ART. XXII.—*Notes on New Zealand Fishes: No. 4.*

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[*Read before the Philosophical Institute of Canterbury, 3rd December, 1913.*]

Plates III–VI.

SEVERAL interesting fishes are herein dealt with. Two of them (*Mora pacifica* and *Melanostigma flaccidum*) are described as new, and provide the first occurrence of their respective genera in New Zealand seas. A second occurrence of *Scymnorhinus licha* is noted. Foetal specimens of *Centrophorus plunketi* are described and figured, and similar treatment is accorded an example of the deal or unicorn fish, identified with *Lophotes cepedianus*.

16. Centrophorus plunketi Waite.

Plate III.

Centrophorus plunketi Waite, Trans. N.Z. Inst., vol. 42, 1910, p. 384, pl. xxxvii.

This species was first diagnosed four years ago from an example caught off Kaikoura, and in July last (1913) I received a second specimen from the same locality, by favour of Messrs. Nilsen Brothers.

This individual is slightly smaller than the previous one, being 1398 mm. in length. It also is a female, and is interesting from the fact that it was gravid, thirty-six young ones being obtained from the uteri. They are all of similar size, being 165 mm. in length, but had evidently not nearly reached their full foetal development, as the yolk-sac is large (66 mm. in diameter) and almost globular. At this stage the gills are still external, being apparent as red filaments, and, as usual, branchial filaments are also protruded through the spiracle. The predorsal spines do not at this stage show the protective knobs found in the foetus of *Squalus*,* though they may be a later foetal development.

In its ball-like form and short thick peduncle, the yolk-sac of *Centrophorus* agrees with *Squalus*, and differs greatly from that of *Galeus*, which I have described† as of peculiar shape, provided with a long umbilical cord, entering the sac towards the larger end.

The colour of the adult shark is uniform dark brown; it is interesting, therefore, to find that the foetal examples are white beneath, as with the majority of adult fishes and sharks, perhaps indicating that the uniform coloration of *Centrophorus* and *Scymnorhinus* is an acquired character.

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* Waite, Rec. Aust. Mus., vol. 4, 1901, p. 33, pl. iv, fig. 2.
† Waite, *ibid.*, 1902, p. 175, fig. 19.

17. Scymnorhinus licha Bonnaterre.

Plate IV, fig. 1.

Squalus licha Bonnaterre, Tabl. Encycl. Ichth., 1788, p. 12.

Mr. A. Hamilton, Director of the Dominion Museum, Wellington, forwarded to me for determination, a shark which proves to be of this species. It was originally recorded as an inhabitant of New Zealand waters by the late T. J. Parker,* who identified an example taken near Otago Heads, in 1882, with *Scymnus lichia.*

Though the specimen now to hand does not constitute a record for the Dominion, it is of sufficient interest to note as being only the second specimen known from our seas. Parker's example was a gravid female; ours is a male, and measures 1250 mm. in total length. Both agree in being of uniform dark-brown coloration.

A cast of the specimen was made for exhibition in the Canterbury Museum, and a photograph of the cast is reproduced on Plate IV, fig. 1. It should be noted that while the relative position of the fins, &c., is fairly well shown, the head appears much too short owing to the distortion produced by the angle subtended by the photographic lens.

An excellent figure, of which I have seen a tracing, will shortly be issued by Mr. A. R. McCulloch. The specimen selected for illustration is one of nine examples taken by the Federal trawler "Endeavour" in the Australian Bight.

18. Mora pacifica sp. nov.

Plate V.

D. 7, 44; A. 17, 18; P. 18; V. 6; C. 21 + 14; L. lat. 94; L. tr. 9 + 23.

Length of head, 4·0; height of body, 3·1; length of caudal, 5·5 in the length: diameter of eye, 3·2; length of snout, 5·2; and interorbital space, 4·8 in the head

Head flat; snout depressed; mouth oblique, the maxilla extending to beneath the third fourth of the orbit, upper jaw a little the longer; eye large, near to the upper profile; interorbital space broad and flat; a barbel below the chin.

Teeth.—Cardiform teeth in bands in the jaws and on the vomer; none on the palatines.

