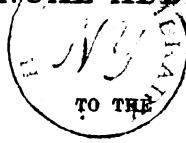


ANNUAL ADDRESS



# ASIATIC SOCIETY OF BENGAL

BY

THE PRESIDENT

H. BEVERIDGE, B. C. S.

*Calcutta, 4th February, 1891.*

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CALCUTTA :

PRINTED AT THE BAPTIST MISSION PRESS.

1891.

[Price, one rupee.]

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## ANNUAL ADDRESS.

GENTLEMEN,

I now rise to deliver the Annual Address. I do so with much diffidence, but am supported by the feeling that I am in my right, and am doing my duty. An authority whom the occupants of this chair are bound to revere has said, "Immemorial custom is transcendent law, ..... let every man therefore ..... who has a due reverence for the supreme spirit which dwells in him, diligently and constantly observe immemorial custom." The custom of an annual address is scarcely immemorial, but it is coeval with our Society, and so has prevailed for more than a hundred years—a period which represents, unfortunately, many generations of Anglo-Indians. I must follow the precedent set by a succession of distinguished men, but I may be allowed to point out that there is nothing in our rules which directs or empowers the President to deliver an annual address. The learned author of the history of our Society published in the Centenary volume says (p. 20) that the code of 1869 provided for an annual address, but I have been unable to find the provision in the rules of that year, and at all events there is no such rule in the code of 1876. If then the Society desire that the practice of giving an address should continue, it might be well to provide for it in the new edition of our rules which recent changes have made necessary. Provision might also be made then for a discussion of the annual report and the annual address, and I would suggest that the meeting in March might be set apart for the purpose. At present members have no opportunity of effectively discussing the annual report, for though it is the practice to invite remarks after the report has been read, there is no time at the February meeting for a discussion, and moreover members are not then in a position to discuss the report as they have not studied it.

The Report shows that in 1890, we lost six members by death. Among them was our former President Mr. E. F. T. Atkinson. His death was a great loss to our Society and to India. I made some remarks about his labours at the meeting in November, and shall now supplement them by the following remarks from the pen of Dr. George King.

"Mr. E. T. Atkinson came out to India, as a member of the Civil Service, in 1863. He was posted to the North-West Provinces where he soon began the active pursuit of his favourite science of Entomo-

logy. As a district officer, or as Judge of the Small Cause Court at Allahabad, however, it was impossible for him to specialise his studies; and he was obliged to find scope for his scientific instincts in the preparation of the Gazetteers of the N.-W. Provinces. A distinguishing feature of these, as compared with Gazetteers of other provinces prepared by less scientific writers, was the great prominence given to the description of natural products, both zoological and botanical. In 1882, Mr. Atkinson was appointed Accountant General of Bengal. This secured for him free access to the entomological treasures of the India Museum, and to the excellent libraries both of that institution and of our Society. The results were a series of valuable papers and catalogues of insects, the last of which was issued very shortly before Mr. Atkinson's lamented death. Almost the last work of his life was the formation of a complete index to his own entomological papers. In 1886 Mr. Atkinson was appointed Chairman of the Trustees of the India Museum; and to the affairs of that trust he gave, with characteristic devotion and single-mindedness, a large share of his leisure. In January 1889, Government showed its appreciation of his merits by conferring on him the title of C. I. E."

Mr. S. A. Hill the Metereological Reporter at Allahabad, and Professor of Physical Science in the Muir College there, was a valuable public servant, and unfortunately he died in the prime of life, and before he had done all his work. He contributed several papers to our Journal, and other publications, and has been described by Mr. Blanford in the columns of *Nature* as one of the best-known of the small band of scientific workers to whom we owe our present knowledge of Indian Meteorology. An abstract of Mr. Hill's more recent papers will be found at p. 95 of Colonel Waterhouse's Address for 1889.

Professor Bapu Deva Shastri, C. I. E. of Benares was a mathematician and astronomer, and was on this account made an Honorary Member of our Society. He contributed an article on Bhaskara's knowledge of the differential calculus to our Journal (XXVII, 213) and one on solar eclipses to our Proceedings for 1874. He assisted Professor Hall in editing the *Surya-Siddhanta*, translated part of the same work, and revised Mr. Wilkinson's translation of the *Siddhanta Siromani*.

I may be allowed to mention here Sir John Francis Davis the Chinese scholar who died in England in November last. He was not one of our members, but he was the son of Samuel Davis one of the founders of our Society, and whom we are all proud of, both for his scientific attainments and for his heroism at Benares. Sir John's name appears as the translator of one of the publications of our Society—*The Sorrows of Han*—but in fact that charming little drama, which on

account of its pathos and brevity I would strongly recommend you to read, was translated for the Oriental Translation Fund, and was not published by us.

Miss Marianne North, though not a member of our Society, deserves mention here on account of her valuable contributions to Indian Botany. Miss North died at Alderton in Gloucestershire on the 30th August last. There is an interesting notice of her life and work by Mr. Helmsley in the Journal of Botany for November last.

The Report which has just been read shows that our financial position is fairly good. We have a large amount of Government paper (Rs. 134,700), and I should think that in this respect we compare favourably with most of the other learned Societies. Our receipts from subscriptions continue to be considerable. We have added to our income by letting two of our downstairs rooms to the Photographic Society for Rs. 60 a month, and we have procured exemption from income tax on our securities. On the other hand we have lost by the reduction of the Government rate of interest from  $4\frac{1}{2}$  to 4 per cent. In order to recoup ourselves for this loss, there is a proposal now before the Society to invest Rs. 50,000 in municipal debentures. Our printing charges, and the salary bills of our establishment are heavy, and so are our municipal taxes, and our postages. The municipal tax is Rs. 819 a year. We got a reduction when some of our land was taken away for the Park Street footpath, but the rates were raised afterwards so that practically we gained nothing. It is much to be wished that the Municipality could see their way to reduce or remit our tax, but it seems that there is some legal difficulty about this, which perhaps future legislation will remove. I commend the matter to such of our members as are Municipal Commissioners. The Municipality has lately come nobly forward to help the Calcutta Public Library, and we may therefore hope that it will be equally liberal to our venerable institution.

Our expenditure on postage amounted to Rs. 622. I fear that the reduction in the foreign letter postage will not help us much for our chief expense is in book and parcel postage. If we could be sure that our Agents would distribute our publications without undue delay, some saving might be made by reverting to the old practice of sending them to Europe in boxes. In the inland postage we have made a reduction by registering our Proceedings as a newspaper. In my opinion it would be well if we abandoned the separate publication of our proceedings, and made our Journal monthly instead of quarterly. If this were done all our periodical publications could be registered as newspapers. It is a common opinion now-a-days that quarterly publications are behind the age, and I am told that the palmy days of

Quarterlies have passed away, and that monthly Magazines are now in the ascendant. I am very anxious that our Society should not fall behind the times, and I have no wish to conceal from you that we are passing through a period of trial, and that there have been ominous mutterings about our delays and alleged somnolence. It is the fate of every institution to be called upon for the password, and if it be not ready with a reply, it must suffer the consequence. Or to speak in more homely phrase, we must show our ticket whenever the world's servants demand to see it, and if we have not got it, or it be not good enough, we must either get out, or take a lower seat.

We owe a considerable sum to our Agents Messrs. Kegan Paul, Trench and Trübner. This was chiefly caused by an abnormal expenditure some years ago on plates for the illustration of the Natural History part of our Journal.

Full accounts have not yet been received from our Agents, but as it is certain that we owe them a large sum we are taking steps to make them a remittance of £200. There is no doubt that we could with advantage spend much larger sums of money than we now do, and I am myself of opinion that we should not lock up our capital in the way that we have been doing for some years. It would be better to spend a portion of it so as to maintain the ancient renown of the Society, and to bring it abreast of modern requirements. We want money for many things. For example we have a valuable collection of pictures, but they are falling into decay, and we have no money wherewith to clean them, to renew the frames &c. If we are to keep the pictures we should keep them in good order, but I think it would be better to make them over,\* with the exception of the portraits, to an Art Gallery, should Government or the public ever see their way to establish such an institution. I understand that at present Government is bestirring itself in this matter, and that a Committee has been formed to select a site for an Art Gallery. The portraits are hung so high that they cannot be seen properly. Some of them want labels. We do not always know of whom the portraits are representations, and even when we do know this, we are not in a position to tell visitors, for what the original of each picture was distinguished. We certainly want a *Catalogue raisonné* of our portraits. We also want one for our busts, copper-plate inscriptions &c. The only one we have is that prepared in 1847 by our former Librarian Rájá Rájendralála Mitra, and it is in a great measure obsolete owing

\* It will, however, have to be seen if there is no legal difficulty in the way of our making over the pictures belonging to the Home bequest.

to the transfer of nearly all our collections to the Indian Museum. Our Library Rules, article 19, provide for separate registers being kept of copper-plate inscriptions, photographs &c. but I am sorry to say that they have not been prepared. They should not only be prepared, but also printed. We still have a collection of coins, but it is nearly useless to members or the public, because it is not catalogued, and is hidden away in an iron safe. A curious jumble of coins, medals and seals were found the other day in an obscure part of our stock-room. The box has been brought up-stairs, but we have no one at present with the requisite knowledge and leisure to examine and assort the contents. They consist chiefly of small and nearly worthless Hindu coins of base metal, of which the Stacy collection contained upwards of three thousand specimens,\* but the medals and seals are curious, and in the box there were two gold coins.

Our Society took an interest in coins from the beginning, and a paper on these appeared in the *Researches* for 1790. But we had no Museum till 1814, and it was not till the "thirties," that there was much activity among us in numismatics. James Prinsep kept this flame alight as well as others. Unfortunately we lost most of our specimens in 1844 by theft, though I have never seen any details of the occurrence. Some fifteen or sixteen years after that, we made a great effort, and purchased the Stacy† collection for Rs. 4,000. We acquired it in 1859, chiefly by subscriptions among our Members. Many additions have been made to our collection by donations and by means of the Treasure Trove Act. The Indian Museum has also a large collection of coins, but they too are invisible. A most expensive cabinet was purchased and sent out from England for the purpose of exhibiting the coins in the Museum. But it has never been brought into use. The reason given is the danger of theft, but this difficulty has been grappled with in other Museums. At all events it should not prevent the exhibition of facsimiles or having a catalogue. I venture to think that it is not necessary to have two collections of coins in one and the same street of Calcutta. Would it not be better to sell or otherwise transfer our collection to the Indian Museum? or if that is impracticable, or is disapproved of, might not the Museum give us their coins, and also their cabinet? If Government would do this, and would

\* We are said to have 3,497 of these. Sir Alexander Cunningham, J. A. S. B., for 1865, p. 123, says that Colonel Stacy got most of them at Gohad in Gwalior.

† It is to be regretted that we have no portrait or memoir of Colonel Stacy. We owe to him not only the collection of coins, but also the so-called Silenus group now in the Indian Museum. There is a reference to Colonel Stacy's enthusiasm in Prinsep's *Essays*, I, 197.

also contribute something to the appointment of a numismatist, we might have one good collection of coins in Calcutta, and have it properly exhibited and cared for. I think that we should no longer be dependent upon chance in this matter. At present, now that Dr. Hoernle is away, we have no one who can deal with the coins of all descriptions which we are constantly receiving under the Treasure Trove Act, although Mr. Tawney has kindly agreed to carry on a portion of the duties. It may be said that numismatists are not to be found in India, but I do not see why a young man, either European or Native, could not train himself to be a numismatist. If Calcutta could not afford the whole expense of the appointment, his services might occasionally be lent to the other Presidencies. If we are to keep our coins, I strongly recommend that should a vacancy occur in our paid staff it should be filled up by one who either is, or is willing to become a numismatist.

Another thing which we are much in want of is an analytical index to our Journal &c. Mr. Bose has given us such an index to the scientific papers, but we want one for the other half of our Journal. In referring to this, Dr. Mitra writes (Centenary vol. p. 55) "A carefully-arranged analytical index to the entire set is what is now much needed, and it is to be hoped that the beginning of the second century of the Society's career will be signalised by such a compilation." I am sorry to say that nothing has yet been done to fulfil this hope.

Our Library is deficient in many respects. We have not got many books that we ought to have, and we are at present without means of buying them. The time too is approaching for making a new Catalogue, or for publishing a supplement thereto. At all events we ought to have a Catalogue prepared according to subjects. Our Library is about the best thing we now have, and it is with reference to it that we are chiefly judged by Mofussil members and the outside public. It behoves us therefore to keep it in good condition. It is a fine Library, and has many rare and valuable books, but we must look to our laurels now that the Calcutta Public Library has been resuscitated and is entering into competition with us.

I submit also that a great Society like ours should do something towards the endowment of research. For example, we might spend something on an inquiry into the origin of the 'Barisál guns,' as they are called. We must guard against the danger of living on our past reputation or of trusting to our age for reverence.

It is not growing like a tree  
 In bulk, doth make us better be  
 Or standing long an oak, three hundred year  
 To fall a log at last, dry, bald, and scere.



A duty which seems to press upon us, and which might result in gain rather than loss, is that of making one or two volumes of selections from our records. I would especially urge that all Mr. Blochmann's contributions should be collected into a separate volume. Everything he wrote is worth preserving. We have a bust of him in our hall, but, as Lady Jones tells us in the preface to her husband's works, the opinion of Sir William Jones was that the best monument that could be erected to a man of literary talents was a good edition of his writings.

Then we want a general overhauling of our records. Our rooms downstairs contain piles of letters, accounts &c. which should be sifted, and partially destroyed. We have a long box full of rubbings, but there is no catalogue of them, and we have an almirah full of copper-plate inscriptions which surely ought to be kept under glass in such a way that they may be readily examined. We have also many xylographs, photographs &c. which should be catalogued. All these things mean extra establishments, and consequently extra expenditure, and at present I do not see where the money is to come from. Should it ever come, I would also plead for the appointment of a Maulavi. At present we have only a Pandit, and in these days of justice to Mahomedans we should have a Semitic scholar.

It is much to be regretted, and is to me rather incomprehensible that so few people have ever made us donations of money. It almost makes one disloyal, and inclined to wish for the days when Oudh was a kingdom to read that in 1829 the king of Oudh gave us Rs. 20,000 and his prime minister Rs. 5,000. We have had no such gifts since except in 1834 when a Mr. Bruce left us £2,000.

