

new species, owing to the extreme difficulty of defining satisfactorily their appearance by words alone. Some societies, like the Malacological Society of London, make a practice of giving figures with all new descriptions, but that wise course is far from being so universal as it should be, while in the past it has been neglected to a lamentable degree. Conchologists, therefore, owe a great debt to the veteran Dr. W. H. Dall for his "Illustrations of unfigured Types of Shells in the Collection of the United States National Museum" (*Proc. U.S. Nat. Mus.*, 66, Art. 17), to which have been added a few figures of species elsewhere inadequately illustrated or depicted in publications difficult of access, as well as descriptions and figures of 17 new species. The work comprises 36 plates giving figures of some 200 species, and 41 pages of text confined mostly to references to the original descriptions. The figures, which were drawn as opportunity offered and put aside until publication could be made, are in different styles and reproduced by several different processes, and are all very good and clear despite the sacrifice of pleasing uniformity.

THE sixth of the booklets, 14 cm. × 11 cm., issued by the Cambridge Instrument Company, describing the firm's productions, contains 64 pages, and is devoted to instruments which have been at various times designed for special purposes. In each case a photograph of the instrument described is given, and as a rule its over-all dimensions are recorded. The first portion of the booklet is devoted to magnetographs of various types, to Galizin seismographs, and to tide recorders.

Then follow spectrographs ranging from the infra-red to the ultra-violet, astronomical and sunshine recorders, X-ray track apparatus, comparators for the accurate measurement of standard tapes for geodetic surveys, deflexion and crack meters for investigating the strains in structures, permeameters for measuring the flow of gases through fabrics, sound-ranging apparatus as used in the War, and pressure recorders for use in coal-dust explosion tests. Brief notes are supplied as to the capabilities of each instrument, but more detailed descriptions are available, on request, for the use of those who require further information.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—A professor of biology and a professor of bio-chemistry in the College of Medicine, Singapore—Private Secretary (Appointments), Colonial Office, 38 Old Queen Street, S.W.1 (January 9). A research chemist, with knowledge of the clay industries, and research experience in connexion with clay and clay products, at the Building Research Station, Garston, Watford, of the Department of Scientific and Industrial Research—Secretary, Department of Scientific and Industrial Research, 16 Old Queen Street, S.W.1 (January 11). Head of the Engineering Department at the L.C.C. Hackney Institute, Dalston Lane—Education Officer (T. (1) (a)), The County Hall, Westminster Bridge, S.E.1 (January 18). An assistant lecturer in Economics at University College, Southampton—Registrar.

Our Astronomical Column.

SUNSPOT DATA FROM CHINA.—Solar observations have been carried out systematically and with great zeal for many years at the Zô-Sê Observatory, China, under the direction of Father Chevalier of the Jesuit Mission at Shanghai. Vol. 14, No. 1 of the *Annals* of this observatory contains lists of sunspots and of prominences observed during the three years 1920, 1921, and 1922. The heliographic co-ordinates of the spots, date and hour of meridian passage, observed areas, and other data are carefully recorded; and in the case of the prominences the latitudes, heights, areas, and relative brightness are tabulated. Apparently the opportunities for successful observation of prominences are limited to about sixty days annually, but these observations will nevertheless be of considerable value in co-operation with visual observations made elsewhere.

In discussing the results of the sunspot data, Father Chevalier concludes that spots do not appear at random in different regions of the sun's surface, but tend to develop in certain areas over considerable periods of time. When the observations of latitude and longitude are plotted over long periods of time, there is thus a tendency to form groups, and these sometimes tend to be drawn out obliquely with reference to the meridians, as though the foci of activity moved slowly in longitude towards east or towards west.

The remarkable interchange of activity between the northern and southern hemispheres, and the varying positions of the equatorial zone of minimum activity, are also brought out in these studies.

THE PHYSICAL NATURE OF THE SOLAR CORONA.—The *Zeitschrift für Physik* of October 20 contains the second part of a paper on the above subject by Dr. W. Anderson, with a discussion of the photoelectric and the electromagnetic theories of the corona, both of which he shows lead to great difficulties. The observations of H. Ludendorff during the solar eclipse of September 10, 1923, are referred to; they show that the maximum of intensity in the spectrum of the corona coincides exactly with that in the spectrum of the photosphere, which is contrary to results previously obtained, and shows that the corona does not consist of incandescent particles, since the temperature of such particles would certainly be lower than that of the photosphere, and the intensity maximum would be shifted towards the red. Dr. Anderson proceeds to obtain an estimate of the effective molecular weight of the corona, based on the fact that since the pressure is small the mass absorption coefficient and the temperature radiation are small, so that alterations in state must be adiabatic. He estimates the temperature in the lower layers as 4824° Abs., which leads to a maximum value of the effective molecular weight, m , of 1/1733.5 and a minimum of 1/1906.8; in the highest regions the temperature estimate is 4236° Abs. and m lies between 1/1787.7 and 1/1985.1, with similar values for intermediate heights. According to L. Flamm, the "atomic weight" of "electron gas" is 1/1832.8, which lies between these maxima and minima.