

and significance of language. In this part of the work we must find the chief interest in the fact that we have an attempt to theorize as to the origin of speech from the standpoint of its beginning in the lower animals, rather than from the standpoint of its more developed conditions in man. The study of language hitherto has been to reduce human language to its lowest and simplest form. Mr. Garner for the first time attempts to develop language from its simpler conditions in the lower animals, and if Mr. Garner's conclusions differ in some respects from the ideas that have hitherto been in vogue, it is not surprising.

On the whole, the work of Mr. Garner is extremely interesting and suggestive. As a piece of book-making it is open to criticism. It is sketchy; it is not very logically arranged, containing a miscellaneous mixture of observations on the intelligence, habits, gestures, affections, and general mental attributes of monkeys, some of which are new, but most of which are not especially new, and have little relation to the subject of monkey speech. The observations on the actual speech of monkeys, which is of course the really valuable part of the work, fills only a small portion of the book. We must look upon this volume and the work it describes simply as an outline sketch of the beginning of a series of results which may be carried to a successful issue in later years. The thanks of science are certainly due to Mr. Garner for opening to us a new line of research and a new realm of suggestive thought.

H. W. CONN.

Outlines of Zoölogy. By J. ARTHUR THOMSON. Edinburgh and London, Young J. Pentland, 1892. 655 p. Ill.

FOR some years now there has been no text-book of zoölogy in the English language at all adequately representing the present state of the science, and at the same time of moderate cost. The cost of Claus and Sedgwick is high; the translation of Lang must remain incomplete till the original shall be finished; Lankester's promised book still delays its appearance; Packard is out of date, as for that matter is Claus and Sedgwick; and the college teacher

who wishes his students to have a good reference book in their possession hardly knows where to turn when the said students combine a comparative ignorance of German with thinly-lined pocket-books. Under these circumstances, the prospect afforded by the announcement of Mr. Thomson's book was distinctly attractive.

It may be said at the outset that the book to a large extent responds to favorable anticipations. Mr. Thomson, while not much known as an original investigator, has made a record for himself in the hardly, if at all, less useful rôle of abstractor and collator of the work of others, while his occasional essays and his work with Professor Geddes on the evolution of sex have shown him to possess an agreeable literary style. The "Outlines of Zoölogy" is an exceedingly readable book, and perhaps the only criticism that can be made upon its style is that it occasionally degenerates into flippancy. Professor Forbes was quite justified in making his joke about the "wink of derision" which *Luidia* gave him as it passed over the side of the boat after breaking off its arm; but it is hardly desirable to waste space in repeating the joke in a text-book. A good many examples of this kind might be quoted.

Mr. Thomson wisely, we think, follows the example of Claus, Boas, and other writers in devoting a considerable amount of space to general matters. The first ninety pages of the book are occupied with an account of the functions of animals, the meaning of organs, tissues, and cells, methods of reproduction, fertilization, segmentation, etc., palæontology, distribution, and the principles of evolution. Evidently these subjects must be treated in the briefest possible way; but the result is on the whole not unsatisfactory. The first chapter, however, which takes for granted a knowledge of the meaning of such words as "cells," for example, would be a pretty tough morsel for the average student beginning zoölogy without any biological training. Of the remaining 514 pages (excluding index), 343 are taken up with invertebrates, and 171 with vertebrates — an arrangement which, for a general text-book, surely gives too much space to the vertebrates.

Publications Received at Editor's Office.

- BRIDGE, JOHN. From Tilbury to Torbay. London, Gilbert & Rivington. 16°. 154 p.
- DE VARIIGNY, HENRY. Experimental Evolution. London and New York, Macmillan & Co. 12°. 283 p. \$1.50.
- HOLM, THEO. Notes on the Flowers of *Anthroxanthum Odoratum* L. Washington Government. 8°. 5 p.
- MAINE STATE BOARD OF HEALTH. Seventh Annual Report. Augusta, State Printers. 8°. paper. 44 p.
- MUELLER, FERD. VON. Select Extra-Tropical Plants. 8th ed. Melbourne, Australia, Government. 8°. Paper. 602 p.
- RAMSAY, ALEXANDER. The Scientific Roll, Nos. 1, 2, 3, Climate, Baric Condition. London, W. E. Bowers. 8°. Paper.
- SMYTH, BERNARD. B. Check. List of the Plants of Kansas, Topeka. Bernard B. Smyth. 8°. Paper. 34 p.
- TOMPKINS, C. R. The Woodworker's Manual. Dover, N. H. The John A. White Co. 8°. Paper. 60 p. Ill.
- U. S. GEOL. SURVEY. Bulletin No. 79. Washington Government. 8°. paper. 39 p.
- WRIGHT, G. FREDERICK. Man and the Glacial Period. New York, D. Appleton & Co. 12°. 401 p. \$1.75.

Reading Matter Notices.

- Ripans Tabules: best liver tonic.
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A YOUNG MAN, with a thorough training in Analytical Chemistry (including analysis of minerals, food, water, etc.), and holding a diploma of the School of Practical Science, of Toronto, and good testimonials, desires a position as Analytical Chemist, or as assistant to such. Address to WM. LAWSON, 16 Washington Ave., Toronto, Ontario.