In thinking over the condition of our Society, and in considering what defects, if any, exist on its constitution, and in what way our Society might be improved, I have been struck with the idea that what we want is concentration of effort, and limitation of scope. I think that our lines are too extended. It is true that we have authority for wide views in the motto which stands on the covers of our Journal and Proceedings. Sir William Jones is there quoted as saying "the bounds of its investigations will be the geographical limits of Asia; and within these limits its inquiries will be extended to whatever is performed by men, or produced by nature." It will surprise you to learn that this sentence does not occur in Sir William Jones's works. As Rájá Rájendralála Mitra has pointed out in his valuable history of our Society, the words are a paraphrase of what Sir William Jones said, or rather, they are an abridgment of his remarks. They are taken, with omissions and slight alterations from the preliminary discourse which he delivered in January 1784. The precise collocation of words which forms our motto is not to be

found in the discourse, but it correctly represents Sir William's meaning. If it err at all, it does so by restriction, for even Asia was not enough for Sir William Jones. He wanted to add Egypt and Abyssinia. I desire to speak with all respect of Sir William Jones. He is our immortal Founder, and the pride of every Anglo-Indian. After labouring among us for ten years he left his bones in this city where they lie under "a star-y-pointing pyramid.\*"

But Sir William had a poetical mind, and somewhat of a turn for exuberant rhetoric. He had sate with Dr. Johnson at the Club, and had there imbibed perhaps a taste for Johnsonese. We must not press closely the language of a man who could describe castor-oil as "that noble deobstruent oil, extracted from the Eranda nut." Besides, Sir William Jones was speaking in the early days of oriental learning, and when the wealth of each plot of the field of research was not known. Ours was then the only Society in India. Now we have Societies at Madras and Bombay, the Indian Antiquary &c. I would remind you too that the title of our Society has been changed since the days of Sir William Jones. The original title was the Asiatick Society, the adjective Asiatick having been adopted by Sir William as being more definite than that of Oriental. Our first publication was the Asiatick Researches and in a sub-title they were described as the Transactions of a Society instituted in Bengal for enquiring into the history and antiquities, the arts, sciences and literature of Asia. But in 1832 or at least, in 1851, we became the Asiatic Society of Bengal, and our Journal was called the Journal of the Asiatic Society of Bengal. I think that we should accept the change which seems implied by the change of name, and confine our investigations as much as possible to the Bengal Presidency. Practically we have done this for many years—at least so far as Part I of the Journal is concerned. It is rarely that we have a literary paper dealing with Madras or Bombay. Our venerable Society is like Milton's banian tree.

"Branching so broad and long that on the ground  
The bended twigs take root, and daughters grow  
About the mother tree."

Perhaps some of the daughters may think that they are now taller than their mother, but it was she who reared them for all that. The parent trunk too is still green and vigorous. The number and value

\* Our Park Street cemetery has not many famous tombs, but two are of great interest, Rose Aylmer's and Sir William Jones'. It is pleasant to see from our Proceedings for 1885, p. 288 that the Society has regarded it as a pious duty to keep Sir William Jones' monument in repair. One of the epitaphs was, it seems, written by Sir William himself.

of the contributions to both parts of our Journal which we continue to receive is a proof of this. It will be remembered that Sir William Jones insisted upon this as a note or condition of life. "It will flourish, he said in words which appear on the title page of our Journal, if naturalists, chemists, antiquaries, philologers and men of science in different parts of Asia will commit their observations to writing, and send them to the Asiatic Society at Calcutta. It will languish if such communications shall be long intermitted; and it will die if they shall entirely cease." Contributions from all Asia we must of course give up if we ever possessed them, but our contributions from India are richer than ever. The difficulty rather is that we get too many and are not able to print them fast enough. This is a matter of great regret to me for nothing can be more disheartening to a writer or inquirer than to have his paper shelved. Delay, however, is not always avoidable. It often happens that papers require photographs for their illustration, and have to be kept back till these are ready. Sometimes the publication of our Journal is delayed by the necessity of sending proofs to England for correction. The Council and the Secretaries are fully aware of the importance of keeping contributors in good heart, and are doing their best to accelerate publication and transmission. In the matter of transmission the step has been taken of registering the Proceedings as a newspaper, and of posting them separately from the Journals.

It is much to be regretted that so few native gentlemen take a prominent part in our meetings, and that so few, comparatively speaking, are members. Doubtless the chief reason why we have not more native members is that the subscription is rather high. Another reason, I am afraid, is that we are not a government institution. I have sometimes thought that we might do more to attract native gentlemen. For instance, might we not at all, or at least at some of our meetings allow natives of India to speak in their mother tongue? And might we not have meetings devoted to Sanscrit studies? I dare say some pandits would join us if they were allowed to discuss questions of Sanscrit grammar in Bengali. Might we not also revive the custom of lectures? They may not succeed well in the cold weather when the pursuit of pleasure is paramount, but they might answer in the hot weather and rains. We have an excellent hall for lectures, and we do not make sufficient use of it, or sufficiently take advantage of the admirable site of our building. Perhaps we do not make ourselves prominent enough. It seems that many people do not even know what the building at the corner of Park Street and Chowringhee is. We might remove this ignorance by having a brass plate at our gate. We might also have conversazioni, or even revive the old practice of

an annual dinner. We are not a rigidly scientific Society. We are and always have been, a Society composed mainly of amateurs, and there would be no harm, I think, in our courting publicity. We must march with the times and be on our guard against anachronisms. We have, I think, too many of them. The motto on our covers is, I think, an anachronism, and the fact of its not being an exact copy of Sir William Jones's words would of itself be a sufficient reason for removing it. Similarly the representation of our building which appears on our covers is an anachronism. It is meant to represent the south side of the building, but the verandah there depicted is now enclosed. At the entrance we have a marble tablet describing the building as the Library and Museum of the Asiatic Society, but we no longer have a Museum. Upstairs we have an Asoka stone with a tablet over it containing a badly worded inscription. The tablet is out of place because it no longer stands under Prinsep's bust, and the words on it imply that Prinsep deciphered the inscription on the stone below. In fact poor Prinsep never saw the stone, and it was not brought to Calcutta till after his death. The discoverer of it was Captain Burt.

Whoever examines our Journal and Proceedings must be struck with the increase of late years in the number and importance of the papers relating to Natural History. Part II of our Journal is now, I suppose, the most valuable part of it, for nearly all the papers there are by men who are masters of their subjects, and who are naturalists or physicists by profession. Part I on the other hand is mainly contributed to by amateurs, and it holds its ground against the publications of the Societies chiefly by the local knowledge of our writers and their favourable position in India for antiquarian researches. For a while Natural History was somewhat in the background in our Society. Mr. P. N. Bose ascribes this to Sir William Jones's aversion to zoological study on the ground that it involved cruelty to animals. It is true that he objected to birds and butterflies being killed because they had the misfortune to be rare or beautiful, and I daresay he was half a brahman in his tenderness to animal life. But it is wrong, I think, to say that he was opposed to the study of Zoology. He himself contributed three articles on Indian Zoology to the Researches, *viz.*, on the Baya or Indian Grossbeak, on the Pangolin, and on the Loris or slow-paced Lemur. At the end of one of these articles he writes that "there are in our Indian provinces many animals, and many hundreds of medicinal plants which have not been described at all, or what is worse, ill described by the naturalists of Europe, and to procure perfect descriptions of these from actual examination, with accounts of their several

uses in medicine, diet and manufactures appears to be one of the most important objects of our Society." The truth is, that Natural History had hardly attained the dignity of a science in the early days of our Society. We were established in 1784, and it was at about that time that some scientific men were horrified at the idea of a mere naturalist like Sir Joseph Banks sitting in the chair of Newton. Mathematics and the physical sciences connected therewith were then the favourites, and as Mr. Bose remarks "down to 1828 the only scientific contributions of any importance received by the Society were connected with some branch or other of mathematics." Later on, and especially after the arrival of that distinguished naturalist, Edward Blyth, Zoological studies came to the front in our publications. Mr. Bose's classified index show how the zoological papers went on increasing—especially those on the Invertebrata. His index only goes down to 1882, and if we had one for the past eight years, it would show a still greater rate of increase. Unfortunately the Natural History papers are somewhat expensive on account of the number of plates required. They are also, I fear, not generally popular with our members. Nearly all our members are amateurs rather than scientists, and many of these are native gentlemen among whom a taste for natural history has hardly yet been awaked. At all events it can only have been very few of us who appreciated the lengthy catalogues of insects which were published not long ago. I do not for a moment doubt the utility of such catalogues, or grudge praise to the gentlemen who have devoted much labour and skill to their compilation. I doubt, however, their suitability to our Journal. It was by its antiquarian and philological researches that the Asiatic Society originally made its reputation, and I am inclined to think that it is by such researches that it will best maintain its ground. We have an immense advantage over foreign Societies in our being able to get contributions from Government officers and others living in the interior, and in being able to get help from the natives of the country. In pure scholarship we cannot compete with Paris or Berlin, but wherever local knowledge comes in, we can pull them over the line.

If there was any doubt as to which was the most popular part of our Journal, I believe that the question could be very easily settled by offering to halve or otherwise reduce the subscriptions of Members who were content to take only one part of the Journal. I have no doubt that the great majority would choose Part I.

We seldom get geological papers now, for the Geological Survey has its own Memoirs, and it has occurred to me that it might be well if the publication called Indian Museum Notes were enlarged, and all purely technical papers brought out in it instead of in our Journal.

Might it not even be possible to found a Natural History Society in the same way as the Microscopical Society has been founded? The resources of our Society are limited, and I suppose that we are about the only Oriental Society that has two distinct departments, and which tries to carry on *pari passu* antiquarian and physical research.

This is a delicate matter to touch upon, and I hasten to get away from it. One thing, however, I should like to say is, that if we keep to our two departments, and make no change in the Journal, it might be advantageous to substitute fortnightly for monthly meetings, and to have one for literary subjects, and the other for zoology, &c. The present system, I think, wastes the time of members, and deters many from attending. For under it only about half of the audience is interested in any paper that is being read. As a rule the zoologist does not care for inscriptions or coins, and the numismatist or philologist does not care for animals or plants.

*Progress of Oriental scholarship, and of the sciences so far as they relate to India.*

I now proceed to give the annual synopsis of scholarship and science which the President of the Asiatic Society is expected to make. Here I feel my deficiencies most of all. I have been all my life a bit of a reformer, and have found a pleasure in making suggestions for seeming improvements. But the case is different when I find myself confronted by severe studies who when interrogated by a profane person, are apt to remain silent and averse like the senators at the sack of Rome. In my early days I was fond of geology and botany, and also dabbled in chemistry, but in thirty-three years of Indian official life such tastes have been atrophied, and I do not intend to say a word of my own about natural science. I have sought assistance among the specialists of our Society, and it has been liberally granted to me. Colonel Waterhouse has given me a paper on the progress of geography, and Drs. George and William King, and Messrs. Pedler, Sclater, and Cotes have given me similar assistance for their respective departments. I have also received valuable aid from Pundit Hara Prasád Shástri and Babu Sarat-chandra Dás.

In philology I have myself done so far that I have gone through the books and periodicals available to me, and have noticed what seemed to me likely to be of interest to members. I know that this selection is very imperfect, but I believe it to be useful, especially to native members, and so I have made the attempt. It seems to me most desirable that native and Mofussil members should be informed of the progress of European scholarship, and I regret that the practice of publishing

Literary Intelligence in our Proceedings has fallen into desuetude. If you will look up the back numbers of our publications, you will find that the Secretary used to give a quarterly precis under the title of Literary Intelligence.\* If our present hardworked Secretaries could do this every month in our Proceedings it would be a great gain, but if they cannot I almost think it would be worth while to get a naturalist and a philologist at home to give us monthly letters.

It would be something if even the titles of articles in oriental Journals were published in our Proceedings. This would be better than wasting type and money in publishing lists of books and periodicals purchased. It is needless, I think, to mention every month that we have got a new number of the *19th Century*, or that 4 numbers of *Nature* have been received.

#### I.—OUR SOCIETY'S PUBLICATIONS.

Two numbers of the literary portion of our Journal, and eight of the Proceedings (for 1890) were published during the year. The first number of the Journal contains an account by Babu Gaur Das Bysakh of the Buddhist monastery† founded in the last century at Ghusari opposite to Calcutta. I venture to think that this is an article eminently suited to our Journal. It deals with Calcutta which is our centre, and everything in connection with which is interesting to us, and it brings before us our earliest patron, Warren Hastings, the great *untitled* Governor-General.

It is well-known to many of you that Babu Gaur Das Bysakh takes a keen interest in the antiquities of his native city, and that he is anxious to do for Bengali Calcutta what Busted and others have so well done for the English part of the town. I am sorry to say that he has received a temporary check by his not having been allowed to examine the records of the Board of Revenue which are believed to contain many Persian and Bengali papers relating to the origin of the native town. I trust, however, that this difficulty will one day be overcome.

I do not feel quite so sure about the value of the articles on the Chhattisgarhi dialect which occupy so much of Nos. 1 and 2. I fear that they are too technical, and that they are more suited to the publications of a local Society. Chhattisgarh has lately had a considerable amount of attention from our Society, for in addition to these two

\* See Vol. XXXIII, pp. 199, 441 &c.

† I have been told that there are papers in the Bengal Office relating to the grant to Puran Gir Gossain. I hope that Babu Gaur Das will succeed in getting possession of them.

articles, we have had an elaborate paper on the district from Babu Prio Nath Basu.

No. 2 contains a valuable article on coins by Dr. Hoernle, and he has also contributed several papers on coins to the Proceedings. We have during the year published a monograph by Mr. Vincent Smith on Græco-Roman influence on the civilization of Ancient India. Mr. Smith's article is suggestive and perhaps somewhat daring, and it will probably excite a good deal of controversy. I can only hope, though it is with a hope against hope, that the controversy will be carried on without acrimony, and that nations as well as individuals will see that there is no disgrace in having been glad to learn. The subject of Mr. Smith's paper has been treated of in a very interesting address by Professor Weber to the Prussian Academy of Sciences. This paper, which was read on the 17th July last, is called the Greeks in India, and well deserves to be translated. Reference may also be made to Vol. XXV of the Sacred Books of the East, Rhys Davids' translation of the Questions of King Milinda. The original is a Pali rendering of an Indian work which is now lost. The interesting thing about the work is that Milinda is a corruption of Menander, one of the kings of Bactria. Milinda tells his Buddhist instructor that he was born at Kalasi (Karis) in Alasanda (Alexandria) which was an island in the Indus. Menander flourished in the latter half of the 2nd century B. C. and was one of the Greek kings who penetrated furthest into India. He crossed the Sutlej and probably reached the Jumna. It seems that India reacted upon him and that he became a Buddhist. It may be remembered that Gibbon hazarded the conjecture that India owed much of her civilization to the Greek kingdom of Bactria, and it would seem that this conjecture, like most of Gibbon's guesses at truth, was well founded.