Fins. — The first dorsal commences three-fourths of an eye-diameter behind the head, or one-fourth its distance from the snout to the middle caudal rays; its anterior rays are twice as long as the eye; the fin is joined by membrane to the second fin, which extends posteriorly beyond the termination of the second anal. The anterior anal commences nearer the end of the middle caudal rays than the snout, and it is widely separated from the second anal. The pectoral is placed rather low, close behind the head, and its length equals its distance from the anterior margin of the orbit; its root is wholly in advance of the dorsal, and it reaches to below the third ray of the second fin. The ventral base lies wholly in advance of the pectoral; its first ray is produced as a bristle, its total length being equal to the post-orbital length of the head. The caudal is slightly forked, and its narrow low peduncle is but five-sixths the diameter of the eye in depth.

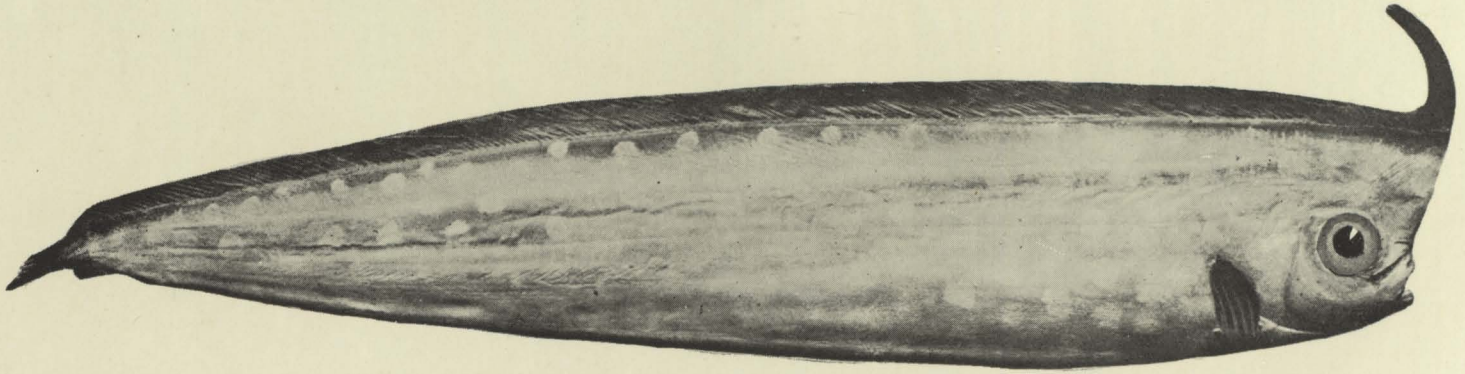
Scales.—The head and body entirely covered with moderate cycloid scales. The lateral line is complete; it arises behind the opercle, and, form-

* Parker, Trans. N.Z. Inst., vol. 15, 1883, p. 222.

Face p. 138.]

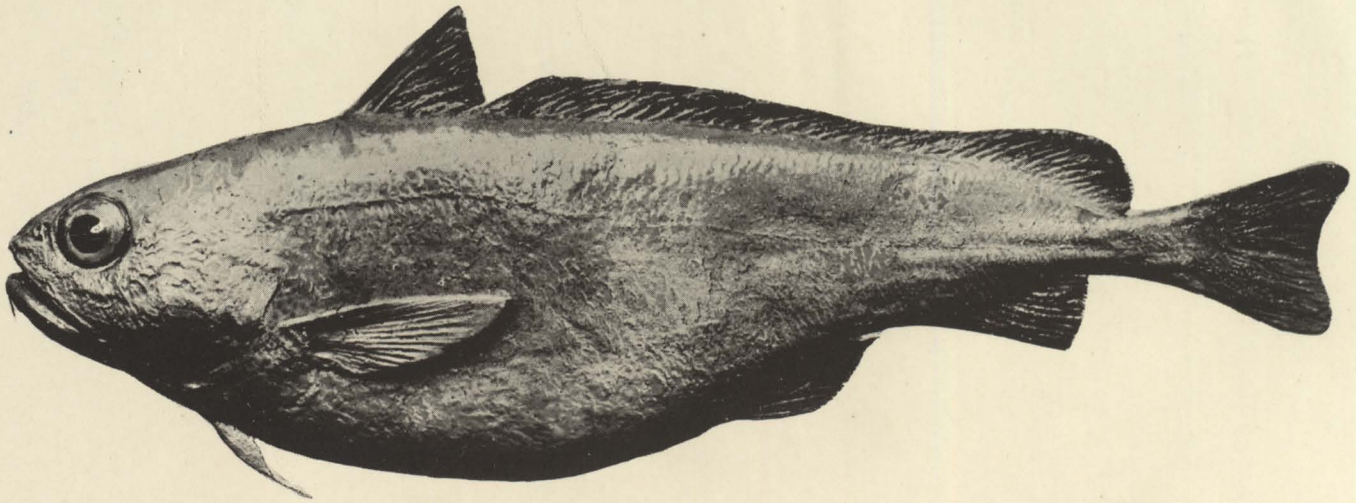
Edgar R. Waite, photo.]

