879-80; and Maps.

Moscow. Société Impériale des Naturalistes,—Bulletin, Vol. LVI, No. 2, 1881.

———. Mémoires,—Vol. XIV, No. 2.

Munich. Repertorium für Experimental-Physik,—Vol. XVIII, Nos. 5-6.

Paris. Journal Asiatique,—Vol. XIX, No. 2, February to March, 1882.

———. Société d'Anthropologie,—Bulletins, Vol. IV, No. 4, August to December, 1881; and Vol. V, No. 1, January to March, 1882.

———. Société de Géographie,—Bulletin, November to December, 1881.

———. Compte Rendu des Séances, Nos. 8-13.

———. Société Zoologique de France,—Bulletin, No. 6, 1881; and No. 1, 1882.

Prague. K. k. Sternwarte,—Astronomische magnetische und meteorologische Beobachtungen, 1881.

Rome. R. Accademia dei Lincei,—Atti, Vol. VI, Nos. 11-12.

———. Società degli Spettroscopisti Italiani,—Memorie, Vol. XI, No. 4, April, 1882.

Shanghai. North China Branch of the Royal Asiatic Society,—Report of the Council for 1881.

Simla. Journal of the United Service Institution of India,—Vol. XI, No. 51.

St. Petersburg. L'Académie Impériale des Sciences,—Bulletin, Vol. XXVIII, No. 4.

- St. Petersburg. L'Académie Mémoires,—Vol. XXIX, No. 4; and Vol. XXX, Nos. 1-2.
- . Russian Geographical Society,—Proceedings, 1882.
- Toronto. Canadian Institute,—Proceedings, Vol. I, Part 2.
- Trieste. Società Adriatica di Scienze Naturali,—Bollettino, Vol VII, No. 1.
- Turin. R. Accademia delle Scienze,—Atti, Vol. XVII, Nos. 3-5.
- Vienna. Kaiserlich-konigliche zoologisch-botanische Gesellschaft,—Verhandlungen, Vol. XXXI.
- Yokohama. Asiatic Society of Japan,—Transactions, Vol. X, Part 1.

BOOKS AND PAMPHLETS,

presented by the Authors.

- ATKINSON, E. T. Notes on the Zoology of the Himálayan Districts of the North-Western Provinces. 8vo.
- BASTIAN, A. Steinsculpturen aus Guatemala. 4to. Berlin, 1882. Pam.
- CASSIM, SHAIK HYDER. The Bombay National Mahomedan Association. 8vo. Bombay, 1882. Pam.
- GODWIN-AUSTEN, LIEUT.-COL. H. H. On a Fossil Species of *Camptoceras*, a Freshwater Mollusk from the Eocene of Sheerness-on-Sea. 8vo. London, 1882.
- MACLEAN, CHARLES DONALD. Latin and Greek Verse translations. 16mo. London, 1880.

MISCELLANEOUS PRESENTATIONS.

- The Indian Forester, Vol. VII, Nos. 3-4. January and April, 1882. 8vo. Calcutta.
- Administration Report of the Meteorological Reporter to the Government of Bengal for the year 1881-82. Fcp. Calcutta, 1882.
- Administration Report on the Jails of Bengal for the year 1881. Fcp. Calcutta, 1882.
- Report on the Calcutta Court of Small Causes for the year 1881. Fcp. Calcutta, 1882.
- Annual Report on the Insane Asylums in Bengal for the year 1881. Fcp. Calcutta, 1882.
- Archæological Survey of India. Reports. Vol. XIII. 8vo. Calcutta, 1882.
- BENGAL GOVERNMENT.
- Report on the Census of Berar, 1881. Fcp. Bombay, 1882.
- BOMBAY GOVERNMENT.
- BOULENGER, G. A. Catalogue of Batrachia Salientia s. Ecaudata in the collection of the British Museum. Second Edition. 8vo. London, 1882.
- BRITISH MUSEUM.

LOOMIS, ELIAS. Mémoires de Météorologie Dynamique exposé des résultats de la discussion des Cartes du Temps des E'tats-Unis ainsi que d'autres documents. Traduits de l'Anglais, par M. H. Brocard. 8vo. Paris, 1880.

M. H. BROCARD.

SARVADHIKARI, RAJKUMAR. Tagore Law Lectures,—1880. The Principles of the Hindu Law of Inheritance. 8vo. Calcutta, 1882.

CALCUTTA UNIVERSITY.

Report on the Lunatic Asylums in the Central Provinces for the year 1881. Fcp. Nagpur, 1882.

Report on the working of the Registration Department in the Central Provinces for the year 1881. Fcp. Nagpur, 1882.

Report on the Nagpur School of Medicine, Central Provinces, for the year 1881-82. Fcp. Nagpur, 1882.

Report on the Excise Revenue in the Central Provinces for the year 1881-82. Fcp. Nagpur, 1882.

Annual Report of the Sanitary Commissioner of the Central Provinces for the year 1881. Fcp. Nagpur, 1882.

Report with the Chief Commissioner's Review on Education in the Central Provinces for the year 1881-82. Fcp. Nagpur, 1882.

CHIEF COMMISSIONER, CENTRAL PROVINCES.

List of Sanskrit MSS. purchased for Government during the years 1877-78 and 1879-80, and from May to November, 1881. Fcp. Poona, 1881.

CURATOR, GOVERNMENT CENTRAL BOOK DEPOT, BOMBAY.

LAURIE, COL. W. F. B. Ashé Pyee, the Superior Country ; or the great attractions of Burma to British Enterprise and Commerce. 12mo. London, 1882.

Archæological Survey of India. Reports. Vols. XIII-XIV. 8vo. Calcutta, 1882.

The Indian Antiquary, Vol. XI, Parts 133-134, June and July, 1882. 4to. Bombay, 1882.

Selections from the Records of the Government of India, Home Department. No. 185. 8vo. Calcutta, 1882.

HOME DEPARTMENT.

OLDENBERG, DR. H. Vinaya Pitakam. Vol. IV. 8vo. London, 1882.

INDIA OFFICE.

Report on the Meteorology of India in 1880. Calcutta, 1882.

METEOROLOGICAL REPORTER TO THE GOVERNMENT OF INDIA.

LEITNER, DR. G. W. Appendix to "Changars" and Linguistic Fragments. Words and Phrases illustrating the dialects of the Samé and Mé, as also of Dancers, Mirásis and Dôms. Fcp. Lahore, 1882. Pam.

———. Section I of Linguistic Fragments discovered in 1870, 1872 and 1879 by G. W. Leitner, LL. D., relating to the dialect of the Ma-

gadds and other wandering Tribes, the argots of thieves, the secret trade dialects and systems of native cryptography in Kabul, Kashmir, and the Panjab, followed by an account of shawl weaving, &c. Fcp. Lahore, 1882. Pam.

PANJAB GOVERNMENT.

General Report on the operations of the Survey of India during 1880-81. Fcp. Calcutta, 1882.

REVENUE AND AGRICULTURAL DEPARTMENT.

MARKHAM, C. R. The Natural and Moral History of the Indies, by Father Joseph de Acosta. Vol. II. (Hakluyt Society.) 8vo. London, 1880.

———. The Voyages of William Baffin, 1612-22. (Hakluyt Society.) 8vo. London, 1881.

ALVAREZ, FATHER FRANCISCO. Narrative of the Portuguese Embassy to Abyssinia during the years 1520-27. Translated from the Portuguese and edited with Notes and Introduction by Lord Stanley of Alderley. (Hakluyt Society.) 8vo. London, 1881.

SECRETARY OF STATE FOR INDIA.

Trübner's Catalogue of Dictionaries and Grammars. 2nd Edition. 8vo. London, 1882.

MESSERS. TRUEBNER AND CO.

PERIODICALS PURCHASED.

Berlin. Deutsche Litteraturzeitung,—Nos. 12-16, 1882.

———. Journal für die reine und angewandte Mathematik,—Vol. XCII, No. 3.

Calcutta. Calcutta Review,—Vol. LXXV, No. 149, July, 1882.

———. Indian Medical Gazette,—Vol. XVII, Nos. 6-7, June and July, 1882.

Cassel. Botanisches Centralblatt,—Vol. IX, Nos. 1-13, and Index.

Edinburgh. Edinburgh Review, No. 318, April, 1882.

Geneva. Archives des Sciences Physiques et Naturelles,—Vol. VII, Nos. 5-6.

Giessen. Jahresbericht über die Fortschritte der Chemie,—Part 3, 1880.

Göttingen. Gelehrte Anzeigen,—Nos. 19-28.

———. Nachrichten,—Nos. 9-14.

Leipzig. Annalen der Physik und Chemie,—Vol. XVI, Nos. 5-7.

———. Beiblätter,—Vol. VI, Nos. 4-5.

———. Hesperos,—Vol. I, Nos. 22-23.

———. Litterarisches Centralblatt,—Nos. 13-18, 1882.

London. Annals and Magazine of Natural History,—Vol. IX, Nos. 52-53.

- London. *Chemical News*,—Vol. XLV, Nos. 1172-1179, and Vol. XLVI, No. 1180.
- . *Entomologist*,—Vol. XV, Nos. 227-228.
- . *Entomologist's Monthly Magazine*,—Vol. XVII, Nos. 215-216.
- . *Journal of Botany*,—Vol. XI, Nos. 232-233, April and May, 1882.
- . *Journal of Science*,—Vol. IV, Nos. 100-101, April and May, 1882.
- , London, Edinburgh and Dublin *Philosophical Magazine*,—Vol. XIII, Nos. 81-82, April and May, 1882.
- . *Messenger of Mathematics*,—Vol. XI, Nos. 11-12, March and April, 1882.
- . *Mind*,—No. 26, April, 1882.
- . *Nineteenth Century*,—Vol. XI, Nos. 62-63, April and May, 1882.
- . *Publishers' Circular*,—Vol. XLV, Nos. 1072-1075.
- . *Quarterly Journal of Microscopical Science*,—Vol. XXII, No. 86, April, 1882.
- . *Quarterly Review*,—Vol. CLIII, No. 306, April, 1882.
- . *Society of Arts*,—*Journal*, Vol. XXX, Nos. 1538-1546.
- . *The Ibis*,—Vol. VI, No. 22, April, 1882.
- New Haven. *American Journal of Science*,—Vol. XXIII, No. 136, April, 1882.
- Paris. *Annales de Chimie et de Physique*,—Vol. XXVI, May and June, 1882.
- . *Comptes Rendus*,—Vol. XCIV, Nos. 18-19, 21-26; and Index to Vol. XCIII.
- . *Journal des Savants*,—March, April and May, 1882.
- . *Revue Critique*,—Vol. XIII, Nos. 19-26; and Vol. XIV, No. 27.
- . *Revue des deux Mondes*,—Vol. LI, Nos. 2-4; and Vol. LII, No. 1.
- . *Revue de Linguistique*,—Vol. XV, Fas. 2.
- . *Revue Scientifique*,—Vol. XXIX, Nos. 19-25; and Vol. XXX, Nos. 1-2.

BOOKS PURCHASED.

- BAILLON, H. *The Natural History of Plants*. Translated by Marcus M. Hartog. Vols. I-VII. 8vo. London, 1871-81.
- CAMPBELL, DONALD. *A journey over land to India partly by a route never gone before by any European, in a series of letters to his son, comprehending his Shipwreck and Imprisonment with Hyder Ali, and his subsequent negotiations and transactions in the East*. 4to. London, 1795.

- COBBOLD, T. SPENCER. Parasites ; a treatise on the Entozoa of Man and Animals, including some account of the Ectozoa. 8vo. London, 1879.
- DIEZ, FRIEDRICH. Etymologisches Wörterbuch der Romanischen Sprachen. Vierte Ausgabe mit einem Anhang von August Scheler. 8vo. Bonn, 1878.
- EVANS, JOHN. The Ancient Stone Implements, Weapons, and Ornaments of Great Britain. 8vo. London, 1872.
- FISHER, REV. OSMOND. Physics of the Earth's Crust. 8vo. London, 1881.
- FREY, PROF. DR. HEINRICH. Die Lepidopteren der Schweiz. 8vo. Leipzig, 1880.
- Ganesa Purana. (Lithograph.) Obl. Fol. Bombay.
- GOULD, JOHN. The Birds of Asia, Part XXXIII. Fol. London, 1882.
- HANWAY, JONAS. An Historical Account of the British Trade over the Caspian Sea : with a Journal of Travels from London through Russia into Persia ; and back again through Russia, Germany and Holland. To which are added, the Revolutions of Persia during the present century, with the particular history of the great usurper Nadir Kouli. 4 Vols. in two. 4to. London, 1753.
- HATTON, JOSEPH. "The New Ceylon." Being a sketch of British North Borneo, or Sabah. From official and other exclusive sources of information. 12mo. London, 1881.
- HUXLEY, THOMAS H. Science and Culture ; and other Essays. 8vo. London, 1882.
- LAURIE, COL. W. F. B. Ashé Pyee, the Superior Country ; or the great attractions of Burma to British enterprise and commerce. 12mo. London, 1882.
- LEGRAND, E'MILE. Recueil de Contes Populaires Grecs traduits sur les textes originaux. 16mo. Paris, 1881.
- Linga Purana, with Ganesa's Commentary. (Lithograph.) Obl. Fol. Bombay.
- LUDWIG, ALFRED. Der Rigveda oder die heiligen Hymnen der Bráhmána. Zum ersten Male vollständig ins deutsche übersetzt mit Commentar und Einleitung, Vols. I-IV. 4to. Prag, 1876-81.
- NORDENSKIÖLD, A. E. The voyage of the Vega round Asia and Europe with a historical review of previous journeys along the north coast of the Old World. Translated by Alexander Leslie, Vols. I-II 8vo. London, 1881.
- OLDENBERG, HERMANN. Buddha. Sein Leben, seine Lehre, seine Gemeinde. 8vo. Berlin, 1881.
- . The Vinaya Pitakam. Vol. IV. Suttavibhaṅga, Second Part. 8vo. London, 1882.

- PAGENSTECKER, H. ALEXANDER. *Allgemeine Zoologie oder Grundgesetze des thierischen Baus und Lebens.* Vols. I-IV. 8vo. Berlin, 1875-81.
- PICKERING, CHARLES. *The Races of Man; and their Geographical Distribution.* New Edition. To which is prefixed, an Analytical Synopsis of the Natural History of Man, by John Charles Hall, M. D. 12mo. London, 1863.
- Report of the Fifty-first meeting of the British Association for the Advancement of Science; held at York in August and September, 1881. 8vo. London, 1882.
- SCHURMAN, J. GOULD. *Kantian Ethics and the Ethics of Evolution.* A critical study. 8vo. London, 1882.
- THOMSON, SIR WYVILLE. *Report of the Scientific Results of the Voyage of H. M. S. "Challenger."—Zoology.* Vol. III. 4to. London, 1881.
- UHLE, HEINRICH. *Die Vetâlapañcaviñçatikâ in den Recensionem des Çivadâsa und eines ungenannten mit kritischen Commentar.* 8vo. Leipzig, 1881.
- WHINFIELD, E. H. *The Quatrains of Omar Khayyâm translated into English verse.* 8vo. London, 1882.
-

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.

FOR NOVEMBER, 1882.

The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 1st November, 1882, at 9.15 P. M.

The HON'BLE H. J. REYNOLDS, President, in the Chair.

The minutes of the last Meeting were read and confirmed.

The following presentations were announced—

1. From the Committee,—*Verhandlungen des Fünften Internationalen Orientalisten Congresses gehalten zu Berlin im September 1881. Zweite Theil, erste und zweite Hälften.*

2. From the India Office,—*Sacred Books of the East*, by F. Max Müller, Vols. VIII, XII, XIII and XVI.

3. From the Home Department,—(1) *Pahlavi, Gujarâti, and English Dictionary*, Vol. III, by J. D. M. J. Asana; (2) *An English Persian Dictionary*, compiled from original sources, by Arthur N. Wollaston; (3) *The Lepidoptera of Ceylon*, by F. Moore, Parts I—II.

4. From the Authors, Translators, &c.,—(1) *Translation of Valmiki's Ramayana in Hindi*, by Gopal Sarma; (2) *Tarjuma-i-Alif Laila Ba-Zubân-i-Urdû. Romanized*, by T. W. H. Tolbort; (3) *On the Genealogy of Modern Numerals*, by Sir Edward Clive Bayley; (4) *On some Mammals from the North West Frontier of Kashmir; On the Mammals of Gilgit; Description of a New Species of Arvicola from Gilgit; A Contribution to the Ornithology of Gilgit (in two parts); On some Mammals from Kandahar*, by Dr. J. Scully; (5) *A Manual of the Land Revenue Systems and Land Tenures of British India*, by B. H. Baden-Powell; (6) *Victoria's Flag of Victory, a Poem in Hindi*, by Harish Chandra; (7) *Oriental Studies*, by Hugh Nevill, Part II; (8) *The Cloud Messenger of Kâlidâs, rendered into Hindi Verse, with Notes*, by Raja Lakshman Singh.

5. From the British Museum,—(1) Catalogue of Oriental Coins in the British Museum, Vol. VII ; (2) List of Hymenoptera in the British Museum, Vol. I, by W. F. Kirby.

6. From the Government of Bengal,—Archæological Survey of India. Reports, Vol. XIV.

7. From the Australian Museum,—Report of the Trustees for 1881.

8. From the Panjab Government,—Biluchi-Namah, a text book of the Biluchi Language, by Hittu Ram.

9. From the Panjab University College,—An Elementary Course of Civil Engineering in Hindi, Part I: General Construction, by Navina Chandra Rai.

10. From K. B. Akad. der Wissenschaften, München,—Gedächtnissrede auf Otto Hesse, by Gustav Bauer.

11. From the Committee,—Norwegian North-Atlantic Expedition, 1876-78, IV, 1, Historical Account, and 2, The Apparatus, and how used, by C. Wille ; V, 1, Astronomical Observations, by H. Mohn ; 2, Magnetical Observations, by C. Wille ; 3, Geography and Natural History, by H. Mohn.

12. From the Ceylon Branch, Royal Asiatic Society,—Panini's Eight Books of Grammatical Sutras ; edited with an English translation and commentary, Vol. I, Part 1, by William Goonetilleke.

13. From the St. Xavier's College Observatory,—Observations, January—June, 1882.

14. From the Madras Government,—The Mackenzie Collection ; A Descriptive Catalogue of the Oriental MSS. and other articles illustrative of the Literature, History, Statistics and Antiquities of the South of India : collected by the late Lieut.-Col. Colin Mackenzie, Surveyor General of India.

15. From the Indian Museum,—Annual Report, List of Accessions, and selected Extracts of Minutes, 1881-1882, Vol. XIII (6 copies).

16. The following set of 55 specimen coins struck from the old dies in the Calcutta Mint, presented to the Society by the Governor-General in Council through Colonel J. F. Tennant, Master of the Mint :—

List of Specimen Coins struck from the old dies in the Calcutta Mint for the Asiatic Society of Bengal.

DESCRIPTION OF COINS.	TALE.	WEIGHT.	
		Tolas.	Dc.
Gold. Old Std. Mohur (oblique milled) ...	1	1	06
" New Std. Mohur (straight milled) ...	1	1	13
" (1835) William IV Double Mohur ...	1	2	...
" Ditto Do. Single " ...	1	1	...
" (1875) Victoria Queen Single " ...	1	1	...
" Ditto Do. 2/3rd " ...	1	...	66
" Ditto Do. 1/3rd " ...	1	...	33
Silver. William IV Rupee ...	1	1	...
" " $\frac{1}{2}$ " ...	1	...	5
" " $\frac{1}{4}$ " ...	1	...	25
" Victoria Queen (1840) Rupee ...	1	1	...
" Ditto " $\frac{1}{2}$ " ...	1	...	5
" Ditto " $\frac{1}{4}$ " ...	1	...	25
" Ditto (1841) $\frac{1}{2}$ " ...	1	...	12
" Ditto (1849) " ...	1	1	...
" Ditto " $\frac{1}{2}$ " ...	1	...	5
" Ditto " $\frac{1}{4}$ " ...	1	...	25
" Ditto " $\frac{1}{8}$ " ...	1	...	12
" Victoria Empress (1881) Rupee ...	1	1	...
" Ditto " $\frac{1}{2}$ " ...	1	...	5
" Ditto " $\frac{1}{4}$ " ...	1	...	25
" Ditto " $\frac{1}{8}$ " ...	1	...	12
" Madras Old Rupee (straight milled) ...	1	...	98
" Ditto New " " ...	1	1	...
" Ditto $\frac{1}{2}$ " " " ...	1	...	5
" Ditto $\frac{1}{4}$ " " " ...	1	...	25
" Furruckabad Rupee (smooth rim) ...	1	1	...
" Ditto $\frac{1}{2}$ " " ...	1	...	5
" Ditto $\frac{1}{4}$ " " ...	1	...	25
" Ditto Re. Old Std. (oblique milled) ...	1	...	96
" Sicca Rupee New Std. (straight milled) Reg. XIV of 1818 ...	1	1	06
" Ditto $\frac{1}{2}$ ditto ...	1	...	53
" Ditto $\frac{1}{4}$ ditto ...	1	...	26
" Sicca Rupee New Std. (smooth rimmed) Reg. VII of 1838 ...	1	1	06
" Ditto $\frac{1}{2}$ ditto ...	1	...	53
" Ditto $\frac{1}{4}$ ditto ...	1	...	26
" Furruckabad Re. New Std (straight milled) ...	1	1	...
" Bombay Rupee (straight milled) ...	1	1	...

DESCRIPTION OF COINS.	TALE.	WEIGHT.	
		Tolas.	Dc.
Silver. Benares Rupee (oblique milled)	1	...	97
" Ditto $\frac{1}{2}$ " ditto	1	...	48
" Ditto $\frac{1}{4}$ " ditto	1	...	24
Copper. Bronzed Bombay $\frac{1}{2}$ anna	1	1	08
" Ditto $\frac{1}{4}$ "	1	...	54
" Ditto pie	1	...	18
" Pultah $\frac{1}{2}$ anna	1	1	24
" Ditto $\frac{1}{4}$ "	1	...	6
" Ditto $\frac{1}{2}$ pice	1	...	3
" Sicca pice (without rim)	1	...	54
" Ditto (with rim)	1	...	54
" Ditto $\frac{1}{2}$ anna	1	1	08
" Ditto pie	1	...	18
" Victoria Empress $\frac{1}{2}$ anna	1	1	1
" Ditto single pice	1	...	56
" Ditto $\frac{1}{2}$ pice	1	...	28
" Ditto pie	1	...	18

The PRESIDENT announced that the descriptive Catalogue of the invaluable collection of Nepalese Sanskrit Buddhist Manuscripts presented to the Society by Mr. B. H. Hodgson, which Dr. Rajendralala Mitra had been engaged in preparing for several years, was now published, and a copy was laid upon the table.

The SECRETARY reported that the following gentleman had been elected an Ordinary Member by the Council during the recess, in accordance with Rule 7 :

Dr. A. Barclay.

The election was confirmed by the Meeting.

The following gentlemen are candidates for ballot at the next Meeting :

W. R. H. Merk, Esq., C. S., Under-Secretary to Govt., Panjab, proposed by D. Ibbetson, Esq., seconded by J. Wilson, Esq.

Walter Lawrence, Esq., C. S., Ajmere, proposed by D. Ibbetson, Esq., seconded by J. Wilson, Esq.

