

PROCEEDINGS  
OF THE  
ASIATIC SOCIETY OF BENGAL,

FOR SEPTEMBER, 1860.

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The Monthly General Meeting of the Asiatic Society was held on the 5th instant—

Major H. L. Thuillier, Vice President, in the chair.

The Proceedings of the last Meeting were read and confirmed.

Presentations were received—

1. From Dr. C. Holst, Secretary to the Royal University of Christiania, the latest publications of the University.

2. From the British Association for the Advancement of Science, a report of the 29th Meeting of the Association held at Aberdeen, in September, 1859.

3. From the Secretary to the Government of Bengal, the latest Report of the Geological Survey of India.

4. From the Acting Principal of the Grant Medical College, Bombay, a copy of the report for the College Session 1859-60.

5. From Baboo Runglal Banerjea, a copy of his work on the Importance of Physical Education, being the first work of the kind in the Bengali language.

6. From Mr. J. C. Evans, a few coins found by himself in Egypt; among these are some genuine Ptolemies and one or two forgeries of the Ptolemaic period.

7. From Baboo Rajendra Mullick, a pair of very fine adult Casowaries, male and female, that have been prepared as skeletons.

8. From Captain Haughton, Port Blair, Andamans, through the President, a marine annelide, taken off the coast of Sumatra.

9. From G. J. Evans, Esq., a small lizard and two snakes from Egypt.



10. From Mr. W. Theobald a few fossils from the miocene beds of Bordeaux.

11. From Mr. J. H. Reily, Commissioner of Soonderbunds, a slab-stone containing an Arabic inscription found in a Musjid, 8 miles from Mirzagunge. A sketch of the Musjid drawn by Mr. Gomes accompanied the following letter, addressed to the President by Mr. Reily.

“I send with pleasure the deer and the stone. The latter was found on the north bank of the Slab River at an *ábád* called Byang in a *Mut* or Musjid, which is in tolerable preservation. The land round the *Mut* is now clear, but the temple was found in the jungle when it was cut down with the stone in it. There is no story or tradition attached to the *Mut*—the generation that built it seems to have passed away, and the place to have run into jungle and remained covered with forest jungle for a great number of years. The principal room in the *Mut* has an arched roof in good preservation inside a regular dome. The mortar of the building is not *soorkie* or pounded bricks but sand and lime, and very adhesive.

There is a good tank near the *Mut*; the inscription on the stone appears to me a verse from the Koran.”

Again on the 10th July last he wrote:—

“I send a sketch of the Musjid drawn by Mr. Gomes, who fortunately had a drawing of it in his Field Book. The accompanying extract from Lieutenant Hodge’s Map will shew that the site of the Musjid is about eight miles from Mirzagunge, the nearest decennially settled village. The lands about the Musjid are at present under cultivation, but there are still a few of the old forest trees standing, and Mr. Shawe’s Resumption Decree, dated 1842, states that the lands were at that time under dense Soonderbun jungle. The jungle about these parts is tree, not *Null* jungle. There are two slabs of sand-stone evidently used as steps, but bearing no inscription. The interior of the Musjid is ornamented with figures cut in brick, and the dome is very substantially built, and is about 30 feet high. There is a tank not far from the building, and I was told it was found when the jungle was cleared. Of course there are a number of stories connected with this Musjid, one is that a holy Fakeer lived in it, and tigers used to sweep the floor of the building clean with their tails every evening.



Captain W. N. Lees then read the following account of the inscription.

“ I have carefully examined the inscription on this stone. The greater portion is sufficiently clearly written to be legible ; but in consequence of the engraver not having calculated on the length of his inscription, the latter portion has been so crowded that, with the aid of two of the Mawlavis of the Mohammadan College, I have not been able to read it. It is as follows :—

قال النبي صلى الله عليه وسلم من بني مسجد بني الله له  
في الجنة سبعين قصرا \* بني هذا المسجد في عهد السلطان  
الاعظم ركن الدنيا والدين ابي المظفر باربك شاه بن محمود شاه  
السلطان بن شاه خان معظم اجيال خان بن --- لدين --- ثمانماية وسبعين \*

*Trans.* The Prophet of God (on whom be peace, &c.,) said—  
“ Whoso buildeth a *Masjid*, God shall build for him in Paradise seventy palaces.” This *Masjid* was built in the reign of the *Soltan* the Mighty, the Pillar of the Church and State, Aboo al-Mozaffar Barbak Shah, son of the *Soltan* Mahmood Shah,—by Khan Moazzam Ojyal (?) Khan son of \* \* \* \* \* *Anno Hajri*, 870.

I do not think the builder, or his Engraver, has given the Hadith quoted correctly. I find none precisely similar in *Moslim* or *Bokhari*. Both, however, give the following from *Othman the Khalifah*.

قال رسول الله صلى الله عليه وسلم من بني مسجد يبتغى به  
وجه الله تعالى بني الله تعالى له بيتا في الجنة \* وفي اخرى بني  
الله تعالى له مثله في الجنة \*

“ Whoso buildeth a *Masjid*, to please, or for the sake of God, God shall build for him a house in Paradise”—or as others give it “ a house like unto it.” *Tirmidzi* again adds after the word *Masjid* the words “ great or small” او كبيرا and in this same *Hadith* given, *apud* Nasai, on the authority of 'Amr and Anbasah for the words “ for the sake of God” I find “ in which God shall be praised ليذكر الله تعالى فيه. The Prophet, it would appear, then, promised the builder of a Mosque one house, not seventy houses in Paradise.

According to *Farishtah*, Barbak Shah ascended the throne A. H. 862, and died A. H. 879. His father was commonly called Nâçir Shah, perhaps to distinguish him from his predecessor the slave and



usurper of the same name, but his full name from the inscription on this stone, it will be seen, was Náçir-al-Deen Mahmood Shah, or—Barbak was not his son at all. It is to be noticed that Farishtah, who is the only authority I have on the kings of Bengal, in entering on the subject says “It should not remain concealed that the Histories in use, are for the most part, silent regarding the affairs of the Kings of the Eastern and Western [Provinces]. I have therefore made use only of the Tarikh-i Alfī, compiled by my teacher Mawlana Ahmad-i Tanáwi; and for this reason, I hope that should my readers find any discrepancies in my account of these matters they will not blame me.”

The following gentlemen, duly proposed at the last Meeting, were balloted for and elected ordinary Members.

W. Forbes Goss, Esq., M. D., and

Major T. James, Bengal Army.

The following gentlemen were named for ballot at the next Meeting.

J. E. L. Brandreth, Esq., Commissioner of Delhi, proposed by Colonel J. Abbott, and seconded by Mr. Atkinson.

Moonshee Ameer Ally Khan, Bahadur, proposed by Mr. Atkinson, and seconded by Baboo Rajendralal Mittra.

Messrs. E. B. Harris, Civil Surgeon, and John Christian, (for re-election) proposed by Dr. T. Duka, and seconded by the President.

C. G. Wray, Esq., C. E., proposed by Major Thuillier and seconded by Major Sherwill.

The Council reported that in consideration of the long and important services of the Zoological curator and the greatly enhanced expense of living in Calcutta, they had resolved, subject to the confirmation of the Society, to give Mr. Blyth an additional house allowance of 40 Rs. per mensem, and to pay his whole allowances free of Income Tax.

*Confirmed.*

The following report of the Philological Committee was also submitted by the Council for the approval of the Society.

The Council beg to recommend the publication in the *Bibliotheca Indica*, of the *Vaisheshika Sutras*, with the valuable Commentary by Sankara Misra. Pundit Joy Narayan Tarkapanchanana, the pro-



fessor of Philosophy in the Calcutta Sanskrit College, has offered to edit the work, with a short additional Commentary of his own, which is not to exceed one fasciculus. The whole work will fill about four fasciculi. A similar offer having been previously received from another Pundit in the same Institution, Pundit Nandakumar Tarkaratna, the Committee recommended that the two Pundits should unite in editing the work. This they have agreed to do, and it will therefore appear under their joint editorship.

The report was adopted.

Mr. Cowell announced the publication in the *Bibliotheca Indica* of the first fasciculus of Zíá Barní's Táríkhi Ferozsháhi. A short account of the work was also given, as it appeared that the details communicated at a former Meeting of the Society were incorrect.

Zíá Barní compiled his history in A. H. 758 (A. D. 1357,) in continuation of the *Tabakáti Násirí* of Minhájuddin Juzjáni. It gives an account of the eight reigns during the 95 years between Bulbun's accession in A. H. 664, and the sixth year of Feroz Sháh (A. H. 758), viz. 1. Bulbun, 2. Kaikobád, 3. Jaláluddin Khilji, 4. Aláuddin Khilji, 5. Kutbuddin Khilji, 6. Ghaiásuddin Toghlak, 7. Muhammad Toghlak, 8. Feroz Sháh, to whom the work is dedicated, whence its name. For the later reigns, the author speaks as a contemporary witness, and as such he is often quoted by Ferishta in his history of the Toghlak dynasty. The work is edited from the only three manuscripts known to be extant, by Sayyid Ahmud Khan, under the supervision of Captain Lees.

The publication of this work forms an era in Oriental literature. Hitherto for the Pre-Moghul Muhammadan history of India, we have been dependent on Ferishta who flourished under the Emperor Akbar; Elphinstone's history, for instance, is entirely based on that authority. Zia Barni is the first contemporary author who has been printed to illustrate the five centuries between Mahmud of Ghazni and Baber. It is hoped that the Tarikhi Ferozsháhi will be followed by the Tabakáti Násiri,—as the two together will throw a flood of light on a confessedly obscure period of Indian history.

Communications received—

1. From Major General R. I. H. Birch, K. C. B. Secretary to the Government of India, Military Department, a copy of a report



drawn up by Officiating Inspector General of Hospitals J. McClelland, on the climate and soils of the three Presidencies as affecting the sanitary condition of European troops in India.

2. From Lord H. Ulick Browne, Secretary to the Government of India, Foreign Department, a copy of the Meteorological observations made by Assistant Surgeon Welsh at Muscat during the month of June last.

3. From Baboo Radhanath Sickdar an abstract of meteorological observations taken at the Surveyor General's office for the month of January last.

4. From Mr. H. Cope, Umritsur, the following accounts of the Aerolite which fell at Dhurmsala on Saturday the 14th July last, accompanied by a specimen.

*Umritsur, 28th July, 1860.*

The Secretary to the Asiatic Society, Calcutta.

SIR,—About two P. M. on Saturday the 14th of July, a tremendous mid-air explosion was heard at Dhurmsala, Kangra, Dalhousie, Madhoopoor and Goordaspoor. The vapour or smoke following the explosion was distinctly *seen* at Dalhousie about 30 miles, and at Kangra 10 miles from Dhurmsala, where the explosion, said to have resembled the discharge of an 84 pounder, was followed by the descent in various parts of the station, some two miles apart, of large masses of aerolite. One piece that fell near the Dhurmsala Police Battalion Lines, was ascertained to have been when entire, one foot in diameter, but it was broken into several fragments. Mr. R. Saunders, C. S., Deputy Commissioner of Kangra, has forwarded to me a portion, with a desire that I should do my best to have it analyzed. It strikes me I cannot do better than forward it to the Asiatic Society. A small part can be taken off for analysis, and the remainder be preserved in your Museum.

I remain, &c.,

HENRY COPE.

*Umritsur, 10th September, 1860.*

MY DEAR SIR,

I have the pleasure to send you an extract from a letter received from Kangra, which is about 11 miles from Dhurmsala and about 1000 feet lower than the spot on which the main mass of the aerolite fell.



"I did not see the explosion in connexion with the falling of the aerolite. I was at the time, reading with my Moonshi in my study and heard an extraordinary noise like that of thunder at a short distance. There could be no doubt that it was near, and I immediately supposed it was something else than thunder. The steady rattling noise which appeared to be travelling in a horizontal direction gradually increased to one tremendous majestic clap; after which the former steady rattling noise continued perhaps for a minute, till at last it died off very gradually. The noise appeared to be so low that I thought a volcano or something like it would immediately appear somewhere in our valley. A servant of mine happened just to return from the Post Office, and told me that above the hill on which our house is situate he had seen a fire travelling towards Dhurmsala, till at last it disappeared. [This would give it a direction from South to North. H. C.] The sky was cloudy, yet there were no such clouds as would justify the opinion that lightning and thunder had issued from them."