Fig. 1.—Scymnorhinus licha *Bonnaterre.*



Edgar R. Waite, photo.]

Fig. 2.—Lophotes cepedianus *Giorna.*



Edgar R. Waite, photo.]

Mora pacifica *Waite.*

ng a low curve over the pectoral, passes along the middle of the caudal peduncle to the base of the rays.

Colours.—The upper surface is grey, the sides pinkish, and the underparts white; the fins are reddish, with exception of the pectoral, which is grey.

Length.—700 mm.

Loc.—Kaikoura, 200 fathoms.

The type of the genus *Mora** is known only from the Mediterranean and eastern Atlantic, and is common at great depths.

Judging from the figure published by Goode and Bean,† the new species differs from *M. moro* in having a shorter snout, the first dorsal fin less advanced (considerably behind the root of the pectoral instead of above it), and the latter fin longer, extending beyond the first ray of the second dorsal. The nostrils are not shown in the figure quoted. These authors state that there are teeth on the palatines. Günther‡ writes, "Teeth on the vomer and sometimes on the palatines." There is no trace of palatine teeth in our specimen: they are probably lost in adult life.

19. **Melanostigma flaccidum** sp. nov.

Plate VI.

Length of head and depth of body, 6·6 in the total; diameter of eye, 4·0 in the head.

The maxillary extends to below the middle of the eye. The length of the head is four-fifths its distance from the anal. Pectoral one-third the length of the head.

Length.—204 mm.

Colour.—Milky-white as seen through the gelatinous scaleless skin; dorsal surface finely spotted with black; end of tail black, the colour continued forwards along the edges of the fins as shown in the figure; lining of mouth, gill-opening, and vent black.

Loc.—Surface of the sea, Kaikoura.

This specimen appears to differ from the type of the genus, *M. gelatinosum* Günther,§ in the much deeper body and slightly shorter head and pectoral fin, while the markings, as described, do not correspond. It must not, however, be overlooked that a fish a noticeable character of which is an extremely loose skin, may assume different proportions according to its condition or method of preservation, and I shall not be surprised if the Kaikoura specimen proves to be but another example of *M. gelatinosum*.

The type specimen was taken in Magellan Strait at a depth of 24 fathoms, but the vertical range of the species is very remarkable, individuals having been secured from a depth of 641 fathoms, while the Kaikoura example was taken alive at the surface of the sea.

I have to thank Mr. Carl Jensen for the specimen, which was captured on the 25th April, 1913.

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* *Gadus moro* Risso, Ichth. Nice, 1810, p. 116. *Mora mediterranea* Risso, Hist. Nat. Europ. Merid., iii, 1826, p. 224. *Asellus canariensis* Valenciennes, Nat. Hist. Iles Canariennes, Poiss., p. 76. *Pharopteryx benoit* Ruppell, Verzeichn. Mus. Senckenb., Fischè, 1852, p. 16. NOTE.—The name *Asellus*, as used by Valenciennes, does not appear in the various *Nomenclatores zoologici*.

† Goode and Bean, Oceanic Ichth., 1895, p. 369, fig. 322.

‡ Gunther, Cat. Fish. Brit. Mus., vol. 4, 1862, p. 341.

§ Gunther, Proc. Zool. Soc., 1881, p. 21, pl. ii, fig. *a*.

20. Lophotes cepedianus Giorna.

Plate IV, fig. 2.

Lophotes cepedianus Giorna, Mem. Accad. Torino, xvi, 1809, p. 19, pl. ii, fig. 1.

Mr. A. Hamilton, Director of the Dominion Museum, sent a specimen of *Lophotes*, upon which he asked me to report.

Parker* appears to have been the first to record *Lophotes* from New Zealand, and, knowing only of *L. cepedianus*, assumed that his specimen was of the same species. The Dunedin record was followed by a notice by Clarke,† who reported the stranding of a specimen on the Waiwakaiho Beach, Taranaki. Clarke did not see the fish, but identified it generically from verbal descriptions and drawings, one of which he reproduced.