Mr. Vincent has also a note in our Proceedings on the coins of the Pala Devas. A supplement to the Journal for 1889, which apparently should have been called Part IV, contains a descriptive catalogue by Dr. Hoernle of the coins of Central Asia collected by Captain Laessoe. This catalogue has given rise to an interesting historical article by Major Raverty which was read at our December meeting. Our Proceedings contain some papers which are none the worse for being short. Among them we have an article on that old subject the 'Barisál Guns' which seems to be as much a mystery as ever, and which, to use an expression of the Duke of Argyll, as yet shows no parallax, no sign that we have advanced to another point of observation. Babu Saratchandra Dás has a paper on the Tibetan Cosmogony, and the Tibetan Zodiac. It is curious that the apparently domed shape of the heavens, which Longfellow has compared to the inverted hand of God, should have suggested to the



Tibetans the idea of a gigantic tortoise. Dr. Waddell gives us an inscription from Monghyr which contains that pearl of great price in Indian inscriptions—a legible date. Pandit Haraprasad Shastri tells us of the Orissa gun with its inscription. I am glad to say that the gun is now in our possession, it having been kindly presented to us by Captain Petley. It adorns the grass plot in front of our building.

A copperplate inscription found at Ashrafpur in the Dacca district was bought by the Society, and has been deciphered and translated by Raja Rajendralala Mitra. It will be published in Part III of the Journal. A birch-bark manuscript has been presented to us by Lieutenant Bower, but unfortunately no one has yet been found able to read it. One fasciculus of the Catalogue of Persian and Arabic printed books, and MSS. in our Library has been published—an important piece of work which we owe to Dr. Hoernle; what we now want is a similar catalogue of our Sanscrit books and MSS.

#### BIBLIOTHECA INDICA.

The present series began in 1848. Long before that our Society had published several original texts. The name originally (1806) given to the series was *Bibliotheca Asiatica*, and I think that the change of title to *Bibliotheca Indica* is significant and was intended to mark that only books relating to India should be published. In 1835 we took over the unfinished publications of the Committee of Public Instruction. Among them was the *Fatawa Alamgiri* or the *Digest of Aurangzeb*. Though I do not approve generally of our spending money on translations, and think that our chief work should be the printing of original texts, and so making the extinction of valuable works impossible, I submit that it is most desirable that the *Fatawa Alamgiri* should be translated. It is a storehouse of Muhammadan law and the compilation of it under Aurangzeb's orders was perhaps the greatest work of his reign. It entitles him to the appellation of the Indian Justinian. Unfortunately his bigotry or that of his Tribonians caused the work to be composed in Arabic rather than in Persian or Urdu. Perhaps the translation of it is a work to be undertaken by Government rather than by our Society, but in any case it is very unfortunate that the work has not been done except partially and by a private individual (Mr. Baillie).

The Government grant consists of Rs. 500 a month for Sanscrit, and Rs. 250 a month for the Semitic languages. Now that Sanscrit works find many purchasers, and that private persons find it profitable to publish them, I think that the division might be reversed, and Rs. 500 a month allowed to the Semitic languages *i. e.* to Persian and Urdu. Our annual reports show that in the *Bibliotheca Indica* department we

have a long list of works which have been sanctioned for publication years ago, but which have not been begun. In most cases this has been the result of want of funds, but it has sometimes been caused by want of editors. I think it would be better finally to abandon some of these projects. We have surely enough now of Sanscrit religious literature, and might leave Vedas and Puranas to indigenous Societies. What we want most, I think, is a complete set of historical works. These are mostly by Muhammadans but one history by a Hindu ought I think, to be published, for this reason, if no other that it is the work of a Hindu. I refer to the *Kholasat-ut-Tawarikh* by Subhan Rai of Pattiala, (see Elliot, VIII, 5 and 8.)

A valuable memorandum on the Persian series of the *Bibliotheca Indica* was drawn up by Sir Edward Bayley and published in our Proceedings for 1864 pp. 464 *et seq.* One of our members has offered to translate the *Siyar-ul-Mutaqarin*. This would be a most valuable performance for Raymond's (Haji Mustapha) translation is full of gallinisms, and there is so much obscenity in his notes that it is unfit for being reprinted. Colonel Briggs' translation does not go beyond the first volume, and it is doubtful if the original is really by Gholam Hoossein. I may note here that there is an interesting reference to Gholam Hoossein in Sir William Jones' works, I, 149.

Colonel Jarrett has made considerable progress with the translation of the *Ain Akbari*, which Professor Blochmann, unhappily did not live to finish. The first fasciculus of the continuation will appear shortly. The edition of the Persian text of the *Riyaz-us-Salatin*, or *History of Bengal*, has been finished.

Besides the grant of Rs. 500 for Sanscrit literature we have a grant of Rs. 3,200 a year for the collection and cataloguing of Sanscrit MSS. This grant will shortly cease.

I owe the following remarks on the publications of the *Bibliotheca Indica* to Pandit Hara Prasad Shastri.

"Forty-five fasciculi were issued during the year under review. Of the works in progress the Council discontinued the publication of the translations of the *Riyaz us Salatin* and *Tuzuk i-Jahangiri*. Five works in the Sanskrit series were completed; of these the most important is the *Nyáyavindu Tiká* by Professor Peterson of Bombay. While editing the commentary from a solitary Buddhist MS. found in India, the learned Professor was fortunate enough to obtain the original work to which the commentary referred. Both the original and the commentary have been published in one fasciculus consisting of 134 pages. This was the standard work on Buddhist logic, and was formerly known to the learned world only in a Chinese translation. The other

work of importance is the Advaita Brahma Siddhi which attempts to establish the nondual theory of the Vedant philosophy by refuting the doctrines of both the orthodox and heterodox systems of Indian philosophy."

ARCHEOLOGICAL SURVEY, &c.

Parts IV—VI of the Epigraphia Indica were received during the year. All of these contain valuable inscriptions. Part IV has already been noticed in Colonel Waterhouse's Address. As mentioned by him, it contains a translation by Professor Kielhorn of the great Siyadoni inscription in the Lalitpur district of the N.-W. Provinces. It is in 46 lines and is over 3 feet in height and over 5 feet in breadth. This is the inscription originally mentioned by Dr. Hall, and which is referred to by Dr. Hoernle at p. 208 of the Centenary volume. Part V contains a translation by Dr. Bühler of an inscription which has been for many years at Cintra in Portugal, and was described by Murphy in his travels in that country in the last century, but which originally belonged to Somnath in Gujrat. Part VI contains a new transcript and translation by Professor Kielhorn of the inscription found many years ago at Deopara in Rajshahye and which is a panegyric on Vijayasen the grandfather of Lakshmansen. The inscription was composed by Umápatidhara, and Professor Kielhorn has no doubt\* that this is the poet whose "branching words" are referred to in the Gitagovind. The work on the Sharqi architecture of Jaunpur by Drs. Burgess and Führer, and Mr. E. Smith was noticed in Colonel Waterhouse's Address. I think that the editor, Dr. Burgess, should have mentioned that nearly all the historical introduction had appeared in the *Calcutta Review* so long ago as 1865 (Vol. XLI, 114). I presume that either Dr. Burgess or Dr. Führer wrote that article, but when the sources of the introduction were given in a foot-note, the *Calcutta Review* might also have been referred to. I cannot understand how the reviewer came to describe Jaunpur as a place free from painful memories, and how this remark has been reproduced without comment. The Sikh detachment there mutinied on 5th June 1857 and shot Lieutenant Mara their officer and Cuppage the Joint-Magistrate† and the place was for months a centre of disaffection, just as it was in Akbar's time. The same volume contains an important inscription found by Mr. Hoey at Sahet-Mahet on the Ráptí (the Buddhist Srávasti). It shows that Buddhism existed there as late as 1219. But it also seems to show that Buddhism

\* The identification had already been made by Raja Rajendralala Mitra when he translated the inscription for our Society.

† Kaye II, 238.

was merging into Hinduism, for there are several allusions to the worship of Siva and Vishnu. Dr. Führer, pp. 68, 69, rejects Mr. Carlleyle's identification of Bhuila Tál with Kapilavastu the birthplace of Sákyamuni. Mr. Hoey's work on Sahet-Mahet is now being published by our Society.

It is a subject for much rejoicing that the Broadley Museum at Bihar is likely to be soon removed at Calcutta and placed in the Indian Museum. That institution continues to be visited by crowds of natives,\* but I fear that they do not look at the antiquities with discerning eyes. Matters might be improved if hand-books or guide-books in the vernacular were drawn up and sold at cheap rates. Or possibly guides might be appointed and their services given to parties of natives at a low figure. The statues &c. should also I think have labels in Bengali and Nagari.

#### OTHER SOCIETIES.

We did not receive any number of the Journal of the Royal Asiatic Society or of its branch in Bombay last year. The Journal for 1889 of the Bombay branch was noticed in Colonel Waterhouse's Address. I may remark in addition to what is there said that M. Senart's paper on the new Asoka edict, to wit the 12th, discovered at Shabbazgarhi by Captain Deane contains what seems to be some very sensible observations on the utility of Asoka's inscriptions. M. Senart points out that they occur in desert places, and are so placed there that they cannot be conveniently read. Though very carefully engraved, they cannot be read in their entirety from the foot of the rock, and even with the help of a ladder it is not easy to read them. In some cases he had to travel over the rock on all fours, and then read the lines upside down. M. Senart thinks therefore that the inscriptions were regarded by Asoka rather as means of acquiring merit, than as works of public utility. This view, he thinks, explains why the inscriptions are not in the local dialects. There is also a paper on a Sanscrit inscription from Java, and another in which a Portuguese gentleman tries, vainly as it appears to me, to show that Dillon's account of the Goa Inquisition is a forgery.

\* The number of visitors in 1889-90 is said to have been nearly half a million (412,953), and this is exclusive of students. The omission to count students is curious. Their number would be a valuable test of the usefulness of the Museum. One may be allowed to doubt the accuracy of the record of the number of visitors. There are no turnstiles, and it is well-known that when turnstiles were introduced at the National Gallery in London, it was found that the record fell off considerably, indicating that previously there had been over-counting. Possibly children in arms are counted. It might be well to improve the finances of the Museum by opening it on Thursdays and Fridays for payment.

The Indian Antiquary contains so many valuable articles that it is hopeless for me to notice them separately. It is especially strong in articles about eras and dates. An interesting feature of the Indian Antiquary is that it gives from time to time notes on the progress of European scholarship. I have already said that we ought to do something of this kind in our Proceedings.

Before leaving Indian periodicals I may notice an interesting article on the first Bengal Chaplain which was contributed to the Indian Church Quarterly for January 1890 by our member the Rev. H. B. Hyde.

#### BOOKS PUBLISHED IN INDIA.

Among valuable works published in India last year I may notice the History of Ancient Civilization in India by our member Mr. Romesh Chundra Dutt. Mr. Dutt has now completed his history, and it may be recommended to all unprejudiced inquirers as very pleasant reading, and as giving a very fair account of Indian civilization. Naturally he has offended some of his countrymen. Mr. Dutt's work should partially take the place of Mrs. Manning's which was long the only popular book on the subject. The publication in parts of Babu Pratap Chandra Rai's translation of the Mahabharat still goes on. The translator has now published the 63rd Part containing a portion of the Santi Parva. Dr. Watt's great work, the Dictionary of the Economic Products of India is now far advanced. Four volumes are ready, and two more will be published this year. The seventh will contain the index. It is to be regretted that Government has not supplied us with a copy of the four volumes that have been published. Professor Forrest's Selections from India State Papers from 1772—85 are an important addition to Hastings' literature. Mr. Forrest would confer another boon on historical inquirers if he would republish with notes the trial of Nanda Kumar.

The Report on Indian publications during 1889 shows that the minds of the people are being considerably stirred, especially about religious questions. The Madras report observes that the preponderance of religious works is very marked, and, that they amounted to 45 per. cent. of the literature published during the year. There were 611 religious books and tracts of which 384 were Hindu, 157 Christian and 49 Mahomedan. In Bombay, at least one valuable historical book was published, a translation by Munshi Hosain Khan of the Ruqqaát Alamgiri, or letters of Aurangzeb.\* Among the Maráthi publications there were the Lilavati, the Chronicle of Pánipat,

\* Elliot VII, 203.

written two years after the battle by Raghu Náth Yádv,\* and a drama called the Nyáyavijaya Nátak on the Crawford case. In Gujrati, there was a translation of Lady Audley's Secret! Other important publications in Bombay are the Rigveda with Sáynáchárya's Commentary, of which about three-fourth has been issued, and Peterson's edition of Bána's Kadambari. Mr. Satyendra Nath Tagore's Bombay Sketches, though the work of a Bombay civilian was published in Calcutta.

I should add to these works Mr. Lewis Rice's "Inscriptions at Sravana Belgola" which was published at Bangalore by the Archaeological Survey of Mysore in 1889. This is a very valuable book. It contains a photograph and description of the colossal statue of Gomata, (Gomatesvara) and copies of 144 inscriptions. Inscription No. 1 called the Bhadrabáhu inscription is perhaps older than any of Asoka's. It is on the hill called Chandragiri which is said to derive its name from Chandragupta of Patna, the Sandracottos of the Greeks. According to the Southern India tradition Chandragupta was a Jain and the disciple of Bhadrabáhu. He is said to have abdicated, and to have assumed the name of Prabhúchandra on entering into religion. It is under this name that he is mentioned in the Bhadrabáhu inscription.† Mr. Rice gives an account of the curious rite of *sallekhana*‡ or the obtaining of euthanasia by fasting. Many inscriptions record such religious suicides by men and women. Mr. Rice says "of the contents of these inscriptions it is unnecessary to say anything. They are painfully plain as to the main object for which they were recorded. The bitterest satirist of human delusions could hardly depict a scene of sterner irony than the naked summit of this bare rock§ (Chandragiri) dotted

\* Raghu Nath's account is referred to by Grant Duff, II, 144n., but perhaps Mr. Sáne has printed it for the first time. The battle was on 6th January, 1761.

