I could not discover that she hit upon anything that was connected with the handkerchief.

JOHN TROWBRIDGE.

Let me say that I have no firm mind about the matter. I am curiously and yet absolutely uninterested in it for the reason that I don't see how I can exclude the hypothesis of fraud, and, until that can be excluded, no advance can be made.

When I took the medium's hand, I had my usual experience with them, a few preposterous compliments concerning the clearness of my understanding, and nothing more.

N. S. SHALER.

Since writing the foregoing, I have gone over the notes in detail, making a memorandum of successes and failures. I am surprised to see how little is true. Nearly every approach to truth is at once vitiated by erroneous additions or developments.

J. M. PEIRCE.

On re-reading your notes I find absolutely nothing of value. None of the incidents are correct, and none of the very vague things hinted at are true, nor have they any kind or sort of relation to my life, nor is there one name correctly given.

S. WEIR MITCHELL.

Truly, "we have piped unto you, but ye have not danced."

J. McK. C.

SCIENTIFIC LITERATURE.

A Text-Book of Zoology. By T. JEFFERY PARKER, D.Sc., F.R.S., Professor of Biology in the University of Otago, Dunedin, N. Z., and WILLIAM A. HASWELL, M.A., D.Sc., F.R.S., Professor of Biology in the University of Sydney, N. S. W. London, Macmillan & Co.; New York, The Macmillan Co. 1897. 8vo. Pp. xxxv + 779 (Vol. I.) + xx + 683 (Vol. II.). Price, $10.50.

Parker and Haswell's long awaited text-book will be welcomed with pleasure and even with gratitude that so admirable a work has been placed within the reach of teachers and students of zoology, but we cannot repress a feeling of sadness that its gifted senior author did not live to see the fruit of the immense labor that he must have bestowed upon it. It was to be expected that the author of the 'Elementary Biology' and of the 'Zootomy' would produce a work on zoology of high merit. This expectation has not been disappointed and Professors Parker and Haswell have given us a book which is sure to take and long continue to hold a leading place among manuals of zoology.

The book shows throughout the influence of Parker's long experience as student, teacher and author, in the teaching of elementary biology by the method usually associated with the name of Huxley, whose demonstrator he was between the years 1872 and 1880. Huxley's method was distinguished especially by the prominence given to the 'type' system, by the stress laid upon physiological and morphological considerations as opposed to the *minutiæ* of botanical and zoological classification, and by the effort to treat plants and animals, as far as possible, as only two aspects of one fundamental series of phenomena. It has often been criticised —sometimes justly, sometimes through a misconception of Huxley's theory of biological teaching or a lack of acquaintance with the conditions of its practical application; it has been variously modified to meet special needs and conditions, but there can be no question as to the great stimulus that it gave to biological studies or the vast improvement it has effected in the teaching of botany and zoology in the strict sense.

The precise relation of elementary biology to the subsequent study of zoology or botany has not thus far found very definite expression in the text-books. Parker and Haswell's book is so arranged as to follow naturally after such an elementary course, but despite its bulk it is also skilfully adapted to the needs of the beginner who has not had the advantage of the preparatory work. The book takes its point of departure from a brief account of *Amœba*, which is prefaced to a general introductory study of animal cells, tissues and organs and some of the more important facts of animal physiology. This introduction has wisely been made as brief as possible, and the principal discussion of general questions has been deferred to the end of the book, where will be found excellent chapters on distribution, the 'philosophy' and history of zoology, heredity, evolution and the like. In the systematic treatment of the groups, forming the main body of the book, the type system is consistently followed throughout. While fully aware of the limitations and drawbacks of

that system, the authors recognize the fact that it is, as a rule, impracticable to pursue the academical study of zoology on the broader lines of natural history, and that students must in general acquire their training through the accurate and thorough study of a comparatively small number of forms in the laboratory. Each group (the class, as a rule) is accordingly introduced by the thorough examination of a single representative or 'example,' and the treatment is such as to render the book as useful on the laboratory table as in the study. From the study of the 'example' the student is led to a brief account of the distinctive characters and classification of the class, the systematic position of the example, and finally to a more extended comparative discussion of the general organization, development and affinities of the group as a whole. We think the book would have been much more useful had the authors followed the example of Claus in giving some of the more important families under the leading orders, and by the use of smaller type this might have been done without material increase in size. The authors have shown good judgment in not confining the descriptive part too closely to anatomical detail, having added, wherever possible, accounts of embryological development and larval metamorphoses, with something also of habits, life-history and distribution. The book is thus much increased in effectiveness and is relieved in a measure of the dryness that has often characterized zoological text-books.

To criticise so bulky a work in detail would hardly be possible within the limits of this review.* The classification adopted will probably be in its main outlines sufficiently acceptable to most morphologists, though some of its details are open to serious criticism. We are glad to see the Porifera recognized as a phylum distinct from the Cœlenterata, the Scyphoza separated from both the Hydrozoa and the Actinozoa, and the unspeakable 'Vermes' consigned to a limbo from which it is to be hoped they will never emerge. On the other hand, the phylum Arthropoda is retained with hardly an intimation of the opposing view, held by a considerable number of morphologists, that this group falls into at least two distinct phyla. The retention of the group 'Gephrea' in the old sense seems little short of a blunder; for it is generally admitted that the Sipunculacea are but remotely connected with the Echiuroids, the latter being degenerate annelids, while the former have wholly distinct affinities. We think that many morphologists will be disposed to question the desirability of retaining *Amphioxus* among the 'Vertebrata;' for, although the discovery of the nephridia and other recent investigations clearly indicate its affinities to the higher chordates, it may well be doubted whether the gap between *Amphioxus* and the tunicates is any greater than that which still separates it from the lowest craniate.