We next find that Hutton,‡ though giving the references to the papers of Parker and Clarke, enters the New Zealand species as *L. fiski* Günther.§ He seems to have had no specimen for examination, and *L. fiski* is such a peculiar form that he was clearly wrong in identifying with it the specimens described by Parker and Clarke. Upon the authority of the "Index" *L. fiski* was entered in my "Basic List,"‖ but the species should evidently be erased from the New Zealand fauna. When describing this fish in 1890 from a specimen stranded at the Cape, Günther mentioned that three nominal species had been then described—namely, *L. cepedianus* Giorna, *L. capellei* Schlegel, and *L. cristatus* Johnson—but remarked that all three were possibly of the same species. He had then overlooked the fact that Johnston¶ had associated his own name with a *Lophotes* taken in Tasmanian waters: *L. guntheri* is described as having reticulate markings. More recently, Kershaw** identified with *L. cristatus* a specimen taken in Victorian waters, but I have not seen his note. As my private library is packed for transport, I am unable to make further notes on the history of the fishes of this genus.

The subject of this note was obtained in the Wellington district, and a cast was made for exhibition in the Canterbury Museum. A photograph of this cast is reproduced herewith, and shows the general proportions of the fish, its peculiar flat shape rendering it tolerably free from the distortions to which a round fish is subject under the photographic lens The first rays of the dorsal fin and the upper rays of the caudal were broken, otherwise the fish was quite perfect.

The following is a description of the specimen :—

B. vii; D. 246; A. 12; P. 13; V. 5. L. lat. 25 + 216; L. tr. 24 + ?

Length of head, 7·1; depth of body, 5·1 in the length: diameter of eye, 3·0; and length of snout, 4·5 in the head.

The mouth is small and oblique, and the maxilla extends to below the first fourth of the eye; the premaxilla forms its entire front border. The eye is circular, and placed nearer the lower than the upper profile. The nostril is a horizontal slit, placed quite anteriorly, close above the mouth.

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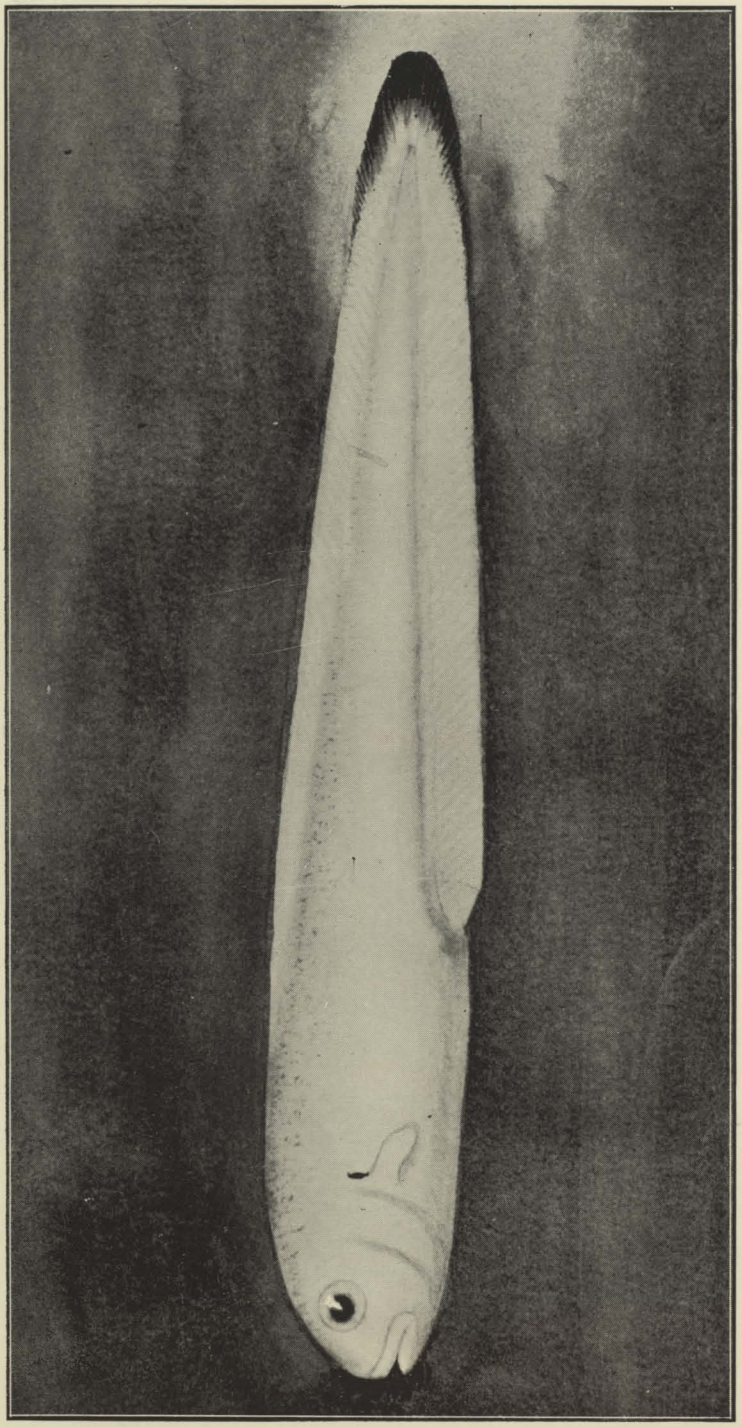
* Parker, Trans. N.Z. Inst., vol. 26, 1894, p. 223.
† Clarke, Trans. N.Z. Inst., vol. 29, 1897, p. 251, pl. xvi.
‡ Hutton, "Index Faunae Novae Zealandiae," 1904, p. 47.
§ Gunther, Proc. Zool. Soc., 1890, p. 244, pl. xix, xx.
‖ Waite, Rec. Cant. Mus., i, 1907, p. 33.
¶ Johnston, Proc. Roy. Soc. Tas., 1884, p. 142.
** Kershaw, "Victorian Naturalist," vol. 26, p. 78.



