

BIOLOGICAL NOTES.

FOSSIL FISH REMAINS FROM NEW ZEALAND.—Mr. Davis has recently described a number of fish remains from the Tertiary and Cretaceous-Tertiary formations of New Zealand. The memoir forms a part of the Transactions of the Royal Dublin Society, and is illustrated by seven well-executed plates of the fossils. Some short time ago Mr. Davis received the remains of some fossil Tertiary Elasmobranchs from Prof. F. W. Hutton, from New Zealand, which formed the subject of a short communication to the Geological Society of London; but a much larger collection having been in the meanwhile received, permission was granted for the withdrawal of the paper, and now, based on several additional collections, we have the present memoir, which for the first time does justice to these interesting fossil forms by full descriptions and excellent figures. The memoir opens with an account of the Tertiary formations of New Zealand, based on the results attained by the Geological Survey under Sir James Hector, while notice is taken also of the views of Prof. Hutton and Sir J. von Haast. In addition to the remains of fish, some Saurian teeth, as well as those of a Squalodon, have been found. Of the thirty-five species of fish described, no less than twenty-eight appear as new species; of these thirty-five, twenty-eight are Sharks, four are Rays, two belong to the Chimerids, and one to the Teleostei. A new species of toothed Whale, *Squalodon serratus*, is also described.—(Transactions of the Royal Dublin Society, vol. iv. (ser. 2), part i. pp. 1-50, plates i.-vii.)

MAMMALS OF LIBERIA.—Dr. F. A. Jentink continues his account of the recent zoological researches in Liberia, which have been carried on for the last seven or eight years by J. Büttikofer, C. F. Sala, and F. X. Stampfli. The amount of information collected by the first-named investigator is very great, and merits the high praise bestowed upon it by the Director of the Leyden Museum. Of the ninety species of Mammals sent home, thirteen belong to the Monkeys, eleven to the Carnivores, thirty-three to the Ruminants, five to the Pachyderms, twenty-five to the Rodents, one Sirenian, four Insectivores, seventeen to the Bats, and three to the Edentates. Among the more interesting species mentioned are the following: *Cercopithecus stampflii*, n. sp., from Pessy Country; *Terpome longiceps*, Gray; *Cephalophus doria*, Ogilby, and *Euryceros curyceos*, Ogilby; *Graphiurus nagtglasii*, n. sp.; *Claviglis crassicaudatus*, n. g. et n. sp.; *Crocidura buttikoferti*, n. sp., and *C. stampflii*, n. sp.; *Pachyura megalura*, n. sp.; *Epomophorus veldkampii*, n. sp.; and *Vesperugo stampflii*, n. sp. This number also contains notes of 151 species of Birds, collected by J. Büttikofer and F. X. Stampfli, during their last sojourn in Liberia. The last-named is still collecting on the Farmington River, a large confluent of the Junk.—("Notes from the Leyden Museum," vol. x. Nos. 1 and 2, January and April, 1888.)

ON NEW ENGLAND MEDUSÆ.—In a list of certain Medusæ, found by Mr. J. Walter Fewkes, off the coast of Maine and from Grand Manan, he redescibes and figures the interesting and beautiful *Nanomia cara*, A. Ag. This Physophore, described some twenty-five years ago, though repeatedly referred to in text-books and general works on zoology, seems to have since escaped attention, but many specimens were found at Grand Manan. It will be remembered that the form thought to be adult by A. Agassiz, is not above six inches in length, but Mr. Fewkes captured specimens measuring, when extended, over four feet in length, and three feet when retracted; while many hundreds were seen of the size of the specimen he figures, which is about sixteen inches long. When floating in the water they were easily distinguished from the southern Physophore, *Agalma elegans*; the nectocalyces are biserial, the specimen figured has thirteen pairs of well-developed bells, and many of the adults had fifteen pairs. Among the most interesting and it would seem exceptional structures in this form are the organs referred to by A. Agassiz as the "third kind of polyps," now called "hydrocysts" or "tasters"; these hang from the polyp stem midway between the polypites, a single adult and many half-developed tasters occurring between each pair of polypites. They are small, slender, flask-shaped bodies, the distal end is closed, and near the basal attachment there is a prominent red body of spherical shape, known as the "oil globule"; each taster has also a single long tentacle. Contrary to what A. Agassiz thought, the adult *Nanomia* has male and female bells on one and the same colony; each female bell carries a single ovum, which, when they escaped, could be easily seen by the unassisted vision.