I hope to collect further information, which I will duly communicate.

Yours sincerely,

HENRY COPE.

5. From Mr. R. F. Saunders, B. C. S. Officiating Deputy Commissioner, Dhurmsala, Punjab, in reply to a letter of inquiry addressed to him by the Secretary, the following note accompanying an account of the same meteorite.

*Dhurmsala, August 21, 1860.*

MY DEAR SIR,—From the newspapers you will have seen that an aerolite fell at this station on the 14th ultimo.

I possessed myself of as many fragments as I possibly could for scientific purposes.

One of these I now have the honor to send, together with an account of its fall, in the hope that the subject may not be without interest.

Any questions you may send me regarding this phenomenon I shall be delighted to answer.



If you can furnish me with a brief account of its analysis I shall be much obliged.

Permit me to subscribe myself,

Very truly yours,

REGINALD F. SAUNDERS.

His account of the meteorite was as follows.

*Extract from letter No. 927 from R. F. Saunders, Esq., Deputy Commissioner, Kangra, to R. H. Davies, Esq., Secretary to Punjab Government, dated Dhurmsala, 28th July, 1860.*

In the afternoon between the hours of 2 and 2-30 P. M., the Station of Dhurmsala was startled by a terrific bursting noise, which was supposed at first to proceed from a succession of loud blastings or from the explosion of a mine in the upper part of the Station, others, imagining it to be an earthquake or very large landslip, rushed from their houses in the firm belief that they must fall upon them.

It soon became apparent that this was not the case. The first report, which was far louder in its discharge than any volley of artillery, was quickly followed by another and another to the number of 14 or 16; most of the latter reports grew gradually less and less loud. These were probably but the reverberations of the former, not among the hills but amongst the clouds, just as is the case with thunder. It was difficult to say which were the reports, and which the echoes. There could certainly not have been fewer than 4 or 5 actual reports. During the time that the sound lasted, the ground trembled and shook convulsively.

From the different accounts of three eye-witnesses, there appears to have been observed a flame of fire, described as about two feet in depth, and 9 feet in length, darting in an oblique direction above the station, after the first explosion had taken place. The Meteoric flash was said to be from North N. West to South S. East. Fragments of the aerolite fell in the same direction at the following places.

In the Ravine below the Dhurmsala Kotwallee at the village Sadeir.

On the Barrack Hill close to the Convalescent Dépôt.

At River Guj 4 miles from the Kotwallee.



On the parade ground of the Sheredil Police Battalion, between the graveyard and the Native Distillery.\*

In the village of Keyraree on the Hill to the right of the station looking towards the plains and at the Bowarna Thanah.

Specimens from each of the above localities have been brought into the station.

It is said that the Meteoric stones fell likewise at the following places, but no specimens have been received from them. At Kangra near the slate quarries, at Madhopore and at Bissowlee on the Ravee, and in parts of Chumlea and Rhilloo.

I am making further enquiries with regard to these places.

The stones as they fell, buried themselves from a foot to a foot and a half in the ground, sending up a cloud of dust in all directions.

Most providentially no loss of life or property has occurred.

Some coolies, passing by where one fell, ran to the spot to pick up the pieces; before they had held them in their hands, half a minute, they had to drop them owing to the intensity of the cold which benumbed their fingers.

This, considering the fact that they were, apparently, but a moment before in a state of ignition, is very remarkable, each stone that fell bore unmistakeable marks of partial fusion.

The morning and afternoon, preceding the occurrence, had been particularly dull and cloudy. Temperature was close, sultry, and oppressive. The thermometer was above 80 degrees of Fahrenheit, and no rain had fallen. I had no barometer by me at the time, I am therefore unable to state what was the precise pressure of the atmosphere. The clouds, which were of the form technically called cumulus and cirrus, were hanging low at the time and the atmosphere heavily charged with electricity.

Such are simply the facts of the case as they occurred.

There are of course all sorts of conjectures as to the probable cause of the occurrence, some state the stones to be of volcanic origin, others that they were hurled from the heights above the station or projected from the moon, but I am inclined to regard them as real *bonâ fide* meteorolites. Their weight seems to indicate that they are semi-

\* It must be noticed that Keyraree, the Barrack Hill, the Kotwallee, the Kudd, the Graveyard and Bowarna are in one direct line, from N. N. W. to S. S. E.



metallic substances composed probably of meteoric iron alloyed with nickel and mixed with silica and magnesia or some other earthy\* substance. They are nearly double the weight of a piece of ordinary stone of similar dimensions.

I have sent specimens of the aerolite to the Museums at Lahore and Umritsur, and to a Scientific Institution in America.† I am about also to send others to the Academy of Sciences in France, to the Asiatic Society in Calcutta, and to Mons. H. Schlagintweit at Berlin in Prussia, for examination and report.

One fact, if true, is curious, viz., that the report preceded the flash instead of following it; this I cannot at all account for.

Another very singular phenomenon was witnessed at Dhurm-sala on the evening of the same day, that the aerolite fell; this appears to have been a succession of igneous meteors such as fire balls, or falling or shooting stars. This singular sight did not attract the attention of most people. I quote the account from the writer who describes it, *verbatim*.

“I think it was on the evening of the same day that the meteor fell that I observed lights in the air. They commenced to appear about 7 P. M., and lasted for about three hours till 10; they appeared for about one minute, some for longer, then went out again, other lights appearing in their places; sometimes three or four lights appeared in the same place, together, and one or two moved off, the others remaining stationary, they looked like fire-balloons, but appeared in places where it was impossible for there to have been any houses or any roads, where people could have been. Some were high up in the air moving like fire-balloons, but the greater part of them were in the distance, in the direction of the lower hills, in front of my house, others closer to our house, and between Sir A. Lawrence’s and the Barracks. I am sure from some which I observed closely that they were neither fire-balloons, lanterns, nor bonfires or any other thing of that sort, but *bonâ fide* lights in the heavens. Though I made enquiries amongst the natives the next day, I have never been able to find out what they were or the cause of their appearance.”

\* Probably chrome and cobalt too I think, R. S.

† The Smithsonian; also to the Museums of Munich and Vienna; to Turin, Sardinia, The British Museum, London, and to one or two other localities.



Verily this has been an extraordinary season in more ways than one.

In different newspapers I have read accounts of other very extraordinary phenomena, all occurring within the last few months, for instance, an aerial meteor or water spout in the neighbourhood of Bhurtpore where an aerolite is said also to have fallen, a luminous meteor or something which, from the newspaper account, reads like an Aurora Borealis at Delhi, this was on the night before the meteorolite, a shower of live fish at Benares, unaccompanied by rain, a similar shower accompanied by rain, fell at Agra, a shower of blood at Furruckabad and likewise at Meerut previously, also a dark spot observable on the disc of the sun.

Besides the recent shock of an earthquake slightly felt here, there was an unnatural yellow fog or darkness of some duration followed by a violent Wind storm which lasted from 3 P. M. to 5 P. M. one afternoon early in the present month. These were all more or less strange phenomena. After the fall the largest piece found was said to weigh about 4 maunds.

6. The following extract from a letter from Dhurmsala on the same subject had been also received.

“What a terrific meteor we had yesterday! It burst over Dhurmsala. First there was a loud explosion, and then the stone broke into fragments; one falling near the Barracks and sinking 6 feet into the ground, another below the Kotwallee on the Noorpore Road, and a third in the lines. Two men came running up with some bits in their hand, and gave me one. It is a light grey colour, and hard as iron. The stone when found was cold as ice. The noise was fearful and unearthly, followed by long reverberations, the ground trembling as well as the air. The heat was fearful all day. Ther. 89°. Major —— heard the noise when sitting inside his tent at Kangra, and he thought one of the towers had fallen. The guddees were much frightened and carried off every bit of the stone to do pooja to it. Capt. —— saw it whirling along in the air and so did the Bisaladar who described it as like a pine tree, which I remember was the illustration used by Pliny, when describing the eruption of Vesuvius 1800 years ago, when Pompeii was destroyed. Other fragments of stone fell in other parts of the district, and beyond it at Madoopore. The piece of stone to



be sent, (dawk banghy) was one inside bit, the outside pieces bearing marks of combustion. Before the 14th the weather for several days was excessively close and hot at Dhurmsala and all over the country."

7. The Secretary also read the following extract of a letter from Mr. Oldham, containing a communication from Dr. Haidinger of Vienna on the subject of the meteorites lately sent to the Imperial Museum, Vienna, by the Society.

*Naini Tal, August 27th, 1860.*

MY DEAR ATKINSON,—I have had notes from Dr. Haidinger, Vienna, regarding the meteorites. I suppose from what he says that you have had a letter of thanks, but in case it should have miscarried, I write to tell you the box arrived safely, on 22nd May, and that they are greatly pleased and gratified with this addition to their valuable series of meteorites. Dr. Haidinger's first note stated that several of the specimens had been placed in the lapidary's hands and were then being polished. And now in his second note, just received, dated 30th June, he gives me the result of some of their analyses. Many public duties connected with proposed changes in the organization of some of the scientific bodies of Vienna, with the object of economy, had occupied Dr. Haidinger's time and energies more than he wished, and he regrets in consequence the little progress he has made in the description of these interesting specimens. Of one however he has laid an account before the Imperial Academy of Sciences (Vienna) on the 8th of June. In this he gave a brief account of the whole six meteorites sent to Vienna. The specific gravities of these are:—

Allahabad, .....	3.526
Shalka, .....	3.412
Segowlee, .....	3.425
Assam, .....	3.792
Pegu, .....	3.737

(The Pegu specimen was sent by me, not by Asiatic Society.) These do not differ materially from each other, and yet the specimens differ very materially so as to give an almost complete series of meteoric productions, perhaps the class of the Cape or Rokkeveld meteorites excepted.

The Shalka meteorite appeared the most rare and curious. It was



carefully analysed by Herr Charles Von Hauer, Chemist to the Imperial Geological Institute, who found the following contents ;

Silica, .....	57.66
Alumina, .....	a trace.
Protox. of Iron, .....	20.65
Lime, .....	1.53
Magnesia, .....	19.00
	<hr/>
	98.84

In the analysis of Mr. Piddington of the same meteorite, the magnesia had escaped him and remained with the iron, which has been now prevented owing to the later improvements in Chemical Analysis. Von Hauer found the oxygen of the bases to the oxygen of the acids in the ratio of 1 : 2.42 or between bisilicates and trisilicates. Dr. Haidinger says : "Stromeyer already had found a somewhat analagous ratio in an olivine-like body inclosed in a meteoric iron from Saxony. Professor Shepard had given the name of Chladoite to a real trisilicate contained in the Bishopsville meteorites. This certainly new species in the Shalka meteorite, I thought it my duty to name Piddingtonite, in commemoration of that really indefatigable labourer in Natural Sciences to whom we owe the rescue of that most remarkable meteorite of Shalka, and in commemoration too, of the kindness with which you acceded to our proposals of exchange."

Dr. Haidinger adds that he was engaged in the further investigation of the specimens sent and he hoped to forward a series to the Society from their collections.

When the proceedings of the Academy of Vienna for June arrive, I would suggest that a translation of the valuable account given by Dr. Haidinger of this meteorite should be published in the Journal. I have only given a few of the heads of the notice.

Dr. Haidinger sends two copies of their more recent catalogues of meteorites, and begs me to hand you one for Asiatic Society.

I inclose it, you will see that all the Society sent have been embodied in this. The large mass of iron from the Kurruckpur Hills was considered as by ourselves doubtfully meteoric, but we shall soon have the result of the careful analysis.



It may be interesting to the Society to give them a few results at their next meeting, so I send them to you at once, and the specific gravities could be with advantage attached to the specimens in your collection.

