

PROCEEDINGS

OF THE

ASIATIC SOCIETY OF BENGAL.

EDITED BY

THE GENERAL SECRETARY.



Jan. May missing

June
~~JANUARY~~ TO DECEMBER,
1868.



CALCUTTA:

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1868.

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ERRATA.

- Page 66, foot note for *Hetewopodous* read *Heteropodous*.
" " for *Macgillioragüdx* read *Macgillivrayiidæ*.
" " for *Simesigera* Dbil read *Sinusigera*. *D'Orb.*
" 126, line 25, read E. Buck, for E. Busk.
" 203, line 4 from below, read *Pultusk*, for *Pultush*.
" —, line 10 from below, read *cord*, for *end*.

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ADDITIONAL ERRATA.

Page 74, l. 6 from below, read *Geological*, for *Zoological*.

APPENDICES.

APPENDIX A.
List of Communications received in 1868.

Authors.	Papers Communicated.	Author's date.	When received.	Where printed.
Abdul Latif Khan Bahadur, Maulavi, ...	Notes on an Arabic history of the Panthays,	3rd June 1868.	3rd June 1868.	Proc. June 1868.
Godwin-Austen, Capt. H. H. W.	Notes to accompany a Geological Map of a portion of the Khasi Hills, near Long. 91° E., ..	October 1867.	28th Jan. 1868.	Will appear in Journ. Pt. II. No. I. 1868.
Avdall, J. Esq. ...	Authors of Armenian Grammars, from the earliest stages of Armenian literature up to the present day,	30th July 1868.	30th July 1868.	Jour. P. I. No. II. 1868.
Ball, V. Esq. ...	Notes on the Kheriahs, an aboriginal race living in the hill tract of Mánbhúm, .. .. .	....	1st July 1868.	Proc. August 1868.
Ditto ditto, ...	Notes on the Flora of Mánbhúm, .. .. .	....	4th Nov. 1868.	Proc. Nov. 1868.
Blanford, W. T. Esq. ...	Contributions to Indian Malacology, No. IX.,	2nd Dec 1868.	12th Jan. 1868.	Jour. P. II. No. II. 1868.
Ditto ditto, H. Esq., M. A.	Notes on a tour Northern Abyssinia, Contributions to Persian Lexicography, .. .. .	....	2nd Dec. 1868.	Proc. December, 1868.
Ditto ditto, ...	Notes on the Poems of Prince A'zamuddin, grandson of Tipu Sultan, and on three other Persian Poets, styled Sultan,	1st Sept. 1868.	11th April 1868.	Jour. P. I. No. I. 1868.
			1st Sept. 1868.	Proc. Sept. 1868.

Carney, P., Growse, F. S. Esq. Herschel, W. Esq.	... C. E. ...	Queries on the races of India, .. The Poems of Chand, .. Descriptions of a Hindu Temple converted into a mosque at Ga- geneshwar, Zillah Midnapore, .. A memorandum on Elephants, .. On the birds of Goona Districts, .. Notes on the Lion of Aboo, .. On Pandanophyllum and allied genera, ..	4th Mar. 1868.	4th Mar. 1868. 4th Oct. 1868.	Proc. March 1868. Jour. P. I. No. II. 1868.
Johnstone, Lieut. J. King, Dr. G. Ditto ditto, Kurz, S. Esq.	... ... ... ...	Remarks on the genus Pandanus, birds, .. Vranikof M. M., statistical data on the area of Asiatic Russia, Trans- lation of, .. On some species of Gastropoda from the Southern Provinces of Ceylon, ..	7th Dec. 1866. 12th Mar. 1868. 2nd Mar. 1868. 30th May 1868.	21st Dec. 1867. 16th Mar. 1868. 10th Mar. 1868. 9th June 1868. 19th Oct. 1868. Nov. 1868.	Jour. P. I. No. I. 1868. Proc. May 1868. [1868. Jour. P. I. No. IV. Proc. August 1868.
Ditto ditto, Maingay, Dr. A. C. Mitchell, R. Esq.	... .. ...	Notes on rare and little known birds, .. Vranikof M. M., statistical data on the area of Asiatic Russia, Trans- lation of, .. On some species of Gastropoda from the Southern Provinces of Ceylon, ..	.... .... ....	8th April 1868.	Proc. August 1868.
Nevill, Messrs. G. & H.	...	Memorandum on the action of the Ganges in the Benares Province, The History of Burma, .. Notes on the inscriptions from Mathura, ..	2nd Mar. 1868.	10th Mar. 1868. 5th Augt. 1868	........
Oldham, W. Esq. L. L. D. Phayre, Col. Sir A. Bajendralala Mitra, Babu	... ... ...	Notes on the inscriptions from Mathura, .. What was the Sundarban origin- ally, and when and wherefore did it assume its existing state of utter desolation? ..	.... .... ....	6th Oct. 1868. 25th July 1868.	Proc. October 1868. Jour. P. I. No. II. 1868.
Rainey, H. J. Esq.	...	What was the Sundarban origin- ally, and when and wherefore did it assume its existing state of utter desolation? ..	23rd Nov. 1868.	23rd Nov. 1868.	Proc. December 1868.

Authors.	Papers Communicated.	Author's date.	When received.	Pl. & No. of the Journ. and Proc.
Stoliczka, Dr. F.	.. On the Anatomy of <i>Sagartia Schil-leriana</i> and <i>Membranipora Benga-lensis</i>, .. .. .	....	3rd June 1868.	Will appear in Journ. Pt. II. No. I. 1868.
Ditto ditto,	.. The Malacology of Lower Bengal, No. 1, on the genus <i>Onchidium</i>,	....	....	....
Tennant, Major F.	.. On Solar Eclipses and the total Eclipse, Augst. 18, 1868, ..	1st May 1868.	4th Nov. 1868.	Printed separately.
Ditto ditto,	.. On the results deducible from the observations made by order of the Secretary of State for India at Guntoor, on the late total Eclipse of the Sun, .. .. .	....	25th Nov. 1868.	Proceedings for Decem-ber 1868.

APPENDIX B.

List of Donations.

Donors.	Donations transferred to the Indian Museum.
Ball, V. Esq.	A specimen of <i>Ciconia alba</i> .
Gauricharana, Raya, Babu,	A specimen of <i>Strix Indica</i> .
Colvin, B. W. Magistrate of	A copper spearhead, two copper
Mainpuri,	axes, a few copper bangles.
Gregory, Lieut. J.	A specimen of a <i>Teliphonus</i> from
	the Naga Hills.
Harachandra Chaturdhurina,	
Babu,	A stone slab bearing an Arabic in-
	scription, found in his Zemindary
	Sherepore.
Hemchandra Deva, Babu,	A nest of <i>Orthotomus longicaudus</i> .
King, Dr. G.	A skeleton of a lion.
Maingay, Dr. A. C.	A collection of skins of rare and
	little known birds from Malacca.
Mangles, H. A. Esq.	A fragment of a stone hatchet.
The Rev. F. F. Mazuchelli,	An iron cage.
Rakaludasa Haladara, Babu,	A quantity of Kaolin from Mán-
	bhúm.
Rutledge, W. Esq.,	Two specimens of <i>Llama glama</i> .
Supt. Barrackpore, Park, The	A specimen of a young tiger.
" "	A ditto of <i>Mellivora Ratel</i> (Badger).
" "	A ditto of <i>Pavo muticus</i> .
Supt. Govt. Mathematical In-	
strument Department, The	Two base-line chains, 100 feet each,
	a Zenith Sector, with stands, a
	ditto Micrometer, with ditto, for-
	merly used by Col. Lambton in
	the G. T. Survey.
Smith, Dr. D. B.	Twelve <i>Udia</i> skulls.
Ward, Capt. H. C. E.	Four specimens of <i>Physa Prinsep</i> ,
	from Sanka Sahada, in the
	Mundla district.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL,
FOR JUNE, 1868.

Pursuant to notice from the Council, a Special General Meeting of the Society was held on Wednesday the 3rd of June, 1868, at 9 o'clock, P. M.

The President in the chair.

The Chairman explained the reasons for which the special Meeting had been convened, and reported on the part of the Council that circulars for collecting votes for the alteration of Bye Laws Nos. 13, 43 and 64, had been sent to 119 non-resident members and 56 replies have been received. Of these one votes against the change in Rule 43, one votes against the change in rule 64; and one declines to vote, not having a copy of the Bye Laws.—The rest are all in favour of the changes proposed.

As the several propositions had already been discussed in the Society, and were only now brought forward for confirmation or rejection, according to the result of the voting of the non-resident members, he would read the proposals seriatim, and put them separately.

The first was—That in Rule 13 the words, “nor shall his name be entered on the member roll” be inserted after the “words entitled to vote.”

This was put to the meeting and carried, more than three-fourths of the votes taken being in favour of the alteration.

Secondly.—That the following words be added at the end of Rule 43, “two months from the date of issuing the voting papers being allowed for that purpose.”

This was put to the meeting and carried.

Thirdly.—That the following words be added at the end of Rule 64—“ But no case which involves a change of the rules of the Society, shall be declared urgent under this rule.”

This was also declared to be carried.

The Special Meeting was then dissolved.

A Monthly General Meeting of the Society, was then held.

The President, in the chair.

The Minutes of the Special Meeting of the 6th May, 1868, were then read,—when it was proposed by Mr. H. F. Blanford and seconded by Mr. H. Locke, “ That the Minutes of the Special Meeting of the 6th May, being incorrect in many particulars, be referred to the Council for revision and correction, and re-submission to the Society.”

A show of hands being called for, this motion was declared lost. Mr. Blanford then demanded a scrutiny and this being held, the motion was again declared to be lost.

It was then proposed by C. D. Field, Esq., and seconded by Colonel J. E. Gastrell, “ That in accordance with the spirit of Rule 60, any inaccuracy of which the present meeting are satisfied, be now corrected.”

This was put to the Meeting and carried.

The President then read the Minutes again in detail, when the following corrections were agreed to,

Page 123, line 12,* insert the words, ‘Senior Vice-President’ after the Hon’ble J. B. Phear.

Page 124, line 9,—omit the paragraph commencing, ‘A question’ and terminating with, ‘to be seconded.’

Page 125, line 17, substitute Mr. Scott, for Dr. Waldie.

„ 25, *for*, This was seconded by Dr. Colles, and was put to the meeting, *read*—This was put to the meeting.

„ 27, omit the words, “in consequence of this resolution.”

These alterations having been agreed to seriatim, the minutes were then confirmed, with these corrections.

The minutes of the last Ordinary General Meeting were then read and confirmed.

* These numbers refer to the printed copy of the Proceedings already circulated to the members.

I. The following presentations were announced :—

1. From the Commissioner of the Central Provinces,

Two Copies of Report of the Ethnological Committee on papers laid before them and upon examination of specimens of Aboriginal tribes brought to the Jubbulpore Exhibition of 1866-67.

2. From Dr. F. Steindachner through Dr. F. Stoliczka, a copy of "Ichthyologischer Bericht über eine nach Spanien und Portugal unternommene Reise."

3. From Colonel W. H. Sykes, a copy of Analysis of the Report upon the state of the Empire of France presented to the Senate and Legislative body, February, 1867.

4. From Major J. F. Tennant, a copy of a Memorandum on preparations for observing the Total Eclipse of the Sun on August 18th, 1868.

II. The following gentlemen duly proposed and seconded at the last meeting were ballotted for and elected as ordinary members :—

E. Buck, Esq., C. S., Cawnpore.

Bábu Yatíndramohana Thákura.

H. Reinhold, Esq.

Dr. C. R. Francis (re-election.)

III. The following are candidates for ballot at the July meeting :—

Dr. G. W. Leitner, proposed by Mr. Grote and seconded by Mr. Blanford.

Lieutenant C. F. T. Marshall, Lahore, proposed by Mr. Grote and seconded by Bábu Rájendralála Mitra.

W. Smith, Esq., C. E., proposed by Dr. T. Oldham and seconded by Mr. H. Leonard.

R. H. Renny, Esq., Assistant Commissioner, Chittagong Hill Tracts, proposed by Captain T. H. Lewin, seconded by Babu R. Mitra.

The Rev. James Roberts, Jr. Chaplain of the Church of Scotland, proposed by Mr. Sime, seconded by Mr. H. F. Blanford.

IV. Letters from the following, intimating their desire to withdraw from the Society, were recorded :—

Captain F. S. Staunton, R. E.

J. H. Branson, Esq.

A. P. Macdonell, Esq.

V. Mr. D. Waldie, brought forward the following motion, notice of which was given at the last meeting :—

“ That Rule 51 be made to read as follows :—The Council for the time being shall before the *General Meeting of December*, cause to be prepared a sufficient number of printed balloting lists, according to the form in the appendix, which shall contain the names of those persons whom they recommend to be appointed members of Council and office-bearers for the year ensuing, with blank columns in which to place other names. These balloting lists *shall be laid before the members at the December Meeting.*”

Mr. Waldie said—The change consisted, as would readily be seen, in simply providing that the balloting lists should be laid before the members at the monthly meeting in December preceding the annual meeting in January, instead of on the evening of election itself. The apparent object of the rules was that the Council should recommend who should constitute the Council and Office-bearers for the ensuing year, but that the Society at their meeting should elect whom they thought fit, and all that was proposed was that the means should be adapted to carrying this into effect. He (Mr. W.) did not think that the means hitherto employed, so far as he had seen, were adapted to secure this. The Society had no previous knowledge of the names of those who were to be proposed for the new Council ; these were submitted to the members at the meeting with, no doubt, the power to alter them, but they had no opportunity of exchanging opinions as to any desirable alteration ; and though occasional alterations were made, from the absence of any power of consultation or combination there was the smallest probable chance of any of them being effectual, and as a matter of fact practically the old Council elected the new one. So far as he was himself concerned, he had hitherto felt not the slightest objection to it, as on all occasions he had approved of the lists in their entirety, but he could easily conceive that he might on some future occasion wish to insert some name or names that were not in the Council's list, and probably other members might wish the same: indeed, the alterations occasionally made shewed that such was the case. Beside, it ought to be remembered that silence was not always satisfaction: not very long ago a member had expressed dissatisfaction with the small attention pai

to the opinion of the mofussil members, and an alteration had been made in the rules in consequence.

If the proposal was adopted, it would be necessary to alter Law 85, so as to be in accordance with it. It might also be worthy of consideration whether Law 47 might not be modified.

Mr. W. farther observed that, though not much acquainted with the working of such Societies, he knew of at least one scientific Society in London which sent the balloting lists by post to their country members. If such a change as this was contemplated, some other rules might require attention, such as 32 and 33. But he merely threw out this as a suggestion for the consideration of the Council.

The motion was referred to the Council for report.

VI. The Council reported that on a recommendation of the Finance and the Philological Committees, they have allotted Rs. 3,000 to the publication of an English Translation of the *Ain-i-Akbari*, by Mr. Blochmann, in the *Bibliotheca Indica*.

Also, that they have elected F. Stoliczka, Esq., Ph. D. a member of their body and Natural History Secretary in place of Dr. J. A. P. Colles, who has resigned both his seat in the Council and his Nat. Hist. Secretary-ship, as he is leaving Calcutta; subject to the confirmation of the Society at the monthly meeting of July.

Also, that they have agreed to receive and take charge of the instruments formerly used by Col. Lambton in the early operations of the Great Trigonometrical Survey, proposed by the Officiating Surveyor General to be deposited in the Society's rooms.

The President brought to the notice of the Society that H. F. Blanford, Esq., having resigned his Secretary-ship of the Society at the last Special General Meeting, he had requested Babu Rájendralála Mitra to carry on the current duties, for the present.

VII. The President then explained to the Meeting that subsequently to the meeting of the Council, Maulavi Abdul Latif Khan Bahadur had called on him, and explained to him that there were at present in Calcutta for a short time several of the Mussulman inhabitants of Yunan, the Panthays; that one of these appeared a man of some learning from whom he had obtained a brief history of the race in Arabic, which he had translated, and which he was very desirous of laying before the Society, while these Panthay gentlemen were here

and could attend, and afford any further information that might be sought. As these gentlemen could not be present at the next Ordinary Meeting, he had, as authorized by the rules of the Society, added the Maulavi's paper to the list for this evening, but as they had already been sitting for some time, he would ask the meeting to allow this paper to be read before the others.

This was agreed to.

Maulavi Abdul Latif then read "*Notes on an Arabic history of the PANTHAYS, with translation,*" as follows.

From the earliest times China has excited the keenest curiosity of the outer world. Its undoubted antiquity, its wealth, the vastness of its population, its arts and civilization, its social peculiarities, above all its jealousy of the stranger, attracted to it travellers from the most distant countries; and the accounts which they published, meagre and unsatisfactory as they necessarily were, were still of a character to keep up the interest in the strange land. The events of late years, and the anticipations of a no distant future, have given our interest in Western and Central Asia, a more direct and even personal character. Our knowledge, however, of the regions has not proportionately increased. It is fortunate that the ardour of our scientific men, our desire to find new outlets for commerce, and our increased political circumspection, are at work to supply the want. We have recently sent an expedition with commercial and scientific objects to explore the overland route to China, and are anxiously awaiting the issue. Not long ago, the world was startled by the chance intelligence that there was a numerous Mahomedan population living for centuries in China, and that for some reason or other, they had thrown off the Chinese yoke. Great curiosity was awakened by the information, but beyond the half authenticated original rumour, there were no adequate means of satisfying this curiosity.

Colonel A. Fytche, the Chief Commissioner of British Burmah, who gave, at our December meeting, almost the first account of these interesting China Mussulmans, dwelt much on the extreme difficulty of obtaining any information regarding them, and gave abundant warning for receiving his account with considerable allowances. Happily, a few months after, arrived at Calcutta, by way of Burmah, on their way to Mecca, a dozen pilgrims from among these China

Mahomedans. Some information of their country, more especially in regard to routes, obtained after much difficulty of communication with them, has already been published in the 'Daily News' paper of the 25th ultimo. I am happy to be able to add some more to the stock, and to introduce a couple of our distant and interesting visitors to this meeting, for ocular observation and personal enquiry as to any facts. From what I could learn, Arabic learning, as befits a Mahomedan country, flourishes well in Mussulman China, much encouragement being given to its cultivation, by means of numerous colleges, and by rewards to learned men for studying the mass of Arabic literature, which has found its way there.

One of our visitors, named *Syud Abdool Wudood*, appears to be a learned man, and as he is not at all disinclined to impart information, his presence in Calcutta, would have been really valuable, had it not been for his almost unintelligible pronunciation of Arabic. He writes, however, Arabic fluently and well, and he has in his possession an account in Arabic of the Mahomedans in China, giving a brief narrative of the political events that have taken place in Yunnan during the last thirteen years. It is not such an account as will satisfy all the demands of European enquiry, but for an oriental document, it is singularly clear. What gaps there are may be filled up by fresh questioning. I have made a copy of the account, which I beg to present to the Society, and I will now read a translation of it.

'In the year 1254 Hegira (1839 of the Christian era) a disturbance took place in a district of the Province of Yunnan; the particulars of which are, that the Infidels burnt down several villages of the Mahomedans to ashes and massacred their inhabitants, killing Mahomedans, men and women, to the number of 2000 or more. The survivors preferred their complaints before the higher local authorities, but no one paid even the slightest attention to them, and on the contrary they charged these very persons with being blameable and guilty. They then repaired to Peking, and laid their grievances before His Majesty the Emperor of China—who deputed one of the higher Officers of the Court to Yunnan, in order to do justice. When this Officer arrived there, he perverted the royal commands, and proceeded to act just as he was instructed by his prede-

cessors,—insomuch that he compelled the Mahomedans to sell off their lands, houses and cultivations, to the Infidels at low prices. After this, the oppression of the Infidels towards the Mahomedans by word and deed increased considerably, and in some districts the old animosity gradually revived and quarrels arose. When the Infidels had the better of the Mahomedans in the fight, the authorities became dumb and blind; but when the Mahomedans defeated the Infidels, the Officials espoused the cause of the Infidels. For some years, matters continued thus.’

‘In 1271 Hegira (1854 of the Christian era) a hard struggle ensued throughout Yunnan. It arose thus:—The Infidel Officials gave secret orders to all their co-religionists to combine, and on a certain appointed day, to put all the Mahomedans to the sword; the reason for secrecy being, that the Mahomedans might not be warned to combine in self-defence. The infidels made their party strong and firm; and concocted schemes of fraud and treachery, and signs of evil began to manifest themselves. When we Mahomedans saw such a state of things, and compared our numerical weakness with the vast number of the Infidels, we were overwhelmed with grief and anxiety. We regarded the fact, as a plague without remedy, a danger from which there was no escape; and we thought that there was no refuge but in God, and that we had no means left, save to implore the mercy of God, and pray for aid from Him. We then recited the holy text: “O God! Thou art our Lord, grant us victory over the nation of infidels.”’

‘Some of the Infidels prematurely betrayed their plot by their eagerness, for without waiting for the appointed day, they began in some of the districts, to raise discord and contention. The Mahomedans of those parts of the Province sought help from their brethren of the entire Province. They all united together and assisted one another. We, the followers of Islam, moved in large bodies from one place to another, and commenced patiently attacking the Infidels. We willingly placed ourselves in the most imminent dangers, repeating the holy sentence: “O God! give us all patience and firmness, and fix our feet, and help us to defeat this nation of infidels.”’

‘After all those distresses, God granted us victory and ease. We killed some of the Infidel officials in battle. Villagers fell without

number, mostly in battle, and others in the streets, while many were burnt and drowned. Such as escaped the wholesale massacre, leaving their families to their fate, fled to other places, and there settled themselves. Some of the Infidels of certain districts, finding their own party dispersed, and their string of union broken, were compelled to surrender, and made submission. We granted their prayer. Some of these refugees even followed us in battle and joined us in destroying the enemies. The remaining chiefs having collected a large number of Infidels from different districts and cities, managed their affairs and guarded the different posts as strongly as possible. After this many hard battles were fought between ourselves and the Infidels. The current of bloodshed was moving to and fro; and disturbances spread throughout the Province from east to west. The country near and far was ruined and destroyed. In some battles, we sustained manifest defeats and routs, and in others we were crowned with victory and delight. We captured immense booty, and lofty edifices came into our possession. Thus we alternately shared defeat and victory, until by the grace of God, and our numberless victories, we took possession of large cities and many palaces and buildings. And God made the Infidel inhabitants to be our subjects and dependents, all of them submitting to the decree of fate. At the instigation of the Officials, the enemies again raised tumults from their own houses. For instance, up to the present time, we go on warring with them, and peace has not yet been restored, and the fire of discord still burns.'

'As for our Province of Yunnan, it has been divided into two parts. The eastern Division is called *Eedon*. Its capital city is *Sinchan*. Here the Mahomedans have for their chief, a man of the name of *Myan-foon*. Of the inhabitants of the last, some are Mahomedans and some Infidels; but the latter pay allegiance to the Mahomedans.'

'The other part of the Province lies on the west. Its name is *Isee*, and its capital city *Tali*. Here also the Mahomedans have elected a chief, whose name is *Soleiman Ibn-i-Abdoor Ruhman*, who has established Islamism, by building mosques and schools and colleges, and assisting and honouring learned men. The inhabitants of the west are mostly Mahomedans, and few Infidels, but they are dependents of the Mahomedans. He has appointed several Officers

in each city, one entrusted with ecclesiastical affairs, another in charge of the executive, and a third at the head of the army. It is very near when he may get or assume the title of Sultan.

‘As for the chief of the east, *Myan-foon*, he was persuaded and tempted by the chiefs of the Infidels, with the promise held out to him, that in case he should separate himself from the Mahomedans and come over to their side, great honors would be conferred on him by their Emperor, and the whole Province of Yunnan would be given to him. The poor fellow was puffed up with vanity by their allurements; and what was the object of their advice, but to sow discord among the followers of Islam? A battle at last took place between *Myan-foon* and *Syud Soleiman Ibn-i-Abdoor Ruhman*; but through the mediation of one *Hajee Yoosuff*, a truce was concluded between them, by the division of the whole of the Province in two equal shares. After three years, at the instigation of the chiefs of the infidels, *Myan-foon* broke the truce and became neglectful of the rights of Islam. *Hajee Yoosuff* also was unable to prevent him from breaking his promise. Until at last *Myan-foon* collected a large army composed of the Mahomedans and Infidels, the number of which we do not know. *Syud Soleiman Ibn-i-Abdoor Ruhman* also brought to order his victorious army, and despatched them to be posted in all the passes for opposing the troops of *Myan-foon*. When the two armies met, God gave us (the followers of *Syud Soleiman Ibn-i-Abdoor Ruhman*) victory over our enemies, and the troops of *Myan-foon* were totally routed in the following ten different places:

1, Nanshan; 2, Wowkhanahen; 3, Mama Kawan; 4, Kham Nan; 5, Youghan; 6, Nahbeir; 7, Dayau; 8, Din Yoon; 9, Zur Dujlah; 10, Yoonbah.

‘And we took the following towns from them also:—

1, Din Yoon; 2, Daya; 3, Loofon; 4, Maka; besides four saline wells, whose names are as follow:—1, White well; 2, Sky-colored well; 3, Black well; 4, Fortunate well. Still both parties are fighting with one another.

‘Besides the above, in the Provinces of *Shans* and *Kansoo*, God has given victory to the Mahomedans over the Infidels; and the Mahomedans there have also taken forcibly all the cities. This piece of news is true; as a Mahomedan inhabitant of Yunnan, after remaining

for 13 years in *Shans*, has now returned home. Between our country (*Yunnan*) and *Shans*, the distance is that of 70 stages.

‘A large number of the Christians of France and England have come to China and to Peking, and to all the Provinces, and some of them have reached the Capital of the the Eastern Division of Yunnan. There they have erected churches and hung up therein the likenesses of Jesus Christ, the son of Mary. They have done likewise in many other Provinces too.’

Maulavi Abdul Lutf begged also to present to the Society a manuscript sheet written in Arabic by the said *Syud. Abdool Wadood* of Yunnan, which he had the goodness to present to him. The archaic peculiarity of the caligraphy will, he believed, be remarked.

Several members having made different enquiries regarding the Panthay country from the Panthay gentlemen who were present, by the aid of Maulavi Abdul Latif; thanks were passed to the Maulavi for this interesting account.

Mr. Blanford said that the Society would doubtless be interested to know that information had that day been received from Dr. John Anderson on the Yunan expedition. The expedition had met with many obstructions to its progress, and had consequently experienced much delay, but at the date of Dr. Anderson’s letter (28th April) all serious obstacles appeared to have been overcome, and the Panthays, who appeared to be most anxious to receive the expedition, had just cleared away one of a formidable character by defeating and driving away from Mawpoo the Chinese robber chief Leeseetai who is stated to have commanded a body of 5000 men, and to have been instigated by certain of the Chinese to destroy the expeditionary party. The road was therefore open to Momein, and the Panthays have sent circular notices to the chiefs on the road to give the expedition every assistance in their power. Dr. Anderson’s letter had been brought by Captain Williams and Mr. Stewart who had returned to Mandalay. Dr. Anderson expected to be back in Calcutta about August.

The following papers, reading of which was postponed at the last Meeting, were read by the President:—

Notes on the Crosses and Cromlechs of Chindwara District, by J. Mulheran, Esq., in a letter to Col. J. T. Walker, R. E.

Report by the Commissioner of Coorg on the Cromlechs of that Province.

Mr. Mulheran writes,—I have just received your letter of the 17th ultimo, and hasten to mention that Colonel Thuillier wrote to me upon the same subject, and that I at once replied to his letter and forwarded the photographs referred to by Mr. Bayley. I also furnished such information as it was in my power to afford, but avoided the question raised at home by Mr. Marcus Keane, M. R. I. A., regarding the whole of these ancient remains, *crosses included*, being Bhuddist in origin. As regards the Cromlechs themselves, I believe Mr. Keane to be perfectly correct, the majority of the massive stone temples and other ancient structures found within a radius of 200 miles of the crosses, being similar to the Bhuddist Thakurdwaras of the snowy range, as regards the extreme grossness of the subjects represented. As regards the crosses being also Bhuddist in origin, Mr. Keane must be mistaken, as no instance can be cited either in India or at home, or indeed in any part of the world of a memorial cross ever having been erected, except as a symbol of the Christian faith. Apart from this, the whole of the Katapur crosses, as you will see from the enclosed photographs, are of the Latin form.*

As regards the people by whom these crosses were erected, the question is one of great difficulty, the people, living in the vicinity, being utterly ignorant of the symbol itself, and incapable of affording even traditional information. From what I have myself seen of the neighbourhood of Katapur and the open glades in the forest to the west, I have not the slightest doubt that, at some former period, the whole of these cleared portions of the forest were extensively cultivated by Teligus, or some other race far more civilized than the present race of Gonds. Indeed, the large tank a few miles west of Katapur, which irrigates extensive fields of rice, is one proof of this, as are also other large tanks east, west, and north of Katapur, the skill and labour evinced in which would do credit to Engineers of the present day. If, therefore, it can be shown that there are reasons for believing that a considerable portion of the country now overrun with forest, was formerly cultivated by a race differing from the Gonds, and that the massive stone temples in all stages of decay were erected by them, there

* See Proc. April, 1868, p. 116.

will be little difficulty in giving the same people credit for the ability that was required to quarry stones 15 tons in weight, and to place them in their present position.

If the Cromlechs could be shown to be in any way connected with the Himarpanti temples in their neighbourhood, the question of origin might be readily settled. That the Bhuddists are exceedingly particular in preserving memorials of their dead, will be admitted by all who have seen the extraordinary number of slabs collected in some of the valleys of the snowy range, and the care evinced in covering each of these slabs with characters expressive of the virtues and hopes of the departed. Occasionally these collections of stone memorials are 120 feet and upwards in length, $6\frac{1}{2}$ broad, and from $4\frac{1}{3}$ to 5 feet in height, or nearly 4,000 cubic feet in extent. In the slabs so collected—and I examined a great number—I did not find a single one upon which the characters cut were not clearly traceable. Several were 2 feet in superficial area, and entirely covered with writing. The people assured me that the whole of these piles of slabs consisted of written memorials of the dead, and that they were brought from all parts of the country. In none of the Cromlechs that I have seen, have I been able to discover traces of any writing, however faint. What, however, struck me as peculiar both in the Cromlechs of the Godavery, and in the collections of the snowy range, was the extraordinary care taken by the people in massing these memorials in particular places.

The stone temples south, west, and north of the Cromlechs at Hydrabad and on the ridges adjoining the Godavery, are unmistakeably Bhuddist, as are also the Ellora and Adjanta Caves. The enclosed* photographs of the great Dragon of the modern Jain temple at Karinjah, is similar in form to those noticeable in the caves and Himarpanti temples of the Nizam's country. The peculiar feature in all is the eye, which is represented as capable of *elongation*. I may add that I have seen paintings on silk (native offerings for temples) brought from Llasa in several of which I noticed the same Dragon, but with longer horns. The Bhuddist figures, with the palms resting upon the turned-up soles of the feet, are unmistakeable and are sufficient in the absence of all other signs to indicate the source of most of the old stone structures

* (Not enclosed, nor yet received ; J. T. W.)

scattered over the Nizam's country. I have, therefore, no hesitation in expressing my belief that the whole of these temples are Bhuddist in origin, although some have been converted into mosques, and others into Hindoo temples. The one converted into a mosque at Dowlatabad, has a large black slab covered with characters in *Pelvi*, in excellent preservation, buried in the wall which, if translated, would, no doubt, throw some light upon a subject that at present is doubtful.

I enclose a few photographs to afford an idea of some of the stone temples to which I refer. Also photographs of the ruins of two monasteries near Súnár and Maiker. A larger camera, with good definition, would have given a clearer idea of these massive structures, as well as of the peculiarities of the carvings in stone of the principal figures.

As regards the crosses found at Katapur, there can be no doubt that they are more puzzling than the Cromlechs themselves. In noticing them, however, I may observe that, as the Godavery below Badrachulam has always been navigable at certain seasons of the year for boats of a particular size, there has always been some communication with the sea coast. If, therefore, there be any foundation for the belief that St. Thomas visited the Mount at Madras, it is reasonable to infer that either that apostle or some of his disciples visited the sea coast near Coconada, and made converts to the Christian faith, either at that place or higher up the Godavery. If this could be shewn to be true, no difficulty would be experienced in explaining the origin of the crosses, however strangely situated, it being impossible to believe that heathens would now think of erecting massive stone crosses of the Latin form either as memorials of the dead, or of their own faith. That the converts, if any, were few in number and confined to one locality, may be inferred from the fact that although Cromlechs are found in great abundance on the ridges adjoining the Godavery, as well as upon the undulating land near Hyderabad, crosses of the form to which I have referred, are only found at Katapur and Malín, a few miles west of the Godavery. My own belief is that, if the crosses are not memorials of the faith of Bhuddist converts, they are memorials of the faith of Christian labourers of the early ages of Christianity, or of the Roman Catholic Church at Goa, who died during their ministration on the banks of the Godavery.

The crosses, as you will see from the photographs enclosed,* are all of one piece of stone, and from 10 to 11 feet in length, and indicate as clearly as such laborious memorials can indicate, the strong faith of those who erected them.

The above, added to the remarks made in my letter to Col. Thuillier, embrace all the information it occurs to me to afford regarding the subject to which you refer. Should either you, however, or Mr. Bayley, consider more detailed information upon any particular question desirable, I will gladly furnish the same on hearing from you.

8th March, 1868.

Col. Walker in his note, says :— * * *

The fact that the crosses are only to be met with in one locality, while the Cromlechs are found in great abundance in several parts of the Hyderabad districts, as well as in other parts of India, *e. g.* Chunar, would seem to be fatal to the hypothesis that the crosses and Cromlechs 'belonged to the same people.' The proximity of the Cromlechs to the sites of extensive Bhuddist ruins, and their similarity to the Bhuddist Thakurdwaras of the snowy range, makes it probable that they are of Bhuddist origin. But the crosses may well be the relics of a small community of Christian converts and missionaries, whose annals have not been inscribed on any page of history; this is much more probable than that they can be of Bhuddist origin.

As for the hypothesis that the Cromlechs are the work of 'a stone implement using race,' I confess to feeling very doubtful as to whether such implements could have sufficed for the construction of such works. * * * *Dehra Doon, 30th March, 1868.*

On the Cromlechs in Coorg. Sir R. Temple, Foreign Secretary to Government of India under date 9th April, forwards this correspondence by direction of His Excellency the Governor-General in Council, accompanied by three drawings and some lithographs of the remains. The letter from the Superintendent of Coorg, Capt. R. A. Cole, dated Merkara, 10th March 1868, says.

I have the honor to report the discovery of a large number of

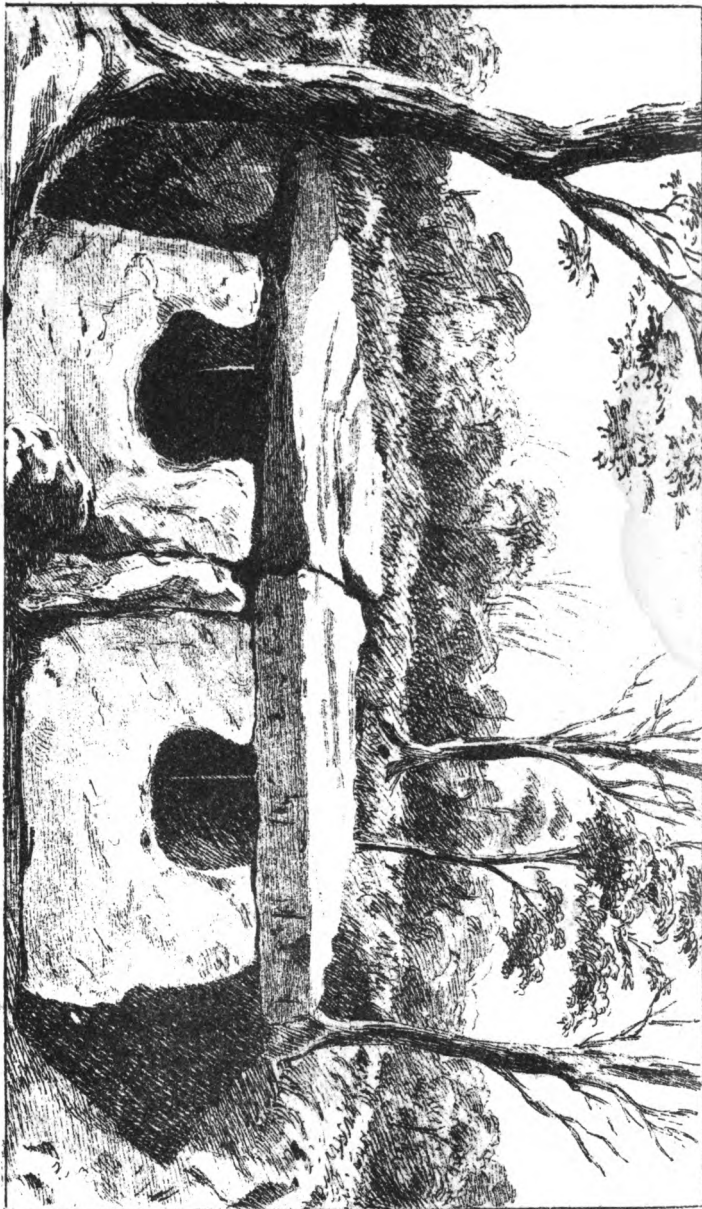
* See Plate 1, fig. 1, p. 116.

Cromlechs or Cairns on some *bané* or grass lands about a mile to the west of the town of Veerajpett in South Coorg. The discovery was made by my Assistant, Lieutenant J. S. F. Mackenzie, in January last, in the following manner :—A quantity of stones was required for certain bridges and other works in Veerajenderpett, and one of the native merchants offered to get the stones if Mr. Mackenzie would allow him to remove them from the *bané* in question. Mr. Mackenzie inspected the locality and found the remains of a great number of Cromlechs, the stones of which had evidently been split up and removed at different periods by the Wuddars, a tribe of stone-hewers. The *bané* in question is much grown over with low brush wood; and on pushing further on, Mr. Mackenzie hit upon a fine large double Cromlech. On communicating this most interesting archæological discovery to me, I at once forbade the removal of any more stones from the locality, and directed the shrubwood and earth around the Cromlech to be removed, so as to lay bare the whole structure to its base.

Lieutenant W. Freeth, the Assistant Superintendent of the Revenue Survey, then kindly undertook to make drawings and plans of this double Cromlech and of two others, and I have now the pleasure of forwarding, for submission to His Excellency the Viceroy and Governor-General of India, three colored drawings* of these Cromlechs, as also 20 copies of plans of the same lithographed at the Merkara Sudder Jail Press from drawings by Mr. Freeth.

The double Cromlech, (Plate 2,) is formed by six large (unhewn) stones, surmounted by one large flat stone, 13 feet long, by 9 feet 9 inches broad, and about 7 or 8 inches thick. This top stone had been apparently not long ago chiselled and split open right across the centre from each side, so as to form four blocks, but most fortunately had not been removed, except a small piece at the back and to the left, looking at the Cromlechs. The back is also formed by one large slab, as also each side. The front slabs are smaller and divided by the large centre slab, which forms the enclosure into two compartments. These front stones have each a peculiar aperture of an irregular segmental form, about 1 foot 11 inches by 1 foot 8 inches, at the top and immediately below the superincumbent stone. The stones at these apertures are sharp on the inside, and present a bevilled appearance

* We have given a reduced copy of the most important of these. Ed.



CROM LECH NEAR VIRAJENDERPETT
COORG.