The following gentlemen have intimated their desire to withdraw from the Society :

Wm. Crooke, Esq.

Rev. A. N. W. Spens.

The PRESIDENT reported that Dr. J. Scully had been elected a Member of the Natural History Committee; and that Mr. J. Wood-Mason, the Natural History Secretary, had left India.

A vote of thanks was unanimously passed to Mr. Wood-Mason for his valuable services as Natural History Secretary for the past 8 years, and for the care and attention he had devoted to the editing of the Society's Journal, Part II.

The SECRETARY reported that the following coin had been acquired under the Treasure Trove Act :

A Silver Coin found in a village of the Manpur Pergunnah.

The following papers were read :

1. *On the Pagoda or Varaha Coins of Southern India.*—By DR. G. BIDIE, Government Central Museum, Madras.

(Abstract.)

The unit of the monetary system of Southern India in old times was the gold *pagoda*, subdivided into *fanams* and *cash*. Latterly from political causes, which are discussed in this paper, the varieties of these coins became very numerous, so that their discrimination at the present day is a matter of some difficulty. Taken as a whole, the pagodas afford most valuable and interesting information regarding the early political history of India south of the Kistna. Their value in this respect was long overlooked, and no systematic attempt was made until recently to form a permanent public collection of the series. Owing to this neglect, many of the older forms are quite unknown to numismatists, and there is little prospect of making good the defect. As regards those that have been preserved, very little information of a reliable kind has been recorded and the few facts that remain refer mostly to the more modern forms and are scattered in local histories, travels, &c., which sometimes contain incidental allusions to the currency of the day.

To numismatists who have been accustomed to study old European coins or those of the Muhammadan sovereigns of India, the Madras pagodas appear particularly puzzling and uninteresting, as they do not always bear the name of the sovereign who struck them, and never give any information as to the place or date of mintage. The derivation of the name *pagoda* is discussed, and that given by Bartolomeo, who lived in Southern India from 1776 to 1789, adopted. The forms of the pagoda of which there are specimens in the Madras Museum are divided into the following groups, arranged according to dynasties and in chronological order: (1) Buddhist Coins, (2) Chalukya Coins, (3) Nonambavadi Coins, (4) Coins of the Gajapati Dynasty, or Elephant Lords, (5) the Lingayat Pagoda, (6) Vijayanagar or Bijanagar Pagodas, (7) the Gandikota Pagoda, (8) the Chital-

droog Pagoda, (9) the Travancore Pagoda, (10) East India Company's Pagodas, (11) Adoni Pagodas, and (12) Mysore Pagodas.

The circumstances under which the coins of each group were probably struck are discussed, and detailed descriptions with figures given of the specimens in the Madras Museum.

This paper will be published with plates in the Journal, Part I, 1882.

2. *Notes on the Butterflies of India.*—By MAJOR G. F. L. MARSHALL, R. E.

Since the publication of the first Part of Vol. I, of "The Butterflies of India, Burmah and Ceylon,"* a small collection and some notes have been sent by Captain C. H. E. Adamson from Akyab, which furnish some additional information as to the distribution of some of the *Danainæ*.

No. 5. *Hestia cadelli*. A single male specimen of a *Hestia* was taken on the sea coast at Akyab, which, Captain Adamson writes, corresponded mark for mark with the figure given of this species (Pl. IV, fig. 2 ♂). I have not seen the specimen, but I feel convinced that it must really have belonged to the form named *agamarschana* which has recently been taken in the Mergui archipelago. In either case the occurrence of a *Hestia* of this type so far north is worthy of note.

No. 20. *Danaïs tytia*. Captain Adamson remarks that this, in Tenasserim as in India, is a hill insect, comparatively rare, and that in the plains it is replaced by *D. melaneus* which is far commoner.

No. 24. *Danaïs gautama*. Captain Adamson sends several specimens taken at one locality on the seashore at Akyab where they were in company with *D. genutia*, *D. hegesippus*, *D. chrysippus* and *D. septentrionis* which were all abundant at that one spot. He writes, "Had I not been specially looking for them I should have passed them over as *D. septentrionis*, but now I can tell the difference at once on the wing: *D. gautama* shows much less blue when on the wing and is more like *D. aglæa* in appearance, except for its larger size."

No. 34. *Danaïs hegesippus*. Captain Adamson has taken a curious variety of this species with an additional white spot below the subapical series in the fulvous space between the first median nervule and submedian nervure: only three specimens of this variety were taken and all at the same spot.

No. 40. *Euploea margarita*. A specimen from Moulmein of typical *margarita* has the forewing with only two minute white marginal spots

* The Butterflies of India, Burmah and Ceylon; a descriptive hand-book of all the known species, by Major G. F. L. Marshall, R. E., and Lionel de Nicéville. Published at Calcutta by the Calcutta Central Press Co., 5, Council House Street.

at the hinder angle, and the blue shot extends very nearly to the margin ; the shape of the forewing in this specimen and the dark tone of the margin strengthen the possibility of this species being separable from *E. adamsoni*.

No. 44. *Euplœa klugii*. A male specimen of typical coloration was taken at Akyab : this is the most southern locality yet recorded for this species.

No. 48. *Euplœa vestigiata*. A very large female of this species taken at Moulmein has on the hindwing at the anal angle three diffused and coalescent whitish spots. It corresponds with the description of *E. leucogonys*, and its large size throws doubt on the distinctness of the latter species.

No. 60. *Euplœa bremeri*. A female specimen is sent from Akyab where it was taken in July by Captain Adamson ; this is considerably north of any locality yet recorded for this insect.

No. 61. *Euplœa core*. A typical male specimen from Akyab was among the collection ; it shows no approach to the Burman form *E. subdita*, which latter was taken at the same place by Mr. Wood-Mason. The fact of the two forms being distinct at the same boundary establishes *E. subdita* as a good species.

No. 68. *Euplœa godartii*. A very remarkable female specimen was taken at Akyab in July, in which there is no trace whatever of the violet apical patch ; the outer margin too is more emarginate than is usual. Akyab is the most northern defined locality at which this species has been taken.

3. *Coins, supplementary to "The Chronicles of the Pathán Sultáns of Delhi." No. III.—By C. J. RODGERS.*

(Abstract.)

Mr. Rodgers describes in this paper some coins received from Affghanistan and India which have not yet been edited. The coins are described in detail with figures and the inscriptions thereon transcribed. Mr. Rodgers then discusses the peculiarities of each, drawing attention to any points of history that have a fresh light thrown upon them by the inscriptions on the coins. The most important of these coins is one of Yattamada Kanalraka which bears the name of the mint, "Gazni." Up to the present all that was known of this ruler was that he was a ruler of Sind, and that his father had ruled in Gazni and Karmán. This coin gives evidence of his having ruled in his father's dominions. Another coin of importance is a small damri of Taimur struck at Delhi. It is believed to be unique and is the only one of Taimur's Indian coins that Mr. Rodgers has seen.

This paper will be published with plates in the Journal, Part 1, 1882.

4. *Second notice of Relics from Ancient Persia, in gold, silver, and copper.*—By MAJOR-GENERAL CUNNINGHAM, C. S. I.

(Abstract.)

This paper describes several new objects discovered since the first notice was written.* These relics were found on the banks of the Oxus, near a place called Kawat or Kuád, two marches from Kunduz and about midway between Khulm and Kaliádan. This is one of the most frequented ferries on the Oxus, and has always been the chief thoroughfare on the road to Samarkand. It is said that the owner of the land has now stopped all search by other people and intends to explore on his own account. The coins which General Cunningham has seen consist of 14 gold and 76 silver pieces, and he concludes from them that the deposit must have been made before the time of Mithridates I. The following ornaments and other articles of gold which have been discovered are described in this paper:—a gold circle of large size, with two winged and horned gryphons at the ends; a small figure of solid gold representing a “magus” in full costume with the *barsom*, or holy wand, in his right hand; a gold seal with five deeply cut symbols somewhat like hieroglyphic characters; a thin gold ring of inferior workmanship, representing a lion couchant; a circular boss, convex on the upper surface, with a hunting scene depicted on it, probably the central boss of a shield; a plain gold bracelet of one coil ending in two antelope heads; a ribbed bracelet of two coils ending in two lions’ heads; a spirally twisted bracelet of three coils ending in two antelope heads; and two lions’ heads, each of which probably formed one end of a bracelet.

This paper will also be published with plates in the *Journal*, Part I, 1882.

* *Journal of the Asiatic Society of Bengal*, Vol. I, Part I, 1881.

LIBRARY.

The following additions have been made to the Library since the Meeting held in August last.

TRANSACTIONS, PROCEEDINGS AND JOURNALS,
presented by the respective Societies and Editors.

- Baltimore. Johns Hopkins University,—American Chemical Journal, Vol. IV, No. 3, July, 1882.
- . ———. American Journal of Mathematics,—Vol. IV, No. 4.
- . ———. Circulars,—No. 17, August, 1882.
- . ———. Studies from the Biological Laboratory,—Vol. II, No. 3.
- Batavia. Natuurkundig Tijdschrift voor Nederlandsch-Indië,—Vol. XLI.
- Bombay. The Indian Antiquary,—Vol. XI, Pts. 135-137, August to October, 1882.
- Bordeaux. Société de Géographie Commerciale,—Bulletin, Nos. 13-16.
- Boston. American Oriental Society,—Proceedings, May 24th, 1882.
- Brussels. Musée Royal d'Histoire Naturelle de Belgique,—Annales, Vols. I-VI, with Plates for Vols. I, II, and IV-VI.
- Calcutta. Geological Survey of India,—Records, Vol. XV, Part 3, 1882.
- . Original Meteorological Observations,—October to November, 1881.
- Cherbourg. Société Nationale des Sciences Naturelles et Mathématiques,—Mémoires, Vol. XXIII.
- Colombo. Ceylon Branch of the Royal Asiatic Society,—Journal, Vol. VII, Part 2, No. 24, 1881.
- Dublin. Royal Irish Academy,—Proceedings (Polite Literature and Antiquities), Ser. II, Vol. II, No. 3, December, 1881; and (Science), Ser. II, Vol. III, Nos. 7-8, December, 1881, and May, 1882.
- . ———. Transactions (Science), Vol. XXVIII, October to November, 1881, and April to June, 1882.
- Geneva. Société de la Physique et d'Histoire Naturelle,—Mémoires, Vol. XXVII, Part 2.
- Halle. Kais. Leopoldinisch-Carolinische Deutsche Akademie der Naturforscher,—Nova Acta, Vols. XLII-XLIII.
- Helsingfors. Scientific Society of Finland,—Bidrag, Vols. XXXV-XXXVI.
- . ———. Ofversigt af Förhandlingar, Vol. XXI, 1880-81.

- Labore. Anjuman-i-Panjab,—Journal (English Section), Vol. II, Nos. 31-41, 43, and Extra No., 11th October, 1882.
- Liège. Société Géologique de Belgique,—Annales, Vol. VIII.
 ——. ——. Procès Verbal, 16th July, 1882.
- London. Anthropological Institute,—Journal, Vol. XI, No. 4; Vol. XII, No. 1, May and August, 1882.
 ——. Geological Society,—Quarterly Journal, Vol. XXXVIII, Nos. 150-151; Parts 2-3, May and August, 1882.
 ——. Institution of Civil Engineers,—Minutes of Proceedings, Vol. LXVIII.
 ——. Institution of Mechanical Engineers,—Proceedings, No. 2, April, 1882.
 ——. Nature, Vol. XXVI, Nos. 659, 663-675.
 ——. Royal Asiatic Society,—Journal, Vol. XIV, Parts 2-3.
 ——. Royal Astronomical Society,—Monthly Notices, Vol. XLII, Nos. 6-8, April to June, 1882.
 ——. Royal Geographical Society,—Proceedings, Vol. IV, Nos. 6-8, June to August, 1882.
 ——. Royal Microscopical Society,—Journal, Vol. II (2nd Ser.), Parts 3-4.
 ——. Royal Society,—Proceedings, Vol. XXXIII. No. 219; and Vol. XXXIV, No. 220.
 ——. Society of Telegraph Engineers,—Journal, Vol. XI, No. 42; and Index to the first ten Vols.
 ——. Statistical Society,—Journal, Vol. XLV, Part 2, June, 1882.
 ——. The Academy, Nos. 532-544.
 ——. The Athenæum, Nos. 2855-2867.
 ——. Zoological Society,—Proceedings, Part I, 1882; and Index for the Vols. from 1871-1880.
- Madras. Journal of Literature and Science for 1881.
- Melbourne. Royal Society of Victoria,—Transactions and Proceedings, Vol. XVIII.
- Moscow. Société Impériale des Naturalistes,—Bulletin, No. 3, 1881.
- Munich. Repertorium für Experimental-Physik,—Vol. XVIII, Nos. 7-9.
 ——. K. b. Akademie der Wissenschaften, Sitzungsberichte, philosophisch-philologische und historische Classe,—Vol. II, Parts 2-5, 1881.
 ——. ——. Mathematisch-physikalische Classe, Part 4, 1881, Parts 1-2, 1882.
 ——. ——. Abhandlungen, philosophisch-philologische Classe, Vol. XVI, Part 2.
 ——. ——. Historische Classe, Vol. XVI, Part 1.
- New Haven. Connecticut Academy of Arts and Sciences,—Transactions, Vol. IV, Part 2; Vol. V, Part 2.

- Paris. Journal Asiatique, Vol. XIX, No. 3, April to June, 1882.
 —. La Société d'Anthropologie,—Bulletin, Vol. V, No. 2, March to April, 1882.
 —. Société de Géographie,—Bulletin, Vol. III, Part 1, 1882.
 —. ————. Compte Rendu des Séances, Nos. 14-16, 1882.
 —. Société Zoologique de France,—Bulletin, Nos. 2-4, 1882.
- Philadelphia. American Philosophical Society,—Proceedings, Vol. XIX, No. 109, June to December, 1881.
- Rome. R. Accademia dei Lincei,—Atti, Vol. VI, Part 13.
 —. Società degli Spettroscopisti Italiani,—Memorie, Vol. XI, Nos. 5-7, May to July, 1882.
- Roorkee. Professional Papers on Indian Engineering,—Vol. XI, No. 43, June, 1882.
- Schaffhausen. Société Entomologique Suisse,—Bulletin, Vol. VI, No. 6, May, 1882.
- Simla. United Service Institution of India,—Journal, Vol. XI, No. 52, 1882.
- Stuttgart. Verein für Vaterländische Naturkunde,—Jahreshefte, 1882.
- Turin. R. Accademia delle Scienze,—Atti, Vol. XVII, Nos. 6-7.
 —. Osservatorio della Regia Università,—Bollettino, 1881.
- Vienna. Anthropologische Gesellschaft,—Mittheilungen, Vol. XI, Nos. 3-4.
 —. Kaiserliche Akademie der Wissenschaften,—Archiv für österreichische Geschichte, Vol. LXII, Part 2; Vol. LXIII, Parts 1-2.
 —. ————. Sitzungsberichte,—Mathematisch-naturwissenschaftliche Classe, Part I, Vol. LXXXIII, No. 5; Vol. LXXXIV, Nos. 1-5; Part II, Vol. LXXXIII, No. 5; Vol. LXXXIV, Nos. 1-5; Vol. LXXXV, Nos. 1-2; Part III, Vol. LXXXIII, Nos. 3-5; Vol. LXXXIV, Nos. 1-5.
 —. ————. Philosophisch-historische Classe,—Vol. XCVIII, No. 3; Vol. XCIX, Nos. 1-2.
 —. ————. Denkschriften,—Mathematisch-naturwissenschaftliche Classe, Vols. XLIII and XLIV.
 —. ————. Philosophisch-historische Classe,—Vol. XXXII.
 —. K. K. Geologische Reichsanstalt,—Abhandlungen, Vol. XII, Part 3.
 —. ————. Jahrbuch, Vol. XXXII, No. 1, January to March, 1882.
 —. ————. Verhandlungen, Nos. 1-7, 1882.
- Washington. War Department, Army Signal Service,—Professional Papers, Nos. 1-6.

- Washington. Annual Report of the Chief Signal Officer, for 1879.
 ———. Smithsonian Institution,—Annual Report for 1880.
 Wellington. New Zealand Institute,—Transactions and Proceedings, Vol.
 XIV, 1881.
 Yokohama. Deutsche Gesellschaft für Natur-und Völkerkunde Ostasiens,
 —Mittheilungen, August, 1882.
 Zagreb. Arkeologickoga Druzstva,—Viestnik, Vol. IV, No 3.

BOOKS AND PAMPHLETS,

presented by the Authors, Translators, &c.

- BADEN-POWELL, B. H. A Manual of the Land Revenue Systems and Land
 Tenures of British India. 8vo. Calcutta, 1882.
 BAYLEY, SIR EDWARD CLIVE. On the Genealogy of Modern Numerals.
 8vo. London, 1882.
 CHANDRA, HARISH. Victoria's Flag of Victory, a Poem in Hindi. 16mo.
 Benares, 1882. Pam.
 NEVILL, HUGH. Oriental Studies. Part II. 8vo. Colombo, 1882.
 ROEPSTORFF, F. A. DE. Gegenstände von den Nicobaren. 8vo. Berlin,
 1882.
 SARMA, GOPAL. Translation of Valmiki's Ramayana in Hindi. 8vo.
 Benares.
 SCULLY, DR. JOHN. On some Mammals from the North-West Frontier
 of Kashmir. 8vo. London, 1881. Pam.
 ———. ———. On the Mammals of Gilgit. 8vo. London, 1881. Pam.
 ———. ———. Description of a New Species of Arvicola from
 Gilgit. 8vo. London, 1880. Pam.
 ———. ———. A Contribution to the Ornithology of Gilgit. (In
 two parts.) 8vo. London, 1881. Pam.
 ———. ———. On some Mammals from Kandahar. 8vo. London,
 1881. Pam.
 SINH, RAJA LAKSHMAN. The Cloud Messenger of Kálidás, rendered into
 Hindi Verse, with Notes. 4to. Benares, 1882.
 TOLBOET, THOMAS WILLIAM H. Tarjuma-i-Alif Laila Ba-Zubán-i-Urdu.
 Romanized. Edited by Frederic Pincott. 8vo. London, 1882.

MISCELLANEOUS PRESENTATIONS.

- New South Wales, Australian Museum. Report of the Trustees for 1881.
 Fcp. Sydney, 1882.

AUSTRALIAN MUSEUM.

- Report on the Calcutta Medical Institutions for the year 1881. Fcp.
 Calcutta, 1882.
 Annual Report on the Police Administration of the Town of Calcutta and
 its Suburbs for the year 1881. Fcp. Calcutta, 1882.

Report of the Alipore Reformatory School for the year 1881. Fcp. Calcutta, 1882.

Report on the Charitable Dispensaries under the Government of Bengal for the year 1881. Fcp. Calcutta, 1882.

Archæological Survey of India. Reports, Vol. XIV. 8vo. Calcutta, 1882.

Fourteenth Annual Report of the Sanitary Commissioner for Bengal, for the year 1881; including the Annual Report on Vaccination in Bengal for the year 1881-82. Fcp. Calcutta, 1882.

Report on the Police of the Lower Provinces of the Bengal Presidency for the year 1881. Fcp. Calcutta, 1882.

Report on the Legal Affairs of the Bengal Government for the year 1881-82. Fcp. Calcutta, 1882.

The Indian Forester. Vol. VIII, No. 1, July 1882.

BENGAL GOVERNMENT.

Catalogue of Oriental Coins in the British Museum. Vol. VII. 8vo. London, 1882.

KIRBY, W. F. List of Hymenoptera in the British Museum. Vol. I. 8vo. London, 1882.

BRITISH MUSEUM.

GOONETILLEKE, WILLIAM. Panini's Eight Books of Grammatical Sutras: edited with an English translation and commentary. Vol. I, Part 1. 8vo. Bombay, 1882.

CEYLON BRANCH, ROYAL ASIATIC SOCIETY.

Report on the Vaccine Operations in the Central Provinces, for the year 1881-82. Fcp. Nagpur, 1882.

Report on the Administration of the Central Provinces for the year 1881-82. 8vo. Nagpur, 1882.

CHIEF COMMISSIONER, CENTRAL PROVINCES.

Verhandlungen des fünften Internationalen Orientalisten-Congresses gehalten zu Berlin im September 1881. Vol. II, Parts 1-2. 8vo. Berlin, 1882.

THE COMMITTEE, FIFTH INTERNATIONAL ORIENTAL CONGRESS.

Norwegian North-Atlantic Expedition, 1876-78. IV, (1) Historical Account; (2) The Apparatus and how used, by C. Wille. V, (1) Astronomical Observations, by H. Mohn; (2) Magnetical Observations, by C. Wille; (3) Geography and Natural History, by H. Mohn. 4to. Christiania, 1882.

COMMITTEE, NORWEGIAN NORTH ATLANTIC EXPEDITION.

Annual Report of the Department of Mines, New South Wales, for the year 1881. Fcp. Sydney, 1882.

DEPARTMENT OF MINES, SYDNEY.

VII. und VIII. Jahresbericht der Gewerbeschule zu Bistritz in Siebenbürgen. 8vo. Bistritz, 1882.

DIRECTOR, BISTRITZ GEWERBESCHULE.

ASANA, J. D. M. J. Pahlavi, Gujarâti, and English Dictionary. Vol. III. 8vo. Bombay, 1882.

WOLLASTON, ARTHUR N. An English-Persian Dictionary. Compiled from original sources. 8vo. London, 1882.

CARTER, H. VANDYKE. Spirillum Fever (Synonyms, Famine or Relapsing Fever), as seen in Western India. 8vo. London, 1882.

MOORE, F. The Lepidoptera of Ceylon, Parts I and II. 4to. London, 1880-81.

FALLON, S. W. A New English-Hindustani Dictionary, Parts IX-X. The Indian Antiquary. Vol XI, Parts 135-137, August to October, 1882.

HOME DEPARTMENT.

Review of the Forest Administration in the several provinces under the Government of India, for the year 1880-81. Fcp. Simla, 1882.

HOME DEPARTMENT, FOREST BRANCH.

MUELLER, F. MAX. Sacred Books of the East, Vols. VIII, XII, XIII and XVI. 8vo. Oxford, 1881-82.

INDIA OFFICE, LONDON.

BAUEB, GUSTAV. Gedächtnissrede auf Otto Hesse. 4to. München, 1882.

K. B. AKADEMIE DER WISSENSCHAFTEN, MUENCHEN.

HODGSON, B. H. Ashu Ghosha on Caste, in reply to a Sivite. Translated from the Sanskrit. 8vo. Calcutta, 1882.

REV. K. S. MACDONALD.

Report on Public Instruction in the Madras Presidency for 1880-81. 8vo. Madras, 1882.

WILSON, H. H. The Mackenzie Collection. A Descriptive Catalogue of the Oriental MSS. and other articles illustrative of the Literature, History, Statistics and Antiquities of the South of India; collected by the late Lieut.-Col. Colin Mackenzie, Surveyor General of India. To which is prefixed a brief outline of the life of Col. Mackenzie and of the steps taken to catalogue and utilize his collection. 2nd edition. 8vo. Madras, 1882.

MADRAS GOVERNMENT.

International Meteorological Observations, 25th July, 1880, to 30th April, 1881. 4to. Washington.

Monthly Weather Review, October 1881 to June 1882. 4to. Washington.

METEOROLOGICAL REPORTER TO THE GOVT. OF INDIA.

