

THE ETHNOLOGICAL VALUE OF SHELLS.

Shells as Evidence of the Migrations of Early Culture. By J. Wilfrid Jackson. Pp. xxviii+216. (Manchester: At the University Press; London: Longmans, Green, and Co., 1917.) Price 6s. net.

THOSE who are interested in recent developments in ethnological studies are aware that a very active school has arisen within the last two or three years in Manchester under the influence of Prof. G. Elliot Smith, who in 1911 directed attention to the widespread influence of Ancient Egypt in his little book, "The Ancient Egyptians and their Influence upon the Civilisation of Europe." Since that date he has made investigations over a wider sphere, and formulated the theory that a large number of apparently associated customs and objects mark the progress of a complex culture throughout a considerable portion of the earth's surface.

Working on these lines, Mr. J. Wilfrid Jackson, the conchologist and assistant-keeper of the Manchester Museum, has published a series of five papers dealing with the geographical distribution of certain shells employed by man and their cultural significance, four of which he has reprinted with new plates and additional information. These are: "The Geographical Distribution of the Shell-Purple Industry," "Shell-Trumpets and their Distribution," "The Geographical Distribution of the Use of Pearls and Pearl-shell," and "The Use of Cowry-shells for the Purposes of Currency, Amulets, and Charms."

Mr. Jackson has amassed a large number of most interesting and suggestive data in a field that, with the exception of shells used in currency, has been very little studied by ethnologists; from this point of view alone Mr. Jackson has done good service. The employment of the pigment found in certain marine shells for dyeing fabrics was known in the Mediterranean area and West Britain, was practised in prehistoric Japan and still is in China, and also by pre-Columbian Incas, and in Central America, where its use has not yet died out. The distribution is thus discontinuous. Three alternatives suggest themselves: (1) That the industry arose independently in these three areas; (2) that it occurred in the intermediate areas and has since disappeared without leaving any trace; or (3) that it was carried by streams of migration, the carriers of which did not necessarily introduce it wherever they went. This technique implies that the individuals adept in the process actually visited South and Central America: objects (or copies of them) may be carried by a cultural drift alone, but not a special technique, as this implies personal knowledge, which must either be conveyed by individuals directly, or, if transmitted indirectly, it must have been employed during the progress of its migration, and of this there is at present no evidence, so far as the purple dye is concerned.

The same argument applies to the association of the moon-god cult and the shell-trumpet in India

and Mexico, and many other associations. The cumulative evidence of ethno-conchology is too great to be ignored, and affords additional demonstration of the spread of a complex culture from the culture centres of the Old World to South and Central America. A. C. HADDON.

MARINE BIOLOGY AND FISH CULTURE.

(1) *Biologia Marina. Forme e Fenomeni della Vita nel Mare.* By Raffaele Issel. Pp. xx+607. (Milano: Ulrico Hoepli, 1918.) Price 10.50 lire.

(2) *Piscicoltura Pratica. Legislazione sulla Pesca d'Acqua Dolce.* By Prof. Felice Supino. Pp. viii+327. (Milan: Ulrico Hoepli, 1917.) Price 5.50 lire.

(1) THIS manual follows the lines of the course of lectures on marine biology delivered by the author in the University of Genoa to first-year students, and the subject is treated in a manner suitable to their stage of training. The account deals so far as possible with local conditions and with marine organisms as they may be seen by the observant student on the Ligurian Riviera, and especially in the neighbourhood of the small marine laboratory established in 1912 at Quarto dei Mille (some three miles east of Genoa), of which the author is director. After giving an account of the more important features of aquatic animals in general, and of the physical conditions under which marine animals live, the author sketches the general characteristics and biology of the animals of the plankton, and describes briefly a number of selected vertebrate and invertebrate examples. In the following chapters abyssal forms and the littoral fauna are considered, and in the account of the latter the author has included interesting observations on the behaviour of the flagellate protozoa *Carteria subcordiformis* and *Cryptomonas* sp. and of the copepod *Harpacticus fulvus* in shore-pools under evaporation. By the time the water in the pools has become strongly saline (density about 1.125), these animals have come to rest and show no sign of life. They have entered upon a "latent" condition, and may survive in that state for two or three weeks, recovering on the salinity of the water being reduced again to the normal.

The animals of the various littoral zones and those found among the algæ, especially the fauna of the extensive *Posidonia* meadows of that region, are treated in a clear and interesting manner, and there is a well-written chapter on the coloration of marine animals. Two chapters deal with fish and fisheries, and a final chapter is devoted to an account of the apparatus and methods used in collecting and studying marine animals. The author has given a stimulating account of marine organisms and their environment, and by means of the well-chosen bibliography at the end of each chapter—an excellent feature of the manual—has directed the serious student to the more important recent literature on the subjects considered. There are 211 illustrations in the text, many of them original.