I hope we shall be able to procure some specimen of the great mass said to have fallen at Dhurmsala lately.

In the absence of Mr. Obbard his paper on the translation of waves of water with relation to the great flood of the Indus in 1858, was read by the Secretary.

Archdeacon Pratt made some valuable remarks which have been printed at length in the Journal.

Mr. Temple made some interesting observations on the character of the Indus at Attock and the effects of the flood as pointed out to him by Captain Henderson on the spot shortly after the event.

Some discussion ensued on the wave theory as applicable to the phenomena of the flood, in which Sir Bartle Frere, Mr. W. T. Blandford and the Secretary joined.

On the motion of the Chairman the thanks of the meeting were voted to Mr. Obbard and Archdeacon Pratt for their valuable communications.

Major W. S. Sherwill read an interesting paper upon some remarkable Waterspouts, that had been observed by him lately in and near Calcutta; he stated that it was his intention merely to put on record the fact of these curious bodies having been seen, together with the dates of their appearance, times of duration, size and direction of their movements, in the hope that the notes might assist any future enquiries into the nature of the laws regulating these phenomena; as up to the present moment, as Major Sherwill observed, no satisfactory theory has been advanced, that serves to connect these phenomena with the general law of Physics.

The immediate cause of the paper read was the appearance upon the 11th of August last, of two, very perfect and large Waterspouts that appeared, the one between Dum-Dum and Calcutta, the other crossing the Hooghly river opposite to Sulkea. The former was perhaps more than a thousand feet in length, of a pale blue colour, depending from a heavy rain cloud; the upper portion of this im-



mense column gyrated in a rapid manner until, no longer able to contain itself, it burst into a heavy shower of rain. The Waterspout that crossed the river agitated the water beneath it considerably, but did no damage. This body was bent into an elegant double curve like the letter S. by counter currents of light wind; this Waterspout from its light colour and from its great beauty attracted much attention.

Major Sherwill then described a group of twenty Waterspouts that were seen by him whilst surveying the Darjeeling territory. These extraordinary Phenomena were seen to form over the mountain Tonghoo,  $11\frac{1}{4}$  miles from Darjeeling. A diagram showing this wonderful group was exhibited and claimed the attention of the meeting.

Other diagrams of variously formed waterspouts were also exhibited and described. These notes with reduced diagrams will be published in the Journal.

The thanks of the meeting were voted to Major Sherwill for his interesting descriptions.

Baboo Rajendralal Mitra made some remarks on the appearance of a waterspout in the direction of Howrah witnessed by himself on the same day.

The Librarian submitted his usual monthly reports for the months of August and September last.

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#### LIBRARY.

The following additions to the Library were made during the months of August and September, 1860.

#### *Presented.*

General Report on Public Instruction in the Lower Provinces of the Bengal Presidency for 1858-59 with Appendixes.—BY THE DIRECTOR OF EDUCATION.

Nyt Magazine fur Naturvedenskaberne, Vol. X. part 4 Vol. XI. part I.—BY THE ACADEMY.

Selections from the Records of Punjab Government, Vol. V.—BY THE INDIA GOVERNMENT.

The Philosophical Magazine for July, 1860.—BY THE EDITORS.

Address delivered at the Anniversary Meeting of the Geological Society of London.—BY THE SOCIETY.



Selections from the Records of Travancore, Part I.—BY THE GOVERNMENT.  
 Proceedings of the Academy of Natural Sciences of Philadelphia for January and February, 1860.—BY THE ACADEMY.

Journal of the Academy of Ditto, New Series, Vol. IV. P. 3.—BY THE SAME.

New York State Library for 1855.—BY THE SAME.

Ditto ditto State Law Library for 1855.—BY THE SAME.

Ditto ditto State Bibliography, 1858.—BY THE SAME.

Ditto ditto State Maps, MSS. Medals, &c. 1856.—BY THE SAME.

The Cathedral of Thronnheim.

Al-Mufussal opus de re grammatica Arabicum.—BY J. P. BROCH.

Karlamagnus Saga ok Kappa hans.—BY THE CHRISTIANIA ACADEMY.

Forlandlinger Videnskabi Selskubet.—BY THE SAME.

Tilottama.—BY M. M. S. DUTT, Esq.

Quarterly Journal of Geological Society for May, 1860, No. 62.—BY THE SOCIETY.

Selections from the Records of Madras Government Report on the Agricultural Exhibitions in the Provinces for 1859, No. 64.—BY THE MADRAS GOVERNMENT.

Memoirs of the Geological Survey of India, Vol. II. P. I.—BY THE GEOLOGICAL MUSEUM.

Journal Statistical Society of London, Vol. XXIII. P. II.—BY THE SOCIETY.

Oriental Baptist for July and August, 1860.—BY THE EDITOR.

Oriental Christian Spectator for June and July, 1860.—BY THE EDITOR.

Calcutta Christian Observer for August and September, 1860.—BY THE EDITOR.

Journal Asiatique, Tome. XV. No. 58.—BY THE SOCIETY.

Journal of the Indian Archipelago, New Series, Vol. III. P. I.—BY THE EDITORS.

Proceedings of the Royal Geographical Society of London, Vol. IV. No. 2 1860.—BY THE SOCIETY.

Jahrbuch, Vol. X. No. 4.—BY THE ACADEMY.

Annual Report of the Geological Survey of India and of the Museum of Geology for 1859-60.—BY THE GOVT. GEOLOGICAL MUSEUM OF CALCUTTA.

On the Importance of Physical Education.—BY THE AUTHOR.

On the Rise and Progress of Rational Medical Education in Bengal, being an Introductory Lecture, delivered on the 15th June, 1860.—BY DR. EATWELL.

Descriptions of a Defaced Fragmentary Human Skull, found in an Ancient Quarry-cave at Jerusalem.—BY DR. MEGGS.

Athenæum for May and June, 1860.—BY THE EDITOR.



*Purchased.*

The American Journal of Sciences and Arts for May, 1860.

The Annals and Magazine of Natural History, Vol. V. No. 30, and Vol. VI. No. 31.

The Annales des Sciences Naturelles, Vol. XII. Nos. 2 and 3.

Comptes Rendus, Vol. L. Nos. 19 to 26, and Vol. LI. No. 1.

Journal des Savants for April and May, 1860.

Index ditto for 1859.

Revue des Deux Mondes for 15th April, 1st May, 15th May, 1st June, 15th June and 1st July.

Revue de Zoologie, Nos. 4, 5 and 6, 1860.

Conchologia Iconica, Parts 194 to 198.

Zamie Nafaarul Uns.

Goldstucker's Dictionary Sanskrit and English.

Sanskrit Wörterbuch Dritter Theil Bogen, 24—30.

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FOR OCTOBER, 1860.

The Monthly General Meeting of the Asiatic Society was held on the 3rd inst.—

A. Grote, Esq., President, in the chair.

The Proceedings of the last Meeting were read and confirmed.

Presentations were received—

1. From Mr. R. F. Saunders, specimens of the aerolite which fell at Dhurmsala, an account of which was submitted at the last meeting. The larger piece was picked up in the lines at Dhurmsala, and the smaller at Bowarna, about 20 miles to the east of Dhurmsala.

2. From Mr. H. Scott Smith, Registrar Calcutta University, a copy of the Calendar and Minutes of the Senate for the last 3 years.

3. From J. H. Gurney, Esq., M. P., Norfolk, a small collection of bird skins.

4. From Major H. L. Thuillier, a copy of Simm's new map of Calcutta, and two Indian Atlas sheets, Nos. 112 and 113.

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

J. E. L. Brandreth, Esq., Commissioner of Delhi; Moonshee Ameer Ally Khan Bahadur, Pleader of the Sudder Court; E. B. Harris, Esq.; John Christian, Esq., (for re-election) and C. G. Wray, Esq., C. E.



The Council report the following nominations to fill the six vacancies on the list of Honorary Members.

1st.—Dr. Albrecht Weber, as one of the most eminent Sanskrit scholars of Germany. He has particularly devoted himself to the study of the White Yajur Veda, and he has the enviable distinction of having edited an entire series, comprising the Sanhita of the Hymns, the accompanying Satapatha Brahmana, and the Ritual Sutras of Katya-yana. Beside this great work, his four volumes of *Indische Studien* abound with new and valuable information in reference to the Vaidic period of Hindu literature.

2d.—Edward Thomas, Esq., as the author of valuable papers in our Journal and in those of the Royal Asiatic and Numismatic Societies, on several series of Asiatic medals, and more especially on those series which contribute to the early history of India; and as the editor of Prinsep's *Indian Antiquities*.

3rd.—Mons. Stanislas Julien, whose researches in the history and antiquities of China have raised him among the most distinguished Orientalists of the present day. His contributions to the *Journal Asiatique* are numerous and of great interest. Among his separate publications may be noticed his *Travels and Life of Hiouen Thsang*; *Mengtsieu, vel Mencius inter Sinenses philosophus*; *L' Histoire du Cercle de Craie*, and *Le Livre des Recompenses et des Peines*. They are works of consummate erudition, and any one of them is sufficient to establish the character of a scholar.

4th.—Dr. Aloys Sprenger, as an Arabic scholar of celebrity and as a valuable contributor in that capacity to early Mahomedan history, and as now engaged on what promises to be the best extant biography of Mahomed.

5th.—Dr. Robert Wight as a valuable contributor to our knowledge of Indian Botany, and more especially of that of the Peninsula and the Neilgherries.

6th.—Colonel George Everest, Fellow of the Royal Society, formerly of the Bengal Artillery, Surveyor General of India, and Superintendent of the Great Trigonometrical Survey of India from 1823 to 1843 and Surveyor General 1830 to 1843. Of the many important works executed under Col. Everest's direction, the most important and that by which he will be best known to posterity is the northern



portion of the Great Meridional Arc of India comprised between the Damargida and Dehra Dhoon Base lines  $11\frac{1}{2}$  degrees in length, the account of the measurement of which was published by himself in 1847. The whole Indian Arc is equal to  $21^{\circ}, 21', 16''$ , or about 1469 miles. No geodetic measure in any part of the world surpasses, or perhaps equals, in accuracy this splendid achievement. By the light it throws on researches into the figure and dimensions of the earth, it forms one of the most valuable contributions to that branch of science which we possess, whilst at the same time, it constitutes a foundation for the geography of Northern India, the integrity of which must for ever stand unquestioned.

Col. Everest reduced the whole system of the great national Survey of India to order, and established the fixed basis on which the geography of India now rests. His determination of the amplitudes of the two Northern sections of the great Meridional Arc by means of simultaneous observations taken to the same stars with counterpart circular instruments, and his method of determining the celestial azimuth, still practised, may be considered the most perfect modes of obtaining an astronomical element known to science.

The following gentlemen were named for ballot at the next meeting.

W. A. D. Anley, Esq. Assistant Engineer in the East Indian Railway, proposed by Capt. Layard and seconded by the President.

Captain C. D. Newmarch, Chief Engineer, Pegu, and Captain Horace Browne, Assistant Commissioner, Pegu.

E. O. Riley, Esq., Magistrate of Rangoon, proposed by Lieutenant Colonel A. Phayre, and seconded by the Secretary.

Baboo Degumber Mittra, proposed by Baboo Ramapersaud Roy, and seconded by Baboo Rajendralal Mittra.

Reverend K. M. Banerjee (for re-election,) and

R. T. H. Griffith, Esq., proposed by Mr. Cowell, seconded by Mr. Atkinson.

Communications were received—

1. From Mr. W. T. Blanford, "Notes on a Collection of land shells made in Upper Assam by J. W. Master, Esq., Assistant Commissioner of Golughat, with descriptions of a new species of *Spiraculum*, &c."

2. From Baboo Radha Nauth Sikdar, "An abstract of Meteorological observations taken at the Surveyor General's Office in the months of February and March last."



3. From Rev. I. Löwenthal, Peshawur, "A paper on the Non-Semitic character of the Pushto language."

This paper was read to the meeting by the Secretary.

The Librarian submitted his usual monthly report for September last.