RAM, HITTU. Biluchi-Namah: a text book of the Biluchi Language. Fcp. Lahore, 1881.

PANJAB GOVERNMENT.

RAI, NAVINA CH. An Elementary Course of Civil Engineering in Hindi.
Part I, General Construction. 8vo. Lahore, 1882.

PANJAB UNIVERSITY COLLEGE.

Catalogue spécial des objets composant l'exposition géographique jointe
à la XIIe. exposition générale de la Société Philomathique de Bor-
deaux. 8vo. Bordeaux, 1882.

SOCIÉTÉ DE GÉOGRAPHIE COMMERCIALE DE BORDEAUX.

St. Xavier's College Observatory. Observations, January to June, 1882.

ST. XAVIER'S COLLEGE OBSERVATORY.

Administration Report of the Government Central Museum, for the year
1881-82. Fcp. Madras, 1882.

SUPERINTENDENT, GOVERNMENT CENTRAL MUSEUM, MADRAS.

PERIODICALS PURCHASED.

Benares. Fallon's New English-Hindustani Dictionary,—Parts IX and X.
Berlin. Journal für reine und angewandte Mathematik,—Vol. XCIII,
Nos. 1-2.

———. Sander's Ergänzungs-Wörterbuch der Deutsche Sprache,—Parts
19 and 20.

Calcutta. Calcutta Review,—Vol. LXXV, No. 150, October, 1882.

———. Indian Medical Gazette,—Vol. XVII, Nos. 8-10, August to
October, 1882.

———. Stray Feathers,—Vol. X, No. 4.

Edinburgh. Edinburgh Review,—Vol. CLVI, No. 319, July, 1882.

Geneva. Archives des Sciences Physiques et Naturelles,—Vol. VIII, Nos.
7-8.

Giessen. Jahresbericht über die Fortschritte der Chemie,—Part 4, 1880.

Göttingen. Gelehrte Anzeigen,—Nos. 29-40.

———. Nachrichten,—Nos. 15-20.

Leipzig. Annalen der Physik und Chemie,—Vol. XVI, Nos. 8-10.

———. Beiblätter,—Vol. VI, Nos. 6-8.

———. Deutsche Litteraturzeitung,—Vol. III, Nos. 18-29 and 31-33.

———. Hesperos,—Vol. I, No. 24; Vol. II, No. 25.

———. Literarisches Centralblatt,—Nos. 19-30 and 32-34.

London. Annals and Magazine of Natural History,—Vol. IX, No. 54;
Vol. X, Nos. 55-56; June to August, 1882.

———. Chemical News,—Vol. XLVI, Nos. 1181-1193.

———. Entomologist,—Vol. XV, Nos. 229-231, June to August, 1881.

———. Entomologist's Monthly Magazine,—Vol. XIX, Nos. 217-219,
June to August, 1882.

———. Journal of Botany,—Vol. XI, Nos. 234-236, June to August,
1882.

- London. *Journal of Science*,—Vol. IV, Nos. 102-104, June to August, 1882.
- . London, Edinburgh and Dublin *Philosophical Magazine*,—Vol. XIII, Nos. 83-84; Vol. XIV, Nos. 85-86.
- . *Mind*,—No. 27, July, 1882.
- . *Messenger of Mathematics*,—Vol. XII, Nos. 1-3, May to July, 1882.
- . *Nineteenth Century*,—Nos. 64-66, June to August, 1882.
- . *Numismatic Chronicle*,—Vol. II (3rd Series), No. 5.
- . *Publishers' Circular*,—Vol. XLV, Nos. 1076-1081.
- . *Quarterly Journal of Microscopical Science*,—Vol. XXII, No. 87, July, 1882.
- . *Quarterly Journal of Pure and Applied Mathematics*,—Vol. XVIII, Nos. 71-72, February and June, 1882.
- . *Quarterly Review*,—Vol. CLIV, No. 307, July, 1882.
- . *Society of Arts*,—*Journal*, Vol. XXX, Nos. 1547-1559.
- . *The Ibis*,—Vol. VI (4th Series), No. 23, July, 1882.
- New Haven. *American Journal of Science*,—Vol. XXIII, Nos. 137-138; Vol. XXIV, Nos. 139-140.
- Paris. *Annales de Chimie et de Physique*,—Vol. XXVI, July and August, 1882; Vol. XXVII, September, 1882.
- . *Comptes Rendus*,—Vol. XCIV, No. 20; and Vol. XCV, Nos. 1-13.
- . *Journal des Savants*,—June to August, 1882.
- . *Revue Critique*,—Vol. XIV, Nos. 28-30, 32-40.
- . *Revue de Linguistique*,—Vol. XV, Fas. 3, 1882.
- . *Revue des deux Mondes*,—Vol. LII, Nos. 2-4; Vol. LIII, Nos. 1-3.
- . *Revue Scientifique*,—Vol. XXX, Nos. 3-15.
- Philadelphia. *Tryon's Manual of Conchology*,—Parts 14-15.

BOOKS PURCHASED.

- ABEL, CARL. *Linguistic Essays*. 8vo. London, 1882.
- BARRY, EDWARD M. *Lectures on Architecture delivered at the Royal Academy*. Edited by Alfred Barry. 8vo. London, 1881.
- BEAL, SAMUEL. *Abstract of Four Lectures on Buddhist Literature in China delivered at University College*. 8vo. London, 1882.
- BOULGEE, D. C. *History of China*. Vol. II. 8vo. London, 1882.
- CESNOLA, ALEX. PALMA DI. *Salaminia (Cyprus). The History, Treasures, and Antiquities of Salamis in the Island of Cyprus*. With an Introduction by Samuel Birch. 4to. London, 1882.

- COWELL, E. B. ; and GOUGH, A. E. *The Sarva-Darsana-Sangraha, or Review of the different Systems of Hindu Philosophy.* By Mádharma Achárya. 8vo. London, 1882.
- DAVIDS, T. W. RHYS. *The Hibbert Lectures, 1881. Lectures on the Origin and Growth of Religion as illustrated by some points in the History of Indian Buddhism.* 8vo. London, 1881.
- DISTANT, W. L. *Rhopalocera Malayana: a description of the Butterflies of the Malay Peninsula. Parts I-II.* 4to. London, 1882.
- DOBSON, G. E. *A Monograph of the Insectivora; Systematic and Anatomical. Part I.* 4to. London, 1882.
- DU CHAILLU, PAUL B. *The Land of the Midnight Sun: Summer and Winter Journeys through Sweden, Norway, Lapland, and Northern Finland. Vols. I-II.* 8vo. London, 1882.
- DUNCKER, PROF. MAX. *The History of Antiquity. From the German, by Evelyn Abbott. Vols. I-V.* 8vo. London, 1877-81.
- DUTT, TORU. *Ancient Ballads and Legends of Hindustan. With an introductory memoir, by Edmund W. Gosse.* 32mo. London, 1882.
- Encyclopædia Britannica. Ninth Edition. Vol. XIV.* 4to. Edinburgh, 1882.
- FLOYER, ERNEST AYSOGHE. *Unexplored Balúchistan. A survey with observations, astronomical, geographical, botanical, &c., of a route through Mekran, Bashkurd, Persia, Kurdistan, and Turkey.* 8vo. London, 1882.
- Lightning Rod Conference. *Report.* 8vo. London, 1882.
- LUBBOCK, SIR JOHN. *Ants, Bees, and Wasps: a record of observations on the habits of the Social Hymenoptera. Second Edition.* 12mo. London, 1882.
- . *The Origin of Civilization and the Primitive Condition of Man. Mental and Social condition of Savages.* 8vo. London, 1882.
- MUELLER, F. MAX. *Sacred Books of the East. Vols. VIII, XII, XIII and XVI.* 8vo. Oxford, 1881-82.
- . *Immanuel Kant's Critique of Pure Reason. In commemoration of the centenary of its first publication. With an historical introduction by Ludwig Noiré. Vols. I-II.* 8vo. London, 1881.
- OGLE, W. *Aristotle on the Parts of Animals. Translated, with Introduction and Notes.* 8vo. London, 1882.
- Palæographical Society. Facsimiles of Ancient MSS. Oriental Series. Part VII.* Fol. London, 1882.
- Report of the Challenger. Zoology: Vol. IV.* 4to. London, 1882.
- ROMANES, GEO. J. *Animal Intelligence.* 12mo. London, 1882.
- SCHIEFNER, F. ANTON VON. *Tibetan Tales derived from Indian Sources. Translated from the Tibetan of the Kah-Gyur. Done into English*

- from the German, with an introduction ; by W. R. S. Ralston. 8vo. London, 1882.
- SPENCER, HERBERT. *The Principles of Sociology*. Second Edition. Vol. I. 8vo. London, 1877.
- STEWART, B. ; and TAIT, P. G. *The Unseen Universe or Physical Speculations on a Future State*. Tenth Edition. 12mo. London, 1881.
- . *Paradoxical Philosophy : a sequel to the Unseen Universe*. Second Edition. 12mo. London, 1879.
- WHERRY, REV. E. M. *A Comprehensive Commentary on the Qurán : comprising Sale's translation and preliminary discourse*. Vol. I. 8vo. London, 1882.
- WOLLASTON, ARTHUR N. *An English-Persian Dictionary*. Compiled from original sources. 8vo. London, 1882.
-

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.
FOR DECEMBER, 1882.

The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 6th December, at 9 P. M.

The HON'BLE H. J. REYNOLDS, President, in the Chair.

The minutes of the last meeting were read and confirmed.

The following presentations were announced :—

1. From the Port Officer, Calcutta,—Return of Wrecks and Casualties in Indian Waters for the year 1881.
2. From K. k. zool.-botanische Gesellschaft, Wien,—Die Laubmoosflora von Oesterreich-Ungarn, by J. Breidler and J. B. Förster.
3. From the Madras Government,—Archæological Survey of Southern India. No. 3. The Amarāvati Stūpa.
4. From the Author,—Sanskrit Wörterbuch in kürzerer Fassung, Vol. III, No. 2, by Otto Böhtlingk.
5. From the Hungarian Academy,—Magyar-Ugor összehasonlító Szótár, Vol. V, by József Budenz.
6. From the Royal Society, London,—Catalogue of the Scientific Books in the Library of the Royal Society. Transactions, Journals, Observations and Reports, Surveys, Museums.
7. From the Smithsonian Institution,—List of Foreign Correspondents of the Smithsonian Institution. Corrected to January, 1882.
8. From the Home Department,—The Plants and Drugs of Sind, by James Murray.
9. From the Dept. of Mines, Sydney,—Mineral Products of New South Wales, by Harrie Wood; Notes on the Geology of New South Wales, by C. S. Wilkinson; Description of the Minerals of New South Wales, by Archibald Liversidge; Catalogue of Works, Papers, Reports and Maps on the Geology, Palæontology, Mineralogy, &c., &c., of the Australasian Continent and Tasmania, by Robert Etheridge and Robert Logan Jack.

The following gentlemen duly proposed and seconded at the last meeting were ballotted for and elected Ordinary Members:

W. R. H. Merk, Esq.

Walter Lawrence, Esq.

The following gentlemen are candidates for election at the next meeting:

1. Major Trevor Plowden, B. S. C., Simla, proposed by D. Ibbetson, Esq., seconded by J. Wilson, Esq.

2. Francis H. Harding, Esq., C. S., Tajpore, Darbhanga, proposed by A. Pedler, Esq., seconded by Dr. H. W. M'Cann.

The following gentleman has intimated his desire to withdraw from the Society:

Ney Elias, Esq.

The COUNCIL reported that P. C. Wheeler, Esq., C. S., Allahabad, had, after repeated applications, refused to pay his subscription for a period for part of which he had received the publications of the Society, and his name would in consequence be suspended for a month in the Society's rooms as a defaulter.

The PRESIDENT announced that Dr. J. Scully had kindly consented to act as Natural History Secretary.

The PRESIDENT announced that the Council recommended certain changes in the Rules as set forth in the following circular which had been forwarded to all resident members, according to Rule 64 A:—

"In accordance with the procedure prescribed in the Rules of the Society (64, 65, 78), the Council circulate to the resident Members the following statement of certain proposed changes in the Rules and of the reasons which induce Council to recommend them.

"The Council propose to insert in Rule 15, after the word 'Rule,' the words 'and to serve on any Committee appointed by Council': and after the word 'vote,' the words 'except on such Committees': also, in Rule 61, to insert, after the word 'appoint', the words 'Honorary or Associate Members, or', and to omit the comma after the words 'Ordinary Members'. These two Rules as they are at present read as follows:—

"RULE 15. Honorary and Associate Members shall be entitled to the privileges contained in Clauses (a), (d), and (f) of the preceding Rule, save that they shall not be entitled to vote.

"RULE 61. The Council may elect, from among their own body, Committees or Sections for the consideration of special subjects. They also may appoint Ordinary Members, other than Members of Council, who are competent and well versed in the subjects to be referred to these Committees, to be Members of such Committees.

“ With the proposed changes, they will read :—

“ **RULE 15.** Honorary and Associate Members shall be entitled to the privileges contained in Clauses (a), (d) and (f) of the preceding Rule, and to serve on any Committee appointed by Council, save that they shall not be entitled to vote, except on such Committees.

“ **RULE 61.** The Council may elect, from among their own body, Committees or Sections for the consideration of special subjects. They may also appoint *Honorary or Associate Members*, or Ordinary Members other than Members of Council, who are competent and well versed in the subjects to be referred to these Committees, to be Members of such Committees.

“ According to the Rules as they are at present, no Honorary or Associate Member can serve on any of the Committees appointed by Council. The Society is thus prevented from obtaining the advice of several gentlemen in close connection with the Society who are experts in their several subjects, and no compensating benefit accrues from the observance of these Rules. The question is now raised because it has been lately pointed out that Major-General A. Cunningham, Director General of the Archaeological Survey of India, who has for many years been a Member of the Philological and Coins Committees of the Society, is an Honorary Member and therefore cannot serve on a Committee. General Cunningham's advice and opinion on all matters relating to coins and antiquities have been, and are of immense service to the Society, and the Society's Secretaries regularly avail themselves of his assistance as a member of these Committees, as may be seen from consulting the Society's Proceedings. But now that the attention of Council has been drawn to the two Rules in question, it will be impossible to re-elect General Cunningham a Member of these Committees, unless the Rules are altered as above. So that an observance of these Rules will result in distinct injury to the Society. And, besides the case of General Cunningham, there are other cases in which the Rules prevent the Society from securing the advice of scientific experts, such as Father Lafont, who would gladly assist the Society with their opinion, but are prevented from sitting on Committees owing to the undoubted meaning of the Rules. The Council therefore strongly recommend the above changes. The Society's Committees are consultative bodies and have not the power to take any initiative of themselves : they merely advise Council on matters on which Council seeks their opinion before itself coming to a decision. This being the case, Council are of opinion that there cannot possibly be any objection to strengthening these consultative bodies by adding to them such Honorary or Associate Members as are experts in their several subjects.

“ The proposed changes will be brought up for discussion at the Ordinary General meeting of the Society on Wednesday, December 6th. Voting papers will be afterwards issued to all members, resident and non-resident, containing, in addition to this statement of the Council's reasons for recommending the change, a statement of any objections that may be raised to the proposal at this meeting. The votes will be finally taken at the February meeting of the Society.”

The changes proposed by the Council were unanimously approved by the meeting.

The SECRETARY read the following extracts from a letter from Mr. D. Ibbetson, Deputy Commissioner of the Punjab Census, Lahore, forwarding a memorandum asking for information regarding the Ethnology of the Panjab :

“My object in addressing you is to ask you to help me in the inquiry I have undertaken,—an inquiry which will probably occupy my leisure for several years. What I would beg you to do is this: *whenever you come across any interesting facts regarding any caste or clan or its customs, make a rough note of them at once and on the spot, before they are forgotten, and send it to me.* It does not matter how rough the notes are; but notes regarding separate castes or clans should be, if possible, *on separate pieces of paper.* It does not matter how absurd the story told you, or how seemingly trivial the facts collected. Caste legends generally have some substratum of truth, which can often be eliminated by comparing different forms of the same story derived from various sources; and an independent confirmation of even the smallest detail is often valuable.

“It is in the power of every one to help, if he cares to do so. Even officers who do not travel about among the people constantly come across curious facts and customs in the course of trials and investigations, while the natives are often more communicative to those who do not hold an official position than to those who do.

“The following are some of the points which may usefully be noted:—

“Name of the tribe or caste; names of its sub-divisions; localities in which it is found in largest numbers; different names by which it is known, often varying with the religion; its traditional mode and place of origin; its course of migration, and especially the place whence it came direct to its present home; the religions followed by its members; whether, if not Hindus, they employed Bráhmans, and in what manner; any traditions or customs connecting them with, or involving reverence for, any particular plant or animal; whether they practise *karewa* or widow-marriage; what castes or tribes they may or may not intermarry with; what their position is in the social scale; what occupations they principally follow, and whether they vary with the religion.

“Information regarding the vagrant, servile, and out-caste tribes and the people of the hills is especially needed; while little is known of the internal constitution, and government by means of standing *pancháyats*, of the menial and artisan castes and trade-guilds.

“The religion of the peasantry is something very different from the Hinduism of books; while their social customs have been handed down almost unaltered from remote ages. All facts regarding their gods and saints and the mode in which they worship them, the omens they regard, the superstitions they are ruled by, their ceremonial at births, deaths, betrothals, marriages, and adoption, the relations between members of a family, and in fact their customs and ways of life generally, are always most interesting and often exceedingly valuable. The inhabitants of the Panjab have been drawn from many sources at various periods; and our best hope

of tracing each tribe back to its original stock lies in collecting and comparing their customs and traditions. *Most valuable of all are what may be called differential customs; that is to say, points in which the customs of one tribe differ from those of its neighbours.* Peculiarities in even such minor respects as dress, jewels, food, drink, and the like, often afford useful indications.

“Local songs and proverbs, which should be taken down exactly as spoken by the people, are full of interest. Fairs and festivals are important and generally have some religious significance. New sects and ascetic orders are springing up daily; while little is known about many of the old ones. In fact it is impossible to mention any part of the life of the people regarding which information is not needed, and may not give valuable help.

“In the hope that it may be useful to some such, I have prepared a rough memorandum on the points to which, so far as I know, inquiry may be most usefully directed. I shall be glad to send any body a copy of it who will let me have a post-card to say that he would like one.”

LIEUT.-GENL. J. T. WALKER gave intimation of the return of a party of explorers from Tibet, with a sketch of the line of exploration. He informed the meeting that, five years ago, he made arrangements to send one of the Trans-Himalayan explorers of the Survey Department into the regions of Northern Tibet which are crossed by the parallel of 40° of latitude. In those days, Prejevalsky had not yet made his famous journey from Guldja to Lob Nur, and there was a great belt of territory between Eastern Turkestan and Mongolia which was almost absolutely unknown. A native of India who had accompanied the celebrated Pandit Nain Singh in his explorations was especially trained by the *andit* to undertake this new exploration. He started from India in the summer of 1878 with two companions; for a long time no tidings were received of him; but about a year ago very distressing rumours reached Nain Singh to the effect that the explorer and his companions had been seized by the authorities at Lassa, that one of his companions who was a Tibetan had been put to death for having brought a foreigner into the country, and that he himself had had his legs broken in order to put it out of his power to make further explorations. Happily this tale turned out to be a pure fabrication, concocted very probably by his second companion who had meanwhile robbed and deserted him. In May last, tidings were received from the Vicar Apostolic of Tibet, who resides at Ta-Tsien-lu, that the explorer had reached Ta-Tsien-lu in safety last February, and that he was about to return to India by the direct route *visâ* Assam. He reached

Calcutta a few days ago, bringing with him not only his journals, but his instruments, which he has managed to secrete and preserve in some wonderful manner, notwithstanding that on two occasions he was robbed of the greater portion of his property.

He has taken a number of astronomical and boiling point observations and kept up a more or less continuous record of bearings and distances along the line of his traverse. Some time must elapse before his observations can be reduced and plotted; thus General Walker was not in a position to give the meeting any very definite information regarding the geographical results of this last and most important exploration. He would, however, briefly indicate the general direction of the lines of operation.

The explorer, after spending some time at Lassa in purchasing merchandise for sale in the regions to which he was bound and making arrangements to join a *kafila* of traders returning to Mongolia, eventually succeeded in making a good start. He accompanied the *kafila* as far as a place called Thingali, which may be some 150 miles to the west of the Lake Koko Nur; there, in December, 1879, the *kafila* was attacked by a band of some hundred mounted men of the Chiamogolak tribe; they robbed the explorer of most of his property, but had the grace to leave him about Rs. 200 worth of merchandise wherewith to prosecute his enterprise, and they did not appropriate his surveying instruments.

From Thingali he struck off to the North-West, and eventually reached a place called Saithang, where he had to wait for the formation of a *kafila* of travellers proceeding towards Lob Nur; there he was deserted by one of his companions who robbed him of most of his little remaining property and his telescope. Though left nearly destitute, he was resolved not to turn back if he could by any means avoid doing so. He and his remaining companion therefore took service with some Mongolians and tended their herds of horses for some months. Eventually they determined to move on with the limited funds at their disposal, and when these failed to beg their way. They advanced to a place called Saitu, which may possibly be identical with Marco Polo's Sachi; there they were detained seven months by Chinese Tartars whom they were compelled to serve. Eventually a friendly Lama came to their assistance and rescued them, and in his service they returned to Saithang and proceeded south-eastwards to Barong Chaidam—some 100 miles to the west of Lake Koko Nur,—and then southwards 300 miles to the Thuden Gumpa Monastery. There they entered the service of a Chinese Tartar whom they accompanied to Darchendo, or Ta-Tsien-lu, where they were kindly welcomed and helped by the Jesuit Fathers. They then commenced their return journey to India. Proceeding *vid* Batang and Dzayul, they reached Sama, a village on the eastern border of the country of the Mishmis; they endeavoured to make arrangements to cross the belt of Mishmi country between Sama and the British

Frontier, but did not succeed in so doing ; and being told that they would probably be murdered if they trusted themselves to such savages as the Mishmis, they turned northwards and took the circuitous route through southern Tibet towards Lassa, *viâ* Alanto and Giamda, as far as the latter place, from which they turned down south-westwards to Chetang on the Sanpo river, avoiding Lassa. Thence they proceeded *viâ* Giangze Jong and Phari to Darjeeling, returning safely to British territory after an absence of more than four years.

The explorer states that Sama, the village on the Mishmi border at which they turned away from the direct route to Assam, is situated on a river flowing into Assam, and is the place at which two Padre Sahibs were murdered some thirty years ago. Thus it is identified with the Sami of the Rev. T. D. Mazure, Vicar Apostolic of Tibet, in his memorandum on the countries between Thibet, Yunan and Burma—in volume XXX of the Journal of the Asiatic Society—in which he speaks of it as the place where the two priests, Messrs. Krick and Boury, were murdered. The Vicar was, however, under the impression that his Sami was situated in the valley of a river flowing into the Irawadi ; but Colonel Yule, in his notes to the Vicar's paper, points out that we know from the reports of the British officers in Upper Assam that the two priests were murdered (about the month of August, 1854) at a village, called Simé in Wilcox's map, which is situated on the banks of the Bramakund river, the Eastern Brahmaputra, and he goes on to say that "this murder of two missionaries becomes thus in fact the basis of a geographical connection between British India and Thibet." This remark is even more apposite at the present time than it was originally ; for the murder of the missionaries enables us to identify with certainty the nearest point to the British frontier which was reached by the explorer on his attempt to return to India *viâ* Assam. Wilcox reconnoitred the Brammakund river up as far as the village of Samleh, and he obtained the positions of several of the villages higher up from native information ; thus it appears that his Simé was about 18 miles beyond Samleh ; for this portion of the river we as yet have no route survey ; but the distance is so short that we may accept the position assigned to Simé in Wilcox's map without hesitation.