*Hydrichthys mirus*¹ is also described and figured as a new genus and species belonging to the Hydroida; it was found attached to the side of a small fish (*Seriola zonata*, Cuv.) which had been taken in the dip-net at a time when the sea was quiet. The patch had at first all the appearance of a Fungoid growth. The fish and Hydroid parasite were kept alive for some time in an aquarium, and from the latter many thousands of Medusæ were raised. The Hydroid colony formed a cluster of reddish and orange-coloured bodies; the basal attachment is a flat thin plate with ramifying tubes; upon it are separate clusters of gonosomes and (?) hydranths. Each gonosome is botryoidal; the free extremity of the gonosome is without tentacles, its rim is entire, and it is destitute of Medusa buds. It seems possible that no food is taken in by the gonosomes, but that the whole structure is dependent upon the tubes of the basal plate for its nutrition. The filiform structures (hydranths?) are elongated flask-shaped bodies of about uniform size, with terminal openings. The Medusa is closely related to Sarsia, and so far shows the new Hydroid to be allied to the Tubularians, but there are not wanting certain features which hint at a kindred to the Siphonophores. The rare and interesting *Callinema ornata*, Verrill, is redescibed, and for the first time figured. With a remark of the author, "that histological researches lose some of their value if not preceded by an accurate identification or specific description of the animal studied, if it be different from known species," we heartily agree.—("Studies from the Newport Marine Laboratory," Bull. Mus. Comp. Anat. Harvard College, vol. xiii. No. 7, February 1888.)

THE BILL FOR THE PROMOTION OF TECHNICAL INSTRUCTION.

THE following is the Bill for the promotion of technical instruction, introduced by the Government:—

Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

1.—(1) Any School Board in England may from time to time supply or aid the supply of such manual or technical instruction, or both, as may be required for supplementing the instruction given in any public elementary school in its district, whether under its own management or not.

(2) Manual or technical instruction shall not be supplied or aided under this section except for such scholars as—

(a) are recognized by the Education Department as in attendance at a public elementary school and receiving instruction in the obligatory or standard subjects prescribed by the minutes of the Education Department for the time being; and

(b) (in the case of technical instruction only) have obtained from the Education Department certificates of having passed the examination in reading, writing, and arithmetic, prescribed by the standard set forth in the schedule to this Act, or an examination equivalent thereto.

(3) For the purpose of supplying or aiding the supply of manual or technical instruction under this section, a School Board shall have the same powers, but subject to the same conditions, as it has for providing sufficient public school accommodation for its district, subject to this restriction that the amount of the rate to be levied in any one year for the additional purposes authorized by this section shall not exceed the sum of *one penny in the pound*.

2.—(1) If a School Board aids the supply of manual or technical instruction in any school or schools under its own management, it shall, on the request of the managers of any other public elementary school in its district fulfilling like conditions as to the supply of manual or technical instruction in conformity with the requirements of the Department of Science and Art, and on proof of sufficient demand for such instruction in that school, aid the supply of such instruction in that school in like manner as it aids such supply in the school or schools under its own management, subject to such terms as may be agreed on or determined in pursuance of this Act.

(2) If the managers of a public elementary school in the district of a School Board object to the terms on which the School Board proposes to aid the supply of technical instruction in that school, the Department of Science and Art shall, on the appli-

¹ Vide NATURE, vol. xxxvi. p. 604, where we believe this genus and species were first described by the author.