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NEW RECORDS OR RECURRENCES OF RARE FISHES
FROM EASTERN AUSTRALIA.

By EDGAR R. WAITE, F.L.S., Zoologist.

(Plates xli. - xliii.)

IN the present paper I record three fishes not previously recognised from New South Wales. Food is the chief matter dealt with under *Cetorhinus maximus*, Gunner; a short description is given of a specimen of *Tetragonurus cuvieri*, Risso, taken in our waters; and *Pomadasis hasta*, Cuvier and Valenciennes, is recorded from an example secured in the Richmond River.

A catch of three specimens of *Chimæra ogilbyi*, Waite, is recorded, and descriptions and figures each of *Prototroctes macæna*, Günther, and *Harpe vulpina*, Richardson, are furnished, both species being very rare in our waters.

Finally, a description is published of *Valenciennia longipinnis*, Bennett, from an example taken on the Barrier Reef, Queensland. The nature of the original figure suggested the advisability of re-illustrating the species. I have, therefore, taken great pains with the drawing now offered.

CETORHINUS MAXIMUS, Gunner.

Squalus maximus, Gunner, Trondhjem. Selskabskr., iii., 1765, p. 33.

To Mr. J. A. Boyd, of Eden, we owe the privilege of first recording this interesting Shark for New South Wales. In May, 1901, this gentleman forwarded a piece of "baleen," which I recognised as portion of the gill of *Cetorhinus*, the shark having been taken in Twofold Bay. On the 14th August following, another Basking Shark entered the bay, and was shot. Its identity was recognised by Mr. Boyd, who watches our interests in this locality, and the specimen was at once forwarded to Sydney. It proved to be a young male, ten and a half feet in length.

The stomach and intestines were found to be charged with food, the whole forming a gelatinous-like substance of a bright salmon colour. Mr. Thomas Whitelegge, to whom I submitted a sample, pronounces it to be composed of the Anomurous Crustacean *Munida subrugosa*, White, commonly called "Whale-food," a term applied to pelagic assemblies of Pteropods or Crustaceans.

The only other Australian example of *Cetorhinus* previously known, was caught in November, 1883, at Portland, on the western coast of Victoria. This specimen was described by McCoy,¹ who writes:—"I find another extremely curious and interesting point, not before noticed, viz., that its food, as with many Whales, is often composed of myriads of the minute, floating, oceanic Pteropodous Mollusca. Of the scores of Basking Sharks that have been opened in the Northern Hemisphere, not one contained any remains of fishes or large objects, and the food was, until now, unknown. Linnæus mentions Medusæ, Pennant suggests sea-weeds, and Mr. Low(e) says he found a pulpy red mass, which he likened to bruised crabs, or the roe of Echini. Neither crabs nor Echini could be obtained by a creature like this, too large to approach the shallow shores, and in all probability what Mr. Lowe saw was what I have here noted, the red pulpy mass filling the intestines of our example being altogether composed of body and shells of a species of the genus *Cuvieria* or *Triptera*, the mass being tinted of a 'boiled shrimp' red from the remains of the soft parts, colored like the much larger *Triptera rosea* of Quoy and Gaimard."

With the foregoing passage in mind, I requested Mr. Charles Hedley also to examine the food, and he came to the same conclusion as Mr. Whitelegge and myself, namely that remains of Mollusca were not present, all recognisable matter being crustaceous. No one will doubt the determination of the late Sir Fredk. McCoy, nor likewise the pronouncement of my two colleagues.

The two findings are not, however, as might on first sight appear, at variance, but merely emphasise the fact that *Cetorhinus* is a surface feeder, both the Mollusca and Crustacea, having many pelagic representatives. The shark, passing open-mouthed through a sea of surface life, would be perfectly indifferent as to whether it was composed of Pteropods or *Munida*, and moreover would be incapable of discrimination.

A beautiful illustration of parallel adaptation is furnished by two widely different animals, the Right Whale and the Basking Shark; both feed in precisely the same way upon the same food, and the function of a sieve, performed by the baleen in the whale, is discharged by a curious modification of the gills in the shark.