This being the case, the fact that the explorer was unable to proceed to India directly through the Mishmi country, but was compelled to make a considerable detour to the north, has been the means of our acquiring much additional geographical information, and more particularly of laying at rest the frequently mooted question whether the great Sanpo river of Tibet flows into the Irawadi river or into the Brahmaputra. If the former, the explorer must have crossed it three times, first between Batang and Sama, secondly between Sama and Alanto, and finally at Chetang. He

maintains that he only crossed it at Chetang, and that to the west of his route between Sama and Alonto there is a great range of hills forming the water-parting between the affluents of the Sanpo river and those of the well-known system of parallel Tibetan rivers which he crossed between Batang and Sama. He knows the Sanpo river well and has crossed it frequently and in various places, and he is satisfied that none of the affluents of the system of parallel rivers which he crossed can possibly be the Sanpo.

A full account of his explorations will be published, with maps in illustration, as soon as possible, probably within six months. Meanwhile, however, this statement of general outlines will suffice to show that the explorer has worked with great pluck and perseverance, never allowing himself to be turned back by misfortune and disaster until he had succeeded in accomplishing a highly creditable amount of work, and meanwhile taking service with Mongolians, Lamas and Chinese Tartars, with a view to earn a livelihood for himself and his companion while carrying out their explorations.

The following papers were read—

1. *The Delhi Daláls and their Slang.*—By LIEUT. R. C. TEMPLE, B. S. C., F. R. G. S., M. R. A. S.

(Abstract.)

In this paper the author has endeavoured to elucidate the derivation of some of the slang words used by the well-known Delhi daláls and to show how far their words affect the dialects in use among Northern Indian traders. He gives an account of the daláls and their way of making a living, which is not by brokerage, but by what they can make out of the customer through the trader, and what the customer pays them for their trouble. The author mentions the different ways in which the dalál comes to a secret understanding with the trader as to the amount of commission he is to receive, and gives a list of slang words used by him with their meanings.

2. *The Rupees of the months of the Ilahi years of Akbar.*—By C. J. RODGERS.

(Abstract.)

The Persian year was instituted by Yezdegird III, eight days after the death of Muhammad. The year was divided into 365 days. There were twelve months, each of which had 30 days except the twelfth which had 35 days. The fractions of the days in 120 years made another month, so that every 120 years there were 13 months in the year. On the first such occurrence, the first month was duplicated: on the second, the second month, and so on. Malik Shah, Sultan of Khorasan, improved somewhat on this system. Making his year commence with the entrance of the Sun into Aries, he ordered that the year should receive an

additional day whenever it was required. This was mostly as with us—every fourth year. But after the day had been added seven or eight times the addition was postponed for a year. In the 30th year of Akbar, *i. e.* in 992 A. H., Hakim Faṭḥ Ullah Shírání introduced a new era and year for India. The object in view was to create a uniform year throughout the vast empire Akbar had conquered. The era began with the reign of Akbar, *i. e.*, on 19th February, 1556. The months and days were similar to those of the Persian year, but there were no intercalary days. Hence the days of this year never corresponded with the years of Malik Shah's era. This year was termed "*Ilahi*"—up to the year 992 A. H.

Akbar's coins are strictly orthodox in their inscriptions. The name and titles of the emperor occupy the obverse, the margins, containing the mint, &c., being in nearly all cases illegible. The reverse has the Kalimah, and its fragmentary margins are embellished with portions of the names of the four companions of Muhammad. From the 30th year of Akbar's reign coins with the Ilahi years on them began to be struck. On these coins, instead of the Kalimah the following sentence is given: "God is the greatest, may His brightness shine forth." The inscription is completed by the name of the mint and the year and the month in which the coin was struck. Mr. Rodgers in this paper gives descriptions of rupees of each month of the same years.

3. *Second list of Butterflies taken in Sikkim in October, 1882, with notes on habits, &c.*—By LIONEL DE NICEVILLE.

(Abstract.)

In this list 203 species of Butterflies are enumerated, most of which were met with at a low elevation. One new species is described, and a second species which had been figured under an erroneous name, is re-named. The author points out the probable locality where most of the species of Butterflies which come from Sikkim are collected, and also one of the modes the Lepchas adopt to capture these specimens.

LIBRARY.

The following additions have been made to the Library since the Meeting held in November last.

TRANSACTIONS, PROCEEDINGS AND JOURNALS,

presented by the respective Societies and Editors.

- Baltimore. Johns Hopkins University,—*American Journal of Philology*, Vol. III, No. 10.
- Berlin. K. Akademie der Wissenschaften,—*Abhandlungen*, 1880-1881.
- . K. preussische Akademie der Wissenschaften,—*Sitzungsbericht*, Nos. 18-38, April to July, 1882.
- Bombay. Indian Antiquary,—Vol. XI, Part 138, November, 1882.
- Budapest. Hungarian Academy,—*Almanach*, 1882.
- . ———. *E'rtkezések a Nyelv-es Szép Tudományok Köréből*,—Vol. IX, Parts 6-12, 1881.
- . ———. *E'rtesítője*,—Parts 1-8.
- . ———. *E'vkönyvei*,—Vol. XVI, Part 7.
- . ———. *Nyelvtudományi Közlemények*,—Vol. XVI, Parts 2-3; Vol. XVII, Part 1.
- . *Ungarische Revue*,—Parts 5-12, May to December, 1881; and Parts 1-6, January to June, 1882.
- Calcutta. Geological Survey of India,—*Records*, Vol. XV, Part 4, 1882.
- . *Meteorological Observations recorded at six stations in India*, during December, 1881.
- Cambridge. American Philological Association,—*Proceedings*, July, 1882.
- . ———. *Transactions*,—Vols. I-XII, 1869-81.
- Copenhagen. K. Nordiske Oldskrift-Selskab,—*Aarboger for Nordisk Oldkyndighed og Historie*, Part 2, 1880; Parts 1-4, 1881.
- . ———. *Tillæg til Aarboger for Nordisk Oldkyndighed og Historie*, 1879-80.
- . ———. *Mémoires*, 1880-81.
- Florence. *Archivio per l' Antropologia e la Etnologia*,—Vol. XII, Part 2.
- Halle. Kaiserliche Leopoldino-Carolinische Deutsche Akademie der Naturforscher,—*Leopoldina*, Vols. III-IV, and X-XVII.
- . ———. *Verhandlungen*, Vols. XXX-XXXVIII.
- Lahore. *Journal of the Anjuman-i-Panjab*,—Vol. II, Nos. 42, 44-48.
- Leipzig. Deutsche Morgenländische Gesellschaft,—*Zeitschrift*, Vol. XXXVI, Part 2.

- Liège. Société Géologique de Belgique,—Annales, Vol. V, 1877-78.
- London. Academy, Nos. 545-549.
- . Athenæum, Nos. 2868-2872.
- . Institution of Mechanical Engineers,—Minutes of Proceedings, Vol. LXIX, Part 3.
- . Linnean Society,—Proceedings, November, 1875 to June, 1880.
- . ———. Journal,—Botany, Vol. XIX, Nos. 114-121.
- . ———. Zoology,—Vol. XV, Nos. 86-88; and Vol. XVI, Nos. 89-94.
- . ———. Transactions,—Botany, Vol. II (2nd Ser.), Part 1.
- . ———. Zoology,—Vol. II (2nd Ser.), Parts 3-5.
- . Nature,—Vol. XXVI, Nos. 676-678; and Vol. XXVII, Nos. 679-680.
- . Royal Geographical Society,—Proceedings, Vol. IV, Nos. 9-10, September and October, 1882.
- . Royal Society,—Philosophical Transactions, Vol. CLXXII, Parts 2-3; and Vol. CLXXIII, Part 1.
- . ———. List of Fellows,—November, 1881.
- . Society of Telegraph Engineers,—Journal, Vol. XI, No. 43, September, 1882.
- . Zoological Society,—Proceedings, Part 2, 1882.
- . ———. List of Fellows,—June, 1882.
- Lyon. Société d'Agriculture, Histoire Naturelle et Arts Utiles,—Annales, Vol. III (5th Series), 1880.
- . Société d'Anthropologie,—Bulletin, Vol. I, 1881-82.
- Munich. Repertorium für Experimental-Physik,—Vol. XVIII, No. 10.
- Paris. Journal Asiatique,—Vol. XX, No. 1, July, 1882.
- . Société de Géographie,—Bulletin, Vol. III, No. 2, 1882.
- . ———. Compte Rendu des Séances,—No. 17, 20th October, 1882.
- Philadelphia. Academy of Natural Sciences,—Proceedings, Parts 1-3, January to December, 1881.
- Pisa. Società Toscana di Scienze Naturali,—Atti, Processi Verbali, 2nd July, 1882.
- Rome. Società degli Spettroscopisti Italiani,—Memorie, Vol. XI, No. 8, August, 1882.
- Roorkee. Professional Papers on Indian Engineering,—Ser. III, Vol. I, No. 1.
- Shanghai. North China Branch of the Royal Asiatic Society,—Journal, Vol. XVII, Part 1, 1882.
- St. Petersburg. L'Académie Impériale des Sciences,—Bulletin, Vol. XXVIII, No. 1.
- . ———. Mémoires,—Vol. XXX, Nos. 3 and 5.

Washington. Geological and Geographical Survey of the Territories,—
Bulletin, Vol. VI, No. 3.

—————. War Department, Signal Service,—Professional Papers,
No. 7.

MISCELLANEOUS PRESENTATIONS.

BOEHLINGK, OTTO. Sanskrit Wörterbuch in kürzerer Fassung. Vol. III,
No. 2. 4to. St. Petersburg, 1882.

THE AUTHOR.

Report on the Land Revenue Administration of the Lower Provinces for
the official year 1881-82. Fcp. Calcutta, 1882.

Annual Report on Emigration from the Port of Calcutta to British and
Foreign Colonies for 1881-82. Fcp. Calcutta, 1882.

Annual Report on Inland Emigration for the nine months ending with
1881. Fcp. Calcutta, 1882.

Report on the Administration of the Registration Department in Bengal
for the year 1881-82. Fcp. Calcutta, 1882.

Report on the Administration of the Salt Department for the year 1881-82.
Fcp. Calcutta, 1882.

Report on the Administration of the Customs Department in the Bengal
Presidency for the official year 1881-82. Fcp. Calcutta, 1882.

Indian Forester,—Vol. VIII, No. 2, October, 1882.

BENGAL GOVERNMENT.

MURRAY, JAMES A. The Plants and Drugs of Sind. 8vo. London, 1881.

The Indian Antiquary, Vol. XI, Part 138, November, 1882. 4to. Bom-
bay, 1882.

HOME DEPARTMENT.

BUDENZ, JOZSEF. Magyar-Ugor összehasonlító Szótár. Vol. V. 8vo.
Budapest, 1881.

HUNGARIAN ACADEMY.

BREIDLER, J. ; AND FOERSTER, J. B. Die Laubmoosflora von Oesterreich-
Ungarn. 8vo. Vienna, 1882.

K. K. ZOOL. BOTAN. GESELLSCHAFT, WIEN.

Archæological Survey of Southern India. No. 3. The Amarāvati Stūpa.
4to. Madras, 1882.

MADRAS GOVERNMENT.

WASHINGTON. War Department, Signal Service, International Meteorolo-
gical Observations, 1st May to 30th June, 1882.

METEOROLOGICAL REPORTER TO THE GOVERNMENT OF INDIA.

Report on the Revised Land Revenue Settlement of the Rohtak District

of the Hissar Division in the Panjab, effected by Messrs. W. E. Purser and H. C. Fanshawe, 1873-79. With maps. 8vo. and Folio. Lahore 1880.

PANJAB GOVERNMENT.

Return of Wrecks and Casualties in Indian Waters for the year 1881
Fcp. Calcutta, 1882.

PORT OFFICER, CALCUTTA.

Catalogue of the Scientific Books in the Library of the Royal Society.
Transactions—Journals—Observations and Reports—Surveys—Museums.
8vo. London, 1881.

ROYAL SOCIETY OF LONDON.

List of Foreign Correspondents of the Smithsonian Institution. Corrected
to January 1882. 8vo. Washington, 1882.

THE SMITHSONIAN INSTITUTION.

PERIODICALS PURCHASED.

Berlin. Deutsche Litteraturzeitung,—Nos. 30, 34-39, 1882.

———. Sander's Ergänzungs-Worterbuch der deutsche Sprache,—Parts
17, 18, 21, 22.

Calcutta. Indian Medical Gazette,—Vol. XVII, No. 11, November, 1882.

Geneva. Archives des Sciences Physiques et Naturelles,—Vol. VIII, Nos.
9-10.

Göttingen. Gelehrte Anzeigen,—Nos. 41-46.

Leipzig. Annalen der Physik und Chemie,—Vol. XVII, No. 3.

———. ———. Beiblätter,—Vol. VI, No. 9.

———. Hesperos,—Vol. II, Nos. 26-32.

———. Litterarisches Centralblatt,—Nos. 31, 35-40.

London. Annals and Magazine of Natural History,—Vol. X, Nos. 57-58.

———. Chemical News,—Vol. XLVI, Nos. 1194-1198.

———. Entomologist,—Vol. XV, Nos. 232-233.

———. Entomologist's Monthly Magazine,—Vol. XIX, Nos. 220-221.

———. Journal of Botany,—Vol. XI, Nos. 237-238, September and
October, 1882.

———. Journal of Science,—Vol. IV, Nos. 105-106, September and
October, 1882.

———. London, Edinburgh and Dublin Philosophical Magazine,—Vol.
XIV, Nos. 87-88, September and October, 1882.

———. Messenger of Mathematics,—Vol. XII, No. 4, August, 1882.

———. Mind,—No. 28, October, 1882.

———. Nineteenth Century,—Vol. XII, Nos. 67-68, September and
October, 1882.

- London. Numismatic Chronicle,—Vol. II (3rd Series), Part 2, 1882.
 ———. Publishers' Circular,—Vol. XLV, Nos. 1082-83.
 ———. Society of Arts,—Journal, Vol. XXX, Nos. 1560-1564.
 ———. Westminster Review,—Vol. CXVI, Nos. 119-120, July and
 October, 1881; Vol. CXVII, Nos. 121-122, January and April, 1882;
 and Vol. CXVIII, No. 123, July, 1882.
- New Haven. American Journal of Science,—Vol. XXIV, No. 141, Sep-
 tember, 1882.
- Paris. Annales de Chimie et de Physique,—Vol. XXVII, October, 1882.
 ———. Comptes Rendus,—Vol. XCV, Nos. 14-18.
 ———. Journal des Savants,—September, 1882.
 ———. Revue Critique,—Vol. XIV, Nos. 41-45.
 ———. Revue des deux mondes,—Vol. LIII, No. 4; and Vol. LIV,
 No. 1.
 ———. Revue de Linguistique,—Vol. XV, Fasc. 4.
 ———. Revue Scientifique,—Vol. XXX, Nos. 16-20.

BOOKS PURCHASED.

- GODWIN-AUSTEN, LIEUT.-COL. H. H. Land and Freshwater Mollusca of
 India. Supplementary to Messrs. Theobald and Hanley's Conchologia
 Indica, Parts I and II. 4to. London, 1882.
- GOULD, JOHN. The Birds of New Guinea, Part XIII. Fol. London,
 1882.
- MARSHALL, MAJOR G. F. L.; AND DE NICEVILLE, LIONEL. The Butter-
 flies of India, Burmah and Ceylon. Vol. I, Part 1. 8vo. Calcutta,
 1882.
- Report on the Scientific Results of the Voyage of H. M. S. "Challenger"
 during the years 1873-76. Narrative. Vol. II. 4to. London, 1882.
- SPENCER, HERBERT. Principles of Sociology. Parts IV and V. 8vo.
 London, 1879-82.
- STALLO, J. B. The Concepts and Theories of Modern Physics. 8vo. Lon-
 don, 1882.

I N D E X

TO

PROCEEDINGS, ASIATIC SOCIETY OF BENGAL,
FOR 1882.

	<i>Page</i>
<i>Achatina</i>	62
Adamson (Capt. C. H. E.), information regarding the <i>Danainæ</i> supplied by	142
Adoni pagodas	142
Afghanistan, coins from	143
Agni Purāṇa	27
Ahmad (Maulvi Kabiruddin), member of the Philological Committee	57
Akbarnāmah	27, 29
Akbar, rupees of the Ilahi years of	162
Akyab, butterflies from	142
Alekh, description of followers of	2
Alexander (J. W.), withdrawal of	2
Ali (Hon. Sayyid Amir), member of the Philological Committee	57
<i>Amorphoscelis annulicornis</i>	116
<i>Anadenus</i>	62
<i>Anchitherium</i>	115
Anderson (Dr. J.), member of the Natural History Committee	57
Andrabhṛitya dynasty, coins of	58
<i>Ancitea</i>	62
Animals, on the habits and instincts of some	106
Annual Meeting	21
„ report	21
Antlers in Ruminants, on evolution of	71
Āpastamba Śrauta Sūtra	26, 28, 30
Arab voyages to India in the Ninth Century	64, 82
<i>Arachnides</i>	59
<i>Arion</i>	61
<i>Ariophanta</i>	62
Arrow heads, stone	8
Āryabhaṭa, mathematical treatise of... ..	110
Aśadāma, coins of... ..	41

	<i>Page</i>
Asiatic <i>Clausilia</i> , on some new	92
Aśoka inscriptions	108
Āsritas	5, 6
Associate members, change in rules regarding	156
" " election of	90, 94
<i>Athoracophorus</i>	62
Atridāma, coins of	41, 114
<i>Austenia</i>	62
Awns of spear grass, torsion in the	49
Axes, stone	6
Baiswāri	95
Bakhshālī, birchbark MS. from	108
Balharā, on the Indian	82
Banerjea (Rev. K. M.), member of the Philological Committee	57
Bank-note of the Ming dynasty	77
Barclay (Dr. A.), elected an Ordinary Member	140
Barsom of Magus... ..	144
Beale's Oriental Biographical Dictionary	80
Beames (J), member of the Philological Committee	57
Bengal, letter forwarding description of followers of Alekh, from the Government of	2
Bhattacharjya (Rev. Jagadiswar), presentation of coin from Maha- nada by	108
Bhava-gupta	10
Bhojpūri	95
Bibliotheca Indica Series, report on... ..	26
" " work accepted for publication in the	94
Bidie (Dr. G.), on the Pagoda or Varāha coins of Southern India	141
Bihāri declension and conjugation	95
Bijanagar pagodas	141
Birch-bark MS.	108
Blackburn (J.), withdrawal of... ..	56
Blanford (H. F.), elected Member of Council	39
" " elected Vice-President	91
" " member of Library and Physical Science Com- mittees	57, 58
Blanford (W. T.), compounds for future subscriptions... ..	90
" " member of the Natural History Committee	58
Bomford (Dr. G.), withdrawal of	76
Bones associated with stone implements, fossil	8
Borers, flint	8

	<i>Page</i>
Bose (P. N.), on pottery found at Mahesar	105
Bracelets from near Kawat, gold	144
<i>Brachysaura ornata</i>	50
Brahmagupta, mathematical treatise of	110
Brahma Sphuṭa Siddhānta	111
Brandis (Dr. D.), member of the Natural History Committee ...	58
Bṛihaddevatā	28
Buddhism in Mongolia, on the rise and progress of	82, 92
" in Thibet, rise and progress of	50
Buddhist coins	112, 141
" Nepalese MSS. presented by Mr. B. H. Hodgson, cata- logue of, by Dr. Mitra	140
" sculptures	95
Building, report on	25
<i>Bulimulus</i>	62
<i>Bulinus</i>	62
Butterflies of India, notes on the	142
" by Lepchas, mode of capture of	163
" taken in Sikkim	163
<i>Cæliaxis</i>	62
<i>Caldwellia (philyrina)</i>	62
Camel, Nematoid hæmatozoon discovered in a ..	63
Cappel (A. J. L.), member of the Physical Science Committee ...	58
Cash, Chinese	141
Catalogue of the Library, report regarding	25
Celts	6, 95
<i>Cervinæ</i>	71
<i>Cervulus</i>	71
Chalmers (J. B.), elected an Ordinary Member	90
Chalukya coins	141
Chambers (Dr. E. W.), withdrawal of	76
Chandra Gupta II, coin of	91
Changes in the Rules	156
Charaka	29
Chaturvarga Chintamani	28, 29
Chhindwara, coins from... ..	114
Chinese bank-note	77
" coin	113
Chisels, flint	8
Chitaldroog pagoda	141-2
<i>Chæradodis brunneri</i>	116

	<i>Page</i>
<i>Circætus gallicus</i>	106
<i>Clausilia</i>	62
" <i>andersoniana</i>	92
" (<i>cylindrophaedusa</i>) <i>micropeas</i>	92
" <i>gracilispira</i>	92
" (<i>Hemiphaedusa</i>) <i>subulina</i>	92
" <i>insignis</i>	92
" from the Nicobars, on a new species of	82
<i>Clausiliæ</i> , Japanese	14
" on some new Asiatic	92
<i>Coassus rufus</i>	71
<i>Cochlostyla</i>	62
Cockburn (J.), exhibition of a Panchamukha Lingam	47
" on an abnormality in the horns of the Hog-deer	71
" on Buddhist sculptures	95
" on polydactylism in a horse	115
" on pottery found at Mahesar	105
" on the habits and instincts of some animals	106
" on the habits of a little known lizard, <i>Brachysaura</i> <i>ornata</i>	50
" on torsion in the awns of spear grass	49
" silver coins from near Kilwee, forwarded by	47
" stone implements found by	6, 8
Coin Cabinet, report on	25
Coins, 41, 46, 47, 56, 58, 91, 104, 107, 111, 114, 138, 141, 143, 144, 162	
Committees, election of Honorary and Associate Members as mem- bers of	156
Copper-plate grant from Cuttack	9
Colvile (Sir J. W.), death of, announced	22
Council, abstract of proceedings of, during 1881	32
" election of	39
" report of... ..	21
<i>Craspedophora</i>	61
Crayfish, green gland of the	60
Croft (A. W.), elected member of Council	91
" member of the Library Committee	57
Crooke (W. M.), withdrawal of	140
Crux ansata	49
<i>Cryptosoma</i>	61
Cunningham (Major-Gen. A.), member of the Philological and Coins Committees	57, 58