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FOR NOVEMBER, 1860.

The Monthly General Meeting of the Asiatic Society was held on the 7th instant,

The Ven. Archdeacon J. H. Pratt, as Senior Member, in the chair.

Presentations were received—

1st. From Professor Griffith, through Mr. W. Halsey, a singular iron sun-dial called *Pratoda* or *Pratola*, (serving also for an hour-glass a gun and a spear) believed to have been made by Sirdar Lena Singh for Lord Hardinge.

2nd. From the Royal Geological Society of London, the 29th Vol. of their Journal.

3rd. From A. Sconce, Esq., the following Arabic Books :—Willmet's Arabic Lexicon, Schultens's Hariri and De Sacy's Arabic Grammar, and Niebuhr's Travels.

4th. From the Editors of Rajah Radhakant's Subda Kulpadrúma the 1st No. of the new edition of the Encyclopedia, together with a brief sketch of the Rajah's life.

5th. From Baboo Kaliprasuno Singh the 2nd No. of his valuable work "Púrana Sangraha," being a Bengalee translation in prose of the "Mahabharat."

The *Pratoda* (noted above) was accompanied by the following extract from an old Hindoo work on astronomy, communicated by Pundit Bapu Deva.

1. I am explaining the instrument called *Pratoda* (a goad) invented by Ganesa, by which the hour of the day can be easily known. Take a straight stick of moderate thickness of the tree called *Dalbergia Sisu*, of any length.

2. Make it of the form of a right prism whose ends should be regular polygons having as many angles as the number of *ghatikas* contained in the excess of the longest day above the shortest (at the given place); and for the convenience of holding it join a chain (or string) to its top: (and mark the numbers of *ghatikas* from that of the *ghatikas* of the shortest day to that of those of the longest on the upper parts of the sides of the prism successively.)



3. Below its support, in order to place a gnomon, make holes in each side of the prism at the beginning of its length in such a manner that they may not touch each other in the middle (of the prism).

4. In order to conceal the gnomon (in this instrument) make *another* hole near the support (of the prism) at its top in the middle. Let the length of the gnomon be such as after placing it in the hole (made in each side) the length of its external part be nearly equal to the sixth part (of the length of the prism).

5. A twelfth part of the length of the external portion of the gnomon should be considered an *Angula* (a digit) in this *Pratoda* instrument. And find the sines of the (sun's) zenith distance and altitude at the end of each of the given *ghatikas* (from the sun-rise of every day, the number of the length of which is marked on the instrument) by the rule mentioned by former Astronomers.

6. The sine of the (sun's) altitude (found at the end of the given *ghatikas* from sun-rise) multiplied by 12 and divided by the sine of the zenith distance (of the sun found at the same time) gives the number of digits belonging to the given *ghatikas*.

Thus find the digits belonging to the given *ghatikas* one, two, &c., from sun-rise (of every day, the length of which is marked on the instrument) and mark these digits on the respective sides (of the prism) from the hole.

7. (When you want to know the time after sun-rise at the given day) place the gnomon in the hole of that side (of the prism) on which the number of the *ghatikas* contained in the length of the given day are marked, and hang the instrument by holding it in the chain in such a manner that the shadow of the gnomon falls on the side. And reckon the *ghatikas* (on the side) from the hole to the end of the shadow. These *ghatikas* are after sun-rise (when you observe the shadow) before noon, (but when you observe it) after noon they are the *ghatikas* remaining (to complete the whole day.) (This holds then when the end of the shadow falls exactly on the mark of the *ghatikas*) but when it falls between two marks, there will be required a proportion."

The Archdeacon then gave the following account of its character and uses :—

"The instrument appears to be roughly graduated and to be in a



ricketty condition. It has nine sides. If these are *exactly* suited to the latitude, the place for which it was made was in latitude  $27^{\circ} 56'$  or thereabouts. If the latitude of the place did not accord with an *exact* number of sides, then it must have been between  $26^{\circ} 40'$  and  $29^{\circ} 12'$  that is, corresponding to  $8\frac{1}{2}$  and  $9\frac{1}{2}$  sides. Delhi lies between these last two latitudes. The instrument may, therefore, have been made for that city.

“The manner of using the instrument appears to be this. Suppose the day that you use it is the one of which the length is 50 minutes longer than the shortest day; then as  $50 = 2 \times 24 + 2$  and 24 minutes make a *ghatika*, you must screw the gnomon into the hole in the third side, in which the figures run down the third shortest length. Then hang up the instrument and turn it round, thus hanging, so that the shadow of the gnomon may fall on the length of the instrument; the extremity of the shadow will point out the hour of the day in *ghatikas* from sunrise or sunset as it is before or after noon.

“The instrument is certainly curious, though of no particular scientific value.”

Colonel Baird Smith communicated to the meeting the following interesting particulars respecting the constructor of the dial.

“Lena Singh Majeteeah, the constructor of the *Pratoda* Dial, was the representative of a well known distinguished Sikh family. He did not take any very prominent part in the Sikh campaign, but his brother Runjoor Singh commanded the Khalsa army at the battle of Aliwal where, as all know, he was signally overthrown by the force under Sir Harry Smith. On that occasion an exquisitely beautiful battery of six field guns, the property of Lena Singh, and the produce, probably, of the same workshops which produced the *Pratoda* Dial, was captured. Nothing could surpass the whole design and details of these guns, and while they were ornamented with great taste, they were at the same time good working guns, and had been vigorously used during the day.

“Lena Singh had very considerable mechanical capacity. He enjoyed greatly hearing of all forms of mechanical invention. The long range and explosion shells for guns were favorite subjects of experiment and discussion with him, and he was altogether a notable man among his race, and in his position as a Sikh Chieftain of large pos-



sessions, having strong intellectual tendencies in spite of the semi-barbarism amid which he lived."

The following gentlemen, duly proposed at the last meeting, were balloted for and elected Honorary Members :—

Dr. Weber.

E. Thomas, Esq.

M. St. Julien.

Dr. R. Wight.

Dr. A. Sprenger.

Col. G. Everest.

The following gentlemen who were proposed at the last meeting were also balloted for and elected ordinary members.

W. A. D. Anley, Esq., Assistant-Surgeon, East Indian Railway.

Captain C. D. Newmarch, Chief Engineer, Pegu.

E. O'Riley, Esq., Magistrate, Rangoon.

Captain Horace Browne, Assistant Commissioner, Pegu.

Baboo Degumber Mitter, Zemindar.

Reverend K. M. Banerjee for re-election.

R. T. H. Griffith, Esq., Benares.

The following gentlemen were named for ballot at the next meeting :

F. Cooper, Esq., C. S., proposed by the President, and seconded by the Secretary.

Moulavee Abdool Luteef Khan Bahadur, Deputy Magistrate and Deputy Collector, 24-Pergunnahs.

Babu Gooroo Churn Doss, Deputy Magistrate, Jessore, proposed by Babu Rajendrolal Mittra and seconded by Mr. Cowell.

D. H. Macfarlane, Esq., Calcutta, proposed by H. Woodrow, Esq., and seconded by C. G. Wray, Esq.

A note from Dr. F. Mouat announcing his intention to withdraw from the Society was recorded.

The following report was read from the Council on a recommendation from the Philological Committee :—

### *Report.*

The Council recommend to the Society the acceptance of Mr. F. E. Hall's offer to edit the *Dasa Rupaka* (text and commentary) in the *Bib. Indica*. This work is the oldest authority for the dramatic system of the Hindus, and is also of great interest from the numerous quotations which are found in it. Mr. Hall has a very old MS. which will serve as the basis of his text. The work will occupy about



two fasciculi, and Mr. Hall will add a translation of the text and an introduction.

The recommendation was adopted by the Meeting.

A communication was received from Babu Radha Nauth Sickdar, being an abstract of Meteorological observations taken at the Surveyor General's office for the month of April last.

Mr. H. F. Blanford read a paper on the subject of Dr. Bronn's work on the laws of development of organised beings.

Mr. Blanford stated that the work, a brief notice of which he proposed bringing before the Society, was written by Dr. Bronn in 1855, in answer to a series of prize questions proposed by the French Academy of Sciences in 1853-4. Dr. Bronn's work was adjudged as successful and crowned by the Academy in 1857 and the work itself published shortly after. Its object was to ascertain the laws of the development of organised beings in time, a question which the recent publication of Mr. Darwin's work had rendered one of general interest, and the work possessed this great merit as evidence in the discussion provoked by Mr. Darwin, that having appeared long before the publication of Mr. Darwin's views, it was unbiassed in its conclusions by any controversial spirit.

The objects of Dr. Bronn's work differed in so far from those of Mr. Darwin's, that the former sought simply to determine the formal laws expressing the nature of the sequence of organisms in time and the relation of that sequence to the parallel sequence of geologic changes, while the latter endeavoured to solve the higher problem of which these formal laws are merely consequences, *viz.* the *modus operandi* of the cause to which the succession of varying organisms in past times is due. Dr. Bronn's objects bear the same relation to Mr. Darwin's as those of Kepler and Copernicus, the discoverers of the laws of the Heliocentric Planetary System did to Newton's, the discoverer of gravitation.

Of the two parts into which Dr. Bronn's Essay was divided, *viz.* the exposition of the laws of development; and the proving of these laws by the comparison and analysis of tabular evidence, only the first could be noticed in the brief space of a single lecture. Mr. Blanford's object was simply to bring to the notice of the Society, the general results at which Dr. Bronn had arrived, and would refer



those who might wish to enter in detail into the question, and satisfy themselves of the soundness or unsoundness of Dr. Bronn's views, to the original work, which had been published in German, French and English, the latter translation by the Ray Society of London.

The two fundamental laws laid down by Dr. Bronn as having regulated the sequence of organisms from the earliest period to the present time were :

1. That there had been the operation of an independent producing power or force (*Kraft*) progressive in intensity and in its sphere of operation.

2. That the results of this power or force had been limited by, and dependant upon, the nature and changes of the external conditions of existence, such as climate, habitat, food, &c.

With respect to the first law, a clear idea of the meaning of progression could only be gathered from a consideration of the whole range of organized beings, and the evolution of general propositions concerning form, organization, and habits of life. In this way, it was shewn that the criteria of higher types as compared with lower were :—

#### *Higher.*

Bilateral symmetry of form.

Few homologous parts.

Organs various, specialized to discharge one or few functions, concentrated, and enclosed.

Habits terrestrial.

Breathing air.

Food, (in the case of animals) vegetable.

#### *Lower.*

Quadrilateral or circular symmetry of form.

Numerous homologous parts.

Organs few, fitted to perform various functions, dispersed, and superficial.

Habits aquatic.

Breathing water.

Food, (in the case of animals) animal.

With respect to the second law, the conditions of existence might be considered under two heads, viz. as :—*inorganic*, which bore reference to terrestrial phenomena, such as temperature, climatal zones, the composition of the atmosphere, and the distribution of land and sea ; and *organic*, which included the supply of food, a consideration which had been developed to an extent unanticipated by



Dr. Bronn in Mr. Darwin's well known chapter on the "Struggle for Existence."

The hypothesis to which we had to apply these conditions was, that of an originally fluid globe, cooling by radiation, until a solid crust had formed, upon which the greater part of the water had condensed in the form of seas, while the atmosphere contained a larger proportion of aqueous vapour and carbonic acid than at present.

The excess of carbonic acid was subsequently fixed in the form of limestone, and eliminated, especially during the coal period, by the luxuriant vegetation which abstracted the carbon stored up in the coal formed of its remains. The carbonic acid since converted into coal and limestone had been calculated by Brogniart and Bischof to amount to 6 per cent. of the entire atmosphere, or one hundred times its actual proportion; and although it is probable that it never reached this amount, and that much of it was evolved from the interior of the earth through volcanic vents, contemporaneously with its absorption by the vegetation of the epoch, still, it had been proved by the experiments of Daubeng and Regnault, that a proportion of 5 per cent. of carbonic acid was by no means injurious to ferns, and that provided sufficient oxygen were present, animals could live without apparent inconvenience in an atmosphere containing half its volume of the former gas. The surface of the earth being then in such a condition as to support animal and vegetable life, we might expect, according to Dr. Bronn, the following series of phenomena, which, ranged in parallel columns exhibit the historic interdependence of the organic and inorganic kingdoms.