† His grandson Asoka is also said to have been originally a Jain. The Hábra (or Bairat) edict now in our ante-room is the only one in which the name of Buddha occurs (Corp. Inscr. Ind. I, 25). Though the inscription is a short one the name, Buddha, is mentioned in it three times. For a facsimile of this inscription see the *Journal Asiatique* for 1887, Vol. IX, 498.

‡ "He should by degrees diminish his food, and take only rice seasoned with milk. Then, giving up the milk, he should gradually reduce himself to only a handful of water. Then, abandoning even the handful of liquid, he should according to his strength, remain entirely fasting; and thus, with his mind intent upon the five kinds of reverence, should by every effort quit his body. Desire of life, or of death, remembrance of fear, or friendship, action, these five are transgressions of *Sallekhana*, thus say the five Jinendras."

§ We are reminded here of Matthew Arnold's "lonely inn 'mid the rocks;"

"Where the gaunt and taciturn host  
Stands on the threshold, the wind  
Shaking his thin white hairs."

with emaciated devotees, both men and women, in silent torture awaiting the hour of self-imposed death. The irony is complete when we remember that avoidance of the destruction of life in whatever form is a fundamental doctrine of the sect."

JOURNAL OF THE AMERICAN ORIENTAL SOCIETY.

The great article by Prof. Hopkins on the position of the ruling caste in Ancient India was noticed in the last Annual Address. The 14th volume published in 1890 contains the text of the Kausika Sutra of the Atharva Veda by Prof. Bloomfield. The Proceedings for the Society for May 1885 but published in the volume for 1889 contain an article on the Garo language by Prof. Avery which should be interesting to us in Bengal. The author claims for the American Baptist Missionaries the merit of having been the first to reduce the Garo language to writing, but Mr. John Eliot gave a list of Garo words in the Researches of our Society for 1792. In the Vol. for 1889, pp. xxxviii *et seq.* we have a discussion between Professors Whitney and Hopkins on the date of the Laws of Manu.

JOURNAL ASIATIQUE.

The whole of the number for January 1890 is occupied with an article by M. Sabbathier on the Agnishtoma according to the Srauta Sutra of Asvalayana. The Agnishtoma or ritual of the praise of fire is described by Mr. Sabbathier as the simplest form of the Soma sacrifice. It is gratifying to find that he has been assisted in his labours by our Bibliotheca Indica edition of Asvalayana's text with the commentary of Gargya Narayan.

The February number contains one of M. Senart's interesting contributions to Indian Epigraphy. He describes there three inscriptions belonging to the Museum of Lahore. All three have dates, and in one the name of Kanishka appears. In the same article we have descriptions of the statues of Sikri. M. Senart discusses the question of Greek influence on Indian sculpture and his remarks may be compared with those of Mr. Vincent Smith already referred to. M. Senart's article is admirably illustrated, and I note that the illustrations are placed in the article and not at the end of the number as is our somewhat inconvenient practice. The same number contains a highly interesting article by M. James Darmsteter called the Great Inscription of Kandahar. This inscription is in a rock-cut chamber at old Kandahar. M. Darmsteter shows that there are really three inscriptions, one recording Babar's capture of Kandahar on 6th September 1522, and apparently put up in Babar's lifetime by his son Kamran, another by 'Askari a younger son of Babar, and thirdly an inscription put up some seventy

years later (circa 1598) in the reign of Akbar by Mir Masum Nami the author of a history of Scinde. This inscription gives a curious list of the territories subject to Akbar. It says that his dominions extend from Sarandib (Ceylon) Orissa, Bandgoraghat (Ghoraghat) Gaur and Bangala to Tatta, Bandar-Lahore and Ormuz, a nearly two years' journey. Then follows a bead-roll of towns and districts, which contains among other names those of Satgaon, Chittagong, Burdwan, Sulaimanabad, Sherpur Mircha, Purniah, Agmahal (Rajmahal) and Tajpur (?). One cannot help thinking how Mr. Blochmann would have enjoyed reading and commenting on this inscription. The mention of Bangala in it is interesting. This name appears also on the Astrolabe described on our Proceedings for April last, p. 649, and is apparently there used as the name of a town. The Astrolabe is of 1677, but the maker probably copied from some older instrument. Mir Masum was a well-known writer of inscriptions, and is the author of the famous one at Fatehpur Sikri in which an alleged saying of Jesus Christ is quoted (A. S. B. Proc. 1874, p. 174). M. Darmsteter had previously published in 1888 (J, A. XI, 491) ten inscriptions from Babar's tomb at Kabul. Among them is one in memory of Akbar's first wife and cousin Ruqaya Sultan Begum the daughter of Hindal. It is perhaps to be regretted that these interesting inscriptions were not published in an English journal, but at all events Mr. Darmsteter obtained them from English officers. He also has candidly pointed out that the Kandahar inscription was published many years ago in Calcutta, though in an imperfect form, by Mohan Lal the munshi of Sir Alexandar Burnes. The *Journal Asiatique* for December 1889 contains a beautifully expressed eulogium by Renan on Pavet de Courteille the translator of Babar's Memoirs from the Turkish, and the February number of 1890 contains the best tribute that I have seen to the memory of our distinguished countryman Sir Henry Yule. It is by M. Henri Cordier.

Since the above was written, the July-August No. for 1890 has been received. It contains the financial statement for 1889, and the annual report by M. Darmsteter. It is interesting to see that the French Asiatic Society has also difficulties in collecting subscriptions. Three-fifths of the members, we are told, pay regularly. I note too that part of the funds of the Society is invested in railway shares. As we are not a Government institution and are not bound by our rules to invest only in Government securities I think that we might follow this example, and invest in joint stock Companies, if thereby we could get higher interest, without serious danger of losing our capital.

M. Darmsteter's report is very interesting. It is a triennial



one, and notices everything that has been down for Oriental studies in France during the years 1888-89, and part of 1890. He calls attention to a very interesting note by M. Sylvain Lévi on India in the time of Alexander the Great (*Journal Asiatique*, 1890, I. 234—240). M. Lévi shows that the name of Omphis which was the title of Taxilus before he came to the throne is probably the same as Ambhi which occurs in the Ganapátha which is an appendix to Panini's grammar. He draws the inference that Panini's grammar was probably composed at the time of the Macedonian invasion. Mr. Lévi also identifies the Tiberoboam of the Pseudo Callisthenes with the Tabranala, and thereby strengthens Sir Alexander Cunningham's identification of the capital of Taxilus. A young Japanese scholar, Mr. Ryanon Fujishima, has published part of the work of a Chinese pilgrim, I-tsing who left China for India in 671, twenty-five years after Hiouen-thsang, and spent twenty years in India and sent from there to China a book in four volumes called the history of the inner law. It seems that this work contains valuable information about Indian Buddhism &c., and it is to be hoped that it will soon be fully edited and published. M. Vinson has published extracts from the Journal of Anandavangappoullé a dependant of the French East India Company. Among other interesting matter they contain conversations with Dupleix. M. Darmsteter has published last year a valuable work on Afghanistan called *Chants populaires des Afghans*.

#### JOURNAL OF THE GERMAN ORIENTAL SOCIETY.

Parts I and II for 1889 contain articles by Bühler on the Asoka inscriptions, and Part II for 1890 contains an article by Prof. Jolly on the history of Indian law which would surely have delighted Sir William Jones. Part II for 1889 contains a short article by Dr. Böhlingk on the question of the authorship of the Hitopadesa. Prof. Peterson has on the strength of three MSS. declared that the author is one Narayan, but Dr. Böhlingk thinks the evidence insufficient. There is also a learned article by Joseph Zubaty on the formation of the Tristubh and Jagati metres in the Mahabharat. Our former Secretary, Dr. Sprenger reviews Alberuni's India. In Part III for 1890, he has some remarks on Dr. Glaser's history of pre-Mohammedan Arabia and on the meaning of the word Ophir. It is sad to find that the veteran is suffering from weakness of eyes. There is also an interesting note by Dr. Böhlingk on the question if the practice of exposing female infants prevailed in ancient India. He answers this in the negative and decides that the text quoted in favour of the view does not support it.

The Vienna Oriental Journal for 1889 contains a note by Mr. Hewitt a Bengal civilian on one of the countries visited by Hiouen-Thsang.

Vol. 4, No. 4, for 1890 contains a continuation of Prof. Bühler's interesting articles on the authenticity of the Jaina Tradition. He notices the new inscriptions found by Dr. Fuhrer in excavating the Kankali Tila at Muttra. It appears that this mound covered a Buddhist stupa and two Jain temples. Prof. Bühler mentions that two papers on the Muttra inscriptions will appear in Part VII of the Epigraphia Indica.

#### OUR JOURNAL PART II.\*

The second part of the Journal for the year 1890 contains some papers of importance, though in consequence of the financial straits of the Society it has been found impossible to give so many plates as usual.

The first paper is one by Mr. Eliot and is devoted to explaining the curious inversion of temperature that occasionally takes place between the hills and plains of Northern India; this is due to various factors such as the absence or presence of cloud, the absence or presence of wind and the low snow line.

Among the Zoological papers is a very interesting one by Dr. A. Alcock, Surgeon Naturalist of the Marine Survey, on the Gestation of some Sharks and Rays (noticed below). Another one by Dr. G. M. Giles, Dr. Alcock's predecessor, gives descriptions of seven new species of Amphipods dredged off the Andamans and the Madras coasts; this paper is illustrated with a plate containing outline drawings of the various new species by the author of the paper.

Dr. T. H. Tull Walsh describes a new trap door spider (*Adelonychia nigrostriata*) from Orissa. The spider with its tube was dug up by the author under a banyan tree in a forest near Khurda, and as it lived for some time Dr. Walsh was able to observe and give some account of its habits.

Other papers dealing with insects are by M. Desbrochers des Loges on new *Curculionidae* and *Brathidae*, by Mr. F. Moore on some Indian *Psychidae*; by M. Bigot on a new species of Dipteron, and Lieut. E. Y. Watson's preliminary list of the Butterflies of Madras.

The botanical papers in the Journal are more numerous than usual this year. Dr. Barclay concludes his paper on the *Urediniae* found near Simla; this paper is illustrated with four plates. Dr. G. King continues his Materials for a Flora of the Malayan peninsula, the present instalment

\* Kindly supplied by Mr. Sclater.

deals with the Orders *Bixineae Pittosporaeae*, *Polygaleae*, *Portulacaeae*, *Hypericineae*, *Guttiferae* and *Ternstroemiaceae*.

Mr. Gamble of the Forest Department gives a description of a new genus and species of Bamboos got by Dr. Prain in the Naga hills at a height of 7,870 feet. Dr. Prain has contributed several papers, viz. 1. On a species of *Elliphanthus* from Diamond Island, Arakan. 2. On the non-indigenous species of the Andaman flora. This is an interesting paper dealing with all the cultivated plants and weeds which have been found in the Andaman Islands. Of the 151 non-indigenous plants found 37 were introduced intentionally and 114 were weeds and introduced by accident.

Besides these natural history papers there are in the present volume of the Journal three Mathematical papers by Asutosh Mukhopadhyay. "On Clebsch's transformation of the Hydrokinetic equations," "on Stokes' theorem and Hydrokinetic circulation" and "On a curve of Aberrancy."

Dr. L. A. Waddel has contributed a paper to the Journal on some new or little known hot springs in South Behar. Several of the springs here described are not mentioned in Mr. Oldham's Memoir on the subject published by the Geological Survey. A table is given showing the geographical and geological position of each spring with details of temperature, height above the sea, etc.

#### ZOOLOGY.\*

During the present year the most important event in Vertebrate Zoology is undoubtedly the publication of Mr. Boulenger's contribution to the handbooks of the Fauna of India. No general account of the Reptiles of India has been published since Mr. Theobald's Descriptive Catalogue published in 1876; since which time considerable additions have been made to the number of Reptiles known to inhabit the Indian Empire. The handbook is founded on the numerous catalogues of these forms which have been written by Mr. Boulenger during the last few years, with the exception of the Snakes, of which as yet no modern British Museum Catalogue has been issued. The account of this group has been specially prepared for the present work.

#### MAMMALS.

Very little work has been done this year in connection with Indian Mammals.

In the Proceedings of the Zoological Society three papers will be found dealing with this subject, one by Professor Sir George Mivart

\* Kindly supplied by Mr. Selater.

who recognizes only two species of the Genus *Cyon*, the wild dog of India, *Cyon alpinus* the Siberian form and *Cyon javanicus* the Indian and Malayan form; another by Mr. W. L. Sclater gives a list of the Indian Rats and Mice with notes on their specific and generic characters, their synonymy and distribution. The paper was founded on the examination of specimens in the Indian Museum; the third is a note by Capt. Percy Armitage on two mounted heads of the Thanin or Manipur Deer (*Cervus eldi*) which he had shot in the Shwaygheen district of Burmah.

#### BIRDS.

As is usually the case, a good deal more has been done in Ornithology than in Mammalogy. Mr. Oates has published the second and third volumes of the revised edition of Hume's Nests and Eggs of Indian Birds, the first volume of which was published in 1889. This completes the work and the two volumes now issued contain portraits of the late Mr. E. Blyth, of Mr. Blanford, Col. Godwin-Austen, Major Wardlaw Ramsay, the late Marquis of Tweedale, Mr. Brooks, Mr. Bowdler Sharpe, and Mr. Davison, nearly all of whom were members of this Society.

Count Salvadori has published in the Annals of the Civic Museum of Genoa, Second Series vol. VIII, a long account of a collection of birds made by Signor Fea, the collector of the Civic Museum, in Burma and the Karen hills. Among the latter are eight new species; and five more recorded from Burmah for the first time were obtained. It seems a pity that the Trustees of the Indian Museum have not yet been able to arrange some means of zoologically exploring the hill country of Burma, and that so many of the new discoveries not only in birds but in mammals and reptiles should have been made by foreigners.

Herr Ernst Hartert who has travelled about collecting in the Malay Peninsula, in Upper Assam, and in other parts of India, describes his journeys and collections in the Journal für Ornithologie for 1889 p. 345 and gives many interesting notes on the eggs and habits of the various birds he came across. In another short paper in the same Journal for 1890 (p. 154) he describes a new species of Babbler (*Crateropus larvatus*) from Madras.