"The Right Whale—and the following statements apply, of course, to the southern as well as the polar Right Whale—feeds, as is well known, upon minute pelagic creatures. The minuteness of the food led the ancients to the belief that they lived on water only. Pteropods and Crustacea form the bulk of its food, which it has not, therefore, to laboriously collect. The Arctic seas are often dyed for acres with these small floating animals,

¹ McCoy—Prod. Zool. Vic., ii., Dec. xi., 1885, p. 11, pl. civ.

and the whale moves through its native element, either below or near the surface, with considerable velocity, its jaws being open, whereby a body of water enters its capacious mouth, and along with it the animalculæ (termed by the whalers 'Right Whale feed,' or 'Brit.')

—Beddard.²

CHIMÆRA OGILBYI, *Waite*.

Chimæra ogilbyi, Waite, Mem. Aust. Mus., iv., 1899, p. 48, pl. vi.

Seven examples of this species, all females, were originally taken off Port Hacking and Botany Bay.

On the 19th July last, an eighth example was brought to the Museum for identification by Mr. A. G. Platé, who found it stranded at Manly; its flesh had been considerably gnawed, presumably by rats, but as its cartilaginous framework was intact, Mr. Platé left it with us. Its skeleton has since been prepared for exhibition in the Museum.

This specimen was also a female, a circumstance the more to be regretted from the fact that, as I afterwards learned, it was one of three examples caught by some fishermen; after death they were returned to the water, and one, as we may reasonably suppose, was cast up on to the beach at Manly. We usually imagine that the fish lost is finer than the one hooked, so we may grieve to think that at least one of the two examples not recovered might have been a male.

PROTOTROCTES MARÆNA, *Günther*.

(Plate xli.)

Prototroctes maræna, Günther, Cat. Fish. Brit. Mus., v., 1864, p. 382.

In March, 1901, I recorded this species for the first time from New South Wales.³ The specimen was obtained near Mount Kosciusko, in the upper reaches of the Snowy River. This river joins the ocean in Victorian territory.

Now, however, I am able to chronicle it from a river wholly within our borders. On October 25th following, the Fishery Commissioners sent for determination an example taken in the Shoalhaven River, near Berry, eighty miles south of Sydney.

The accompanying figure represents this specimen, from which also the following description is derived.

B. 7; D. 12; A. 18; V. 7; L. lat. 78; L. tr. 7 + 13.

Length of head 5.1, height of body 4.2 in the total length. Diameter of eye 4.6, and length of snout 3.3 in that of the head, equal to the interocular space, which is convex. The head is small, conical, and compressed; the upper jaw is the longer, and

² Beddard—A Book of Whales, 1900, p. 131.

³ Waite—Rec. Aust. Mus., iv., 1901, p. 53.

slightly produced at the margin; the lower jaw is very acute; the cleft of the mouth sub-horizontal; the maxillary narrow and extending to beneath the anterior margin of the eye. The nostrils of each side are close together, rather nearer to the eye than the end of the snout. The subopercle is moderately developed, but the interopercle is very small and fails to cover the branchiostegals. A single series of small teeth in each jaw, on the vomer and palatines.

The body is compressed, becoming more so posteriorly, and below, especially behind the ventrals: it is elongate, evenly and similarly curved above and below.

The dorsal fin commences midway between the end of the snout and the middle caudal rays, and is one-fourth higher than long; the first divided ray is the longest, the others regularly decrease to the last, which is less than half the length of the longest; the adipose fin lies much nearer to the base of the caudal than to the dorsal, its length equals the diameter of the eye. The anal commences beneath the dorsal rays, when depressed, and extends to beyond the adipose fin; its length is slightly greater than its height, and its anterior rays equal to those of the dorsal. To these the pectoral is also nearly equal, its upper rays are the longest. The ventral is situated wholly in front of the dorsal; it is rather shorter than the pectoral. The caudal is equal in length to the head, it is forked, with the lobes equal. The peduncle is strongly compressed, its height equal to twice the diameter of the eye.

Scales.—The whole head is naked, and on the occiput is sharply defined from the scaly body. The scales are of moderate size, thin and cycloid. The lateral line is traceable only on the hinder half of the body, being well pronounced posteriorly, but not apparent in advance of the ventrals; it occupies a median position.

Colours.—Head and body above, olive, this colour separated from the yellowish tint of the lower surfaces by a dark grey streak, about half-an-eye diameter in width, passing the whole length of the body in a median position. On this streak the lateral line is placed. All the fins colourless, the dorsal fin has a dark band running along its middle.

Length of specimen, 200 mm.