	<i>Page</i>
Cunningham (Major-Gen. A.) on a coin from Mahanada	104
" " on a gold coin from Shaurpur	113
" " on relics from Ancient Persia	144
Cunningham (Dr. D. D.), member of the Library and Natural History Committees	57
Cuttack, copper-plate grant from	9
Dalals and their slang, notes on the Delhi... ..	162
Dalton (Major Gen. E. T.), death of	22
Dâma Jâta Sri, coin of	114
<i>Danainæ</i>	142
<i>Danais aglæa</i>	142
" <i>chrysippus</i>	142
" <i>gautama</i>	142
" <i>genutia</i>	142
" <i>hegesippus</i>	142
" <i>melaneus</i>	142
" <i>tytia</i>	142
" <i>septentrionis</i>	142
Das (Mukund), founder of sect of Hindu dissenters	2
Das (Sarat Chunder), on the life and legend of Tson Khapa	82
" " on the lives of the Tasi Lamas	50
" " on the rise and progress of Buddhism in Mongolia	82, 92
" " on the rise and progress of Buddhism in Thibet	50
<i>Daudebardia</i>	62
Delhi Dalals and their slang, notes on	162
<i>Dendrolimax</i>	61
Dhenkanal, report on the followers of Alekh by the Manager of	4
Dhula Bâbâjî	8
<i>Didymocorypha ensifera</i>	116
Dînâra	111
Diurnal <i>Lepidoptera</i> from Nicobars	92
Donaldson (P.), withdrawal of	94
Douie (J. M.), elected an Ordinary Member	56
Dramma	111
<i>Durgella</i>	62
<i>Dysaules longicollis</i>	116
East India Company's pagodas	142
Eden (Sir Ashley), re-elected President	39
" remarks by, on resigning the office of President	82

	<i>Page</i>
<i>Elaphinae</i>	71
Elections	2, 40, 56, 76, 90, 94, 104, 107, 140, 156
Elephant Lords, coins of the	141
Elias (Ney), withdrawal of	156
Eliot (J.), appointed Scrutineer	21
" re-elected Treasurer	89
<i>Elma</i>	62
<i>Ennea</i>	62
<i>Episcopus chalybeus</i>	116
<i>Eremophila arabica</i>	116
Estimate of income and expenditure	24
Ethnology of the Panjab, information wanted regarding	157
<i>Eucomena thoracica</i>	116
<i>Euplecta</i>	62
<i>Euplœa adamsoni</i>	143
" <i>bremeri</i>	143
" <i>core</i>	143
" <i>godartii</i>	143
" <i>klugii</i>	143
" <i>leucogonys</i>	143
" <i>margarita</i>	142
" <i>subdita</i>	143
" <i>vestigata</i>	143
<i>Eurypus</i>	62
Evans (Dr. Griffith), discovery of a Nematoid Hæmatozoon in a camel by	63
Expenditure, estimate of	24
Fanams	141
Fedden (F.), member of the Physical Science Committee	58
Feistmantel (Dr. O.), member of the Library and Natural History Committees... ..	57
Fendall (C. E.), on preparation of paper by Thibetans	94
<i>Ferussacia</i>	62
<i>Filaria evansi</i>	63
" <i>sanguinis-hominis</i>	63
Finance, report on	23
Fleur de lys	49
Flint flakes	7
" implements of types hitherto found only in Egypt and Greek Archipelago, discovery in India of	8
Folk-songs from the Panjab	94

	<i>Page</i>
Folk-tales from the Upper Panjab	106
"Foot" in certain Gasteropoda, on the structure of the ..	60
Fossil bones, associated with stone implements	
Fryer (Lt.-Col. G. E.), on the Páli grammarian Kachcháyana ...	118
" " further note on Kachcháyana	126
Fusssaum	60
Gajapati dynasty, coins of the	141
Gandikota pagoda	141
Gardner (D. M.), withdrawal of	2
Gasteropoda, on the structure of the "Foot" in certain	60
<i>Gastrodonta</i>	62
Gáthá dialect, MS. in the	110
<i>Geomalacus</i>	61
Ghoshá (Jnanendra Chunder), withdrawal of	90
Ghoshá (Pratapa Chandra), member of the Library and Philological Committees	57
<i>Gibbus</i>	62
Gibbs (Hon. J.), elected Vice-President	39
" exhibition of a gold Ramtinki	47
" member of the Philological and Coins Committees 57, 58	
" note on coins of the Andhrabritya Dynasty	58
" remarks on coins of the Shah kings	46
Giles (Herbert), proposed as an Associate member	90
" " elected an Associate member	94
<i>Girasia</i>	62
Girnar record	44
<i>Glandina</i>	62
<i>Glessula</i>	62
<i>Gonypeta anthæmon</i>	116
Gotami puta I, coins of	59
" II, coins of	59
Grierson (G. A.), member of the Philological Committee	57
" on Bihári declension and conjugation	95
Growse (F. S.), member of the Philological Committee	57
Gupta coins	91, 104, 112
" inscriptions	108
Guzarat, coins from	41
<i>Hadra</i>	62
Hæmatozoon discovered in a camel	63
<i>Heliotis</i>	61
Hammer, stone	7, 8

	<i>Page</i>
<i>Helicarion</i> ...	62
<i>Helicidæ</i> ...	62
<i>Helix</i> ...	62
Hennessey (Sir Pope), exhibition of a rare Chinese Bank-note by...	77
<i>Herpestes auropunctatus</i> ...	106
<i>Hestia cadelli</i> ...	142
" <i>agamarschana</i> ...	142
<i>Hierodula (Sphodromantis) arabica</i> ...	116
" (<i>Rhombodera atricoxis</i> , var. <i>grandis</i> ...	116
" " <i>basalis</i> ...	116
" (<i>Sphodromantis bicarinata</i> ...	116
" (<i>Rhombodera flava</i> ...	116
" (<i>Sphodromantis muta</i> ...	116
" " <i>quinquedens</i> ...	116
" <i>sternosticta</i> ...	110
Hindu dissenters, sect of ...	2
" folk-songs ...	94
" punch-marked coins ...	112
<i>Hipparion</i> ...	115
Hoernle (Dr. A. F. R.), exhibition of birch bark MS. from Bakhshālī	108
" " on coins found at Toomluk ...	111
" " on silver coins from Chhindwara ...	114
" " re-elected Philological Secretary ...	89
" " remarks on coin from Mahanada ...	105
" " remarks on Col. Fryer's paper on Kachcháyana	125
" " exhibition of 3 Gupta coins found near	
Mahanada ...	91
Hodgson (B. H.), Nepalese Buddhist Sanskrit MSS. presented by	140
Hog-deer, on an abnormality in the horns of the ...	71
Holroyd (Major W. R. M.), withdrawal of ...	56
Honorary Member list, vacancies in the ...	22
" Members, change in rules regarding ...	156
" Members elected in 1881 ...	22
Hume (A. O.), member of the Natural History Committee ...	57
Hungerford (R.), collection of <i>Clausilia</i> , made by ...	14
Hussain Khan Bahadur (Nawab Alijah Amir-ul-Mulk Syud Ma-	
homed Siddeek), elected an Ordinary Member ...	90
Hussain Khan Bahadur (Syed Amir), elected an Ordinary Member	56
<i>Hyalimæ</i> ...	62
<i>Hyalina</i> ...	62
<i>Hyelaphus porcinus</i> , Zim. ...	71

	<i>Page</i>
Ibbetson (D.), information regarding Ethnology of the Panjab wanted by	157
Ilahi years of Akbar, rupees of the	162
Income, estimate of	24
Indian Museum, report regarding	22
Indo-Scythian coins	91, 113
Institutions with which exchanges of publications have been made in 1881	30
<i>Iris orientalis</i>	116
Işábah	27, 29
Islam (Moulvie Serajul), elected an Ordinary Member	107
I'svaradatta, coins of	41
Jacobi (Prof. Hermann), edition of <i>Parīṣiṣṭaparvan</i> by	94
<i>Janella</i>	62
Japanese <i>Clausilia</i>	14
Jarrett (Major H. S.), member of the Philological Committee	57
Jinadámá	41
Johnstone (Capt. W. H.), death of... ..	22
Júnagaṛh inscription of Rudradáma	42
Kachcháyana	116
Kampti country, notes on the Singpho and	64
Kanalraka, coin of Yattamada	143
Kanauj coins	47
Kanerki, coin of	113
Kantichandra Singh (Kumar), death of	22
Kashmir, trade dialects in	127
Katantra	28
Kathá Sarit Ságara	27, 29
Kawat, relics from near	144
Keene (H. G.), withdrawal of	2
Kennedy (P.), elected an Ordinary Member	56
King (Dr. G.), member of the Natural History Committee	57
Kirwee, silver coins from near	47
Kishore Singh Bahadur (Maharaja Kumar Harendra), elected an Ordinary Member	94
Knight (Hon. J. B.), withdrawal of	56
Knives, flint	8
Konapatiás	5, 6
Kshira-nira-páyi	3
Kuád, relics from near	144
Kumara Gupta, coins of	91, 112

	<i>Page</i>
Kumbhipatiás	5, 6
Kunduz, relics from near	144
Lalita Vistara	26, 27, 28, 30
Lamas, the lives of the Taśi	50
Lámiyet-el-Arab	29
Latif (Nawab Abdul), elected member of Council	39
" member of the Philological Committee	57
Lawrence (Walter), elected an Ordinary Member	156
Lea (Prof. Isaac), death of, announced	22
Lepchas, mode of capture of butterflies by	63
Lepidoptera (Rhopaloceros) from the Indian Region	14
" from the Nicobars, diurnal	92
Lepper (Chas. H.), on the Singpho and Kampti country	64
Lewis (Dr. T. R.), member of the Natural History Committee	53
" on a Nematoid Hæmatozoon discovered in a camel	63
Library List	15, 51, 72, 83, 96, 128, 145, 164
" report on	25
<i>Limax</i>	62
Lingam	47
Lingayat pagoda	141
<i>Lipocraspeda</i>	61, 62
<i>Lithotis</i>	62
Lizard, the habits of a little known	50
Locke (H. H.), withdrawal of	40
Logan (R.), member of the Finance Committee	56
Lolo Manuscript presented, copy of a	93
London Agency, report on	24
Lyll (C. J.), member of the Philological Committee	57
Lydekker (R.), member of the Natural History Committee	58
M'Cann (Dr. H. W.), re-elected General Secretary	39
Macdonald (Rev. K. S.), Gupta coins received from	91
<i>Macroceramus</i>	62
<i>Macroceras</i>	61
<i>Macrochlamys</i>	61
Maduri puta I, coins of	59
Mágadhí	95
Magrath (C.), death of	22
"Magus" in gold, finding of a figure of a	141
Mahádeva gupta	10
Mahanada, coin from	104, 108
Mahárņava MS.	108

	<i>Page</i>
Mahesar, pottery from	105
Mahimá Gosain	8
Maithilí	95
Maliah (Ramesvar), withdrawal of	2
Malik Shah, chronology introduced by	162
Manchu Tartars, coin of	113
Mandelli (L.), death of	22
Manpur Pergunnah, silver coin found in the	141
<i>Mantis callifera</i>	116
<i>Mantodea</i>	116
Manuscript from Bakhsháli, birch-bark	108
Manuscripts presented by Mr. B. H. Hodgson, Catalogue of	140
Marshall (G. F. L.), member of the Natural History Committee	58
" on Rhopalocerous Lepidoptera from the Indian Region	14
" on the Butterflies of India	142
<i>Martensia</i>	62
Medlicott (H. B.), member of the Finance, Library, Natural His- tory and Physical Science Committees	56, 58
" re-elected Member of Council... ..	89
Members, statistics regarding, in Annual Report	21
<i>Meohippus</i>	115
Merk (W. R. H.), elected an Ordinary Member	156
<i>Mesopteryx alata</i>	116
" <i>platycephala</i>	116
<i>Microcystis</i>	61
Mímánsá Daršana	27
Ming dynasty, a banknote of the	77
Mint, specimen coins struck from the old dies in the Calcutta	139
Mithridates I, hoard of coins supposed to have been made before time of	144
Mitra (Dr. Rajendralala), announcement of completion of a Cata- logue of Nepalese MSS., presented by Mr. Hodgson, by	140
" exhibition of coins of Shah Kings of Sau- rashtra	41
" exhibition of silver coins found near Kirwee	47
" member of the Finance, Library, Philologi- cal and Coins Committees	56, 58
" on a copper-plate grant from Cuttack	9
" on clay seals from Sunet	114
" on terracotta figures from Tumlook	114

	<i>Page</i>
Mitra (Dr. Rajendralala), re-elected Vice-President	39
Möllendorff (O. F. von), on a collection of Japanese <i>Clausilia</i> ...	14
" on a new species of <i>Clausilia</i> from the Nicobars	82
" on new Asiatic <i>Clausilia</i>	92
Mogallána	117
Mongolia, on the Rise and Progress of Buddhism in	82, 92
Monthly General Meetings 1, 40, 55, 75, 89, 93, 103, 107, 137, 155	
Montreal, invitation to a Scientific Congress held at	40
Moscow Société Impériale des Naturalistes, invitation to a Con- gress from the	41
Mukerji (Girijabhushan), elected an Ordinary Member	2
Munro (Col. W. F.), death of, announced... ..	22
Muntakhab-ul-Tawarikh	29
Mysore pagodas	142
<i>Nanina</i>	61
Naqqád of el Ferazdaq and Jerir	29
Naqqásh, trade dialects of	127
Narain Singh (Raja Ram), elected an Ordinary Member	107
Nash (A. M.), member of the Philological Committee	57
Nematoid Hæmatozoon discovered in a camel	63
Nepal, coins of the mintage of	41
Nepalese MSS. presented by Mr. B. H. Hodgson, Catalogue of ...	140
Nicéville (L. de), on butterflies taken in Sikkim	163
" and Wood-Mason (J.), List of diurnal <i>Lepidoptera</i> from the Nicobars by	92
Nicobars, diurnal <i>Lepidoptera</i> from... ..	92
" a new species of <i>Clausilia</i> from the	82
Nirukta	28, 29
Noe (Count de), death of, announced	22
Nonambavadi coins	141
<i>Odontoprion (Succineus)</i>	62
Officers, election of	39
O'Kinealy (Hon. J.), member of the Philological Committee	57
Oldham (R. D.), member of the Natural History Committee	58
<i>Oleacina</i>	62
<i>Omalonyx</i>	62
<i>Oopelta</i>	62
Oriental Biographical Dictionary	30
<i>Orohippus</i>	115
<i>Orthalicus</i>	62

	<i>Page</i>
Oxus, relics from banks of the	144
Pagoda coins of Southern India	141
Panchamukha Lingam	47
Pandit (Prannath), member of the Library and Philological Committees	57
Panjab, folk-tales from the Upper	106
" Hindu folk-songs from	94
" information wanted regarding ethnology of the	157
" trade-dialects in the	127
Paper by Thibetans, preparation of	94
Papier-maché, trade dialects of painters on	127
Parásara Mádhava Smṛiti	29
Pariṣhtaparvan accepted for publication in Bibliotheca Indica	94
<i>Parmacella</i>	62
<i>Parmarion</i>	62
Pátanjala Yoga Sútra	26, 27, 28, 30
Peal (S. E.), member of the Natural History Committee	58
Pedler (A.), acts as Treasurer	2
" elected a member of the Council	56
" member of the Finance and Physical Science Committees	58
<i>Pellicula</i>	62
<i>Peripatus</i> , segmental organs of	60
Peripodium	61
Persia, relics from Ancient	144
Pestle, stone	8
Peterson (F. W.), appointed auditor of the Society's accounts for 1881	58
" vote of thanks passed to	77
Phaláhári Bábáji	3
Phallus	47
Phillippart (Sir John), death of, announced	22
<i>Philomycus</i>	62
Planes, stone	8
<i>Plectopylis (plectostoma)</i>	62
Ploughshare, stone	8
Polydactylism in a horse	115
<i>Polyspilota insignis</i>	116
Pottery from Mahesar	105
Prákṛita Lakshana	28

	<i>Page</i>
Presentations 1, 40, 55, 75, 89, 93, 103, 107, 137, 155	
Prideaux (Major W. F.), member of the Coins Committee ...	58
Prithiráj Rásau	28
Publications in 1881, Societies, &c., with which there has been an exchange of	30
„ report on	25
<i>Pulmonata</i>	61
Punched coins	112
Pupa	62
Rájendra-vikrama Sháh, coin of	41
Ramchundri mohur	112
Ramtinki, a gold	47
Rasps, flint	8
Raverty (Major H. G.), Memoir of the author of the <i>Ṭabaqát-i-Násirí</i> , by	14
Relics from Ancient Persia	144
Renard (Charles), Congress held in honour of	41
Report of Council	21
Reynolds (Hon. H. J.), elected President	90
„ re-elected Vice-President	89
„ reply to Sir Ashley Eden's remarks on re-signing the office of President ...	83
Rhopalocerous Lepidoptera	14
<i>Rhysota</i>	61
Ring-stones	7, 8
Rivett-Carnac (H.), coins sent by	41
„ member of Philological and Coins Committees... ..	57, 58
„ on a collection of stone implements	6, 8
Rodgers (C. J.), on coins supplementary to “The Chronicles of the Pathán Sultáns of Dehli,”	143
„ on rupees of the Ilahi years of Akbar	162
Roepstorff (F. A. de), proposed as an Associate Member	90
„ „ elected an Associate Member	94
Rose (E.), coins received from	47
Ross (Major W. G.), withdrawal of	2
<i>Rotula</i>	62
Rudradáma, Júnagar inscription of... ..	42
Rudra Sháh, coins of	41
Rudrasena, coins of	114
Rudra Siñha, coins of	41
Rules, changes in the	156

	<i>Page</i>
Ruminants, on the evolution of antlers in	71
<i>Rusina</i>	71
Sáh Kings, religion of	42
Sangharakkhita Thera	117
Sáha coins	114
Sanpo river, information regarding the	161
Sáradá characters, MS. in	108
Sarwar (Mouvie Golam), elected an Ordinary Member	90
Satrap coins	114
Sawyer (Capt. H. A.), withdrawal of	40
Schwendler memorial, subscription of Rs. 50 to	77
Scorpion spiders, scent-glands of the	59
Scully (Dr. J.), appointed Natural History Secretary	156
" elected member of the Natural History Committee	141
Seal from near Kawat, a gold	144
Seals from Sunet, clay	114
Secretary's office, report on	26
Senart (E'), elected an Ordinary Member	94
<i>Sesara</i>	62
Shah Kings of Suráshtra, coins of	41, 114
Shaurpur, gold coin from	111
Shirazi, Chronology introduced by Hakim Fath Ullah	163
Sikkim, butterflies taken in	163
<i>Simulopsis</i>	62
Singpho and Kampti country, notes on	64
Sircar (Dr. Mohendralala), member of the Library and Philological Committees	57
<i>Sitala</i>	61
Siva gupta	10
Shyamaldaas (Kabiraj), elected an Ordinary Member	90
Skanda Gupta, coin of	91
Societies with which exchanges of publications have been made during 1881	30
Souttar (W. M.), death of	22
Spear grass, torsion in the awns of	49
Spens (Rev. A. N. W.), withdrawal of	140
<i>Spilornis Cheela</i>	106
Spirit-levelling operations, error in	78
Stewart (H. E. Sir D. M.), elected an Ordinary Member	90
Stokes (Hon. Whitley), withdrawal of	65
Stone implements, exhibition of	6

	<i>Page</i>
Stone implements, associated with fossil bones	8
<i>Strebelia</i>	62
<i>Streptaxis</i>	62
<i>Streptostele</i>	62
<i>Stylommatophora</i>	61
<i>Succinea</i>	62
Sunet, clay seals from	114
Suráshtra, coins of Shah kings of	41, 114
Surendravikrama Sháh, coins of	41
Súsruta	29
Swinhoe (W.), member of the Philological Committee	57
Swynnerton (Rev. Chas.), on Folktales from the Upper Panjab	106
Tabaqát-i-Násirí	14, 29
Taimur, damri of	143
Taittiríya Samhitá	26, 27, 29
<i>Tarachodes dissimulator</i>	116
„ <i>insidiator</i>	116
Tarikh-ul-Khulfa	26, 27, 29
Tasi Lamas, the lives of the	50
Taylor (Com. A. D.), member of the Physical Science Committee	58
Temple (Lieut. R. C.), on Delhi dalals and their slang	162
„ on Hindu folk-songs from the Panjab	94
„ on the trade-dialects of the Naqqásh in the Panjab and Kashmir	127
Tennant (Col. J. F.), member of the Library, Physical Science and Coins Committees	57, 58
<i>Tennentia</i>	62
Terra-cotta figures	111, 114
<i>Testacella</i>	62
<i>Testacellidæ</i>	62
<i>Thalassia</i>	62
<i>Thelyphonus</i>	59
Thibaut (Dr. G.), member of the Philological Committee	57
Thomas (E.), on Arab Voyages to India in the Ninth Century	64
„ on the Indian Balhará	82
Thibetans, preparation of paper by	94
Tibet, return of a party of explorers from	159
„ rise and progress of Buddhism in	50
Tidal observations of the Indian Survey Dept., on the spirit-levelling operations executed in connection with	78

	<i>Page</i>
Toomluk, coins and terra-cotta figures from	111
Torsion in the awns of spear grass	49
Travancore pagoda	142
Treasure Trove Act, coin acquired under	114
<i>Triboniophorus</i>	62
<i>Trochomorpha</i>	62
Tson Khapa, on the life and legend of	82
Uchab, phallus from	48
<i>Vaginulidæ</i>	62
<i>Vaginulus</i>	62
Varáha coins	47, 141
Vasitho puta I, coins of	59
Váyu Puráṇa	27, 29
<i>Ventridens</i>	61
<i>Veronicella</i>	62
<i>Videna</i>	62
Vijayanagar pagodas	141
Vijaya Sáh, coins of	41, 114
Vinaigriers	59
Vishṇu Smṛiti	26, 28, 30
Viśva Sáh, coin of ... ..	...41, 114
Viśva Siṅha, coins of	41
<i>Vitrina</i>	62
<i>Vitrinoconus</i>	62
<i>Vitrinopsis</i>	62
Waldie (D.), appointed Scrutineer	21
„ member of the Library and Physical Science Com- mittees	57, 58
„ re-elected member of Council	39
Walker (Lieut.-Gen. J. T.), member of the Physical Science Com- mittee	58
„ on the return of a party of explorers from Tibet	159
„ on the spirit-levelling operations exe- cuted in connection with the tidal observations of the Indian Survey Dept.	78
„ remarks on Mr. Lepper's notes on the Singpho and Kampti country	70
Waterhouse (Major J.), elected auditor	40
„ elected member of Council	39

	<i>Page</i>
Waterhouse (Major J.), member of the Library and Physical Science Committees	57, 58
Westland (J.), elected auditor	40
" member of the Finance Committee	57
" re-elected member of Council	39
" vote of thanks passed to	77
Wheeler (P. C.), to pay subscriptions, refusal of	156
Wilson (R. H.), coins forwarded by	111
Winterscale (J.), copper-plate grant found at Cuttack by	9
Wood-Mason (J.), on leaving India, vote of thanks passed to	141
" on new and little-known <i>Mantodea</i>	116
" on polydactylism in a horse	115
" on the anatomy of the scorpion spiders (<i>thely-</i> <i>phonus</i>). Part I. The scent-glands	59
" on the structure of the "foot" in certain terres- trial <i>gasteropoda</i>	60
" re-elected Natural History Secretary	39
" and Nicéville (L. de), on diurnal <i>Lepidoptera</i> from the Nicobars	92
Worms, segmental organs of	60
<i>Xesta</i>	61
Yattamada Kanarlaka, coin of	143
Yezdegird III, chronology introduced by	162
Yoga Sútra of Patanjali	26, 27, 28, 30
Yusuf (Hon. Maulvi Muhammad), elected an Ordinary Member	107
Zua	62

[APPENDIX.]

LIST OF MEMBERS
OF THE
ASIATIC SOCIETY OF BENGAL.

