

OUR BOOK SHELF.

Animal Forms: a Second Book of Zoology. By David S. Jordan, M.S., M.D., Ph.D., LL.D., President of Leland Stanford Junior University, and Prof. Harold Heath, Ph.D. Pp. vi + 258; 140 figs. and frontispiece. (London: Hirschfeld Bros., Ltd., 1902.) Price 6s. net.

THIS attractive volume, distinguished by the freshness and excellence of its illustrations, is designed as "a second book of zoology," "to meet the needs of the beginning student of zoology." The opening chapters deal, somewhat lightly, with the characteristics of living things and of animals in particular, and with the cell and its protoplasm. They are clear and straightforward, but they lack both distinction and distinctiveness. If this sort of introduction is desirable it should be less easy-going.

The bulk of the book consists of a description of the classes of animals, with particular reference to representative types, considered mainly in their structural aspects, but with considerable attention to functions, habits and life-history—always in a simple, elementary fashion. Here and there throughout the chapters the student is judiciously pulled up for a moment before one or other of the deeper problems of biology, e.g. the plasticity of form in sponges, regeneration in worms, and the origin of species. Apart from the relative prominence given to "ecology," the absence of anything suggestive of a cramming synopsis and the really fine illustrations, the survey does not differ markedly from that to be found in a crowd of other books.

It is very important that a simple work of this kind should not give the student any impressions which he will afterwards have to discard; therefore we doubt the wisdom of speaking of the "skull" of cuttlefishes, the "external" skeleton of echinoderms, the "gills" of the lancelet, the air-bladder as "a modified or degenerate lung." With such a graphic illustration of the viscera of the starfish, it seems a pity that a "twentieth century" text-book should retain the absurd terms "cardiac" and "pyloric" for the two main regions of the gut. As we should expect from the authors, such blemishes are very rare. We have to lament, however, that the desirable prominence given to "ecology" seems to have practically excluded the good old-fashioned lessons on homology, which we believe to be very useful to "the beginning student," and might also expect in a book entitled "Animal Forms." Another defect seems to us to be the relative absence of the definite suggestion of problems for the student to think over.

The half-tone illustrations, many from photographs, deserve great praise. We may notice, in particular, the mures on the frontispiece, the piddocks in their holes, the long-eared sunfish, the rattlesnake, the raccoon and the baby orang-utan. J. A. T.

Das botanische Practicum. Von Dr. Eduard Strasburger. Vierte umgearbeitete Auflage. Pp. 1 + 771. (Jena: Gustav Fischer, 1902.) Price Mark 20.

THE third edition of this well-known book has been so favourably received that a fourth edition has now been published. The alterations and additions in this new issue are not so extensive as in the previous one, but they are nevertheless considerable, and the whole book has been subjected to careful revision. The scope of the book has certainly advanced beyond the author's original intention as conveyed by the title, "Introduction to the Personal Study of Microscopic Botany," for there are references to several important facts which are highly interesting, but the experiments connected with them one would not think of undertaking unless they formed part of an original investigation; parthenogenesis in *Marsilia*

and the problem of intramortal or intravital staining are notable instances. As the facts are stated without critical opinions being offered, a simple reference to the publications would have been as valuable, and would have made a reduction even though slight in the size of the book. However, the greater number of the additional paragraphs are of considerable practical value, and not the least so are the directions or hints which emanate from Prof. Strasburger himself or from workers in his laboratory, as, for instance, the method of examining the root of *Vicia Faba*, the directions for embedding small algæ and the instructions for demonstrating protoplasmic threads (Plasmodesmen). Other notable additions include new tests for starch, fats, callus and cork, and the use of neutral violet as a reagent for pectic compounds. Darwin's device of using hornshavings as a hygrometer to determine the number of stomata and Buscalioni's colloidion method for the same purpose are mentioned, and some account is given of Brown and Escombe's work on the diffusion of gases through small apertures. It will be found that this edition differs mainly by the insertion of new paragraphs, and practically the only chapter which is rewritten is the last, dealing principally with cell problems.

Principles of Sanitary Science and the Public Health.

By Prof. William T. Sedgwick, Ph.D. Pp. xix + 368. (New York: The Macmillan Company; London: Macmillan and Co., Ltd., 1902.) Price 12s. 6d. net.

A FEW sentences of the preface to this work serve admirably to indicate its scope and, it may be added, its attainment. "This volume deals with the principles, rather than the arts, of sanitation," the author writes. "It is intended to be no more than an elementary treatise on the subject; and while it is believed that it contains some new material, and some old material treated from new points of view, no special claim is made for originality either in substance or in method of presentation." The author has, therefore, chiefly sought to bring together and to present in a simple and logical form those fundamental scientific principles on which the great practical arts of modern sanitation securely rest.

If the chapter on disinfection is taken, that will serve well to illustrate the scope and limitations of the work. There the necessity for disinfection and the object of disinfection are dealt with, but no directions are given as to how principles are applied in actual practice.

It is a most readable work, in which every principle of sanitation that is enunciated is lucidly explained and convincingly advocated, and in which the history of the facts on which the principles of sanitation are based is brought right up to date. It is a good book for everyone to read, and there is certainly no better book for the student to master before he commences the study of the practical and administrative side to public health work.

The author is very sound in his opinions. It is necessary to aim at high ideals when one advocates preventive measures in the interest of the public health, for those measures which are generally thought to be extreme are frequently the only ones which attain their object; but the author's ideal of a city, the water-supply of which is derived from surface-water, owning the entire watershed and keeping it clean and uninhabited, is an impossible one. Even in America it must be rare indeed that a city can secure for its water-supply a totally uninhabited watershed; but everyone will agree that a systematic and frequent inspection should always be maintained to guard the purity of the water collected on such gathering grounds. It is one of the great reproaches upon the sanitary administration of this country that so little is done in this direction. Frequently one sees men employed to patrol river banks to guard the interests of those who have the sole right to the fishing, while no systematic inspection is carried out to guard against