I may be unfortunate in having drawn what I believe to be a slightly abnormal specimen, though the only feature in which this is apparent is in the number of dorsal rays; there are twelve instead of the previously described ten, the latter number also found in our Snowy River example. As, however, rays are liable to vary in number, and much more so than spines, such a difference is of small account; moreover the anterior rays are so very close together that any addition to the length of the fin would be inappreciable.

A more serious difference, but one not shown in the figure, is in the number of branchiostegal rays. In the Shoalhaven River specimen there are seven; in the type, and also in that from the Snowy River, they number but six.

Günther states that there is no lateral line. If the type were re-examined possibly some indication would be found, as an incomplete one exists in both our specimens.

Apart from these points, and slight variation in the length of the head, etc., I do not see any differences between our specimen and the type as described; certainly, with an almost typical specimen from the Snowy River—an intermediate locality—any thought of regarding the Shoalhaven River fish as specifically distinct from the type would be unwarrantable. It would, however, be interesting if Zoologists in Southern Australia and Tasmania would ascertain to what extent the species varies in their waters.

In Tasmania, where it is very common, this fish is known as the Grayling—a name also applied in New Zealand to the second species of the genus, *Prototroctes oxyrhynchus*, also described by Günther,⁴ and figured by Hector.⁵

TETRAGONURUS CUVIERI, *Risso.*

Tetragonurus cuvieri, Risso, Ichth. Nice, 1810, p. 347, pl. x., fig. 37.

The specimen noticed below is the first record of the species for continental Australia. From Lord Howe Island two examples have been made known. The first was described and figured by Macleay⁶ as *Ctenodax wilkinsoni*, the author afterwards publishing its generic identity with *Tetragonurus*.⁷ The second example was obtained in 1887, by members of the Museum collecting party. These two specimens formed the subject of Ramsay and Ogilby's paper, "On the Genus *Tetragonurus* of Risso."⁸ These authors, on comparison with a specimen from the Mediterranean, came to the conclusion that whereas the Pacific and Atlantic forms were specifically identical, those from the Mediterranean could not be so regarded until further examinations had been made. The attitude of the authors is expressed by one of them⁹ using Lowe's name of *T. atlanticus* for local specimens instead of Risso's *T. cuvieri*, first applied to an example from Nice.

⁴ Günther—Proc. Zool. Soc., 1870, p. 150.

⁵ Hector—Edib. Fish. New Zealand, 1872, p. 123, pl. x., fig. 91.

⁶ Macleay—Proc. Linn. Soc. N.S.W., x., 1885, p. 718, pl. xlvii.

⁷ Macleay—*Loc. cit.*, (2), i., 1886, p. 511.

⁸ Ramsay and Ogilby—Proc. Linn. Soc. N.S.W., (2), iii., 1888, p. 9.

⁹ Ogilby—Aust. Mus. Mem., ii., 1889, p. 61.

On September 21st last, an Italian fisherman, plying his trade at Narrabeen, brought us a fish which I recognised as *Tetragonurus*. He remarked that though he had not noticed anything like it here before, he was sure he had seen the same fish in the Mediterranean, off the Lipari Islands.

The species is subject to considerable variation; the number of dorsal spines ranges from fifteen to twenty-one, the relative position of the fins is not constant, while the colour is either brown or black.

While a detailed description is unnecessary, the following general features of the New South Wales specimen may be useful.

D. xviii. 13; A. ii. 10; V. i. 5.

Length of head 4.9, height of body 7.3 in the total length. The eye, which is 4.7 in the length of the head, occupies a more posterior position than in the examples from Lord Howe Island; in these the length of the snout equals the diameter of the eye, in mine it is fully one-half longer.

The teeth in each ramus of the upper jaw number twenty-four, in the mandible thirty.

The dorsal fin commences well behind the end of the pectoral, the distance between its origin and the tip of the snout being contained 2.9 times in the total length. In the Lord Howe Island examples, the corresponding figure is 3.7, and the fin arises above the middle of the pectoral. In these the distance between the last anal ray and the base of the caudal, is four-fifths the length of the head, but equal to the head in my specimen. In this also the ventral fin has a much more posterior insertion.

Colour.—The colour is black, equally so below and above; when fresh each scale was shot with violet and gold; the iris is blue.

Length of specimen 256 mm.

In many fishes variations such as those above indicated would be held to constitute specific differences, yet if we examine other descriptions of this fish we shall find even greater disparity. On the other hand, complete intermediate conditions are described, so that with *T. atlanticus*, Lowe, *T. wilkinsoni*, Macleay, is correctly sunk as a synonym of *T. cuvieri*, Risso.