Photocnographed at the Surveyor General's Office, Calcutta.
June 1868.

outside. The inner rim is so sharp as to lead to the conclusion that these apertures could not have been used for ingress and egress. The centre stone projects to the front 2 feet 8 inches, and the top flag projects over the left compartment to such an extent as to afford shelter like a verandah. This was doubtless accidental, but it is a curious fact that this shelter is so afforded on the side, away from exposure to the monsoons which now prevail. The interior measurements of the compartments are also given in the plans by which it will be seen that each compartment was about 7 feet long, 3 feet 9 inches broad, and 4 feet high. Each compartment was flagged by a large stone in each. These compartments were nearly full of earth, but nothing was found in them. Dr. Shortt of Madras, who has opened many cairns on the Nilgiris and other parts of the Madras Presidency, informed me that he had never seen or heard of a double Cromlech of this description. This would add to the value of the present discovery.

There is also a single Cromlech similarly constructed of large unhewn and uncemented slabs of granite. It is 6 feet 8 inches long; by $4\frac{1}{2}$ feet broad, and 4 feet high, interior measurement. The top stone had been broken and partly removed, and the stem of a very old tree was found growing out of it; nothing was found in this either.

A third one is a still smaller Cromlech found on another *bané* about $1\frac{1}{2}$ mile from the others. On this *bané* are to be found many large tumuli, which apparently contain many of these Cromlechs. The front stone of this small Cromlech was just visible at the end of one of these tumuli, and I caused the earth above and around it to be cleared away, and the top stone was raised and made to slip over on one side. It was full of earth in which we found pieces of earthen pots and small pieces of charcoal.

At the end of another tumulus, another Cromlech was dug out, but we found the top stone had been removed, apparently very many years ago. In this also were found fragments of earthen vessels and pieces of charcoal, and also a small piece of a bangle. This bangle is much thicker than those in use in the present day, and the devices on it are in pale yellow and somewhat similar in form to those generally to be found on the modern imitation Etruscan vases, goglets, &c. I showed this bangle to all the native merchants at Veerajpett, who

declared that they had never seen one of such a description before. This bangle and fragments of earthen vessels were sent in to the Commissioner, and are now in the museum at Bangalore, but I would beg to suggest that they should be sent on to the Government with this report. The bangle is evidently of no modern date; but as the top stone of this Cromlech had been removed, and Wuddars had evidently been at work in the locality during the past 50 to 100 years, it is possible that the bangle had once belonged to some dusky beauty of that tribe. It was found also only about a foot and a half below the surface of the mound and just within the stone cist.

I have failed to discover any of those concentric rows of upright stones which have generally been found with such Cromlechs in cairns elsewhere, but the fact of the Wuddars having been so long at work in these localities would account for the disappearance of these stones which were probably first discovered and removed. It is worthy of note that these structures all face east and west. Very few of these Cromlechs would appear to have had the segmental apertures found in the double Cromlech, and in fact most of those now visible are much smaller and would appear to be more like those short stone cists containing cinerary urns, which have generally been found in the sepulchral mounds both in Asia and in Europe, and even in Central America. As remarked before by me, these *banés* abound with such tumuli, some of which have evidently not been touched. It is in such alone that we may expect to find still more interesting relics of this almost unknown past period of the history of the world and of our species, and I would earnestly request permission to push on these excavations. Some of these tumuli would appear to run parallel with each other, so that, when uncovered, these stone chambers would present the appearance of streets. The discovery of pieces of charcoal and fragments of apparently cinerary urns, would tend to show that the conclusions drawn by modern archæologists were correct, *viz.* that these stone chambers were only used as sepulchral monuments. But my assistant, Mr. Mackenzie, has suggested that it is an extraordinary fact that, when such durable and lasting monuments to the dead are to be found, no remains of the dwellings of these ancient Dravidian races are visible in the same localities so as to throw still greater light on the ethnical records of the past. Is it possible that these larger

Cromlechs forming regular well-closed chambers, unlike those found elsewhere, were the dwellings, and the smaller stone cists and tumuli the sepulchral monuments of these almost hypothetical races?

In conclusion I beg to state that similar Cromlechs and monoliths are said to exist in Kiggutnad in South Coorg, and also near Fraserpett in East Coorg, on the borders of Mysore, regarding which I would propose to submit a separate report hereafter. Soliciting the Commissioner's sanction to an expenditure of 2 or 300 Rs. in making further excavations, I have &c.

The correspondence was closed by a letter from Sir R. Temple, Foreign Secretary to Government of India, to the Commissioner of Coorg, dated 9th April, stating :—

I am directed by the Governor-General in Council to acknowledge the receipt of your letter dated 11th ultimo, No. 59, with an enclosure from the Superintendent of Coorg, reporting the discovery by Lieutenant J. S. F. Mackenzie of a number of Cromlechs or sepulchral monuments in the vicinity of Veerajpett, in South Coorg, and forwarding three drawings executed by Lieutenant W. Freeth, of a large double Cromlech and two single ones of a smaller size, together with lithographed copies and plans.

2. His Excellency in Council desires that the thanks of the Government of India may be conveyed to Captain R. A. Cole and to the officers who have assisted him, for the interesting information contained in his letter to your address, and for the drawings which accompanied it.

3. The Governor-General in Council requests that the necessary measures may be taken for the conservation of these archæological remains, and that memoirs may be prepared in accordance with the instructions laid down in the Circular of the 14th February last, issued by the Home Department.

4. As regards the proposal of Captain Cole to carry out further excavations, the Financial Department will be requested to place a sum of Rs. 300 at the disposal of that officer for the work in question.

The reading of the following was deferred till next Meeting :—

Letters from Mr. W. T. Blanford from Abyssinia.

On the Anatomy of *Sagartia Schilleriana* and *Membranipora Bengalensis*, by F. Stoliczka, Esq.

VIII. The receipt of the following communication was announced:—

1. Continuation of correspondence regarding the two Andamanese lads under the charge of Captain T. C. Anderson.

The meeting then adjourned.

LIBRARY.

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

Presentations.

**** Names of Donors in Capitals.*

Bulletin de la Société de Géographie, Février, Mars, 1868.—THE GEOGRAPHICAL SOCIETY OF PARIS.

Proceedings of the Royal Society of London, Vol. XVI. Nos. 99, 100.—THE SOCIETY.

Proceedings of the Royal Institution of Great Britain, Vol. V. P. 1, 2.—THE INSTITUTION.

Journal of the Statistical Society of London, Vol. XXX. P. 1.—THE SOCIETY.

Proceedings of the International Sanitary Conference, 1866.—THE GOVERNMENT OF BENGAL.

Mittheilungen der Kaiserlich-Königlichen Geographischen Gesellschaft, IX. Jahrgang 1865.—THE IMPERIAL GEOGRAPHICAL SOCIETY OF VIENNA.

Verhandlungen der Kaiserlich-Königlichen Geologischen Reichsanstalt, Jahrgang 1867, Nos. 1—18.—THE IMPERIAL GEOLOGICAL INSTITUTE, VIENNA.

Jahrbuch der Kaiserlich-Königlichen Geologischen Reichsanstalt 1867, Nos. 1-4.—THE IMPERIAL GEOLOGICAL INSTITUTE, VIENNA.

Die Fossilen Mollusken des Tertiär-Beckens von Wien, von Dr. M. Hörnes; Band II., Nos. 7, 8.—THE IMPERIAL GEOLOGICAL INSTITUTE, VIENNA.

Selections from the Records of the Government of the Punjab, Public Works Department, No. 1.—THE GOVERNMENT OF PUNJAB.

The Progress Report of Forest Administration in the Province of Oudh, 1866-67, by F. Read, Esq.—THE GOVERNMENT OF THE N. W. PROVINCES.

Sitzungsberichte der Königl. Bayer. Akademie der Wissenschaften zu München 1867, I Heft IV.—I HEFT II:—K. BAYER. AKADEMIE DER WISSENSCHAFTEN ZU MÜNCHEN.

Progress Report of Forest Administration of Mysore, 1866-67.—THE GOVERNMENT OF INDIA.

Progress Report of Forest Administration in British Burmah, 1866-67, by H. Leeds, Esq.—THE GOVERNMENT OF INDIA.

The Journal of the Chemical Society, for January, February and March, 1868.—THE SOCIETY.

Verhandlungen der Kaiserlich-Königlichen Zoologisch botanischen Gesellschaft in Wien, 1855-1866.—ZOOLOGICAL BOTANICAL SOCIETY, VIENNA.

Nachträge zur Flora von Nieder-Oesterreich von Dr. A. Neilreich.—DITTO.

Contribuzione pella Fauna die Molluschi Dalmati per Spiridione Brussina.—DITTO.

Separatabdruck naturwissenschaftlicher Abhandlungen aus den Schriften des Zoologisch-botanischen Vereins in Wien.—DITTO.

Catalogus Systematicus Dipteriorum Europae, auctore R. J. Schiner, Dr.—DITTO.

Monographie der Oestriden von Friedrich Brauer.—DITTO.

Personen-Orts und Sach-Register der fünf ersten Jahrgänge (1851-1860) der Sitzungsberichte und Abhandlungen des Wiener zoologisch botanischen Vereines, zusammengestellt von A. Fr. Grafen Marschall.—DITTO.

Bericht über die österreichische literatur der Zoologie, Botanik und Paläontologie aus den Jahren 1850-1853.—DITTO.

Nachträge zu Maly's Enumeratio plantarum phanerogamicarum inferii austriaci universi von A. Neilreich.—DITTO.

Nouveau système des Blattaies par C. Brunner de Wattenwyl.—DITTO.

Purchases.

Reise der Oesterreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859 unter den Befehlen des Commodore B. von Wüllerstorff-Urbair: Zoologischer Theil, Zweiter Band, *Anneliden*.

Comptes Rendus, Nos. 9, 10, 11 and 12.

Deutsches Wörterbuch von J. Grimm und W. Grimm, Band V. Lief 8.

Revue de Zoologie, No. 2, 1868.

The Annals and magazine of Natural History, No. 4, 1868.

Die Preussische Expedition nach Ost-Asien nach amtlichen Quellen, Botanischer Theil, *Die Tange*.

Die Preussische Expedition nach Ost—Asien nach amtlichen Quellen, Zoologische Abtheilung; Erster Band, Zweiter Band, Erste Hälfte.

Reisen und Forschungen im Amur-Lande in den Jahren 1854-1856 im Auftrage der Kaiserl. Akademie der Wissenschaften zu St. Petersburg, ausgeführt und in Verbindung mit mehreren Gelehrten herausgegeben von Dr. Leopold V. Schrenck. Zweiter Band, 3, Lieferung.

Anecdota Syriaca. 2 Vols.

The Westminster Review, No. LXVI. April 1868.

The Quarterly Journal of Science, No. XVIII. April, 1868.

Revue des deux Mondes, 15th March, and 1st April, 1868.

Hewitson's Exotic Butterflies, P. 66, 1868.

Böhtlingk und Roth's Sanscrit Wörterbuch, 5 Theil.

Journal des Savants, March 1868.

Revue Archéologique, Tome XVII., No. III.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL,
FOR JULY, 1868.

A meeting of the Society was held on Wednesday, the 1st instant, at 9 o'clock p. m.

The President, in the chair.

The minutes of the last Ordinary General Meeting were read and confirmed.

Mr. Blanford wished to ask by what authority the last numbers of the Proceedings had been issued, and in reply the President observed, the proper course would be for Mr. Blanford to give notice of motion, when the time for such notices arrived.

The following presentations received since the last meeting were laid on the table :—

1. From the author, a copy of "The Alps and the Himálayas,—a Geological comparison;" by H. B. Medlicott, Esq.
2. From the Superintendent, Barrackpore Park, a specimen of a young tiger.
3. From the Rev. J. Long, a copy of "The Calcutta Gazette or Oriental Advertiser," for 1785, 1786, 1789 and 1790.

A copy of "Samáchára Darpana," 1824, Vol. VIII.

A copy of "Collection of 50 prints from the Antique gems in the collections of the Right Hon'ble Earl Percy, Hon'ble C. F. Greville and T. M. Slade, Esq."

A copy of "Calendar of Indian State Papers," Secret Series, Fort William, 1774-75, and four other pamphlets.

4. From Muhammad Hyát through Mr. A. Grote, a copy of "Hyát i Afgháni."

5. From C. A. Wilson, Esq., through Mr. A. Grote, a copy of the Annual Report and Transactions of the Adelaide Philosophical Society for the year ending 30th September, 1867.

6. From Dr. G. W. Leitner through Mr. A. Grote, a photograph, containing portraits of Dr. Leitner and several Káfars, Chilási, Ghilghiti and Bálti natives.

The following gentlemen, duly proposed and seconded at the last meeting, were balloted for and elected ordinary members :—

Dr. G. W. Leitner.
 Lieut. C. H. F. Marshall.
 W. Smith, Esq., C. E.
 R. H. Renny, Esq.
 The Rev. J. Roberts.

The following are candidates for ballot at the August meeting :—

H. E. Perkins, Esq., C. S., Hoshiyárpur, proposed by Dr. J. Fayrer, seconded by Bábu Rájendralála Mitra.

Paṇḍita Chandramohana Gosvámí, proposed by Bábu Rájendralála Mitra, seconded by the President.

Captain J. W. Muir, Political Superintendent Sirohi, Rájputana, proposed by Dr. J. Ewart, seconded by Dr. F. Stoliczka.

R. T. Hobart, Esq., C. S., Bustee, proposed by V. Ball, Esq., seconded by M. H. Ormsby, Esq.

A letter from J. M. Scott, Esq., intimating his desire to withdraw from the Society was recorded.

The following report of the Council on Mr. Waldie's motion, referred to them, was read.

“That the Council have nominated a Sub-Committee to consider generally the revision of the Bye Laws of the Society by whom the subject of Mr. Waldie's motion will be discussed as well as others.”

The Council reported that they have elected H. Leonard, Esq., a member of the Finance Committee in place of A. Mackenzie, Esq., who had resigned; and that they will summon a special meeting of the Society, to be held on the day of the Ordinary Meeting in September, for the purpose of making the formal transfer of charge of collection to the Trustees of the Indian Museum.

The President explained, that as the day of Ordinary Meeting in September would come very early in the month, it would be im-

practicable to have the proper circulars issued, so as to allow of the two months' interval from date of issue now required by the rules, and that the actual date of the Meeting would therefore be fixed by the Council.

The President reported that on a motion of the Hon'ble J. B. Phear, the Council have resolved to propose to the Society :

That the Society do record their recognition of the eminent services rendered by A. Grote, Esq., to the Society during the long period over which his connexion with the Society has extended.

The President in moving the above resolution remarked—

“It is with much pleasure I bring forward this motion from the Council. It is known to most persons here, although I believe we have no regular announcement of the fact, that Mr. Grote, who has long been connected with their Society, who has justly attained its highest honours, and has been one of its most hard working and devoted servants, will leave India, within a few days. It is to me a source of unalloyed pleasure that it should have fallen to my lot to be in the chair this evening, inasmuch as I have thus an opportunity which might not otherwise have occurred, of giving very briefly expression to my feelings, and specially, because it would be idle affectation to attempt to ignore what is well known to very many here, that on numerous questions, affecting the management of the Society, Mr. Grote's views, and my own, have frequently differed widely. In such differences of opinion, I see nothing to regret—on the contrary, I believe that the success of any Society like ours, must depend on the entire freedom of our discussions, and I might say, on the existence of a healthy and even decided ‘opposition party.’ In any climate, under any circumstances, but more especially under the peculiar conditions of our existence here, the inevitable result of the absence of some interest of this kind, is the induction of a state of lethargy, a kind of vegetable existence, which certainly does not, and certainly did not conduce to progress or success. And therefore I say, I have never regretted that there should have been opposition of view or difference of opinion. But I trust that on no occasion have I forgotten that an opponent is not necessarily an enemy. Our differences of opinion have been only as to the best methods of attaining the same end, the advancement of knowledge, and the improvement of this Society, as one of the great means for

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that advancement. And here I would yield to none, in the heartiness with which I would desire to recognize the continuous, the active, the devoted services of Mr. Grote to this Society. There has always been present with him an earnest recollection of it, whenever the slightest opportunity occurred of promoting its welfare, or of extending its influence. And if on this ground alone, I believe the Society will feel called upon to receive with favour this motion of Council.

But in addition to this, those who have known Mr. Grote will agree with me in recognizing his hearty appreciation of the labour of others; his cordial sympathy with the difficulties and perplexities of enquirers in every direction; the solicitude with which he endeavoured to develop the treasures of Oriental learning, and the encouragement which he ever held out to the educated portion of our Indian brethren to affiliate their talents and energies to the common cause of promoting knowledge. And in all this, they will see additional claims on the Society, for the recognition of those services which you are now asked to record.

Mr. Grote's connection with this Society dates from 1849, he is of longer standing as a member than most others now resident in this country. And I know that I am only giving expression to the wishes of the Society at large, in saying that we trust he may still for many years enjoy health and rest in his native land. I feel confident the Society will accept this recommendation of the Council with an unanimous affirmative.

Mr. Blanford said,—A vote of thanks such as that just proposed, should not be allowed to pass as a mere formality; and although as a vote proposed by the Council, it was not necessary to second it, he would wish, as one who had for some years held an office in the Society as a colleague of Mr. Grote's, and for a portion of that time under Mr. Grote's presidency, to record his testimony to the unwearied devotion with which Mr. Grote had always applied himself to advance its interests. This application had extended over many years, and from a period long anterior to Mr. Blanford's personal connection with the Society, but it was of his own experience of Mr. Grote, as the leading member of the Society that he wished to speak. His interest in the labours of the Society had extended to every department, and to all he had devoted himself in a

manner that had caused him to be publicly regarded as its representative member. One characteristic of his presidency, and one which was certainly not of least importance, was the uniform courtesy with which he had so long and frequently presided at the Society's meetings. The President had referred to differences of opinion that had prevailed between Mr. Grote and himself, and there certainly had been stormy meetings, in past times, but on such occasions Mr. Grote's courteous demeanour in the chair to those who most strongly opposed him, tended in no small degree to preserve the Society from dissensions and to assuage excited feelings. He thought that this, not less than other features of Mr. Grote's presidency, should be recorded among his many claims to the grateful recognition of the Society, and he thought that they would long regret, the departure from India, of one to whom their Society owed so much.

The resolution was then passed unanimously.

Hon'ble J. B. Phear gave notice that at the next meeting of the Society, he would propose that the Society record a vote of thanks to Mr. Blanford who had lately resigned the General Secretaryship, for his services.

The election of Dr. F. Stoliczka as Natural History Secretary was confirmed.

The Oriental Secretary read the following extract from a letter from Kumára Chandranátha Ráya of Nátor, forwarding a facsimile and a sealing wax impression of an inscription found in Rájshahi.

“The present object of my writing you is to give cover to a small transcript of an inscription found at the base of a very old and peculiarly-formed stone idol found by myself in the midst of a jungle when out shooting near a village called *Hapania*, and to request that you will be so kind as to try to decipher it. The character looks very much like old Bengali, not unlike that of the Rajshaye stone of Mr. C. T. Metcalfe, but as I have no idea of the old Bengali character, I am unable to make out the head or tail of it. The inscription is very short indeed, and may possibly be the name of the worshipper, but the peculiar formation of the idol, gives some interest to it, as *Shiva* and *Parbutty* are never at the present time publicly worshipped in so *lascivious* a form as the idol represents.”

The inscription is as follows :

७ दामयद्दीयमरू ॥:

The Secretary stated that the character of the inscription was the 10th century Sanskrit, and its language, Newari. The words were ९ दामयद् दीय मरू which literally means "not even a dām," *i. e.* no price whatever was charged for the image on which the inscription is recorded, or, in other words, it was a free gift. It was probably dedicated by a Nepalese Hindu.

The Secretary then exhibited to the meeting a rare tetradrachma of Antimachus Theos. It was in beautiful preservation, and appeared from the execution of the head and the legends to be undoubtedly genuine. A figure of this type of coin was some time ago published in the "Numismatic Chronicle" Fig. 7, plate iv. Vol. II, N. S., and noticed in the Journal of the Royal Asiatic Society of Great Britain and Ireland, by Mr. E. Thomas, but as it was taken from a cast, a figure from an undoubted original will, it is believed, prove interesting to numismatologists. This is in preparation and will be given with a future number of the Proceedings. The coin has been purchased for the Society's cabinet for Rs. 100. It has on the obverse—

The head of the king facing the right, filleted, with the legend ΔΙΟΑΟΤ * * before the face, and ΣΩΤΗΡΟΣ behind it.

Reverse. Jupiter in the act of hurling the thunderbolt, with an Ægis on the left forearm, which is stretched forward. His left leg is advanced to the left, and near it is an eagle with a chaplet of flowers over it. *Legend,* ΒΑΣΙΛΕΥΟΝΤΟΣ ΑΝΤΙΜΑΧΟΥ ΘΕΟΥ. *Monogram* A. N.

The Secretary also exhibited a coin of Azelisas which had been placed at his disposal for the purpose by Mr. Grote. It was a silver didrachma with the ordinary obverse, but a perfectly new reverse. On the *obverse*, it has the king mounted on a horse facing the right.

Legend, ΒΑΣΙΛΕΩΣ ΒΑΣΙΛΕΩΝ ΜΕΓΑΛΟΥ ΑΖΙΛΙΣΟΥ. *Monogram,* Α.

Reverse. Female figure to the front standing on a lotus; the left hand rests on the waist, and the right over the stomach, holding something; on each side is a lotus stalk rising as high as the waist and

bearing an expanded lotus, whereon stands an elephant with its trunk extended over the head of the central figure. Legend in Aryan character, much cut up. As far as legible it may be read *Maharajasa rajati rajasa m—*.

There are two marks like monograms by the stalks, the right one being like \wedge ; and the left γ .

The reverse of this coin is evidently founded on the type of the Azas' square coin with the trident obverse, (*Ariana Antiqua*, plate vii. fig. 5, p. 327), which has a female figure standing amidst twining creepers ; but the elephants are new, and shew the thorough Buddhist character of the coin.

The Secretary then laid on the table a MS. of the poems of Chand, the Rajput bard of Prithviraja of Delhi, which had been lent to him from the Library of His Highness the Maharaja of Benares. He said that about eighteen months ago, the Rev. J. Long brought to the notice of the Society that a complete MS. of Chand's works had been presented to the Library of the Agra College, by His Highness the Maharaja of Jeypur, and an application was thereupon made to the Principal of the College by the Society for the loan of it, in order to have it carefully examined by a competent scholar. The loan, however, was declined, and on a subsequent application to His Honor, the Lieut.-Governor of the North Western Provinces, the MS. was referred to J. Growse, Esq., a member of the Society, for examination and report. In the mean time intelligence was received of the existence of two MSS. of the work, one in the Library of His Highness the Rao of Baedlah, and the other in that of the Maharaja of Benares. The last is a royal quarto of 697 pages, having 24 lines to the page. This would give a little more than 16,000 verses for the whole work. But the MS. did not appear to be complete, as it had no invocation at the beginning, nor the usual introduction, and commenced very abruptly with the entry of Anangapala into Delhi. In the MS. noticed by Col. Tod, in his *History of Rajasthan* (I. p. 255) there were 69 cantos and nearly a hundred thousand verses, of which 30,000 had been translated by the Colonel into English.

The subject of the MS. was the life of Prithviraja, the last Hindu Prince of Delhi, and his history therefore was the last chapter of the history of Hindu sovereignty in Delhi. The author of the poem

was the family bard and constant companion of Prithvirāja, and was accordingly an actor in most of the exploits he describes. Although abounding in fulsome panegyric of the true oriental cast, his work has the rare merit of being a contemporary history of a time of which no other history exists, and was therefore of the greatest interest to the antiquarian. Philologically it was also of great value, being the oldest specimen of Hindvi known, and as the hitherto missing link between the old Pali and the modern Hindvi, was calculated to throw much light on the history of Aryan Indian vernaculars.

The MS. comprises 31 cantos as follows :—

Contents of Chand's Prithvirāja Rāyasá.

1. Entry of Anangapála into Delhi and retirement to the Forest of Vadari.
2. The Battle of Ghaghar.
3. The Expedition to Karnáta.
4. The Marriage of Chandrávatí.
5. The Assumption of Sovereignty by Jaitaráj.
6. The Defeat of Kángará Ráo.
7. The Marriage of Hansávatí.
8. Sovereignty wrested from Pahára Ráo.
9. The Story of Varuna.
10. The Death of Somesvara.
11. The Overthrow of Pajjún.
12. Chand's Pilgrimage to Dwáráká.
13. Defeat of Kaimás.
14. Murder of Bhima Bhaṭṭa.
15. The Early life of Sanjogatá.*
16. Description of Vinayamangala.
17. Anecdotes of S'uka.
18. The Defeat and Destruction of Báluká Ráo.
19. Assumption of Sovereignty of Pajjún.
20. The Battle of Pungasámanta.
21. The Cursed Hunt.
22. Description of Delhi.
23. The Story of a Jangama.
24. The Six Seasons.

* An English translation of this portion was published by Col. Tod in the Asiatic Journal for 1839.

25. The Penance of Sanjogatá.
26. Life of Balukáráya.
27. Defeat and Destruction of Káimás.
28. The Fort of Kedár.
29. Description of Kanouj.
30. The Huge Fetters.
31. The Charmed Arrow.

The following papers, the reading of which was postponed at the last meeting, were read.

I. Mr. W. T. Blanford's Notes on Abyssinia.

Senafé, March 11th, 1868.

I went out for a week with Carter (who has charge of the G. T. Survey, to Tekoonda and Halai, over one of the worst hill roads I ever saw. However, it was an interesting trip; I got a good number of animals, and sketched in the Geology pretty fairly. The table-land here runs out in great spurs of sandstone, and between these are valleys deeply cut into the Metamorphics below. Near this are a few hills of trachyte and basalt, apparently resting on the sandstone unconformably. No fossils are discoverable. I want now to get on to Antalo and see the oolites there; these sandstones may perhaps belong to them. Whether I can really do any geology worthy of the name or not, depends upon how long the expedition lasts. Hitherto I have done very little, and if all is over, as many expect, by June, I shall not have seen much.

In Zoology, I am doing much better; I have upwards of 200 species of birds and mammals, since I left Zoulla; that is, in less than a month. My last valuable capture was a pair of bearded vultures, (Lämmergeyers) and a Klipspringer (*Oreotragus*) which I shot yesterday. The Lämmergeyers abound in this camp, and I should have bagged one this afternoon, I think, if a man had not got in the way. They are very fine birds, though this is the smaller species, (*Gypaëtus occidentalis*, Bonaparte, I believe) and measures $1\frac{1}{2}$ feet less in the stretch of the wings than the Swiss and Himalayan ones. I have also a pair of the curious ground hornbill or Abbagamba mentioned by Bruce (*Bucorvus* v. *Tinctoceros Abyssinicus*). They are tolerably common, walk about on the ground and feed on insects.

They do not appear to perch on trees at all. All the hornbills (I have now four species) are marvellously insectivorous, and even the barbets (*Pogoniorhynchus*) of which I have I think, three species, are the same.

I find there is a well marked intermediate fauna on the slopes of the hills, consisting of birds found neither here on the highlands nor on the plains about Zoulla. So I have sent one of my skimmers to Undul to collect. Sturt of the Land Transport Train, a very fair ornithologist, has promised to take care of him and shoot birds. Amongst other things, there are two woodpeckers there, of each of which I have a single specimen only, and many other birds. There are several of which I did not secure specimens at all : however, I hope to get them. I am not sure if any mammals are peculiar. There is a jackal-like beast which I have not seen elsewhere, but it may occur on the table-land.

15th. Since I began this, I find that the traps are far more extensively developed around this than I at first thought. There are a lot of trachytes, so exactly resembling sandstone, that I had marked them as such : I now find that they are clearly unconformable upon them. I have scarcely ever seen a greater sell. Some of the volcanic rocks, when slightly decomposed especially, cannot be distinguished even under a lens from fine argillaceous sandstone, and I doubt if I should ever have made out their real nature, had not some of them been so very columnar that their trappean nature was evident. In one hill near this, there are some of the finest columns I ever saw; 200 or 300 feet long and as regular as possible.

You will perhaps have heard that Beavan has been very ill and prevented from coming out. A Mr. Jesse is appointed in his place and is now I believe in Zoulla. A second man, (Danford or some such name) is with him, and I understand they are hard at work. Zoulla is far better now, I suspect, than when I was there, for the heavy rain has made the whole place green and many birds and other animals, elephants amongst others, have gone down towards the coast. I have not seen an elephant yet. The biggest wild animal I have come across has been Koodoo. I saw three different bucks yesterday and a herd of does, but could not bag one. The species I believe is different from that of the Cape, but the buck is a noble animal, as large as a buck sambhur. The does are very like cow Nylgai, except

in having deer-like tails. Like the Nylgai too, they keep in herds away from the bucks, which are found solitary in general. Several of the sportsmen here persist in declaring that they have seen true deer with antlers. The fact is, they have seen koodoo. The very open curve of the horns, especially when they are not very large, makes them look marvellously like antlers at a distance.

Geology of the road from Senafé to Antalo.

Camp Antalo, March 29th, 1868.

Senafé, as I before mentioned, I think, is on sandstone, upon which a series of trachytes and basalts rest quite unconformably; the sandstone itself resting on metamorphics, which occupy all the lower ground and form many of the hills as far as Goona Goona, the first march. Here the sandstone comes in, in force, and continues for the main part of this distance to Attegerat, the 3rd halting place; trap hills occurring here and there, and a portion of the route being over them. From Attegerat the road passes over sandstone to beyond the Mai Wahiz, the 4th halting place, a high range of trap hills flat at the top, running along the west of the road; and beyond Mai Wahiz the road descends to a great plain of metamorphics, on the west of the watershed between the Nile tributaries and the salt plain; for it has been ascertained that the drainage of the Eastern flank of the Abyssinian highlands never reaches the sea, but is intercepted and lost in the great salt tract, below the sea level, which extends from just south of Annesley Bay to near Tajurra. The metamorphics extend beyond Ad Abaga (the 5th march) until near Dongolo, the 6th. Here, after descending a steep hill, a great change takes place. So far all has been simple enough; metamorphics below, sandstone above them, and trap capping the whole; the two upper series nearly horizontal, and near Attegerat apparently almost conformable; and the road passes from one to the other as it ascends and descends. At Dongolo just below the Ghat, sandstone comes in with a strong westerly dip. I had not time to make out whether it was faulted against the metamorphics or deposited in a hollow. Just beyond Dongolo, limestone succeeds, apparently resting on the sandstone, but of this I am extremely doubtful, for near this, sandstone appears to overlie the limestone. This limestone continues for upwards of 60

miles, to this place, occasionally capped by trap, and in one or two places granitoid gneiss emerges through it. Fossils abound, but these are very ill-preserved in general, and I have not had much time to hunt for them. *Ostrea*, *Terebratula* and several Lamellibranchiate bivalves are the most frequent forms. Ferret and Gullmier I believe, mark this tract as Oolitic, and doubtless they had better grounds for their opinion that I have yet seen. I can only say that the *Ostreas* look like secondary forms, and, as a guess, I should have suspected the rocks to be Jurassic or Cretaceous, which is confirmatory of the view taken by the French engineers. Doubtless, however, they obtained specimens which were compared by competent palæontologists.

Perhaps one of the most interesting things is that here, as in India, cotton soil abounds; but only on trap or in its immediate neighbourhood. It is exactly like Indian regur; just as abominably sticky after rain, and just as full of holes as the black soil of Guzerat and Malwa.

The road throughout, I should have mentioned, is close to the watershed, this route having been specially chosen for the purpose of avoiding the deeper ravines leading to the great hill tributaries, the Mareb and the Takazze.

Zoology.—I can only give you very few notes on Natural History. To my great surprise, the country is remarkable for the paucity of large mammals. They are far fewer than in India. From all accounts I had ever heard, I should have imagined the grassy plains we have traversed would have abounded in the different Antelopines. Nothing of the sort; not a wild animal is to be seen anywhere larger than a hare, until near this. Here two small kinds of antelope are found, which I cannot identify at present, as I have no books with me. One is of a reddish colour, about the size of the Indian Gazelle, with short straight horns: the other is mouse-coloured with a peculiar long muzzle. I am told it is the kleinbuck of the Cape. There has evidently been a change in the fauna since we have crossed into the Nile drainage, but it is not great. The *Hyrax*, some distance this side of Attegerat is the same as at Senafé. The hare appears to be the same, and I think the jackal too. The only *Hyæna*; I am pretty certain, is *H. crocuta*, and he is to be heard just outside one's tent every night. I shall not forget the row they make soon. Lions, elephants, hippopotami, rhinosceroses, giraffes, zebras and all

the big antelopes are conspicuous by their absence. Amongst birds, the most interesting I have noticed is *Corvultur*, the great carrion crow, with a curved sub-vulturine bill, which Jerdon, I think, is quite wrong in tracing to any affinity with the big ground hornbill. The latter, I scarcely think, can be a carrion eater. He is mainly insectivorous, and his habits are more those of some of the Ibises, picking over ploughed fields and meadows, or sometimes, like a bustard, hunting in high grass, for locusts, I suspect. They are in pairs and threes, rarely in larger numbers. Lämmergeyers are less common here than at Senafé, but still I frequently see them. I think I spoke of the species as *occidentalis*; I rather suspect now it is *Gypaëtus nudipes*, as the tarsus is quite bare. This, I believe, is the reverse of what is stated by Bonaparte. One of my interesting specimens is a true Concal (crow pheasant) white below, which Lieutenant St. John gave me. It is especially remarkable for having a long hind claw. Its habits, flight, &c., are exactly those of the Indian species. There are two kingfishers here, a *Ceryle* with the usual pied plumage, and a blue kingfisher. I have only seen the former, and he appears to me different from the common Indian species, but I did not obtain a specimen. I shot a Swift at Senafé very near *Cypselus melba*, but differing. It may be the same species which has just been described by Tristram as occurring in Southern Africa. I have no more *Nectariniæ*, nor any other tenuirostral birds that I can remember. One small parrot with a short tail occurs in pairs. I have not seen a woodpecker nor a true cuckoo on the tableland. Amongst the Sylviæ, the *Saxicolinæ* are most conspicuous. I have now several species of true *Saxicola*, two of *Pratincola* and two of a genus closely allied to *Thamnobia*, and I believe I have not collected all I have seen. There is a very beautiful starling with bright iridescent plumage, which abounds in some places near this. A superb blue Roller very like the Indian form, but with two long central tail feathers, occurs occasionally, but it is rare. I have two very poor specimens but hope to get more.

The large two-spurred partridge of Senafé has disappeared. It is replaced by a species with red legs and red naked skin round the eyes, said to be two spurred, but the specimens I have seen are either females or young males and spurless. I have a pair of very handsome sandgrouse

(*Pterocles*) and a small bustard or florikin. One of the most curious birds I have obtained lately is a very small grey dove not larger than a lark, with a very long tail. As I have no books I cannot identify it. A waterhen is, I think, the only wader, and I have seen a duck which is, I hear, a mallard-like bird, probably allied to the Indian *Anas pæcilorhynchus* (or some such name) but I have not shot a specimen. I have not seen a Tern in the country.

I have not so much as seen a snake or a tortoise on the highland; frogs and toads are scarce, and lizards far from numerous. I have two species only, one of them a Scinque; I have no fishes as yet: there are some, however, of fair size in the streams. It is a wretched country for land shells. On the limestone, one *Helix* certainly abounds, and there are one or two *Pupas*: that is all I can find. Insects are rare at this season of the year, and I have neither time nor appliances for collecting them.

Captain Beavan, as I think I mentioned, has been unable to come out, and the Zoological Society have sent out Mr. Jesse. He has an assistant with him, and both were, by the last accounts, busily collecting at Zoulla. Markham, the geographer, is in front with the advance. Dr. Cook has been very ill, but is somewhat better; he is working at Meteorology at Senafé.

In the probable event of the expedition terminating soon, I have made the following disposition with regard to my collectors. One man is at Undul in the pass with Captain Sturt of the Transport Train. Another who can shoot, I have left with my Madras boy, who can skin a little, to assist him at Attegerat. The third I carry on with me. He is a lame man (Gooloo by name) and consequently rather an impediment, but he skins well and quickly. Now and then I get specimens from various officers, and altogether, although, if the expedition is over in June, as appears probable at present, the time will have been far from sufficient to enable me to collect the fauna thoroughly, I hope to have a very fair collection.

Camp Esindyé, Wadala plateau, near Magdala, April 1st, 1868.

I have been unable to write for a long time. Finding I could not get my kit on fast enough, I left everything behind at Ashangi and went on with my horses. I just reached in time to go into

Magdala behind the storming party. I lost by one day the skirmish on Good Friday. However I saw everything else.

I will write more another time when I have time and paper. Here at 10,000 feet are several peculiar birds. I am collecting as well as I can by myself, but it is slow work. I have returned before the army.

It was a hard march up : constant rain from Dildee, and almost from Ashangi ; long marches, frightful roads, cold, and sundry other small drawbacks ; water was plentiful at Zoulla when compared to Magdala and the chief's Camp at Eraga. However all keep well. I am in good health, but I have been wretchedly unlucky. My best horse, a most useful little Arab, has been stolen, and the only man I have with me who can cook, has broken his arm. However, I am not done for yet, and I am trying to induce the chief to send me to Lake Dembea or to Shoa. But I fear he will not.

All south of Antalo is trap ; basalt and trachyte in horizontal beds at least 5,000 feet thick. Ashanghi is a curious little lake of sweet water without an outlet above ground. Maps all poor.

Zoulla, June 8th.

I wrote you a few lines about a month ago from Esindye I think ; thence I hurried into Ashangi, getting a few things only from the high Wadda plateau, for my letter ordering my men up was delayed, and they never came up. At Ashangi I waited for the chief, as I had written to apply to be sent with an escort to Lake Dembea and the Chelga coal field, and, if practicable, beyond into Kwarra and the Nile country. However the chief first wrote to me to give my plans in detail, which I did, and then refused even to discuss the matter. At Ashangi I found Cook, whom I had left ill at Senafé. We came back together.

The best thing I got at Ashangi, was an extraordinary rat with the habits of a mole or of a bamboo rat, but living on roots of grasses just as the bamboo rat (*Rhizomys*) does on roots of bamboos. I got a few water-birds too, I came ahead of the chief's camp to Antalo ; halted there a day ; then slipped off without a convoy and came on to Agala and Dongolo where I found, at last, a few decent fossils in the limestone. They are Oolitic I think. I have a *Pholadomya* and a *Trigonia*, like the little species so common in the Cutch Oolites. I also obtained several birds I wanted. Thence I marched with the

chief's camp to Senafé and down to Koomeylee, staying three or four days at each. At Koomeylee the heat was great ; 112° and 113° in the shade, but it went down to 95° at night. Here it is cooler ; never much more than 105° I think.

The fauna at Koomeylee had totally changed since February. Many new birds having arrived, and all or nearly all the old ones vanished. I got a few good things.

W. T. BLANFORD.

The President mentioned that in more recent letters Mr. W. Blanford stated that altogether he had been able, notwithstanding the shortness of the time, to bring together about 900 specimens of natural history.*

On the Anatomy of *Sagartia Schilleriana*, and *Membranipora Bengalensis* by Dr. F. Stoliczka. (Abstract.)

Dr. Stoliczka communicated to the meeting the results of his examination of the anatomy of *Sagartia Schilleriana* and *Membranipora Bengalensis*, two species found living in brackish water at Port Canning.

After having briefly pointed out the circumstances which led to the discovery of the *Sagartia* [this being a species of the *Actiniaceæ*] Dr. Stoliczka stated that there are hardly any instances recorded of species of this kind of corals having been permanently found living in brackish water. The *Actiniæ* [using this name in a general sense] are as a rule only met with attached to rocks along the sea shore, generally at a moderate depth, or hidden in crevices and holes between the tide-marks. The present species which belongs to the genus *Sagartia*, was found living, attached to old trunks of trees, in water which, according to an analysis of Mr. D. Waldie, only contains about one-third of the saline constituents of pure sea water, in 1000 parts of which they vary from 32—37 parts. In general, however, all the principal constituents, the chlorides, iodides, &c., are present, the difference only affecting the quantity, not the quality.

