

THE ASIATIC SOCIETY OF BENGAL.

THE publications of the Asiatic Society of Bengal are fully abreast of those of the learned societies of the European world. To the Indian they are reminiscent of a glorious past, and give a forecast of the Asiatic world that is advancing by leaps and bounds into the domains of commerce, industry, art, and science. They breathe to-day not only of the society's great founder, Sir William Jones, but of a new Asiatic life. In the founder's first presidential address (delivered in Calcutta in 1784) we read: "Whether you will enrol, as members, any number of learned natives, you will hereafter decide." It is a somewhat curious paradox on these words that the present membership is not only very largely "learned natives," but that many of the recent articles of conspicuous merit are from the pens of Asiatic writers. Indians are, in fact, pressing forward in every department of thought and research, and are practically clamouring to write the too long neglected history of their country. There are eighty-seven important articles in the Journals (placed in our hands), and of these forty-seven are written by native gentlemen. In this connection it may be mentioned that the "Centenary Review" of the society (published in 1885) was written in three separate chapters, the authors of which were two native gentlemen and a German. But to revert to the founder, Sir William was no lover of systematic natural history. He lived in Sanskrit lore, and could see no merit in, or necessity for, systematic studies. The direction was thereby given for the future life of the society, and to-day were one to seek out themes of adverse criticism the most obvious would be that the volumes on our table denote a disproportionate treatment of zoology and botany as compared with philology, ethnography, mythology, anthropology, numismatology, archæology, and history, each no doubt important, but not more so than either zoology or botany, to the new life of India.

The first botanical paper published by the society appeared in 1785, and was on the *mahua* tree (*Bassia latifolia*). We are there not only given a botanical description and an instructive plate, but a full account of the economic uses of that most valuable tree, which to-day is of exceptional interest as a source of food, oil, and spirits. In vols. iii., iv., and v. of the *Memoirs*, now before us, there is not a single botanical article. The corresponding Journals contain remarkably few botanical papers, and those that are given are short and deal as a rule with structural adaptations to environment or to fertilisation. "Grafting the Mango Inflorescence," by Dr. W. Burns and Mr. H. Prayag, is, however, interesting and suggestive. To what may be called the general rule there are two exceptions—"The Materials for a Flora of the Malayan Peninsula" and a "Synopsis of the Dioscoreas of the Old World." The former, started by the late Sir George King, has now run into its fourth volume, and is being ably continued by Mr. J. Sykes Gamble, late of the Indian Forest Department. The title of that great work is far too humble, since it is literally an exhaustive flora of the Malayan Peninsula, and it very possibly has suffered considerably by its production intermittently as an appendage to the *Journal of the Asiatic Society of Bengal*. The second paper is by Sir David Prain and Mr. I. H. Burkill, and deals with an exceedingly difficult genus of plants, many of the species of which are of considerable economic value.

Zoology has in India always taken a more favoured position, a circumstance possibly due to the closer association of the Indian Museum, than the distant Botanic Gardens, with the home of the Asiatic Society. Dr. Annandale has communicated numerous papers

(some written for him by experts) on the "Biology of the Lake of Tiberias," as also "The Distribution and Origin of the Fauna of the Jordan System." Lt.-Col. J. Manners-Smith has furnished useful information regarding the Shous, or big-horned deer of Tibet. Mr. F. C. Gravely has contributed a paper on the "Evolution and Distribution of the Indian Spiders belonging to the Sub-family Aviculariinae." Mr. J. Hornell gives an excellent account of the "Pearl Fishery in Palk Bay." This would appear to be a new bed hitherto unsuspected, which, but for the war, would have given greater results than have been attained. Mr. Hornell records it as his opinion that, in the future, cultural operations directed to the inducement of pearls in a comparatively limited number of oysters, kept in captivity, must supersede production in natural beds. Capt. R. B. Seymour Sewell, surgeon-naturalist of the *Investigator*, contributes a valuable report on the results of his biological investigations. Dr. N. Annandale, Mr. J. Coggin Brown, and Mr. F. H. Gravely have furnished the results of their joint investigations of "The Limestone Caves of Burma and the Malay." Mr. Gravely further contributes a paper on "The Evolution and Distribution of certain Indo-Australian Passlid Coleoptera."