The range of the species may be stated as Mediterranean, Atlantic (Madeira, and Wood's Holl, Massachusetts, U.S.A.), and South Pacific (Lord Howe Island, and coast New South Wales).

The following are the original references to the names bestowed: *Tetragonurus cuvieri*, Risso, Ichth. Nice, 1810, p. 347, pl. x., fig. 37.

Tetragonurus atlanticus, Lowe, Proc. Zool. Soc., 1839, p. 79.

Ctenodax wilkinsoni, Macleay, Proc. Linn. Soc. N.S.W., x., 1885, p. 718, pl. xlvii.

Tetragonurus wilkinsoni, Macleay, *loc. cit.*, (2), i., 1886, p. 511.

POMADASIS HASTA, *Bloch.*

Lutjanus hasta, Bloch., *Ichtyol.*, vii, 1797, p. 87, pl. ccxlvii, fig. 1.

For Australia, this species was first recorded from Cape York and the northern coasts. Of its occurrence on the east coast of Queensland, Saville Kent writes:¹⁰ "The javelin fish, *Pristipoma hasta*, which grows to a considerable size, and is much esteemed for food, occurs plentifully northwards from Rockingham Bay, and has been collected by the author . . . as far west as Port Darwin and the Cambridge Gulf. This fish is also known locally as the 'Queensland Trumpeter,' with reference to the grunting noise it makes on being taken from the water."

A beautiful example, taken from the Richmond River, enables me to add the species to the fauna of New South Wales. It was sent to the Sydney Fish Market on July 17th last, and rescued by one of the Inspectors of the Fisheries Department. It was forwarded to the Museum for identification by Mr. J. A. Brodie, Chief Inspector.

HARPE VULPINA, *Richardson.*

(Plate xlii.)

Cossyphus vulpinus, Rich., *Proc. Zool. Soc.*, 1850, p. 287.

This species appears to have been but once noticed since first described. Castelnau¹¹ gave it a place in his list of Port Jackson fishes; but Ogilby,¹² doubting the record, remarked: "No proof of its occurrence is adduced." The original of the species was a dried skin from which the colour had faded. In his Catalogue, Günther¹³ treated it as insufficiently described, though with his usual care Richardson recorded all the features such a poor specimen presented.

In June, 1887, as I learn from the Museum register, a specimen then identified as *Cossyphus vulpinus*, and taken in Port Jackson, was purchased by the Trustees. No description of the specimen was published, and as the example was stuffed, it is not now suitable for the purpose; I am, however, able to verify the identification.

We are indebted to the Fishery Commissioners for a recent example; the fish was forwarded for identification, and afterwards purchased for the National Collection. It was obtained in the Sydney Fish Market, on July 17th, 1901, having been sent there with a consignment of fish from the Richmond River.

The type specimen was taken in King George's Sound; I now verify the Port Jackson locality, and add that of the Richmond

¹⁰ Saville Kent—Great Barrier Reef, 1893, p. 281.

¹¹ Castelnau—*Proc. Linn. Soc. N.S.W.*, iii., 1879, p. 354.

¹² Ogilby—*Cat. Fish. N.S.W.*, 1886, p. 44.

¹³ Günther—*Brit. Mus. Cat. Fish.*, iv., 1862, p. 102 (foot-note).

River. The fish is in splendid condition, and I take the opportunity of supplying the accompanying description and figure.

D. xii. 10; A. iii. 11; V. i. 5; P. 16; C. 12+4; L. lat. 34;
L. tr. 5+14.

Length of head 3.1, height of body 3.0, length of caudal 4.2 in the total length (caudal excluded). The eye is 4.8 in the length of the head; the interorbital space is slightly convex, one-sixth less than twice the diameter of the orbit; the snout is not pointed, its length scarcely twice the diameter of the same. The nostrils are widely separated, the distance between them being half the diameter of the eye; the anterior opening is minute, situate in a small smooth area, the posterior larger, neither with raised margin. Upper profile of head a low curve, slightly tumid between the posterior nostrils. Jaws equal, each with two pairs of anterior canines; the lateral teeth are similar, but much smaller, four or five in each ramus of the upper and seven in the lower jaw, within these is an osseous ridge bearing a number of granular teeth; these ridges terminate anteriorly, each in a flattened plate bearing granular teeth; a canine tooth at the angle of the upper jaw. Oleft of mouth horizontal, the maxilla is concealed by the pre-orbital and extends to beneath the anterior margin of the eye.