ON THE 31ST DECEMBER, 1881.

LIST OF ORDINARY MEMBERS.

~~~~~  
**R. = Resident. N. R. = Non-Resident. N. S. = Non-Subscribing.**  
**L. M. = Life Members. F. M. = Foreign Members.**  
 ~~~~~

N. B.—Members who have changed their residence since this list was drawn up are requested to give intimation of such a change to the *Secretaries*, in order that the necessary alteration may be made in the subsequent edition. Errors or omissions in the following list should also be communicated to the *Secretaries*.

Members who are about to leave India and do not intend to return are particularly requested to notify to the *Secretaries* whether it is their desire to continue members of the Society; otherwise, in accordance with Rule 40 of the Bye-laws, their names will be removed from the list at the expiration of three years from the time of their leaving India.

Date of Election.		
1860 Dec. 5.	R.	Abdul-Latif, Khán Bahádúr, Nawab. <i>Calcutta.</i>
1868 Sept. 2.	N.S.	Adam, R. M., Depy. Commissioner, Salt Revenue. <i>Europe.</i>
1880 Dec. 1.	N.R.	Ahmad, Maulawi Dilawar Hasein. <i>Brahmanbariah.</i>
1860 July 4.	N.R.	Ahmad Khán Bahádúr, Sayyid, c. s. I. <i>Aligarh.</i>
1872 April 3.	N.R.	Ahsan-ullah, Nawáb. <i>Dacca.</i>
1860 April 4.	N.S.	Aitchison, J. E. T., M. D., Surgeon-Major, 29th N. I. <i>Europe.</i>
1871 June 7.	N.R.	Alexander, J. W., Principal, Residency College. <i>Indore.</i>
1878 Mar. 6.	N.S.	Allen, G. W., c. I. E. <i>Europe.</i>
1874 June 3.	R.	Amír Alí, Sayyid, Barrister at Law. <i>Calcutta.</i>
1865 Jan. 11.	R.	Anderson, John, M. D., F. R. S., F. L. S., Superintendent, Indian Museum. <i>Calcutta.</i>
1875 Feb. 3.	N.R.	Armstrong, J., Surgeon, Beng. Army. Marine Survey Department.
1871 Sept. 6.	N.R.	Atkinson, Edwin Felix Thomas, B. A., C. S., Acct. General. <i>Bombay.</i>
1869 Feb. 3.	N.R.	Attar Singh Bahádúr, Sirdár, C. I. E., M. U. F., Chief of Bhadour. <i>Ludiana.</i>
1870 Feb. 2.	N.R.	Baden-Powell, Baden Henry, c. s., Conservator of Forests. <i>Lahore.</i>
1873 Aug. 6.	N.R.	Badgley, Major William Francis, s. c., Offg. Deputy Superintendent of Surveys. <i>Shillong.</i>
1862 Feb. 5.	N.R.	Baisák, Gaurdás, Depy. Magistrate. <i>Maldah.</i>
1859 Aug. 3.	R.	Balaichand Siñha. <i>Calcutta.</i>
1865 Nov. 7.	N.S.	Ball, Valentine, M. A., F. G. S., Trinity College. <i>Dublin.</i>

Date of Election.		
1881 Sept. 22.	N.R.	Bandow, Chr. J. <i>Henzada.</i>
1860 Nov. 1.	R.	Banerjea, Rev. Kristo Mohun, LL. D. <i>Calcutta.</i>
1869 Dec. 1.	L.M.	Barker, R. A., M. D., Civil Surgeon. <i>Bogra.</i>
1879 Aug. 28.	N.R.	Barkley, D. G., M. A., C. S., Offg. Commissioner. <i>Lahore.</i>
1881 Aug. 3.	N.R.	Barstow, Henry Clements, C. S., Magistrate and Collector. <i>Cawnpore.</i>
1860 July 4.	N.S.	Batten, George Henry Maxwell, C. S., Barrister at Law. <i>Europe.</i>
1859 May 4.	L.M.	Bayley, The Hon. Sir Edward Clive, B. C. S., K. C. S. I., C. I. E. <i>Europe.</i>
1878 June 5.	R.	Bayley, C. S., C. S., Offg. Under-Secretary to the Govt. of Bengal. <i>Calcutta.</i>
1873 Feb. 5.	R.	Bayne, R. R., M. E. I. B. A., Draughtsman, Chief Engineer's Office, E. I. Railway. <i>Calcutta.</i>
1864 Sept. 7.	N.R.	Beames, John, B. C. S., Offg. Commissioner, Burdwan Division. <i>Chinsurah.</i>
1878 Sept. 25.	R.	Beighton, T. D., C. S., Offg. Judge. <i>Howrah.</i>
1881 Mar. 2.	N.R.	Benett, W. C. <i>Cawnpore.</i>
1862 Oct. 8.	N.R.	Bernard, Charles Edward, C. S., Offg. Chief Commissioner. <i>British Burmah.</i>
1872 Aug. 7.	R.	Beverley, Henry, M. A., C. S., District and Sessions Judge, 24-Pergunnahs and Hugli. <i>Calcutta.</i>
1876 Nov. 15.	N.R.	Beveridge, Henry, C. S., District and Sessions Judge. <i>Bankipur.</i>
1878 Oct. 4.	R.	Bhakta, Krishna Gopal. <i>Calcutta.</i>
1879 Mar. 5.	N.S.	Biddulph, Major J., B. S. C. <i>Europe.</i>
1875 July 7.	N.R.	Black, F. C., Asst. Engineer. <i>Hamirpur, N. W. P.</i>
1873 Dec. 3.	R.	Blackburn, J., M. I. C. E., Manager, Oriental Gas Company. <i>Calcutta.</i>
1857 Mar. 4.	L.M.	Blanford, H. F., A. B. S. M., F. R. S., F. G. S., Meteorological Reporter, Govt. of India. <i>Calcutta.</i>
1859 Aug. 3.	N.R.	Blanford, W. T., A. B. S. M., F. R. S., F. G. S., F. R. G. S., F. Z. S., Depy. Supdt., Geological Survey of India.
1873 April 2.	N.R.	Blissett, T., Superintendent, Telegraph Stores. <i>Kurrachee.</i>
1879 Aug. 28.	R.	Blyth, W. D., B. A., C. S., Under-Secretary to the Govt. of Bengal. <i>Calcutta.</i>
1881 Feb. 2.	R.	Bomford, Dr. G., Garrison Surgeon, Fort William. <i>Calcutta.</i>
1880 Nov. 3.	N.R.	Bose, Pramatha Nath, B. Sc., F. G. S., Geological Survey of India.
1877 May 2.	R.	Bourdillon, James Austin, C. S., Inspector-General of Registration. <i>Calcutta.</i>
1876 Nov. 15.	N.R.	Bowie, Major M. M., Depy. Commissioner. <i>Nagpur.</i>
1868 Jan. 15.	N.S.	Boxwell, John, C. S., Offg. Deputy Commissioner. <i>Europe.</i>

Date of Election.			
1876	May 4.	N.S.	Bradshaw, Surgeon-Major A. F., Surgeon to the Commander-in-Chief. <i>Europe.</i>
1860	Mar. 7.	R.	Brandis, Dietrich, PH. D., F. L. S., F. R. S., Inspector-General of Forests. <i>Calcutta.</i>
1879	Jan. 8.	N.S.	Browne, J. F., C. S., M. B. A. S., Offg. District and Sessions Judge, 24-Pergunnahs. <i>Europe.</i>
1879	April 2.	R.	Calcutta, The Rt. Rev. the Lord Bishop of. <i>Calcutta.</i>
1869	Jan. 20.	N.R.	Cadell, Alan, B. A., C. S., Magistrate. <i>Mirzapur.</i>
1873	Mar. 5.	N.S.	Cappel, A. J. L., Offg. Director General of Telegraphs. <i>Europe.</i>
1880	Mar. 3.	N.R.	Carlleyle, A. C., Archæological Survey of India. <i>Mirzapur.</i>
1881	Feb. 2.	N.R.	Carter, Philip John, Depy. Conservator of Forests. <i>Rangoon.</i>
1876	Nov. 15.	R.	Cayley, Surgeon-Major H., Surgeon, Mayo Native Hospital. <i>Calcutta.</i>
1875	April 4.	R.	Chambers, Dr. E. W. <i>Calcutta.</i>
1881	Mar. 2.	N.R.	Channing, Francis Chorley, B. C. S. <i>Lahore.</i>
1879	Nov. 5.	N.S.	Charles, T. E., M. D., F. R. C. P. <i>Europe.</i>
1881	Mar. 2.	N.R.	Chatterji, Bhairab Chunder. <i>Jessore.</i>
1880	May 5.	N.R.	Chatterji, Tara Prasada. <i>Satkhira.</i>
1880	Jan. 7.	R.	Chaudhuri, Govinda Kumara. <i>Calcutta.</i>
1861	Mar. 1.	N.R.	Chaudhuri, Harachandra, Zamindar. <i>Sherpur, Maimansingh.</i>
1880	Nov. 3.	N.R.	Chaudhuri, Khirode Chandra Roy, Head Master, Collegiate School. <i>Krishnagar.</i>
1874	Aug. 5.	N.R.	Chennell, A. W., Asst. Surveyor, Survey Department. <i>Shillong.</i>
1881	Mar. 2.	R.	Chunder, Sreenath. <i>Calcutta.</i>
1877	Aug. 30.	N.S.	Clarke, Capt. Henry Wilberforce, B. E., Depy. Consulting Engr. for Guaranteed Railways, Govt. of India. <i>Europe.</i>
1878	Feb. 6.	N.S.	Clarke, Colonel Sir A., B. E., K. C. M. G., C. B., C. I. E. <i>Europe.</i>
1880	Aug 26.	F.M.	Clerk, Lieut.-Colonel Malcolm G. <i>Europe.</i>
1881	May 4.	R.	Cockburn, John, Indian Museum. <i>Calcutta.</i>
1874	Nov. 4.	N.R.	Constable, Archibald, Resident Engineer and Personal Asst. to Chief Engineer, Oudh and Rohilkund Railway. <i>Lucknow.</i>
1881	Mar. 2.	N.R.	Cook, Capt. L. A. C. <i>Jamrud.</i>
1876	Mar. 1.	F.M.	Crawford, James, B. A., C. S., Barrister at Law, Registrar, High Court. <i>Europe.</i>
1877	June 6.	R.	Croft, A. W., M. A., Director of Public Instruction. <i>Calcutta.</i>
1874	Mar. 4.	N.R.	Crombie, Alexander, M. D., Civil Surgeon. <i>Simla.</i>
1877	Feb. 7.	N.R.	Crooke, William, C. S. <i>Awagarh, N. W. P.</i>
1873	Aug. 6.	R.	Cunningham, David Douglas, M. D., Professor, Medical College. <i>Calcutta.</i>

Date of Election.		
1873 Dec. 3.	F.M.	Dames, Mansel Longworth, c. s., Asst. Commissioner. <i>Europe.</i>
1877 June 6.	N.R.	Darbhanga, Mahárájá of. <i>Darbhanga.</i>
1865 June 7.	N.R.	Dás, Rájá Jaykishan, Bahádúr, c. s. I. <i>Bijnor.</i>
1879 April 2.	N.R.	Dás, Rám Saran, M. A. <i>Rámsarandáspúr</i> , near <i>Burra-gaon, Fyzabad, Oudh.</i>
1869 April 7.	F.M.	Day, Dr. Francis, F. L. s., F. z. s. <i>Europe.</i>
1856 June 4.	R.	DeBourbel, Lieut.-Col. Raoul, R. E., Consulting Engineer to the Govt. of India for Guaranteed Railways. <i>Calcutta.</i>
1859 Oct. 6.	N.R.	Delmerick, J. G., Extra Asst. Commissioner. <i>Am-bala City.</i>
1862 May 7.	N.R.	Dhanapati Singh Dughar, Raí Bahádúr. <i>Azamganj.</i>
1877 July 4.	R.	Diler Jang, Nawáb Syad Ashgar Alí, Khan Bahádúr, c. s. I. <i>Calcutta.</i>
1875 Mar. 3.	N.R.	Dodgson, Walter. <i>Rangpur.</i>
1878 May 2.	N.R.	Donaldson, P., Superintendent of the Jail. <i>Buxar.</i>
1875 Mar. 3.	N.S.	Douglas, J., Supdt. of Telegraphs, Check Office. <i>Europe.</i>
1879 Feb. 5.	N.R.	Duthie, J. F., Superintendent, Govt. Botanical Gardens. <i>Saharunpore.</i>
1877 Aug. 30.	N.R.	Dutt, Kedarnath, Sub-divisional Officer. <i>Basirhat, 24-Pergunnahs.</i>
1873 April 2.	R.	Dutt, Umesh Chunder. <i>Calcutta.</i>
1881 Mar. 2.	R.	Eden, The Hon. Sir Ashley, K. C. S. I., C. I. E., Lieutenant-Governor of Bengal. <i>Calcutta.</i>
1870 Mar. 8.	L.M.	Edinburgh, H. R. H. The Duke of. <i>Europe.</i>
1863 May 6.	N.R.	Edgar, John Ware, c. s., c. s. I., Magistrate. <i>Cham-paran.</i>
1879 Mar. 5.	R.	Eetvelde, E. van, Consul General for Belgium. <i>Calcutta.</i>
1874 Dec. 2.	N.R.	Egerton, The Hon. Sir Robert Eyles, c. s., K. C. S. I., C. I. E., Lieut.-Governor of the Panjab. <i>Lahore.</i>
1880 April 7.	N.R.	Elias, Ney, Joint Commissioner. <i>Ladakh.</i>
1871 Dec. 2.	R.	Eliot, J., M. A., Meteorological Reporter to the Govt. of Bengal. <i>Calcutta.</i>
1871 Oct. 4.	N.R.	Evezard, Major-General G. E. <i>Coonoor, Nilgiri Hills.</i>
1859 Dec. 7.	R.	Fath Alí, Maulawí. <i>Calcutta.</i>
1863 Jan. 15.	R.	Fedden, Francis, Asst., Geological Survey of India. <i>Calcutta.</i>
1876 Jan. 5.	R.	Feistmantel, Ottokar, M. D., Palæontologist, Geological Survey of India. <i>Calcutta.</i>
1880 April 7.	N.R.	Fiddian, W., M. A., c. s., Offg. Magistrate and Collector. <i>Midnapur.</i>
1879 July 2.	N.R.	Finucane, M., c. s., Joint Magistrate. <i>Gaya.</i>

Date of Election.		
1881 July 6.	R.	Firukh Shah, Prince Mahomed. <i>Calcutta.</i>
1869 Sept. 1.	N.R.	Fisher, John Hadden, c. s., Offg. Collector. <i>Mirath.</i>
1872 Dec. 4.	N.R.	Forbes, Lieut.-Col. John Greenlaw, R. E., <i>Allahabad.</i>
1876 July 5.	N.R.	Foulkes, The Rev. Thos., F. L. S., M. B. A. S., F. R. G. S., Chaplain. <i>Bangalore.</i>
1869 Sept. 1.	N.R.	Fryer, Lieut.-Col G. E., Deputy Commissioner. <i>Maulmain, B. Burmah.</i>
1867 Sept. 4.	N.S.	Fyfe, The Rev. W. C., M. A., Principal, Free Church College. <i>Europe.</i>
1880 April 7.	N.R.	Gajapati, Ananda Ram, Raja of Vizianagram. <i>Vizianagram.</i>
1873 Dec. 3.	N.R.	Gamble, J. S., B. A., Asst. to Inspector General of Forests. <i>Darjiling.</i>
1871 Aug. 2.	N.R.	Gangaprasad, Munshi, Depy. Collector. <i>Mathura.</i>
1874 July 1.	N.S.	Gardner, David Mason, c. s., Offg. Magistrate and Collector. <i>Europe.</i>
1879 Mar. 5.	R.	Garrett, A. W., M. A., Inspector of Schools, Presy. Circle. <i>Calcutta.</i>
1859 Aug. 3.	L.M.	Gastrell, Major-General James Eardley (retired). <i>Europe.</i>
1867 Dec. 4.	N.S.	Gay, E., M. A., C. S. <i>Europe.</i>
1877 Aug. 30.	R.	Ghosha, Jnanendra Chandra. <i>Calcutta.</i>
1871 May 3.	R.	Ghosha, Káliprasanna. <i>Calcutta.</i>
1877 Dec. 5.	N.R.	Ghosha, Dr. Krishna Dhana. <i>Rangpur.</i>
1869 Feb. 3.	R.	Ghosha, Pratápachandra, B. A. <i>Calcutta.</i>
1870 May 4.	R.	Ghoshál, Rájá Satyánand. <i>Calcutta.</i>
1880 Aug. 4.	R.	Gibbs, The Hon. James, C. S. I., C. I. E., F. R. G. S., M. B. A. S., Member of the Governor-General's Council. <i>Calcutta.</i>
1875 July 7.	N.R.	Girdlestone, Charles Edward Ridgway, c. s., Resi- dent. <i>Katmandu, Nepal.</i>
1861 Feb. 5.	F.M.	Godwin-Austen, Lieut.-Colonel H. H., F. R. S., F. Z. S., F. B. G. S. <i>United Service Club, St. James', London.</i>
1862 July 2.	N.R.	Gordon, Robert, c. E., Executive Engineer, P. W. D., <i>Henzada, B. Burmah.</i>
1869 July 7.	N.R.	Gordon, James Davidson, c. s., c. s. I., Offg. Chief Commissioner. <i>Mysore.</i>
1881 Mar. 2.	R.	Gosain, Hem Chunder. <i>Calcutta.</i>
1863 Nov. 4.	F.M.	Gowan, Major-General J. Y. <i>Europe.</i>
1879 Jan. 8.	F.M.	Gowan, Capt. W. E., 21st Nat. Infy. <i>Europe.</i>
1877 Nov. 7.	L.M.	Grant, Alexander, M. I. C. E., Director of State Rail- ways. <i>Europe.</i>
1876 Nov. 15.	N.R.	Grierson, George Abraham, c. s., Offg. Joint Magis- trate. <i>Bankipur.</i>
1861 Sept. 4.	N.R.	Griffin, Sir Lepel Henry, c. s., K. C. S. I., Resident. <i>Indore.</i>

Date of Election.		
1878 May 2.	N.R.	Griffith, R., M. A., Director of Public Instruction, N. W. P. and Oudh. <i>Allahabad.</i>
1861 Feb. 6.	N.R.	Growse, Frederick Salmon, M. A., C. S., C. I. E., Magistrate and Collector. <i>Bulandshahr, N. W. P.</i>
1880 Feb. 4.	R.	Gupta, Behárilál, C. S. <i>Calcutta.</i>
1867 July 3.	R.	Hacket, Charles Augustus, Assistant, Geol. Survey of India. <i>Calcutta.</i>
1879 Mar. 5.	R.	Harraden, S. <i>Calcutta.</i>
1861 Feb. 2.	N.R.	Harrison, A. S., B. A., Principal, Muir Central College. <i>Allahabad.</i>
1877 Sept. 27.	R.	Hart, J., Attorney at Law. <i>Calcutta.</i>
1880 Aug. 26.	N.R.	Hassan, Khalif Syad Mahomed, Khan Bahádúr, Prime Minister. <i>Puttiala.</i>
1875 Mar. 3.	N.R.	Hendley, Dr. Thomas Holbein, Residency Surgeon, and Offg. Political Agent, Eastern Rajpootana States. <i>Jaipur, Rájputána.</i>
1879 Mar. 5.	N.S.	Herschel, Major J., B. E., F. R. S., Survey of India. <i>Europe.</i>
1875 Aug. 4.	N.R.	Hewitt, James Francis Katherinus, C. S., Commissioner. <i>Chota Nagpur.</i>
1872 Dec. 4.	R.	Hoernle, Rev. A. F. R., PH. D., Offg. Principal of the Madrasah. <i>Calcutta.</i>
1878 Mar. 6.	F.M.	Hoey, W. <i>Europe.</i>
1868 Nov. 4.	N.R.	Holroyd, Lieut.-Col. William Rice Morland, Director of Public Instruction. <i>Lahore, Punjab.</i>
1873 Jan. 8.	L.M.	Houstoun, G. L., F. G. S. <i>Europe.</i>
1863 Jan. 15.	N.R.	Howell, Mortimer Sloper, C. S. <i>Shahjehanpur.</i>
1878 Sept. 25.	N.S.	Hughes, G., C. S., Assistant Commissioner. <i>Europe.</i>
1867 Aug. 7.	N.R.	Hughes, T. H., A. B. S. M., F. G. S., Geol. Survey of India. <i>Kutni.</i>
1866 Jan. 17.	N.R.	Hughes, Major W. G., M. S. C. <i>Tavoy, B. Burmah.</i>
1870 Jan. 5.	N.R.	Hume, Allan Octavian, C. B., C. S. <i>Allahabad.</i>
1872 Dec. 4.	N.R.	Ibbetson, Denzil Charles Jelf, C. S., Deputy Commissioner of the Punjab Census. <i>Simla.</i>
1866 Mar. 7.	N.R.	Irvine, William, C. S., Joint Magistrate. <i>Ghazipur.</i>
1871 Mar. 8.	N.S.	Isaac, T. S., C. E. <i>Europe.</i>
1853 Dec. 7.	N.R.	Isvariprasad Singh, Raja. <i>Benares.</i>
1874 Feb. 4.	R.	Jackson, Surgeon Major Charles Julian. <i>Calcutta.</i>
1878 May 2.	N.S.	Jackson, Sir L. S. <i>Europe.</i>
1880 Dec. 1.	N.R.	Jackson, William Grierson, B. C. S. <i>Mirzapur, N. W. P.</i>
1876 July 5.	F.M.	Jarrad, Lieut. F. W., B. N., F. R. A. S., Marine Survey Dept. <i>Hydrographic Office, Admiralty, London.</i>
1879 Mar. 5.	R.	Jarrett, Major H. S., B. S. C., Secy. to the Board of Examiners. <i>Calcutta.</i>