Mr. R. D. Banerji, of the Indian Museum, under the title of "The Pālas of Bengal," gives a history of Bengal and Bihar from A.D. 800 to 1200. Many obscure points regarding the Pāla kings have, through Mr. Banerji's researches, been cleared up, while the photographs he furnishes of inscriptions and colophons should facilitate verification. In another paper Mr. Banerji analyses the evidence and conclusions of the four inscriptions regarding the "Laksmanasena Era"; and again discusses the "Edilpur Grant of Kesava-sena," originally translated by Prinsep in 1838; and in still a further paper deals with the "Four Forged Grants from Faridpur." Rai Monmohan Chakravarti Bahadur gives a learned and exhaustive "Contribution to the History of Smṛti in Bengal and Mithilā." To the historical student the works translated by Mr. Chakravarti are of great importance. They furnish a mass of information bearing on the social and religious life of the people of Bengal in former times. In another contribution Mr. Chakravarti deals with "The History of Mithilā," during the pre-Mughal period, and this versatile writer next discusses the geography of Orissa in the sixteenth century, and in still another paper exhibits "The Genuineness of the Eighth Canto of the Poem of Kumara-Sambhavam," by Kalidasa.

Mr. Nundolal Dey furnishes an account of the ancient Anga, or district, of Bhagalpur, one of the most ancient countries of northern India.

Dr. L. P. Tessitori gives "A Progress Report on the Preliminary Work done during the Year 1915 in connection with the Proposed Bardic and Historical Survey of Rayputanam." In the *Memoirs* the Rev. H. Hosten, S.J., narrates his discovery in Calcutta of the original MS. of "Father A. Monserrate's 'Mongolicæ Legationis Commentarius'"—in other words, Monserrate's account of the first Jesuit mission to the Emperor Akbar, in 1580-83. After an interesting discussion of the history and movement of the MS., Father Hosten reproduces the Latin text and gives, in an appendix, useful explanatory notes. He further contributes to the *Journals*, among others, three papers:—(1) "The Twelve Bhuiyas or Landlords of Bengal"; (2) "Fr. Jerome Xavier's Persian 'Lives of the Apostles'"; and (3) "Notes on Father Monserrate's 'Mongolicæ Legationis Commentarius.'" There are numerous papers on anthropology and ethnology; one of special interest deals with the Abors and

Galongs. This is written by Capt. Sir George Duff-Sutherland-Dunbar and is beautifully illustrated.

To mention by name even all the more interesting papers given in these Memoirs and Journals would occupy many pages; as already suggested, they give abundant evidence of a new life in our Eastern Empire. The suggestion might be offered, however, that the division of these publications into at least three sections, each with its own separate volume, would be both an economy and a convenience.

NEW FRENCH MAGNETIC CHARTS.¹

IN France terrestrial magnetism is included in meteorology, and the actual survey upon which the present work is largely dependent was made by M. Moureaux, director of Parc St. Maur Observatory, then the central magnetic station for France. Prof. Angot, who is director of the French meteorological service, was responsible for the last magnetic charts relating to the epoch January 1, 1901. Whether fresh charts will continue to be published every ten years appears as yet to be undecided. Two methods were considered of obtaining the secular change data, necessary to derive results for January 1, 1911, from those for 1901. The first consisted in taking fresh field observations in a sufficient number of places, and some observations having this end in view were taken by M. Eblé in 1912 and 1913. These have served to some extent as a control, but the second method was that actually depended on. It consists in utilising the secular change data published by observatories in France and adjacent countries, including Potsdam, De Bilt, Valencia, Greenwich, Kew, Falmouth, Val Joyeux, Munich, Pola, Naples, Coimbra, and San Fernando. The ten-year secular changes at these stations were plotted in a map, and curves of equal secular change drawn, from which were deduced the secular changes appropriate to each station. The method is obviously more suitable for France than for the British Isles. But even in the case of France, in the absence of positive knowledge that secular change is unaffected by local disturbance, it is doubtful whether it will be universally admitted that the method is altogether satisfactory for the deduction of charts showing the local anomalies. It is obviously simpler, however, than the carrying out of observations at a large number of repeat stations.