The principal and distinctive characters of the species, *Sagartia Schilleriana*, are the extreme softness and transparency of the body,

* Letters by recent mails announce that Mr. Blanford was starting for Bogos, to the North-West, from Massowah, from which expedition he looked for many additions and novelties.—Ed.

having the column marked with longitudinal, alternating, greenish bands, the rest of the body being dull whitish; the number of septa usually amounts to 48; the ovaria are bluish purple, the craspeda yellowish or greyish white and the acontia purely white.

Dr. Stoliczka then drew the attention of the meeting to the most interesting points relating to the anatomy of the species. He first gave a general sketch of the principal parts of a *Sagartia*, and then stated that in the present instance, the body was found to be composed of five different layers. The outermost is almost only represented by a mucous substance, chiefly composed of large *cnidæ*, or nettle cells, and some few, pale green, pigment cells. Then follows a thin muscular layer, principally composed of concentric or cross fibres; next a rather thick layer of green pigment, then again a thick muscular layer gradually passing into a tough, muscular tissue, in which skleroids of two kinds are imbedded. The one kind are long and cylindrical bacilli, with short lateral processes and consist of carbonate of lime; the other kind are thin, flat, rectangular plates of various forms consisting of silica.

The nature of these skleroids, after their difference of form has been observed by simple maceration of the tissue, was positively ascertained by burning a specimen in a platina crucible, until all organic matter disappeared. The result was, that a perfect skeleton of the animal was obtained, representing an irregular network of solid, white fibres. Upon placing a portion of the skeleton in hydrochloric acid, the largest portion, being carbonate of lime, was dissolved, leaving behind a very thin membrane composed of the siliceous skleroid particles. It is to be hoped that this observation will induce other naturalists to examine similar species, and there is a probability that the definition of the *Anthozoa malacodermata* will have to undergo considerable changes.

The tentacles are usually arranged near the periphery of the disc in apparently alternating circles, the number of them rising up to about 150 or 160. The *acontia*, *craspeda* and *ovaria*, all are attached to the internal side of the strongly muscular larynx. The *acontia* are very long, purely white bands, solely consisting of long *cnidæ*, being transparent cells with more or less prolonged, retractile and bearded stiletts, called *ecthoræa*. These *acontia* are issued through the holes

(*cinclides*) of the integument, whenever the animal is irritated, serving as defensive organs. The *craspeda* are similar bands of a yellowish colour, but they are shorter and never ejected, they seem to be connected with the digestive system; their composition is similar to that of the *acontia*, except that there is in the centre a considerable accumulation of an intercellular substance. The *ovaria* are long strings, lying between the mesenterial folds; there are 12 pairs of them present composed of eggs only. Thread-like organs chiefly composed of spermatozoa appear to be only occasionally formed.

A small live specimen and parts of the solid skeleton were exhibited, and the microscopical structure of the body illustrated by diagrams and preparations.

With reference to *Membranipora Bengalensis*, [a species of *Bryozoa*, the lowest organized molluscs], Dr. Stoliczka said that the *polyzoarium* usually consists of a single layer of hexagonal, flat cells which are arranged in alternate rows. The upper part of the cells is membranaceous, only in old specimens partially solid. The animal is whitish, and the statoblasts are greenish. An interesting observation was made regarding the progressive growth of the *polyzoarium*. At first only a small, very thin, membranaceous cell is formed, being filled with a greenish granular substance. In the next stage a small embryo, with a transparent centre is visible, but the cell is still without an aperture. Subsequently the tentacles become traceable in the translucent centre of the embryo, and the dark, granular substance diminishes in the same degree as the size of the embryo increases; the cell only communicates with the neighbouring ones by small lateral holes. At last the embryo is seen to be attached to the posterior wall of the cell by a few thin muscles, a long thread is developed at the base, so as to fix the cell and support its subsequent attachment, and an oval aperture is formed in the front part of the upper membrane. The cell is then perfect, the animal communicates direct with the surrounding medium, the statoblasts are soon developed and the structure of the cell becomes gradually more solid. Specimens of the *Membranipora* were also exhibited; the species appears to be common in all the brackish waters of the Sunderbunds.

“Notes on some stone implements found in the district of Singbhoom by Captain Beeching,” communicated by V. Ball, Esq.

When in September last, I laid before the Society an account of a chipped celt which was found in Manbhoom, I ventured to predict that an examination of the adjoining district of Singbhoom, which is at present inhabited by several aboriginal races, would probably result in the discovery of traces of the stone age. The chert flakes and knives now exhibited, were found in the early part of the present year by Captain Beeching when, in command of a Company of the 10th Madras N. I., he marched from Ranchi to Chaibassa for the purpose of quelling the disturbances in the tributary state of Keonjur. While awaiting orders at Chaibassa he was so fortunate as to make the discovery, described in the following note :

“The accompanying chippings were found principally at Chaibassa in the Singbhoom district and also at Chuckerdherpore, a town about sixteen miles off. They were generally to be seen on or near the banks of the river, and attracted the eye at once by the striking difference they presented to the other stones lying near them. Some were lying loose in gravel, others in the sandy depressions and ravines near the river, and in one instance ‘the chips’ appeared to radiate from a small rocky mound, becoming more numerous as one approached the central point, until at last there was hardly a square foot of earth which did not contain several of them.”

Chert of various degrees of purity is the material of which these flakes are made. In several parts of Manbhoom there is a bed of highly vitrified quartzite with conchoidal fracture. A similar one in Singbhoom doubtless furnishes the cherts.

In point of manufacture, these flakes are inferior to those from the Jubulpore district, the chert not yielding such sharp edges as the agates and flints of which the latter are made.

The reading of the following papers was deferred until the next meeting.

Notes on the Keriahs, an aboriginal race, living in the hill tract of Manbhoom, by V. Ball, Esq.

Dr. Mingay, on Malay animals.

Dr. King, on Birds of Goonah.

The receipt of the following was announced :—

1. Notes on the Keriahs, an aboriginal race, living in the hill tract of Manbhoom, by V. Ball, Esq.
2. Notes on the Lion of Aboo, by G. King, Esq.
3. An endorsement from the Under-Secretary to the Government of India forwarding a classified list of races in the Punjab.

LIBRARY.

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

Presentations.

* * * *Names of Donors in Capitals.*

Bulletin de la Société de Géographie, April, 1868.—THE GEOGRAPHICAL SOCIETY OF PARIS.

Annual Report and Transactions of the Adelaide Philosophical Society, for the year ending 30th September, 1867.—C. A. WILSON, Esq.

Journal Asiatique No. 39, 1867.—THE ASIATIC SOCIETY OF PARIS.

Actes de la Société D'Ethnographie, No. 8.—THE ETHNOGRAPHICAL SOCIETY OF PARIS.

Indische Studien, x. 3.—Dr. A. WEBER.

The Journal of the Bombay Branch of the Royal Asiatic Society, 1865-66. THE SOCIETY.

The Report of the British Association for the Advancement of Science, 1866.—THE ASSOCIATION.

Report of the Committee of the Bengal Chamber of Commerce from November, 1867 to April, 1868.—THE BENGAL CHAMBER OF COMMERCE.

Anthropological Review, Vol. VI. Nos. 20 and 21.—THE ANTHROPOLOGICAL SOCIETY OF LONDON.

Annual Report of the Lahore Lunatic Asylum for the year 1867.—THE GOVERNMENT OF BENGAL.

Report on Leprosy by the Royal College of Physicians.—DITTO.

Records of the Geological Survey of India, Vol. I. Part I. 1868.—DITTO.

Annual Report of the Geological Survey of India and the Museum of Geology, Calcutta.—DITTO.

The Calcutta Journal of Medicine, Vol. I. No. 5.—DR. MAHENDRA-LALA SARACARA.

The Alps and the Himalayas, a Geological Comparison by H. B. Medlicott, Esq.—THE AUTHOR.

Hyat i Afghani by Mahommad Hyát Ali.—THE AUTHOR.

The Calcutta Gazette or Oriental Advertiser, 1785-86, 1789-90.—THE REV. J. LONG.

The Samachara Darpana, 1824.—DITTO.

A Collections of 50 prints from Antique gems.—DITTO.

A Calendar of Indian State papers, Secret Series, 1774-75.—DITTO.

The History of the Christian Church in Maharashtri by the Rev. C. G. Barth.—DITTO.

Naaukeurige Versameling der Gedenkwaardigste Reysen na Oost en west Indien.—DITTO.

Discours sur les affaires de Pologne prononce par M. Le Mrs de la Rochejaquelin.—DITTO.

Abolition du servage en Russie.—DITTO.

The Polish question, or an Appeal to the good sense of Englishmen by a Russian.—DITTO.

Proverbs, Malayalam, Tamul, Chinese, Panjabi, Servian, Maharashtiri and Hindi illustrating the popular feelings and various nationalities.—DITTO.

Exchange.

The Athenæum for March and April, 1868.

Purchase.

Comptes Rendus, 13, 14 and 15 ; 1868.

The Annals and Magazine of Natural History, No. 5, 1868.

Revue de Zoologie, No. 3, 1868.

The Ibis, No. 14, 1868.

Gould's Birds of Asia, Part XX.

Beddome's Ferns of British India, Part XX.

Lecons sur la Physiologie et l'Anatomie Comparée by E. Milne Edwards, Tom IX. Part I.

Revue des deux Mondes, 15th April and 1st May, 1868.

Revue Archéologique, Tom XVII. No. IV.

The Numismatic Chronicle, Part I., 1868.

The Edinburgh Review, No. 260.

The Calcutta Review, May, 1868.

Assyrian Dictionary, by E. Norris, Part I.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL,

FOR AUGUST, 1868.



A Meeting of the Society was held on Wednesday, the 5th instant, at 9 o'clock P. M.

T. Oldham, Esq., President, in the chair.

The minutes of the last Ordinary General Meeting were read and confirmed.

The receipt of the following presentations was announced :—

1. From Bábu Hemachandra Deva—
A nest of *Orthotomus longicaudus*.
2. From the Barrackpore Park Menagerie—
A specimen of *Mellivora ratel* (Badger).
A specimen of *Pavo muticus*.
3. From Lieutenant J. Gregory—
A specimen of *Teliphonus*, from the Naga Hills.
4. From Bábu Rákháladása Háladára—
A quantity of *Kaolin* from Mánbhúm.
5. From J. Avdall, Esq.—
A copy of *Grammaire Polyglotte contenant les principes des langues Arabe, Persane, Turque et Tartare, par Le P. Minas Medici*.
6. From the editor—
A copy of *Prasannarághava Nátaka*, edited by Pandita Govindachandra Sástri.
7. From the Superintendent Government Mathematical Instrument Department—
Two base line chains, 100 feet each.
A Zenith Sector, with stand.

- A Zenith micrometer, with stand.
Formerly used by Colonel Lambton in the G. T. Survey,
8. From Dr. D. B. Smith—
Twelve *Uḍia* skulls.
 9. From the Calcutta Brahma Samāja—
A copy of The Doctrine of Christian Resurrection.
A copy of Vedantic Doctrines vindicated.
A copy of Selections from Vedanta.
A copy of Hindu Theism.
A copy of Theist's Prayer-Book, and twenty other small pamphlets.
 10. From Colonel J. C. Haughton—
A copy of *Padmaduta Kāvya*, by Siddanātha Vidyāvāgisa.
A copy of Addresses delivered at the Hitoishini Samāja of Cuch Vehara.
 11. From W. Oldham, Esq., LL.D., Offg. Magistrate of Ghazeepur.
Some earth which fell in a shower at *Kootubpur*.

The following letter, addressed to the Secretary, accompanied the donation :—

Ghazeepur, the 22nd July, 1868.

‘A report has been received, which there is reason to believe is authentic, that on the 15th instant at noon in Kootubpur, of the Shadiabad Pergunnah of this district, a shower of earth moistened with rain fell,

Small balls of moistened earth about the size of peas fell slowly and for considerable time.

I forward herewith specimens of the earth which fell.

From the 18th of June, until the 5th of July, no rain fell in this district; since then we have had abundant rain. The rains set in generally on the 17th, but on the 15th and 16th local showers occurred.

I am not aware whether the shower has any scientific interest or importance, or not; but if it has, you will, I believe, find that, a day or two later, a somewhat similar shower fell at Cawnpur.’—

The President stated that the earth alluded to had been carefully examined under the microscope, and that it was nothing but the ordinary surface silt of the plains of Bengal, which might have come from almost any part of the Gangetic plain. Occasionally the character of

the earth which fell in this way as mud in showers, was of such marked and distinctive nature, as would enable a tolerably accurate conclusion to be arrived at, regarding the direction from which it had been carried, or the locality from which it had first been lifted to the clouds, to be again deposited with rain.

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

H. E. Perkins, Esq., C. S.

Pandita Chandramohana Gosvámi.

Captain J. W. Muir.

R. T. Hobart, Esq., C. S.

The following are candidates for ballot at the September meeting:—

Baron v. Ernsthausen, proposed by Mr. F. Schiller, seconded by Dr. F. Stoliczka.

R. M. Adam, Esq., proposed Mr. F. Schiller, seconded by Dr. F. Stoliczka.

E. Ch. Van Cutsem, proposed by Dr. F. Stoliczka, seconded by the President.

R. V. Stoney, Esq., C. E., proposed by the President, seconded by Mr. C. A. Hacket.

C. Lazarus, Esq., proposed by Mr. G. Robb, seconded by Mr. D. Waldie.

Letters from the following gentlemen intimating their desire to withdraw from the Society were recorded—

Lieutenant-Colonel B. Reid.

Colonel J. C. Brooke.

The Hon'ble J. B. Phear, in accordance with the notice given at the last meeting, moved—

That the Society record a vote of thanks to Mr. H. F. Blanford, who had lately resigned the General Secretaryship, for his services.

Mr. Phear said that in proposing the resolution, he should use very few words, because he thought that, even on an occasion like this, the praise which was unspoken was the highest praise. Mr. Blanford had been many years a zealous member of the Society, and for several years he had actively and well discharged the duties of Secretary. He would ask the members to call to their minds what this service really involved. He thought he was not wrong

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in supposing that they considered their Society as the first Scientific Society in India. They were proud of their Ethnological and Antiquarian researches. And they were willing to flatter themselves that they could correspond on equal terms with the Literary and Scientific Societies of Europe and America. Let them remember that in these things their Secretary was the mouth piece of the Society, and that certainly Mr. Blanford in discharge of these duties had never failed to reflect credit upon the body. It was few persons who possessed the qualifications needed for the post, and fewer still, who would sacrifice their private leisure to perform its functions. If they were so fortunate (as he believed he might venture to assume they were) that they had already secured Mr. Blochmann to succeed Mr. Blanford, they must not forget, that they had enjoyed the further fortune of having Mr. Blanford as the predecessor of Mr. Blochmann, and unless they gave the only return in their power, unstinted thanks, to the retiring Secretary, they would be virtually telling Mr. Blochmann that he had undertaken a thankless office.

Dr. Fayrer seconded the motion, which was unanimously carried.

Read a letter from the Under-Secretary to the Government of India, For. Dept., forwarding further report on the Cromlechs of Coorg, dated Coorg, 22nd May, 1868.

‘In continuation of my letter No. 3301 of the 4th March last, I have the honor to report that in accordance with the instructions of the Commissioner, I have caused eleven of the Cromlechs, lately discovered in the vicinity of Veerajenderpett, to be excavated, and beg to submit the results of the explorations made by myself and my Assistant, Lieutenant J. S. F. Mackenzie.’

2. ‘The parallel barrows, or mounds of earth, alluded to in my former report, though containing one or two Cromlechs, were found not to cover continuous rows of these structures; but the Cromlechs now excavated were situated below large mounds and covered over with trees and dense brushwood, showing that they had not been touched by the hand of man for ages past. These structures consisted, like the others reported on, of oblong chambers, the bottom and sides composed of large single slabs of unhewn granite, and surmounted by a large slab of the same description. The longest chamber was $7\frac{1}{2}$

feet long, by $4\frac{1}{2}$ broad and 5 feet deep. The several dimensions were as follows:—

No.	Length.	Breadth.	Depth.
1.	6 feet 4 inches.	3 feet 8 inches.	3 feet 8 inches.
2.	6 " 6 "	4 " "	4 " "
3.	7 " 6 "	4 " 3 "	5 " "
4.	6 " 9 "	3 " 4 "	2 " 6 "
5.	5 " 6 "	3 " 3 "	3 " 9 "
6.	5 " 5 "	4 " "	3 " 6 "
7.	6 " "	3 " 3 "	3 " 3 "
8.	6 " "	3 " "	3 " "
9.	7 " "	3 " "	4 " "
10.	6 " 3 "	3 " 9 "	3 " 6 "
11.	5 " "	3 " 9 "	4 " "

3. 'All these Cromlechs had square or segmental apertures which the natives always point out as a proof that these structures used to form the abodes of the pygmy race, described in their legends. Some have supposed that these apertures were made use of for the purpose of introducing the cinerary urns and bones of the members of the family into the sepulchral vault, as they died one after the other. I am inclined to this belief, as the urns were invariably discovered in each corner, and often piled one on the top of the other, and these openings are always at the top of the front slab, and immediately below the super-incumbent slab. The doors or apertures were generally found to face towards the east, but strange to say, one was found facing to the north, and a few to the west. They are $1\frac{1}{2}$, $1\frac{3}{4}$, and 2 feet wide.'

4. 'I am glad to be able to state that the excavations resulted in the discovery of several antique-shaped urns and pots, composed of thick red and black pottery, apparently highly glazed, some of which are on four feet, and some are tripods. Lieutenant W. Freeth, the Assistant Superintendent of the Revenue Survey, has kindly sketched and lithographed a group of these urns, and his lithographed copies will convey a better description of these antique vessels than any words of mine can do. (Copy of these drawings is given, Plate 3.) They are all full of hard earth, apparently well rammed in by the rain-fall of successive monsoons. I had some of the damaged

vessels broken up, and the contents carefully sifted, but could not discover any traces of bones, whether calcined or not. This would lead to the belief that these vessels had not been used as cinerary urns. The small fragments of charcoal were generally found in the earth inside the Cromlechs and smaller cists.'

5. 'Below the sketch of the urns, Mr. Freeth has drawn some of the pieces of iron weapons found in these Cromlechs. The large one would appear to have been a spear or large javelin, and the others arrows and hilts of daggers.'

6. 'There are no concentric rows of stones round these Cromlechs, as generally found elsewhere; but I found that the Cromlechs at Fraserpett had distinctly such rows of upright stones round each. These look as if they had been tampered with, though not for many years past; but I will cause them to be carefully excavated next month, and will submit a separate report on the results.'

(Sd.) R. A. COLE,
Supdt. of Coorg.

The President, in inviting the remarks of the Members on this communication, said: It was one of the most interesting discoveries of the kind which had yet been recorded in India. They had here what were called Cromlechs, but which are really more of the type of the Kistvaens of Northern Europe than of the true Dolmen, of a very peculiar construction, of double chambers, such as are represented in a previous number of the Proceedings, existing under circumstances which would prove that for a very long period at least, they had not been disturbed. They were covered by large mounds of earth, obviously artificial, and this earth covered with a thick growth of underwood and large timber-trees. And on opening these curious structures, remains of pottery were found as represented in the drawings before the Society (Plate 3), which differed materially from the pottery now in use. In a slight degree the forms of the vessels were different; the one more especially of an elongated amphora-like shape, (Fig. 5), also that shewn in Fig. 7, and Fig. 4, the outline of which, combined with the peculiar arrangement of the foot or feet, seemed to him not exactly similar to those now in use. This, however, was a point by no means easy to decide, as the forms of pottery in common use, were countless, and varied most materially in different

districts. The principal point of difference consisted in the facts as stated, that this pottery was very thick and highly glazed, two facts in which it most materially differed from pottery of similar forms now generally in use.

Then, along with this pottery, were found several remains of iron weapons or tools, as represented in the drawings. These were peculiarly interesting. Several years since he had noticed to the Society the curious fact that wherever any weapons or tools, or any trace of metallic material had been found in such structures, they had invariably been of iron. He was not aware that anything so perfect as these now described had been previously found, but wherever found, or in whatever condition, they had always been of iron. Now, knowing the rapidity with which iron decomposes in this climate, and looking to the tolerably well preserved condition in which these remains were found, it would lead him to attribute to the period of their entombment, a date much less ancient than would at first appear justified by the rude and almost unhewn nature of the structures in which they have been found. It was strange that among all these old Cromlechs, and other structures of unhewn stone, not a trace of stone weapons had been found, although within short distances they occur abundantly.

The character and shape of the iron remains found in these Coorg 'Cromlechs,' would also indicate a more advanced knowledge of the art of metallurgy than could be easily reconciled with any very early date. Of course it is possible that the race who last used or occupied these structures, was totally different from that which first constructed them, but he thought this was an exceedingly improbable supposition. He hoped the Commissioner of Coorg would continue these investigations, and was confident that other and valuable discoveries still awaited enquiry.

Mr. Phéar was inclined to think that the forms of the earthen vessels, represented as having been found in the Cromlechs, did not point to any distinction of race. All of them, excepting two, closely resembled the forms of vessels, which are in use among the people at this day, and the two excepted forms only indicated to his mind that among the authors of the Cromlechs the potter's art was somewhat in advance of that which flourishes in the country bazars now. In these

two, the lower part of the vessels exhibited the same general form as the others did: the deviation from the type took place in the upper part, where a sudden change in the curvature of the surface caused a cusp in the outline. The result no doubt was graceful, and a step in advance of the art, which produced the other, (as he thought) older form. It occurred to him that it might have been brought about something as follows: Experience taught the potter that his work would be materially facilitated, if he formed his vessel in two pieces, and afterwards united them. But in adopting this practice, which prevails almost universally in this neighbourhood, the potter still tried his best to keep to the original outwardly convex curvature. Then it was discovered by some innovator that the making of the vessel in two pieces afforded an excellent opportunity for giving variety to the form, and hence came the abrupt alteration of curvature exhibited in the two figures in question. He thought that even these forms, if his memory did not mislead him, might be paralleled in the bazars of this town. The three little feet, which appeared in some of the figures attached to the hemispherical surface of the vessel, to render it capable of standing, was a contrivance common enough now. It was remarkable that not one of the vessels figured had a base other than the trivet referred to, and in this respect they corresponded closely with the vessels in common use among the people at the present time.

Rev. J. Long asked if it was known what term or name the people applied to these Cromlechs, and whether this name was a word belonging to the language now in use there, or was a word only traditionally known. The value of Etymological research in cases where history was silent, was immense, and becoming daily more acknowledged. It would be desirable to know whether these words were applied indiscriminately to all such structures, or only to those of a peculiar type.

The President said the communications now before the Society gave no information on these points, but he would endeavour to obtain answers to Mr. Long's valuable suggestions and queries.

Read also a despatch from the Secretary of State for India on subjects of Architectural and Artistic interest in India.

India Office, London, the 28th May, 1868.

To His Excellency the Right Hon'ble the Governor-General of India in Council.

SIR,—I forward herewith, with reference to previous correspondence, copy of a letter* from the Lords of the Committee of the Council of Education, and desire that your Excellency in Council will issue instructions for a compliance, without any undue interference with their more important duties, with the wish of their Lordships for more detailed information respecting objects of Architectural and Artistic interest in India.

(Sd.) STAFFORD H. NORTHCOTE,

Dated 12th May, 1868.

From H. COLE, Esq., Science and Art Department, to the Under-Secretary of State for India.

‘I am directed by the Lords of the Committee of Council on Education to thank you for your letter of the 1st instant, enclosing a copy of a Despatch from the Government of India, with a list of the objects of Architectural and Artistic interest in the Mysore Territory.’

‘Their Lordships are of opinion that it would add to the value of such lists if, in future, some further details could be given.’

‘It would be desirable to state, as respects each building, what is the style and date, its materials of construction, its present use, whether or not it is decorated by sculpture or colored decoration, and its present condition.’

‘I am, therefore, to request that you will move Sir Stafford Northcote to direct that all the information that may be possible, may be given under the above heads in any future list which may be transmitted from India.’

The President stated that the Council wished this Despatch and its enclosure to be made known to the Society at large, in order that any individual member who might be able or desirous of contributing further information on the points referred to, might be aware of the kind and the extent of detail asked for by the Department of Science and Art.

* Dated 12th May, 1868.

The following papers, the reading of which had been postponed at the last Meeting, were read :—

I. *Notes on the Kheriahs, an aboriginal race living in the hill tracts of Mánbhúm, by V. BALL Esq., B. A.*

In the special Ethnological number* of the Society's journal, Colonel Dalton gives an account of the Kheriahs. He says that they are most nearly allied to the Juangas or Putoons, both forming branches of the Moondah family.† They are quite distinct from the Korewahs, another branch of the same family. A few colonies of this last mentioned race are, I believe, to be found in Mánbhúm.

The position of the Kheriahs having thus been established on the best authority, it is unnecessary for me to allude to it further; my simple object being, in connection with my note on the stone implements of Singhbhúm, to draw attention to a race who owe to their Arian conquerors what little traces of civilization are observable amongst them. I have had singular opportunities of seeing the Kheriahs in their homes, in the recesses of the jungle, where they live shut out and hidden from the surrounding world.

If we are disposed to regard these people as savages, their Sonthal and Bhumij neighbours do not treat them much better, *ban manus* being a term commonly applied to them.

The Kheriahs shew a marked dislike for civilization, constantly leaving places where they have any reason for supposing that they are overlooked.

Their houses, generally not more than two or three together, are situated on the sides or tops of the highest hills: they stand in small clearances; a wretched crop of *bajera* being sown between the fallen and charred trunks of trees.

Close to the south boundary of Mánbhúm, there are a succession of hill ranges, of which Dulma (3047ft.), the rival of Parisnath, is the

* Page 155.

† In Vol. XI., p. 203 of the Journal, Lieut. Tickell described a race called Bendkars of Keonjur. They did not know of any relationship existing between themselves and the Kheriahs, but they are, in many respects, a similar race, living in the same kind of houses, on hill tops, and deriving their principal subsistence from the same roots and fruits.

highest point. On this hill I saw three or four neat little Kheriah cottages made of wattled bamboo, which, together with the small standing crop, had, for no apparent reason, been deserted. Further west, just outside the boundary of Mánbhúm on a plateau formed of trap, where there was a good water supply, the small Kheriah villages had assumed a somewhat permanent appearance. Occasionally Kheriah cottages are to be seen on the outskirts of villages; but this is a departure from what is one of the most characteristic customs of the race.

Besides the Kheriahs, there is another race called *Pahareas*, of somewhat similar habits, living on Dulma hill range. One of them told me that his race were superior to the Kheriahs, with whom they could neither eat nor drink. One of the chief distinctions between them appeared to be that the Kheriahs do not eat the flesh of sheep, and may not even use a woollen rug. It would be exceedingly interesting, if this custom could be traced to its origin; I do not remember to have seen it stated of any other race. In her respects the Kheriahs are not over-fastidious feeders. Both races eat cattle that have been killed by wild animals, and very possibly too, those that have died from disease.

The first Kheriahs I met with were encamped in the jungle at the foot of some hills. The hut was rudely made of a few *sál* branches, its occupants being one man, an old and two young women, besides three or four children. At the time of my visit, they were taking their morning meal, and as they regarded my presence with the utmost indifference, without even turning round or ceasing from their occupations, I remained for some time watching them. They had evidently recently captured some small animal, but what it was, as they had eaten the skin before, I could not ascertain. As I looked on, the old women distributed to the others, on plates of *sál* leaves, what appeared to be the entrails of the animal, and wrapping up her own portion between a couple of leaves, threw it on the fire, in order to give it a very primitive cooking.

With regard to their ordinary food, the Kheriahs chiefly depend upon the jungle for a supply of fruits, leaves, and roots. I got them to collect for me specimens of the principal species they used; but as I found that, with few exceptions, they were included in the list of

edible plants which I described to the Society on a previous occasion,* I do not repeat them here.

Besides these, however, the Kheriahs eat rice, which they obtain in the villages in exchange for several jungle products, such as honey, lac *dhona* (from the *sál*), *tusser* cocoons, *sál* leaves, and bundles of bamboo slips called *khúrki*, wherewith the leaves are stitched into plates.

That the rice which they thus obtain in exchange, though small, is an important element in their daily food seems apparent from the fact that a large number of them are said to have died in the famine. I can only explain this by supposing that they lost heart on being deprived of what had been a regular source of supply, and failed to exert themselves in the collection of an extra quantity of roots. An explanation somewhat similar to this was given to me by a Sonthal who said, speaking of his own race, that those who underwent the labour of searching the jungles escaped, while those who sat in their houses wishing for better times, as a matter of course, died.

The roots which they obtain in the jungle are dug up with considerable labour from the rocky ground, by means of an instrument called *kúnthi*. It consists of an iron spike, firmly fixed in a wooden handle. The point of this, as it is natural it should, frequently becomes blunted; to avoid the necessity of taking it to be sharpened perhaps half a dozen miles to the nearest *kumar*, the Kheriahs have invented for themselves a forge, the blast for which is produced by a pair of bellows of the most primitive construction. They consist of a pair of conical caps about eighteen inches high, which are made of leaves stitched together with grass; these are firmly fixed down upon hollows in the ground whence a pair of bamboo tuyers convey the blast produced by alternate and sudden elevations and depressions of the caps to a heap of ignited charcoal; in this the iron spikes are heated until they become sufficiently soft to be hammered to a point by a stone used as a hammer on a stone anvil.

The Kheriahs never make iron themselves, but are altogether dependent on the neighbouring bazars for their supplies. It is to this point that I wish more particularly to draw attention. Had they at any period possessed a knowledge of the art of making iron, con-

* J. A. S. B. 1867, Part II., No. II. p. 73.

servative of their customs as such races are, it is scarcely likely that they would have forgotten it. It is therefore not unreasonable to suppose that there was a period, anterior to the advent of the Hindus, when iron was quite unknown to them, when, owing to the absence of cultivation in the plains, they were even still more dependent on the supply of jungle food than they are at present.

In those times their axes and their implements for grubbing up roots, were in all probability made of stone, and their arrows had tips made of the same material.

Owing to the timidity of the Kheriahs, I have not had many opportunities of speaking to them; frequently, on my approach to a house, the whole family fled, and hid themselves in the jungle, at other times I have found the houses empty, all the family having gone out into the jungle to collect food.

On several occasions, however, I have had the men brought into camp, when I have questioned them as to their language and customs; in this way I have formed a vocabulary which, however at present in a crude state, I hope to have further opportunities of testing its accuracy, and correcting it by the elimination of words of Bengali and Hindi origin.

In their persons, the Kheriahs are very dirty, seldom if ever washing themselves. Their features are decidedly of a low character not unlike the Bhúmij; but there seemed to me to be an absence of any strongly marked type in their faces or build, such as enables one to know a Sonthal, and even a Kúrmi, at a glance. They undoubtedly belong, however, to the races who excited so much disgust on the part of the Hindus, when they first came into the country, and whom the author of the 'Annals of Rural Bengal,' quoting from the Sanscrit, calls in language probably more appropriate when first written than now, "The black-skinned, human-sacrificing, flesh-eating, forest tribes."

Some conversation ensued in which Dr. D. B. Smith, Mr. Woodrow, Dr. Ewart, and Mr. Ball, took part.

The Natural History Secretary read the following :—

II. *Notes on rare and little known Malayan mammals and birds,*
by Dr. Maingay.

1. *Gavæus Gaurus.*

The first specimen I bring to the notice of the Society is one of a frontlet of the Malayan bison, an animal well known to the Malays under the name of *Sladang* and described as of very large size, and more formidable when wounded than the tiger. It is found in the dense jungles around the base of Mount Ophir and the Kambou hills, and, no doubt, extends along the bases of the hilly ranges which form the axis of the Peninsula, as far as Tennasserim or Burmah.

It must not be confounded with the *Bos Sondaicus*, also found in similar localities and distinguished by the Malays under the local name of *Sapi* or *Sapiontan*. The *Sladang* is now very rarely found within the Malacca territory, and the animal from which the frontlet was taken, was the only one of which I have been able to obtain any record as having been killed within the British boundary for the last thirty years. It was a very old solitary male, and was wounded by a Malay, who immediately on firing ran away, and the body of the animal, in an advanced stage of decomposition, was found, some days after, at a distance from the place where it had been wounded. Not being able personally to visit the spot, I only succeeded in procuring the frontlet.

The measurements* in my specimen are as follows : Between the tips of the horns, 21 inches ; breadth of forehead along frontal ridge, $9\frac{1}{2}$ inches ; circumference of horn at base, $15\frac{1}{2}$ inches ; from base to tip round outer curve, $23\frac{1}{2}$ inches. I have also measured a pair of horns, at present in the possession of a gentleman at Malacca, which measure no less than $28\frac{1}{2}$ inches along the outer curve, with a longitudinal diameter of 7, and a transverse one of $3\frac{1}{2}$ inches, or exactly 2 to 1.

2. *Pelicanus Phillippensis*, apud Jerdon, Birds of India.

This is the only form of Pelican I have as yet met with in the Straits—I refer to the above species as described by Jerdon ; it generally appears in large flocks and at irregular intervals.

The following are the notes and measurements drawn up from two specimens, male and female, in my own collection.

* See Dr. Jerdon's Mammals of India, p. 303.

Irides clear pale brown, paler at the inner and outer edges, and surrounded for a fourth of an inch by an injected red sclerotic, which becomes white posteriorly. Bill from 12 to 13 inches long, measured along the central ridge of the upper mandible, which ridge is pale flesh colour, with the lateral expansions deeper in colour and marked with a series of leaden black or purplish subquadrate oblique maculæ in either a single or, towards the base, a double row. Nail arcuate, dull yellow. Lower mandible greyish flesh colour, becoming orange towards the tip. Gular pouch, when lax, very pale slate colour, anteriorly with orange caruncles towards the base; when stretched, of a lurid flesh colour with well marked veins. Legs and feet dull slate colour, or bluish flesh colour. Claws whitish lead colour, paler towards their tips. Total length from tip of lower mandible to tip of tail, $4\frac{1}{2}$ feet. Wing 21 to $22\frac{3}{4}$ inches, with the 3rd and 4th quills longest, and the 2nd shorter than the 1st. Tarsus $3\frac{1}{10}$ to $3\frac{1}{2}$ inches. Midtoe, including claw, 5 to $5\frac{1}{4}$ inches. Inner toe, including claw, $5\frac{1}{4}$ inches. Outer toe 5 inches.

The species does not breed in any part of the Peninsula with which I am acquainted. It perches though rarely upon very lofty trees, and a similar habit has been noticed by Griffith in the Pelican of the Jheels of Eastern Bengal, but its usual roosting place is at sea. The Malays term it "*burong Jawa*," literally *bird of Java*. The marks on the bill occurred in every specimen which has passed under my observation.

3. *Limnaetus alboniger*, (Horsf. ?)*

[*Spizaetus cristatellus*, Jardine and Selby, in more advanced plumage than the very young individual represented in the ornithological illustration of those authors.]†

This bird settles a point long in dispute, namely the identity of

* Horsfield (Cat. of Birds, I. p. 33) quotes ? *Nisaetus alboniger*, Blyth, as identical with *Spiz. caligatus*, and *Spiz. cristatellus*, Temm., as a distinct variety of the same, but I cannot find the reference to *Lim. alboniger*, Horsf.—NAT. HIST. SECRETARY.

† Jardine and Selby's (Ornith. II. p. 66) *Spizaetus cristatellus* is described from a specimen, said to have been shot by the Captain of a vessel about to enter the port of Aberdeen. The forehead of the specimen is whitish, the rest of the upper plumage brown, below and sides of neck white, tail greyish with 7 black bands. Jardine and Selby supposed this specimen to be Temminck's *Falco cristatellus*, in the adult state; this is however not the case, as may easily be seen from a comparison of the description of the last species in Dr. Jerdon's work.—NAT. HIST. SECRETARY.

Spizaetus cristatellus of Jardine and Selby above quoted. I possess in my own collection a single specimen of the latter exceedingly rare bird, which agrees with the description and figure in every respect. The specimen* I present to the Society, shows a more advanced stage of plumage, one exactly intermediate between *Spizaetus cristatellus* and *Limnaetus alboniger*, Horsf., if I understand the latter aright as a smaller form than *Kieneri*, but like it at once recognisable by the deep shining black of the back in *old* birds, and the rufous tinge of the breast and abdomen.

The species must be considered as very rare, even at Malacca, as I have only met with five specimens within a period of more than four years. Of other *Limnaeti* I may mention the following in my collection :—

Limnaetus niveus, always showing the fawn-coloured bands on the thighs, as noted by Jerdon.

Limnaetus alboniger, Blyth, (Asiatic Society, Journal, 12th July, 1845,) closely banded on the thighs and flanks with narrow transverse black bands, and with the back and crest black, the breast being marked with large black drops.

Limnaetus ? sp. of a dark hair brown colour on the back and with the belly, flanks and thighs showing narrow transverse brown bands. Both the last mentioned species are so rare, that I have met with only a single specimen of each.

4. *Hydrocissa n. sp.*

I met with this fine hornbill, for the first time since I have been in Malacca, only last December, when, singular to relate, it suddenly appeared in large flocks along the coast, and from the direction of the flight, I imagine the birds must have crossed over from Sumatra. They remained about a month, during which period several living examples passed through my hands. The Malays declared the birds had not been seen in Malacca for twenty years, and so far as my own four years' experience goes, I can corroborate their statements. They have

* This specimen is certainly a typical *Limnaetus Kieneri*, de Sparre, (Jerdon, Birds of India, I. p. 74). *Lim. cristatellus* of Temminck, is certainly quite distinct from this, and likewise quite distinct is *Lim. caligatus*, Raffl. (*Lim. alboniger*, Blyth), being easily distinguished by the large dark blotches to the white feathers of the breast, and by the white banded belly and thigh coverts. It would be very interesting to examine Dr. Maingay's specimen which he believes to agree in every respect with Jardine and Selby's description and figure.—NAT. HIST. SECRETARY.

since all disappeared as mysteriously as they came, and I have not met with any for the last three months. I am quite at a loss to account for so singular and unusual a migration, and the only plausible conjectures are : either that it was produced by a very unusually strong monsoon, or from a failure in the supply of fruits. So bold and fearless were the birds on their first arrival, that a few actually roosted, out of gun shot, however, on a very lofty and bushy *Pterocarpus* tree, within the precincts of the town.

The following descriptions were taken from living individuals of both sexes.

♂. Body and wings shining black, occiput with four inches of the dorsal surface of the neck black, the feathers slightly elongated. Throat, sides and a small ring at the root of the neck white, verging when in contact with the black neck patch into yellowish or even deep shining rufescent, though this last character is not always well marked. Tail black at the base, for about a third, the remaining two-thirds pale chrome-yellow. Skin round the orbits splendid clear blue. Gular pouch pale yellowish white. Irides a very clear dark brown approaching to crimson in certain lights. Bill in the upper mandible whitish at the tip, gradually becoming yellow towards the centre, and crimson for about one inch from its base. Casque crimson throughout, with four or more vertical shallow depressions anteriorly, its anterior edge inclined obliquely from behind forwards. Distal half of the lower mandible from the tip yellowish white, becoming clearer towards a very narrow black basal band, and marked with 4-8 linear curved grooves, extending from behind forwards. Feet dull lead colour ; length of dried specimen, 2 feet $9\frac{1}{2}$ inches ; length of wing, $15\frac{1}{2}$ inches ; of tail, $10\frac{1}{2}$ inches ; of tarsus, $2\frac{1}{2}$ inches. Bill at gape, $6\frac{1}{4}$ inches.

♀. Body black throughout, except the distal $\frac{2}{3}$ of tail which are of the same pale chesnut or creamy yellow as in the male. Bill throughout dirty yellow, becoming brownish or reddish brown for about half an inch from the base. Casque with a sharp anterior edge, inclined from behind slightly forwards, without the shallow grooves found in the male, the lower mandible also wanting them.

Flight undulating, rapid. Habits gregarious, in flocks of from 5 to 8 individuals.