- |   |   |
|---|---|
| 1. The simultaneous appearance of plants and animals, to sustain a proper relation in the components of the atmosphere, | 1. When by condensation and chemical absorption the atmosphere became fitted to support life. |
| 2. An universal and continuous change in the fauna and flora of the earth,  | 2. As the temperature universally and continuously diminished.                                |
| <i>a.</i> The primary fauna and flora were universal and tropical,  | <i>a.</i> The temperature of the earth's surface was likewise uniform and tropical, until,    |



b. becoming subsequently diversified according to climate.

3. New forms of life could not have arisen from those preceding them, but were provided for by a new creation. (Schöpfung). The assumption of specific and generic centres, is therefore unnecessary and improbable.

4. As the older forms disappeared, in consequence of the cooling of the earth and the formation of continental areas, they were continuously replaced by new forms with but a slight variation in the intensity of the producing force.

5. The general character of the first fauna and flora was entirely different from that of the present day, the passage being, however, gradual throughout.

6. Organisms became more varied and respectively adapted to more diversified conditions of life.

7. The appearance of most plants and animals was conditional on the previous fulfilment of the conditions necessary for their existence, as regard nourishment, habitat, &c.

8. The absolute number of species, genera, and families increased with the differentiation of

b. the internal heat being diminished by radiation, the climate became differentiated in different zones.

3. The new stations formed were not always in connexion with those previously populated.

4. The cooling of the earth's surface and the extension of continental land areas proceeded gradually and equably.

5. The physical condition of the earth's surface was likewise originally very different from that of the present day, and the passage gradual.

6. In consequence of the above change, stations became more numerous and varied.

7. The Earth, having become peopled with such plants and animals as depended solely on each other and on the purely terrestrial conditions, was, by their existence, rendered habitable for succeeding races.

8. The differentiation of the requisite external conditions proceeded continuously, but espe-



external conditions.

9. The tendency of all successive changes may be termed terripetal. The first population of the globe was almost exclusively pelagic. Land animals succeeded, and increased most rapidly both in numbers and in perfection of organization.

10. The higher and more perfect plants and animals are, so are the conditions requisite for their existence more complicated and numerous. The more perfect animals could not exist without the less perfect. And thus a necessary consequence of the progressive development of the earth's surface, was a gradual higher development of the organic world as a whole, as well as of its subordinate divisions, and while the organic world tended more and more to the formation of the existing higher types, the latter tended to increase in a more rapid ratio than the less perfect. Meanwhile many of the less perfect either simply disappeared or were replaced by more perfect compensating forms.

11. There are also some special cases in which the progression of the organic world towards a higher degree of development,

cially characterized the close of the carboniferous epoch and the commencement of tertiary times.

9. Simultaneous and parallel with these changes was the diminution and sub-division of watery areas and the formation of continental, as distinguished from insular divisions of the land area.

10. The external conditions of existence became more varied and fitted for the existence of higher organisms.



either generally and systematically, or specially from embryonic types, appears to have progressed, independently of any apparent external causes, and in accordance with the operation of some independent internal law, except in so far as there is a necessary reciprocal relation between the laws of development of the organic and inorganic world, which could only be definitely expressed if we knew the nature of the power or force which gives rise to new organisms.

In commenting on the above, Mr. Blanford remarked that although the hypothesis of a cooling globe and an universal equable temperature in early geologic times had been rejected by Sir Charles Lyell and some other eminent authorities, there were many important facts, such as the existence of a coal flora within the Arctic regions in a great measure identical with that of the temperate zone, and the wide distribution of generic and specific types in Palæozoic times, which gave much probability to the hypothesis upon which Dr. Bronn's theoretical conclusions were based.

These views were stated necessarily at much disadvantage before the Society, as time would not permit of even an abstract of Dr. Bronn's proofs of the laws above enunciated, by a review of the geologic record, which could be the only test of their truth or falsity. With respect to the third of Dr. Bronn's secondary laws, viz. that new stations were frequently isolated, and consequently that their faunas and floras were necessarily of independent origin, it appeared to Mr. Blanford that both the fact and inference were pure assumption, and neither proved by the author in the subsequent part of his work, nor indeed very capable of historic proof. Many of the now isolated stations, such as the islands of Polynesia, had been shewn to be very probably mere remnants of former widely extended stations; (in the case cited, by Dr. Hooker on botanic



grounds and by Mr. Darwin on geological grounds;) and even were it granted, as it might be theoretically, that such isolated stations may occasionally have been formed, until we can ascertain the period at which they were first populated, and can assert that no possible accidental transport of eggs, seeds, &c. would account for that population, the inference drawn by Dr. Bronn would be by no means legitimate.

In some other points, it appeared that Dr. Bronn had laid too much stress upon negative evidence as e. g. in the ninth of the secondary laws, but as this had no important bearing on the principal object of the paper, viz. a comparison of Dr. Bronn's laws with Mr. Darwin's theory of natural selection, it need not be further alluded to.

Setting aside the assumption of independent faunas and floras, as unproved in any case and at variance with the tendency of our present knowledge, the laws evolved by Dr. Bronn were stated to be in close accordance with the requirements of Mr. Darwin's theory. With respect to the formal portion of Dr. Bronn's first fundamental law, (i. e. the fact of progression, apart from any hypothesis of a force,) very little had been said by Mr. Darwin; his only reference to it being to the following effect, viz.:—the higher forms have their organs more distinctly specialized for different functions; and as such division of physiological labour seems to be an advantage to each being, natural selection will tend in so far to make the later and more modified forms higher than their early progenitors, or than the slightly modified descendants of such progenitors.\* This view appeared to be identical with that taken by Dr. Bronn in the majority of cases, as enunciated in Nos. 7, 8, 9 and 10 of his secondary laws. In No. 11, indeed something more is indicated, viz. a progression of type, independent, or apparently independent of external conditions, and referred somewhat vaguely to an unknown force; but this was scarcely necessary, and the phenomenon of progression according to embryonic types, the progression from general to specialized forms, which had been admitted by Agassiz, Owen, Carpenter and others, as having obtained in past times, was perfectly and most simply explained by Mr. Darwin's theory.

\* *Origin of species*, p. 336.



Dr. Bronn's second fundamental law, the correlation of the development of organized beings, with that of the external conditions of life, and the multiplication of varieties and species as these conditions became more varied, formed one of the fundamental requirements of Mr. Darwin's theory.

The chief point on which the two authors were at issue, was that of the origin of new forms. On this subject, Dr. Bronn did not enunciate any theory, and in the expression of his formal laws, referred vaguely to an undefined force. He denied, however, the possibility of their origin by descent, with variation, from pre-existing forms, as well as their origin by spontaneous generation from inorganic matter, and regarded that by immediate act of creation repeated for every new species, as inconsistent with the tenor of our knowledge of all natural operations. It was difficult therefore to understand how and upon what, the hypothetical force could be supposed to act, nor was this anywhere suggested in the essay. The objection by anticipation to Mr. Darwin's views, rested as it appeared, solely on the assumption of isolated stations before alluded to, and if this be rejected as unsound, there appeared nothing in Dr. Bronn's laws at all irreconcilable with Mr. Darwin's theory. For the rest Mr. Darwin had suggested a *vera causa* and it remained for the naturalist and geologist to say how far it was sufficient to account for the facts.

Some discussion arose after the lecture was concluded.

Dr. Kay remarked, that the way in which the subject had been treated, appeared to him calculated to produce serious confusion of thought. There had been a perpetual vibrating between two entirely distinct inquiries; the search into *forms* and the search into *causes*. A great deal of fallacious reasoning was owing to the neglect of this distinction. Morphology was a deeply interesting study; but it gave absolutely no information about the causes of the differential characteristics observed in analogous species of plants and animals at successive epochs. In examining such species it was natural to use such words, as *advance*, *progression*, &c.; but these terms simply mean that the species of a later era are found to differ in certain ways from those of an earlier era. The morphological progression proves nothing as to the existence of an ætiological connexion between the



successive stages. It is simply a historical fact that there is an advance in the observed forms. But to state a fact is not to account for it, and Molière's physician added nothing to science when he averred that medicine cured because it possessed a *vis medicatrix*. All present were aware that theories such as Dr. Bronn's or Dr. Darwin's had a far wider and deeper interest than they would have simply as scientific speculations, because they touched on questions relating to man's spiritual nature. That nature enabled man to look upward to the eternal, and downward to the endless variety of cosmical phenomena. Would any similarities of structure between man and other contemporary or palæozoic species bridge over the chasm placed between him and them by the possession of that spiritual nature? If it be said that the power of ulterior development had existed from the date of the primal monad,—this would only increase a billion-fold any difficulties that may be supposed to lie in the received theories of creation;—for, whence came this monad? It must have been created. And what a marvellous creature! to hold shut up within it the numberless forms of all the species that have arisen in the world through countless ages, along with all the laws of their successive development, each one involving such marvellous adaptations to all other portions of the Kosmos!

He would add an expression of his hearty concurrence with two remarks made by the lecturer:—*viz.* where he spoke of the rashness with which his author theorized on the early geological periods; and where he stated his belief that Dr. Bronn's assumption of a mysterious "Kraft" or power was neither legitimate nor very intelligible.

Mr. Blyth rose, as the friend of Mr. Darwin of more than a quarter of a century standing, to advocate his theory. He expatiated upon the vastness of geological periods, as amply sufficient for bringing about the present order of things in the organic kingdoms, by the operation of Mr. Darwin's principle of Natural Selection. The immensity of the lapses of past time he illustrated by comparing them with the profundities of space, and by the computed distances of sundry astronomical objects. He also argued a far higher antiquity than is generally supposed for the existence of the human being upon this planet, as testified by the discoveries of Dr. Lund in certain low caverns in Brazil, more than twenty years ago, and abundantly by



recent discoveries in various regions : more especially he referred to certain tumuli in Scania, where flint arrow-heads or spear-heads were found together with the bones of extinct mammalia, and associated also with human remains, the skulls of which indicated them to belong to the hyperborean type of mankind, being similar to those of modern Esquimaux ; an important fact, which tended, as he thought, to connect the epoch of those remains with the glacial era of Agassiz, or at least with the time when the Rein Deer and the Musk Ox roamed over what is now Britain. But he maintained that however ancient may be the remains of this hyperborean race in modern Scania, perhaps one of the present American types of humanity in the New World, still, for various reasons adduced, we must look to the tropical regions of the major continent for the aboriginal habitat of the human being ; countries of which the palæontology is almost utterly unknown. Mr. Blyth then adverted to the incompleteness of the geological record as insisted upon by Mr. Darwin ; and touched upon some other points, which the lateness of the hour prevented his dwelling upon.

Mr. Blanford briefly replied to remarks which fell from Dr. Kay, that he had not professed to enter upon the subject of causation at all ; but only upon the study of forms as indicating the direction which causation had taken.

The interesting discussion was closed by the Chairman, stating that the thanks of the meeting were due to Mr. Blanford for laying before them the views of Dr. Bronn. He observed that a comparison had been made by Mr. Blanford between the progress of this new or newly-revived theory of the mutability of species and the establishment of the theory of universal gravitation. But he would remark that in the establishment of the theory of gravitation there had been two grand stages, the second of which was far longer and more laborious than the first. The first was the conception of the law, the second was its verification. In the second, as well as the first Newton did a vast deal himself, but it had been the work of the last 200 years to complete the demonstration, so long as nearly 100 years after Newton the celebrated Clairant had been staggered by an error in the moon's motion, which at first he could not explain on Newton's theory, and went so far as to suggest that the law varied partly as the inverse square and partly as the inverse fourth power of the dis-



tance. So lately as the time of Laplace similar difficulties had presented themselves, which his sagacity alone had removed. But now such perfection had been attained that as the instruments of observation and the method of calculation are from time to time improved, the smallest variations detected in the motions of the heavenly bodies are explained, and the theory of gravitation, as applicable to the minutest particles of matter, fully established. He added that in this new theory of the mutability of species Mr. Darwin seems to have taken the first step in striking out a bold generalization. But the more laborious and lengthy process of testing his law has yet to be gone through, and when completed as satisfactorily as that of gravitation, he (the Chairman) for one would believe in it as a law of nature.