Date of Election.			
1881 Feb. 2.	N.R.	Jenkins, Capt. Thomas Morris, M. S. C., Asst. Commissioner and J. P. for Burmah.	<i>Rangoon.</i>
1879 Aug. 6.	F.M.	Joest, Herr W.	<i>Cologne.</i>
1866 Feb. 7.	N.R.	Johnson, W. H., C. E.	<i>Dera Ismail Khan.</i>
1862 Mar. 5.	N.R.	Johnstone, Lieut.-Colonel James William Hope, Commissioner.	<i>Jallandhar.</i>
1867 Dec. 4.	N.R.	Johnstone, Lieut.-Col. James, Political Agent.	<i>Manipur, via Cachar.</i>
1878 Aug. 7.	N.R.	Johnstone, P. DeLacy, C. S.	<i>Multan.</i>
1873 Dec. 3.	N.R.	Johore, H. H., Maharájá of, K. C. S. I.	<i>New Johore, Singapore.</i>
1873 April 2.	N.S.	Jones, Frederick, C. S., Magistrate and Collector.	<i>Europe.</i>
1875 Nov. 3.	N.R.	Jones, Samuel Simpson, B. A., C. S., Asst. Commissioner, Deoghur Division.	<i>Santhal Pergunnahs.</i>
1869 April 7.	R.	Kabíruddín Ahmad, Maulawí.	<i>Calcutta.</i>
1878 Mar. 6.	N.R.	Keene, H. G., C. S.	<i>Agra.</i>
1874 Dec. 2.	N.R.	Khudábaksh Khan, Maulawí.	<i>Patna.</i>
1867 Dec. 4.	R.	King, G., M. B., F. L. S., Supdt., Royal Botanical Gardens.	<i>Sibpur, Calcutta.</i>
1881 Mar. 2.	N.R.	King, Lucas White, B. A., LL. B., C. S., Sub-Divisional Magistrate.	<i>Rajanpur.</i>
1862 Jan. 15.	N.S.	King, W., Jr., B. A., F. G. S., Depy. Supdt. for Madras, Geol. Survey of India.	<i>Europe.</i>
1880 Dec. 1.	N.R.	Kirton, Surgeon-Major William Henry, F. L. S., Medical Store Keeper.	<i>Meean Meer, Panjab.</i>
1880 Jan. 7.	R.	Kisch, H. M., M. A., C. S.	<i>Calcutta.</i>
1877 Jan. 17.	N.R.	Kishor, Kumara Radha Dev, Juvraj of Hill Tipperah.	<i>Tipperah.</i>
1875 Dec. 1.	R.	Knight, Hon'ble J. B., C. I. E.	<i>Calcutta.</i>
1878 Oct. 4.	N.R.	Lachman Singh, Raja.	<i>Bulandshahr.</i>
1877 Sept. 27.	N.R.	La Touche, James John Digges, B. A., C. S.	<i>Banda.</i>
1881 Feb. 2.	R.	Laughlin, Robert Campbell, Asst Supdt. Govt. Telegraph Department.	<i>Calcutta.</i>
1878 Aug. 7.	N.R.	Lawrie, Dr. E.	<i>Lahore.</i>
1881 Mar. 2.	R.	Lee, J. Bridges, M. A., F. G. S., F. C. S., F. Z. S., Barrister at Law.	<i>Calcutta.</i>
1879 Dec. 3.	N.R.	Leonard, G. S., Asst. Traffic Supdt., N. B. State Ry.	<i>Saidpur.</i>
1870 July 6.	N.S.	Lethbridge, E. Roper, M. A., C. I. E.	<i>Europe.</i>
1879 Mar. 5.	R.	Levinge, H. C., C. E., Offg. Secy. to the Govt. of Bengal, P. W. D.	<i>Calcutta.</i>
1880 July 7.	N.R.	Lewis, Rev. Arthur, B. A.	<i>Dera Ghazi Khan.</i>
1873 Feb. 5.	R.	Lewis, Timothy Richards, M. B., Special Asst. to the Sanitary Commissioner with the Government of India.	<i>Calcutta.</i>

Date of Election.		
1864 Nov. 2.	R.	Locke, H. H., Principal, School of Art. <i>Calcutta.</i>
1866 Jan. 17.	F.M.	Low, James, Surveyor, G. T. Survey (retired). <i>Europe.</i>
1869 July 7.	N.R.	Lyall, Charles James, B. A., C. S., Offg. Secy. to the Chief Commissioner of Assam. <i>Shillong.</i>
1875 Jan. 6.	R.	Lydekker, Richard, Asst., Geol. Survey of India. <i>Geological Survey Office, Calcutta.</i>
1870 April 6.	L.M.	Lyman, B. Smith. <i>Northampton, Mass., U. S., America.</i>
1880 Dec. 1.	R.	McCann, H. W., M. A., D. Sc., Professor, Presidency College. <i>Calcutta.</i>
1868 Dec. 2.	N.R.	Macauliffe, Michael, B. A., C. S., Depy. Commissioner. <i>Gurgaon, Punjab.</i>
1880 June 2.	N.R.	Macdonald, James, C. E. <i>Aligarh.</i>
1879 Feb. 5.	N.S.	Macgregor, Major C. R., 44th N. I. <i>Europe.</i>
1876 Jan. 5.	N.R.	Macgregor, W., Supdt., Telegraphs. <i>Dhubri, Assam.</i>
1848 April 5.	L.M.	Maclagan, Major-General Robert, B. E., F. R. S. E., F. R. G. S. <i>Europe.</i>
1873 Dec. 3.	R.	MacLeod, Surgeon-Major Kenneth, M. D. <i>Calcutta.</i>
1880 May 5.	N.R.	MacLeod, Roderick Henry, B. C. S. <i>Basti.</i>
1879 Aug. 28.	N.R.	Maconachie, R., C. S., Settlement Secy. to the Financial Commissioner. <i>Lahore.</i>
1867 April 3.	R.	Mainwaring, Lieut.-Col. George Byres, S. C. <i>Serampur.</i>
1880 Mar. 3.	R.	Maliáh, Ramesvar. <i>Howrah.</i>
1878 April 3.	R.	Mallet, F. R., Geological Survey of India. <i>Calcutta.</i>
1864 July 6.	R.	Mallik, Coomar Devendra. <i>Calcutta.</i>
1869 Sept. 1.	R.	Mallik, Yadulál. <i>Calcutta.</i>
1872 Nov. 6.	N.R.	Man, E. H., Asst. Supdt. <i>Port Blair, Andamans.</i>
1880 May 5.	N.R.	Mandalik, The Hon. Rao Sahib Visvanath Narayana, C. S. I. <i>Bombay.</i>
1869 July 7.	N.R.	Markham, Alexander Macaulay, C. S., Magistrate and Collector. <i>Allahabad.</i>
1873 July 2.	N.R.	Marshall, C. W. <i>Berhampur, Bengal.</i>
1873 Aug. 6.	N.S.	Marshall, Lieut.-Col. William Elliot.
1877 Feb. 7.	R.	Marshall, Major Geo. Fred. Leicester, B. E., Asst. Secy., Govt. of India, P. W. D. <i>Calcutta.</i>
1860 Mar. 7.	R.	Medlicott, H. B., M. A., F. R. S., F. G. S., Supdt., Geological Survey of India. <i>Calcutta.</i>
1877 Mar. 7.	R.	Medlycott, The Rev. Adolphus Edwin, PH.D., 3, <i>Cullen Place, Howrah.</i>
1871 Sept. 6.	N.R.	Miles, Lieut.-Colonel S. B., S. C., Political Agent. <i>Muscat.</i>
1870 July 6.	R.	Miller, A. B., B. A., Barrister at Law, Official Assignee. <i>Calcutta.</i>
1874 May 6.	N.R.	Minchin, F. J. V. <i>Aska, Ganjam.</i>
1875 Aug. 4.	N.R.	Minchin, Colonel C. C. <i>Hissar, Panjab.</i>

Date of Election.			
1856 Mar. 5.	R.	Mitra, Rájendralála, Rái Bahádur, LL.D., C. I. E.	<i>Calcutta.</i>
1876 Dec. 6.	N.S.	Mockler, Major E., Political Agent.	<i>Europe.</i>
1874 July 1.	R.	Molesworth, G. L., c. E., Consulting Engineer to Govt. of India for State Railways.	<i>Calcutta.</i>
1881 May 4.	N.R.	Molloy, Major Edward, 5th Goorkhas.	<i>Abbotabad, Hazara, Panjab.</i>
1878 May 2.	N.S.	Moyle, J. C., Barrister at Law.	<i>Arrah, Shahabad.</i>
1864 Nov. 2.	N.R.	Mukerjea, Bhudeva, Inspector of Schools.	<i>Chinsurah.</i>
1879 May 7.	N.R.	Muir, J. W., M. A., C. S., Barrister at Law.	<i>Meerut, N. W. P.</i>
1867 Mar. 6.	R.	Mukerjea, The Hon. Pearimohan, M. A.	<i>Uttarpara.</i>
1880 Aug. 26.	R.	Mullick, Benod Behari.	<i>Calcutta.</i>
1880 Aug. 26.	N.R.	Nag, Sib Chunder.	<i>Ohittagong.</i>
1880 Dec. 1.	R.	Napier, J. R.	<i>Calcutta.</i>
1876 May 4.	R.	Nash, A. M., M. A., Professor, Presidency College.	<i>Calcutta.</i>
1865 Feb. 1.	R.	Nevill, G., C. M. Z. S., Indian Museum.	<i>Calcutta.</i>
1880 Aug. 26.	N.R.	Nicholson, Richardson Walter, Sub-Deputy Opium Agent.	<i>Sultanpur, Oudh.</i>
1869 July 7.	N.R.	Nursing Rao, A. V.	<i>Vizagapatam.</i>
1871 July 5.	N.S.	Oates, E. W., c. E., Engineer, P. W. D., Garrison Div., Sittang Canal.	<i>Europe.</i>
1874 Oct. 4.	R.	O'Kinealy, The Hon'ble James, c. s., District and Sessions Judge, 24-Pergannahs.	<i>Calcutta.</i>
1879 Aug. 28.	N.R.	Oldham, Surgeon-Major C. F., F. R. G. S.	<i>Dhurm-sala, Panjab.</i>
1880 Dec. 1.	N.R.	Oldham, R. D., A. B. S. M., Asst., Geological Survey of India.	
1873 Aug. 6.	N.R.	Olpherts, W. J., c. E., Manager, Kaharbari Collieries.	<i>Giridhi, E. I. B.</i>
1880 Aug. 4.	L.M.	Pandia, Pandit Mohanlall Vishnulall, F. T. S., Member and Secy., Royal Council of Meywar.	<i>Oodeypur.</i>
1880 Jan. 7.	R.	Pargiter, Frederick E., B. A., C. S., Officiating Commissioner of the Sunderbands.	<i>Calcutta.</i>
1873 Aug. 6.	R.	Parker, J. C.	<i>Calcutta.</i>
1880 Jan. 7.	N.R.	Parry, J. W., c. E., ASSOC. M. I. C. E., Asst. Engineer.	<i>Bhiwani, via Delhi.</i>
1862 May 7.	L.M.	Partridge, Surgeon-Major Samuel Bowen, M.D.	<i>Europe.</i>
1879 Mar. 5.	N.R.	Pawsey, R., c. s., Collector.	<i>Outtack.</i>
1871 Dec. 6.	N.R.	Peal, S. E.	<i>Aideo, via Sonari.</i>
1860 Feb. 1.	N.R.	Pearse, Major-General G. G., C. B., R. H. A.	<i>Utacamund.</i>
1873 Aug. 6.	R.	Pedler, Alexander, F. C. S., Professor of Chemistry, Presidency College.	<i>Calcutta.</i>

Date of Election.		
1864 Mar. 2.	N.R.	Pellew, Fleetwood Hugo, c. s., Offg. Commissioner. <i>Dacca.</i>
1865 Sept. 6.	N.R.	Peppe, T. E. <i>Ranchi.</i>
1881 Aug. 25.	R.	Percival, Hugh Melville, M. A., Professor, Presidency College. <i>Calcutta.</i>
1877 Aug. 1.	N.R.	Peters, C. T., M. B., Civil Surgeon. <i>Karwar, Bombay Presidency.</i>
1868 May 6.	R.	Peterson, F. W., H. M.'s Mint. <i>Calcutta.</i>
1835 July 1.	F.M.	Phayre, Sir Arthur Purves, K. C. S. I., C. B. <i>Europe.</i>
1872 Dec. 4.	R.	Pránnáth Sarasvati, Pandit, M. A., B. L. <i>Bhowanipur.</i>
1880 June 2.	N.R.	Prasad Sinh, Thakur Garuradhawaya, Raja of Beswan. <i>Beswan Fort, Aligarh.</i>
1877 Aug. 30.	N.R.	Pratapnarayan Singha, Depy. Magistrate. <i>Bankoora.</i>
1881 Feb. 2.	R.	Prideaux, Major William Francis, B. S. C. <i>Calcutta.</i>
1878 Feb. 6.	R.	Prinsep, The Hon'ble H. T., Judge of the High Court. <i>Calcutta.</i>
1871 June 7.	R.	Ramkrishna. <i>Calcutta.</i>
1877 May 2.	N.S.	Ravenshaw, Thomas Edw., c. s. <i>Europe.</i>
1880 April 7.	N.R.	Rai, Bipina Chandra, B. L., Munsif. <i>Netrokona, Maimansingh.</i>
1868 April 1.	N.R.	Rái, Rájá Pramathanath. <i>Digapati.</i>
1877 Aug. 1.	N.R.	Rees, J. C., Asst. Engr., P. W. D. <i>Thonzai, British Burmah.</i>
1871 July 5.	N.R.	Reid, James Robert, c. s., Collector. <i>Bareilly, Rohilkund.</i>
1881 Mar. 2.	R.	Reynolds, Herbert John, B. A., c. s. <i>Calcutta.</i>
1880 Aug. 4.	N.R.	Reynolds, Herbert William Ward, c. s. <i>Allahabad.</i>
1860 Jan. 3.	N.R.	Rivett-Carnac, John Henry, c. s., C. I. E., F. S. A., Opium Agent. <i>Ghazipur.</i>
1863 April 1.	N.R.	Robertson, Charles, c. s., Secretary to the Govt., N. W. P. and Oudh. <i>Allahabad.</i>
1878 Sept. 25.	R.	Robertson, Rev. J. <i>Calcutta.</i>
1865 Feb. 1.	R.	Robinson, S. H. <i>Calcutta.</i>
1870 Jan. 5.	N.R.	Ross, Major Alexander George, Staff Corps, 2nd in Comd., 1st Sikh Infy. <i>Dera Ghazi Khan, Panjab.</i>
1880 Sept. 30.	N.R.	Sage, E. M. <i>Rangoon.</i>
1877 May 2.	N.R.	Sandford, W., Assistant Traffic Manager, Nizam's State Railway. <i>Secunderabad, Deccan.</i>
1878 Jan. 2.	R.	Sawyer, Capt. H. A., 14th Sikhs. <i>Fatehgarh, N.W.P.</i>
1870 May 4.	N.R.	Schlich, Dr. W. <i>Lahore.</i>
1879 May 7.	N.S.	Schroder, J. <i>Europe.</i>
1869 Feb. 3.	F.M.	Schwendler, L., Telegraph Store Department. <i>Europe.</i>
1879 Feb. 5.	R.	Sconce, Lt.-Col. J., B. S. C. <i>Calcutta.</i>
1876 July 5.	N.R.	Scott, Ross, c. s., Assistant Magistrate and Collector. <i>Furrakhabad.</i>
1874 July 1.	F.M.	Scully, Dr. John. <i>Europe.</i>

Date of Election.		
1878 Mar. 6.	N.R.	Sen, Adharlal, B. A., Offg. Depy. Magistrate and Collector. <i>Jessore.</i>
1874 Dec. 2.	N.R.	Sen, Dr. Rám Dás. <i>Berhampur.</i>
1879 Jan. 8.	N.R.	Sewell, R., M. C. S. <i>Madras.</i>
1878 May 2.	R.	Sharpe, C. J. <i>Calcutta.</i>
1879 May 7.	N.R.	Sheridan, C. J., C. E. <i>Benares.</i>
1881 Mar. 2.	N.R.	Shopland, E. R., Indian Marine, Port Officer. <i>Akyab.</i>
1878 April 3.	R.	Simson, A. <i>Calcutta.</i>
1867 April 3.	R.	Sirkár, Dr. Mahendralála. <i>Calcutta.</i>
1872 Aug. 7.	N.S.	Skrefsrud, Rev. L. O., India Home Mission to the Santhals. <i>Europe.</i>
1864 Sept. 7.	N.R.	Sladen, Col. E. B., M. S. C. <i>Akyab.</i>
1874 June 3.	N.R.	Smith, Vincent Arthur, C. S., Asst. Settlement Officer. <i>Bareilly, N. W. P.</i>
1879 Mar. 5.	N.S.	Someren, Capt. G. J. van. <i>Europe.</i>
1877 April 4.	N.R.	Spens, The Rev. A. N. W., Chaplain. <i>Kurrachee.</i>
1872 July 3.	N.R.	Stephen, Carr, B. L., Judl. Asst. Commr. <i>Ludiana.</i>
1879 Oct. 2.	R.	Sterndale, R. A., F. B. G. S., Asst. Comr. of Currency. <i>Calcutta.</i>
1875 July 7.	N.S.	Stewart, M. G. <i>Europe.</i>
1878 July 3.	N.S.	St. Barbe, H. L., C. S. <i>Europe.</i>
1876 Aug. 2.	N.R.	St. John, Lieut.-Col. Oliver Beauchamp, E. E., C. S. I., Agent to the Governor-General in Biluchistan.
1861 Sept. 4.	R.	Stokes, The Hon'ble Whitley, C. S. I., C. I. E. <i>Calcutta.</i>
1869 Feb. 3.	N.S.	Strachey, Sir J., K. C. S. I., C. I. E. <i>Europe.</i>
1859 Mar. 2.	N.R.	Stubbs, Lieut.-Col. Francis William, Royal Artillery.
1880 Nov. 3.	N.R.	Sturt, Lieut. Robert Ramsay Napier, B. S. C., Panjab Frontier Force. <i>Edwardesabad, Panjab.</i>
1864 Aug. 11.	R.	Swinhoe, W., Attorney-at-Law. <i>Calcutta.</i>
1880 Nov. 3.	N.R.	Swynnerton, Rev. Charles. <i>Naushera.</i>
1880 June 2.	N.R.	Sykes, John Gastrell, LL.B., Barrister-at-Law and Advocate, High Court, N. W. P. <i>Allahabad.</i>
1868 June 3.	R.	Tagore, The Hon'ble Maharaja Jotendra Mohun, C. S. I. <i>Calcutta.</i>
1865 Sept. 6.	R.	Tawney, C. H., M. A., Principal, Presidency College. <i>Calcutta.</i>
1874 Mar. 4.	R.	Taylor, Commander A. D., late Indian Navy. <i>Calcutta.</i>
1860 May 2.	N.S.	Temple, Sir R., Bart., K. C. S. I., C. I. E., B. C. S. <i>Europe.</i>
1878 June 5.	N.R.	Temple, Lieut. R. C., S. C. <i>Ambala.</i>
1876 Feb. 2.	R.	Tennant, Col. James Francis, B. E., F. B. S., C. I. E., Mint Master. <i>Calcutta.</i>
1875 June 2.	N.R.	Thibaut, Dr. G., Professor, Sanskrit College. <i>Benares.</i>
1869 Oct. 6.	N.R.	Thomson, A., The College. <i>Agra.</i>

Date of Election.		
1875 Nov. 3.	N.R.	Thomson, Robert George, c. s., Asst. Comr. <i>Jhelum, Panjab.</i>
1847 June 2.	L.M.	Thuillier, Major-Genl. Sir Henry Edward Landor, B. A., C. S. I., F. R. S. <i>Europe.</i>
1865 July 5.	N.R.	Tolbort, Thos. Wm. Hooper, c. s., Offg. Deputy Commissioner. <i>Gujranwala.</i>
1871 April 5.	F.M.	Trefftz, Oscar. <i>Europe.</i>
1861 June 5.	L.M.	Tremlett, James Dyer, M. A., c. s. Addl. Commissioner. <i>Jalandhar, Panjab.</i>
1872 July 3.	R.	Trevor, Colonel William Spottiswoode, B. E., With the Supreme Govt. <i>Calcutta.</i>
1880 Mar. 3.	F.M.	Tufnell, Lieut. R. H. C., 30th M. N. I. <i>Europe.</i>
1873 April 6.	R.	Turnbull, Robert, Secretary to the Corporation. <i>Calcutta.</i>
1863 May 6.	N.R.	Tyler, J. W., M. D., F. B. C. S., Supdt., Central Prison. <i>Agra.</i>
1869 Aug. 4.	R.	Wáhid Alí, Prince Jahán Qadr Muhammad, Bahádur. <i>Garden Reach.</i>
1865 Nov. 1.	R.	Waldie, David, F. C. S. <i>Calcutta.</i>
1861 May 1.	R.	Walker, Lieut.-Genl. James T., B. E., C. B., F. R. S., Surveyor General of India. <i>Calcutta.</i>
1875 April 7.	N.S.	Wall, Dr. Alfred John. <i>Europe.</i>
1863 Oct. 7.	N.S.	Waller, Walter Kerr, M. B. <i>Europe.</i>
1865 May 3.	R.	Waterhouse, Major James, B. S. C., Dy. Supdt., Survey of India. <i>Calcutta.</i>
1874 July 1.	N.R.	Watt, Dr. George. <i>Munipore.</i>
1876 Dec. 6.	R.	Webb, W. T., M. A., Professor, Presidency College. <i>Calcutta.</i>
1879 Mar. 5.	N.R.	Weekes, A., c. s., Magistrate and Collector. <i>Purneah.</i>
1869 Sept. 1.	R.	Westland, James, c. s., Offg. Comptroller General. <i>Calcutta.</i>
1867 Feb. 6.	N.R.	Westmacott, Edward Vesey, B. A., c. s., Offg. Magte. and Collr. <i>Noakholly.</i>
1862 Oct. 8.	N.S.	Wheeler, James Talboys. <i>Europe.</i>
1878 Aug. 29.	N.R.	Wheeler, P. C., c. s., Asst. Magistrate. <i>Ghazipur.</i>
1875 Feb. 3.	N.R.	Whiteway, Richard Stephen, c. s., Asst. Settlement Officer. <i>Aligarh.</i>
1878 Aug. 29.	N.R.	Whittall, R., Forest Dept. <i>Hoshangabad, Central Provinces.</i>
1873 May 7.	N.R.	Williams, George Robert Carlisle, B. A., c. s., Magte. and Collr. <i>Farakhabad.</i>
1867 Jan. 16.	F.M.	Williamson, Capt. William John, c. I. E., Inspr.-Genl. of Police. <i>Europe.</i>
1880 Feb. 4.	R.	Wilson, The Hon. Arthur. <i>Calcutta.</i>
1870 Aug. 3.	N.R.	Wilson, Robert Henry, B. A., c. s., Magte. and Collector. <i>Midnapur.</i>