Mr. George Reid has compiled a catalogue of the birds in the Lucknow Museum which will doubtless be found useful to ornithologists in the North-West Provinces. The collection consists of 5,360 specimens representing 783 species.

Mr. Sharpe (P. Z. S. 1890, p. 546), in continuation of his notes on the Hume collection of birds, has published an account of the *Coraciidae*

of the Indian region in which he describes a new species (*Eurystomus laetior*) from the forests of Malabar and the Nilgiris.

Mr. Beddard the Prosector of the Zoological Society of London (*Ibis*, 1890, p. 293) writes on the systematic position of an aberrant form of owl—(*Photodilus badius*). This owl the author considers should be removed from the family *Strigidae*, with which it is generally associated, to the family *Bubonidae*.

Major Wardlaw Ramsay (*Ibis*, 1890, p. 214) contributes a monograph on *Macropygia* a genus of doves of which several species occur in the Indian region.

Lieut. H. E. Barnes continues his "notes on nesting in western India" in the Journal of the Bombay Natural History Society, pp. 1 and 97 and gives plates of the nests of the Indian Tailor bird (*Orthotomus sutorius*) and of the White eye (*Zosterops palpebrosa*).

Mr. O. Grant, (*Ann. Mag. Nat. Hist.* vol. 6, p. 80) separates the Indian and Indo-Chinese form of pigmy rail from the western form; the latter retains the old name *Porzana bailloni* while the former will be known in future as *P. pusilla*.

#### REPTILES AND BATRACHIA.

Mr. Boulenger's handbook of the Indian Reptiles and Batrachia has already been mentioned. The only other paper of any interest published during the year on this subject is one by Mr. Vidal on the venomous snakes of the north Kanara, Journal of the Bombay N. H. Society, p. 64. In this paper it is shown that *Echis carinata* a poisonous snake is found in enormous quantities in the Ratnagiri district. In 1885 and 1886 the number of *Echis* destroyed for reward amounted to no less than 240,000 and 208,000 respectively while in the whole of the Indian Empire in these years only 420,000 and 427,000 snakes respectively were destroyed, so that at least half the snakes destroyed throughout British India for reward were *Echis* and were killed in the Ratnagiri district. The mortality from snake-bite is high in Ratnagiri, and is doubtless due to the *Echis* and not to the cobra which is very rare in the district.

#### FISHES.

The only naturalist who seems to have devoted much attention to Ichthyology during the last year is Dr. Alcock, the Surgeon Naturalist on board the H. M. S. Investigator. He has published three most important papers during the year, in the Annals and Magazine of Natural History, of which the first deals with the deep sea fishes collected by him in the Bay of Bengal during the season 1889-90 while with the Investigator. In five hauls all made off the Madras coast, considerably

over one thousand specimens were obtained, belonging to 24 species, of which nine are already known but rare, the other 15 appear to be new, and five new genera have had to be formed for reception of some of these new species. Perhaps the most remarkable of all the finds was a Pediculate showing close affinities to *Oneirodus* which is found only in the Greenland seas.

The second paper is on the deep sea fishes of the Arabian sea. These fishes were remarkable for their great size as compared with those of the Bay of Bengal. Nine new species and five new genera are described in this paper.

A third paper by Dr. Alcock contains descriptions of 14 new species of shore fish collected by him during 1889-90 dredging season on the coasts of the Bay of Bengal.

The last paper in the second part of the Journal for 1890, p. 51 gives a most interesting account of the gestation of certain species of Elasmobranch fishes in which he shows that in certain viviparous species there is a true placental attachment between the embryo and the mother. The placental cord which contains a vein and an artery ends in a spongy arborescent mass applied to the wall of the uterus which itself is full of spongy blood-vessels at that point.\*

#### ENTOMOLOGY.†

During the year 1890-91 there has been considerable activity in connection with the subject of Entomology. In the Journal of this Society, M. T. Desbrochers de Loges describes some new species of *Curculionidae* and *Brethidae* from the Indian Museum; Mr. F. Moore gives descriptions of some Indian *Psychidae*; Mons. J. M. F. Bigot describes a new species of *Diptera* from the Indian Museum; Lieut. E. Y. Watson gives a list of butterflies collected in Madras; Surgeon J. H. T. Walsh describes a new spider which he found, in its ingeniously constructed trapdoor nest, in Orissa. In Supplements to the Journal have appeared synonymic Catalogues, by the late Mr. E. T. Atkinson, of the oriental species of the *Coleopterous* family *Carabidae*, while similar Catalogues, by the same author, of the *Dytiscidae*, *Gyrinidae*, *Paussidae*,

\* I may note here that we have received as a Christmas present from our Centenary member Dr. Haeckel a copy of his *Plankton Studien* which is an essay on Marine Flora and Fauna. In a dedication to Dr. John Murray he congratulates him on having brought to a close the 82 Zoological Reports which occupy 32 quartos and 2,600 plates of the "Voyage of H. M. S. Challenger," and says that this epoch-making work is the largest and most important contribution that has been made to marine biology.

† Kindly supplied by Mr. Cotes.

H. B.

*Hydrophilidae*, *Silphidae*, *Corylophidae*, *Scydmaenidae*, *Pselaphidae*, and *Staphylinidae*, also a Catalogue of Oriental *Orthoptera* by M. Pictet, are in course of being printed. These Catalogues form part of a useful series, the publication of which was undertaken by the Asiatic Society in conjunction with the Trustees of the Indian Museum, the idea being to gradually extend them to all the numerous groups of insects found within the limits of the Oriental region, as men could be found who should be competent and willing to take up the different groups. Such Catalogues are much wanted to facilitate the study of groups like the *Diptera*, the *Orthoptera*, the *Neuroptera*, the *Hymenoptera*, and the *Hemiptera*, the literature of which is at present in a very confused state; it is to be hoped therefore that the work of publication, which has had to be temporarily suspended on account of financial pressure, will be resumed when the finances admit. In the Proceedings of this Society, Mr. Bigot describes a new dipterous insect from the Indian Museum; Mr. de Nicéville gives a note on the *pupae* of two butterflies of the subfamily *Nemeobiinae*; M. Lethierry describes a new *Psyllid*, said to be attended by ants of the genus *Camponotus*.

The Trustees of the Indian Museum have published an elaborate monograph in three parts, by Mr. W. L. Distant, on the subject of the *Cicadidae* of the Oriental Region; figures being given in illustration of all the species with a view to facilitating their identification.

Mr. H. Z. Darrah has published a paper on the cultivation of the *eri* silkworm in Assam, where a series of experiments have been carried on under the direction of the Department of Land Records and Agriculture. The object of the experiments, which were upon a considerable scale, was to ascertain the extent to which the *eri* silkworm could be profitably cultivated in Assam; but *Flacherie* broke out amongst the worms, also the crop of castor-oil leaves, upon which they were to be fed, was largely destroyed by caterpillars, and upon the whole the experiments seem to have shown pretty clearly, that though the industry may occasionally be profitable, especially when conducted upon a small scale in isolated spots, it is of too precarious a nature to make it worth while to invest any considerable amount of capital in it.

Mr. F. Moore has issued three parts of the extensive work he has undertaken on the *Lepidoptera* of India: these deal with the butterflies of the family *Euploëinae*, and are illustrated by numerous coloured plates, in many cases containing figures of the larval and pupal stages, which have hitherto been unduly neglected in works of the kind.

In the Transactions of the Entomological Society of London, Colonel Swinhoe gives a list of 662 species of *Lepidoptera* from Burma, no less than 107 of them being described as new: Mr. de Nicéville de-

scribes a new genus of *Lycaenidae* from the N. W. Himalayas: Mr. H. J. Elwes describes a new species of moth belonging to the curious genus *Himantopterus*, from the Naga hills; Dr. D. Sharp describes some new aquatic *Coleoptera* from Ceylon, and in a paper on the terminal segment in *Hemiptera* deals with the external genital armature of several Indian species; Mr. Neville Manders gives a list of butterflies collected in the Shan states, while the Rev. H. S. Gorham gives a series of notes on the *Lycoidea* and *Lampyridae* of the Indian Museum collection.

In the Transactions of the Zoological Society there is a general revision, by Mr. Kirby, of the *Orthopterous* sub-family *Libellulinae* from all parts of the world, including an account of the various species and genera to be found in India.

In the Comptes Rendus de la Société Entomologique de Belgique, Mons. E. Candèze gives a note on a collection of *Elatерidae* from Chota Nagpur.

In the Proceedings of the Manchester Literary and Philosophical Society, Mr. Cameron continues his general catalogue of oriental *Hymenoptera*.

Some papers on the *Coleoptera* collected by the late Dr. Stoliczka during the mission to Yarkand in 1873-5 are being printed by order of Government; they comprise descriptions of new species by Messrs. Baly, Janson, H. W. Bates, and F. Bates, and complete the series of entomological papers which have been appearing at long intervals since the date of the mission.

In the Proceedings of the Zoological Society of London, Mr. H. J. Elwes describes and figures a number of new Indian moths.

In the Journal of the Bombay Natural History Society, Mr. J. A. Betham gives a note on the butterflies of the Central Provinces; Mr. E. Y. Watson gives a list of the butterflies of Mysore; Mr. de Nicèville describes various new butterflies from different parts of India, and gives a list of the Chin Lushai species; Major C. T. Bingham gives notes on Oriental *Hymenoptera*; Messrs. Davidson and Aitken give notes on the transformations of some Bombay butterflies; while papers by Messrs. Cotes and Rothney, on Indian Locusts and Indian Ants respecting, are reprinted from other publications.

In the Annals and Magazine of natural history, Mr. C. J. Gahan describes some new *Longicornia* from India and Ceylon; Mr. W. L. Distant describes two new genera of *Cicadidae* founded upon new species obtained in Burma and Assam: Colonel Swinhoe describes some new Indian butterflies; Mr. Wood-Mason describes two new genera of *Mantidae* founded upon new species from Singapore and Perak; he also gives a note on a viviparous caddisfly found in Calcutta.



In the Indian Museum the chief work of the Entomological Section during the year has been the investigation of the history of the locust, *Acridium peregrinum*, which has overrun almost the whole of India during the past two years, stray flights penetrating into Bombay, Madras, the Central Provinces, Bengal, and Assam, and vaster hordes committing depredations over the whole of Sind, Rajputana, the Punjab, the North-West Provinces and Oudh. In the dry sand-hills of Rajputana this locust has been found to breed once in the commencement of the south-west monsoon rains, and a second time in the latter part of the rainy season, while in the north-western districts of the Punjab it breeds once at the close of the winter rains and a second time in the middle of the rainy season. The eggs are deposited in the ground and the injury to the crops is done, in the first instance, by the swarms of wingless larvae which emerge from the eggs, and afterwards by the winged flights of mature insects into which the wingless larvae develop. These winged flights penetrate into all parts of India, occasionally alighting to devour standing crops, and then passing on to commit their depredations elsewhere. Energetic measures have been taken by the district officials wherever eggs have been laid, and the cultivators have been encouraged, both to collect the eggs, and also to destroy the helpless larvae before they acquire their wings: the result being that no very extensive ravages have occurred in British districts, though in sparsely inhabited areas, such as those of western Rajputana, much damage has been done. Fortunately the flights, which have penetrated from the deserts of their homes in Rajputana and the Suliman Range, into the damper regions of Central, Eastern, and Southern India, have been unable to make headway against the birds and the unsuitable climatic conditions with which they have had to contend, and have invariably died off without depositing eggs, while the energy with which they have been driven off the crops by the cultivators in the villages where they have alighted, has materially reduced the amount of damage they have been able to occasion, though individual owners have in many cases suffered severely. Besides the investigation connected with the locust invasion, the collection of information on the subject of Indian Entomology in general and of Economic Entomology in particular, has gone on as usual, progress being also made in the matter of building up the reference collections which are necessary for the purpose. Parts III and IV of the periodical *Indian Museum Notes*, which are issued by the Trustees of the Museum under the authority of the Government of India, have been published during the year. Part III contains a detailed account by Mr. E. C. Cotes of what is known of the silk insects cultivated in India; while part IV contains notes on injuri-

ous *Rhynchota* by the late Mr. E. T. Atkinson, also on a new dipterous insect which attacks the Bengal silkworm fly, by M. J. M. F. Bigot, and on a butterfly destructive to various fruits by Mr. de Nicèville, besides numerous miscellaneous notes by Mr. E. C. Cotes on the insects submitted by district officers and others interested in agriculture, in connection with the investigation which has been undertaken by the Indian Museum.

#### BOTANY.\*

As regards Indian Botany, among the chief events of the year has been the publication, in the Journal of the Linnæan Society of London, of an elaborate paper by General H. Collett, C. B. and Mr. W. B. Hemsley, F. R. S., on the collections made by the former while in command of a column of troops in the Shan Hills and in Upper Burma. The paper contains descriptions of many new plants, some of which are of great interest. Amongst the novelties is a rose with larger flowers than any hitherto discovered species. Some excellent figures illustrate the paper. General Collett is one of the few British soldiers who work actively at botanical science. A paper† in the Transactions of the Edinburgh Botanical Society on the Economic Botany of Afghanistan and Persia has been published in London by Brigade Surgeon J. T. Aitchison, C. I. E. Dr. Aitchison accompanied several of our recent military expeditions into the latter country, and still more lately went with the more peaceful boundary commission. The more purely botanical results of Dr. Aitchison's labours were published some years ago, and this complementary volume now completes his contributions to our knowledge of the Botany of these interesting regions. The second volume of the Annals of the Botanic Garden, Calcutta, appeared during the year. The volume is in 4to. and contains 104 plates. It is devoted to the Indo-Malayan species of *Artocarpus*, and to the oaks and chestnuts of the same region. Its author is Dr. G. King. Several interesting botanical contributions have been given to the world during the year in the pages of the Society's own Journal. Amongst these are two by Dr. Prain of the Calcutta Herbarium. One of these is a most interesting paper on the non-indigenous species of the Andaman Flora. Up to a comparatively recent date these islands were absolutely virgin forest with a vegetation unpolluted by the plants used by civilized men and by the weeds which follow their footsteps. The object of Dr. Prain's paper is to show in what order these new introductions have arrived, and the extent to which they

\* Kindly supplied by Dr. George King, C. I. E.