With reference to remarks which fell from Mr. Blyth regarding the incompleteness of the geological evidence, he recommended to his notice two papers in *Fraser's Magazine* for June and July, by Mr. William Hopkins of Cambridge, well known as a first rate mathematician and geologist. He thought these papers were among the most thoughtful and convincing replies to Mr. Darwin's whole theory that he had read.

A vote of thanks was then passed to Mr. Blanford for his lecture.

The Librarian submitted his usual monthly Report for October last.

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#### LIBRARY.

The following books have been added to the Library since November last.

#### *Presented.*

Journal of the American Oriental Society, Vol. VI. No. 2.—BY THE ORIENTAL SOCIETY.

Burges's Trans. of Surya Siddhanta.—BY THE AUTHOR.

Report on the Survey operations in the Lower Provinces, for 1858-59.—BY THE AUTHOR.

Oriental Christian Spectator for September and October 1860.—BY THE EDITOR.

Journal of the Statistical Society of London, Vol. XXIII. Part III.—BY THE SOCIETY.



Proceedings of the Zoological Society of London, Pt. II. of 1860.—BY THE SOCIETY.

Ditto, of Royal Society of London, Vol. X. No. 39.—BY THE SOCIETY.

De Sacy's Arabic Grammar, Vol. I. Pt. II.—BY THE AUTHOR.

Willmet's Lexicon Linguae Arabicæ Niebuhr's Voyage en Arabie, Vol. I. Pt. II.—BY A. SCONCE, ESQ.

Ditto, descriptions del' Arabic Schultens Harriri, Vol. I. Pt. II.—BY THE

Williams F. F. Guide to Indian Photography.—Report on the Teneriffe. astronomical experiment of 1856 addressed to the Lord Commissioner of the Admiralty, London.—BY THE LORDS COMMISSIONERS.

Monthly notices of Royal Astronomical Society of London, Vol. X. Part III.—BY THE SOCIETY.

The Life of Rajah Radhakanta Deva Bahadur.—BY THE EDITORS.

Sabda Kalpadruma in series, No. 1.—BY THE EDITORS.

Report on the result of the Administration of the Salt Dept. 1858-59, Bengal Govt.—BY THE BENGAL GOVT.

Oriental Baptist for November 1860.—BY THE EDITOR.

Calcutta Christian Observer for Nov. 1860.—BY THE EDITORS.

Trans. of the Bombay Geographical Society, Vol. XV.—BY THE SOCIETY.

Bengali Translation of Mahabharata, Pt. II.—BY THE EDITOR.

Selections from the Records of Government of India For. Dept. No. 28, BY THE GOVERNMENT.

Memoirs of Royal Astronomical Society, Vol. XXVII.—BY THE SOCIETY.

#### *Exchanged.*

Zeitschrift der Deutschen Morgenländischen Gesellschaft, Pt. VIII.

Athenæum, for August, 1860.

London and Edinburgh Philosophical Magazine, No. 132, for September, 1860.

#### *Purchased.*

The Literary Gazette, Nos. 112 to 115.

Comptes Rendus, Nos. 6 to 9 Tome 51.

Revue des Deux Mondes, Tome XXX. for 15th August and 1st September, 1860.

Annales des Sciences Naturelles, Tome XII. No. 56, 1860.

Journal des Savants for July and August, 1860.

Revue de Zoologie, Nos. 7 and 8, 1860.

The Annals and Magazine of Natural History, Vol. VI. No. 33.

Flugels die classen der Hanefitischen Rechtsgelehrten.

Foncause Buddhar.



Capt. Raverty's Gulshan-rah—Afghan Poetry and Prose.

Ditto. Dictionary of the Pushto or Afghan language.

Ditto. Grammar, Ditto. Ditto.

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FOR DECEMBER, 1860.

At a meeting of the Society held on the 5th Instant—

A Grote, Esq., President, in the chair.

Presentations were received—

1st. From Major Hollings, a baked clay fac-simile of Sanscrit inscription on a stone pillar in the Behar Fort.

2nd. From the Bombay Geographical Society, the 25th Vol. of their Transactions.

3rd. From Mr. W. S. Seton-Karr, Secretary to the Government of Bengal, forwarding, on behalf of the India House, certain copies of the Memoirs and Reports of the Royal Astronomical Society.

4th. From the Academy of Natural Sciences at Philadelphia, a copy of the proceedings of the Academy for 1860.

The Secretary announced the publication of the Shell catalogue, a copy of which was laid on the table, price fixed at 3 Rs. a copy.

The following gentlemen who were proposed at the last meeting were balloted for and elected ordinary members.

F. Cooper, Esq. C. S.

Moulavie Abdool Luteef Khan Bahadur, Deputy Magistrate and Deputy Collector, 24-Pergunnahs.

Baboo Gooroo Churn Doss, Deputy Magistrate, Jessore.

D. H. Macfarlane, Esq., Calcutta.

The following gentlemen were named for ballot at the next meeting.

J. C. Erskine, Esq. proposed by Sir Bartle Frere and seconded by Captain W. N. Lees.

Lewis Jackson, Esq. C. S. proposed by Mr. Atkinson and seconded by Mr. Cowell.

William Thompson Dodsworth, Esq., Surveyor, Ganges Canal, Dehra Dhoon, proposed by Colonel Waugh and seconded by Major Thuillier,



Notes from the following gentlemen intimating their wish to withdraw from the Society were recorded.

Messrs. A. K. Dyer, H. V. Bayley and F. A. Goodenough.

Communications were received—

1. From Major H. L. Thuillier, forwarding copy of a letter as follows from Colonel Waugh, Surveyor General of India, containing further information relative to the fate of the late lamented Mons. A. Schlagintweit.

Surveyor General's Field Office,

Dehra, 13th November, 1860.

FROM LIEUT.-COL. A. S. WAUGH,

*Surveyor General of India.*

TO MAJOR H. L. THUILLIER,

*Deputy Surveyor General of India,*

*Calcutta.*

SIR,—Adverting to correspondence marginally cited,\* I have the

\* No. 940, dated 19th July, 1859, from Secy. to the Govt. of India, Mily. Dept. to my address.

My reply to the above No. 42.409 of 29th July, 1859.

Also my letter in continuation No. 62.576 of 28th Sept. 1859.

honor to transmit herewith a letter in original No. 380.901 of 3rd instant, with enclosures, just received from Captain T. G. Montgomerie, Engineers, 1st assistant G. T. Survey, in charge of the Kashmir series, conveying information which he has recently obtained relative to the fate of the

lamented Mr. Adolphe Schlagintweit.

I beg you will be good enough to forward these papers for submission to Government, and also take such steps as may be necessary to make their contents known to the Asiatic Society, which has already recorded such particulars as have been hitherto gathered on the subject.

OFFICE OF THE KASHMIR SERIES,

Camp Kartarpore, 3rd November, 1860.

TO THE SURVEYOR GENERAL OF INDIA.

SIR,—With reference to my letter No. 500 of 23rd August, 1859,

\* In original.

I have the honor to enclose a Persian document\* concerning the fate of Mr.

A. Schlagintweit.

This document is apparently written by one Mahomed Ameen of Yarkand, who was in Mr. S.'s service at the time of his murder. He



mentions having sent two letters round to the West by Peshawar and says that he has received no answer. Col. Edwardes received one of the letters and it is printed in the collection of Official Reports circulated by the Messrs. Schlagintweit. Vide No. 10 in the list.

A small leather bag accompanied the letter; the bag contained four very thin old copper coins and an instrument for cutting leather, with an awl, the two latter I understand to be of the kind used by Bhistees.

The letter does not throw any new light on Mr. Schlagintweit's fate and does not entirely agree with the letter sent to Col. Edwardes but, being of a later date, it may be interesting. The writer says he has not managed to secure either the boxes or the property of the unfortunate Mr. S.

I enclose the statement made before Mr. Civil Assistant W. H. Johnson by Kunj Khan of Yarkand, the bearer of Mahomed Ameen's letter, who says he was taken into Mr. S.'s service the day before he was imprisoned and declares he was present when Mr. S. was murdered. This man states that Mr. Schlagintweit's property is in the possession of Shaidarwag of Badakshan and that it includes a large folio of drawings and other papers. Kunj Khan thinks that the property might be recovered.

I did not myself see Kunj Khan and have not the means of forming an opinion as to his veracity or as to the feasibility of the plan he proposes. The man was given a present and told that a suitable reward would be given for any drawings, papers, or other property recovered. The folio is no doubt the most valuable. Just before leaving the Hills, I heard that Lieutenant-Colonel Irby of H. M.'s 51st foot had met another man from Yarkand with Mr. Schlagintweit's skull. As to the truth of this I have not as yet heard. The hopes of reward are no doubt, likely to produce a good number of impostors. During the hot weather I heard that Mr. S.'s bones had been carried into Kuta.

I propose forwarding the bag with copper coins, &c., to the care of Major H. L. Thuillier. I will of course avail myself of every opportunity that there may be to get further information on the subject. Should any be forthcoming I shall again address you.

(Sd.) T. G. MONTGOMERIE, *Capt. Engrs.*

*First Asst. G. T. Survey of India.*



## STATEMENT OF KHUNJ KHAN OF YARKAND.

Mr. Schlagintweit left Leh with seven servants, viz., Mahomed Ameen, Yarkandi, Abdul, Kashmiri Kitmadgar, Moorad Jood, Caubuli, (who remained at Yarkand and is still there) Hoshir and Ali from Skeardo, and Tashi and Bhots of Shashot village. Mr. S. first visited Yarkand and afterwards Kashkar; on his arrival at the latter place he found the Kokanies at war with the Kashkar people. The Kokan troops were commanded by Wali khan. Mr. S. sent Mahomed Ameen to Wali khan to obtain permission to go to Kokan; Wali khan replied that if Mr. S. would take Kashkar and the Chinese fort first he would allow Mr. S. to go to Kokan. Mr. S. told him he could not take Kashkar without troops and guns, this made Wali khan vexed, upon which Mr. S. and all his servants were imprisoned by Wali khan, who took all Mr. S.'s property. The day after their imprisonment Mr. S. the two Baltis and two Bhots were murdered by Wali khan. The other two servants, Mahomed Ameen and Abdul were to have suffered the same fate, only the approach of a Chinese Army made the Kokanies retreat. Mahomed Ameen and Abdul went afterwards to Kokan and complained to the Rajah Kodayar, who was very angry with Wali khan and intended to have sent him a prisoner to Lahore to meet his punishment, but at this time Mali khan assisted by Wali khan raised an insurrection and expelled the former ruler Kodayar. When Kodayar intended seizing Wali khan the latter gave charge of all Mr. S.'s property to Shaidarwag of Badakshan; after Kodayar went away to Bokhara, Wali khan went to recover the property but did not; subsequently Mali khan, the new ruler of Kokan, went with an army of 20,000 troops but was defeated by Shaidarwag, with whom Mr. S.'s property is to this day. The property has not been removed from the place where it was first put, and may be obtained by sending a sharp man to Shaidarwag with presents, &c. A man in Leh, by name Tulsiram, is willing to try and get the property if he is assisted.

The two servants Mahomed Ameen and Abdul were well treated by Kodayar, but not so by Mali khan, upon which Abbul left for Peshawar 14 months ago, viâ the Samarkand route. Mahomed Ameen remained in Kashkar.

With Mr. S.'s property there are a great number of drawings and other papers in a large folio which Khunj Khan saw Mr. S. open.



Mahomed Ameen, is an old man, being hardly able to work ; he says if he got some money he could purchase a horse and come down to Lahore if wanted.