Date of Election.		
1878 Mar. 6.	N.R.	Wilson, J. <i>Sirsa, Punjab.</i>
1866 Mar. 7.	L.M.	Wise, Dr. J. F. N. <i>Rostellan, County Cork. Ireland.</i>
1867 July 3.	N.R.	Wood, Dr. Julius John, Supdt. of Vaccination. <i>Darjiling Circle.</i>
1870 Jan. 5.	R.	Wood-Mason, James, Depy. Supdt., Indian Museum. <i>Calcutta.</i>
1873 Aug. 6.	N.S.	Woodthorpe, Lieut.-Col. Robert Gossett, B. E., Asst. Supdt., Survey of India. <i>Europe.</i>

~~~~~

### HONORARY MEMBERS.

|               |  |                                                                                              |
|---------------|--|----------------------------------------------------------------------------------------------|
| 1847 Nov. 3.  |  | His Highness the Nawáb Nazim of Bengal. <i>Europe.</i>                                       |
| 1848 Feb. 2.  |  | Sir J. D. Hooker, K. C. S. I., C. B., M. D., D. C. L., F. R. S.,<br>F. G. S. <i>Kew.</i>     |
| 1853 April 6. |  | Major-General H. C. Rawlinson, K. C. B., D. C. L., F. R. S.<br><i>London.</i>                |
| 1858 July 6.  |  | B. H. Hodgson. <i>Europe.</i>                                                                |
| 1860 Mar 7.   |  | Professor Max Müller. <i>Oxford.</i>                                                         |
| 1860 Nov. 7.  |  | Edward Thomas, F. R. S. <i>London.</i>                                                       |
| 1860 Nov. 7.  |  | Dr. Aloys Sprenger. <i>Heidelberg.</i>                                                       |
| 1860 Nov. 7.  |  | Dr. Albrecht Weber. <i>Berlin.</i>                                                           |
| 1868 Feb. 5.  |  | General A. Cunningham, C. S. I. <i>India.</i>                                                |
| 1868 Feb. 5.  |  | Professor Bápu Deva Sástri. <i>Benares.</i>                                                  |
| 1868 Sept. 2. |  | A. Grote. <i>London.</i>                                                                     |
| 1871 June 7.  |  | Charles Darwin, M. A., F. R. S., F. G. S., F. L. S. <i>London.</i>                           |
| 1872 May 1.   |  | Sir G. B. Airy, K. C. B., M. A., D. C. L., LL. D., F. R. S.<br><i>London.</i>                |
| 1872 June 5.  |  | Prof. T. H. Huxley, LL. D., PH. D., F. R. S., F. G. S., F. Z. S.,<br>F. L. S. <i>London.</i> |
| 1875 Nov. 3.  |  | Dr. O. Böhtlingk. <i>Jena.</i>                                                               |
| 1875 Nov. 3.  |  | Prof. J. O. Westwood. <i>Oxford.</i>                                                         |
| 1876 April 5. |  | Col. H. Yule, B. E., C. B. <i>London.</i>                                                    |
| 1876 April 5. |  | Dr. Werner Siemens. <i>Berlin.</i>                                                           |
| 1877 Jan. 17. |  | Dr. John Muir. <i>Edinburgh.</i>                                                             |
| 1879 June 4.  |  | Prof. E. B. Cowell, D. C. L. <i>Cambridge.</i>                                               |
| 1879 June 4.  |  | Dr. A. Günther, V. P. R. S. <i>London.</i>                                                   |
| 1879 June 4.  |  | Dr. J. Janssen. <i>Paris.</i>                                                                |
| 1879 June 4.  |  | Prof. H. Milne-Edwards. <i>Paris.</i>                                                        |
| 1879 June 4.  |  | Prof. P. Regnaud. <i>Lyons.</i>                                                              |
| 1879 June 4.  |  | E. Renan. <i>Paris.</i>                                                                      |
| 1881 Dec. 7.  |  | Professor Hermann L. F. Helmholtz. <i>Berlin.</i>                                            |
| 1881 Dec. 7.  |  | Dr. Rudolph v. Roth. <i>Tübingen.</i>                                                        |
| 1881 Dec. 7.  |  | Sir William Thomson, Knt., LL. D., F. R. S., F. R. S. E.<br><i>Glasgow.</i>                  |
| 1881 Dec. 7.  |  | Professor William Wright, LL. D. <i>Cambridge.</i>                                           |



## CORRESPONDING MEMBERS.

|           |    |                                               |                     |
|-----------|----|-----------------------------------------------|---------------------|
| 1844 Oct. | 2. | Macgowan, Dr. J.                              | <i>Europe.</i>      |
| 1856 July | 2. | Krämer, Herr A von.                           | <i>Alexandria.</i>  |
| 1856 "    | 2. | Porter, Rev. J.                               | <i>Damascus.</i>    |
| 1856 "    | 2. | Schlagintweit-Sakünlünski, Herr Baron H. von. | <i>Munich.</i>      |
| 1856 "    | 2. | Smith, Dr. E.                                 | <i>Beyrout.</i>     |
| 1856 "    | 2. | Taylor, J., Esq.                              | <i>Bussorah.</i>    |
| 1857 Mar. | 4. | Nietner, J., Esq.                             | <i>Ceylon.</i>      |
| 1858 "    | 3. | Schlagintweit, Herr R. von.                   | <i>Berlin.</i>      |
| 1859 Nov. | 2. | Frederick, Dr. H.                             | <i>Batavia.</i>     |
| 1860 Feb. | 1. | Baker, The Rev. H.                            | <i>E. Malabar.</i>  |
| 1861 July | 3. | Gösche, Dr. R.                                |                     |
| 1862 Mar. | 3. | Murray, A., Esq.                              | <i>London.</i>      |
| 1863 July | 4. | Barnes, R. H., Esq.                           | <i>Ceylon.</i>      |
| 1866 May  | 7. | Schlagintweit, Prof. E. von.                  | <i>Berlin.</i>      |
| 1868 "    | 5. | Holmböe, Prof.                                | <i>Christiania.</i> |

## ASSOCIATE MEMBERS.

|            |    |                                      |                            |
|------------|----|--------------------------------------|----------------------------|
| 1865 May   | 3. | Dall, Rev. C. H.                     | <i>Calcutta.</i>           |
| 1874 Feb.  | 4. | Schaumburgh, J., Esq.                | <i>Calcutta.</i>           |
| 1874 April | 1. | Lafont, Rev. Fr. E., s. J., C. I. E. | <i>Calcutta.</i>           |
| 1875 Dec.  | 1. | Bate, Rev. J. D.                     | <i>Allahabad.</i>          |
| 1875 "     | 1. | Maulawí Abdul Hai,                   | <i>Madrasah. Calcutta.</i> |

LIST OF MEMBERS WHO HAVE BEEN ABSENT FROM INDIA  
THREE YEARS AND UPWARDS.\*

\* *Rule 40.*—After the lapse of 3 years from the date of a Member leaving India, if no intimation of his wishes shall in the interval have been received by the Society, his name shall be removed from the list of Members.

The following Member will be removed from the next Member List of the Society under the operation of the above Rule:

Lieut.-Col. Wm. Elliot Marshall.

## BY RETIREMENT.

J. G. Apcar, Esq. *Calcutta.*  
 H. K. W. Arnold, Esq. *Lahore.*  
 C. E. Buckland, Esq. *Howrah.*  
 Dr. J. M. Coates. *Calcutta.*  
 H. A. Cockerell, Esq. *Calcutta.*  
 Hon. B. W. Colvin. *Calcutta.*  
 Dr. G. E. Dobson. *England.*  
 Babu Jogesh Chunder Dutt. *Calcutta.*  
 W. Lambe, Esq. *Jaunpur.*  
 Major M. Protheroe. *Port Blair.*  
 The Lord Bishop of Rangoon. *Rangoon.*  
 Dr. D. B. Smith. *Murree.*  
 Babu Dvijendronath Tagore. *Calcutta.*

## BY DEATH.

Major-Gen. E. T. Dalton. *London.*  
 Capt. W. H. Johnstone, B. E. *England.*  
 Kumar Kantichandra Singh. *Calcutta.*  
 L. Mandelli, Esq. *Darjiling.*  
 C. Magrath, Esq. *Rangpur.*  
 W. M. Souttar, Esq. *England.*  
 Babu Gunendronath Tagore. *Calcutta.*

## BY REMOVAL.

*Under Rule 40.*

Major-Gen. C. H. Dickens.  
 J. R. E. Gouldsbury, Esq.  
 Lieut.-Col. J. Macdonald, Esq.  
 Col. G. B. Malleson.  
 Lieut. G. S. Rodon.

## ELECTIONS CANCELLED.

*Under Rule 9.*

J. A. Brown, Esq. *Benares.*  
 Rev. J. S. Doxey. *Multan.*  
 R. O. Lees, Esq. *Calcutta.*



[APPENDIX.]

ABSTRACT STATEMENT  
OF  
RECEIPTS AND DISBURSEMENTS  
OF THE  
ASIATIC SOCIETY OF BENGAL  
FOR  
THE YEAR 1881.

# STATEMENT

## *Asiatic Society*

Dr.

| To ESTABLISHMENT.                                     |     |     |     |                            |          |      |
|-------------------------------------------------------|-----|-----|-----|----------------------------|----------|------|
| Salaries ...                                          | ... | ... | ... | Rs. 4,441                  | 10       | 3    |
| Commission ...                                        | ... | ... | ... | ...                        | 359      | 5 11 |
| Pensions ...                                          | ... | ..  | ... | ...                        | 228      | 0 0  |
|                                                       |     |     |     | 5,029 0 2                  |          |      |
| CONTINGENCIES.                                        |     |     |     |                            |          |      |
| Stationery ...                                        | ... | ... | ... | ...                        | 212      | 3 6  |
| Lighting ...                                          | ... | ... | ... | ...                        | 75       | 0 0  |
| Building ...                                          | ... | ... | ... | ...                        | 461      | 8 9  |
| Taxes ...                                             | ..  | ... | ... | ...                        | 726      | 0 0  |
| Postage ...                                           | ... | ... | ... | ...                        | 976      | 10 9 |
| Freight ...                                           | ... | ... | ... | ...                        | 49       | 4 4  |
| Meetings ...                                          | ... | ... | ... | ...                        | 113      | 2 0  |
| Miscellaneous ...                                     | ... | ... | ... | ...                        | 422      | 5 6  |
|                                                       |     |     |     | 3,036 2 10                 |          |      |
| LIBRARY AND COLLECTIONS.                              |     |     |     |                            |          |      |
| Books ...                                             | ... | ... | ... | ...                        | 1,453    | 3 10 |
| Local Periodicals ...                                 | ... | ... | ... | ...                        | 49       | 13 0 |
| Binding ...                                           | ... | ... | ... | ...                        | 560      | 2 0  |
| Coins ...                                             | ... | ... | ... | ...                        | 90       | 0 6  |
| Catalogue ...                                         | ... | ... | ... | ...                        | 600      | 0 0  |
|                                                       |     |     |     | 2,753 3 4                  |          |      |
| PUBLICATIONS.                                         |     |     |     |                            |          |      |
| Printing ...                                          | ... | ... | ... | ...                        | 5,814    | 8 3  |
| Plates ...                                            | ... | ... | ... | ...                        | 3,381    | 6 4  |
|                                                       |     |     |     | 9,195 14 7                 |          |      |
|                                                       |     |     |     | 20,014 4 11                |          |      |
| To PERSONAL ACCOUNT (Writes off and Miscellaneous) .. | ... | ... | ... | ...                        | 1,396    | 3 4  |
| To Balance ...                                        | ... | ... | ... | ...                        | 1,42,595 | 0 10 |
|                                                       |     |     |     | Total Rs. ... 1,64,005 9 1 |          |      |

No. 1.  
of Bengal.

|                                                                          |     | Cr. |             |                    |
|--------------------------------------------------------------------------|-----|-----|-------------|--------------------|
| By Balance from last Report                                              | ... | ... | ...         | Rs. 1,44,416 14 11 |
| <b>By CASH RECEIPTS.</b>                                                 |     |     |             |                    |
| Publications sold for Cash                                               | ... | ... | 94 8 0      |                    |
| Interest on investments                                                  | ... | ... | 6,621 8 0   |                    |
| Advances recovered                                                       | ... | ... | 300 14 0    |                    |
| Miscellaneous                                                            | ... | ... | 105 15 0    |                    |
|                                                                          |     |     | 7,122 13 0  |                    |
| <b>By PERSONAL ACCOUNT.</b>                                              |     |     |             |                    |
| Admission fees                                                           | ... | ... | 880 0 0     |                    |
| Subscriptions                                                            | ... | ... | 8,798 0 0   |                    |
| Sales on credit                                                          | ... | ... | 1,075 14 0  |                    |
| Miscellaneous (chiefly old outstandings and omissions brought to credit) | ... | ... | 1,711 15 2  |                    |
|                                                                          |     |     | 12,465 13 2 |                    |
| <b>Total Income</b>                                                      |     |     |             | 19,588 10 2        |

Total Rs. ... 1,64,005 9 1

J. ELIOT.  
*Hony. Secretary and Treasurer.*

J. WESTLAND.  
F. W. PETERSON. } *Auditors.*

**STATEMENT**  
*Oriental Publication Fund in Account*

---

Dr.

| To CASH EXPENDITURE.                               |     |     |     |                   |             |
|----------------------------------------------------|-----|-----|-----|-------------------|-------------|
| Printing charges                                   | ... | ... | ... | Rs. 4,856         | 14 0        |
| Editing charges                                    | ... | ... | ... | ...               | 3,245 5 0   |
| Salaries                                           | ... | ... | ... | ...               | 1,018 0 9   |
| Advertising                                        | ... | ... | ... | ...               | 120 0 0     |
| Freight                                            | ... | ... | ... | ...               | 29 2 0      |
| Contingencies                                      | ... | ... | ... | ...               | 52 13 0     |
| Postage                                            | ... | ... | ... | ...               | 209 1 0     |
| Commission on collecting bills                     | ... | ... | ... | ..                | 25 5 0      |
|                                                    |     |     |     |                   |             |
|                                                    |     |     |     | 9,556             | 8 9         |
| To PERSONAL ACCOUNT (writes off and Miscellaneous) |     |     |     | ...               | 10 15 0     |
|                                                    |     |     |     | Total Expenditure | 9,567 7 9   |
| To Balance                                         | ... | ... | ... | ...               | 12,536 9 11 |
|                                                    |     |     |     | Total Rs. ...     | 22,104 1 8  |

No. 2.

*with the Asiatic Society of Bengal.*

|                                 |     |     |     | Cr.    |            |      |
|---------------------------------|-----|-----|-----|--------|------------|------|
| By Balance from last Report     | ... | ... | ... |        | Rs. 10,540 | 9 11 |
| <br><b>BY CASH RECEIPTS.</b>    |     |     |     |        |            |      |
| Government allowance            | ... | ... | ... | 9,000  | 0          | 0    |
| Publications sold for cash      | ... | ... | ... | 1,368  | 15         | 5    |
|                                 |     |     |     | 0,368  | 15         | 5    |
| <br><b>BY PERSONAL ACCOUNT.</b> |     |     |     |        |            |      |
| Sales on credit                 | ... | ... | ... | 1,194  | 8          | 4    |
| <b>Total Income</b>             |     |     |     | 11,563 | 7          | 9    |

Total Rs. ... 22,104 1 8

J. ELIOT.

*Hony. Secretary and Treasurer.*

J. WESTLAND.

F. W. PETERSON.

} *Auditors.*

**STATEMENT**  
*Sanskrit Manuscripts Fund in Account*

---

Dr.

| To CASH EXPENDITURE.                               |     |     |     |                          |
|----------------------------------------------------|-----|-----|-----|--------------------------|
| Salaries                                           | ... | ... | ... | Rs 1,484 0 0             |
| Travelling expenses                                | ... | ... | ... | ... 223 2 0              |
| Printing                                           | ... | ... | ... | ... 659 4 0              |
| MSS. purchased                                     | ... | ... | ... | ... 1,232 3 2            |
| Stationery                                         | ... | ... | ... | ... 41 2 0               |
| Postage                                            | ... | ... | ... | ... 3 6 0                |
| Copying                                            | ... | ... | ... | ... 113 4 0              |
| Contingencies                                      | ... | ... | ... | ... 17 6 6               |
|                                                    |     |     |     | 3,773 11 8               |
| To PERSONAL ACCOUNT (Writes off and Miscellaneous) |     |     |     | ... 30 0 0               |
|                                                    |     |     |     | 3,803 11 8               |
| To Balance                                         | ... | ... | ... | 1,563 2 6                |
|                                                    |     |     |     | Total Rs. ... 5,366 14 2 |



No. 3.

*with the Asiatic Society of Bengal.*

|                             |     |     |     | Cr.           |           |      |
|-----------------------------|-----|-----|-----|---------------|-----------|------|
| By Balance from last Report | ... | ... | ... |               | Rs. 2,131 | 14 2 |
| <br>                        |     |     |     |               |           |      |
| By CASH RECEIPTS.           |     |     |     |               |           |      |
| Government allowance        | ... | ... | ... | 3,200         | 0 0       |      |
| Publications sold for cash  | ... | ... | ... | 5             | 0 0       |      |
|                             |     |     |     | 3,205         | 0 0       |      |
| <br>                        |     |     |     |               |           |      |
| By PERSONAL ACCOUNT.        |     |     |     |               |           |      |
| Publications sold on credit | ... | ... | ... | 30            | 0 0       |      |
| Total Income                |     |     |     | 3,235         | 0 0       |      |
| <br>                        |     |     |     |               |           |      |
|                             |     |     |     | Total Rs. ... | 5,366     | 14 2 |

J. ELIOT.  
*Hony. Secretary and Treasurer.*

J. WESTLAND. }  
F. W. PETERSON. } *Auditors.*

# STATEMENT

## *Personal*

### Dr.

|                                                          |     |     |     |                |
|----------------------------------------------------------|-----|-----|-----|----------------|
| To Balance from last Report                              | ... | ... | ... | Rs. 6,980 5 11 |
| To CASH EXPENDITURE.                                     |     |     |     |                |
| Advances for purchase of Sanskrit MSS., postage of books |     |     |     |                |
| to Members, &c.                                          | ... | ... | ... | 2,928 15 8     |
| To Asiatic Society                                       | ... | ... | ... | 12,465 13 2    |
| To Oriental Publication Fund                             | ... | ... | ... | 1,194 8 4      |
| To Sanskrit Manuscripts Preservation Fund                | ... | ... | ... | 30 0 0         |
| To Trust Funds                                           | ... | ... | ... | 54 3 4         |
|                                                          |     |     |     | 16,673 8 6     |

Total Rs. ... 23,653 14 5

No. 4.

Account.

Cr.

|                                           |     |     |     |     |     |        |    |   |
|-------------------------------------------|-----|-----|-----|-----|-----|--------|----|---|
| By Cash Receipts                          | ... | ... | ... | ... | Rs. | 16,546 | 8  | 7 |
| By Asiatic Society                        | ... | ... | ... | ... | ... | 1,396  | 3  | 4 |
| By Oriental Publication Fund              | ... | ... | ... | ... | ... | 10     | 15 | 0 |
| By Sanskrit Manuscripts Preservation Fund | ... | ... | ... | ... | ... | 30     | 0  | 0 |

| By Balances.                | Due to the Society. |       |       | Due by the Society. |     |     |
|-----------------------------|---------------------|-------|-------|---------------------|-----|-----|
|                             |                     |       |       |                     |     |     |
| Old Claims                  | ...                 | 1,125 | 11 0  | ...                 | ... | ... |
| Members                     | ...                 | 4,311 | 11 11 | 199                 | .9  | 9   |
| Subscribers to Publications | ...                 | 813   | 0 2   | 2,058               | 7   | 6   |
| Employees                   | ...                 | 30    | 0 0   | 170                 | 0   | 0   |
| Agents                      | ...                 | 1,718 | 11 1  | ...                 | ... | ... |
| Miscellaneous               | ...                 | 231   | 7 10  | 132                 | 5   | 3   |
|                             |                     | 8,230 | 10 0  | 2,560               | 6   | 6   |

5,670 3 6

Total Rs. ... 23,653 14 5

J. ELIOT.

Hony. Secretary and Treasurer.

J. WESTLAND.

F. W. PETERSON,

} Auditors.

## STATEMENT

### *Invest*

---

| Dr.                         |     | Nominal.                   | Actual.      |
|-----------------------------|-----|----------------------------|--------------|
| To Balance from last Report | ... | Rs. 1,48,300 0 0           | 1,47,618 0 0 |
|                             |     | Total Rs. ... 1,48,300 0 0 | 1,47,618 0 0 |

## STATEMENT

### *Trust*

---

| Dr.         |                           | Rs.           | 54 3 4     |
|-------------|---------------------------|---------------|------------|
| To Balances | { Blochmann Memorial Fund | ...           | 1,007 11 4 |
|             | { Servants' Pension Fund  | ...           | 1,061 14 8 |
|             |                           | Total Rs. ... | 1,061 14 8 |

## STATEMENT

### *Cash.*

---

| Dr.                          |     | Rs.           | 3,498 12 5     |
|------------------------------|-----|---------------|----------------|
| To Balance from last Report  | ... | ...           | Rs. 3,498 12 5 |
| RECEIPTS.                    |     |               |                |
| To Personal Account          | ... | ...           | 16,546 8 7     |
| To Asiatic Society           | ... | ...           | 7,122 13 0     |
| To Oriental Publication Fund | ... | ...           | 10,868 15 5    |
| To Sanskrit Manuscripts Fund | ... | ...           | 3,205 0 0      |
|                              |     | Total Rs. ... | 40,742 1 5     |

No. 5.  
*ments.*

|               |     |     |     | Cr.          |         |          |     |  |  |
|---------------|-----|-----|-----|--------------|---------|----------|-----|--|--|
|               |     |     |     | Nominal.     | Actual. |          |     |  |  |
| By Balance    | ... | ... | ... | Rs. 1,48,300 | 0 0     | 1,47,618 | 0 0 |  |  |
| Total Rs. ... |     |     |     | 1,48,300     | 0 0     | 1,47,618 | 0 0 |  |  |

J. ELIOT.

*Hony. Secretary and Treasurer.*

J. WESTLAND.

F. W. PETERSON.

} *Auditors.*

No. 6.  
*Funds.*

|                                                                     |     |     |     | Cr.   |       |    |   |  |  |
|---------------------------------------------------------------------|-----|-----|-----|-------|-------|----|---|--|--|
| By Balance (being Servants' Pension Fund only) from last Report     | ... | ... | ... | Rs.   | 1,007 | 11 | 4 |  |  |
| By Personal Account (being refund on account of Blochmann Memorial) | ... | ... | ... | ...   | 54    | 3  | 4 |  |  |
| Total Rs., ...                                                      |     |     |     | 1,061 | 14    | 8  |   |  |  |

J. ELIOT.

*Hony. Secretary and Treasurer.*

J. WESTLAND.

F. W. PETERSON.

} *Auditors.*

No. 7.

|                              |     |     |     | Cr.       |    |    |  |  |
|------------------------------|-----|-----|-----|-----------|----|----|--|--|
| EXPENDITURE.                 |     |     |     |           |    |    |  |  |
| By Personal Account          | ... | ... | ... | Rs. 2,928 | 15 | 8  |  |  |
| By Asiatic Society           | ... | ... | ... | 20,014    | 4  | 11 |  |  |
| By Oriental Publication Fund | ... | ... | ... | 9,556     | 8  | 9  |  |  |
| By Sanskrit Manuscripts Fund | ... | ... | ... | 8,773     | 11 | 8  |  |  |
| By Balance                   | ... | ... | ... | 4,468     | 8  | 5  |  |  |
| Total Rs. ...                |     |     |     | 40,742    | 1  | 5  |  |  |

J. ELIOT.

*Hony. Secretary and Treasurer.*

J. WESTLAND.

F. W. PETERSON.

} *Auditors.*

STATEMENT No. 8.  
*Balance Sheet.*

|                         | <b>Dr.</b> |                              | <b>Cr.</b>                       |                              |
|-------------------------|------------|------------------------------|----------------------------------|------------------------------|
| To Personal Account ... | ...        | Rs. 5,670 3 6                | ...                              | ... 1,42,695 0 10            |
| To Cash ...             | ...        | ... 4,468 8 5                | ...                              | ... 1,563 2 6                |
| To Investments ...      | ...        | ... 1,47,618 0 0             | ...                              | ... 12,636 9 11              |
|                         |            | Total Rs. ... 1,57,756 11 11 |                                  | Total Rs. ... 1,57,756 11 11 |
|                         |            |                              | By Asiatic Society ...           | ...                          |
|                         |            |                              | By Sanskrit Manuscripts Fund ... | ...                          |
|                         |            |                              | By Oriental Publication Fund ... | ...                          |
|                         |            |                              | By Trust Funds ...               | ... 1,061 14 8               |

J. ELLIOT.

*Hon. Secretary and Treasurer.*

J. WESTLAND.

F. W. PETERSON.

} *Auditors.*









Princeton University Library



32101 077790432