† See *Nature*, No. 1104 (Vol. XLIII), p. 174.

have spread in the settlement at Port Blair. Dr. Prain's second paper describes a new species found on the little frequented Diamond Island. Dr. A. Barclay has published a third part of his valuable descriptive list of the Uredinous Fungi of Simla and its neighbourhood; while Mr. J. S. Gamble has described a new genus of bamboo. Finally, a second part of Dr. King's Materials for a Flora of the British Malayan provinces has appeared in its pages.

#### GEOLOGY.\*

Geological investigation in India during the past year has been continued on the lines of economic mineral research, especially with regard to the occurrences of coal and oil on the North-West frontier, and in Burma, and with fair and promising success.

Mr. Oldham has extended the area of coal occurrence in the Bolan valley and in the hilly tract of Zarukhu to the east and north-east of Quetta. His oil exploration has resulted in the demarcation of a tract for hopeful, though deep, boring in the Harnai valley in the neighbourhood of Spintangi; and during a *reconnaissance* with the Zhob Valley Expedition, a visit was made to the oil occurrence near Mogul Kot in the Sherani country.

The demarcation of oil areas in Burma has been carried out by Dr. Noetling, and he has considerably extended the area of the coal fields in the Shan Hills. The tin exploitation under Mr. Hughes, in Tenasserim, is beginning to give better returns: while some excellent ground has been met with lately. Mr. P. N. Bose's exhaustive report on the coal in the Darjiling district, between the Lissu and Ramthi rivers has brought this tract into quite a new and promising light. The seams are numerous, some of them being over 20 feet in thickness, though there is the usual faulted condition of the Himalayan foot-hills, and corresponding crush and breakage of coal. He estimates that about five and a half million tons are easily available.

Pure geological work has been kept in hand as far as was compatible with economic exploration. Perhaps the most interesting feature was the discovery by Dr. Noetling of lower silurian fossils in a series of limestones about twenty-four miles east of Mandalay. He collected and determined two species of *Crinoidarum*, a gigantic *Echinosphærites*, and an *Orthoceras* which, as he writes, "however few in number and fragmentary they are, prove certainly the lower silurian age of the red greenish-grey coloured limestone. The presence of such a characteristic form as an *Echinosphærites* even permits the identification of the exact horizon of the red limestone: it is an equivalent of the *Echinosphærites*

\* Kindly furnished by Dr. William King.

limestone of the Baltic provinces. It not only contains the same fossils but also strongly resembles the latter lithologically. How can we account for such a strange phenomenon as this? We find here a fauna under 22° northern latitude which is precisely the same as found in the Baltic provinces (59° to 60° N. Lat.), whilst the silurian fauna of the Himalayas approach much closer to the silurians of Central Europe. The fauna of the lower silurians of the Himalayas are as different to those of the Shan hills as are the silurian fauna of Bohemia to those of England. It must therefore be assumed that a branch of the Arctic province of the ocean by which the lower silurian beds were deposited reached at least to 22° N. Lat. of the Indo-Chinese peninsula; it is even likely that it extended still further to the south, as the limestone beds of the Shan hills are again met with in Tenasserim."

Mr. C. S. Middlemiss' Memoir on the *Physical Geology of the Sub-Himalaya of Garhwál and Kumaun*, which was issued by the Geological Survey in the middle of the year, has been received among geologists at home and in Europe as a most welcome and able contribution to Himalayan geology. His late survey of a part of the Salt Range in the Punjab has resulted in a more accurate interpretation of the very complicated stratigraphical relations of the palæozoic series as developed in that region. A main object was the following out of the famous Boulder Bed through its many appearances, keeping its relation to the Olive series, Conularia Bed, and speckled sandstone in full view as much as possible. More important, however, was the gathering of data concerning the positions and habit of the Salt Marl with reference to the contiguous formations. His views on all these points, some of which will probably necessitate some modification of the conclusions of Mr. Wynne and Dr. Waagen, who have all along been the great exponents of Salt Range geology and palæontology, are being published in the current number of the Records of the Survey.

Mr. Oldham, while at the coal and oil of Baluchistan, has very materially advanced the geological traverse surveys of Mr. C. L. Griebach and Dr. W. T. Blanford, as given in their memoirs on "Southern Afghanistan" (Memoirs of the Geological Survey of India, Vol. XVIII, Pt. I, 1881) and "Geological Notes on the Hills in the neighbourhood of the Sind and Punjab Frontier between Quetta and Dera Ghazi Khan" (XX, Part 2, 1883).

Prof. Martin Duncan, in connection with the collections of the late Dr. Stoliczka obtained during the Yarkand Mission, has described some new species of *Syringosphaeridæ* in a paper contributed to the Records of the Survey: and notes were also published by Mr. R. Lydekker on the pectoral and pelvic girdles and skulls of the Indian

Dieynodonts; on certain vertebrate remains from the Nagpur District; and on some fossil Indian bird bones.

A second part of the Provisional Index of the local distribution of important minerals, &c., of the Indian Empire, was issued by the Survey towards the close of the year. It treats of Madras and the North-West Provinces.

Dr. Johannes Walther, of Jena, published two interesting papers (*Verhandl. d. Gesellschaft für Erdkunde zu Berlin*, and *Zeitschrift. d. Deutsch. Geol. Gesellschaft. Jahr. 1889*) on *A Journey through India in the winter of 1888-89*, and *On Veins of Graphite in decomposed Gneiss (Laterite) in Ceylon*, translations of which, by Mr. R. B. Foote, appeared in the Records of the Survey. These papers are interesting as being contributions by a non-official geologist, and as testing the previous observations of the Indian Survey.

#### ASTRONOMICAL NOTES.\*

1. Prof. Janssen of the Meudon Observatory, made some observations on Mont-Blanc, probably demonstrating the absence of oxygen in the solar atmosphere..

2. About 13 new small planets were discovered, raising the total number to 300.

3. Proof was obtained by spectrum analysis of the existence of some double stars which even the most powerful instruments could not separate.

4. A new Observatory was built in the Vatican.

5. Schiaparelli proved the rotation of Mercury on its axis to be synchronous with its revolution round the sun, and that probably the same is true of Venus.

6. The arrangements for the production of a photographic Chart of the stars, on a uniform scale, were completed and in about three years the work will have been accomplished.

7. The successful observation of the annular eclipse of the sun at Bhagulpore on 17th June, 1890, by the St Xavier's College observers, resulting in a beautiful series of photos of the successive phases of the phenomenon, deserves mention.

#### CHEMISTRY.†

During 1890, the original chemical investigations carried out in India and published during the year have been only few in number. Messrs. Dymock, Hooper and Warden have continued their investigations on Indian indigenous drugs and the results have been in most cases incorporated in the "*Pharmacographia Indica*" published during the year.

Three papers have also been published in the Journal of the Chemical Society by Mr. Pedler on the subjects of the action of light on phos-

\* Kindly supplied by Father Lafont, C. I. E.

† Kindly supplied by Mr. Pedler.

phorus and on some of the properties of amorphous phosphorus; on the action of chlorine on water in the light and the action of light on certain chlorine acids and on the explosion of sulphuretted hydrogen and the vapour of carbon bisulphide with air and oxygen. The results of these papers have been mainly of technical interest.

#### GEOGRAPHY AND SURVEYS.\*

The geographical record of the year 1889-90 in India may be considered a remarkably good one, no less than 97,442 square miles of new country on our N. E. and N. W. borders having been brought under survey, besides the ordinary topographical and revenue surveys and other operations connected with the Survey of India under Col. Thuillier, R. E.

#### *Geographical Explorations and Surveys.*

*Chin and Lushai Hills.* Two expeditions took place during the season 1889-90 to the Chin and Lushai Hills, one starting from Kan, in the Myittha Valley, and proceeding into the Chin hills, and the other starting from Chittagong and proceeding into the Lushai hills. Each expedition was accompanied by a small survey party under Lieuts. Renny-Tailour and Bythell, R. E., respectively. The operations in the Chin hills resulted in the survey of about 3000 square miles, and those in the Lushai hills of about 6000 square miles of previously unknown country. The series of triangles carried on by the two parties were successfully connected in the neighbourhood of Haka.

*Upper Burma.* The reconnaissance survey of Upper Burma has been continued during the past year by two parties instead of one, under Major Hobday, S. C. and Captain Jackson, R. E., the operations of both parties being similar to those carried on during the past four seasons. The following areas give the results of the past season's surveys:—

	Sq. miles.
Myingyan and Meiktila districts ... ..	3,789
Lower Chindwin district ... ..	3,320
Northern Shan States ... ..	3,050
Bhamo and Katha districts and Momeit State ... ..	2,900
Shwebo and Sagaing districts ... ..	2,210
Pakokku district ... ..	1,212
Mandalay district and Thibaw State ... ..	980
Chinbok Country ... ..	800
Baw State ... ..	301
	18,562

\* Kindly supplied by Colonel Thuillier, R. E.

*Anglo-Siamese Boundary.* The Survey party under Captain Jackson, R. E., which accompanied the Anglo-Siamese Boundary Commission, succeeded in mapping an area of 9,020 square miles on the scale of 1 inch = 4 miles. Mr. Ogle who was a member of the Survey party was detached at the outset to work independently, with instructions to survey the four States of Mōng Ton, Mōng Hang, Mōng Chut and Mōng Ta. This he successfully completed.

*Baluchistan.* Geographical Surveys on the  $\frac{1}{4}$ -inch scale were carried on in the Zhob Valley, in western Mekran and on the Perso-Baluch Frontier by the party under Col. Holdich, R. E., the area surveyed in detail amounting to 35,260 square miles.

*Persia.* Assistant Surveyor Yusuf Sharif, Khan Bahadur, who had been deputed to accompany Colonel Sartorius, C. B. on intelligence duty in Persia during the summer of 1889, returned to India in October 1890, after having surveyed about 25,000 square miles of topography on the  $\frac{1}{8}$  inch scale.

#### *Trigonometrical Surveys.*

The series of principal triangulation commenced in 1888-89 in Burma, was continued during the past season and carried northward for about 50 miles along the meridian  $96^{\circ}30'$ . Six new principal stations were fixed and two were selected in advance. The operations on the coast for fixing beacons for the Marine department were also continued by the same party; this work was carried for a distance of about 170 miles, in which 35 beacons were fixed.

*Tidal and Levelling operations.* The recording of the tidal curves by means of self-registering tide-gauges, their reduction and publication of predicted heights have been continued at 17 stations on the coasts of India, Burma and Ceylon. The observatories at Colombo and Galle, having completed their registrations, were dismantled, and the sites of three new observatories at Trincomali, Diamond Island and Minicoy Island were selected. In addition to these, it has been decided to start observatories at Jashk and Bushire.

Spirit levelling operations were carried on during the year from Hyderabad (Deccan) to Bezwada and from Nawanār near the head of the Gulf of Kutch to a little north of Tatta in Sindh.

*Longitude operations.* The operations for the electro-telegraphic determination of arcs of longitude were resumed during the past season in the Punjab, Baluchistan and Central India. Seven arcs were measured, including the revision of one formerly measured in Baluchistan and the measurement of a cross-arc—Agra-Kurachi.

*Solar Photography.* Photographs have been taken throughout the year at the Trigonometrical Branch Office, Dehra Dun, on all days that the sun was visible, in the same way as in former years.

During the year the Trigonometrical Branch Office has been actively engaged in passing through the press the volumes of the accounts of the operations of the Great Trigonometrical Survey. Vol. XI, on Astronomical Latitudes, has been completed and issued to all the principal scientific societies of the world. Vols. XII and XIII containing the reductions of the Principal Triangulation of the Southern Trigon, have just been issued. Vol. XIV containing the S. W. Quadrilateral, is nearly through the press. This volume completes the series devoted to the final reduction of the principal triangulation of India west of meridian  $92^{\circ}$ . There are in progress a volume of electro-telegraphic operations, and one on tidal operations.

#### *Topographical Surveys.*

In addition to the *reconnaissance* surveys described above, topographical operations have been continued in Baluchistan, the Himalayas, in Gujrat, and the South Mahratta country. Forest Surveys were carried on in Hoshungabad, Central Provinces; in the N. Canara, Dharwar, Poona, Ahmadnagar, Colaba and Tanna districts, Bombay Presidency; in Salem, Madura, and Tinnevely, Madras Presidency; and in Prome, Tounghoo and Thayetmyo, Burma.

#### *Cadastral Surveys.*

Cadastral Survey operations have been continued in Chittagong, Julpaiguri, Orissa, the Bardwan khas mehals and in various Wards' estates in Bengal; in Jhansi, the Terai, Kumaon, the Bhabar and in the Rampur State, N.-W. Provinces; in Nowgong and Sibsagar, Assam and in the Thongwa and Kyauksee districts, Burma. New surveys were instituted in Bakarganj and Tipperah, Bengal, and in Gharwal, N.-W. Provinces. Traverse surveys were executed by three parties in various districts in the Central Provinces, N.-W. Provinces, and Burma.

#### *Publishing offices.*

The introduction of steam printing machinery into the photographic and lithographic printing office of the Survey of India has resulted in a very large increase in printed maps and other work reproduced by lithography or photo-zincography. The heliogravure process continues to make good progress and several plates illustrating our Journal serve to show the value of the method. The only new process to record is the method of making positive transparencies direct in the camera on dry plates, with very short exposures, by the addition of thio-carbamides in very small quantity to the eikonogen developer. This was discovered by Col. Waterhouse and described by him in the *Proceedings* for August, and seems likely to be of value, though not yet completely worked out.



## TRANS-FRONTIER AND OTHER GEOGRAPHICAL EXPLORATIONS.\*

Although no new geographical exploring expeditions of any importance appear to have been started during 1890, accounts of a great deal of very valuable new work have been received from all the parties that were out in Central Asia and Tibet. The most interesting of all is the adventurous journey in mid-winter of M. Bonvalot and Prince Henry of Orleans from Russian Turkestan across Tibet towards Lhasa and thence into China and through Yunnan to Tonquin. On our own eastern borders a great deal of work has been done both in Upper Burma and with the Chin and Lushai expeditions to add to our previously scanty knowledge of the upper waters of the Irrawaddy, Salwin and the country in the neighbourhood of the Koladyne, partly in connection with the Survey of India and partly with military expeditions. Explorations have also been made in Baluchistan and the N.-W. Frontier. It may also be noted that for the first time an English lady has crossed the Pamirs and the Karakoram and passed from Russian Turkestan into India.

