THURSDAY, FEBRUARY 23, 1911.

PARKER AND HASWELL'S ZOOLOGY.

A Text-Book of Zoology. By Prof. T. J. Parker, F.R.S., and Prof. W. A. Haswell, F.R.S. Vol i., pp. xxxix+839. Vol. ii., pp. xx+728. (London: Macmillan and Co., Ltd., 1910.) Price 36*s.* net, the two vols.

AFTER an interval of thirteen years, this well-known text-book has appeared in a second edition. Its merits have earned for "Parker and Haswell" a high educational rank; the clear, terse descriptions of each selected example of the various classes; the comparison of the class with its exemplar; the abundance and excellence of the illustrations; the brief but useful summaries on general topics, distribution, history, variation. Its drawback has been that whilst containing a good two years' training in the subject-matter of zoology, it does not satisfy the needs of more advanced students. In some ways the new edition makes good this defect, but we are inclined to think that it would have been a gain if a good deal of elementary descriptive matter (such as students invariably obtain in other and smaller works) could have made way for fresh and much-needed descriptions of such examples as a tortoise and a mammal other than a rabbit, or for such a topic as comparative physiology.

The most striking change in the book is the improvement, both in text and in the figures, of the volume that deals with the invertebrata. The vertebrates, on the other hand, remain essentially unaltered. This differential treatment raises an interesting point, for it corresponds very closely with the relative amount of interest taken by students in the two branches of the subject and the relative progress, both in the presentation of, and research into, the subject-matter. Every experienced teacher knows—indeed, the book before us shows—that our knowledge of invertebrates has advanced more rapidly of late years and has a more attractive appeal than our knowledge of the vertebrata. Purely descriptive anatomy takes too large a place in the presentation of the latter. The discussions upon the origin of fins or the morphology of the ear-ossicles still sound on—vague, unsatisfying, unpragmatic. We do not expect our students to know in detail the sclerites of an insect, but we do expect them to know the hard parts of vertebrates. We still regard embryology as something distinct from anatomy, and the sense of dealing with the life-history of a vertebrate in the way in which life-histories are studied among invertebrates is never realised. Embryos are still treated as rarities, the phenomena of colour are omitted or passed over briefly, the questions of heat-production and other problems of vital mechanics are not mentioned. Is it to be wondered at that our students with rare exceptions devote themselves to research on invertebrata or to questions of heredity? A fresh treatment of vertebrate zoology is required. We regret that no attempt is made in this work to put new wine into the old bottles, but we cannot wonder at it. A new bottle is required.

With regard to the changes made in the first volume, the protozoa are more fully illustrated and described, but the accounts are not equally adequate. For example, the life-histories of the Lobosa are not referred to, the sexual dimorphism in *Sporozoa gregarinida* is not mentioned, and much recent work on forms mentioned or figured is not made use of. The list of fresh-water jellyfish and hydroids on p. 167 omits some interesting recent discoveries. It is, of course, incorrect to repeat the statement of the earlier edition that Limnocodium is only found in Regent's Park. A description of the actual mode of formation of a medusa would have been very welcome. Amongst the few mistakes of nomenclature we must mention Adamsia on p. 208 and on Fig. 157. The anemone referred to is obviously not Adamsia but *Sagartia parasitica* (to use the older name). The accounts of the various worm-Phyla are much improved and will prove extremely useful. The classification of the Crustacea is quite the modern one, but we miss any account of the recent work on parasitism and sex-production in this class. Fig. 454 is still incorrectly labelled. The treatment of the insects might have been brought a little more up-to-date in view of the increased interest in and knowledge of the housefly and the tsetse-fly, neither of which are noticed. The table of mouth-parts on p. 623 is reprinted without reference apparently to the work which had led to another comparison. The Aptera, a most important order, are treated very summarily, and no mention is made of the discoveries of Silvestri and Berlese, which have revealed since 1907 a new order, the Myrientomata.

These criticisms, however, do not preclude a generous estimate of the labour which these volumes have cost, nor do they seriously diminish one's estimate of their value. Prof. Haswell is to be congratulated on the appearance of this new edition, which will be greatly appreciated by all teachers, and in the matter of typography and lithography is an excellent example of modern English work. F. W. GAMBLE.

PAINTS AND PAINTING.

The Materials of the Painter's Craft, in Europe and Egypt from Earliest Times to the end of the Seventeenth Century, with Some Account of their Preparation and Use. By Dr. A. P. Laurie. Pp. xv+444. (London and Edinburgh: J. H. Foulis, 1910.) Price 5*s.* net.

THE author of this interesting book, which belongs to a series treating of "The Arts and Crafts of the Nations," has gathered within its covers an immense amount of information concerning the materials and methods of painting in early times. Dr. Laurie has been, and is, an indefatigable investigator, especially in connection with ancient processes of mural painting and with the vehicles of mediæval and later days. His chief conclusions, some of which have been published before, as in the little volume on "Greek and Roman Methods of Painting," lately reviewed in these columns, are now made accessible to everyone interested in the subject. One has no longer to search through the back numbers of a journal