

A Manual of the Principles of Meteorology

By R. Mountford Deeley. Pp. xi+285+4 plates. (London: Charles Griffin and Co., Ltd., 1935.) 15s. net.

THIS is not a manual so much as a criticism of the present science of meteorology. The author points out that the distribution of temperature in the lowest six miles or so of the atmosphere—the troposphere—does not fit the pressure distribution, the lowest pressures occurring in high latitudes where the air is coldest. Differences of pressure on the earth's surface must therefore be caused by differences of temperature at high levels in the stratosphere, which is relatively warm in high latitudes and over barometric depressions, and relatively cold in low latitudes and over anticyclones. His thesis is that this high-level heating is caused by corpuscular radiation from the sun; the main stream of corpuscles is directed by the earth's magnetism into two sub-polar rings which therefore form belts of low pressure, while local barometric depressions originate from stray streams of corpuscles.

The main support for this theory is found in a series of diagrams comparing the mean daily pressures and ranges of pressure over the North Atlantic with daily sunspot numbers, which show some general resemblances (and also many discrepancies), but the author also considers that variations of corpuscular radiation explain the great climatic changes of geological time.

The style is discursive and often obscure, while there are many small errors and some serious omissions. For example, there is only the barest reference to the Bjerknes theory of cyclones and no mention at all of the 'polar front' or of Simpson's well-known theory of the part played by variations of solar radiation in climatic changes. The get-up is good on the whole, but the isothermal maps are poor.

Leçons de zoologie: Annélides

Par Prof. M. Prenant. (Actualités scientifiques et industrielles, 196.) Pp. 95. (Paris: Hermann et Cie, 1935.) 16 francs.

THE author has selected his material judiciously so as to give the reader an account of the principal structural and biological features of annelids. Brief descriptions of *Polygordius* and of its trochosphere larva, of *Nereis* as a type of the Polychæta, and of the principal variations in parapodia and in a few other structural features precede the classification and the two pages devoted to the ecology of marine worms. A more summary consideration follows of the Oligochaeta, Hirudinea, Myzostomida and Echiurida, the last giving the opportunity for observations on the determination of sex in *Bonellia*. The comparative account of the excretory organs and the chapters on regeneration and asexual reproduction, often with accompanying changes of form, for example, in *Heteronereis*, are of particular interest. The figure of a trochosphere of *Echiurus* showing a segmented mesoderm is incorrectly attributed to Baltzer, who stated that the mesoderm is unsegmented.

Problèmes actuels de l'astrophysique

Par Prof. L. Houllévigüe. Pp. xii+268. (Paris: Armand Colin, 1935.) 14 francs.

IN this volume Prof. Houllévigüe gives an interesting and chatty account of many of the points at which the astronomer of to-day is touching upon the palpably unknown. It is interesting to see not only the selection of problems made by the author but also the way in which these problems are envisaged by a Frenchman. To take one example of his special point of view, the chief emphasis in his account of recent and coming advances in telescopes is placed upon the Ritchey-Chrétien researches, whereas most people would deal with the 200-inch telescope now being constructed for California. Among the twenty-five subjects chosen, we may mention the Cepheids, the corona, solar radiation, Saturn's rings, celestial 'wanderers', the evolution and expansion of the universe, novæ, interstellar gas, in order to show the range covered by the book.

The treatment is simple and popular, astronomers of many countries are fairly represented in the appropriate sections and the book will be read with very considerable interest, even where the reader does not agree with the author's point of view.

Worlds in the Making

By R. Barnard Way. Pp. 136. (London: The Chatterbox Co., Ltd., 1934.) 3s. 6d. net.

THE evolution of planets from primordial matter through nebulae, galaxies and stars is here described in simple language, accompanied by a general description of the universe as it is at present and of the various objects composing it, from electrons to spiral nebulae. The development of our own earth up to its present physical state and into a possible future one is given in detail, forming the main theme of the second half of the book, which is well illustrated with numerous drawings and diagrams made by the author. Although obviously intended for young people, the presentation of the subject is not too childish to appeal to older readers who require a brief elementary survey of the origin of worlds in general and of our own in particular.

Intermediate Physics

By Dr. C. J. Smith. Second edition. Pp. xii+900. (London: Edward Arnold and Co., 1935.) 16s. net.

THE call for a second edition shows that Dr. Smith's book is well appreciated, and it is clear that a great amount of work has been done in its preparation. Amongst the additions and improvements may be noted the theory of dimensions in Part I, a remodelling of a great deal of Part II, an increase in the matter dealing with interference in Part III, a short section on supersonics in Part IV, and an entire rearrangement of Part V. Candidates in university scholarship examinations should now find all the material for answering the papers in physics, and the harder matter is carefully distinguished from that dealing with fundamentals, which latter is adequate for the needs of the intermediate or pass candidate, to whom the book can be highly recommended.