*French Possessions.*—Our French neighbours seem to be unceasing in their efforts to explore the upper waters of the great rivers debouching in Cochin China and Tonquin, with the object of obtaining control of the trade of Northern Siam, Yunnan and S.-W. China. The most important effort of the kind reported is the discovery by Messrs. Fontaine, Pelletier and Mougeot, in a journey up the Me-Kong river, that the Khong rapids are not impassable, as had always been supposed, and that this river is navigable up to the mouth of the Mun, so that it may thus be possible for steamers to go from Saigon to Luang Prabang by the Me-Kong. The fall of the stream in the navigable channel is only 1 : 1000, and most of the rocks are covered at the time of lowest water in February. A steamer can go from Khong to Bassak, which is an important commercial centre, in six hours and bring down to Saigon the river products which are collected at the capital of Laos and are now carried overland to Bangkok, reducing the time and expense of carriage about half. Two steamers have since been taken up by Licut. Heurtel as far as the Khong rapids and he believes that a regular service could be established during the season when the river is full.

On the China side, M. Haas proposes to push as far as possible up the Yang-tze-Kiang beyond Sui-fu and make a geographical and commercial exploration of Szechuen, Satchien-Lu, Bathang and Lithang and also to unite Chung-king and Montze by caravans with the object of drawing trade to the latter point in the interests of the French.

M. Pavie, the well-known explorer of the country between Tonquin

\* Contributed by Col. J. Waterhouse.

and Northern Siam, has a second time gone over the route between the coast and the Upper Mekong. He went from Cho-ho, the terminus of the boat-route on the Black River, and arrived at Luang Prabang via Lai Chow and Dien-Bien Phu.

The geographical gain in this journey is the complete investigation of the Black River, the most important tributary of the Song-ka or Red River; the two parent streams are the Lu-ma and the Papien, which last is not, as was long supposed, an affluent of the Nam-hu, and consequently a tributary of the Mekong.

An account of M. Taupin's surveys in Laos, published, together with a very full description of Lower Laos and a map, in the Bulletin of the Society for Commercial Geography, Paris, is a very substantial contribution to our knowledge of that country.

*Upper Burmah.*—An attempt was made in May last from Bhamo to ascend the two branches of the Irrawaddy, concerning the length and course of which there is considerable difference of opinion. Captain Barwick, Mr. Shaw and Major Fenton went up as a steamer as far as the confluence, about 150 miles from Bhamo, of which the position was determined at 25°56' N. Lat. and 97°38' E. Long. Further attempts to ascend either of the branches, the Mak-Kha to the west and Meh-Kha to the east, were frustrated by rapids only a few miles from the confluence. Major Hobday is now making further explorations in this direction.

*N.-E. Frontier.*—As already stated, a great deal of new country in Upper Burma and N. E. India has been explored by officers of the Survey of India, but the details are not yet available.

The Annual Report of the Survey of India for 1888-89 contains a revised sketch map of the course of the Lower Sanpo, as replotted from native information obtained by Sub-Surveyor Rinzin Nimgyal at Sadiya. The river appears more straightened out and has a more generally south-easterly direction than before, and a good deal of the supposed drainage of the Zyu Chu is assigned to the Sanpo.

*Tibet and Eastern Turkestan.*—The most notable exploration in Tibet is that undertaken by M. Bonvalot and Prince Henry of Orleans in company with Father de Decken, who have, as they telegraphed from Chung King, traversed that country from North to South and from West to East. Very scanty details have yet appeared of their journey, but the full account should be one of the most interesting records ever penned of a journey in midwinter across those high desert wastes under the greatest difficulties and privations.

From Kurla the party followed Prjevalski's and Carey's routes and also a new one. Avoiding the marshy land about the banks of the

Tarim, they passed through a salt desert, with very sparse vegetation and near the river a few wretched villages of the Turko-Mongolian population who are extremely wild and live by the chase.

At Lob-Nor the population is mixed with Khotanli who have taught them the arts of sowing and grinding corn. Some of the party visited Kara-Kurchun or Kuchun, as the eastern part of Lob-Nor is named in the maps, the western being called Kara-Buran. Going eastwards they found no trace of a great lake but only beds of reeds and sand-dunes. The largest sheet of water is at Kara-Buran, and here also is the wretched village of Lob, a name given to it by passing caravans, but unknown to the natives. It may almost be said, therefore, that Lob-Nor has no existence in name or in fact.

From Charkalyk the expedition followed Carey's route and reached the foot of the Altyn Tagh, a lofty range of sandy mountains, which, in spite of warnings to the contrary, they crossed quite safely with their camels by two passes, the Kum Davan (Sandy Pass) and Tash Davan (Stony Pass), the latter being very difficult, and the party suffered much from mountain-sickness. They then found themselves on a high plateau at over 13,000 feet and followed Carey's route as far as the Amban Ashkan Pass, where it turns to the south-east towards Bogalik, which is frequented by gold seekers. From here they intended to go south but could not find the route. In front of the Pass they saw two men on camels who came from Lhassa, and so they followed their tracks, which led them to more numerous ones passing the lake "that does not freeze" and going towards the south. They followed this route for about three weeks, till the 31st December, and then marched by compass for about a month, keeping to the south and a little west rather than east. They then came to a route with many paths going S. S. E., and on the 16th February south of the Tengri Nor, about 30 or 40 miles from Lhassa, they met a Tibetan embassy. By that time they had only 1 horse and 8 camels, which they lost in a week, and two men had died, but they had travelled some 900 miles in a desert of mountains, nearly 700 of which were quite unexplored, without water and with only *bad argol* as fuel. After a 40 days' halt, they went to the east, with the help of the Tibetans, and covered another 900 miles of new route to Tsangka where they rejoined the high road from Bathang to Ta-Tsien-la. They arrived at Chong King, on the Yang-tse-kiang, on the 8th July and reached Hanoi on the 29th September by way of Yunnan. They plotted their route all the way as well as they could and took meteorological observations. They have made very large zoological, botanical and geological collections and obtained a few ethnological specimens. The full account of this splendid 'Walk through Asia' will be awaited with interest.

The *Bulletin de la Société de Géographie* contains an interesting paper on Thibet by the Abbé Desgodins, who was long stationed at Bathang.

As noted in last year's address, M. Grum Grjimaïlo's expedition has reported several errors in the maps of the northern slopes of the Tian Shan. The Kiityka Pass does not exist; the Mengete Pass leads from the basin of the Kash into that of the Shusta, whence the route turns not to the north, but to the south-east, joins the route coming from the winter pass of Ulan-usu, and then leads to the Keldyn Pass and on to the Jullus or Sullus. To the north of this route rises the magnificent knot of mountains called Doess Meghene Ora, over 19,700 feet, of which the highest peak is estimated at 21,500 feet, and in which lie the head waters of the rivers Khorgos, Ulan-usu (Gindshachô), Shusta, or Manas, Jullus, Kash and others. Along the route from Atschal to Urum-shi, the Tian Shan forms an inaccessible wall crowned with an unbroken line of snow. Gold is found deposited in nearly all the rivers, but not in sandy strata or quartz veins. The Tian Shan is uncommonly rich in verbrate animals, though poorer than the Pamir in birds and insects, on account of the want of contrast and sameness in form of the flora.

From Urum-shi they proposed to go along the northern slopes of the Bogdo-Ala to Gutschen, then across the mountains to Turfan and make a push forward over the Gobi Desert to Lob-Nor. They were unable to carry out this plan and had to turn back to Ju-ge-than and went from Pishan to Hami. The *Iswestia* of the Russian Geographical Society, for 1890, No. 4, contains a sketch of the whole route from Kuldja to Hami, with the excursion in new country towards Lob Nor. It is noticeable that high mountains were found in this direction in place of the sandy plain shown on the maps.

The principal Russian expedition under Col. Pievtzoff seems to have made a more thorough investigation of the country they are visiting than the other reconnoitring expeditions are doing. Large collections of plant and insects have been made. All the routes gone over have been plotted and the astronomical points determined, and it was proposed to erect a meteorological observatory at Nia where they passed the winter.

The *Proceedings* of the Royal Geographical Society contains a letter from Lieut. Roborovski giving a very full amount of the journey made from Nia, in October 1889, to reconnoitre the passes through the lofty range bounding the Tibetan plateau to the south-east of Nia, in the neighbourhood of the tomb of Mondjilik Khanum at the source of the river of the same name. The whole party left their winter quarters

at Nia on the 24th April, in order to make their way into Tibet by this pass. Lieut. Roborovski had previously undertaken a journey from Nia to Cherchend by the direct route on the edge of the desert instead of taking the parallel road by the mountains, he had formerly gone over with Prjevalski. The edge of the desert was marked by a broad belt of poplars. To the north stretching out towards the Tarim is a wide sandy waste. The road is crossed by five streams which come from the mountains and are lost in the sand a little to the north of the road. Roborovski followed the course of the river Cherchend upwards, and came on the watershed at the same point he had previously reached from the east with Prjevalski. The expedition is said to have commenced its return journey on the 30th October last.

Captain Gromchevski has continued the exploration noticed in last year's Address. From the Tagh-dum-bash Pamir he went along the valley of the Uprang to the banks of the Muz and Ruskem Darya. Crossing the Aghyl-Davan pass over the Karakoram Range he visited the sources of the Muz. This river which rises in the Mustagh glaciers and joins the Ruskem Darya not far from Chang-takai was hitherto unknown. He then explored the sources of the Tiznaf and proceeded eastwards to Shahidula on the Kara Kash, and reached the lofty, sandy tableland and the mountains separating the Kara Kash from the Yurang Kash. Having lost nearly all his horses from the extreme cold (from  $-22^{\circ}$  to  $-27^{\circ}$  F. on passes at 16,000 to 17,000 feet) in midwinter, and leaving part of his baggage, he returned to Shahidula and thence to Khotan, where he met M. Bogdanovitch, the geologist of Pievtzoff's expedition and went with him to Nia. During his journey he made a topographical survey of about 700 miles and determined the latitudes of several points in the valleys of the rivers he visited.

In May he left Polu by the valley of the Kuras, for N.-W. Tibet with the object of reaching Lhasa, and crossing the Kuen Lun Range by the Lubashi Pass, at an altitude of 17,500 feet, he reached the lake of Gugurtlik and found the high plateau covered with ice and snow but overcome by bad weather and cold and the impossibility of obtaining food from the Chinese, he was obliged to return to Kashgar, where he worked out a number of positions, and going over the Pamir by the Pass of Kizil-art and crossing the Taldyk Range into Turkestan he returned by way of Gulcha and Langar to Och, in Ferghana, last October and has gone back to Russia. His itinerary is about 4,350 miles and he has determined 73 points and 359 heights. His zoological and botanical collections comprise about 39,000 specimens, besides geological specimens and ethnological photographs. A map showing his route is given in the *Ivestia* of the Russian Geographical Society,

for 1890, part I. Captain Gromchevtski seems to be a most indefatigable and undaunted explorer, and the account of his explorations should be of great interest.

News has been received of the arrival of Captain Younghusband at Kashgar, whence he will continue his explorations of the northern slopes of the Himalayas in the spring.

M. Dauvergne, of Srinagar, made a second journey in the direction of the Pamirs, more for exploration than sport. He explored the Kuen Lun Mountains, where he met Col. Pievtzoff's expedition, then crossing the Zarafshan or Yarkand River, he explored Sang Mariam, Sarikol, Tash Turgan, Kara Chumkar, and the Tagh-dum-bash Pamir. Shortly afterwards he identified the sources of the Oxus issuing from three great glaciers of the Hindu Kush; then following the river, he visited the Khurd Pamir and thence Sarhadd (Wakkan), in Afghanistan, where he was nearly stopped, and had to escape over the Hindu Kush, which cost him an attack of ophthalmia. He came down the hitherto unexplored valley of Karambar and following the Yassin River arrived at Gilgit. The Karambar or Ishkaman Pass, by which he crossed the Hindu Kush, is an important one as being the shortest route between Wakkan, the little Pamir and Punnial, on the Kashmir Frontier. It lies to the east of the Baroghil and Darkot Passes. The principal new points he ascertained are that the Lung River is tributary to the Tashkurgan and not to the Zarafshan, and that the sources of the true Oxus or Amu Darya are situated near the Wakijd-Kul Pass (15,500 feet), where three enormous glaciers on its south-western slope supply this river with its parent stream. The Gaz Kul is not its source, but from Lake Gaz Kul flows the Aksu or Murghab River. The exploration forms a very interesting and valuable contribution to Central Asian orography.

A French Mission under MM. Albert Develay and G. Pissou has been appointed to make an exploration in Asia Minor, Persia and Afghanistan. They propose to explore the route from Herat to Kabul by the Hari Rud, through unknown tribes of Aimaks and Hazarahs.

In the Proceedings of the Royal Geographical Society is a very valuable paper by Col. M. S. Bell, R. E., V. C., on the Great Central Asian Trade route from Peking to Kashgaria, giving an abstract of his journey from Peking to Kashgar in 1887, illustrated with a map and of special interest in showing how the Russians are gradually absorbing the trade, with Central Asia and Western China.

There is also a paper by Sir Frederic Goldsmid on Lient. Vaughan's journey in Eastern Persia.

## CONCLUSION.

I have now finished my Address, but before I sit down, I beg to congratulate the Society on the restoration of their Palladium—the statue of the Dharm Rajah. This was presented to our Society in 1865 by Colonel Hedayat Ali who procured it from Buxa Fort. For a while the statue was in the Economic Section of the Indian Museum, but now again stands in its rightful place on our staircase, and I hope that our new President will see that it be placed on a fitting pedestal. Pandit Hara Prasad Shastri examined the lower and inner part of the image to see if there was any inscription but only found some pieces of paper with one or two sacred words on them (Om Avidya Saha).

I beg leave to express my thanks and those of the Society to our Vice-Presidents, Col. Waterhouse, and Mr. Wood-Mason, and to our Secretaries, Dr. Hoernle, Messrs. Little, and Sclater, Major Sadler, Dr. Solf, and Mr. Tawney and to our Treasurer Dr. W. King for their services. The main part of the literary and scientific work of the Society falls upon the Secretaries, and I can assure my friend Sir Alfred Croft that he need not fear to accept the post of President so long as he has such able Secretaries and so strong a Council as we now have. Dr. Hoernle has unfortunately been absent for the latter half of the year, and so we have temporarily lost the advantage of his varied learning, and his special skill in numismatics. Dr. Solf and Mr. Tawney, however, have done much to supply his place in this last respect. Dr. Hoernle will, I am glad to say, return to us next month. It is a delicate matter to praise a man, and I am sure that my friend Colonel Waterhouse would much rather that I left him alone, but still I think that I ought to make special mention of Colonel Waterhouse's services. He has been connected with our Society since 1865, and during that time he has been unwearied in working for us. He has been so long an office-bearer that he knows more of the history of the Society than any of the other gentlemen who now meet at the Council-board. Colonel Waterhouse is going home shortly, but I hope that he will be soon back again, for our Society can hardly get on without him.