Should the species be undescribed, I propose the specific name *migratorius* for it. I possess a male with two miniature *white* feathers in the tail, shorter in length and placed underneath the others.

Malacca, March 26th, 1868.

III. *Notes on the Lion of Aboo, by Assistant Surgeon GEORGE KING, M. B., Bengal Establishment.*

I have collected the following particulars from various English sportsmen in this part of Rajpootana and from native shikarees, all of whom have seen or shot lions, and as there is a wonderful harmony between the different accounts, I think they may be relied on.

Both to Rajpoot and Bheel shikarees in these parts, the lion is known, under the name of *Untia-bágh*: in Kattiawar, where it also occurs, it goes under the name of *Sáwach*. It is now beginning to get scarce in its old haunts in the jungle at the base of Mount Aboo and in the neighbouring plains, but whether from extermination or from migration, it is difficult exactly to say. I am inclined to think that the latter has a good deal to do with it. Having recently been stationed at Goonah in Central India, near which six or seven lions were shot in one season some years ago, I can bear testimony to the fact that the appearance of the animal there, was quite a surprise to both the European and Native sportsmen of the district, and that since that year not one has been seen. The news of the first, as observed at Goonah, was brought into the station by a native who described a large unknown tiger-like animal which had been seen to kill a kid near a neighbouring village. A party went out quite uncertain as to what large animal they could be going after, which had condescended to kill such small game as a kid. In the beat that followed, a lion was turned out and killed—a poor enfeebled specimen in very bad condition, and bearing the marks of numerous bites and tears,—which in the opinion of the shooters had probably been inflicted on him by the tigers into whose preserves he had intruded. Shortly after that, in other beats in the neighbourhood of the station, lions were turned out, and during the season, as just mentioned, six or seven were shot. One was seen to escape by swimming across a wide nullah. Lions have since been shot west of Goonah near Kotah, and in the jungle between the latter place and Gwalior, two

or three were shot so lately as the hot weather of 1867. During a march in December last from Goonah to Jodhpore through Kotah, Boondee and Harowtee, I made particular enquiries, as I went along, as to the occurrence of the lion, but could discover nothing to lead me to think that it is a common animal in the Kotah or Boondee jungles, nor even a permanent resident there; but perhaps the natives do not distinctly distinguish it from the tiger.

The lion is higher at the shoulder but shorter in the body than the tiger; in other words, comparing a lion and tiger of equal weight, the lion would be higher than the tiger, and the tiger larger than the lion. The head of the lion, even allowing for the deceptive appearance of size given by the mane of the male, is slightly larger than that of the tiger. A very fine large male lion shot near Aboo last year, measured, without stretching, forty-two inches in height at the shoulder, and ten feet and half an inch from the tip of the nose to the end of the tail. The hair of the mane was ten inches long.

The lion has never the sleek coat, nor rounded form of the tiger, but is invariably lean and lanky. His ribs can be distinguished under the rough skin, and as he walks, the movement of the shoulder-blades is very distinctly seen. The forelegs and all the feet are more massive than those of the tiger. The large size of the feet is particularly well marked in the young, the footprints of a lion cub of twenty-four months being nearly as large as those of a full grown tiger, but distinguishable from the latter by their greater lightness, as well as by their shape. The contrast in size between the footprints of adults is not so great, the lion's being but little larger than the tiger's, but distinguished from the latter by the rounder outline, as if the lion walked more on the tips of its toes than the tiger.

The colour of the lion differs with age, but at all ages the belly and legs are lighter than the back. The general tint is a sandy yellowish dun, much like that of the camel. In the young the colour is very light, and the legs and sides are particularly so, while the belly is almost white. On the light parts, there are very faint spots of a darker shade, in size about equal to a rupee.

The testicles are small but prominent, and are set high up just under the anus; the penis is like that of the tiger.

Unlike the tiger, the lion is rarely if ever seen in the hills at any

season. In the hot weather, lions frequent the banks of dry streams where the jungle is thick and scrubby, and during the day a very favourite cover near Aboo is in the dry sandy beds of streams where *jaw* jungle abounds. "*Jaw*" is the native name given indiscriminately to a species of *Tamarix*, and to *Trichaurus ericoides*, both of which grow freely, and form a dense cover from 4 to 6 feet high. If not disturbed, they often lie very near villages. They have been known to haunt, for months at a time, high retired bare open spots on the plains near Aboo where there are only a few patches of jungle sufficient to afford them cover from the sun. In the hot weather of 1867, four were shot near the village of Gole. They had lived there for three years, and during that time had done great havoc among the villagers' cattle. On the night of the arrival of the party that shot them, they killed four cows.

Lions are easier to beat out of their cover than tigers. In the matter of courage the two species are very much alike. They feed principally on wild pig, deer, and cattle, but are very fond of camels.

The lioness has never more than three, and usually only two cubs. At parturition she lies up separately like the tigress. The young remain with their mother for four or five years. They are said not to attain their full size until their sixth or seventh year.

Aboo, 30th May, 1868.

IV. *Notes on a supposed new species of Drymoipus Verreauxi*, by
Lieut.-Col. R. C. TYTLER.

Col. Tytler in a letter to Mr. A. Grote (dated Umballah, 2nd March, 1866,) forwards the description of a supposed new species of *Drymoipus*. He writes as follows:—

'In my fauna of Dacca which was published several years ago, I mentioned a new species of bird (*Megalurus*), I had found at that station, but no description of this bird as yet appeared. I am inclined to believe, it is more a *Drymoipus* than a member of that genus. The following is a short description of the species.

Length $6\frac{1}{2}$ inches, wing $2\frac{1}{2}$ inches, tail 3 inches, bill at top nearly $\frac{1}{2}$ an inch, tarsus 1 inch. Head, neck and back black with light brown streaks lower portion of back light chestnut brown, upper tail coverts black, each feather edged with chestnut brown, tail dark slate brown, each feather

darker in the centre, and closely marked with faint bars, and with a white terminal band; chin, cheeks, throat, breast, abdomen and under tail coverts white, rufous on the flanks and thighs, wings brown, with black centres to wing coverts, secondaries and tertiaries; quill feathers brown edged outwardly with light brown. Bill, feet and claws, light brown, eyes dark, under wing coverts albescent. There appears to be no difference in the colour of the sexes; if anything, the males are a little brighter.

I found this bird in long grass at Dacca, where it was far from being common, and I obtained very few.—

Should the species prove to be new, Col. Tytler suggests naming it after his friend T. Verreaux of Paris; but Dr. Jerdon is of opinion that it is probably his *Graminicola Bengalensis* (See "Birds of India," Vol. II. p. 177). The changes in the plumage of the various species of SYLVIDÆ and allied families, are still very imperfectly recorded.

V. *Notes on new Gastropoda from the Southern Provinces of Ceylon*; by Messrs. G. and H. NEVILL. [Abstract.]

In this paper, the following new species have been described:—

1. *Oxynoe cincta*.
2. „ *delicatula*.
3. *Cylindrobulla sculpta*.
4. „ *pusilla*.
5. *Lobiger viridis*.
6. *Delphinula tubulosa*.
7. *Broderipia eximia*.

The five first named species belong to the interesting division OPISTHOBRANCHIA, and the two last ones to the SCUTIBRANCHIATA of the PROSOBRANCHIA.

The President then exhibited to the meeting one of the rude instruments, for approximately determining their latitude, used by the Captains of native coasting vessels, between Calcutta and Ceylon.

He said, "While visiting the coast in the early part of the present year, among other matters, I was interested in endeavouring to ascertain how it was that the commanders of native vessels, some of fair size, which are in the regular habit of passing from port to port along the

coast, succeeded in navigating these vessels. They are for the most part uneducated natives of the country. They are entirely unacquainted with such instruments as are generally in use for determining the position of a vessel at sea. They have no chronometers, and no sextants. Indeed being strictly coasting vessels, they do not leave sight of land, unless, as is not unfrequently the case, they are compelled by stress of weather to do so. On enquiry I found that they used a very ingenious but rudely simple means of obtaining approximately a knowledge of their latitude, when thus driven from shore. They do not care for any knowledge of their longitude, and never think of this.

The little contrivance which I now exhibit, consists simply of a small rectangular thin board or piece of teak-wood. The one I have measures $3\frac{1}{8}$ inches long by $2\frac{1}{8}$ inches broad, and is about $\frac{1}{10}$ inch thick. Through a small hole in the centre of this, determined by the intersection of the diagonals, a fine cord is passed, about the thickness of fine whipcord. The use of this little instrument depends upon the fact that the latitude of any place is roughly the same as the angle of elevation above the horizon of the polar star, and that any opaque object held vertically before the eye subtends an angle, which varies inversely as the distance of the object from the eye. If this distance be constant, and the size of the opaque object constant, the angle subtended by it must be constant also. Knowing this, the application of contrivance I hold in my hand is simple. The small rectangular board is held firmly in the left hand, while the cord from its centre (held in the right hand), is stretched from it to the eye, where the fingers of the right hand are held. As this cord, or the distance from the eye to the small rectangular board, is increased or diminished, so is the angle subtended by the opaque board, lessened or enlarged. Well, say the Captain of one of these coasters is anchored at Vizagapatam, on the coast, he takes advantage of a clear night, and sitting on the deck of his vessel, he carefully brings the line of the lower edge of this small rectangular board to coincide with the line of the horizon, or sea line, and moves the board slowly back and forward, until he brings the line of the upper edge to correspond with or to intersect the polar star. Carefully marking the length of the cord passing from his eye to the board, when this is the case, he puts a knot on the cord at that point.

If this be carefully done, he knows that whether near the coast or far from it, if he be in such a position that the horizontal line and the polar star coincide with the two edges of the board, while that board is held vertically before his eye at the distance indicated by the knot, that he must be in, or close to, the same parallel of latitude as the port at which the first observation was made. It matters not to him whether this be, in our mode of recording the latitude, 10° , or 15° , or 20° —all he cares to know, in his rude navigation, is that he is about the same parallel, and that if his destination be north or south of that port, he has only to steer accordingly.

Similar observations being repeated at other ports, marks or knots corresponding to these are placed at the proper distances on the cord. These lengths have been determined now by innumerable separate observations, and these substitutes for sextants can be, I am told, purchased with the knots or marks all ready. Careful men test these again, quite as a European Captain would carefully ascertain the Index error of his sextant for himself, however admirably constructed it might be.

I am told that a careful man will determine his latitude, as referred to the fixed points or ports on the coast, within 10 to 15 miles, by this very rude substitute for a sextant.

I am indebted to the kindness of Stuart Hall, Esq., of the firm of Hall and Syme, Coconada, for the possession of the one I now exhibit. The names of the several ports along the coast are written, or rather incised, on the board in Telugu characters, corresponding in order and number to the knots and marks on the cord. These are 14 in all: the more important, Godavery, Madras, Negapatam, are marked on the end by little tufts of coloured cotton thread, red, blue, white. The specimen before the meeting had been in actual use for some years."

The President also exhibited to the meeting a very interesting and valuable addition to the collection of Meteorites, in the Geological Museum. This was a beautiful specimen of the fall which occurred near Pultush, about 35 English miles from Warsaw, on the 30th of January in the present year. Several stones fell—the largest is in possession of a private party, the second largest went to the Imperial Mineral collection at St. Petersburg, and the third

largest was secured for the Imperial Mineral Cabinet at Vienna. This had been cut for examination, and Dr. M. Hornes had, with his wonted liberality, sent to Mr. Oldham the specimen now exhibited, the second in size of the three pieces into which the whole was divided. It weighs 6 oz. 398 grs. The stone sent to Vienna was perfect, that is, it was covered on all sides with a distinct crust tolerably uniform, and about $\frac{1}{100}$ th of an inch in thickness. The stone, as seen by the fresh fracture and polished surface, belongs to the same general group as several other well known falls. These are all grey, more or less dark, coloured brown locally, with more or less globular portions, distinguished from the rest of the mass by a nearly black colour with much finely divided Iron, a little Pyrites, and probably Troilite. This stone (Pultush) is very similar to that which fell at Gross Divina, Hungary, on July 24th, 1837. The specific gravity is 3.660.

The stone belongs to the third class, *sporadosidères*, and to the second subdivision of that class, *oligosidères*, of Profr. Daubrée's classification—

The receipt of the following communications was announced :—

1. *The History of Burma*, by Col. Sir A. PHAYRE.

Col. Phayre's paper is a continuation of that published in the 32nd volume of the Journal of the Society. In that paper, the author traced the history of the Burma race from the earliest times to the arrival of the two sons of the king of Tagrung at the site of the present town of Prome. The national chronicles from that time proceed with the history of the monarchy established at Tha ré Khél ta rá, to the east of Prome. In the present paper, the author condenses into a brief narrative the principal events of that monarchy and of the succeeding dynasties of Burma kings, which reigned at Pagán, on the Irawaddy river, about 180 miles above Prome.

2. On some new species of *Gastropoda* from the Southern Provinces of Ceylon, by Messrs G. and H. Nevill.

3. *Authors of Armenian Grammars, from the earliest stages of Armenian Literature up to the present day*, by J. AVDALL, Esq.

LIBRARY.

The following additions were made to the Library since the meeting held in July last—

PRESENTATIONS.

* * * The names of Donors in capitals.

- Bráhma dharma.—THE CALCUTTA BRAHMA SAMÁJA.
 Bráhma dharma, with commentaries.—THE SAME.
 Bráhma dharma, in Nágari characters.—THE SAME.
 Bráhma dharma Vyákhyána.—THE SAME.
 Bráhma dharma mata o Visvása.—THE SAME.
 Dharma charchá.—THE SAME.
 Dharma síkshá.—THE SAME.
 Prátyahika Bráhmopásaná.—THE SAME.
 Brahma stotra.—THE SAME.
 Prárthaná.—THE SAME.
 Átmatattva vidyá.—THE SAME.
 Pauttalika pravodha.—THE SAME.
 Tattva vidyá, part I.—THE SAME.
 Anushthána paddhati.—THE SAME.
 Pravachana Sangraha.—THE SAME.
 Mághotsava.—THE SAME.
 Bráhma Samája Vaktrité, 3 Nos.—THE SAME.
 Vedantic Doctrines vindicated.—THE SAME.
 Selections from several books of the Vedanta by Raja Rámamohana Ráya.—THE SAME.
 Several Tracts on Hindu Theism.—THE SAME.
 The Signs of the Times.—THE SAME.
 The Theist's Prayer-Book.—THE SAME.
 The Doctrine of The Christian Resurrection.—THE SAME.
 Proceedings of the Royal Society.—THE ROYAL SOCIETY OF LONDON.
 Journal Asiatique, No. 40.—THE ASIATIC SOCIETY OF PARIS.
 Bulletin de la Societé de Géographie; Mai, 1868.—THE GEOGRAPHICAL SOCIETY OF PARIS.
 Proceedings of the Academy of Natural Sciences of Philadelphia for 1867.—THE ACADEMY.
 Journal of the Academy of Natural Sciences of Philadelphia, Vol. VI. part II.—THE SAME.
 Les Manuscrits Lampongs en possession de M. le Baron Sloet van der Beele, publiés par H. N. van der Tuuk.—THE AUTHOR.

Records of the Geological Survey of India, Vol. I. part I.—**THE SUPDT. GEOL. SURV. OF INDIA.**

Another Copy.—**THE GOVT. OF BENGAL.**

Palæontologia Indica, Vol. V. part 6.—**THE SAME.**

Annual Report of the Lahore Lunatic Asylum for the year 1867.—**THE SAME.**

Report on the Police of the town of Calcutta and its suburbs for 1867.—**THE SAME.**

Note on the importance of the Spectroscopical Examination of the vicinity of the Sun, when totally eclipsed, for the determination of the nature and extent of its luminous atmosphere, and on the partial identity of that atmosphere with the Zodiacal light. By Prof. E. W. Brayley.—**THE AUTHOR.**

A lecture on the life of Rámadulála De, by Girisachandra Ghosa.—**THE AUTHOR.**

The Calcutta Journal of Medicine, Vol. I. No. 6.—**THE EDITOR.**

Padmadúta Kavyam by Siddhanáta Vidyávágisá:—**COL. J. C. HAUGHTON.**

Addresses delivered at the Hitoishini Samája of Cutch Vehara.—**THE SAME.**

Prasannarághava Nátaka, edited by Govindadeva Sastri.—**THE EDITOR.**

Grammaire Polyglotte, par Le P. Minas Médecin.—**J. AVDALL, ESQ. PURCHASED.**

Reise Seiner Majestät Fregatte Novara um die Erde, Botanischer Theil, Band I. Algen.

Revue et Magazin de Zoologie, No. 4, 1868.

The Annals and Magazine of Natural History, No. 6, 1868.

Journal des Savants, Avril, 1868.

Comptes Rendus, Nos. 16—21, 1868.

Revue des Deux Mondes, 15th Mai, 1st June, 1868.

Revue Archeologique, V. 1868.

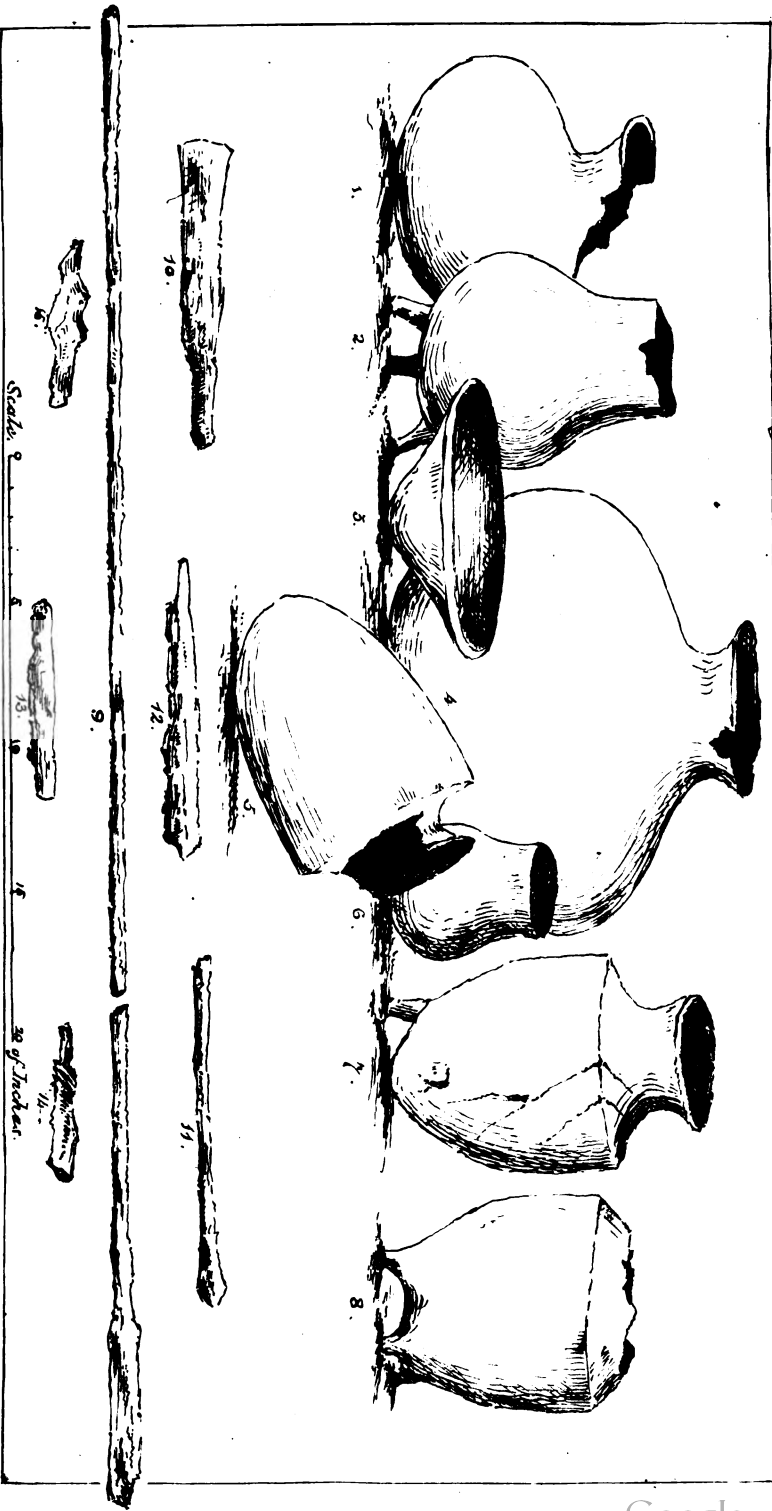
Revue Linguistique, Avril, 1868.

Les Quatrains de Khéyam, traduits du Persan par J. B. Nicolas.

Visible Speech, the Science of Universal Alphabets, by A. M. Bell.

EXCHANGE.

Athenæum, for May, 1868.



Pottery and Iron remains found in Cromlechs.
COORRG.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL,
FOR SEPTEMBER, 1868.

A Meeting of the Society was held on Wednesday, the 2nd instant, at 9 o'clock P. M.

T. Oldham, Esq., LL. D. President, in the chair.

The minutes of the last meeting were read and confirmed.

The following presentations have been received since the last meeting.

1. From Dr. G. King—

A skeleton of a lion.

2. From the Minister of Foreign Affairs, Paris—

A copy of Collection Orientale, Le Livre des Bois, Vol. VI.

3. From Maulavi Muhammad Zuhúrulhaq—

A copy of the Díwán-i-Sultán.

4. From the author—

Two copies of a pamphlet, entitled *Statistics of Longevity, No. II.*, by Captain T. C. Anderson, Garrison Barrack-Master, Fort William.

The following gentlemen duly proposed and seconded at the last meeting were balloted for, and elected as Ordinary members :—

Baron von Ernsthausen.

R. M. Adam, Esq.

E. Ch. van Cutsem, Esq.

R. V. Stoney, Esq.

C. Lazarus, Esq.

The following gentlemen are candidates for ballot at the October meeting :—

W. Eddowes, Esq., M. D., Assistant Surgeon, Erinpura Irregular Force.

Proposed by the President, seconded by the Secretary.

Dr. S. M. Shircore, Civil Surgeon, Twenty-four Pergunnahs.

Proposed by Dr. Partridge, seconded by the Secretary.

In accordance with the notice given at the last meeting, A. Grote, Esq., was balloted for and elected an Honorary Member of the Society.

The election of H. Blochmann, Esq., as General Secretary of the Society, reported at the last meeting, was confirmed.

The President said that while the ballot was proceeding, he would submit for the inspection of the Society, a magnificent specimen of a Meteorite, which he had recently received. This was a portion of the known fall which took place at Klein Menow, near Fürstenberg in Mecklenburg-Strelitz, on the 7th October 1861, in the day time, about half-past one o'clock. The stone, as it fell, was tolerably perfect, being coated in most places with the usual vitreous crust. This, in the present fall, was much more rough and irregular than was usual. The stone was purchased entire by Baron Reichenbach, who then was forming a fine collection of these objects, and it has since then remained with him. He declined to cut it, so as to allow other collections to have portions. More recently he has been anxious to dispose of it, and about the beginning of the present year, it passed into the hands of Wm. Nevill, Esq., Godalming, whose collection of Meteorites is known to all interested in these enquiries, as the finest private collection now existing. Indeed his series will rank fourth or fifth among all collections, either public or private. To the kindness of Mr. Nevill, he was indebted for this splendid specimen, which is about one-third of the whole mass. As yet he had only been able to examine the polished surface of the mass where cut—and it is not easy to determine the exact structure of the fall in this way. The members would see the appearance it presents. Round sub-angular and occasionally globular-looking masses of a darker colour are irregularly scattered though the mass of the block, which consists of a kind of net work of iron. The mass is magnetic.

From Mr. Nevill, he had also received a specimen of the rarest of all known meteorites hitherto only known to be represented in his own collection and in that of the British Museum. The only known fragment originally belonged to the Lettsom collection which passed into Mr. Nevill's hands, and was divided with the British Museum.

The fall he spoke of is that which took place on the 17th May, 1830, at Perth in Scotland.

The President also said, he had brought to the meeting, thinking it might interest some of the members, a series of beautifully executed models of the most celebrated large diamonds, known to exist. These models are very well executed, and give an excellent idea, both of the size, brilliancy, colour, &c., of these valuable stones.

The President then said that, subsequently to the last meeting of Council, he had received communications on a subject which was of great local as well as general interest, and which had been the source of a good deal of intellectual excitement recently, he alluded to the recent total Eclipse of the Sun, which, as the members were aware, had occurred under conditions as to the relative positions of the Sun, Moon and Earth, nearly as favourable as could possibly be. An unusually protracted continuance of the totality of the Eclipse was the result, and consequently great preparations had been made for the careful observation and record of the facts. Coming in the middle of the Monsoon there was, of course, a very great probability that the sky would be so covered with clouds, that nothing would be seen, as was very much the case in Calcutta. But there were chances in favour of success, and these have been fully seized. The matter was one of such immediate interest, that he had exercised the authority granted to him and, anticipating the consent of the Society, he had arranged that these papers should take precedence of the papers announced for the meeting. If time permitted after the reading of the communications on the Eclipse, they could proceed to the other papers. Col. Gastrell would read a paper by Captain Tanner, and then he would ask Major Macdonald to read his notes.

Remarks on the Total Eclipse of the eighteenth of August, 1868, as observed at Beejapoor, situated in E. Long. 75° 50' 15" Lat. 16° 49' 35" N. and 16 miles north of the central line of eclipse.—BY CAPTAIN TANNER.

The morning of the 18th August broke dark and cloudy at Beejapoor, and the high wind, which had prevailed for several days previously, had in no way abated.

~~65159~~

~~65159~~

cancelled

We took up our position on a lofty tower some 70 feet high, one of the numerous ruins of this far famed ruined city. From this altitude, we could obtain a commanding view of the whole surrounding country, a position most favourable for observation of the general phenomena of the eclipse. I selected a spot near the top of the exterior spiral staircase of the tower, protected entirely from the wind, and where I could make my observations in a comfortable and easy attitude.

Our party was composed of Captain Haig, R. E., G. T. S.; Professor Kern Luximun, M. A. of the Dekhan College, Mr. Hunter, C. S.; Dr. Kielhorn of the Dekhan College, and myself.

Captain Haig was furnished with one of the Royal Society's Spectroscopes. He had fitted this instrument to one of my 6 inch transit Theodolites, in order to command greater magnifying power than he had with the telescope of his spectroscope. Professor Kern Luximun had a $2\frac{1}{4}$ in. telescope of 30 in. focal length, which was equatorially mounted. His instrument was furnished with an eye-piece of 60 power, possessing a scale, or micrometer with which he intended measuring the altitudes of the red protuberances:

The high wind, however, unfortunately overturned the instrument, and so much disarranged it, that he had to substitute a power of 75 instead.

I had a 10-inch Theodolite possessing a remarkably good telescope of $1\frac{1}{2}$ in. aperture, and 18 inches focal length; with an eye-piece of 46 power. I had intended observing with a telescope of 3 in. aperture, but it did not arrive from Nimar in time before I left Poonah.

Kern Luximun had previously determined the error of our chronometer, which was verified by an independent observation by Captain Haig and myself, in the afternoon, and we thought we were well prepared for the coming event ere the 1st contact took place. By some mistake in applying the error of the chronometer, or from some other cause, the first contact took place before we expected it, and I was the only one of the party ready to note the event. Owing, however, to clouds, I was prevented observing the exact instant at which it occurred, and my observation must have been some 40 seconds late. I made a sketch of the segment of the sun, obscured by the moon at the instant of my observation, and by applying it to a diagram previously constructed by Kern Luximun for this purpose,

estimated that the 1st contact had taken place about 50 seconds before my observation. Afterwards, by comparing the segment with a similar one at the time of last contact, I estimated the time to be about 35 seconds, we therefore adopted the mean of these estimated times as the instant of first contact.

The sky now remained for a considerable time over-cast with cirro-cumuli and fast flying nimbi, but we occasionally obtained views of the progress of the moon across the sun.

The light except near the time of totality waned imperceptibly, and when even as much as $\frac{1}{5}$ ths of the sun's disc was hidden, there was hardly any diminution in its intensity. During the last few seconds before totality, the light gave way very suddenly. I saw darkness approaching rapidly from the west, where the gloom appeared like a vast black thunderstorm. It was on us in a few seconds; clouds had hidden the sun just previous to his total obscuration, and from their density and extent, we almost gave up hope of seeing any of the interesting phenomena we had come so far to observe. Kern Luximun, however, noted approximately the time of commencement of the total phase. I myself was unwilling to believe that the totality had actually commenced, so incomplete was the darkness. At this time and throughout the total phase, it was remarkable that we could see to read and write in pencil, could take observations and read the second's hands of our watches with great ease. The light in the eastern sky was noted by me to be fading at 9. 3. 20 M. T., and had completely disappeared in 25 seconds. We were now enveloped in a dense leaden gloom which overspread the whole expanse of country visible to us. There was nothing remarkable about the colour of the sky or clouds, the darkness was that of ordinary twilight early on a dull grey morning.

Shortly after the time of greatest obscuration, light began to break in the western sky (a small patch free of cloud being visible), and presently we caught a view of the eclipse through the upper thin stratum of cirro-cumuli. So bright was the corona immediately around the moon's limb, that for a moment I was under the impression that the eclipse instead of being total was only annular. Its light died away completely at a distance of half the moon's diameter. It appeared to me and to Professor Kern Luximun to be quite regular

and evenly, and softly shaded off all round. But Captain Haig fancied that he detected some slightly marked radiating lines in its structure. The eclipse being now quite clear, we commenced observations with our different instruments. At my first view of the moon through my telescope, three red prominences met my gaze. The one marked *a*, Plate IV., at my first hurried glance appeared to be sharply defined, pointed, and of homogeneous composition. I immediately made a sketch of it. The double flat broad protuberance marked *b*, appeared as depicted on the sketch to be composed of well defined hard streaks or lines slightly radiating. The Professor afterwards aptly likened them to the fingers of the hands slightly separated: each part of this double protuberance being composed of perhaps 6 to 10 such fingers or lines. I then sketched them and casting my eye round the moon's limb again, to see that no others had escaped notice, returned to examine the flame *a* more minutely.

I found it to be composed of streaks of flame-coloured matter, not lying parallel or nearly so, to each other as in spot *b*, but overlapping and somewhat twisted one upon another, precisely as the large flame of a burning mass of inflammable matter is composed of smaller tongues of fire: the streaks being, however, rather finer in proportion than the tongues of fire to which I have likened them. They were of a darker colour than the groundwork of the protuberance, and were more of a dark blood-red than I have shewn it in the sketch. The edge of the protuberance was ragged, being composed of the ends of the streaks just described. I now made a larger and more detailed sketch of this protuberance, and again returned to the telescope, when I found that another small red spot had in the meantime appeared. I marked it at *c*, and Professor Kern Luximun at *c*. After noting its position, I observed the general appearance of the eclipse, when in a few seconds the sun burst forth from behind the moon. The sudden contrast between the deep twilight of the total phase and the sunshine imparted even by so small a portion of the sun's disc as was at first visible, made it appear to us all that the light of day was complete.

At the first appearance of the limb of the sun, the red prominences all disappeared from my view, but Kern Luximun noticed them two minutes after that event. We now, aided by our rough original sketches, and our memory, each made another diagram, showing the position, shape, and structure of the protuberances. The manner in

which these representations of the eclipse bore comparison with each other elicited an exclamation of surprise from Dr. Kielhorn. The comparison shewed as follows :—

Protuberance *a* was shewn by the Professor straighter and not so pointed as by me. The streaks composing its body, the angle at which it met the moon's limb, and its height and position corresponded very well. The position, structure, and height of the double spot *b*, the same in both sketches.

The spot marked by the Professor at *c*₁, was noted by me at *c*₂. I am inclined to give way to the position he has assigned to this prominence, as I believe that in my hurry I may have marked it in an inverted position with regard to the double spot *b*; it may be remarked that we have both placed it at the same distance from *b*.

Captain Haig after just glancing at the sun through his telescope, and satisfying himself as to the existence of red flames, proceeded at once to examine them, and the corona with his spectroscope. The latter though most markedly visible to the naked eye gave but a faint continuous spectrum, whereas the red flames although totally invisible to unaided sight, shone out brilliantly and conspicuously across the dark disc of the moon.

Captain Haig's report to Colonel Walker fully describes his observations, which he hopes will corroborate those of other observers who have been furnished with complete apparatus for analyzing the constitution of the corona and red flames.

Kern Luximun and I are almost unfortunate in being perhaps the first observers to notice the streaky lined structure of the red protuberances.

I would therefore offer the following suggestions as to the probable or perhaps possible reason for our having noticed them.

When the sun is ordinarily observed on a bright warm day, the tremulous motion of the atmosphere so interferes with magnified views of sun-spots, that the minute markings of their structure are almost if not quite lost and obliterated. Now we observed through a single gap in the clouds. The earth and atmosphere had not been warmed at all by the sun's rays that morning, and we therefore saw the sun through a perfectly steady and homogeneous atmosphere, undisturbed and unbroken by heated tremulous vapour; the streaks and lines composing the red protuberances were therefore seen by us distinct from

each other. In the double flame *b*, even the most careless observer could not fail to notice the radiating lines or streaks, and it only required ordinary care to detect the same phenomenon in *a*, the lines composing this, as before remarked, being finer and more minute than in *b*.

The red protuberance *c*, shewed no markings.

We judged from our sketches and from estimation that *a* attained about 2' of altitude. Professor Spurer of the German astronomical party who obtained a glimpse of about 4 seconds' duration of the total phase, judged this protuberance to be about 3' high. He had so short a time for observation that he mistook *b* for a single point.

I had an opportunity of comparing our small instruments with the magnificent ones furnished by the Prussian Government to their observers who unfortunately selected a spot some 15 miles from Beejapoor, whence the sun was invisible almost throughout the eclipse. My telescope bore the tests it was put to in a most satisfactory manner; its definition is surprising. On the morning of the eclipse, the sun spots as seen through my telescope, could have been faithfully depicted with the point of a fine etching pen; with the other telescopes I examined, the same spots would have to be drawn with a camel's hair pencil and shaded with indian ink. With the 46 power eye-piece Saturn's ring, one of his bands, and one of his satellites, are visible; the fæculæ on the sun, especially in the neighbourhood of spots, being clearly perceptible.

The following table shews our time observations :—

	Computed by Proff. Pogson.	Observed by us.	Diff. S.	REMARKS.
1st Contact,	7 50 54	7 50 25	29	Estimated by Captain Tanner's Observations.
Totality commenced,	9 2 9	9 1 49	20	Estimated by Kern Luximun.
Totality ended,	9 7 21	9 6 59	22	Noted by Captain Tanner and Kern Luximun.
Last contact,	10 28 44	10 28 14	30	Noted by Capt. Haig and 2 seconds later by Capt. Tanner.*

* Captain Tanner's time was noted when a high, well defined mountain on the moon's limb left the sun.

Captain Haig's observation was made when this mountain was distinctly projected on the sun's disc.

The 1st contact was made very near the apex, and the last contact at a point 165 degrees from the apex counting round by the right. The computed places were 1st contact, 1° to right of apex, and last contact 173° from apex round by the right. We have not yet accounted for the discrepancies either of time or position.

Record of the Eclipse of the 18th August 1868, as seen from a hill in the vicinity of "Bezwarra" on the "Kistna" river, at latitude, $16^{\circ} 21' 10''$ North, and longitude $80^{\circ} 43' 20''$ East.—BY MAJOR J. MACDONALD.

The place of observation was well chosen. It commanded a view of the valley of the Kistna, which stream was then in flood, and covered the ground south-east of my station with water; this bright surface of several square miles was admirably suited to show the gloom of the shadow: to the west and north west the range of the "Condapillay" hills varying in height from 1000 to 1500 feet higher than my station, and distant about 12 to 15 miles, furnished a contrast in colour and outline, exactly required for the purpose of noting the difference of light on the landscape. North and east, the whole champaign was a field of springing rice, broken by small hills and dotted with groves. Thus I had a landscape adapted for every purpose I required.

That I might make a fair comparison with the degree of light during the period of totality with that of an ordinary twilight when the sun is under the horizon, I took up my post nearly an hour before sunrise, and carefully noted the prominent objects of the landscape, as they first appeared in the dawning light. These were numerous and varied, from distances of miles and thousands of yards to human features placed at distances of 30 to 10 yards from my station.

To sketch the appearance of the corona, I prepared a diagram showing the deep shadow of the moon; and for facility of comparison, I drew circles round the disc increasing from $\frac{1}{30}$ of the radius to $\frac{1}{4}$. Nine of these circles gave a space round the moon which I judged would be sufficient to show all the brightness of the corona.

Thus prepared, I took my station. I noted the temperature of a thermometer attached to the tripod of my telescope to be 96° in the sun, immediately before the commencement of the eclipse; and at 8-18 A. M., the moon's shadow crossed the light of the sun, and the eclipse

commenced. I supposed myself to be about 9 minutes north of the central line of eclipse, and calculated that I should have a period of totality equal to 5 minutes and a half.

I observed with a 120-power telescope by Dollond, through a double glass of red and brown. The power was sufficient to show the broken outline of the moon, and as totality approached, the bright lights on the high grounds in the moon were shown most beautifully on the illuminated edge of the moon's disc.

Interested by the account given in Major Tennant's paper as read by him before the Asiatic Society at Calcutta, regarding the observations made at Ragusa in March 1867, by Ensign Kiha of the Austrian navy through a cobalt blue glass, I tried to observe through a glass of bright Prussian blue; but when only ten minutes from totality, I found it impossible to look at the sun through such a pale colour. So it is inexplicable to me, how Ensign Kiha was able to look at the sun through a brighter colour under less favorable circumstances. During totality, I looked for 3 minutes through the blue glass, and thought the appearance of the corona and flames to be then infinitely more beautiful than when seen through the darker glass, or by the naked eye.

During totality, the mercury of the thermometer in the open air and attached to the telescope tripod fell to 83.5 degrees being a fall of twelve and a half degrees. A minimum thermometer, in the verandah of Colonel Winscomb's house, fell to 82°. Unfortunately the reading of the maximum thermometer placed in the same situation, could not be depended upon.

There was no appreciable change on an Aneroid Barometer during the progress of the eclipse.

With reference to my remarks on the light during totality, I will record a few of the facts from which I made my comparison.

First, I noticed hills left and right of the flooded valley of the Kistna at distances of three and four miles. They were discernible during the totality.

Secondly, A house painted with a light colour, overlooking the town of Bezwarra, was situated on the side of a hill distant about 2000 yards from my station. Two or three hundred feet higher up, on the face of the same hills, I noticed a precipice of dark rock. Both the light and dark objects remained visible.

Thirdly, I could distinctly see the roofs and walls of all the bungalows in the plain underneath me ; also the general outline of the town, the line of the Canal, and as a matter of course, the river beyond the town was clearly discernible ; the landscape in this direction varied in objects from 500 to 2500 yards.

Fourthly, Before the eclipse, I noted the colours of dark and white cattle grazing in a field immediately below my station and distant about 600 feet in a straight line from that spot. During totality, I could still recognise the difference in colour, and also distinguish a large white stone I had remarked in a field about 100 yards beyond the cattle.

Fifthly, In the middle of the totality, I could recognise the features of human beings up to 20 yards. I believe I could have recognised the features of a white person as far as 30 yards off.

Only two stars, Regulus and Sirius, were visible. The planets Mars and Venus could also be seen. Hazy clouds everywhere, except when dispelled by the sun's rays, prevented numerous stars being seen, which ought to have been visible in the gloom. Still, I must record my opinion, that the accounts I have read of the great darkness on the earth during the progress of a total eclipse, are greatly exaggerated, or at all events are not applicable to eclipses under low latitudes, when the great height of the sun throws such a mass of light to be reflected from the uneclipsed portion of the heaven.

In this case I carefully noticed all the facts I intended to report upon, and did not lose my presence of mind, when recording them in turn. The eclipse, occurring so early in the morning, prevented any appearance of those peculiarities amongst birds and beasts which have been so descanted upon, but had it occurred in the afternoon, I can quite believe in the truth of such facts as the birds roosting, and animals moving towards their folds.