The dorsal fin commences above the upper angle of the pectoral; the membrane extends beyond the spines and is thickened towards the tip, the point of the spine piercing its front margin; the length of the first spine equals the diameter of the eye; the spines regularly increase in length to the sixth, whence they are sub-equal, the longest spine one-half longer than the first, and equal to the first ray, which is less branched than the others; the sixth ray is the longest, one-half longer than the longest spine; the soft dorsal is produced backwards. The base of the spinous is more than twice the length of that of the rayed portion. The anal commences beneath the penultimate dorsal spine, and terminates slightly behind that fin; the spines are much stronger than those of the dorsal, and are similar in respect to the membrane; the third spine is the longest, to which the rays are equal, the last two excepted, and twice the diameter of the eye; the shape of the fin is similar to that of the soft dorsal; the ventral fin arises beneath the lowest pectoral ray and reaches to the vent, its length 1.5 in that of the head, the length of the spine equal to that of the longest dorsal. Pectoral acute above and rounded below, extending to beneath the twelfth scale of the lateral line, its length 1.6 in that of the head. Caudal truncate, the height of the peduncle 2.2 in that of the body.

Scales.—Snout, preorbital, interorbital space, and chin, naked; six rows of small scales on the cheek; dorsal and anal fins with

a basal scaly sheath, larger at the rayed portion. Curvature of lateral line very low, the tubes simple, directed upwards.

Colours.—General colour of head and body bright red, lighter beneath; a yellow spot above the lateral line, below the 8–10 dorsal spines and another on the caudal peduncle immediately behind the dorsal rays; scales at the base of the tail with purple spots. The membrane of the first three dorsal spines wholly black, each successive spine bears less black, it occupying the upper portion, so that the last spine is merely tipped with black; the remaining portion of the fin is red; between the fifth and sixth ray and on the basal half is a dark purplish-red blotch: all the other fins red.

Length of specimen 390 mm.

Most of the differences observable between the above description, and that by Richardson, may be accounted for by the different conditions of the respective specimens. In the original description the number of lateral teeth is given as six on each maxillary and fourteen on each limb of the lower jaw: the number of these teeth possibly varies a little. The difference between the series in the upper and lower jaw, however, is so unusual that I am inclined to think the number fourteen includes both mandibles, more especially as I count seven teeth on each side in our example.

VALENCIENNIA LONGIPINNIS, *Bennett.*

(Plate xliii.)

Eleotris longipinnis (Bennett), Beechey, Voy. Blossom, Zool., 1839, p. 64, pl. xx., fig. 3.

This fish was first described in 1839 from Loo Choo. Bennett does not appear to have seen a specimen, his account being based upon a drawing, and on notes by Messrs. Lay and Collie. The latter are very accurate, but the drawing, to judge from the reproduction, is crude and faulty; the fish, however, presents such striking features that the illustration is easily recognisable. In his Catalogue, Günther¹⁴ treats it as insufficiently described; but in the 'Fische der Südsee,'¹⁵ he recognises and describes an example from Fiji. He also mentions that it is found in different parts of the East Indian Archipelago, observations possibly made by Bleeker, whose paper¹⁶ I am, however, unable to consult.

From Mr. Charles Hedley the Trustees have received a small collection of fishes taken at Green Island, an outlier of the Barrier Reef, off Cairns, Queensland. Included is an example of *Valenciennia longipinnis*, and I embrace this opportunity to re-describe and re-figure the species. The specimen is a female in full roe, and differs from the male mainly in having the fins less produced; the colour markings appear to be very similar in both sexes.

¹⁴ Günther—Cat. Fish. Brit. Mus., iii., 1861, p. 105 (foot-note).

¹⁵ Günther—Journ. Mus. Godeffroy, v., 1876, p. 190.

¹⁶ Bleeker—Versl. en. Med. Akad. Amsterd., 1876.