Some people have been abusing our Society, and saying that it has fallen from its former high estate, but I think we need never despair of the future of the Asiatic Society so long as it has on its Council men like Colonel Waterhouse, Mr. Wood-Mason, Raja Rajendralala Mitra, Pandit Hara Prasad Shastri and Babus Pratap Chandra Ghose and Gaur Das Bysakh.

I have received useful help from our Assistant Secretary Mr Ronaldson. He has been daily at his post from morn till dewy eve, and

has done good work. It was to a suggestion of Mr. Ronaldson that we owe our present exemption from Income Tax on our securities. Mr. Ronaldson is now about to retire, and I hope that he will spend the evening of his days happily and peacefully. I have also been fully satisfied with the industry of Mr. Elliot and of the members of our native establishment. We are, I think, especially fortunate in our Pandit, Babu Hari Mohan Vidyabhushan. He is a good Sanskrit scholar, and is engaged with Babu Sarat Chandra Das, C. I. E. in editing the Bodhisattvadanikalpalata. An account of this work is given by Pandit Hara Prasad Shastri in the report on the Bengal Library for 1889.

I am deeply grateful to you, gentlemen, for the honour which you have conferred on me by electing me as your President. It has been a splendid coping-stone to my Indian career, a much finer one than I deserved. I shall always remember with pleasure my connection with the Asiatic Society. I have been but an unworthy member as regards work, but I have a great reverence for science and scholarship. I like the Society too, because it is a place where the European and the native can meet together in harmony, and where there is no room for the display of that bestial antipathy\* with which they sometimes plague one another. I always read with pleasure our Rule 3 which says "Persons of all nations shall be eligible as members of the Society." It reminds one of the inscription on our Founder's Monument.

"Who thought none below him but the base and unjust,  
None above him but the wise and virtuous."

It is a great satisfaction to me, and I believe to all of you that Sir Alfred Croft has agreed to become our President. What we specially want at this time for the Head of our Society is one who has administrative ability and tact, and we all know that Sir Alfred Croft possesses these qualities in an eminent degree. It is fitting too that we should have for our President the Director of that great Educational Department which, I am not afraid to say, contains a greater proportion of men of light and leading than any other Service in India.

H. BEVERIDGE.

\* I borrow this phrase from Austin who applies it to the dislike between the English and the Americans.



## NOTE I.

I find that I have omitted to notice three important Indian publications.

One is the *Bhaktiratnakar*, or Sea of Devotion by Pandit Ram Narayan Tarkaratna. This work is in fourteen parts and was completed in 1889. It is described by Pandit Hara Prasad Shastri in his report on the Bengal Library for that year. The Vaishnavs regard it as one of their standard books, and it is interesting to the general student on account of its giving a picture of Bengal 300 years ago. One Shrinivas carried the Sanskrit MSS. written by Rup, Sanatan and others of Chaitanya's immediate followers from Brindaban in Bengal. His adventures on the journey are described and how he made a disciple of the Bishempore Raja. This Mission was nearly half a century previous to the Catholic Mission to Bakla (Bakarganj) and the founding of Bandel Church in Hooghly. Chronologically Chaitanya corresponds to Luther, and it is interesting to find that the 16th century was a time of religious ferment in India as well as in Europe.

A second work is the *Panchasiddhantiká* of Varaha Mihira. This is an astronomical work and, as its name implies, it is a compendium of the five systems in vogue in Varaha Mihira's time. The work is edited by Prof. Thibaut and Mahámahopádháya Súd'hákara Dvivedí, and Prof. Thibaut also supplies a translation and an introduction. It is very meagrely noticed by the reporter for the N.-W. Provinces, but there is an appreciative notice of it by M. Barth in the *Revue Critique* of 17th November last. It will be remembered that Prof. Thibaut published a paper on the *Panchasiddhantika* in our Society's Journal for 1884. The present work has been published at Benares.

The third work is the *Butterflies of India, Burmah and Ceylon* by Mr. de Nicéville of which Vol. III has just appeared.

Among works which are about to appear I may mention an elaborate edition of *Haftz* by Col. Willoughby Clark.

It is a matter for congratulation that the long-promised index to the *Tabaqát-Nasiri* is nearly ready. It is a pity that it could not have been prepared by the author Major Raverty.

Pandit Hara Prasad Sástrí gives the following notice of Indian publications received in 1890 :

"With the exception of Assam and Central India, the other Provinces of India have published Catalogues for two quarters of 1890. The Bengal Catalogues contain the names of 1,179 books among which may be mentioned the biography of the celebrated dacoit Tantia Bhil and the *Beshvanathi Ramayan* which attempts to prove that the *Ramayan* shows the spiritual side of Vedic society while the *Mahabharat* shows the ritualistic side. The Bombay lists show a marked tendency in the Marhattas to study biography. The publication of the letters of Nana Farnavese shews that they prize the records of their great men of the past. The lists for the N.-W. Provinces contain a number of works on the Congress and on the oow-protection movement. In the Madras list we have the *Peria Purán* or the great legend in Tamil containing an account of the sixty-three special devotees of Shiva and the *Chárdmant* containing an account of a Buddhist king by a Buddhist author in Tamil. The Punjab lists contain several works giving an account of *Puran Bhakat* which appears to be very popular in the Province. They also mention the publications of Chapter I of the Koran with vernacular commentaries."

## NOTE II.

## TIBETAN LITERATURE.

“The first traveller in Tibet who acquired a mastery over the Tibetan language was a Roman Catholic Missionary who compiled a Dictionary in Tibetan and Italian. His name has unfortunately been lost, but Rev.—Schröter obtained his MSS. which he translated into English. The work under the name of *Bhotanta Dictionary* was published by Carey at Serampore in 1826. Afterwards Csoma De Korös explored the field of Tibetan learning. He studied its classical and modern literature, though he never visited Tibet Proper or acquired a colloquial knowledge of its language. He compiled an excellent Dictionary of Tibetan after the method of Prof. H. H. Wilson. In 1882 the Secretary of State published another Tibetan Dictionary compiled by the late Rev. Jäschke of the Moravian Mission at Lahoul. Jäschke drew his materials chiefly from Csoma's Dictionary, though here and there he has borrowed words and expressions from the Serampore work. In fact Jäschke's Dictionary may be viewed as an edition of Csoma's Dictionary after Monier William's method, with that scientific finish without which no dictionary can be acceptable to scholars at the present day. But beyond this and the fact of its being handy and useful to philologists, it does not take the student one step further in the acquisition of Tibetan than Csoma's Dictionary.

In studying Tibetan since my return from Tibet in 1883 I have derived much help from Jäschke's Dictionary, but I must at the same time remark that in carrying one's study deeper into the classical as well as the modern literature of Tibet neither Csoma's nor Jäschke's work affords the necessary help. Here the student's way to scholarship is blocked by unseen obstacles which can be removed only by the erudite Lamas of Tibet, but such help is not easily obtainable. I keenly felt this difficulty in 1880 when I conceived the idea of collecting additional material for a Tibetan Dictionary in Tibet.

My residence in the Grand Lama's Library in Tibet afforded me ample opportunities for the realization of my hope of being able to explore the entire literature of Tibet with the help of the learned Lamas of Lhasa and Tashilampo, but unfortunately politics intervened and all my expectations vanished. The sacred works of Tibet are divided into two classes called the *Kahgyur* or the translation of the “word” of Buddha and the *Tangyur* or the translation of “epistles” of the Buddhist ministers and sages, the former consisting of 108 volumes and the latter of 225 volumes. It does not appear to me that a systematic endeavour to examine these works has ever been made by any orientalist with the exception of Csoma de Korös, who had the advantage of studying on the confines of Tibet under a scholarly Lama. Had it been possible to explore this vast literature with the help of the existing dictionaries, scholars like Wassilew, Foucoux Leon Feer, Mansel, Rockhill, surely would not have allowed our knowledge of the Tibetan literature to remain at a standstill. Without meaning to give offence to scholars who have already ventured to work in the field of scientific research, I must point out that the numerous erroneous renderings of Tibetan texts which they have unconsciously permitted to appear in their contributions owe their origin to the want of an exhaustive dictionary of the Tibetan language. Several sets of the *Kahgyur* and *Tangyur* exist in the great libraries of London, Paris, Berlin and St. Petersburg, in consequence of which it is not too much to say that the scholars of Europe have been in possession of sufficient materials to work with, but then to do so satisfac-

torily they require the help of a complete dictionary or a scholarly Lama. They have not the former, and it is not possible to have the latter. During the last two years with the help of Lama Sherah I have examined a large portion of the Kahgyur collection of 108 volumes contained in the Society's Library. With a view to obtain a set of the Tangyur collection of 225 volumes for the Society. I applied to the President the late Mr. Atkinson but the Government on financial grounds declined to purchase the work.

I see from Dr. Huth's contribution to Tibetan literature that there are several sets of the Tangyur collection in London (India Office) Paris, Berlin and St. Petersburg. If the Asiatic Society can procure me the loan of a set of the Tangyur collection of 225 volumes, I may be able to make my Tibetan Dictionary an exhaustive lexicon of classical and modern Tibetan."

I may add to the above note, which has been kindly given me by Babu Sarat Chander Das, that there is an account of the Sher Phyin and of the Bodhisattva-vadānkāpalatā in Pundit Hara Prasad Shastri's report on the Bengal Library for 1889, p. 40. The Sher Phyin is a translation in classical Tibetan of a Sanskrit work on Buddhism (the Prajñe Pāramitā). It is being edited by our distinguished Member Babu Pratāp Chandra Ghose. On the same page the Reporter notices that a Buddhist work in Pali but in the Bengali character has been published for the use of the Buddhists of Chittagong "Buddhism driven from the rest of India, has found a stronghold in this remote district." In the cognate sphere of the Jain religion there has been a publication of a collection of prayers, and of panegyrics of Jinās and saints in ancient Gujrati. The title of this work is Jaina Jñānavali.

### NOTE III.

#### BUNDELA ARCHITECTURE.

By Babu P. C. Mukarjya lately attached to the Archæological Survey.

Having been deputed to Bundalkhand for the Survey of Bundela Architecture and its practical application to modern requirements, I had to travel over extensive ground in the neighbourhood of Jhansi. &c. The first place of importance is Orcha, the now deserted capital of the Bundela kings, and which contains important palaces. Of these I drew the *Phoolbagh* with the garden and pavilions and the interesting bridge over a branch of the Betwa. I took notes and sketches on the great *Chaturbhuj* temple and *Jehangir Mahal*, &c.

Barnasāgar contains a very picturesque castle on a hillock, by the side of an extensive lake, which I drew on a minute scale, as also an extremely beautiful Hindu temple of the *Chandeli* period, which contains elaborate sculpture. Near the latter, I exhumed some years ago a colossal image of a seated goddess.

Kuṅḡhar contains a large mansion, built by Bir Sing Deo,\* during the reign of Jahangir, on a hill, which was surveyed by myself and my draftsman. Mowa Bani-pur possesses many pretty examples of domestic architecture.

Duttia has an important old palace, nine storeys in height, built on a hillock and two *Baolis* (wells with palatial building underground), all constructed by Mahārājah Bir Sing Deo. I have surveyed and drawn them all.

Calpi possesses some Mohamedan monuments of the Pathan period, a few of which I drew.

\* This is the murderer of Abul Fazl.

Talhebet has a temple, called *Narsingha*, built on the hill, and attached to the bastion of the fort. It contains fresco-paintings covering the whole inside walls, and about 300 years old. I copied them all in scale. Chanderi is a mine of archæological wealth, and I made a number of discoveries there. I surveyed and drew *Koshukki Mahal*, and some pretty gates of the Mandoo kings,—and four Bundela palaces; and gathered a good quantity of sketches and impressions of ornaments. On the scarp of the hill-fort I discovered several images, Jain and Brahmanical, cut in the living rock. At Buri Chanderi, I cleared the thick jungles, and discovered a very interesting group of Jain temples, mostly in ruins, and elaborately carved.

I need not describe the other places, that I surveyed in Bundelkhand. In my private travels I visited Jwala-Mukhi, Kangra, Nurpur, Ajmere and Mathura-Vrindavan, where I took sketches. Kangra Fort contains a number of pretty temples, Jain and Brahmanical, which appear to be of the pre-Muhammadan period. Nurpur fort has the under structure of a large Hindu temple, demolished by the Muhammadans at an early age, who built a structure of their own on it. The Khoja Syed Dargah at Ajmere contains many architectural relics of Hindu period, such as finely carved columns, and the big arched gate is flanked by three-storeyed colonnades, of which the elaborate sculpture is covered with a thick coating of white-wash. On the bank of the Poshkar tank is a small Hindu temple of a very early age, which appears to have been desecrated by the Muhammadans. But the most important discovery that I made was at Vrindavan near Mathura, where I found the mediæval temple of Madana Mohana standing on a large Buddhist *stupa*, of which some ornamental sculptures and rails are still worshipped by the brahmins of the neighbourhood.

#### INSCRIPTIONS.

I need not detail the small inscriptions that I discovered at several places. The important inscriptions which I traced this year were at Chanderi. The first one is on a large slab, about 5 feet  $\times$  2 and contains about thirty-three lines in Devanagari characters of the Chandel period, much resembling the *Chitravarni*. The next size 3'  $\times$  3' and having 38 lines is a rock-cut one on the scarp of the hill fort near a statue of Mahavira. I took also impressions of the Arabic Inscriptions in Tughra character from above the gates of Kala Syed and Delhi Darwaza. This was a very risky affair, for the upper structure along with the temporary ladder trembled at the time. From tanks, *Baolis* and tombs I took several impressions. All these impressions along with those of last year were sent to Dr. Hoernle for decipherment. The unfinished Bundela Report and some 78 drawings were submitted to the Government of the N.-W. P. and Oudh on the abrupt termination of the Survey which I presume will be completed by the Archæological Department.















OCT 25 1937