As a spectacle, nothing can be imagined which is equal or similar to a total eclipse of the sun. The grandeur of the great shadow, is so immediately relieved by the brilliant glory of the surrounding halo—that all sense of awe is lost in admiration of a sight so astonishingly beautiful. The moment of returning light was especially wonderful in its effect and appearance, instantly illuminating the whole landscape with a brilliant pale blue colour. In the 3rd and 4th

quadrants, the length of rays from the corona were far larger than from the 2nd and 3rd; the greatest flaming projections rose in those quadrants, so it appears evident that the great mass of light is in the sun's atmosphere, and it is difficult to conceive that it can be caused by anything except simple combustion, such as we witness in our own fires. (The known motion of the sun through space indicates that it thus obtains its constant supply of oxygen, and its great rate of progression, rotation and revolution round its orbit of momenta may be accepted as a sufficient exciting cause of ignition and light in itself.) The brightness of the corona appears to be due to the dispersion of the sun's rays in our atmosphere. It is to be hoped that the experiments by the properly supplied expedition at Guntoor will determine this point to the satisfaction of those who are qualified to weigh the facts.

In my sketch (Plate 5) I think that I have made the great flames far smaller than they appeared in comparison with the moon. The great flame in the fourth quadrant, when viewed through the telescope, looked at least a third of the moon's diameter. The lights in the 3rd quadrant were not visible after totality; they were golden coloured and were detached from the moon's surface. The outline of the moon was broken round all the edges of its surface.

August 18th, 1868, on board my boat in the Kistna Canal.

Dr. Partridge then exhibited the drawings of the eclipse, as seen from on board the French steamer "LaBourdonnais." The drawings had been made by the Doctor and the Pilot of the steamer.

A conversation took place in which several members joined. Dr. Partridge drew attention to the admirable observation and description of the eclipse observed in 1860, in Spain by W. De La Rue, and published in the Philosophical Transactions of the Royal Society for 1862, and referred to several points in which the present observations confirmed these earlier ones.

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The President said they had also received from some other members of the Society a few observations noted at various places not within the limits of totality of the Eclipse. Mr. F. Fedden sent a sketch showing the several phases of the obscuration as seen at Bhooj in Cutch. Mr. A.B. Wynn also sent an excellent series of diagrams showing the successive

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appearances at the same place. With regard to the frequently noted effects of an eclipse on animals, Mr. C. Oldham, who saw the eclipt at Madras, writes "the crows roosted; my fowls went on as usual picking up their food, and apparently undisturbed, but as the light returned again, my neighbour's fowls commenced crowing furiously.—Dogs were totally unaffected." It was remarkable that every observer agreed in noting that the darkness resulting from the eclipse was not by any means so great as they had anticipated. This might be due to the hazy state of the atmosphere, diffusing the light very largely. The beautiful drawings which had been laid before the Society all agreed also in a very remarkable way in the position and character of the red protuberances; whether in those from Beejapoor on the west side of the Peninsula, those from Bezwarra on the east, or those from the Bay of Bengal still further to the East. The latter, the sketches taken from the deck of the steamer *La-Bourdonnais*, were peculiarly interesting and valuable as shewing the very marked elongation of the corona in a given direction, a fact also noticed by Mr. C. Oldham at Madras; and which had frequently been observed before. The Society he was confident would join with him in thanking Major Macdonald and Cap. Tanner for their communications, and also in expressing a hope that they would obtain a record of the more detailed observations with the spectroscope, and the polariscope. As yet they were only aware that these observations had been fortunately successful. It was a great disappointment and a source of deep regret that the admirably equipped party sent out by the Prussian Government had been so unfortunate.

The paper by J. Avdall, Esq., *On Armenian Grammars*, the receipt of which was announced at the last meeting, was laid before the Society. It contains a valuable list of all grammars of that language, with short critical notes.

The President then called upon Bábú Rájendralála Mitra, to read his *Notes on Inscriptions from Mathurá*.

(Abstract.)

Sometime ago in digging into a mound, while clearing a site for a new kutcheri for the collectorate of Mathura, the workmen came to what turned out on further excavation to be the remains of a large Buddhist monastery. The building was of the red sandstone now so common in Delhi and Agra, and contained a number of statues more or less muti-

lated, of the same material. The figures were all Buddhist, and they decided the character of the building in which they were found. Among the sculptures were the bases of several large pillars bearing inscriptions in corrupt Sanskrit and the Gupta character. Some of the statues had similar inscriptions. The bulk of the stones, sculptures, and statues found were broken into ballast for the repair of roads, but a few were rescued for the Society's Museum. Among these are several which bear inscriptions, and the paper supplies transcripts and translations of these. Three of the inscriptions bear dates, and according to one of them, the monastery was founded by the Scythian king Ooerki, Sanskrit Huvishka, B. C. 50—30, whose dominion in India seems to have extended so far down as Mathura. Another dated inscription gives fragment of the name of a king which has been conjectured to be Vāsudeva.

The President then called on Mr. Blochmann, to read his *Notes on certain Persian Poets styled Sultán*.

Notes on the Poems of Prince A'zam uddín, a grandson of Típú Sultán, and on three other Persian Poets, known under the name of Sultán, by
Mr. H. BLOCHMANN.

Among the presentations announced this evening the *Díván-i-Sultán* deserves a short notice. The book contains a collection of ghazals, or love poems, by Prince Muhammad A'zamuddín, a grandson of Típú Sultán. The name of the father of the poet is Prince Muhammad Shukrullah, whose brother, Prince Ghulám Muhammad, is the only surviving son of Típú. Prince A'zamuddín, as I am informed by the donor, was born in 1809 at Sháhnagar, near Calcutta. Like his brother, Sháhzádah Bashíruddín, who lives at present at Chinsurah, he was a man of extensive learning. He died in September, last year.

According to the custom of all Persian poets,—a custom which has become an established rule since the times of Sa'dí,—Prince A'zamuddín wrote under an assumed name. He chose the name of *Sultán*. The collection is stated in the preface to have been made by Mír Ghulám 'Alí of Calcutta, who says that the poems of the Prince amount to fifty thousand lines, and upwards. Of these the book before the Meeting contains a selection of about six thousand lines. Before the book was sent to press, the Prince had been asked to revise some of the

ghazals ; but he declined on the ground that he had wasted sufficient time in the composition. Strict Muhammadans look upon making poems as a worldly, and therefore useless, occupation ; they make, however, an exception in favour of religious poetry. Thus Badáoní, the historian of Akbar's time, one of the greatest zealots the Islam has produced, complains in his work* that, in his youth, he occupied himself with making poems, an occupation fit, as he says, for the ages of heathenism, and at variance with the spiritual nature of man.

It must, however, be borne in mind that Orientals are apt to explain love poetry, or poems sung in praise of wine, in a *mystical* sense, in which case they consider such poetry lawful ; and although there are examples on record of poets who freely indulged in love and wine, as *Fughání of Shíráz*, who provided himself with a leg of beef, and remained concealed in a tavern during the Ramazán, the instances are far more numerous of those who lived abstemiously, and never perhaps touched a drop of wine. For a European mind it may look like an anomaly that a Muhammadan poet should choose to speak of forbidden things as wine, often in the most sensual manner, in order to describe the mysterious aspirations of the heart to God ; but the biographies of many poets, and the evidence of their works, as in the case of Nizámí, prove the anomaly to be a fact. Hence the names of great poets, as Nizámí, Sa'dí, and Háfiz, appear now-a-days surrounded by a halo of sanctity, and their tombs are frequently resorted to by pilgrims.

The example of the classical poets compels a modern poet to speak of love and wine ; in fact, besides these two subjects, he has little freedom. He is even tied in the choice of his metres. The *Gul i Kushtí*, a poem by Mír Naját, the *Zalíkhá* by a poet like Firdausí, are continually found fault with, because they are not written in the metres which are now believed to be appropriate. For an Indian especially, whose language is not Persian, it is a difficult thing to write Persian verses. This can only be accomplished after years of study ; for the metrical art will require as much application as the study of the language itself.

The language of Prince A'zamuddín's poems is, on the whole, flowing. It shews occasional traces of archaisms, which prove the learning of the poet and his Indian origin ; and although his thoughts do not

* Vol. III. p. 239, ed. Bibl. Ind.

rise to the sparkling conceptions of Náçir 'Alí of Láhór, I'jáz of Ágrah, and Bedil, the great poets of the time of Aurangzeb, nor to those of Mirzá Nausha of Delhi, the Persian poet of our age, they are pretty, and abound in elegant allusions.

I add a few particulars on three other Persian poets, who have written under the poetical name of *Sultán*.

The name of the first is Sultán Muhammad, son of Shibábuddín, a nobleman of the Persian town of Qum, which lies half-way between Teherán and Içfahán. According to the *Atashkadah*, Sultán Muhammad became the chief of the town; but it is not mentioned when he lived. To judge from the few verses quoted in the *Atashkadah*, he belongs to the *Mutaakhhharín*, or modern poets, *i. e.*, the poets of the last three centuries. The following *Rubá'i* is by him.

An dil kih ba 'aish sarfarázi mikard,
Bar hajr nazar bah turktázi mikard,
Di dar khum i án du zulf i purtáb u khumash
Didam kih nishastah bád u bázi mikard.

A heart which once engaged in life's giddy whirls,
 And looked with scorn profound on lover's pain,
 Gets soon entangled in a fair maiden's curls,
 And plays, a helpless captive, with his chain.

Another poet, who adopted the poetical name of *Sultán*, is the renowned 'Alí Qulí, better known in Indian history as *Khán Zamán*, a title bestowed upon him by the Emperor Akbar. *Khán Zamán* was the son of Haidar Sultán, an Uzbak noble, who had attached himself, in Persia, to Humáyún, Akbar's father. When the exile of that monarch ended with his conquest of Qandahár, *Khán Zamán* was raised by Humáyún to the dignity of an *amirulumará*, or principal grandee. He distinguished himself in the wars which led to Humáyún's restoration in India. The greatest service which he rendered to Akbar, a few months after Humáyún's death, was the victory which he gained, at the head of Akbar's advance guard, over the much larger army of Hémú in the battle of Panípat, on the 13th November, 1556. I mention this, because two passages in Elphinstone's History of India (*Second edition*, pp. 462 and 496) read as if the battle of Panípat had been won by *Bairám Khán* on the *fifth* of November,

1556. But the text of Badáoní, printed by our Society, fixes the *thirteenth* as the day of the battle,* and also shews that Bairám, together with Akbar, was at some distance from Panípat, and could only send reinforcements. For this victory, which enabled Akbar to enter into Dihlí and Ágrah, 'Alí Qulí received the title of *Khán Zamán* (an abbreviation for *Khán i Zamán*), or *the Khán of the age*. After this we find Khán Zamán driving the Afghans from the provinces east of Ágrah, and conquering Lak'hnaú. In courage and martial genius he is placed by Badáoní above Bairám ; but his unruly and overbearing temper, which ultimately led him into open rebellion, seems to have been the cause why Bairám was in greater favour with Humáyún, and was chosen as Regent for the young Akbar. Badáoní in his praise of Khán Zamán, goes so far as to say that he, and his brother Bahádúr Sháh, gained unparalleled victories in the Eastern tracts of Hindustan, and that both would have been fit to be kings, if their rebellion had not issued unsuccessfully. The booty which he collected in these wars, was too tempting for Khán Zamán ; he withheld the share of the Emperor, and mutinied. Though Akbar, in 1565, condoned the offence, Khán Zamán remained dissatisfied, and again rebelled two years later, when Akbar had to move personally against him. A fight ensued ; Khán Zamán's horse was killed, and he himself thrown to the ground. An elephant driver saw him, and attacked him. The elephant crushed Khán Zamán to pieces, "so that his bones," says Badáoní, "became like pounded antimony, and his body like a bag full of chess figures." His head was recognized by his Hindu manager Rái Arzání, who put the Khán's head over his own, and cried loud. Khán Zamán's brother was also killed. The fight took place near Jaunpúr, on Monday, the 9th of June, 1567.

Khán Zamán was a patron of men of learning, and of poets, many of whom lived with him. Among the latter was the great poet *Ghazálí of Mashhad*. I do not know whether Khán Zamán's poems exist in a collected form. Badáoní and Bakhtáwar Khán have preserved a few of his passionate verses. In his poems he praises a youth of the name of *Sháham Bég*, whose story, as related by

* It would appear that Elphinstone read *duwum*, the *second*, instead of *duhum*, the *tenth*, of the month of Muharram, A. H. 964. Bakhtáwar Khán, in his *Mir-át-ul 'Álam*, agrees with Badáoní.

Badáoní, is an example of the licentiousness among the nobles, which caused Akbar so much annoyance.

The last poet known to me, that adopted the poetical name of *Sultán*, is Sultán Muhammad Siplakí. He lived at the time of Humáyún and Akbar, and was called *Siplakí*, as he came from *Siplak*,* a place near Qandahár. To his annoyance people changed the name of *Siplakí* into *Sipkalí*, the Hind. word for a lizard. He composed a poem in praise of Khán Zamán, who gave him a present of a thousand rupees, requesting him at the same time to discontinue the poetical name of *Sultán*, as it was the same as his own. Siplakí naturally refused, and told the Khán that he had got that name from his father, and was known as a poet in India under the name of Sultán. Khán Zamán got enraged at the refusal, and, as if the life of a man was nothing, called for an elephant, and gave the order to trample the poet to death. Mauláná 'Aláuddín i Lárí, the teacher of Khán Zamán, who was present, interposed, and asked his pupil to pardon *Siplakí*, if he could make on the spot a poem of the same metre† and rhyme as a certain poem of the poet Jámí; but to kill him, if he were unable to do so. This was done; the poem satisfied Khán Zamán, who hasty as he was, doubled his former present, and said much in praise of the poet. Siplakí thought it, however, best to withdraw from the neighbourhood of the unprincipled chief, and went ultimately to the Dek'han, where he took part in the siege of Bījánagar. Badáoní blames him for having given a refusal to a nobleman like Khán Zamán. He gives a few of Siplakí's verses. I do not know whether there exists a collection of his poems.

Maulvi Abdullatif Khan Bahadur said that Prince A'zamuddín, whose Díwán was before the Meeting, was one of the best Persian writers of the present age. He excelled both in prose and poetical compositions. His brother, Sháhzádah Bashíruddín was likewise known in Calcutta for his elegant writings; and he (the Maulvi) trusted that the Sháhzádah would yield to the repeated request of his numerous friends, and lay his writings before the public in a more permanent form.

* There may be a slight error in this name, as the MSS. used for the text of Badáoní give different spellings.

† Two poems of the same metre and rhyme are said to be of the same *zamín*, or ground, and the later of the two is the *jawáb* of the older poem.

The President then asked the meeting, as the evening was far advanced, to defer to the next meeting Dr. Oldham's paper on the action of the Ganges in the Benares province.

The receipt of the following communications was announced :—

1. From Babu Rajendra Lala Mitra, *Notes on the inscriptions from Mathura.*

2. From H. Blochmann, Esq., *Notes on the Poems of Prince A'zamuddín, grandson of Tipú Sultan, and on three other Persian Poets styled Sultan.*

3. From W. Oldham, Esq., LL. D., *Memoranda on the action of the Ganges in the Benares Province.*

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

Presentations.

**** Names of Donors in Capitals.*

The Journal of the Royal Asiatic Society of Great Britain and Ireland, Vol. III, Part II, N. Series.—THE SOCIETY.

The Proceedings of the Zoological Society of London, Part III, 1867.—THE SOCIETY.

List of Vertebrated animals in the Zoological Society's Garden.—THE SAME.

Report of the Council and Auditors of the Zoological Society of London.—THE SAME.

Transactions of the Zoological Society of London, Vol. VI, Part 5.—THE SAME.

Proceedings of the Royal Society of London, No. 102.—THE SAME.

The Anthropological Review and Journal of the Anthropological Society of London, No. 2.—THE ANTHROPOLOGICAL SOCIETY.

Bulletin de la Société de Géographie, Juin 1868.—THE GEOGRAPHICAL SOCIETY OF PARIS.

Journal Asiatique ; No. 41.—THE ASIATIC SOCIETY OF PARIS.

Verhandlungen der K. K. Geologischen Reichsanstalt 1868, No. I.—THE IMPERIAL ACADEMY OF VIENNA.

Jahrbuch der Kaiserlich-Königlichen Geologischen Reichsanstalt, Band XVIII, No. 1—4.—THE SAME.

Journal of the Agri-Horticultural Society of India, Vol. I, Part II, N. S.—THE SOCIETY.

Journal of the Chemical Society of London, April, May, and June, 1868.—**THE SOCIETY.**

Records of the Geological Survey of India, No. 2.—**THE GOVERNMENT OF BENGAL.**

Ditto, Ditto, Another copy.—**THE SUPERINTENDENT GEOLOGICAL SURVEY OF INDIA.**

Selections from the Records of the Bombay Government, No. CVII, New Series.—**THE GOVERNMENT OF BOMBAY.**

Report of the Revenue Survey Operations of the Lower Provinces from 1st October 1860 to 30th September, 1867.—**THE GOVERNMENT OF BENGAL.**

Selections from the Records of the Government of India, Foreign Department, No. LX.—**THE GOVERNMENT OF INDIA.**

Geschichte der herrschenden Ideen des Islams, von Alfred von Kremer.—**THE AUTHOR.**

Díwán i Sultán.—**MAULVI MUHAMMAD ZUHURULHAQ.**

Statistics of Longevity, No. II.—**CAPTAIN T. C. ANDERSON.**

Purchase.

Revue des deux Mondes, 15 Juin, 1868.

Revue de Zoologie, No. 5, 1868.

Revue Archeologique, Juin, 1868.

The Westminster Review, July, 1868.

Comptes Rendus, Nos. 22 and 23, 1868.

Journal des Savants, Mai, 1868.

Annals and Magazine of Natural History, No. VII. 1868.

The Quarterly Journal of Science, No. XIX.

Reeve's Conchologia Iconica, Parts 270, 271.

Reise der Oesterreichischen Fregatte Novara; Zoologischer Theil, Band II, Coleopteren, Diptera.

Ibn-el-Athiri, edited by Dornberg, Vol. II.

Zenker's Dictionnaire Turc-Arabe-Persan, Heft XII, Bogen 111-120.

Hunter's Annals of Rural Bengal.

Exchange.

The Athenæum for June 1868.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL,

FOR OCTOBER, 1868.

The monthly Meeting of the Society was held on Wednesday the 7th instant, at 9 o'clock P. M.

T. Oldham, Esq., LL. D., President, in the Chair.

The minutes of the last meeting were read and confirmed.

The receipt of the following presentations was announced :—

1. From Dr. F. Mason, A copy of a *Burmese Handbook of Medicine*, by the donor.
2. From Dr. J. B. Davies, A copy of *Grecian Anthropology*, by the donor.
3. From the Curator Government Books, North-West Provinces, A copy of *Report on past famines in the North-West Provinces*, by C. E. R. Girdlestone, Esq.
4. From Dr. H. A. Jaeschke, A copy of *Ueber die Phonetik der Tibetanischen Sprache*, by the donor.
5. From J. Avdall, Esq., A copy of the second edition of *Les Auteurs Hindoustanis et Leurs ouvrages*, by M. Garcin de Tassy.
6. From Major F. Tennant, R. E., *A photograph of the Moon on glass*.
7. From the Government of India, *Ethnological Report on the Races of Rajputana*, with photographs.

The following gentlemen duly proposed and seconded at the last meeting were balloted for and elected ordinary members—

W. Eddowes Esq., M. D.

S. M. Shircore, Esq., M. D.

The following are candidates for ballot at the November meeting :—

Lieut. H. H. Cole, R. E., proposed by Dr. J. Fayer, seconded by Mr. C. E. Bayley.

Captain W. R. M. Holroyd, Director of Public Instruction, Panjab, proposed by Lieut.-Col. R. A. Maclagan, seconded by Mr. M. A. Kempson.

C. Pearson, Esq., Inspector of Schools, Panjab, proposed by Lieut.-Col. Maclagan, seconded by Mr. A. Kempson.

J. C. Geddes Esq., C. S., Magistrate and Collector of Chittagong, proposed by the President, seconded by Dr. F. Stoliczka.

The following gentlemen have intimated their desire to withdraw from the Society—

G. A. D. Anley, Esq.

A. W. Croft, Esq.

The Council report that they have elected C. H. Tawney, Esq. M. A., a member of the Philological Committee.

The Council also report that they have sanctioned the publication of the *Poems of Chand* in the Bibliotheca Indica.

Mr. Oldham, on behalf of Major Tennant, R. E., presented to the Society a photograph of the moon taken on the 11th August, just seven days before the solar eclipse of the 18th. It is a positive photograph on glass, and shews very clearly some of those curious crater-like mountains, which are so numerous on the moon's surface.

Mr. Oldham also, regretting the absence of Major Tennant himself, stated that he had received from that officer, the gratifying intelligence that the party of observers at Aden had succeeded in getting some rough drawings of the Protuberances, &c. Their spectroscope observations failed from clouds, as also their polariscope. They got spectroscope results on the Corona, and measures of the protuberances. The observers at Aden were Professor Weiss, and Ensign Riha. Dr. Fritsch of the Prussian party on the west side of India got some photographs. Major Tennant also sent a drawing by Professor Kern Luximun, who was at Bijapoor, with Captains Tanner and Haig.

The President then called on the Secretary to read Dr. W. Oldham's paper, which had been deferred at the last meeting.

Memorandum on the Action of the Ganges in the Benares Province,—
by WILTON OLDHAM, Esq., LL. D., Ghazee-pore.

In the Benares Province, the banks of the river are of a two fold character :

- 1st. Permanent.
- 2nd. Non-permanent.

The permanent river banks are raised above the height of the highest floods, and contain a firm substratum of kunkur, or else a considerable proportion of kunkur mixed with clay. The permanent river banks run in ridges nearly parallel to each other, but varying in distance apart. In some places, *e. g.*, at Beerpoor in the Ghazee-poor district, the permanent banks are only about a mile or two miles apart; at other places, as for example opposite Chunar, or opposite the Zumaneeah Railway station, the permanent river banks are eight or ten miles apart.

The river in very few places washes two permanent banks; more commonly there is a permanent bank on one side and a non-permanent bank on the other side, with the permanent bank at some distance further inland; or else the river washes two non-permanent banks, and the permanent banks are not reached by the water except in an unusually high flood.

The destructive fluvial action of the Ganges is of a two-fold character :

- 1st. Slow.
- 2nd. Rapid.

The slow destructive action of the river is its action on the permanent banks, and the rapid action on the non-permanent banks.

The destructive action of the river is invariably on the concave bank of the river. Where the river runs straight, neither bank gains or loses; a convex bank always has a tendency to gain by accretion, and a concave bank invariably loses by diluvion. This is easily accounted for; the current sets dead against a concave bank, and causes the washing away and hollowing out of the portion of the bank near the river, and consequently the fall and destruction of the bank. The civil station of Mirzapoor is built on the permanent bank of the river on the concave curve. There is a constant destruc-

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tive action going on; but owing to the permanent character of the bank, the destruction is very slow, a few feet in a few years. The villages of Manipoor and other adjacent villages in the Kurunda pergunnah of the Ghazee-poor district are situated similarly in the concave curve in the river, but there the bank is *non-permanent*. The destructive action of the river is, therefore, of the most rapid character. Since 1840, a tract of country containing about 3500 acres of rich land has been destroyed, and the river course has at the point of maximum deflection changed two miles, *i. e.*, the present river edge is two miles from where it was in 1840. These facts are proved by comparing the pergunnah map prepared in or about 1840, by the officers of the Revenue Survey with the village boundaries and the river bank as they now exist.

The destructive action of the river in such places is not merely in the rainy season, but continues throughout the year. Large masses of the bank daily fall into the river, and in the cold season, large masses of earth may be seen lying near the water's edge having on them wheat in ear and flax in flower, which a few days before formed part of a flourishing and beautiful field. The river's bank in the Kurunda pergunnah is entirely of a non-permanent character, and the pergunnah contains no backbone of kunkur or any other resisting material. The rapid changes which are now going on, are likely to continue until the river changes its course, and runs in a straight course from Chochuk-poor to Ghazee-poor along the permanent northern banks of the river, which is beyond the boundaries of the pergunnah; the pergunnah will then lie at the south instead of the north of the Ganges.

The permanent river banks may be considered the limits of the area, liable to alluvial increment and *diluvion*, as the destructive influence of the river on the permanent bank is too slow to be of any fiscal importance.

The immediate effects of a change in the river's course are generally injurious, as the land destroyed is land which, having been formed some time, is well raised and productive, while the new land formed on the opposite bank is at a low level, generally sandy, and at first of no value.

That portion of the river's bed which lies low, has, in the rainy season, a deep channel of the river flowing over it. A deep channel, as a rule, has a rapid current, and consequently the only deposit which can be formed is of sand, as mud would be swept away by the stream. After, by deposits of sands for a few years, the bed has been raised, it is in the rains only covered by a shallow, and therefore a slow stream, and under such circumstances, the deposit of earthy particles is possible, and a muddy deposit is formed rapidly. I have myself seen in a small bay of back water of the river, out of the current, a deposit of about five feet thick of fine sand and earth formed in a few days.

It may be remarked that the river's bank on the concave side of a curve is always precipitous, as the destructive scooping action of the current destroys a slope, and hollows and undermines the bank. On the other hand, the bank on the convex side of the curve is always gently sloping, formed recently by gradual accretions of sand, at the part near the river, and of earth on the upper portions, where in the rains the current runs with little force.

The bank on the concave side may be permanent or non-permanent, but the river's bank on the convex side is *always* non-permanent, because formed by recent deposits and containing no kunkur. Though non-permanent in its character, the convex bank is safe and lasting from its situation, and from its immunity from the action of the current. The Benares Railway Station is built on a portion of the bank, non-permanent in character, but safe from its convexity; while the cities of Benares and Mirzapoor are built on portions of the concave bank, permanent in character, but exposed to the destructive influence of a current.

A large mass of kunkur deposit has a remarkable power of resisting the destructive influence of current. The kunkur bank at Adilpoora within the Sooltanpoor Cantonment, nearly opposite to Chunar, has for years stood unharmed by a most violent current.

The investigation of the law of changes in the river's bank, is of some practical importance in connection with the navigation of the river, as it is always desirable to have some foreknowledge of changes

likely to occur in the navigable channels. Trees falling into the river with portions of the bank form *snags*, dangerous obstacles to navigation. It may safely be asserted that every year all trees on the concave bank of the river should be cleared to within a distance of 500 feet, where the bank contains no kunkur, and is non-permanent; and to within a distance of 10 feet, where the bank contains kunkur and is permanent. On the other hand, it is a useless destruction of property to cut down trees on the convex bank, or on either bank in a straight course of the river. In those parts of the Ganges where the permanent banks are far apart, the river runs in reaches from the northern to the southern permanent bank, then curving round again to the northern permanent bank, and so on. In those parts where the permanent banks are near each other, the course of the river is tolerably straight, and changes little from year to year.

Ghazepore, August 24th, 1868.

The President invited discussion on the paper just now read. Mr. Medlicott said—

“Being called upon to speak, I can only say that the paper we have just heard read contains nothing whatever that is new, or that gives greater precision to previous knowledge. Without having ever seen a river, one can tell that the current must set to the concave bank, or that a bank of recent silt will wear incomparably faster than one of consolidated clay. The constant depredations and changes of the great rivers are familiar to every resident of the plains of India. As to the conditions of the river in that region, it has been repeatedly described how the large rivers “up country” run in *Khádars*—wide valleys limited by the high permanent land of the adjoining *Duabs*. The locality noticed in this paper is near the lower limit of the region where such conditions obtain—where the river from being erosive becomes formative. Mr. Ferguson, in his invaluable paper on “The Recent Changes in the Delta of the Ganges,” has pointed out that below *Buxar*, the mean fall of the river becomes about six inches in the mile, which is the approximate limit assigned by Mr. Ferguson for a depositing river, and that above *Buxar*, the fall becomes thirteen inches in the mile.

A conversation took place in which several gentlemen joined.

The President said, in concluding the remarks on this paper, that he entirely agreed with Mr. Medicott, that there was but little of novelty in the paper which had been read. It was a purely local, and simple description of facts; not pretending to great scientific accuracy. For example, it was scarcely correct to speak of the eroding action of the river as of two kinds, slow and rapid, inasmuch as the action was in all cases of the same kind, and the slowness or rapidity with which the results were produced, depended on the nature of the material acted upon. Again Mr. Wilton Oldham had, in speaking of the 'permanent' banks of the river, used the term evidently in rather a general, or relative sense. No bank of an eroding river could truly be called permanent; still the word was applicable, when the rate of erosion was so slow, that changes were only traceable after long intervals. But Mr. Oldham had also, in this paper, used the term in a sense somewhat different from that in which it is commonly used. Every river flowing in any alluvial plain, which may be taken as comparatively homogeneous, has for itself at different times, and subject to differences in the slope of its bed, a plain or surface, within the limits of which it tracks its course back and forward, depositing here, and cutting away there, and thus often passing and repassing over the same ground. And so far as general observations are concerned, these limits of oscillation are so slowly changeable, that the banks, limiting the plain of the river, which for the most part become tolerably well marked, may be, and generally are, called the 'permanent' banks, those banks within which (abstracting considerations of external forces) the fall of the river's bed and the amount of water combine to restrain the oscillations of the river. If taken in this sense, the permanent banks of a river flowing in an alluvial plain, may be generally considered to be composed of similar materials to the country around, and would be, if the river were directed against them, as liable to erosion as any other part of the country.

But the case stated by Mr. W. Oldham is quite different; here the permanent banks, he speaks of, are composed of material quite of a different kind and of a greater resisting power. He describes these deposits as characterized by kunkur, and being of a hard stiff clay. And

in this, without knowing it, the writer has referred to one of the most interesting facts in the geology of the Gangetic plains. Above Benares we might say, certainly above the junction of the Jumna and Ganges at Allahabad, the prevailing character of the materials forming the wide plains in which these rivers flow, is a hard stiff clay abounding in kunkur, which in places forms great beds or sheets. This, associated occasionally, chiefly in the upper portions of the river valleys, with pebbly beds often concreted by lime forms the prevailing character of the beds. Below Benares, however, the greater portion of the plain of the Ganges from the foot of the hills on the north, to those on the south, is composed of much more recent deposits, the result of the action of the river itself, chiefly composed of soft incoherent beds of fine sand and silt. Here and there, through these, we find standing up portions of the kunkury clays, &c., to which we have referred, under circumstances which shew that they are remnants of a once widely spread and general deposit, now existing as islands in the stream of the more recent Gangetic alluvium. For these other deposits, we have generally used the term first used by the lamented Dr. Falconer, and called them the 'Older Alluvium.' It is, however, a term apt to mislead, inasmuch as the age of these deposits is very widely removed from that of the true alluvium. These kunkuriferous beds in the Jumna, yielded many valuable fossils years since, which Falconer himself identified with those found in similar deposits in the valley of the Nerbudda, and looking to the proximity geographically, and to the great similarity lithologically, of the two deposits coupled with the similarity of the fossils contained, there seems little question that the so-called Older Alluvium of the Jumna and Ganges is of the same general age as the so-called 'Pleiocene' deposits of the Nerbudda and Godavery. Below Allahabad but few fossils have been found in these deposits. I have a joint of a thigh bone (probably bovine) which was obtained in sinking a well near Patna, and a few other fragments have from time to time been found. But even in the Nerbudda, where fossils are much more numerous, they are local in their distribution.

These islands or isolated areas of the older deposits occur as noticed by Mr. Oldham, near Ghazeepore, south of the Ganges; they

stretch along from Buxar to near the Sone, forming the higher ground north of Beeheea ; they occur again under the narrow ridge on which the cantonment of Dinapore is placed ; under the city of Patna ; again under Bhagulpore ; still further east near Colgong ; forming the high ground extending northwards from Rampore Beaulah towards Darjeeling, again they constitute the often-talked of Madhopur jungle, north of Dacca ; have been traced by Mr. Medlicott on the flanks of the Garo hills, and by Captain Godwin-Austen at the foot of the Bhootan hills. Thus the permanence of the banks noticed by Mr. W. Oldham in this brief paper is due to the fact, that there the river has cut its channel through one of these isolated areas of the older beds, which, as compared with the recent alluvium, have just as much greater a power of resistance as an ordinary sandstone would have as compared with loose sand.

The determination of this character of the river's bank, is of importance, as the writer has shewn, both as affects the navigation of the river, and the agriculture of the district. And while he has not added materially to the knowledge of the action of the river, it is always desirable to have on record such local observations, detailed with care, which only those locally resident can attempt.

The President then asked the Philological Secretary to read an extract from a letter received from Prof. A. Kuhn, Berlin.

Bábu Rájendralála Mitra said, he thought, the extract would not be unwelcome to many members of the Society in this country. It referred to a subject of considerable interest, which, in ancient times, inspired the imagination of man with some of the richest ideas of poetry, and in later days afforded the means of unravelling many a classic myth—the gorgeous sunrise of the East. To it Homer, it was said, owed his plot of the Trojan war, and the Rámáyana, it was presumed by some, had nothing more substantial for its substratum. To the poets of the Vedic age it was a most fruitful theme, and the Vedas were interspersed with a number of myths founded on it. One of them is indelicate and highly offensive ; but with the Rishis of the primitive age, untrammelled by the amenities of modern civilization, it was a great favorite. It was no other than the rape of Ushá by her father Brahmá,—the dawn likened to a charming nymph chased by her progenitor, the sun. In one version of this myth, given in the third chapter of the Aitareya

Bráhmaṇa (section 33), Dawn is represented to have, in fear of her father, assumed the form of a red deer, whereupon Prajápati assumed the form of a fierce animal, named *rishya*, and chased her. The gods, disgusted at the sight of the incestuous attempt, but unable individually to check the ravisher, put forth the aggregate of their most fearful qualities in the form of a god named Bhutavan or Rudra, who pierced, with an arrow, the lustful brute, which immediately transformed itself into the constellation Orion. A counterpart to this myth has been found in a German tradition by Professor Kuhn, and the letter contains an abstract of a paper on the subject recently published by him. Professor Kuhn writes—

‘Both in our ancient and modern popular traditions, there is universally spoken of the Wild Hunter, who sometimes appears under the name of Wodan or Goden, and was, in heathenish times, the supreme god of the ancient German nations. This god coincides, both in character and shape, with the ancient Rudra of the Vedas, *vide* p. 99. Now there is a class of traditions, in which this ancient god is said to hunt a stag and shoot at it, just as Rudra in the Bráhmaṇas is represented as shooting at the *ṛiṣya* and *rohit*. The stag, in German mythology, is the animal of the god Freyr, who, like Prajápati, is a god of the sun, of fertility, &c., so that the shot at that stag is to be compared with Rudra’s shooting at the *ṛiṣya* = Prajápati. I have further endeavoured to show that some indications exist in the mediæval penitentials of Germany and England, which give us to understand that at the close of the old year, and at the beginning of the new one (we call that time “die Zwölfen” or *the twelve days*, the *dvádaçáha* of the Indians), there were mummeries performed by the country people, in which two persons seem to have been the principal performers, the one of whom was disguised as a stag, while the other was disguised as a hind. Both represented a scene, which must have greatly interested and amused the people, but very much offended the clergy by its sordid and hideous character; and from all the indications which are given in the texts, communicated by me, pp. 108-180, we may safely suppose that the chief contents of this representation was the connexion of a stag and a hind (or of an old woman), which was accompanied by the singing of unchaste songs. From English customs at the New Year’s Day, we may also infer that

the hunter's shooting at this pair was even a few centuries ago, nay is even now, not quite forgotten. Now as the time of the 'twelve days' was with our ancestors the holiest of the whole year, and the gods were believed to descend at that time from heaven, and to visit the abodes of men, we may firmly believe that this representation also was a scene of the life of the gods. I hope to have thus proved that the brahmanical and German traditions are almost fully equal, and I have finally attempted to lay open the idea, from which the ancient myth proceeded. According to my explanations, our common Indo-European ancestors believed that the sun and daylight (which was so to say personified under the image of various animals, as a cow, or bull, a horse, a boar, a stag) was every day killed in the evening, and yet re-appeared almost unhurt the next morning. Yet a decay of his power was clearly visible in the time from midsummer to midwinter, in which latter time, in the more northern regions, he almost wholly disappears, and, as in Northern Germany during the time of the twelve days, is seldom to be seen, the heaven being then usually covered all over with clouds. I have, therefore, supposed it was formerly believed that the sun was then completely destroyed by a god, who was both a god of night and winter as also of storm, Rudra = Wodan. The relics of the destroyed sun, they seem to have recognised in the brightest constellations of the winter months, December and January, that is, in the Orion and the surrounding stars. But when they saw that they had been deceived and the sun re-appeared, the myth gained the further development of the seed of Prajapati, from the remnants of which a new Aditya as well as all bright and shining gods were produced. I have further shewn that both Greek astronomy and German tradition prove to be in an intimate relation with the brahmanical tradition; for the former shows us, in almost the same place of the celestial sphere, a gigantic hunter (mṛigavyádha = Sirius; Orion, the hunter = mṛigaciras); whilst the latter has not yet forgotten that Saint Hubertus, the stag-killer, who is nothing but a representative of the god Wodan, had, like Rudra, the power of healing all diseases (the "bhishak-tama" of the Vedas), and particularly possessed cures for mad dogs, which not only were his favourite companions, but were also in near connexion with the hottest season of the year, when the declining of the sun begins, the so called *dog-days*."

With regard to the animal described in the Vedas as the *Ṛishya*, which word Dr. Haug translates by "a kind of deer," and Professor Wilson by "a white-footed antelope," the Bábu read the following extract from a letter of his to Whitley Stokes, Esq., in which he conjectures it to be the *Nilgáo*.

"There is nothing positive to prove what particular species of animal the *Ṛishya* is. A *Mṛiga* no doubt it is; but as that word is a generic term, including all the deer as well as the antelopes, it does not help me in the least. The Paṇḍitas, whom I have consulted, seem not to know much of the subject, and Sáyana, apparently, was not better off when he commented on the *Aitareya Bráhmaṇa*. He could only ascertain that the *Ṛishya* was a species of deer (*Mṛigavis'eshah*), and he had to prove it by a quotation from a lexicographer which says, "the Gokarna (supposed with some doubt to be the *Nilgáo* by Wilson), the spotted axis, the black antelope, the *Ṛishya*, the red deer, and the *chamarí* (*Yak*) are deer;" *gokarṇah prishatainarshya rohita-schamarimṛigáh*). But great as he was as an expounder of the Vedas, and a profound Sanskrit scholar, Sáyana was no naturalist, and had, therefore, to stumble over every passage that referred to Vedic fauna. His acceptance of the *Yak* (*Poepagus grunniens*) as a deer is an instance in point. Another, and a very remarkable one, occurs in the third Book of the *Taittirya Bráhmaṇa*, p. 637 of my edition, in which he describes the *gomṛiga* to be "either a wild ferocious horned cattle, or a hybrid between a deer and a cow." Judging from the name *go* and *mṛiga*, "cow" and "deer," and the mixed antelopine and bovine character of the *Nilgáo* (*Portax tragocamelus*, the Indian representative of the *Elands* and the *Koodoos* of Africa), I cannot but take that to be the animal intended. In the *Smṛitis* an animal is named the *Nilabrisha*, an exact synonym, of *Nilgáo*; (*Eshtavyá vahavah putráh yadyapyeko gayám vrajet, yajeta vás'va-medhena nilam vá vṛishamut-srijet*;) but curiously enough it is described to be a "bull with a red body, white hoofs and horns, and a yellow muzzle and tail:" nothing blue, though it is named a "blue bull!" (*lohito yastu varnena mukhe puchchhe cha pándurah, setah khuravishánábhyaṃ sa nilo vṛisha uchyate. Suddhitatva*, 211). To account for this inconsistency, I suppose, Raghunandana, the author of the *Suddhi*, and the *Vṛishotsarga Tattvas* knew not the animal, and confounded his authorities. The *Nilgáo*

is not common in Bengal, and therefore not likely to be familiar to a Paṇḍita.