The above are, however, minor criticisms. A real and very obvious defect lies in the order of treatment of the invertebrata. If the study of morphology has shown anything regarding the complicated relationships of the invertebrate phyla, it has shown that the 'Molluscoida' and Echinodermata are but remotely connected, either in structure or in development, with the rotifers, annelids and mollusks, while all three of these groups show well-marked, if not direct, affinities to the Plyathelminthes. The authors recognize the near relationship of the rotifers to the annelids and mollusks by introducing the former group with a description of the annelid trochophore (I., p. 298); and this affinity is again recognized in a genealogical tree nearly two hundred pages farther on (p. 483). Yet the Trochelminthes are separated from the Annulata by the Molluscoida and Echinodermata, producing a breach of continuity which can be only misleading and confusing to the student. It would seem from every point of view preferable to place the latter two groups after the Annulata, Arthropoda and Mollusca at the end of the first volume—an arrangement which would allow a nearly continuous treatment from the Platyhelminthes up to these groups, and at the same time give opportunity for more direct discussion of the possible affinities of the echinoderms and some of the 'molluscoids' to the lower Chordata. Fortunately, such a transposition can readily be

* For a number of detailed criticisms pointing out some important errors, see a review in *Natural Science* for March, 1898, which has appeared since the present review was written.

effected in practice; it is, indeed, one of the merits of the book that it is capable of a considerable degree of modification in actual use to adapt it to different conditions of instruction or to differences of view regarding classification.

On the whole, the new text-book deserves a warm welcome, and while not sufficiently extended to take the place of some of the larger manuals, such, for example, as Lang's fine treatise on comparative anatomy, we believe it will be found an invaluable aid not only to special students of zoology, but also to a large number of those whose main interest lies in other branches of scientific study. Written with a clearness, accuracy and method that bespeak the practiced teacher, it is admirably illustrated with a profusion of figures—there are nearly twelve hundred in all—of the highest excellence. A large proportion of these are original; they are often of an artistic merit rarely attained in text-books; they are almost without exception clear, yet are rarely schematized. In all these respects the book offers a model which cannot be too highly praised.

E. B. W.

Traité de zoologie, publié sous la direction de Raphaël Blanchard. XVI., Mollusques, par PAUL PELSENEER; XI., Némertiens, par LOUIS JOUBIN. Paris, Rueff et Cie. 1897. 8vo. Illustrated. Pp. 187 and 59.

The present work comprises 24 pages of general introduction, followed by chapters on the five molluscan classes adopted, two pages on phylogeny and an appendix of two pages on the problematical *Rhodope*, which the author regards as forming a subdivision of the Flatworms. Each chapter comprises a general discussion of the anatomy taken up by successive groups of organs, followed by a synopsis of the development, habits and classification.

The work consists chiefly of a rearrangement, with some additions, of the material in the author's 'Introduction à l'étude des mollusques,' published in 1892 in the Annales de la Société Royale Malacologique de Belgique.* Like that work, it contains a useful compilation of the principal data on the anatomy and development of mollusks, more or less biased, as to inclusions and omissions, by the author's personal views in regard to sundry contested topics. While all the advances of the last six or eight years may not be chronicled, the general discussion contains for the gastropods and amphineura a fairly complete summary of current opinion relating to the recent members of these groups. In the case of the Pelecypods the author adheres to the views introduced by him some years ago, and omits to mention the facts which have been put on record since that time, which, to say the least, have rendered his speculations decidedly less probable than they at first appeared to be. The treatment of the Cephalopods, from the ignoring of data furnished by paleontology, is the least complete of all.

In the matter of classification the work is hardly up to the level of criticism, and would have gained in strength and dignity if the feeble and unequal attempts at systematic arrangement had been entirely omitted. Of the most important advances in the systematic study of mollusks during the last few years, such as Pilsbry's work on the *Pulmonata* and Chitons, Hyatt's contributions to the developmental knowledge of extinct Cephalopods, or Bernard's researches on the development of the hinge in bivalves, this treatise contains not the slightest trace. On the other hand, the useful work of indicating to the student the lines on which research is most needed, or likely to prove fruitful, has not been attempted. The illustrations are clear and good, though most of them are familiar. It can hardly be claimed that the occasional dabs of color add much to their value.

Joubin's work on the Nemerteans seems to be a satisfactory and well written summary of our knowledge of this interesting group. The illustrations are particularly good, and the author's style is attractively clear. He accepts the classification of Bürger as on the whole the most precise and natural. The paper concludes with an interesting discussion of the relations of the group to other worms, in which the conclusion is reached that they are very closely allied to the Turbellarians, with which (including the Cestodes and Trematodes) they constitute the order of Plathelminthes.

W. H. DALL.

*Tome VII., quatr: sér., pp. 31–243.