Note by Mr. Johnson.—The above was taken down as given by Kunj Khan, who was present when Mr. S. was murdered, and it is in some measure confirmed by a letter which has been sent by Tulsiram's brother from Yarkand.

I hear that the Moonshi who was sent from Simla or Kooloo never went beyond Leh and therefore got no correct information.

(Signed) W. H. JOHNSON,  
Civil Assistant G. T. Survey.

*Camp Leh in Ladak, 11th September, 1860.*

عرضداشت کمینده جاکرجان نثار محمد امین بای کاروان باشی یارکنده  
به خدمت صاحبان غریب پرور عدالت کستر دولت بهیله انکلیسیه  
انکه احوال پیره غلام در تاریخ غره ربیع الاخر در ولایت کاشغر بموجب  
صبر است و چشم امید این پیره غلام همیشه در راه است که بلکه ازان  
جانب خبری یاکه خط که باعث بر خوشوقتی باشد برسد هیچ معلوم  
نشد تا که درین ایام یکی از چاکران که از سابق پرورش یافته دست  
خود این پیره غلام بوده و بسخن و مطلب این جان نثار محرم است  
گویا مثل فرزند خود دانسته روانه خدمت کرده فرستادم که بعد از بار  
یافت حضور صاحبان نامبرده را به اندک زمانی مرخص نموده معه  
انچه فرمایشات ده ازان جانب حکم شود خط کرده بدست نامبرده  
فرستاده انشالله انچه که از دست این پیره غلام براید در طریقه  
جان نذاری کوتاهی نخواهد شد دیگر معروض غلام انکه از گذارشات  
گذشته تا حال بست و دو خط ازین طرف به پایه سریر دولت معروض  
داشته فرستاده ام یکی را بجواب سرفراز نشدم ندانم که ان صاحبان  
صاحب داعیه را چه در خاطر که هیچ در جواب عریضجات غلام و باز  
یافتی از احوال صاحب مقتول نه پرداخته چشم پوشی نمودند اگر  
غلام خارج طریقه و آئین صاحبان میداشتم و یا خدمت من منظور نشد  
انصاحب مقتول در وفاداری و خدمت کاری و خیرخواهی دولت  
و آبروی هم کیشان ملت خود که صاحبان دولت باشند از سرو جان  
خود به نا امیدي گذشت ازان چرا چشم پوشیدند حقوق جان نذاریش  
همین بود خبر احوال باشد صاحبان صاحب اختیار اند بعد از اظهار



در د والم و مصیبت رسید کی این عاجزان معروض خدمت میشود که باز هم از احوال گذشته آنکه بعد از آنکه در کاشغر خراب آباد از بد بختی خود بے صاحب و صاحب اختیار شدیم مدت بیست و چهار روز را در زندان خواجه ظالم بودیم قطع حیات خود کرد؛ منتظر آنکه این ساعت یا ساعتی دیگر ما را هم مثل آقایی ما خواهند کشت اینک لشکر خطایی رسیده و خواجه ظالم گریخته در آن فرصت هر کس به اعمال خود گرفتار این پیره غلام از زندان برآمده فرار سمت خوقند گذاشته بهزاران مشقت خود را تا ولایت خوقند رساندم مدت هشت ماه را در خوقند بودم و از آن جا عبدل نام که خوانسارمان صاحب مقتول بود آن را اسپ و خرچی داده خط کرده از راه کابل و سمت پیدشاور فرستادم و خود از بعضی احتیاطات خدا یار خان حاکم خوقند گریخته برادرش ملا خان ولایت را در تصرف آورده بود از خوقند برآمده ولایت روش که مشهور به تخت سلیمان است بین راه خوقند و کاشغر در آن ولایت پناه گرفته مدت هشت ماه را هم در آن ولایت بسر بردم از هر سمت که اهل تجارت روانه آن ولایت میشد خط کرده میفرستادم که باشد از جانب صاحبان به این بے صاحبان احوالی برسد تا اینکه خط مراد یهودی رسید که بر خواسته خود را به کاشغر برسان که مطالبات نربد دست آمد سه چهار خط که فرستاده این پیره غلام بر خواسته در کاشغر آمدم که از آن مطالب ها هیچ در دست نیامده لا علاج مراد یهودی را برای انداخته فرستادم و خود به اتفاق میرزا عبد الوحد خان هراتی که نکلسین صاحب در پشاور آن را بدین امر حق در قید کرده بود محرومین عریضه باشد شب و روز جو یای احوال کتاب های صاحب واستخوان های آن مقتول میباشم شاید که لطف خداوند شامل شده از گم شده خود نشانی بیابیم و احوال مراد یهودی چنان معلوم شد که در یار کند ماندنی شده است دانسته پیره غلام هنوز نشد که چرا در یار کند مانده است این جا اسپ و اخرا جانش بهر طریقه که بود تمام کرده بودم در امر سفرش تا تمامی نبود دیگر تا بعد از این حالی شود از سبب ماندن مراد کنجه خان را که حامل عریضه میباشد به پایه سر بر دولت سرفرازش نموده فرستادم امیدوارم که به زودیش مرض فرماید که تا برگشت کنجه خان این پیره غلام در کاشغر چشم امید در راه میباشم و منظور غلام آنکه بهر طریق فرمایش بشود غلام همچنان



بحان کوشیده بهمان طریق عمل نمایم و اگر فرمایش صاحبان در طلبیدن پیوه غلام باشد همراه دو پسر خود از راه خریره یا مر سرفرار حضور فراهم شد خوفی که در دل پیوه غلام میباشد از تبت است و دیگر از احوال پیوه غلام کنگه خان مخبر است که خانه معه اسباب خانه بتاراج رفت و کم بیش که از هر جانب تردد کردیم ان را هم بر شوت و پاره بهر کس که رسید مضایقه نگردیم شاید که از گم شده کان خود نشانی بیابیم شب و روز به اتفاق مرزای مذکور که فکرش در بین عریضه شد جو یای احوال مطالبات هستم تا خداوند چه لطف کند زبانی کنگه خان آنچه معروض دارد مخبر احوال است و دیگر احوالات که درین ولایت میباشد قبل بر این خبر معلوم شد لشکر آروس به بالای اور کدج آمد و در این روزها را باز احوال رسید که لشکر قلبلی آمده باز برگشت راه دور است تا معلوم شود و امیر دوست محمد خان کابللی لشکرش ولایت قندوز را گرفته در تصرف دارد تا بعد ازین چه کند گویا از گرفتن قندوز بدخشانی و گولابی و حصاری این هر سه ولایت اتفاق کرده خیال جنگ را دارد تا چه شود و از سمت آق مسجد هم لشکر آروس آمده است و تدارک بسیاری از غنه و قورخانه آورده و می آورد و از سمت قزل هم جایی است که بسمت هشترخان هم می رود و بختن هم می رود بخوقند هم می رود از آن طرف هم لشکر آروس به تدارک تمامی آمده است قزاق و قرقر همه تابع شدند و ثانیاً معروض پیوه غلام آنکه کاروان تبت را هم درین روزها کنجونی زده غارت کرده است یک خط بدست سید افغانی از احوالات خود پیوه غلام و ثانیاً احوالات بهمان کاروان کوه فرستاده شد اگر سید افغانی در کاروان زدگی باشد خط فرستاده باشد و اگر بدیگر کاروان باشد انشا الله منظور خواهد شد باقی ایام دولت بردوام باد \*

2. From Dr. Carter, the concluding portion of his report on Geological specimens from the Persian Gulf collected by Captain C. G. Constable, the former portion of which was published in the first No. of the last year's vol. of the journal.

The Secretary read the above papers to the Meeting.

The thanks of the Meeting were voted to Dr. Carter for his interesting contribution.

The Librarian submitted his usual monthly report for November last.



*Report of Curator, Zoological Department, for April and May Meetings.*

The following presentations have now to be recorded.

1. From J. H. Gurney, Esq. M. P., Catton Hall, Norwich. A series of beautifully prepared skeletons already mounted, *viz.* :—

*Mammalia.*

European Fox (*VULPES VULGARIS*).

Polecat or Foumart (*MUSTELA PUTORIUS*).

Badger (*MELES TAXUS*).

Seal (*PHOCA VITULINA*).

Hedgehog (*ERINACEUS VULGARIS*).

Water Vole (*ARVICOLA AMPHIBIA*).

*Aves.*

Great Black-backed Gull (*LARUS MARINUS*).

Goosander (*MERGUS MERGANSER*).

Black-throated Loon (*COLYMBUS ARCTICUS*).

Puffin (*FRATERCULA ARCTICA*).

The whole of the above being new to the museum as perfect skeletons, though it possesses an incomplete skeleton of the Seal.

Also British examples of three species of birds (skins), for comparison with their Indian representatives; *viz.* the Quail, the common Snipe, and the European Little Grebe or Dabchick.

The large or common Indian Quail is considered as a particular race by Mr. Gould; while the late Mr. Yarrell, on comparing specimens of Quails from Europe, India, and S. Africa, expressed his opinion that they were identical. In the examples now compared, the only difference that I can perceive consists in the fact, that our Indian Quails were killed during the cold season, with more newly moulted plumage; while the British examples were as obviously killed during the summer, when their feathers had been longer worn.

The same remark applies to the Snipe.

With regard to the Little Grebes of the two regions, there seems to be more of white at the bases of the *remiges* in the Indian race (*P. PHILIPPENSIS*, Scopoli); but it may be doubted if this be constant, and a Chinese example is intermediate.



2. M. Zill, travelling naturalist. A fragment of the egg-shell of the huge extinct Dodo-like bird of Madagascar, *EPIORNIS MAXIMUS*, Is. Geoff.,—an egg beside which that of the Ostrich is comparatively diminutive, and which is stated to hold about two gallons.\*

3. Donor unknown. Skin of *LAGOMYS ROYLEI*, from Tibet.

4. Major G. G. Pearse, commanding 3rd Sikh Irregular Cavalry, Sigouli. Skin of *HÆMATORNIS CHEELA*, in semi-adult plumage.

5. Rāja Rádakhánta Deb, Bahádur. A large specimen of *TRYGON MARGINATUS*, Blyth; referred to in a note to p. 38 *antea*.

6. Capt. Jethro Fearweather, late commanding the ship 'Forfarshire.' Skull of *DELPHINUS EURYNOME*, Gray, from the Bay of Bengal. A very beautiful and perfect specimen.

7. Mrs. Edwards. A fish in spirit, from Port Blair, Andamáns. It is a *SERRANUS*, one of several species which are uniformly dotted over with small white spots; but it has not hitherto been identified satisfactorily. (D. 9/17—A. 3/8.)

8. Capt. E. Fowle, of Rangoon, through Capt. Niblett, commanding the 'Sydney' S. V. A small specimen of the curious crustacean, *THALASSINA SCORPIONOIDES*, Leach. Capt. Fowle writes—"The Burmese call it *Padzoon ken* (or 'Scorpion Prawn'). It does not live on the surface of the ground, but burrows to a depth of three or four feet. This specimen was found at that depth." It is occasionally though rarely brought to the Calcutta fish-bazars.

9. Bábu Gour Doss Bysack, Deputy Magistrate of Balasore. Skins of *CHILOSCYLLIUM PLAGIOSUM* and *TRYGON IMBRICATUS*.

10. Capt. Eales, of the 'Fire Queen,' S. V. A Dog-fish, 6 ft. long, from the Aguáda Reef, stated to be only found in shoal-water, and known to sailors as the 'Sun-fish.' It is evidently the *NEBRUS CONCOLOR*, Rüppell (*Ginglymostoma concolor*, Müller and Henle); but is stated by Capt. Eales to have been toothless! The skull has been completely removed from the specimen.

11. Mr. Blyth. A stuffed specimen of the rare *RUPICOLA SANGUINOLENTA*, Gould, *P. Z. S.*, 1859, p. 99. Inhabits Bogota.

\* Here it may be remarked that the two types of Ostrich-eggs, from N. and S. Africa respectively, noticed by myself in *J. A. S.* XXVIII, 241, 282, and XXIX., 113, have likewise been remarked by the Rev. H. B. Tristram in No. V of Mr. Selater's new Ornithological Journal *The Ibis*, p. 74.