The values deduced for the epoch January 1, 1911, for declination, inclination, horizontal and vertical force, north and west components, and total force are given for from 500 to 600 stations, arranged alphabetically under the several departments. The declination, inclination, horizontal force, and vertical force data are also embodied in four charts. Omitting a few incomplete or obviously disturbed stations, the remaining 538 were arranged according to geographical position in twenty groups or areas. Taking any one group, the mean of the observed values of, say, declination was assigned to an imaginary station, the geographical co-ordinates of which were the mean of those of the actual stations. In this way values were found, practically free from accidental irregularities, for twenty different points. It was then assumed that these twenty values could be represented by an expression, $a + b\phi + c\lambda + d\phi^2 + e\phi\lambda + f\lambda^2$, where $\phi + 47^\circ$ and $\lambda + 2^\circ$ represent the latitude and easterly longitude of any station. The constants were determined both by least squares and by Cauchy's method, with very satisfactory results, showing that a simple quadratic expression suffices to give normal magnetic values with high accuracy for the whole of France.

¹ "Réseau magnétique de la France et de l'Afrique du Nord (Tunisie, Algérie, Maroc) au 1er janvier 1911." By Prof. Alfred Angot. Ann. du Bureau central météorologique de 1911, tome I., pp. 59-95+4 charts. †

Tunis, Algeria, and Morocco are treated by themselves (pp. 86-95). The available data consisted of observations taken by Moureaux at thirty-three stations in 1887, and of recent results obtained by the observers of the Carnegie Institution of Washington. The latter had observed at thirteen of Moureaux's stations, thus obtaining data for secular change which were supplemented by results from the observatories of San Fernando, Coimbra, Tortosa, Naples, and Helwan. A six-constant formula of the type already described seems to fit the observations reasonably well. Prof. Angot would like, however, to have fresh observations throughout North Africa, at a considerably larger number of stations. Declination, inclination, and horizontal force charts, representing normal values for North Africa as given by the interpolation formulæ, appear in the text, but on a reduced scale as compared with that adopted for the French charts, which show the actual anomalies. C. CHREE.

RAINFALL IN NORWAY DURING 1916.¹

THE director of the Norwegian Meteorological Institute has, with commendable promptitude, published the twenty-first annual volume of rainfall data, viz. that dealing with last year's returns. The daily rainfall is given *in extenso* for about 200 stations, additional information regarding the nature of the precipitation, whether in the form of rain, snow, or sleet, being afforded by the international symbol affixed to the reading when the downfall was other than rain. A monthly summary shows, for each of 476 stations, the actual precipitation, the maximum daily fall, and date of occurrence, along with the number of days with more than 0.1 mm. and more than 1.0 mm. of rain respectively; the mean depth of snow is also given and the greatest depth recorded. The monthly and annual rainfall expressed as a percentage of the average is shown for sixty-four stations.

No general summary of the results appears, but there is an excellent large-scale map in two sections showing the distribution of the annual rainfall for 1916 by isohyetal lines drawn for each 200 mm. The maximum rainfall, shown by the isohyet of 3000 mm. (118 in.), appears in three small patches close to the coast, between lat. 60° and 61° N., the highest rainfall, 3127 mm. (123 in.), being at Indre Matre (height 15 m.), in lat. 60° N., long. 6° E. The smallest rainfall, about 200 mm. (8 in.), occurs in several areas of no great extent north of the Arctic Circle, the most extensive being an oval patch about eighty miles long and fifteen miles broad, situated due south of Hammerfest. The isohyets in some districts near the coast are very crowded, especially in areas contiguous to the wettest spots, where the rainfall in rather less than forty miles falls off from about 120 in. to 32 in.

As compared with the average, the rainfall of 1916 on the mean of sixty-four stations was 5 per cent. in excess, but individual stations varied from 51 per cent. above to 41 per cent. below the average. Rainfall was much above the average at most stations to the south of lat. 63° , but north of Trondhjem (lat. 63.4° N.) there was a pronounced deficit, ranging in general from 15 to 40 per cent. The only marked exceptions were at Gjesvair and Vardo, stations to the north of 70° and far to the east. In no month did the rainfall show a general excess or defect over the whole country, although March and August were dry, and January wet nearly everywhere. In February, June, and October to December there was a pronounced tendency to rainy conditions in the south, while a drought was experienced in the north of the country.

¹ Nedbøriagttagelser i Norge, utgitt av Det Norske Meteorologiske Institut. Aargang xxi., 1916.