“Of deer, most names, which were originally specific, have since become generic, and it is difficult now to identify them. In the Káliká Purána, quoted by Rájá Rádhákánta, nine different animals are described to be feral deer (jángala). Of these the first, *Harina*, is said to be “copper-coloured;” 2nd, the *Ena* “black;” 3rd, the *Kuranga* “light copper-coloured, and of the shape of, and as big as, the *harina* ;” 4th, the *Rishya*, “an animal with a blue scrotum, generally known by the name of *Saroru* ;” 5th, the *Prishata*, “white spotted, and somewhat smaller than the *Harina*.” 6th, the *Nyanku*, “an animal with large antlers;” 7th, the *Sambara*, “identical with the great *Gavaya*” or wild-ox (*sambarogavayo mahán*, which may be made to mean the sambara is a large cow-like animal); 8th, the *Rájiva* “a deer with lines (or whirls of hair) all over its body;” and 9th, the *Mundí* or ‘the hornless.’

“The first I take to be the *Cervus Wallichii* or the *Honglu* of Kashmir, an animal nearly allied to the *Cervus elaphus* or the Red Deer of Europe, the *Edelhirsch* of Germany. The second is the common antelope of Upper India (*Antilope bezoartica*) with a black body and white venter and feet. Its colour leaves no doubt about its identity; for there is no other Indian deer or antelope that is black. It is the only animal that can correspond with Professor Wilson’s “white-footed antelope.” Its habitat, Upper India, was well known to Manu, who describes the characteristic of the land sacred to the Aryans as that where the black antelope grazes in a wild state. Its common name is *Krishnasára*. The third is our *Bará Singá* (*Rucervus Duvaucelii*) which is of a lighter colour than the first. The fifth is unmistakably the *Axis* of Bengal (*Axis maculatus*), commonly known by the name of *Harina*. The sixth I cannot make out, unless it be the *Sángnái* of Manipur (*Panolia Eldi*), an animal never seen in the plains now, but which may have had a wider habitat in former times. The seventh is the well known *Sámber* deer, often miscalled the Indian Elk (*Rusa Aristotelis*). It is common all over cis-Vindhyan India, and, for ought I know, may be equally so in the peninsula. It yields the leather known by the name of *Sábara*, which is highly esteemed as a very pure material for bedding, and

Hindus, during mourning for parents, generally have recourse to it. Its name I take to be a corruption of Sambara. It is, of course, quite a different thing from the Chamois skin which our syces take for the true *Sábara*. I should notice that the authority quoted above confounds the Sambar with the Gayal (*Gavæus frontalis*), but if the alternative meaning given by me be accepted, the difficulty can be got over. The eighth is evidently a striped antelope, perhaps the Gazelle, but I cannot make it out. The last is the Mouse deer which of all the Indian deer tribe is the only animal which has no horns. Its congeners of Java and elsewhere, such as the *Kanchil* and the *Chevrotain*, could not have been sufficiently known to come under the enumeration of a Puranic.

“Now for the *Ṛishya*, it must be evident from what has been said about the *Ḓṇa*, that it cannot be the white-footed antelope, and of antelopes we have only two others, the Ravine deer and the little *Quadricornis* that could be said to be common, and neither of these has a blue scrotum, which is said to be the peculiar characteristic of the *Ṛishya*. I am disposed to think, however, that Rájá Rád'hákánta's reading of the Káliká Purána is not correct. I have been able to get hold of only one MS. of the work, and it does not give the slokas quoted, but judging from the fact of the first three animals, described in them, having the colour of their pilage noted, I think the fourth had likewise its general colour described, and not that of its scrotum. The word used is *níldndakah*, which I strongly suspect is a mislection of *Nilángakah* or the “blue-bodied;” and if this conjecture be correct, the *Ṛishya* would be the “blue-bodied” Nilgáo, a large, fierce and peculiarly uncommon animal, much better adapted to adorn a tale than a tame little antelope.

“The legend in the Aitareya Bráhmaṇa makes Ushá = Dawn assume the form of a red doe *rohít*, and Brahmá, to enjoy her society, should become a buck *rohít*;* but instead of that, he changes himself into a *Ṛishya*, and this circumstance suggests an argument in favour of my conjecture. The female of the Nilgáo is of a red brown colour, without any shading of blue over it, which is the

* In the version of the myth given in the Brihad Aranyaka Upanishad Ushá, to conceal herself, successively assumed the forms of a cow, a mare, a female ass, a she goat, a ewe, and other female animals down to a female ant, and Prajapati followed her successively in the shape of males of those animals.

peculiar characteristic of the male, and consequently appears to be of a different species from the latter. Hence it is that too different words have been used to indicate the different sexes of the same animal, instead of representing the female by a feminine affix to the masculine term. This cannot be said of any other Indian deer that I know of. The whole of my argument, however, is founded upon an assumption, a supposed mislection, which I am not in a position now to establish by reference to other MSS."

The Natural History Secretary then laid the following paper before the Meeting ;

On Pandanophyllum and allied genera, especially those occurring in the Indian Archipelago ; by S. KURZ, Esq.

Dr. Stoliczka, in laying Mr. Kurz's paper before the Meeting, said that the plants which are referred to *Pandanophyllum* and the allied genera belong to a very interesting group of the large family of the CYPERACEÆ. This family is usually divided into several sections, one of which, the HYPOLYTRÆ, the present paper treats in particular.

Mr. Kurz gives a short review of the genera of this subdivision, quoting the following *Hypolytrum*, *Thoracostachyum*, *Lepironia*, *Pandanophyllum*, *Cephaloscirpus* and *Scirpodendron*. Of each of these genera, several species are described in the paper, and some of these are new to the flora of the Indian Archipelago ; of others, detailed statements as to their history, etc., were recorded.

Dr. Stoliczka also drew the attention to an interesting species of *Gordius* which Mr. Peterson brought to the meeting. The specimen was procured in Darjeeling, and was remarkable for its great thickness in proportion to the length of its body. It resembles a *Typhlops*, but is proportionally much thinner, than species of this genus usually are.

Dr. Stoliczka also stated that he has just received a long letter from the former hard working Curator of the collections of the Asiatic Society, Mr. E. Blyth, and he was sure the members would be glad to hear that Mr. Blyth still took the liveliest interest in Indian Zoology. His letter was written in a very spirited way and was full of the most valuable suggestions on Indian Ornithology and Mammalogy.

The President then laid a letter before the meeting received through Mr. H. F. Blanford from W. D. Stewart, Esq., Assistant Surgeon,

Cuttack, on Meteorological observations taken by him during the late eclipse, and remarked that the chief interest attaching to these was in the thermometric observations. At the commencement of the eclipse, 9h. 6m., the thermometer stood at $87^{\circ} 5'$; at 9h. 42m. it had fallen to 85.5; at 10h. 6m., to 84.0, after which it rose again, showing 88.0 at 11h. 29m., when the eclipse was quite over. A blackened-bulb thermometer *in vacuo* was exposed to the sun's rays, one foot from the ground; at 8h. 30m. it indicated $126^{\circ} 00'$: it was then reset and exposed to sun's rays for half an hour, when it only indicated $98^{\circ} 0'$.

The Philological Secretary then read a letter received from J. Beames, Esq., Twickenham, near London, on the proposed edition of the Poems of Chand.

“ With reference to the discussion on Chand which took place at last February's meeting, at which I was present, it may interest some members to know that I have found in the Royal Asiatic Society's library two very fine MSS. of the *Prithvirájá-rása*, which I have commenced copying and collating. The differences between the two MSS. are slight, chiefly in the spelling which, as in all Hindi works, is very unsettled. One, which I call MS. A, is in one volume bound in *kimkháb*, and prefaced by a beautiful picture of *Prithví Rájá* in full warrior's costume. It is by a native artist, and for delicacy of execution, is not surpassed by anything of the kind I have ever seen. It contains 65 *prastávs*, or cantos, with the headings and conclusions in red. It was written at Kotah, and completed on Thursday, *Bysakh Sudi 3rd*, *Sambat 1883*, by order of *Mahárájá Kishor Siñh*, and was presented to the Society by Major Caulfield, *November 3rd*, 1827, which must have been very shortly after it was written. It is the work of three scribes. The first, who writes in rather a *Marwári* hand, has copied the first 18 *prastávs*, down to the end of the famous “*Anangapála Dillidán*.” The second, who writes a large coarse hand more of a *Delhi* type, takes from the 19th or “*Mádho Bhát Kathá*” to the 36th or “*Hansávatí viváha*” inclusive. The third is very unequal hand, sometimes carelessly, and sometimes very neatly written, more *Marwári* than No. 2, but not so much so as No. 1. It finishes the work. This is a magnificent MS., quite complete, and in perfect preservation, on thick *Siálkotí* paper.

“ The other MS. is in three volumes, in a clear *Marwári* hand, on thin-

nish paper, no date, or writer's name, and contains MS. pencil notes by Col. Tod, not of much value. I am forming my text on MS. A, and noting in the margin any important variants from B. These are probably the only MSS. of the Prithviráj in England; I have carefully searched through the India office library, but neither I nor Dr. Hall could find one there. I hope to bring out to India good materials for an *editio princeps* of Chand. I hope the Society will not let the question of the MS. which is in the Agra College drop, as I hope still to fulfil my promise to edit it. Chand's dialect, however, is very peculiar: it is the Bhatti dialect of Sirsá and Hánsi Hissár, forming the genitive often by **रा**, **रे**, and **री**, instead of **का**, &c., and abounding in unnecessary and inorganic 'anusváras,' in which respect it approaches more to Panjabi and Sindhi.

If you think these notes will interest any one, please read them at the next meeting.'

The President then said it would be in the recollection of the members that at a recent meeting of the Society, very interesting reports were read describing the discovery of Cromlechs in the Coorg district, as well as of curious remains of pottery, and of iron implements in these enclosures. The importance of ascertaining the names given to these enclosures by the people, and thus possibly tracing their origin by tracing the origin of the terms used to describe them, if these were not modern, was then insisted on. No information on these points was given in the reports read, and he had therefore written to Mr. Bowring, the Commissioner of Mysore, requesting enquiry on these points. He had received a reply, which he would read to the Society.

Bangalore, 2nd September, 1868.

'I have the pleasure to enclose a reply from Captain Cole to the question put in your letter of August 14th. I do not think that much information is to be obtained from the Coorgs on the subject of these Cromlechs or Kistvaens, as they were till lately a very rude and illiterate race, without any reliable history, and the remains of antiquity which exist in the district seem to be known by the name which all Hindus assign to such relics, when they are at a loss to designate them properly. Nothing of value has been found in the Cromlechs; but the pottery is evidently of an ancient type, while the existence of bones in the enclosures would seem to indicate that

they were burial places. Should any reliable information be obtained, or should any interesting discoveries be made, I will write to you again.'

Captain Cole writes to Mr. Bowring as follows :—

'In reply to Dr. Oldham's queries, I have the pleasure of forwarding the following information regarding the names used in Coorg for the Cromlechs or Kistien-vaen.

I find that there are two names and two traditions regarding them. The majority call them in the Coorg dialect, *Pánda-páre*, which means the *stone* of the Pándus. The Coorg dialect, as shewn in my grammar, bears the strongest affinity through the Malayalim to the Tamul language ; and in Tamul, *páre* also means *a large stone*. The Moplachs of the Malayalim country call these structures "*Pánda-porre*," and *porre* means *a small hut*. Such structures have not, I believe, ever been found in the Malayalim districts. The other name for these structures is *Pundara-mane*, or the *house of the Pundaras*, a legendary Pygmy race, sometimes confounded with the descendants of the Pándus. Both these terms have been traditionally handed down.

With regard to Dr. Oldham's opinion that these structures are more of the type of Kistvaens of Celtic Europe than of the true Cromlech or Dolmen, it appears to me that we have both in Coorg. Those found buried and consisting of a regular stone cist are doubtless Kistvaens ; but I have found some with the top slab resting on two or more rough stones or boulders at each end. I have just discovered four of a remarkable type, situated in the middle of the forests about 13 miles from here towards Somwarpett. They are large stone chambers erected on the top of a low hill and on the very rock from which the slabs had been quarried. They have all entrances of a shape as shewn on *Plate 2* of the Proceedings of the Asiatic Society of Bengal for June last, or a circular hole in the centre of the slab. They stood out in high relief, each on the top of a low mound, the base of which had a circle or concentric circles of stones all round. They were perfectly empty, and looked like temples or altars ; and bearing in mind what Cæsar, Pliny, and Tacitus, have said of the human sacrifices offered by the Druids, and what we know of such sacrifices in India, the idea of an altar is borne out by some of these structures.

In others near Ramasammy Kunve, I have just found some beautiful small goglets in black pottery and glazed, a basin, some large urns, and a large round pot with three short pipes projecting out, as if used for

distilling. I have also found large fragments of bones, and a piece of a human jaw with two teeth in it.

I hope soon to send you the drawings and a regular report.'

Fraserpett, 29th August, 1868.

It would seem from this, that little hope existed of being able to trace out the history of these curious remains by any investigation of the names or words applied to them, which were all of modern construction.

The discovery alluded to in the last sentence of Captain Cole's note was among the most important yet made, and he had solicited that, if possible, the portion of human jaw referred to, might be forwarded to Calcutta for comparison.

The President further said, that he had brought down to the meeting a volume of the Transactions of the Literary Society of Bombay, in which a very interesting account was given of curious remains of a somewhat analogous character, which occurred a little more to the south than Coorg, namely, near the Palghat. The title of the paper was one which would scarcely lead any one merely consulting the Index to suppose that it related to such rough structures of stone of a rude and early age. It was entitled, "On the Pandoo coolies of Malabar," the word coolies here being a corruption of the word *Kúl* or *Kúll*, signifying a stone. He did not mean to refer to the interesting details given in the paper, but simply to direct attention to the plates which accompanied it, and which gave excellent representations of the pottery, glass beads, iron implements, &c., found in these Kulls, and of the mode in which they were originally placed in them. The remarkable fact was, that there was not among them a single object, which could not be paralleled by objects similar or even identical in shape, material, &c., found in many places in Northern Europe. The character of these articles would indicate a time more advanced in the arts and in civilization than those of the people who constructed the Cromlechs and Kistvaens of Coorg. But it did not necessarily follow from this, that they were of later date. Two tribes, or even portions of the same race, might readily have existed contemporaneously, but in very different stages of progress in the arts, &c.

The President then said, he had much pleasure in laying before the Meeting a paper by Mr. F. S. Growse, C. S., Fatigurh, on *the Poems of Chand*, of which communication the Philological Secretary would only give a short abstract, as it was to appear in full in the Journal.

Bábu Rájendralála Mitra said :—

“ After adverting to the circumstances which led to the enquiry regarding the Agra MS. of Chand’s Poems, the author gives, first, a brief account of the size, extent, and character of the Agra MS., and then of another lent to him by Bábu Sivaprasad of Benares from the Library of His Highness the Mahárájá of Benares. The latter comprises 786 pages, and appears to be a continuation of the work noticed in the July Number of the Society’s Proceedings. It is divided into two parts, one of which is devoted to Mahoba, and the other to Kanouj, and contains altogether 38 Cantos. The narrative is described to be “ very abrupt in its transitions,” and laconic in its allusions to past events; the language most archaic, and the text exceedingly corrupt. This is followed by a translation of the first Canto of the work, giving an account of the origin of Rájá Chandra Brahma. The story opens with Rájá Ananga Pál’s causing at the suggestion of Vyása an iron spike to be driven from the surface of the earth down to the head of Vásuki, the great serpent which supports the sphere on its head. The belief was that as long as the spike would remain in its place, so long would the sovereignty of the Tomars last on earth. But Vásuki, pained by the spike, sent his brother Takshak to cheat the king, who caused the spike to be pulled out, and found that its end was smeared with blood. This is followed by an account of Vyása’s foretelling how the sovereignty of the Tomars would be overthrown by the Muhammadans, and then an account is given of a deception practised by the moon on a Brahmin woman, named Hemaváti, and the issue thereof. The paper concludes with an extract from the Poem, as a specimen of Chand’s style.”

The Secretary announced the receipt of the following communications :—

The Poems of Chand, by F. S. Growse, Esq., C. S., Fatigurrh.

On Pandanophyllum and allied genera, by S. Kurz, Esq.

LIBRARY.

The following books have been added to the Library since the last meeting :—

. Names of donors in capitals.

Presentations.

Proceedings of the Royal Society, Vol. XVI. No. 103.—THE ROYAL SOCIETY OF LONDON.

Proceedings of the Royal Geographical Society, Vol. XII. Nos. 2, 3, and 4.—**THE ROYAL GEOGRAPHICAL SOCIETY OF LONDON.**

Bulletin de la Société de Géographie, Juillet, 1868.—**THE GEOGRAPHICAL SOCIETY OF PARIS.**

Actes de L'Académie Impériale des Sciences Belles-Lettres et Arts de Bordeaux, 3rd Série, 29th Année, 1867.—**THE IMPERIAL ACADEMY OF BORDEAUX.**

Abhandlungen für die Kunde des Morgenlandes, herausgegeben von der Deutschen Morgenländischen Gesellschaft, Band V, No. 1.—**THE SOCIETY.**

Zeitschrift der Deutschen Morgenländischen Gesellschaft, Band XXII, Heft I, II.—**THE SAME.**

Mémoires de L'Académie Impériale des Sciences de St. Pétersbourg, 7th Série, Tome XI, No. 918.—**THE IMPERIAL ACADEMY OF ST. PETERSBOURG.**

Bulletin de L'Académie Impériale des Sciences de St. Pétersbourg, Tome XII, Nos. 2—5.—**THE SAME.**

Proceedings of the Third Annual Meeting of the Scientific Society of Alligurrh.—**THE SCIENTIFIC SOCIETY OF ALLIGURRH.**

Tárikh i Hindustan.—**THE SAME.**

Report of the Canning Institute for the Sessions 1866—1868.—**THE CANNING INSTITUTE.**

Les Auteurs Hindoustanis et Leurs ouvrages, d'après les Biographies originales par M. Garcin de Tassy.—**THE AUTHOR.**

Nachtrag Ueber die Phonetik der Tibetanischen Sprache, von Dr. H. A. Jäschke.—**THE AUTHOR.**

Grecian Anthropology, by Dr. J. B. Davis.—**THE AUTHOR.**

A Birmese Hand Book of Medicine by Dr. F. Mason.—**THE AUTHOR.**

Ueber die ursprüngliche Bedeutung des Wortes Brahma, by Dr. M. Haug.—**THE AUTHOR.**

Report on Past Famines in the North-Western Provinces by C. E. R. Girdlestone.—**THE CURATOR GOVERNMENT BOOK DEPOT, NORTH-WESTERN PROVINCES.**

Report on the Annual Examination of the Thomason College, Roorkhee, 1868.—**THE PRINCIPAL, THOMASON COLLEGE.**

Rámáyanam, Vol. I, Part I, edited by Pandita Hemachandra Bhat-tacharya.—**THE EDITOR.**

The Calcutta Journal of Medicine, Vol. I, No. 7.—THE EDITOR.

Report of the Insane Asylums in Bengal for 1867.—THE GOVERNMENT OF BENGAL.

Report on the Administration of the Central Provinces for 1867-68.—THE CHIEF COMMISSIONER OF THE CENTRAL PROVINCES.

Selections from the Records of the Government of India, Home Department, No. LXIV.—THE GOVERNMENT OF INDIA, HOME DEPARTMENT.

Selections from the Records of the Government of India, Foreign Department, No. LX.—THE GOVERNMENT OF INDIA, HOME DEPART.

Purchase

Revue des Deux Mondes, July and August, 1868.

Revue Archéologique, Juillet, 1868.

Revue et Magasin de Zoologie, Nos. 6 and 7, 1868.

The Annals and Magazine of Natural History, No. VIII. 1868.

Journal des Savants, 6 and 7, 1868.

Comptes Rendus, Tome LXVI. Nos. 24—26, and Tome LXVII. Nos. 1—4.

The American Journal of Science, Nos. 134 and 135.

Pratna Komra Nandini, Nos. 13 and 14.

Reeve's Conchologia Iconica, parts 272 and 273.

Hewitson's Exotic Butterflies, part 67.

Böhtlingk and Roth's Sanskrit Wörterbuch.

Thomas' Sassanian Coins.

Spencer's Principles of Biology, Vols. 1 and 2.

Spencer's First Principles.

Spencer's Essays, Vols. 1 and 2.

Spencer's Social Statistics.

Spencer's Education.

Dr. F. Watson's Index to Names of Eastern Plants and Products.

Elliot's History of India, Vol. I.

Exchange.

Athenæum for July, 1868.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL,
FOR NOVEMBER, 1868

Pursuant to notice to that effect, a Special General Meeting of the Society, was held on the evening of the 4th of November, 1868, at 9 o'clock P. M.

T. Oldham, Esq., LL. D., in the chair.

The President said, it would be quite unnecessary that he should enter into any detailed history of the long protracted correspondence, and discussions which had led to the result they were asked to ratify by their votes this evening. He would not detain them by any reference to earlier parts of this history, but simply state that, at the beginning of 1864, there appeared a fair prospect of final success, and by a general vote of the Society at large, the Council were then fully authorized to treat with the Government of this country, in accordance with the general terms set forth in the correspondence then submitted to the Members. Armed with this authority the Council had treated, and had finally brought the contract to an issue, which he might, without hesitation, say was highly advantageous to the Society.

The arrangement was very briefly this. The Society hand over to Trustees, appointed under the Act of the Legislative Council of India, which embodies these arrangements, (Act XVII. of 1866), the collections which they now possess of Natural History, of Antiquities, and of Miscellaneous objects, as well as any additions thereto which they may obtain. The Government undertake to erect a commodious building, specially adapted to the purpose, to provide for the payment and maintenance of an efficient staff of curators, taxidermists, &c., and

for all costs of the management of such Museum. All the collections of the Society as well as additions, are to be marked with a distinctive mark, so that if, unfortunately, any severance of the Society and of the Museum should be necessary, the Society could reclaim all such collections of its own as were then existent. To the Society also has been granted the right of nominating four Trustees out of thirteen, thus giving to this body a very powerful interest in the management of the Trust. In this way, the Council have been able to secure the permanent maintenance in this city of a Museum, in some degree worthy of the name, of which the collections of the Asiatic Society form the most important nucleus: they have secured these most valuable collections from the destruction which from the want of proper room or sufficient funds for their maintenance was rapidly seizing hold of them; and the Society has at the same time been relieved from all or any expenditure for this purpose.

Further, the Society retain their valuable library intact; their collections of coins, of manuscripts, engravings, maps, &c., and the paintings and busts which ornament their rooms. Such is the agreement. In full confidence that they would, under the circumstances, meet the ready support of the Society at large, they have further provisionally handed over the collection to the charge of the Trustees nominated under the Act. It was impossible to do this formally, at once, because the Act required that careful lists of all the specimens should be prepared, and that one copy of such lists or inventories should be kept by the Council of the Asiatic Society, and another should be kept by the Trustees of the Indian Museum. These inventories or Catalogues, have lately been completed with much zeal and great personal exertion by Dr. Stoliczka and Mr. V. Ball, both members of the Society, who have also lately been acting as Curators of the Museum. And the Council have therefore now demanded of the members at large, that this transfer should be formally sanctioned.

The necessary voting papers were issued to the Mofussil members on the 22nd August, 187 were sent out, 61 replies have been received. Of these, *one* only votes against this transfer.

I will now propose on the part of the Council, 'That the Council be authorized formally to transfer the Society's collections of Natural History, Antiquities and Miscellaneous objects, to the Trustees of the

Indian Museum appointed under Act XVII. of 1866, subject only to the conditions therein specified.'

This was put to the vote and passed.

The Meeting then resolved itself into an Ordinary Monthly Meeting.

The minutes of the last meeting were read and confirmed.

The following presentations have been received since the last meeting.

1. From the Government of India, Home Department—

A copy of Notes on the Races and Tribes of Avudh.

2. From Babu Gopinátha Sena.

A copy of the monthly means of the principal meteorological elements, &c., as recorded at the Surveyor General's Office, Calcutta, for 1866-67.

3. From the Magistrate of Mainpuri—

A copper spear head.

Two copper axes.

A few copper bangles.

The following letter accompanied the donation :—" The Magistrate of Mainpuri begs to inform the Secretary, Asiatic Society, that he has despatched to him to-day some specimens of copper weapons or utensils which were found in this district buried in a field, and will be much obliged, if the Secretary will inform him if he can state what they are. They do not resemble any weapon or utensil now in use in this part of the country."

The President in exhibiting these implements remarked on the extreme interest attaching to them. One was a very fine specimen of a flat celt, identical in shape and general character with many found in North Europe. The material of this, he believed, was, as stated, copper; there had been no time to test the presence of other metals, but judging both from the colour and softness of the metal, as well as the colour of the coat of patina on the specimen, he thought it was copper. Another of the specimens appeared to be a spear-head of peculiar form; the sides of the implement being cut into a series of pointed teeth, pointing downwards, and projecting from the central rib, somewhat in the way in which the teeth of a saw-fish do. With these were a number of rings, which were, he thought, obviously old

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cancelled

bangles, or wristlets ; but these were identical in form with what for very many years, antiquarians in North Europe had been wont to call 'ring-money.' There was also another flat piece of metal, the use of which was not so obvious.

The great interest attaching to these specimens was this—that, so far as he was aware, this was the first instance in which the occurrence of any such implements composed of either copper or brass or bronze was known in this country. There is a record of one instrument of brass or bronze, which was believed to be in the Society's collection, but which he had not been able to find, but, with this exception, there was no record of any such instruments of bronze or copper, known, as from any part of India.

The only statement which the sender had given as to the circumstances under which they were found was, that they were "buried in a field near to Mynpoorie." More detailed information had been sought, and if obtained would of course be laid before the Society. He would also have the instruments tested as to whether they were really of copper.

4. From J. Kertich, Esq., Government School-master, Prome, through Dr. J. Anderson—

A palm leaf Burmese manuscript, the life of Gautama, written 40 years ago

A palm leaf Burmese manuscript, Wise sayings of Kandouweng Priest.

A palm leaf Burmese manuscript, One of the 550 *Zat-lives* of *Wee-too-rah*.

The following gentlemen duly proposed and seconded at the last meeting were balloted for as Ordinary members :—

Captain W. A. Holroyd, Director P. I., Panjab.

J. Pearson, Esq., Inspector of Schools, Panjab.

Lieutenant H. H. Cole, R. E.

J. Geddes, Esq., C. S., Magistrate and Collector, Chittagong.

The following gentlemen are candidates for ballot at the December meeting :—

J. B. Macauliffe, Esq., C. S., Multan, proposed by the President, seconded by Dr. Ewart.

J. E. Cooke, Esq., Deputy Accountant General, Bengal, proposed by J. T. Wheeler, Esq., seconded by the President.

The President laid on the table, the report of a Sub-Committee appointed to revise the rules of the Society. The Members were aware, as it had been announced to the Society, that a Sub-Committee had been appointed, and that to it, some propositions which had been made for alteration in some of the rules, had been referred for consideration with the general subject. This Committee, composed of two Members of the Society not Members of Council, and two Members of Council, had held successive meetings, and had considered the rules seriatim, as well as generally, and their careful and detailed deliberation had resulted in drawing up a revised set of rules, in which the principal alterations were alterations of arrangement, with also some changes in principle. The Committee had met frequently, and on successive days, with a view to completing the important duty confided to them at the earliest practicable date, and they submitted their report sometime since. But, the intervention of the holidays, and the consequent absence from town of many Members of the Council, had rendered it impossible to have, in the Council, that full and careful discussion of the proposed rules which was, in every point of view, desirable. The Council had gone through a portion of these proposed rules, and had made several changes, so far he might say chiefly verbal changes. And it was wished that the Council's report could have been laid before the meeting this evening. This was as he said impossible. It was therefore determined by the Council at its last adjourned meeting on the subject, held only the day before, to lay before the meeting the draft rules as proposed by the Committee, and ask the Society to allow the question to be brought up for final discussion at the Annual General Meeting. This meeting would not take place until the middle (or a little later) of January. And it was believed that there would be ample time to have the final report of the Council on these draft rules ready, quite in time to be circulated to the Mofussil members, so that the required two months shall elapse after the issue of the papers, before the Annual General Meeting.

It was of essential importance that this matter should be brought to a conclusion as soon as practicable, not only with a view to removing doubts as to what the rules of the Society are, but for another reason also. The copies of the rules as now existing are exhausted; there are none to give to the new Members of the Society, while it would be

highly foolish to waste money in reprinting these rules, if they are to be supplanted by others in a few weeks. If the final decision, however, is to be protracted much beyond the date of the Annual Meeting, the present rules must be reprinted.

He would, therefore, ask the Society to adopt the plan recommended by the Council, under which the rules as proposed would be circulated for discussion in full time to hold the final voting on the question at the Annual Meeting in January.

This was put to the vote and carried.

The President then called on Mr. V. Ball to read his paper, *On the Flora of Mánbhúm*, of which the following is an abstract.

Previous knowledge of the Flora of Mánbhúm refers only to the northern portion of the district (in the vicinity of the grand trunk road), which has been visited by Dr. Hooker, Dr. T. Anderson, and others.

The district forms portions of three of Dr. Hooker's botanical provinces Behar, Bengal and Orissa.

The physical characters of Mánbhúm which exercise a marked influence on the flora, may be most clearly comprehended by dividing the district into a series of six zones.

The general aspect presented by the flora is disappointing: instead of finding a realization of one's ideal of a tropical jungle, the scenery is often excessively tame, and in the drier and cleared portions, almost park-like.

In the nearest approach to typical tropical jungle, that occurring on the hills of the Dhalbhúm frontier, there are no tree-ferns or palms and but few mosses, orchids, or herbaceous ferns. The character of the foliage and inflorescence are briefly described in the paper.

The vegetation of the low flat lands is susceptible of a four-fold division, according to the character of the ground which supports it; lists of the characteristic species are given.

Land which has been cleared for cultivation, it is remarkable to notice, has a flora of its own, both the trees and herbaceous plants being quite distinct from those found in the original jungle. Although the land may relapse into jungle, the occurrence of these species marks its antecedents.

The flora of the tanks and jheels is interesting, as it so closely approaches in character to that of the ponds and lakes of Europe. A list of the species is given.

This portion of the paper is concluded with a description and list of the plants peculiar to the hills. The useful plants are those yielding, food, drugs, fibres, dyes, lac, oil and timber.

The paper concludes with notices under these several headings, and a list of trees producing timber of known value.

Dr. F. Stoliczka then read his paper on *The Malacology of Lower Bengal and the adjoining provinces*. No. 1. On the genus *Onchidium*, with descriptions of new species. (Abstract.)

The author stated that the study pursued in conchology during the last few decads had clearly shewn the importance of the examination of the animals of Mollusca for all systematical purposes. The Indian land and fresh water shells received a very fair attention from such able conchologists as Mr. Benson, Mr. W. Blanford, and others; but there was as yet little known of the respective animals. To supply this want, Dr. Stoliczka stated that he had undertaken to collect materials for a series of papers, which would be specially devoted to the examination of the animals, and that he hoped conchologists would appreciate this course of inquiry, and favour him with living or preserved animals of Molluscs.

The first of the series of papers had as subject the anatomical and other descriptive details respecting the species of *Onchidium*, found in the neighbourhood of Calcutta.

The type of the genus was described about 70 years ago by Dr. F. Buchannan as *Onchidium typhæ*, which is very common about Calcutta, though no record of its occurrence has been noticed since Buchannan's publication.

Dr. Stoliczka then spoke on some of the most important anatomical details of the type species, *Onchidium typhæ*, pointing out some of the errors into which former observers had fallen. He also stated that he found in the neighbourhood of Port Canning three new species which were described by him under the names of *Onchidium pallidum*, *tigrinum*, and *tenerum*. Several live specimens of the last named species, the drawings of all the species, and preparations of the teeth, &c., were exhibited. A new species of *Onchidium* was said to occur

in Burmah. Of the closely allied genus *Vaginulus*, Mr. W. Theobald had described one species from Burmah, and Mr. G. Nevill lately obtained near Calcutta two small specimens of apparently the same species.

Mr. W. Blanford said that the study of the animals of the various Molluscs and especially those of *Onchidium*, was of the highest importance, and that he had no doubt that Dr. Stoliczka's labours in this line would be highly appreciated by conchologists. He had himself observed, he believed, at least two Indian species of *Onchidium* beside those mentioned by Dr. Stoliczka. All the *Onchidia* were found along the seashore or on the banks of tidal rivers, while the species of *Vaginulus* appeared to be terrestrial animals.

Dr. Stoliczka mentioned that the errors which had been made by former observers were chiefly due to the difficulty in preserving animals. Since Dr. Buchannan, only very few naturalists had the opportunity of examining live animals, and those preserved in spirit easily change their form so much, that it was extremely difficult satisfactorily to trace out the structure and the position of some of the internal organs.

Dr. Stoliczka also brought to the notice of the Meeting a paper entitled "*Remarks on the species of the genus Pandanus*;" by S. Kurz, Esq.

The object of the paper was a somewhat different grouping of the species of *Pandanus* from that recorded in botanical works up to the present date. Mr. Kurz divides the known species of *Pandanus* into five sections,—which may be said to have sub-generic value,—under the names *Acrostigma*, *Ryckia*, *Keura*, *Microstigma* and *Souleyetia*. Short characteristics of the various sections are given, and 27 species are enumerated in his list.

Papers received from the Public Works Department, reporting the occurrence of earthquakes in June last, were laid before the Society.

The Superintending Engineer of South-East Circle, Mr. Leonard, reports that "A shock of earthquake was felt at Sylhet at a few minutes past 12 o'clock, on the morning of the 30th June (29th-30th). There were three waves, rather abrupt, the second so much so as to shake the furniture." The shocks occupied about half a minute, and a tremulous motion continued for half a minute more in the direction of west-south-west to east-south-east. Slight shocks were also felt at

Cachar at 8 o'clock in the evening of the 29th June, and at 3 A. M. of the following morning, lasting each time 4 to 5 seconds ; but causing no damage.

The Executive Engineer of Rajshahai division reports an earthquake at Dinagepore on the same night at about the same hour, (midnight) as at Sylhet. It lasted for about a minute and three distinct shocks were felt. The motion travelled from north-east to south-west. It was felt also slightly at Rampore Bauleah, Malda, Nattore, Boggrah, Pubnah and Rungpore. No damage was caused to the buildings. It is also stated to have been " perceptible at Berhampore, but that few seem to have felt it."

Another earthquake is reported as occurring on the 31st July, at about 11h. 45m. in the day. It was felt at Hazareebagh, where it is said to have lasted 10 seconds, and appeared to come from the north, or north-east. It was slightly felt also at Raneegunje. It appeared more severe at Gobindpore, where the main wall of the Assistant Commissioner's Cutcherry was cracked, and the plaster fell off several of the pillars in the verandah. One of the walls of the 1st class road chokee at Kundra was cracked. Near Bugodhur, it was very perceptibly felt at about 11 A. M. At Aymiahghat all the constables rushed out of the police building. It was felt also at Burrakur. It is stated to have been preceded and accompanied by a loud noise resembling the distant noise of an engine letting off steam, and is stated to have come from north-east toward the south-west.

Nothing unusual in the state of the weather or temperature is recorded.

The receipt of the following communications was announced :—

I.—*Notes on the Flora of Mánbhúm*, by V. BALL, Esq., B. A.

II.—*The Malacology of Lower Bengal*, No. 1, by Dr. F. STOLICZKA.

III.—*Remarks on the genus Pandanus*, by S. KURZ, Esq.

LIBRARY.

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

** Names of Donors in Capitals.

Presentations.

Sitzungsberichte der Königl. Bayer. Akademie der Wissenschaften zu München, 1867, Heft III. IV.; 1868, Heft I—II.—**THE KOENIGLICH BAYERISCHE AKADEMIE DER WISSENSCHAFTEN ZU MÜNCHEN.**

Abhandlungen der Philosophisch-Philologischen classe der Königlich Bayerischen Akademie der Wissenschaften, Band XLII.—**THE SAME.**

Abhandlungen der Historischen classe der Königlich Bayerischen Akademie der Wissenschaften XXXVIII. Band.—**THE SAME.**

Denkrede auf Heinrich August von Vogel.—**THE SAME.**

Almanach für das Jahr 1867.—**THE SAME.**

Ueber die Theorien der Ernährung der thierischen Organismen.—**THE SAME.**

Ueber die sogenannte Leukothea in der Glyptothek Sr. Majestät König Ludwig I.—**THE SAME.**

Abhandlungen für die Kunde des Morgenlandes; Versuch einer hebräischen Formenlehre.—**PROFESSOR DR. L. KREHL.**

Actes de La Société D'Ethnographie, 2e Serie, Tome I—II.—**THE ETHNOGRAPHIC SOCIETY OF PARIS.**

Mémoires de L'Académie Impériale des Sciences, Belles Lettres & Arts de Lyon, Classe des Lettres, Tome XIII.—**THE IMPERIAL ACADEMY OF LYON.**

Journal Asiatique, No. 42.—**THE ASIATIC SOCIETY OF PARIS.**

Bulletin de la Société de Géographie, Juillet, 1868.—**THE GEOGRAPHICAL SOCIETY OF PARIS.**

Journal of the Royal Geographical Society Vol. XXXVII.—**THE ROYAL GEOGRAPHICAL SOCIETY OF LONDON.**

Transactions of the Linnean Society, Vol. XXVI. Part I.—**THE LINNEAN SOCIETY OF LONDON.**

The Journal of the Linnean Society, Zoology, Nos. 36—41 and Botany, Nos. 39—47.—**THE SAME.**

Proceedings of the Linnean Society, November, 1868.—**THE SAME.**

General Report of the North-Western Provinces Exhibition held at Agra, February, 1867.—**GOVERNMENT NORTH-WESTERN PROVINCES.**

Memoirs of the Geological Survey of India, Palæontologia Indica, Vol. V. No. 6.—**GOVERNMENT OF BENGAL.**

Adam's Reports on Vernacular Education in Bengal and Behar.—**THE SAME.**

Annual Report on the Geological Survey of India, Calcutta.—**THE SAME.**

Annual Report of the Administration of the Province of Oudh for 1866-67, 1867-68.—**THE SAME.**

Ditto ditto ditto of Coorg for 1867-68.—**THE SAME.**

Ditto ditto ditto of the Penal Settlement, Port Blair and Andaman Island for 1867-68.—**THE SAME.**

Administration of the Central Provinces for 1867-68.—**THE SAME.**

Revenue Administration of Mysore for 1866-67.—**THE SAME.**

Annual Report on the operations of the Post Office of India for 1866-67.—**THE SAME.**

The Annals of Indian Administration in the year 1866-67, Vol. XII. Parts I. and III.—**THE SAME.**

Selections from the Records of the Government of India, Foreign Department, Nos. LXV. LXVI.—**THE SAME.**

Report of the Meteorological Reporter to the Government of Bengal for 1867-68.—**THE SAME.**

Report on the Races of Avadh.—**THE GOVERNMENT OF INDIA.**

Purchase.

Revue des Deux Mondes, 15th August, and 1st September, 1868.

Comptes Rendus, Nos. 5, 6, 7 and 8.

Journal des Savants August, 1868.

Revue Archéologique, No. VIII. 1868.

The Numismatic Chronicle, 1868, Part II.

The Annals of Natural History, No. IX. 1868.

Revue de Zoologie, No. 8, 1868.

Essai d'une Faune Entomologique de L'Archipel Indo-Néerlandais par S. C. S. Van Vollenhoven. III, 1st part. Famille des Pentatomides.

