THE OBAN PENNATULIDA[1]

THIS report is a very thorough piece of work. It consists of a detailed and finished description of specimens dredged during an excursion of the Birmingham Natural History Society in July, 1881. The specimens all belonged to the three species *Funiculina quadrangularis*, *Pennatula phosphorea*, and *Virgularia mirabilis*. The language in which they are described is very distinct and lucid, though perhaps some criticism may be allowed as to the scale of measurement used and as to a certain point in the nomenclature. Measurements are given in the decimal divisions of an inch, instead of the metrical system, which is so much more satisfactory. The axial portion of a Pennatulid is described as consisting of two parts—the stalk and the rachis, the latter being the polyp-bearing portion; and the word "stem" is used for the calcareous rod running through the axis of both rachis and stalk. "Stem" would naturally mean both the stalk and rachis together as opposed to the polyp-leaves. "Core" might be suggested as a better term for the axial skeleton. The example of Kölliker has been followed in the use of the terms "polyps" and "zooids" for the two kinds of individuals. In describing the "stomach," its inner lining membrane is called ectoderm, but no reference is made to he fact that the evidence for its being ectodermic is embryological.

The description and figures given of *Funiculina* are the first published in English which deal with the internal structure; and they are in some respects more complete and perfect than those of Kölliker in his monograph on the Pennatulida. The examination of the largest of the specimens, which was thirty-nine inches long, has finally disproved the validity of the distinction maintained by Verrill and Gray to exist between the Scotch *Funiculina*, and that of the Mediterranean and Scandinavia. The supposed species, *F. Forbesii*, is simply the younger form, the largest of the Oban specimens being in all respects a typical *F. quadrangularis*.

A very interesting part of the work is that which refers to the reproductive organs of *Pennatula phosphorea;* the male and female elements are here fully described and figured for the first time. The fact of the sexes being distinct was ascertained by Lacaze Duthiers, but neither he nor Kölliker give figures or satisfactory descriptions of the sexual organs. The male elements are shown here to be produced in spherical capsules, which at first sight resemble ova.

In the account of *Virgularia* the process of the origin of new polyps is described. The stomachs arise as invaginations of the surface of the rachis into the cavity of large canals lined by endoderm.

An ingenious discussion of the reason why specimens of *Virgularia* when dredged are almost always truncated at the upper end leads to the conclusion that the loss is due to the attacks of fish.

The descriptions are followed by a complete critical list of the literature, and an account of the geographical distribution both in the sea and in museums. The figures are very clear, and at the same time artistic. It is much to be regretted that the condition of the specimens did not allow the histology to be completely made out. No doubt the Birmingham Society will pay greater attention to the preservation of material for this purpose on future occasions. J. T. CUNNINGHAM

NOTES FROM THE OTAGO UNIVERSITY MUSEUM

III.—*On some Embryos of "Callorhynchus antarcticus"*

SOME weeks since I obtained from a fisherman a number of eggs of *Callorhynchus antarcticus* from Wickliffe Bay, Otago Peninsula. As I believe this is the first time any observations have been made on the development of the *Holocephali*, the following report of remarks made at a meeting of the Otago Institute on May 7 may be of some interest to morphologists:—

"The eggs were found buried in the sand a little below low-water mark, a position which would seem to cast some doubt on the generally accepted theory which accounts for the peculiar form of the egg-shell by supposing it to have acquired a protective resemblance to kelp. The cavity for the embryo has an elongated pyriform shape, the broad end being anterior, and the narrower or posterior end produced into a long canal. On what may be described as the 'hairy' in contradistinction to the smooth side of the egg-shell, there is on each side of the middle line at the anterior end a longitudinal slit in the wall of the cavity, which serves to allow of currents to and from the latter for respiratory purposes. The anterior ends of these slits are united by a weak place in the wall of the egg-shell; very slight pressure from within causes rupture along this line and produces a valve, the lateral boundaries of which are formed by the respiratory slits, its anterior boundary by the line of rupture. This valve readily opens outwards by pressure on its inner face, and serves for the exit of the fœtus; pressure upon its outer face only forces it against the opposite wall of the cavity.

"The advanced embryo lies in the cavity in such a position that its head lies at about the level of the base or hinge of the valve, and therefore some distance from the anterior end of the cavity, its tail lies in the narrow posterior prolongation of the cavity, which fits it accurately; its right side lies almost invariably against the smooth, its left against the hairy side of the egg-shell.

"Unfortunately the embryos in all the four dozen eggs examined were in a tolerably advanced stage of development, so that there will be little chance of getting younger stages until next autumn. The youngest obtained are about four inches long; they have large yolk-sacs (1·75 inch in length), and very long external gills projecting from the opercular aperture; the snout has acquired the characteristic form, but the tail shows as yet no trace of heterocercality, nor the skin of the silvery character it has in the adult, being in the fresh state translucent and highly vascular. The yolk-sac is remarkable; it is longitudinally elongated, and produced into numerous blunt paired projections, which are tolerably constant in position; one pair of these always lies to the anterior end of the dorsal surface of the yolk-sac, and between them the snout of the embryo is invariably situated. The umbilical or somatic stalk is practically obsolete, the fœtus being sessile upon the yolk-sac.

"As in Elasmobranchs the yolk-sac is gradually drawn into the cœlome, and so consists in advanced stages of an internal and an external portion, the former continually increasing at the expense of the latter. As the external portion diminishes in size, it loses its blood-vessels, and its projections gradually disappear. In the latest stage obtained, the external portion is not more than 0·5 inch long, the internal portion being fully 1·25 inch in length, and causing a great distension of the abdominal walls. In this stage also, the external gills are absorbed, and the adult characters of the integument attained."

The foregoing description appeared in the *New Zealand Journal of Science* for this month. T. JEFFERY PARKER

Dunedin, N.Z., July 13

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

OXFORD.—The delegates of the Common University Fund have agreed to appoint a Reader in Anthropology, so as to utilise the presence of Dr. Tylor for University instruction. In a Convocation to be held on November 15, a decree will be submitted to the House, fixing the Reader's stipend at 200*l.* a year, on condition that he lecture at least once a week in each of the three terms, and receive students for informal instruction and assistance.

A Scholarship in Natural Science is offered this term by Wadham College. Candidates may offer either Animal Morphology, Botanical Morphology, or Physiology. They will also be examined in Elementary Chemistry and Physics. Weight will also be given to a knowledge of French or German. Candidates must send in their names to the Warden on or before November 15.

CAMBRIDGE.—Dr. H. Sidgwick has been elected Knightbridge Professor of Moral Philosophy. Prof. Bonney, F.R.S., has been approved for the degree of Sc.D. Dr. Routh has been elected Hon. Fellow of Peterhouse; and Professors Dewar and M. J. M. Hill have been elected Ordinary Fellows. Messrs. A. G. Greenhill and R. R. Webb will be the Examiners in the Mathematical Tripos of 1874. The honorary degree of M.A. has been conferred on Prof. Macalister, F.R.S. Messrs. J. A. Fleming and S. L. Hart, both distinguished Natural Science graduates, have been elected Fellows of St. John's.

Dr. Gaskell, F.R.S., is to be approved as a Teacher of Physiology, Dr. F. Darwin as a Teacher of Biology, and Mr. G. B.

[1] Report by Prof. A. Milnes Marshall, M.D., D.Sc., and William P. Marshall. Birmingham, 1882.