MELANOSTIGMA FLACCIDUM *Waite.*

Edgar R Waite del.]

Face p. 136.]

The gills are four in number, with a slit behind the fourth; the gill-rakers are moderately long and flat; there are twelve on the first arch, of which eight are on the lower limb. Pseudobranchiae are present. The general contour of the fish is shown by the figure.

Teeth.—The teeth are conical, somewhat separated, forming an irregular band in the upper jaw and a single series in the lower jaw; the vomer and palatines are toothless.

Fins.—The dorsal fin commences as a vertical continuation of the anterior profile of the head, and the first rays form a crest, which, however, is broken; the following rays are of even length, being equal to the diameter of the eye; the posterior rays are a little shorter, and are subcontinuous with those of the caudal. The pectoral has a broad horizontal base, the rays being, therefore, directed vertically; the first or longest ray is one-third longer than the eye, while the ventral is quite small, placed a little behind and below the pectoral. The anal lies near to the extremity of the body, but is not attached to the lower caudal rays.

Scales.—The scales are quadrangular in shape and are extremely thin, and directed in lines obliquely upwards and backwards; their number below the lateral line cannot be counted. The lateral line commences immediately below the first ray of the dorsal fin, and passes in a straight line to a point behind the eye, whence it traverses the middle of the body in a direct line to the caudal.

Colours.—The whole body is of silvery hue, with brighter markings about the size of a florin, the fins pink.

Length.—1140 mm.

I see no reason to dissociate this specimen from the Mediterranean species *L. cepedianus*, nor does the short notice by Johnston indicate that *L. guntheri* is distinct, the reticulate markings described being possibly referable to the scale-pits, which are arranged netwise. Goode and Bean* are inclined to recognize as distinct the Japanese species *L. capellei* Temminck and Schlegel,† and, tentatively, *L. cristatus* Johnson, from Maderia.

EXPLANATION OF PLATES.

PLATE III.

Centrophorus plunketi Waite. Foetus; natural size.

PLATE IV.

Fig. 1. *Scymnorhinus licha* Bonnaterre. Male; about one-seventh natural size. From a cast.

Fig. 2. *Lophotes cepedianus* Giorna. About one-sixth natural size. From a cast.

PLATE V.

Mora pacifica Waite. About one-fourth natural size. From a cast.

PLATE VI.

Melanostigma flaccidum Waite. Slightly reduced.

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* Goode and Bean, Oceanic Ichth., 1895, p. 349 *et seq.*, figs. 389, 390.

† Temm. & Schleg., Fauna Japon., 1845, p. 132, pl. lxxi.