H. Fauche's Le Mahábhárata, Vol. IX.

Simpson's India, Ancient and Modern, Part II.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL,

FOR DECEMBER, 1868.

An Ordinary General Meeting of the Society was held on Wednesday, the 2nd Instant, at 9 o'clock P. M.

T. Oldham, LL. D., President, in the chair.

The minutes of the last meeting were read and confirmed.

The following presentations were announced —

1. From C. W. Wilmot, Esq. Rajmahal, *a piece of sandstone with leaf impression of Palæozamia.*

2. From J. A. Cockburn, Esq., Superintendent, Barrackpore Park, *a specimen of Python Molurus.*

3. From the Rev. E. Stewart, *A copy of Santali grammar, and a copy of the Gospel of St. Matthew in Santali.*

4. From J. Burgess, Esq., Poonah, *Notes on a visit to the Satrunjaya Hills.*

5. From the Surveyor General's Office, *two maps of Turkestan with the adjoining portions of the British and Russian Territories.*

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

M. Macauliffe, Esq., C. S.

J. E. Cooke, Esq.

The following gentlemen are candidates for ballot at the January meeting :—

Dr. P. F. Bellew, Deputy Assay Master, Calcutta Mint, proposed by Col. H. Hyde, seconded by Mr. J. F. Wheeler.

A. Cadell, Esq., C. S., Mozuffernagur, proposed by Mr. Irwine, seconded by the Secretary.

Ch. C. Adley, Esq., Executive Engineer, P. W. D., proposed by the President, seconded by the Secretary.

Dr. T. Dukas desires to withdraw from the Society.

The following letter from B. W. Colvin, Esq., Magistrate of Mainpúri, with reference to the copper weapons, laid before the last Meeting, was read :—

7th November, 1868.

“ The copper weapons mentioned in your letter of the 5th instant, were found by a cultivator, whose plough struck against them in passing through his field.

“ He described them to me as lying littered together in a heap without order, and not enclosed in any vessel or receptacle. They were, of course, at no great depth below the surface.

“ This is all the information I could gather from the man who found them. I have not had an opportunity yet of visiting the place myself where they were found, but I shall have shortly ; and if you will let me know any special points on which further information is desirable, I will do the best I can to procure it.”

The receipt of the following communications was announced—

1. *What was the Sundarbun originally, and when, and wherefore did it assume its existing state of utter desolation?* by H. J. Rainey, Esq.
2. *On the Results deducible from the observations made by order of the Secretary of State for India, at Guntoor, on the late Eclipse of the Sun,* by Major J. F. Tennant, R. E., F. R. A. S.
3. *Notes on a Tour in Northern Abyssinia, and specimens collected in Abyssinia,* by W. T. Blanford, Esq.
4. *The Total Eclipse of the 18th August 1868, observed by the Austrian Expedition,* by Dr. F. Stoliczka.
5. *Description of New Marine Mollusca from Ceylon,* by Messrs. G. & T. Neville.

Mr. Blochmann then said—

Among the books purchased during last month, by the Society, there is a copy of a Persian Dictionary, entitled *Sirájullughát*, in two volumes. This Dictionary was compiled in 1734, by Sirájuddín 'Alí Khán Arzú, a poet and noble of the court of Dihli. The Society, I think, has been fortunate in getting this rare book at the low price of Rs. 45. The copy itself is but fair, like the MS. of this work

preserved in the Fort William College Library. A third copy is at Lucknow.

“I have on several occasions drawn attention to the importance of collecting MSS. of Persian lexicographical works. There is a two-fold reason. *First*, the authors of the best dictionaries are Indians, and few of their works have found their way into the libraries of Europe. *Secondly*, the best Persian dictionaries are written towards the end of the 17th and during the 18th centuries, when the rapid downfall of the Mogul dynasty, and the introduction into India of the art of printing, caused a considerable decrease in the demand for copyists. Hence the fact that our libraries contain more MSS. written from the time of Akbar to Sháhjahán, than MSS. written during the 18th century. Adding to this the difficulty of copying voluminous dictionaries, we cannot wonder that lexicographical MSS. are now-a-days, even in India, where they were written, exceedingly rare.

“Of the 53 dictionaries which during thirty years were collected by order, and at the expense, of the Emperor Akbar, for the compilation of the dictionary entitled *Furhang i Jahángírbí*, about *eight* still exist, of which our Society has but *three*. So rapid has been the destruction of this class of MSS. during two and a half centuries.”

Dr. Stoliczka desired, before the ordinary business was commenced with, to draw the attention of the Meeting to a few very fine specimens of the remarkable coral *Sagartia Schilleriana*. He stated that he had lately found large numbers of that species in the Mutlah river, where, during low water, the animals remain for many hours exposed to the sun.

Dr. Stoliczka also exhibited live specimens of *Nanina pollux*, and *Helix propinqua*, both clearly shewing the pulsations of the heart. In the former species, the pulsations were about 46 *per minute*; in the latter about 50. When the animals retire for a longer time to their shells, the pulsations greatly diminish. In the case of *Helix propinqua*, they were reduced from 50 to 17 *per minute*.—

The President then asked the Secretary to read the first paper announced for the evening.

What was the Sundarban originally, and when, and wherefore did its assume its existing state of utter desolation? By H. J. RAINEY, Esq., Khoolnah, Jessore. (Abstract.)

The writer states that he advisedly adopts this interrogative form of title, desiring to elicit information rather than to attempt to dogmatize. His wish is to ventilate the subject, so that a satisfactory solution may finally be arrived at. Such a solution he believes would be of practical value also as affecting the extent and character of the various works for reclamation or improvement of the Sundarban.

The author then proceeds to shew that the Sundarban "originally" was not only populated, but apparently equally, if not more, advanced in civilization than the country lying immediately to the northward of it. The remains of temples, mosques, and other buildings of much symmetry and even magnificence, are supposed to prove this. These appear to have belonged to both Hindus and Muslmans, though the latter predominate.

It then proceeds to discuss the history, so far as known of this tract. In the reign of Akbar, (16th century) "Mahárájah Pratápáditya established a magnificent city (founded by his father and uncle, Mahárájah Bikramaditya and Rájah Bosontorí respectively) in the grant of one Chand Khan, (who dying without heirs, his property was escheated by the paramount power, Nawáb Dáúd, and transferred to the said Mahárájah and Rájah,) in what may now be considered the 24-Parganah portion of the Sundarban, then appertaining to Jessore. This Mahárájah Pratápáditya became so powerful as to exercise sway over all the Rájahs of Bengal, Behar, and Orissa, including even Assam. His great successes induced him to refuse to pay his tribute, and to throw off his allegiance to the Great Mogul. For many years, he succeeded in defeating the armies sent against him. The first general sent was Abram Khan, whose army was nearly annihilated near the fort of Mutlar (? Mutlah, now Port Canning)*. Twenty-five other generals are stated to have been

* "The high embankment, or rather the remnant of it left, not far from Canning, is very likely the remnant of the road which led to this fortress; or probably debris of the fortification (or *garb* as termed by the natives); for such appear in Lower Bengal to have been built simply of mud."—*The Author.*

The general Abram (?) Khán is not mentioned in the histories of Akbar's reign. For the facts mentioned in the following sentence the author should have specified his sources.—THE GENERAL SECRETARY.

defeated in succession. Finally the Mahárájah Pratápáditya surrendered himself a prisoner, and was sent to Delhi in an iron cage. He died at Benares on the way.

The author shews that at the time of Pratápáditya, though parts of the Sundarban were populated, a great portion was still wild and uncultivated, and thinks, the vast progress in improvement was owing to the great exertions of these princes; and that the impetus given by them, gave way with the imprisonment and death of the Mahárájah. Subsequently only the very best and most favorably placed portions of the district were cultivated. In addition, the place was exposed to predatory incursions of piratical Mugs, and even of Portuguese Buccaneers,—quite sufficient to scare away a timid and probably disunited population.

There remain yet to be considered the effects of a cyclone, and its storm-waves. This occurred in Calcutta in 1737, when a wave 40 feet higher than usual, came up. Such would have been sufficient to produce an almost total loss of life in the Sundarban, and its consequent abandonment.

The author thinks the true name is Sundarban, or beautiful forest, as preferable to Sundriban, Soondree forest; or Sundar band, beautiful *band* or embankment; or Somudro ban, the Sea Forest. He thinks the name is of recent origin as applied to the entire district. A record exists of many well-known places described as belonging to zemindarees.

The author concludes by briefly summing up his views, and stating that the country suffered severely from the attacks of Mug pirates and the Portuguese, who finally effected a footing in the country, and that a terrific gale or Cyclone, probably that in A. D. 1737, accompanied by a storm-wave, passed over that tract of country on the sea-board, now known as the Sundarban, resulting in the most awful destruction of lives, and devastation of properties, which caused the few remaining survivors to totally abandon the place, and move northwards, where finding sufficient surplus land for their habitation and cultivation, they never returned to the south.—

The President then invited discussion on the paper.

The Rev. J. Long stated that when in Paris in 1848, Monsieur Jomard, the head of the Geographical Department of the Bibliothèque

Royale, shewed him a Portuguese Map of India more than two centuries old in which the Sundarban was marked off as cultivated land with five cities therein. This was confirmed by a Map in De Barros' *Da Asia*, a standard Portuguese history of India. The libraries of Portugal would be worth searching for further information.

He had twenty years ago examined Tarda, a town not far from Port Canning, which was the port of the Portuguese before Calcutta was founded; it was once an emporium of trade, and ships must have sailed up by the Mutla, but no ruins now remain. He had seen, 40 miles south of Port Canning, a fine Hindu temple two centuries old.

At the request of the Hon'ble J. Colvin, late Lieutenant-Governor of the North West Provinces, he had published, 16 years ago, in Bengali the life of Rájah Pratápáditya, called in the original "the last king of Saugor Island;" he lived in the days of Akbar, and built a city in the Sundarban, the remains of which are to be found at Ishwaripur.

The Portuguese slave-dealers and Mugs led by their devastations to the depopulation of the Sundarban. Cyclones also did their work; one swept over Saugor Island, in 1680, which carried away more than 60,000 people. The Mugs, as late as 1824, were objects of terror even to Calcutta, and in 1760, the Government had a *band* thrown across the river, near the site of the Botanical Gardens, to prevent them and the Portuguese Pirates coming up.

The Asiatic Society ought to petition Government to send an exploring expedition to the Sundarban.—

Mr. Blochmann said—

"I think the deserted state of the Sundarban is due to the incursions of the Portuguese and the Mugs rather than to cyclones.

The first cyclone known to me is mentioned by Abulfazl in the third book of the *Áin*, where he says—'The Sarkár, or district, of Baglá, extends along the seacoast. The fort of the Sarkár is surrounded by a forest. From new moon to full moon, the waves of the sea rise higher and higher; from the fifteenth to the last day of the moon, they gradually decrease. In the 29th year of the present era (A. D. 1585), one afternoon, an immense wave set the whole district under water. The chief of the place was at a feast; he managed to get hold of a boat, whilst his son Paramánand, with a few others, climbed up a

Hindu temple. Some merchants got on a *Tálár*.* For nearly five hours the waves remained agitated; the lightning and the wind were terrible; houses and ships were destroyed; only the Hindu temple and the *Tálár* escaped. About two hundred thousand souls perished in this hurricane.'

Abulfazl does not mention the northern boundary of the district of Baglá; but it cannot have come up as high as Calcutta, because Calcutta, or the *Mahall of Kalkattá*, as it is spelt in the *Áin*—very likely the oldest book in which our Capital is mentioned—belonged, at Akbar's time, to the Sarkár of Sât-gánw, near which the Portuguese had founded the town of Húglí (Hooghly), which name also occurs in the *Áin*.†

Now the Cyclone of 1585 could not have been the cause of the devastations in the Sundarban, because Abulfazl, eleven years later, in 1596, mentions four towns as belonging to the Sarkár of Baglá, *viz.*, Ismá'íl-púr, commonly called Bagláchín‡; Srírámpúr; Sháh-zádah-púr; 'Adíl-púr. These four places must have been of some importance, because the district then paid a revenue of nearly seventy lakhs of *dáms*, *i. e.*, nearly 180,000 Rs., and was besides liable to furnish 320 elephants, and 15,000 zamindári troops. It would be of interest to know whether the Portuguese maps, alluded to by Mr. Long, or some old East India Office Records, mention these four towns. *De Barros'* Map, and *Rennel's* Map of 1772, contain nothing; and we may at present assume that the ruins of towns discovered in the Sundarban, belong to some of the four towns. It is noticeable that three out of the four towns have Muhammadan names.

There is a difficulty connected with the name of *Baglá*. The Manuscripts of the *Áin* which are in my hands, give a *B* as the first letter of the name. But the author of the *Siyar i Mutaakkharin*, who copies the above record of the cyclone from the *Áin*, has *Húglá* (هوگلا), instead of *Baglá* (بگلا), and distinctly asserts that the

* A wooden house built on 4 pillars, often erected near palaces and temples. The musicians used to play on it.

† I mention this, because Stewart, in his *History of Bengal*, lays an undue stress on the fact that the name of Húglí does not occur in *Faria de Souza's* *History of the Portuguese in India* (1695). The name occurs in the *Áin* (1596), and several times in the *Pádisháhnámah*; *vide* ed. *Bibl. Indica* I, p. 433, where the capture of Húglí by the Moguls, on the 12th June 1632, is described.

‡ The last syllable of this name is somewhat doubtful. Several MSS. have only *Baglá*.

coast of Lower Bengal was thus called from *hiyghá*, a weed used for thatching houses. But he wrote two hundred years after Abulfazl, in 1780.

The second great cyclone occurred, according to Mr. Long, in 1680. The third hurricane, known to me, took place in 1737, during which, according to the Gentleman's Magazine of that year, the English settlement of *Golgota* [Calcutta] severely suffered.

But in 1737 the Sundarban was deserted.

That the eastern part, at least, of the Sundarban was chiefly devastated by the Mugs, is also asserted on Rennel's Map of Lower Bengal of the year 1772, where the words "Depopulated by the Mugs" are written over the tract between Long. 90° and 91°, south of Bábá-qirganj (Backergunje).^{*} The name of *Fringy Cally* (Long. 89° 25') which on his map is given to one of the numerous branches of the Ganges, clearly belongs the 'remains' of the Portuguese."—

Babu Protab Chunder Ghose, Assistant Secretary, then read the following note :—

"As I have the supervision of the printing of a Historic Romance in Bengali, which gives an account of Pratópáditya's dealings with the Portuguese adventurers, I had occasion to look up some books, in order to authenticate certain facts therein referred to. In my search for them, I had to investigate the history of the Sundarban. The few notes I have taken down in connection with the subject, I will read out to you.

The earliest mention of that portion of Lower Bengal which is now known as the Sundarban, is in the *Rámáyana*. It is in connection with a legend relating to the origin of the river Ganges. How the numerous sons of Sagara, one of the many universal monarchs of ancient India, were reduced to so many handfuls of ashes by Kapilá's malediction, is known to every reader of the *Rámáyana*. How Bhagiratha, a mere boy of fifteen, by his devotion and prayer, pleased the goddess Gangá to come down to earth, and how Gangá divided herself into a hundred branches, before she entered the sea, is likewise known. I may mention that the Sanscrit name for *sea* is connected with the name of the universal king Sagara.

^{*} Vide also Col. Gastrell's Geographical and Statistical Report of the Districts of Jessore, Fureedpore and Backergunje, Calcutta 1868, p. 25.

No mention is made of any other events having happened on the sea coast of Lower Bengal. Names of no ancient cities, except Bai-gala (Arrakan) said to have been situated there, are mentioned in the Mahábhárata or the later Puránas. Modern Sanscrit literature is peculiarly deficient, both in geographical accuracy and historical authenticity. For authentic history we must look to the works of foreign travellers.

In Arian's account of India, this portion of Bengal is mentioned in connection with the river Ganges. He gives the names of its several branches, and mentions two cities, which he says are situated in its Delta. It is difficult to identify them now.

Megasthenes who preceded Arian in his description of the Indians, speaks very obscurely of the Ganges. In Arian's list of the tributaries of the Ganges, we recognise the *Sona* in Soamus. Herodotus' account of India is very general and limited to the North Western Provinces. All invasions of any consequence were from the west and north-west of India. So late as Manu, the lawgiver, the Ganges was considered the eastern limit of the country habitable for the Aryas. In the war of the Mahábhárata, the king of Bengal is several times mentioned, apparently to strengthen the retinue of the principal warriors. We pass over some centuries without finding any notice of the country.

During the time of the Arab invasion of India (8th century of the Christian era), Sulaiman came to this country. An account of his travels is given in the Bulletin of the Geographical Society of Paris (p. 203). His account of the Delta of the Ganges is very meagre. All we can gather from him is that this part of Bengal was then in a flourishing condition. There existed then many cities which traded with Arrakan. The Persian Historians of the Muhammadan rule in India are generally silent about Bengal, most of them being more or less connected with the court of Delhi. They have directed little or no attention to the history of the secluded portions of the Emperor's dominions in the East, which were always governed by one or more, generally insubordinate, Viceroys. The little that was written by the natives, was either neglected or suppressed by the court followers.

Ibn Batuta passed down the Delta of the Ganges, but he has recorded nothing regarding the Sundarban. He generally speaks of the

country as in a flourishing condition. In the 15th century, Nicoli Conti sailed up the Ganges and passed by a city named *Cernove*, which was on the river. This city, he mentions, was then in a flourishing state. He stayed for some time at Buffetania (Burdowan?). He visited Racha, a city on the banks of a river of the same name. On his way to the city, he crossed the Delta, where he found many good cities. Racha is evidently a misspelling of the Persian name *Rakhá-nak* (Arrakan).

Up to this time, we see, the jungles of the Sundarban did not exist. The earlier Portuguese writers unanimously assert that the Delta of the Ganges was much populated. Several cities are marked in De Barro's *Da Asia*, and two mighty rivers, flowing on the west by Satigam, (Saptagram, *Sátgánw*), and on the east near the city of Chatigam, (Chittagong), bounded the fertile Delta of the Ganges. In his map, he distinctly lays down three cities as situated within a few miles of the sea.

Manuel de Faria de Souza in his "Portuguese Asia" says—"The Ganges falls into the sea between the cities of Arigola and Pisalta in about latitude 22°". At another place he says, "The Ganges enters the bay about the Lat. 23°, between Chatigam and Satigam, 100 leagues distant." He describes the intervening country as much populated and in a flourishing state.

Dr. Fryer (1674), speaking of deserts in his 'Special Chorography and History of East India,' says: "Here are sandy deserts near the gulph of Combaya (Cambay), and beyond Bengala towards Botan and Cochin China, whence they fetch musk."

It is very difficult to state who first applied the name Sundarban to the jungle in the Delta. No early writer uses the name. The name literally means "the good forest;" but as some write it *Sunderband*, it means the good embankment." Some are of opinion that the plant *sundri* (*Heriteira littoralis*), which grows in great abundance in the Delta of the Ganges, has given the name of the forest. This appears probable, as a whole district is named Hogla from the occurrence of a reed (*Typha elephantina*) of the same name. I would propose another etymology, There lived in this part of Bengal a semi-barbarous tribe named *Chandabhandu*, very similar to the Malangi (salt manufacturers) of the

present day. Their condition was a little better than that of slaves. In a copper plate inscription found in lot No. 55 of Mr. Hodge's Map, near Backergunj, Madhava Sena, evidently a brother to Kesava Sena of the Senarajas of Bengal, made a grant of some villages, Bágule (Bogla, according Persian writers) &c., to a Brahman. With the villages, the king conferred on the recipient the right of punishing and employing the *Chandabhandu*, a tribe that inhabited the place. This tribe, I believe, gave the name to the uncultivated portion of the Delta, which they then occupied.

It is generally supposed that Portuguese piracy and Mug incursions in the 16th century devastated the whole country. Bernier (1655) speaking of Portuguese oppression, says—"They made women slaves, great and small, with strange cruelty, and burnt all they could not carry away. And hence it is that there are seen in the mouths of the Ganges so many fine cities quite deserted."

The remains of these fine cities are found in lots Nos. 116, 211, 165, and 146. Mr. Swinhoe has published a figure of the ruins lately discovered in lot 116. The temple is of the Buddhist type of architecture. In lot No. 146, there are brick ruins with terracotta ornaments. Most of the remains are on the banks of the Cobartak. Colonel Gastrell, in his "Geographical and Statistical Report of the Districts of Jessore Furreedpore and Backergunge," speaking of old ruins, states—"But all inquiry failed; nothing could be found save the ruins already mentioned on the banks of the Cobartak river. The mud-forts entered on Rennell's Map on the banks of the Rabanabad or Goolacepa river do not exist now-a-days."

To the oppression of the Portuguese pirates we must not wholly attribute the desolation of the Sundarban. It may only be true regarding the eastern portion. We know from history that several partial deluges occurred in Bengal. Two are recorded in *Siyar-ul-Mutakhkharin* in connection with Sirkar Hogla. The first and more furious of the two, happened in the 29th year of the reign of Akbur (1585). Two hundred thousand of the inhabitants are said to have been drowned. Another is said to have occurred in the reign of Muhammad Shah (1737).

Such occasional deluges, accompanied by cyclones, by breaking up the embankments, may have destroyed some parts of Lower Bengal; the incursions of the Mugs may have done the same for

other parts. Portuguese pirates, Mugs, and occasional visitations of cyclones have acted together, to ruin the seacoast of Lower Bengal.

The change, usually observed near the mouths of large rivers, must have likewise had a share in the general destruction.

With reference to the last cause of the desolation of the Delta of the Ganges, I would refer to what Mr. Ferguson says in the *Quarterly Journal of the Geographical Society* for 1863. But Sir Charles Lyell says, "Mr. J. Ferguson, in his paper on the Delta of the Ganges, differing from all writers of authority who preceded him, has argued that the sediment is thrown down in consequence of the overflowing river being checked by meeting with the still water of the jheels or lakes. In point of fact, however, the deposition of the coarser matter takes place immediately on the highest part of the banks where the water first begins to overflow, and before they reach those lakes which occur at a lower level in the alluvial plain on each side of the main river. The banks are of equal height and as continuous where no jheels exist."

Mr. Rainey, referring to the only historical anecdote connected with the Sundarban, mentions Rájá Pratápáditya. His authority is a Bengali work published under the superintendence the Vernacular Literary Society. The work is named "The Life of Pratapaditya." The author Pandita Haris Chundra distinctly states that his history is but an abstract, in modern Bengali, of a more elaborate work published by Ram Ram Bose for the College of Fort William. Ram Ram Bose in his work states that he describes the history of Pratápáditya as he has heard it told by old members of his family. For a more authentic history of the Rájá, particularly of his connection with the Emperor of Delhi, we must look to another work. The *Muhammadan Historians* do not even mention the Rájá by name. The *Siyar ul-Mutakhkharín*, however, mentions one as Pratáparudra, which is evidently a misspelling of Pratápáditya. This prince was defeated in a battle by Rájá Mán Sing. The only written history of Pratápáditya is in the *Khitiça Charita*, a Sanscrit History of the kings of Krishnagar. There the author incidently mentions Pratápáditya as being taken prisoner by Mán Sing in the beginning of the reign of Emperor Jehángir, and carried off in an iron cage. On his way to Delhi, the Rájá died at Benares. The

Bengali romance, of which I made mention, describes the intrigues of the Rájá with one Sebastian Gonzales, a Portuguese pirate, who in concert with Anupráma, a brother to the king of Arrakan, whose sister he had married, waged war against the king of Vaicala. Sebastian Gonzales is described, in De Souza's History, as a Portuguese sailor, who left his employment and established himself in Sundeep.

Bharatachandra, author of the Vidyá Sundara, has evidently taken his history from the Sanscrit work, as the very epithets of Pratápáditya, used in the Sanscrit work, are repeated in the poem. Pratápáditya was a powerful prince. The Sanscrit work states, there were twelve other kings of Bengal, all of whom were defeated by Pratápáditya, and he became the sole monarch of the Province.

He had an army of 52,000 swordsmen, 16 chains of elephants, and ten thousand mounted soldiers. He disclaimed all allegiance to the Emperor of Delhi.

Near the old city of Jessore, there are still to be found ruins of the palace and fort of Pratápáditya.

The Secretary then read Major Tennant's paper :—

On the Results deducible from the Observations made by Order of the Secretary of State for India at Guntoor on the late Total Eclipse of the Sun. By Major J. F. TENANT, R. E., F. R. A. S., F. M. S., Superintendent of the Observations.

As the Asiatic Society did me the honor of printing a pamphlet calling attention to this Eclipse and explaining the objects of research, I hope that some account of the results to which I have been led, may be interesting; and I feel that such an account is due.

Before proceeding further, I may say that, for the present, I accept as a true theory of the Sun that it is an ignited nucleus, solid or fluid, surrounded by an atmosphere containing as vapours many substances, which we only know as solids. In such an atmosphere, subject doubtless to enormous disturbances, the ordinary laws of equilibrium must hold. The densest vapours must lie lowest, and they will moreover be hottest. Any substances which can only exist in a state of vapour at a temperature of incandescence, must lie low, in the densest

part; for the outer portions of the Solar atmosphere must approximate rapidly to the temperature of space.

I have on one of my Photographs what I consider to be the image of this densest portion of the Solar atmosphere as an intensely luminous stratum, rather more than 7,000 miles thick. From this I conceive that the protuberances are formed.

One of those seen on this occasion is remarkable for its enormous height and its singular structure. It has been examined with Spectroscope and Polariscope, and we have six Photographs of it exhibiting its marvellous structure. These have enabled me to form a theory of its construction as follows. From some cause, two violent jets of gas issued from points on the Sun's limb 20,000 miles apart, the more northern and larger of these was nearly perpendicular to the surface, the southern was inclined at about 40° to that surface: rushing through the luminous stratum, they carried off with them its lighter constituents, and meeting about 16,000 miles above the Solar surface, they joined. But the axes of these jets were not in the same plane: hence arose a rotatory motion in the whole, and gas and vapour, whirling in a vortex, rose to a height of 90,000 miles above the surface of the Sun. That gas was Hydrogen. If other gases were there, the traces were faint, and escaped my notice. The vapours of which I saw traces, were Sodium and Magnesium, the two lightest. Where I examined this horn in the upper part, I think I may safely say, Iron was absent; and if the gas had taken any of these with it, it had dropped them as it rose.

But this was a singular and exceptional phenomenon. Such violent outbursts seem uncommon even in the Sun, and, of course, the formation of a rotating column such as this, would be less so. Jets of gas ordinarily carry up with them portions of incandescent vapour forming with them columnar protuberances, and when, as would seem most common, the escape is still more gradual, bubbles of gigantic size are formed in the luminous stratum which are the ordinary rounded prominences. These are but of short duration. If an air-bubble on water be proverbially short-lived, how short would be the duration of a bubble merely covered with vapor, were that not prevented from subsiding by the constant fresh supplies of gas from below. Really broken in many places, the remaining clouds of vapour would

be kept up by the escaping gas, much as a pith ball by a jet of water, till at last they would settle down in small irregularly broken portions, much in the same way as a flocculent precipitate.

This hypothesis will, I think, explain the existence and phenomena of the protuberances. Where the gas (generally I should imagine Hydrogen) comes from, is not the point. I believe it perfectly certain that it is somehow disengaged from the very solar surface or near it; for it was present in the Great Horn. From what I have heard of the spectral examinations by others, they too saw in every spectrum its mark, though it was not identified (of course I am speaking of hand spectroscopes). I think, therefore, I may safely assume its general presence from the usual colour of the prominences.—

The President then asked Dr. Stoliczka to read his note on *The Total Eclipse of the 18th August, 1868, as observed by the Austrian Expedition at Aden.*

Dr. Stoliczka said that he had received several reports on the above subject from the members of the Austrian expedition, but as the main features of that remarkable phenomenon have been repeatedly described, he would only draw the attention of the Meeting to a few observations of more general interest. This would add a little to the varied information already published in our Proceedings. The Austrian Government, upon a recommendation of the Academy of Science, sent three officers to Aden, Dr. E. Weiss, Lieut. Riha and Dr. Ph. Opolzer. Aided by the most valuable and very kind assistance of General Russel, and several other English officers at Aden, the members of the expedition completed all their arrangements in due time.

The weather at Aden on several days before the eclipse was rather unfavourable and not very promising. The mornings were cloudy as were also the evenings, while during the middle of the day the heat was very great. On the morning of the 18th August, the clouds round the sun dispersed only a few minutes before the first contact of the moon's shadow with the sun took place.

The work of the observation was divided in the following manner. Dr. Weiss undertook to observe (with a refractor of 6 inches) the corona and the position of the protuberances; Lieut. Riha conducted the spectral observations; and Dr. Opolzer the luminar changes in the protuberances, especially at their contact with the corona. In all

these points important results have been obtained. Besides the bright red corona, there were only three protuberances visible, the length and positions of which have been accurately measured. Of special beauty and interest was one of the protuberances, distinguished by a great length—(about 2 minutes, = $\frac{1}{3}$ th of the solar diameter). Its color was an intense carmine red, and it remained visible not only during the whole of the eclipse, but even one minute after it, when it was obscured by clouds. On places where the edge of the disc of the moon just covered the sun, appeared a beautiful red margin, being separated from the sun by a narrow bright zone. The corona exhibited in the appearance and arrangement of the various rays some similarity to that observed on the 18th July, 1860, in Spain.

The spectrum was not actually reversed during the eclipse, although the dark lines perfectly disappeared, thus producing a faded, so called continuous spectrum. A few seconds before the termination of the totality, the color of the greatest refraction nearly entirely vanished, while the bright red, the red and orange colors were quite sharp, the yellow less distinct, and the green hardly perceptible. The red tints remained visible with perfect distinctness and intensity; they did not pass into each other, being separated by clearly traceable dark lines. To measure the width of each of the colored zones was impossible, as the whole phenomenon only lasted from three to five seconds. The duration of the eclipse was according to actual observation 2 minutes, 55 seconds, considerably shorter than in S. India, or on the eastern coast of the Bengal Bay.

The Austrian officers, during their stay at Aden, made numerous other astronomical and meteorological observations, which will be published in a special report of the expedition. Two meteoroscopes were of great service, and by means of them the direction of the course of about 200 meteors was determined.

I may add that the photographers of the Prussian expedition who remained at Aden, took with great success several views during the eclipse.

The President then requested Mr. W. T. Blanford, to favour the Meeting with his

Notes on a Journey in Northern Abyssinia.

At previous meetings of the Society, letters from me have been read, giving a brief general account of my movements in Abyssinia,

until the return of the army to Zoulla to June. Subsequently to the departure of the troops, I made another journey in Northern Abyssinia, of which I will now offer a few notes.

When accompanying the army I had had a fair opportunity of collecting the fauna of the highlands of Abyssinia (7,000—8,000 feet) and also of the low country near the Red Sea. But I had observed that a very interesting intermediate fauna occurs at about 3,000 to 6,000 feet of elevation, and many forms, rare on the highlands, are here abundantly represented. I therefore was glad to avail myself of an opportunity for examining a tract of country of this intermediate height. On my return to Zoulla in June, I learned that Mr. Munzinger, the Consul at Massowa, intended to visit the Anseba valley and the Bogos country, and an officer of the army whom I knew had arranged to accompany him. Mr. Jesse, the Zoologist, and I joined the party, which thus amounted to four.

The great mass of the Abyssinian highlands, of an average elevation of 7,000 to 8,000 feet, terminates a little north of the parallel of Zoulla, and opposite to Massowa, in the plateau of Hamazen. From the northern side of this plateau two considerable streams arise, the Anseba and the Barka, which, after a course of some length, unite and fall into the Red Sea south of Suakin. Both are dry except in the rains; during the wet season, however, they are frequently impassable. The country drained by them is of a general level of 3,000 to 5,000 feet, with many hills rising 6,000 and 7,000, and a few small plateaus, such as that of Marea, of the same height as the highlands to the south (7,000—8,000 feet). These countries are inhabited by tribes of Bedawin, formerly all Christian, but of late years largely converted to Mahomedanism. Amongst the tribes which are still Christian, some of the most important inhabit the upper Anseba valley, and of these the Bogos is one of the largest and wealthiest.

Our party left Zoulla on the 18th June, in a steamer for Massowa: only a few hours distance by steam. At Massowa we were detained for 4 days making arrangements for our journey, obtaining transport, &c., and we left on the 22nd, delighted to escape from the heat, which was almost insupportable. For our carriage we used some of the camels left behind by the army in Mr. Munzinger's charge, engaging a wild looking crew of drivers from the Habab tribes, who,

however, behaved very well, and carrying with us all provisions except meat, which we expected to obtain from the inhabitants or by our guns. We were accompanied throughout by a brother of the Naib of Arkeko, one of the principal chiefs of the country.

We marched first due west about 30 miles to Ailat at the foot of the main range of hills, intending to wait there for Mr. Munzinger, who was detained in Massowa. The road lay through low hills, mostly of a peculiar formation composed of interstratifications of volcanic and sedimentary rocks. About 20 miles from Massowa, we entered metamorphics, the newer volcanic beds being confined to the neighbourhood of the coast, along which they appear to form a fringe.

Ailat is the place where Mr. Rassam and his party remained for a long time, whilst awaiting an answer from Theodore to their application for permission to enter Abyssinia. The village is in a plain which here extends for many miles along the foot of the hills. As this was about three miles from water, we pitched our camp close to the latter, a proceeding we had subsequently occasion to regret. The water is supplied by a very hot spring, the temperature of which was unable to take accurately, one of my thermometers not ranging sufficiently high, while the boiling point thermometer was not graduated low enough; the temperature is, I believe, 150° or 160° , much hotter than other springs which issue along the foot of the hills, though all have a high temperature.

At Ailat lions and leopards abounded. Of the former, one came one evening within 200 yards of our tents, but we could not succeed in shooting it. A cow tied up as a bait was entirely devoured by hyænas (*H. crocuta*), which were as numerous here as everywhere else in Abyssinia. The spotted hyæna, though smaller in size, is far bolder than his striped relative (*H. striata*). I have never heard of even a young bullock or cow being killed by the latter in India, although I have known hundreds of instances of young buffaloes or bullocks being tied up as baits for tigers and panthers.

I obtained several birds at Ailat which I had not previously met with, the most interesting being *Micronisus niger*, *M. gabar*, *Centropus superciliosus*, *Lamprotornis rufiventris*, *Quelea sanguinirostris*, *Halcyon rufiventer*, *Promerops senegalensis*, *Dryoscopus cubla*,

&c. I also obtained a fine wild pig (*Phacochoerus Aeliani*), of which the skull has been preserved. Bustards (*Otis Arabs*) Beni Israel (*Antilope Cephalophus Hemprichii*) and guinea fowl (*Numida ptilorrhyncha*) abounded.

We remained at Ailat until the 30th June, when we were induced to leave in consequence of a very sad accident, an Abyssinian servant of Mr. Jesse's being killed in the night by a leopard in our camp. This was done so quietly that our first intimation was an outcry from the man nearest to the one killed, who was awakened by the animal dragging the body past him. The unfortunate Abyssinian was quite dead with two or three tooth marks in his throat. The wild animals are probably the reason why, in this country, all villages and all encampments are placed at a considerable distance from water, and we invariably afterwards had fires kept burning all night, a most important precaution.

This circumstance of course alarmed all our men, and, as all our search after the beast proved fruitless, we determined to move at once. We accordingly went northwards along the base of the hills to Asus, and thence to Kusaret, a little way within the ranges, intending to go on to Tunfia, a place said to be 2,000 feet or rather more above the sea, with a pleasant climate.

But at Asus we heard from Mr. Munzinger that he would still be detained for some time in Massowa, and that we had better go on by ourselves to Keren in Bogos viâ Ain and the Lebka valley, as the direct route viâ Kusaret is impracticable for camels. As we were all more or less tired of the heat, and Mr. Jesse was for two or three days very ill from exposure to the sun, we determined on pushing at once for the higher country. We accordingly marched to Kanzal 20 miles, and thence made a long march of 30 miles at night across the desert of Shob to Ain where the Lebka stream emerges from the hills: no water occurring between the two places, the march could not be divided. We had not long left Kanzal, when we came to an encampment of the Warea tribe, pitched as usual about 3 miles from water. The encampment was surrounded by a circular low thorn fence, inside which were small hemispherical huts of mats with a framework of sticks. These were arranged in a circle just inside the fence. In the central space, where the goats and cattle were herded at night, stood

two or three isolated huts, one of which was said to be used for marriages and another for the sick. The people resembled Shohos, having bushy frizzled hair with long curls, but besides the spear, the universal weapon of Abyssinia, and indeed of almost the whole of Africa, the chiefs wore straight swords of European manufacture, and not curved scimitars like those of the Shohos and Danakils.

The head sheikh, a most truculent looking old ruffian, but very civil nevertheless, went on with us for some distance, and we commenced our night march across the desert. It was a bright moonlight night and we met with large herds of *Gazella scæmmeringii*. We rested for a few hours after midnight and, starting again at daybreak, reached Ain about 8 o'clock.

There we halted for a day and then marched up the Lebka valley. The road, like the path from Koomylee to Senafé, and all the passes leading to the Ethiopian highlands, is the bed of a torrent, and the ascent in the Lebka is even more gradual than from Koomylee. In a march of 20 miles we only ascended about 1,000 feet, and the greater portion of this ascent appeared to be at a few narrow rocky gorges. The hills at the sides of the pass are very barren, and the scenery nowhere so grand as in the magnificent gorge of Sooro between Koomylee and Senafé. Two marches of about 20 to 25 miles each, led us up this valley, the first to Mohabar, the second past Kelamet, a small village of the Az Temeriam tribe, to Kokai. Here we almost suddenly—certainly within a distance of 5 or 6 miles—passed from a perfectly desert region into hills covered with grass and green bushes, and rich valleys with fine trees, amongst which *Adansonia* and the Kolqual, that magnificent *Euphorbiaceous* plant which forms so conspicuous an element in Abyssinian scenery, were abundant. This change took place at about 3,500 feet, Kokai being about 4,000. We had passed suddenly into the region of the Abyssinian rains.

At Kokai we found a large encampment of the Az Temeriam with an immense herd of camels. These people and all others of the Habab and Shoho tribes, live a curious nomade life. During the cold weather, from November till April or May, they inhabit the lowlands near the Red Sea, which, at that time, in consequence of the winter rain, afford pasturage for their animals. When grass and water fail in Samhar, as the tract along the sea is called, these people

move with their camels, cattle, sheep, goats and mules to the highlands and remain there from June till November. They are thus during different parts of the year subject to different nationalities ; they pay tribute to the Turks for their occupancy of the lowlands, and to the Abyssinians for the pasturage in the highlands. They are all Mahommedans.

We had seen a few tracks of wild elephants on our road up the valley. They migrate like the people, descending to the lowlands when the latter are green with the winter's rain, and ascending to the highlands in June and July. We heard that some were in the neighbourhood of Kokai, and the morning after our arrival, the villagers brought us information of a small herd near our encampment. They were in fact only about a mile distant, and, singularly enough, in the middle of the camels which were feeding in all directions in the jungle. They were in a most extraordinary place for wild elephants. Not only were there the camels, but the men with the camels had been in the immediate neighbourhood the whole morning, shouting and making a noise that no Indian wild elephant in the daytime would have remained within miles of. When the elephants were first pointed out to us, a camel was quietly browsing within 20 yards of one of them, neither elephant nor camel taking any notice of each other.

There were 5 elephants ; one old female and 4 males of various sizes, the largest nearly the size of the female, the others smaller, the youngest not above 3 feet high. We succeeded in killing all, the little one being shot by some mistake. They shewed no disposition to fight, and we were rather ashamed of killing such quietly disposed animals. The next herd met by one of our party were of a very different temper, and he had to run for his life from them, and Mr. Jesse, one day when collecting little birds with only dust shot in his gun, was charged without provocation by an immense female.