I observe that the Chinese Pangolin is referred to *MANIS JAVANICA* by Mr. Arthur Adams, in the *P. Z. S.* for 1839, p. 133; and upon re-examination of the flat skin sent by Mr. Swinhoe, I find that Mr. Adams is right, and that I was incorrect in following the late Dr. Cantor (*Ann. Mag. N. H.* IX, 274), in assigning it to the Indian *M. PENTADACTYLA* in p. 93 *antea*.

With reference to my remark in *J. A. S.* XXIX, 493 (note), that I was unaware of the existence of any 'Susú (*PLATANISTA*) in the Burmese rivers, Lt.-Col. Blake, commanding at Schwe Gyen, writes word—"As regards the Porpoise, I have not been able to procure you one; but that they do exist in these rivers is certain. I have seen them tumbling over each other in the Irawádi, the Pegu river, and the Sitang, as high up as Sitang." The genus, however, remains to be ascertained, and the habit referred to of "tumbling over each other," is what I have never seen done by the Susú. Perhaps the following species is intended:—

A small cetal new to the Gangetic streams was brought to me on the 18th July, 1860.\* It proved to be an adult male of—

*NEOMERIS PHOCÆNOIDES*, Gray, founded on the *Delphinus phocænoides*, Dussumier, *MS.*, Cuvier, *R. A.* I, 291, and *D. et Delphinapterus melas*, Temminck, of the *Fauna Japonica* (should these prove to be identical, as suggested with much probability by Dr. J. E. Gray, *Br. Mus. Catal., Cetacea*, p. 80). It appears that a skull in the Paris Museum, marked *D. phocænoides*, was brought from Malabar by Dussumier in 1837; "teeth  $\frac{2.0}{1.9}$ ;" while the Japanese skull of *D. melas* in the Leyden Museum has "teeth  $\frac{1.6}{1.6}$ ," according to Dr. Gray. In the Calcutta individual the teeth are  $\frac{1.5}{1.7} - \frac{1.6}{1.8}$ ; the foremost pair in the lower jaw being situate *underneath* the next, and *transversely*, meeting at the tips. The fresh animal had so much the appearance of a young *GLOBICEPHALUS* (except in having no dorsal fin), that seeing it under rather adverse circumstances, in a violent downpour of rain, I mistook it for such as I had obtained in the corresponding month of the preceding year; so, not requiring another young *GLOBICEPHALUS* for the Society's museum, and being

\* On reference to the date of this Report, it will be perceived that the above notice of the *NEOMERIS* is here interpolated, and rightly so, as I had the chance of noticing it on the present suitable occasion.



short of hands just then in the taxidermist's department, with two large animals in course of preparation, I made the specimen over to Dr. Crozier of the Calcutta Medical College. Under that gentleman's superintendence the entire skeleton has been prepared, which he has kindly made over to the museum of this Society; but, unfortunately, no external part of the animal has been preserved, though Dr. Crozier has made notes of its outward appearance and anatomy, from which he has kindly permitted me to extract the following. It indeed occurred to me that the specimen was of a more leaden black than I had observed in *GLOBICEPHALUS INDICUS*, with the throat and pectoral region conspicuously albescent.

Dr. Crozier notices it as "a Porpoise 5 ft. long, of a bluish-black or lead-colour over the whole body, a little lighter on the under surface, and a white tinge under the throat and around margin of lips; a round head, protruding more convex on tip of upper jaw; blow-hole on upper-part of head, between two rather small eyes; opening [of the mouth] transverse and concave anteriorly, on posterior margin a row of small teeth of equal size in each jaw; a pair of long pectoral fins or flippers; body rather flattened laterally, and along the back a slight groove or depression of skin, which rises to a ridge posteriorly, on which is scattered a double series of *squamæ* or ossicles recalling to mind those of a Shark. Tail-flukes 17 in. in diameter."

On dissection, the animal proved to be a fully adult male, with a general resemblance in structure to *PHOCÆNA VULGARIS*, and others of the great *DELPHINUS* series.\*

\* Dr. Crozier also dissected the young *GLOBICEPHALUS INDICUS* obtained by me last year from some fishermen, who caught it in one of the streams connected with the salt-water lake E. of Calcutta; its skeleton being now in our museum. He remarks of it—"A *GLOBICEPHALUS* 4 $\frac{3}{4}$  ft. long; with blow-hole single, on upper-part of head, transverse and concave anteriorly; no external ear or *meatus auditorius*; eyes very small, just behind and above the angle of the mouth; opening of eyelids oblong from before backwards; opening of mouth large, with a thick fleshy soft tongue; 7 or 8 teeth in each jaw, very small, just appearing above the gums, indicating that the animal had been born only a very short time. The whole of the body is of a dark bluish colour, and the skin covered over with very thin cuticle; there is a slight constriction between the head and the body; flippers a good deal elongated; a small dorsal fin about the hinder two-thirds of the length of the body; tail-flukes large and notched in the centre; in middle of body a longitudinal umbilical depression."

Judging from my own recollection, and also from the stuffed specimen, 9 ft. long, in the Society's museum, I should not state the eyes to be "very small," but of the usual size in the *Delphinidæ*. In the *Susú* (*PLATANISTA*) they are exceedingly minute. In the *GLOBICEPHALUS* of 9 ft., the milk-teeth are consi-



The following highly interesting communication, regarding the Great Rorqual of the Indian Seas, has been kindly communicated by the Hon. Sir H. Bartle Frere.

“The Indian Rorqual is very common still in the seas off the coast of Arabia and Mekran, Scind, Cutch, Kattywar; and the Rorqual fishery is still one of the many strings which a Yankee captain trading on those coasts is apt to have to his bow. During the calm weather from September to February these ‘Whales’ are very constantly seen by any vessel between Bhoy and Kurrachee; the captains of coasting steamers told me they saw them almost every voyage at that time of the year. I have myself seen them twice in the few trips I have made from Bombay to Scind, once very close,—and remarked the large dorsal fin. They are also not unfrequently seen from Manora (the entrance to Kurrachee Port) in a very calm afternoon in the autumn, their black bodies, and jets of breath being visible with a glass in the offing when there is a bright light on the water from the afternoon sun. I have notes of three ‘Whales’ having come ashore, two early in our tenure of Scind, and one while I was there. We found him out by the stench from his carcase, and on going to the spot (a few miles from Kurrachee) found him stranded and half devoured by the Hyænas, Jackals, and Sharks, many of which were tugging at portions of the carcase which floated. We collected most of the bones, and sent them to the Kurrachee museum, whence I will get a photograph of them, and if possible a few of the bones, which are frequently found on that coast. John Macleod, whom you may perhaps know by name as an amateur naturalist, calculated the length of the ‘Whale’ we found as about 65 or 70 ft.; but it was in fragments, and nothing to lead to identification but the bones.”—

derably eroded, and a few of them had been shed, but without the tips of any of the permanent teeth appearing. The number of milk-teeth shewing above the gum would seem to have been  $\frac{6-6}{11-11}$ . In the skeleton of the newly born young, there had been a series of at least 12 on each side above, and more below; but I can only give the former number as *in situ* *bus veris*. Teeth of adult  $\frac{7-7}{8-8}$ . In the newly born young, the atlas and axis vertebræ are already partially joined, the other cervical vertebræ being still separate: in the adult the series are anchylosed into one mass, the whole of these being united into a single obtuse peak above.



Doubtless the identical specimen mentioned as having been "stranded near Kurrachee" in *J. A. S.* XXIX, note to p. 482.

At the time that my memoir on the Great Rorqual of the Indian Ocean was published (Vol. XXVIII, 481 *et seq.*), I had not seen Dr. J. E. Gray's British Museum Catalogue of *Cetacea* published in 1850. In that work Dr. Gray arranges the *Balænidæ* into four genera, thus—

"A. *Dorsal fin none. Belly smooth. Baleen elongate, slender.*

1. BALÆNA.

B. *Dorsal fin distinct. Belly plaited. Baleen broad, short.*

2. MEGAPTERA. Pectoral fins elongate. Dorsal fin low.

3. BALÆNOPTERA. Pectoral fins moderate. Dorsal fin falcate,  $\frac{2}{3}$  from nose. Vertebrae 46 or 48.

4. PHYSALUS. Pectoral fins moderate. Dorsal fin falcate,  $\frac{3}{4}$  length from nose. Vertebrae 54 or 64."

Now, if my cited authority regarding the great Rorqual of the Indian Seas be fully trustworthy, the dorsal fin of this animal "is about one-third or a little more from the head and is well developed;" which I take to mean from the setting on of the head, rather than from the extremity of the muzzle; though even this would place it nearly about the middle of the animal, or considerably too forward for either of the two genera with "falcate fin" recognised by Dr. Gray. Referring to an experienced whaler, who is familiar with the animal, he also states that "the fin is near the middle of the back, if anything rather backward." Further observation is required; as also respecting the number of vertebrae composing the entire series, the amount of *anchylosis* of the cervical vertebrae (or of junction or union of those that form the neck), the position of the sexual organs with reference to the dorsal fin, and likewise the dimensions of a specimen correctly taken, with those of its dorsal fin, flippers, and tail-flukes, the position of the eye, &c. &c., and above all a carefully executed figure is exceedingly desirable.

It appears that Sperm Whales (*PHYSETER MACROCEPHALUS* ?) are by no means uncommon off the coast of Ceylon, where, on the eastern side, my informant has seen a 'schule' of 30 or 40 within sight of land. They are also seen about Cochin, and thence across to Zanzibar, and especially about the Seychelles which is a noted



resort of the species. As a general rule, however, the Sperm Whale keeps to the open ocean, and is rarely observed in what seamen term 'narrow seas,' as the Bay of Bengal or Sea of Arabia even. My informant, who has been long engaged in the so-called 'fishery' for Sperm Whales, may be trusted as a safe authority for the species or genus.

Lastly, with reference to the remark of Nearchus (XXVIII, 481,) that the bones of Whales were, in his time, made use of for building purposes on the coast of Mekran, I may notice that they have also been thus used on the shores of the Polar Sea, at the N. E. extremity of Siberia. Thus Von Wrangell remarks that—"At many places along this coast we saw the bones of Whales stuck upright in the ground; our interpreter, and subsequently the Tschuktschi whom we met, said that they were the remains of the former dwellings of a stationary tribe. They appeared to have been of a better and more solid kind than are now used, and to have been partly sunk in the ground." And again—"There are traditions which relate that two centuries ago the Onkilon occupied the whole of the coast from Cape Schelagskoi to Behring's Straits; and it is true that there are everywhere along this tract the remains of huts constructed of earth and whale bones, and quite different from the present dwellings of the Tschuktschi." Von Wrangell's *Narrative of an Expedition to the Polar Sea* (Sabine's translation, 1840, pp. 360, 372.) E. BLYTH.\*

\* Referring to the recent use of flint implements, in p. 384 *antea*, I have since read the following passage concerning the American red man, quoted in the *London Athenæum* for Sept. 15th, 1860, No. 1716, p. 346. "They dig their ground with a flint, called in their language *tom-a-pea-kan*, and so put five or six grains into a hole the latter end of April or beginning of May," &c. &c. Quoted from a reprint of a *Two years' Journal in New York, and part of its Territories in America*, by Charles Wooley, or Wolley, A. M. (about A. D. 1678). Of course a research into the narratives of the old navigators will disinter many instances of the kind, by those who have the leisure for it, among nations unacquainted with the use of metals.

Two stupid *errata* have crept into my memoir on Indian *Cetacea*. One (p. 486 *antea*) is in the extract from the *Friend of India* newspaper. For "diameter" read *circumference*! The other relates to the longitude of the Sulu or Mindoro Sea (p. 484), which rectify as being from 118° to 122° meridians E. of Greenwich.

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Secretaries, The. 1861. "Proceedings of Tiie Asiatic Society of Bengal for September, 1860." *The journal of the Asiatic Society of Bengal* 29(IV), 405–453.

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