It was evident that the whole herd was a family, the mother and her 4 young ones of various ages, and it is probable that in this respect the African elephants resemble those of Ceylon as described in Sir E. Tennant's work. I secured the skull of the largest elephant. All had very small tusks, as indeed, have all the elephants of this portion of Abyssinia ; so that nearly tuskless races occur amongst the African as well as the Asiatic elephants. We tried elephant's

trunk and foot, baking them in a hole in which a big fire had been made, after the most approved African recipe. The trunk was pronounced excellent though rather hard; as to the foot we were none of us inclined to endorse Sir Samuel Baker's high approval of it. The whole of the elephant's flesh, indeed, I may say everything from the carcass soft enough to be eaten, was carried off for food by the natives. The skin they also took to make into shields. Mr. Jesse and I remained at Kokai some days: the fauna was very rich and interesting. Amongst the birds were a parrot, *Pæocephalus Meyeri*, and 3 kinds of Rollers—*Coracias Abyssinica*, like the Indian bird in plumage, but with elongated tail feathers; *C. Levillantii* which is more nearly allied to the European roller; and *Eurystomus afer* which I had not previously met with. I also obtained here a species of *Oxylophus*, (probably *O. afer*), *Chizaerhis zonura* and many other species.

On the 13th July, we marched from Kokai to Bedjuk in the Anseba valley. The road lay over a low pass, Mas'halit, about 4,800 feet above the sea, separating the feeders of the Lebka from the Anseba valley. Bedjuk, the principal village of the tribe of that name, was by far the largest place we had seen since leaving Massowa. Here also we came upon the first cultivation we had met with. The Habab tribes cultivate small tracts of land in Samhar and other parts of the lowlands after the winter rains, but they possess no land in the highlands. The cultivation around Bedjuk consisted entirely of jawari or millet (*Holcus*), apparently the only grain grown at this season in this part of the country.

The Anseba valley near Bedjuk is an undulating tract 8 or 10 miles broad, but becoming narrow above and below. Except a considerable area of cultivated ground near Bedjuk and smaller tracts near some other villages, all is covered with thin bush jungle, except in the ravines, which contain thick scrub. On the bank of the river there is a belt of high trees with dense underwood, so thick in many places that it is difficult to creep through it except by following the narrow paths made by elephants and rhinoceroses. There was a considerable quantity of water in the river, and frequently it was so much flooded as to be impassable.

With the exception of one visit to Keren, the principal village of

the Bogos tribe, I remained on the Anseba from the 13th July till the 8th August, collecting ; and I obtained a very fine series of specimens. The principal Mammals inhabiting the valley were 2 monkeys, *Cynocephalus Hamadryas* and *Cercopithecus griseoviridis*, lions, hyænas, jackals (*Canis mesomelas* a very handsome species) rhinoceroses (*R. Keitloa*), elephants, *Phacochærus*, *Hyrax* (much less common than in Abyssinia proper), *Xerus leuco-umbrinus*, *Sciurus annulatus*, hares (*Lepus Habessinicus*) Koodoo, Klipspringer and Beni Israel. The lions were numerous and very noisy, constantly roaring round our tents at night ; but we only once saw one and never succeeded in getting a shot at any. The rhinoceroses kept to the neighbourhood of the river, their principal abode being in the dense thickets on the bank, and their presence rendered walking through these thickets rather dangerous. During our stay we killed two ; the skeleton of one has been taken by Mr. Jesse to England, where it will doubtless be considered valuable, as no skull even of the species exists in London. Of the other, I have preserved the head (exhibited). This species, which is replaced at the Cape of Good Hope by *R. bicornis* appears to be the only black rhinoceros of Northern Africa. It is undoubtedly the same species so frequently mentioned by Sir Samuel Baker. The Koodoo (*Strepsiceros*) were in small herds in the open jungle away from the river bank, bucks being very much rarer than does. Klipspringers (*Oreotragus saltatrix*) occurred on the hills, but they never came down into the valley.

Of birds, the superb *Helotarsus ecaudatus*, one of the finest of the eagles, was far from scarce. Besides *Pæocephalus Meyeri*, another parrot or rather parroquet occurred, *Palæornis cubicularis*, which appears to be just distinguishable from the common Indian *P. torquatus*. Of woodpeckers, I obtained *Picus æthiopicus*, and of barbets *Pogonorhynchus Saltii* (*Laimodon Brucei*, Rüpp.) *Barbatula chryso-comus* and *Trachyphonus margaritatus* which has a call singularly resembling that of the grey partridge of India. *Centropus superciliosus*, a species of *Chrysococcyx*, *Oxylophus afer* and a second species of *Oxylophus* which I cannot distinguish from the common Indian *O. melanoleucos*, and, in August, *Cuculus canorus* were the Cuckoos met with. Two species of *Indicator* occurred in the river thickets. *Colius Senegalensis* and *C. leucotis*, *Turacus leucotis*, and *Chizaerhis zonura*

were far from rare, the last two on the river banks only. Of the Fissirostral Insectivores besides the 3 Rollers, the principal forms were 3 species of Kingfisher, all insectivorous, and all distinct from the 3 species which I obtained on the highlands, and 4 hornbills, of which *Tockus larvatus* was scarce. It and *Tmeteceros Abyssinicus* belong to the highland fauna while *Tockus erythrorhynchus* and *T. nasutus* are common to the Anseba valley and to the base of the hills. *T. flavirostris*, so common in the passes below Senafé, did not occur. 2 species of *Promerops*, *P. erythrorhynchus* and *P. cyanomelas*, *Nectarinia pulchella*, *N. affinis* and, very rarely, *N. cruentata*, *Dicrurus lugubris*, *Crateropus leucocephalus* and *C. leucopygius* (another instance of both highland and lowland forms occurring together) *Dryoscopus cubla*, *Telephorus aethiopicus*, *Oligura micrura*, *Parus leucomelas*, *Hyphantornis larvatus*, *H. personata*, *Estrellda phœnicotis*, *Lagonisticta minima* and *Zonogastris citerior* were a few of the more conspicuous Insectivores. *Treron Abyssinica*, *Columba guinea* and one or two doves were common, *Francolinus Rüppelli*, *F. gutturalis*, *F. Erkelii* (rare here, common at higher levels) and *Numida ptilorhyncha* were the principal Rasores. Waders were scarce, *Ciconia Abdimii*, *Scopus umbretta*, *Lobivanellus senegalensis* being the most conspicuous, and I obtained a specimen of *Oedicnemus affinis*. Of water birds I only found *Chenalopex Aegyptiacus*, the Egyptian goose or sheldrake, which was breeding on trees along the river.

Of Reptiles I obtained *Emys (Pelomedusa) Gehafflæ* and *Testudo (Cinixys) Bellianus*, *Varanus ocellatus* and two species of snakes.

Butterflies and beetles abounded, and I procured a small collection. Mollusca were singularly scarce.

The inhabitants of the valley consist partly of Christian tribes, Bedjuk, Belen, &c., partly of the Habab Mahommedans, both being perfectly friendly. There is none of the bigotry of the Abyssinian highlands: both Christianity and Mahommedanism are of a low type, and approximate so closely, that conversions from one to the other are constantly taking place. The people composing the tribes are of two classes, chiefs and commoners, of different origin, the former being later immigrants into the country. The latter own all the land, the wealth of the former consisting mainly of cattle. The men, from the age of about 18, let their hair grow into a frizzled mass or into ringlets,

it is not plaited as amongst the Abyssinians of Tigré and Amhara, though it is just as liberally plastered with butter or fat. Their weapons are straight swords, spears and shields.

Their houses are the same hemispherical mat huts as those mentioned before. Far more conspicuous, however, are their tombs, which are quite different from any others in Abyssinia, and consist of round heaps of stones, 20 feet or more in diameter, placed generally on the top of a rise, and covered at the top by fragments of quartz. These white tumuli are the most conspicuous objects in the Anseba valley. A few are not covered over with white stones; these we learned were the tombs of men who had been killed, but whose deaths had not been avenged, the law of blood for blood being strictly carried out. The *lex talionis* is of this nature. If a man has been killed by another, no matter how, whether the man killed was amusing himself by carrying off the other's cattle, whether he was killed accidentally or intentionally, is all the same; the murderer may offer to atone for the offence by paying the relatives of the dead man a certain fixed number of cows; the exact number depending upon whether the man killed was a chief or a commoner. I forget the exact number, but it is rigorously fixed. If this be accepted, it is well, but if not, or if, as is far more frequently the case, no atonement is offered, the relatives of the murdered man up to the 7th degree, are bound to kill in turn the murderer or one of his relatives also to the 7th degree, women and children, however, being excepted. These blood-feuds are generally between families in different tribes, occasionally, however, between families in the same tribe, but they frequently lead to petty wars, and some of the tribes have suffered greatly in consequence, for the feud frequently continues until one family or tribe has lost so many of its members, that there is no hope of avenging the deaths of all, then an arrangement is made and sealed by intermarriage. Many other of the customs of these people are very curious, such as that of submitting disputes to arbitration. There can be no question of their being of a totally different stock from the Abyssinians of the highlands, their features are quite of another cast, and their houses are as distinct as their manners and customs. They have been described by Mr. Munzinger in two works "*Sitten und Rechte der Bogos*" and "*Nord-ostafrikanische Skizzen*;" but the works seem to be but little known,

even in Europe. There are probably few tribes, however, who present more remarkable peculiarities.

Mr. Munzinger joined our party after we had been three or four days at Bedjuk, and remained with us for some days, finally returning with us to Massowa. From his great knowledge of the people, and the respect in which he is held by them, he has considerable influence, and during our stay he succeeded in postponing if not preventing an attack upon some of the Bogos people by the chief of Hamazen. With Mr. Munzinger I spent a day at Keren, the largest village in this part of the country, and in which some French Missionaries are resident. There were other Europeans also in the neighbourhood, amongst them the Count de Seve, one of the French Commissioners, who had accompanied the army in Abyssinia, and who was staying with an Italian, who has lived for some years near the Barka. Except the houses of the Mission and one or two others, all the huts at Keren are the usual mat domes, sometimes covered over with a grass roof. Keren lies about 16 miles S. W. of Bedjuk in an open plain at the base of a mass of hills composed of highly granitoid gneiss.

During our stay in the Anseba valley, we did not remain at Bedjuk, but marched down the valley as far as Maregas, halting at intermediate places. The weather was very pleasant, always fine in the morning, though it generally rained for an hour or two, sometimes longer, in the afternoon.

About the time we left, the rain was increasing, and we were unable to return down the Lebka. We had to make a detour to the north from Kelamet through Rairo, near Af Abed, where we found very large encampments of the Habab tribes, who had brought their flocks and herds from the north, where no rain had fallen, and pasturage was consequently deficient. Lions were numerous, having as usual followed the cattle. At our next camp on the Lebka, near Ain, 4 of them came within a quarter of a mile of our camp and one of them seized a camel. We succeeded in shooting this one which was a lioness, and the others ran off. The lions had only very short manes, as appears to be universally the case in Abyssinia.

At Rairo the whole country consists of highly granitoid gneiss weathering into the peculiar rounded masses so characteristic of the rock in India, as in parts of the Sonthal pergunnahs, in Mysore and

other parts of Southern India, &c. I found many small flakes of obsidian scattered about, evidently chips struck off in the formation of stone implements. I had before found the same in many places in Abyssinia, near Zoulla and close to Magdala amongst others, but they were more remarkable here, as no volcanic rock from which they could have been derived exists in the neighbourhood.

We marched from Rairo into the Lebka, returned along the stream to Ain, and thence crossed the desert by the direct route to Massowa. I halted for 3 days at Amba, 30 miles N. W. of Massowa, in order to endeavour to obtain specimens of the *Oryx Beisa*. In this I was successful. The Oryx occur singly or in small herds and keep near the places where water is found, as they drink every day. They are very beautiful antelopes, as large as a wild ass and with very much the same colour, form and movement. I killed 4 altogether and have preserved 2 skins and a skeleton. Ostriches also occur in this part of the country but we saw none.

At Amba, the halting-place where I killed the Oryx, we met a party of Egyptian officers engaged in surveying a line for an electric telegraph from Massowa to Suakin. We finally returned to Massowa on the 23rd August. Mr. Jesse left by the Egyptian steamer for Suez. My remaining companion and myself, after being kept till the 29th, succeeded in chartering a small open boat to carry us to Aden. Luckily we had a fair wind as far as Perim and we reached Aden on the 3rd September.

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After a few remarks made by the President on the great interest which attaches to this paper, the meeting broke up.

LIBRARY.

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

* * The names of the Donors in capitals.

Presentations.

Abhandlungen der Königlichen Akademie der Wissenschaften zu Berlin, 1866.—BY THE ACADEMY.

Philosophical Transactions of the Royal Society of London, Vol. 157, Part II. —BY THE ROYAL SOCIETY OF LONDON.

Bulletin de la Société de Géographie, Août, 1868.—THE GEOGRAPHICAL SOCIETY OF PARIS.

Transaction and Proceedings of the Royal Society of Victoria, Vol. IX. Part I.—BY THE ROYAL SOCIETY OF VICTORIA.

Journal of the Statistical Society of London, Vol. XXXI. Parts II—III.—BY THE STATISTICAL SOCIETY OF LONDON.

Journal of the Chemical Society of London, Vol. VI. July, August, September.—BY THE CHEMICAL SOCIETY.

Journal Asiatique, Tome XI. No. 43.—BY THE ASIATIC SOCIETY OF PARIS.

Zeitschrift der Deutschen Morgenländischen Gesellschaft, Band XXII. Heft I. II. III. DIE DEUTSCHE MORGENLÄNDISCHE GESELLSCHAFT.

Catalogue of Scientific papers compiled and published by the Royal Society of London, Vol. I.—BY THE ROYAL SOCIETY OF LONDON.

The Fellows of the Royal Society, 30th November, 1867.—DITTO DITTO.

Indische Studien, Vol. X. Part III.—DR. A. WEBER.

The History of India. By Sir H. Elliott, Vol. I. Three copies.—THE GOVERNMENT OF INDIA, HOME DEPARTMENT.

General Report of the North Western Provinces Exhibition held at Agra, February, 1867.—THE GOVERNMENT OF BENGAL.

Adam's report on Vernacular Education in Bengal and Behar. By the Rev. J. Long.—THE GOVERNMENT OF INDIA, HOME DEPARTMENT.

Report of the Inspector-General of Dispensaries in the Panjab, 1867.—THE GOVERNMENT OF BENGAL.

Ditto on the Sanitary Administration of the Panjab, 1867.—THE GOVERNMENT OF BENGAL.

Records of the Geological Survey of India, Vol. I. Part III.—THE GOVERNMENT OF BENGAL.

Report on the Administration of the North Western Provinces, 1867-68.—THE GOVERNMENT, NORTH WESTERN PROVINCES.

Selections from the records of Government North West Provinces, Vol. I. No. II.—THE GOVERNMENT NORTH WESTERN PROVINCES.

Selections from Calcutta Gazettee of the years 1798 to 1805. By W. S. Seton-Karr, Esq.—THE GOVERNMENT OF BENGAL.

Purchase.

Revue Des Deux Mondes, 15th September, 1st October, 1868.

Comptes Rendus, Nos. 9, 10, 11, 1868.

Revue Archéologique, No. IX. 1868.

The Quarterly Journal of Science, No. XX. October, 1868.

Westminster Review, No. LXVII. October, 1868.

Revue de Zoologie, No. 9, 1868.

The American Journal of Science and Arts, No. 136, 1868.

The Annals and Magazine of Natural History, No. X. 1868.

Persian MSS. Purchased.

Sirájullughát, by Sirájuddín 'Alí Khán Arzú.

'Atiyyah i Kubra, by Do.

Sharh i Zuhúrí.

Dalíl i Sáti.'

Exchange.

The Athenæum, for August and September, 1868.



8186.]

Proceedings of the Asiatic Society.

ABSTRACT STATEMENT
OF
RECEIPTS AND DISBURSEMENTS
OF THE
ASIATIC SOCIETY,
FOR
THE YEAR 1867.

STATEMENT
Abstract of the Cash Account

RECEIPTS.		1867.	1866.
ADMISSION FEES.			
Received from New Members,	Rs. 1,504 0 0	1,504 0 0	1,280 0 0
CONTRIBUTIONS.			
Received from Members,	... 8,373 13 6	8,373 13 6	8,676 0 0
JOURNAL.			
Sale proceeds of, and Subscription to the Journal of the Asiatic Society,	2,749 10 0		
Refund of Postage Stamps,	... 60 4 6		
Ditto of Packing Charges,	... 5 7 3		
Ditto of Freight,	... 5 0 0		
	<u>2,820 5 9</u>	1,327 1 0	
LIBRARY.			
Sale proceeds of Books, ...	... 417 12 0		
Refund of Freight, ...	... 19 14 0		
	<u>437 10 0</u>	610 2 9	
SECRETARY'S OFFICE.			
Refund of Postage Stamps,	... 13 12 6		
Ditto of Packing Charges,	... 2 8 0		
Savings, ...	... 1 1 3		
	<u>17 5 9</u>	22 13 0	
GENERAL ESTABLISHMENT.			
Savings, ...	... 1 4 6		
	<u>1 4 6</u>	17 1 0	
VESTED FUND.			
Received Interest on the Government Securities from the Bank of Bengal,	110 0 0	110 0 0	8,142 8 6
COIN FUND.			
Sale proceeds of Silver Coins,	... 8 8 0	8 8 0	5 0 0
MUSEUM TRANSFER ACCOUNT.			
Refund of the amount advanced,	... 111 1 0	111 1 0	
O. P. FUND.			
Refund of the Loan paid on the 31st August, ...	... 4 6 11		
Received by Transfer from Messrs. Williams and Norgate, Sale pro- ceeds of Bibliotheca Indica through them, ...	... 161 4 0	165 10 11	
SIR WILLIAM JONES'S MONUMENT.			
Received from the Government of India for repairing the Monument,	... 680 0 0	680 0 0	
	<u>680 0 0</u>		
		<u>14,229 11 5</u>	
		Carried over, Rs. 14,229 11 5	

No. 1.

of the Asiatic Society for 1867.

DISBURSEMENTS.

		1867.	1866.
JOURNAL.			
Freight, ...	Rs. 115 1 0		
Printing charges, ...	3,145 2 9		
Purchase of Postage Stamps, ...	183 6 9		
Lithographing and Engraving Charges, &c., ...	469 6 6		
Commission on Sale of Books, ...	103 13 9		
Purchase of Journal, ...	7 8 0		
Ditto of Papers for the Journal, ...	318 15 9		
Petty charges, ...	6 1 0		
	<hr/>	4,349 7 6	2,799 15 10
LIBRARY.			
Salary of the Librarian, ...	840 0 0		
Establishment, ...	90 0 0		
Book Binding, ...	311 4 0		
Commission on sale of Books, ...	61 13 3		
Purchase of Books, ...	1,848 4 9		
Ditto of Custom Receipt Stamps, ...	1 0 0		
Landing charges, ...	13 11 6		
Postage Stamps, ...	2 3 0		
Salary of Office Pankha-man, ...	24 2 6		
Petty charges, ...	14 14 6		
	<hr/>	3,207 5 6	5,250 10 9
SECRETARY'S OFFICE.			
General Establishment, ...	294 0 0		
Secretary's Office Establishment, ...	1,106 13 4		
Purchase of Postage Stamps, ...	92 9 0		
Ditto of Stationery, ...	44 7 3		
Ditto of 5 numbers of Army List, ...	25 0 0		
Ditto of a copy of Bengal Directory, ...	10 0 0		
Ditto of 2 copies of Sheet Almanac for 1867 and 1868, ...	2 0 0		
Ditto of a Blank Book, ...	7 8 0		
Printing charges, ...	31 8 0		
Insufficient Postage, ...	2 7 0		
Bearing Postage, ...	1 14 0		
Petty charges, ...	15 4 0		
	<hr/>	1,633 6 7	1,784 2 3
VESTED FUND.			
Commission to the Bank of Bengal for drawing interest on the Government Securities, ...	0 4 4		
	<hr/>	0 4 4	3,284 9 10
COIN FUND.			
Purchase of Coins, ...	328 2 0		
A Teak wood case for the new Coin Cabinet, ...	79 0 0		
Banghee expenses for returned Coins, ...	4 8 0		
Bearing Postage on a parcel of Coins, ...	3 12 0		
Petty charges, ...	2 8 6		
	<hr/>	417 14 6	508 3 3
		<hr/>	
Carried over, Rs.		9,608 6 5	

RECEIPTS.

Brought over, Rs. 14,229 11 5

MESSRS. WILLIAMS AND NORGATE.

Received by Sale proceeds of their Books,	6 2 0		
Ditto from Babu Pratápachandra Ghosha as deposit on their account,	6 0 0		
Ditto from Sayyid Karámat Alí as deposit on their account, being the price of two numbers of the Kamil,	6 0 0		
Ditto by Books supplied to the Asiatic Society,	281 10 0		
		299 12 0	4 4 0

DR. A. M. VERCHERE.

Refund of Banghy Expenses,	0 14 0		
		0 14 0	

H. BEVERLY, Esq.

Refund of Postage Stamps,	0 13 0		
		0 13 0	

P. CARNEY, Esq.

Refund of the amount advanced,	1 0 0		
		1 0 0	

A. G. WALKER, Esq.

Refund of the Insufficient Postage,	7 0 0		
Received on Deposit,	6 0 0		
		13 0 0	

DR. C. BALLANTYNE.

Received on account of the Journal,	307 0 0		
		307 0 0	

DAMODARA JETHA, Esq.

Received on Deposit,	89 0 0		
		89 0 0	

REV. H. A. JAESCHKE.

Received by Sale proceeds of a Copy of Tibetan Grammar,	1 0 0		
		1 0 0	1 0 0

H. C. SUTHERLAND, Esq.

Refund of Postage Stamps,	1 3 0		
		1 3 0	

C. J. CAMPBELL, Esq.

Refund of Postage Stamps,	0 2 0		
		0 2 0	

G. W. CLINE, Esq.

Received on Deposit,	10 0 0		
		10 0 0	

DR. J. L. STEWART.

Refund of the amount paid for sending Library Books,	0 12 0		
		0 12 0	

LT. J. BUTLER.

Received on Deposit,	7 8 0		
		7 8 0	

G. E. WARD, Esq.

Refund of Postage Stamps,	0 14 0		
		0 14 0	

BABU PRASANNACUMÁRA THÁKURA.

Refund of the amount paid on the 24th October, 1866,	25 0 0		
		25 0 0	1,648 8 6

Carried over, Rs. 14,987 9 5

DISBURSEMENTS.

		Brought over, Rs.	9,608	6	5		
BUILDING.							
Assessment, ...	...	...	480	0	0		
Ditto for Lighting, ...	...	...	96	0	0		
Police Rate, ...	...	...	72	0	0		
Repairing, ...	...	...	5	8	0		
			<hr/>			653	8 0 2,634 15 0
INDIAN MUSEUM.							
Paid Bearing Banghee for Skulls, ...	...	...	11	4	0		
Ditto ditto Bearing Postage, ...	...	...	1	8	0		
			<hr/>			12	12 0 0 6,272 11 3
MUSEUM CATALOGUE.							
Salary for preparing Catalogue, ...	...	...	706	2	3		
Coaly and Charcoal for Branding Specimens, ...	...	...	19	6	6		
Re-engraving, 2 Brands for marking Specimens, ...	...	...	4	8	0		
Purchase of Stationery for copying Catalogue, ...	...	...	21	4	0		
Binding Bird Catalogue, ...	...	...	1	12	0		
A Tin Box for keeping Catalogue, ...	...	...	1	2	0		
			<hr/>			754	2 9
ZOOLOGICAL GARDEN.							
200 English Envelopes for, ...	...	...	1	14	0		
			<hr/>			1	14 0
MISCELLANEOUS.							
Salary of the Mally, ...	...	...	57	0	0		
Printing charges, ...	...	...	20	0	0		
Meeting charges, ...	...	...	147	0	6		
Purchase of Receipt Stamps, ...	...	...	6	0	0		
Repairing and cleaning a Clock, ...	...	...	16	0	0		
Purchase of a ream of Letter Paper, ...	...	...	2	4	0		
Copying charges, ...	...	...	3	13	0		
Advertising charges, ...	...	...	5	4	0		
Purchase of Wall Shades, &c., ...	...	...	6	6	9		
Fee to the Bank of Bengal for Stamp- ing Cheques, ...	...	...	1	9	0		
Petty charges, ...	...	...	31	11	0		
			<hr/>			297	0 3 362 4 9
PROFIT AND LOSS,							
Stolen by Thákura Sing, ...	...	...	144	0	0		
			<hr/>			144	0 0
O. P. FUND.							
Paid on Loan, ...	...	...	45	13	9		
			<hr/>			45	13 9
MSSRS. WILLIAMS AND NORGATE.							
Paid by transfer to sale of Journal, ...	...	...	276	12	0		
Ditto ditto of Library, ...	...	...	10	12	0		
Ditto ditto of Bibliotheca Indica, (O. P. F.) ...	...	...	161	4	0		
			<hr/>			448	12 0 8 0 0
			<hr/>				
		Carried over, Rs.	11,966	5	2		

RECEIPTS.

Brought over, Rs. 14,987 9 5

BABU PÚRNACHANDRA BASÁKA.

Refund in full of the Amount paid him as advance, ...	95 0 0	95 0 0	
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BAPTIST MISSION PRESS.

Received from the Hon'ble G. Campbell for Printing Charges, ...	52 8 0	52 8 0	
--	--------	--------	--

MATHURAMOHANA KARA.

Refund of the amount paid for prepar- ing Cabinet, ...	45 0 0	45 0 0	200 0 0
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M. S. HOWELL, ESQ.

Refund of Postage Stamps, ...	0 2 0	0 2 0	
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M. H. ORMSBY, ESQ.

Refund of the amount paid on the 30th November, 1867, ..	5 4 0	5 4 0	
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 Carried over, Rs. 15,185 7 5

DISBURSEMENTS.

Brought over, Rs, 11,966 5 2

DR. C. BALLANTYNE.					
Paid for a Copy of Productive Resources					
of India,	7	0	0		
Ditto by transfer to the Journal and					
Library Account,	300	0	0		
				307	0 0
DAMODARA JETHA, Esq.					
Paid on his deposit,	89	0	0		
				89	0 0
REV. H. A. JAESCHKE.					
Paid Insufficient Postage on a letter,	0	8	0		
Ditto Postage for sending letter, ...	0	2	0		
				0	10 0
C. J. CAMPBELL, Esq.					
Paid Postage for sending a copy of a					
Chart,	0	2	0		
				0	2 0
DR. J. L. STEWART.					
Paid Postage for sending Library Books,	0	12	0		
				0	12 0
LT. J. BUTLER.					
Paid Freight for sending Library					
Books,	1	8	0		
Ditto for 2 Deal wood Insect Cases,...	7	8	0		
Ditto for Freight and Packing charges					
for ditto,	2	15	0		
				11	15 0
G. E. WARD, Esq.					
Paid Banghy Expenses for sending					
Library Books,	2	0	9		
				2	0 0
					0 14 0
BABU PRASANNACUMÁRA THÁKURA.					
Paid Freight for sending Books to					
Messrs. Williams and Norgate, ...	25	0	0		
				25	0 0
BAPTIST MISSION PRESS.					
Paid for printing 300 copies of Words					
and Phrases for the Hon'ble G.					
Campbell,	5	0	0		
				5	0 0
A. G. WALKER, Esq.					
Paid Messrs. R. C. Lepage and Co. ...	6	0	0		
				6	0 0
M. S. HOWELL, Esq.					
Paid Postage for sending a copy of a Chart,	0	2	0		
				0	2 0
M. H. ORMSBY, Esq.					
Paid for a Deal wood Insect Case, ...	3	12	0		
Ditto for an Insect Net,	1	8	0		
				5	4 0
GOVERNMENT NORTH WESTERN					
PROVINCES.					
Paid Freight for sending Journal and					
Proceeding,	10	14	0		
				10	14 0
					14 8 0
Carried over, Rs, 12,430 0 2					

Proceedings of the Asiatic Society.

RECEIPTS.

Brought over, Rs. 15,185 7 5

GOVERNMENT NORTH WESTERN PROVINCES.

Refund of postage for sending Journal and Proceedings for 1866, ...	14 8 0		14 8 0	16 5 0
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BALANCE OF 1866.

In the Bank of Bengal, ...	830 2 0		893 5 2
Cash in hand, ...	63 3 2		

Rs. 16,093 4 7

Examined,
Sd. PRATÁPACHANDRA GHOSHA,
Asst. Secy.
Asiatic Society, Bengal.

Errors and Omissions Excepted,
Sd. BUDDINATH BYSACK,
Cash Keeper,
Asiatic Society, Bengal.

Examined and found correct,

Sd. J. ANDERSON PAUL, }	} <i>Auditors.</i>
„ H. BLOCHMANN, }	

DISBURSEMENTS.

		Brought over, Rs.	12,567	0	2
BALANCE.					
In the Bank of Bengal, ...	...	3,487	12	1	
Cash in hand, ...	...	38	8	4	
			<u>3,526</u>	<u>4</u>	<u>5</u>
					<u>Rs. 16,093 4 7</u>

Examined,
Sd. PRATÁPACHANDRA GHOSHA,
Asst. Secy.
Asiatic Society, Bengal.

Errors and Omissions Excepted,
Sd. BUDDINATH BYSACK,
Cash Keeper,
Asiatic Society, Bengal.

Examined and found correct.

Sd. J. ANDERSON PAUL, }
„ H. BLOCHMANN, } *Auditors.*

STATEMENT
Abstract of the Cash Account

RECEIPTS.	1867.	1866.
ORIENTAL PUBLICATIONS.		
Received by Sale of Bibliotheca, Rs.	2,346 12 0	
Ditto by Subscription to ditto, ...	112 6 0	
Ditto by Sale of White Yajurveda, ...	38 0 0	
Refund of Postage Stamps, ...	58 10 9	
Ditto of Packing Charges, ...	3 0 0	
	2,558 12 9	2,548 12 0
GOVERNMENT ALLOWANCE.		
Received from the General Treasury, at 500 Rs. per month, ...	6,000 0 0	
	6,000 0 0	6,000 0 0
VESTED FUND.		
Received Interest on the Government Securities from the Bank of Bengal, ...	442 8 0	
	442 8 0	442 8 0
ASIATIC SOCIETY OF BENGAL.		
Received on Loan, ...	45 13 9	
	45 13 9	
VAIMAN ABAJI MODOCK, Esq.		
Received on Deposit, ...	120 0 0	
	120 0 0	
V. B. SOOBIAH, Esq.		
Received on Deposit, ...	1 9 6	
	1 9 6	
HIS HIGHNESS THE FIRST PRINCE OF TRAVANCORE.		
Received on Deposit, ...	1 8 3	
	1 8 3	
A. NARAIN ROW, Esq.		
Received on account of Bibliotheca Indica, ...	25 7 0	
	25 7 0	
K. ROGHUNATH ROW, Esq.		
Received on Deposit, ...	49 8 0	
	49 8 0	22 4 3
DAMODARA JETHA, Esq.		
Received on account of Bibliotheca Indica, ...	511 0 0	
	511 0 0	
DAMAROO BULLABH, Esq.		
Received on Deposit, ...	4 14 0	
	4 14 0	
DR. C. BALLANTYNE.		
Refund of Packing Charges, ...	2 14 0	
	2 14 0	
BABU BRAJABHUSHANA DÁSA.		
Received from him on account of Bibliotheca Indica, ...	50 0 0	
	50 0 0	
	9,813 15 3	
Brought over, Rs.		9,813 15 3

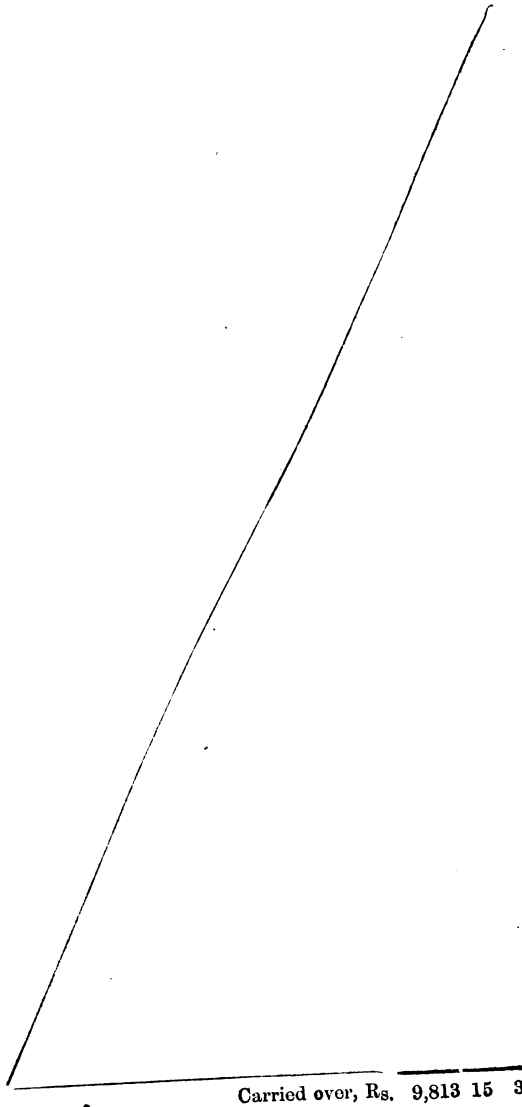
No. 2.

Oriental Fund for 1867.

DISBURSEMENTS.			1867.	1866.
ORIENTAL PUBLICATIONS.				
Paid Commission on the Sale of Books,	330	12 9		
Freight, ...	166	2 0		
Packing Charges, ...	27	8 0		
Purchase of Postage Stamps, ...	114	9 6		
Printing Charges, ...	31	0 0		
Petty Charges, ...	4	2 0		
		<u> </u>	674 2 3	456 13 3
VESTED FUND.				
Paid Commission to the Bank of Bengal for drawing Interest on the Government Securities, ...	1	1 8		
		<u> </u>	1 1 8	1 1 8
CUSTODY OF ORIENTAL WORKS.				
Paid Salary of the Librarian, ...	360	0 0		
Establishment, ...	282	10 8		
Book Binding, ...	47	0 0		
Fee paid to the Bank of Bengal for Stamping Charges, ...	1	9 0		
Purchase of Stationery, ...	54	8 0		
Ditto of Receipt Stamps, ...	3	0 0		
Ditto of 20 Stone almirah bottoms, ...	10	2 0		
Ditto of Dusters for Cleaning Books, ...	6	0 0		
Ditto of 28 Almirah Locks for the Oriental Library Cases, ...	63	0 0		
Salary for preparing Stock of the Bibliotheca Indica, ...	105	6 3		
Petty Charges, ...	50	1 6		
		<u> </u>	983 5 5	869 15 9
LIBRARY.				
Purchase of Books, ...			136 12 0	560 2 9
COPYING MSS.				
Copying Charges, ...	33	12 0		
		<u> </u>	33 12 0	
ASIATIC SOCIETY OF BENGAL.				
Refunded of the Loan received on the 31st August, 1867, ...	4	6 11		
Paid by Transfer to Sale proceeds of Bibliotheca Indica through Messrs. Williams and Norgate, ...	161	4 0		
		<u> </u>	165 10 11	
VAIMAN ABAJI MODOCK, Esq.				
Paid by Transfer to the Bibliotheca Indica, ...	120	0 0		
		<u> </u>	120 0 0	
V. B. SOOBIAH, Esq.				
Paid by Transfer to the Bibliotheca Indica, ...	1	9 6		
		<u> </u>	1 9 6	
			<u> </u>	
			Carried over, Rs. 2,116 5 9	

RECEIPTS.

Brought over Rs. 9,813 15 3



Carried over, Rs. 9,813 15 3

DISBURSEMENTS.

		Brought over, Rs.		2,116	5	9	
A. NARAIN ROW, Esq.							
Paid by Transfer to the Bibliotheca							
Indica, ... ..	...	...	20	12	0		
			<hr/>			20	12 0
DAMODARA JETHA, Esq.							
Paid by Transfer to the Bibliotheca							
Indica, ... ..	...	...	805	10	0		
Ditto Frieght and Packing Charges							
&c., for sending ditto,...	...	...	24	4	9		
			<hr/>			329	14 9
DR. C. BALLANTYNE.							
Paid Packing Charges for sending							
Bibliotheca Indica, ...	...	...	2	14	0		
			<hr/>			2	14 0
BABU BRAJABHUSHANA DÁSA.							
Paid by Transfer to the Bibliotheca							
Indica, ... ..	...	...	42	8	6		
			<hr/>			42	8 6
DAMAROO BULLABH, Esq.							
Paid by Transfer to the Bibliotheca							
Indica, ... ..	...	...	0	4	0		
			<hr/>			0	4 0
BABU KALICUMARA MITRA.							
Paid to Messrs. D'Rozario and Co., ...							
			1	9	0		
			<hr/>			1	9 0
R. T. H. GRIFFITH, Esq.							
Paid by Transfer to the Bibliotheca							
Indica, ... ..	...	...	74	6	0		
			<hr/>			74	6 0
TAITIRIYA ARANYAKA.							
Editing and Printing Charges, ...							
			368	0	0		
			<hr/>			368	0 0
TAITIRIYA BRAHMANA.							
Editing and Printing Charges, ...							
			368	0	0		
			<hr/>			368	0 0
ALAMGIR NAMAH.							
Editing and Printing Charges, ...							
			584	0	0		
			<hr/>			584	0 0
SANKHYA SARA.							
Printing Charges, ...							
			251	10	0		
			<hr/>			251	10 0
SAHITYA DURPANA.							
Printing Charges, ...							
			779	8	0		
			<hr/>			779	8 0
ASWALAYANA GRIHYA SUTRAS.							
Editing Charges, ...							
			100	0	0		
			<hr/>			100	0 0
BADSHAH NAMAH.							
Editing and Printing Charges, ...							
			3,796	0	0		
			<hr/>			3,796	0 0
MIMANSA DARSAANA.							
Editing and Printing Charges, ...							
			333	0	0		
			<hr/>			333	0 0
SANKARA DIGVIJIYA.							
Printing Charges, ...							
			80	0	0		
			<hr/>			80	0 0
			<hr/>				
		Carried over, Rs.		9,248	12	0	

RECEIPTS.

				Brought over, Rs. 9,813 15 3
BABU SYAMACHARANA BANERJI.				
Received on Deposit, ...	...	0 3 0		
		<u> </u>		0 3 0
BALANCE OF 1866.				
In the Bank of Bengal, ...	...	171 4 10		
Cash in hand, ...	...	2 4 5		
		<u> </u>		173 9 3
				<u> </u>
				Total, Rs. 9,987 11 6

Examined,
Sd. PRATÁPACHANDRA GHOSHA,
Asst. Secy.
Asiatic Society, Bengal.

Errors and Omissions Excepted,
Sd. BUDDINATH BYSACK,
Cash Keeper,
Asiatic Society, Bengal.

Examined and found correct,
Sd. J. ANDERSON PAUL, } *Auditors.*
,, H. BLOCHMANN, }

DISBURSEMENTS.

		Brought over, Rs. 9,248 12 0			
AIN I AKBARI.					
Paid Copying Charges, ...	...	71	0	0	
Ditto Salary to the Moonshee, ...	...	330	0	0	
Ditto Freight for sending Ain i Akbari, ...	...	25	0	0	
		-----		426	0 0 249 4 0
BALANCE.					
In the Bank of Bengal, ...	...	312	15	6	
Cash in hand, ...	...	0	0	0	
		-----		312	15 6
				-----	Rs. 9,987 11 6

Examined,
Sd. PRATÁPACHANDRA GHOSHA,
Asst. Secy.
Asiatic Society, Bengal.

Errors and Omissions Excepted,
Sd. BUDDINATH BYSACK,
Cash Keeper,
Asiatic Society, Benga

Examined and found Correct,
(Sd.) J. ANDERSON PAUL, }
„ H. BLOCHMANN, } Auditors.

B.S. Col
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