D. vi. i. 12; A. i. 12; P. 21; V. i. 5; C. 13+6.

Head large and broad, its length 3.6 in the total (exclusive of the caudal); height of body 4.9, and length of tail 2.4 in the same. The eye is set close to the upper profile, its diameter one-fifth the length of the head, the inter-orbital space being one-sixth, and the snout one-half of the same. The nostrils are rather close together, the anterior in a low tube, the posterior one a simple pore and situated twice as far from the eye as from the anterior one. Profile of head parabolic, it is extremely declivous from before the eye to the snout, almost horizontal from the same point to the origin of the dorsal fin. Jaws equal, with protruding lips, mouth horizontal, the maxilla extending to beneath the posterior nostril. Teeth needle-like, in a double row in front, with canines at intervals, becoming larger laterally, but not continued on to the sides of the jaws; the dentition of the lower is stronger than that of the upper jaw; the upper teeth are separated from the oral cavity by a broad deep transverse membrane; a similar but smaller membrane exists in the lower jaw.

The dorsal fin commences immediately behind the insertion of the pectoral; the first spine is a fifth longer than the diameter of the eye; the succeeding spines regularly increase in length to the fifth, which is the longest and equal to the height of the body, all are very weak and their extremities flexible. The membrane is barely united to the base of the spine of the second dorsal; this spine is longer than the first of the anterior fin, but a little shorter than the succeeding rays, which are subequal, and two-thirds the height of the fifth spine; the length of the base is not twice that of the spinous portion, and its rays form a very acute angle behind, which reaches slightly beyond the base of the caudal rays. The anal commences beneath the first dorsal ray and terminates evenly with that fin; its rays are similar to those of the dorsal, but are a little lower anteriorly and higher behind. The ventrals arise almost from a common base, and are short, the fourth ray being but 1.3 in that of the pectoral; they reach three-fourths their length to the vent. Anal papilla small. The pectoral has a broad muscular base, it is sublanceolate in shape, the central rays being the longest, reaching to beneath the spine of the second dorsal fin, and 1.4 in the length of the head. The caudal is evenly acuminate, its length one-half longer than the head; its central rays are produced, being more than twice the length of the outer ones; the depth of the peduncle is 1.8 in that of the body.

Scales.—Head entirely naked, the upper anterior body scales are extremely small and incomplete; posteriorly and below the scales are well defined and larger; there are about one hundred and forty longitudinally and forty transversely; there is no lateral line.

Colours.—The snout and anterior part of the head above are grey, dotted with dark blue; the cheeks and opercles green, crossed by three horizontal blue lines—the uppermost (close

below the eye) is wholly blue, the middle one has a white line below it, and the lowest, one above it; the throat is yellow, with blue markings; inside the mouth is jet black, and the transverse membranes brilliant orange. The hinder part of the head and upper part of the body is grass-green above, yellow on the sides, and paler beneath. The body bears four longitudinal red lines, the two lowest passing from head to tail in the upper half; the upper line runs off below the fourth dorsal ray, while the next line is continued along the upper edge of the caudal pedicle, where it merges into its fellow; both these arise from behind the eye. The upper part of the body is marked by eight transverse dark-green bars, some of which are separated by another, less defined. Of the principal bars, the first passes in front of the dorsal fin, the next two at its base, the four succeeding below the rayed portion, and the last on the caudal peduncle. The second, fourth, sixth, seventh, and eighth are irregularly produced on to the middle of the side, where they each form a striking mark; this consists of a large deep red blotch, almost surrounded by a blue line, but incomplete above where the red colour merges into that of the green bar. There are two or three rows of blue spots between each body mark. All the fins are hyaline, marked as follows:—The third, fourth, and fifth dorsal spines are tipped with orange, the fourth surmounted by a black line; this fin is obliquely crossed by eight pink lines; the second dorsal carries on its basal half, three rows of dark-edged blue ocelli, and a yellow intramarginal band, the anal a sub-basal orange band and a yellow intramarginal one; the base of the pectoral is pink, with three longitudinal blue streaks, and on its inner side a large black blotch; the rays cover the first red body-blotch. Tail, with ocelli like those of second dorsal, but larger, two orange patches at its base, and a dark-grey sub-marginal border.

Length of specimen, 153 mm.

Attention may be drawn to a slight difference between Dr. Günther's description and my own: this author states that the cleft of the mouth (*mundspalte*) extends to beneath the middle of the eye; in our example it fails to reach it; the other differences are doubtless sexual. Bennett (*Lay*) makes mention of the flat yellow membrane between the tongue and the lower row of teeth, but has overlooked the larger membrane in the upper jaw, which is capable of being laid back to the roof of the mouth. The nature and position of these membranes forcibly suggest luminosity during life, an idea heightened by the circumstance of the whole interior of the mouth being of jet black colour, a character also recorded by Bennett, and a feature frequently associated with luminous organs in the region of the mouth.

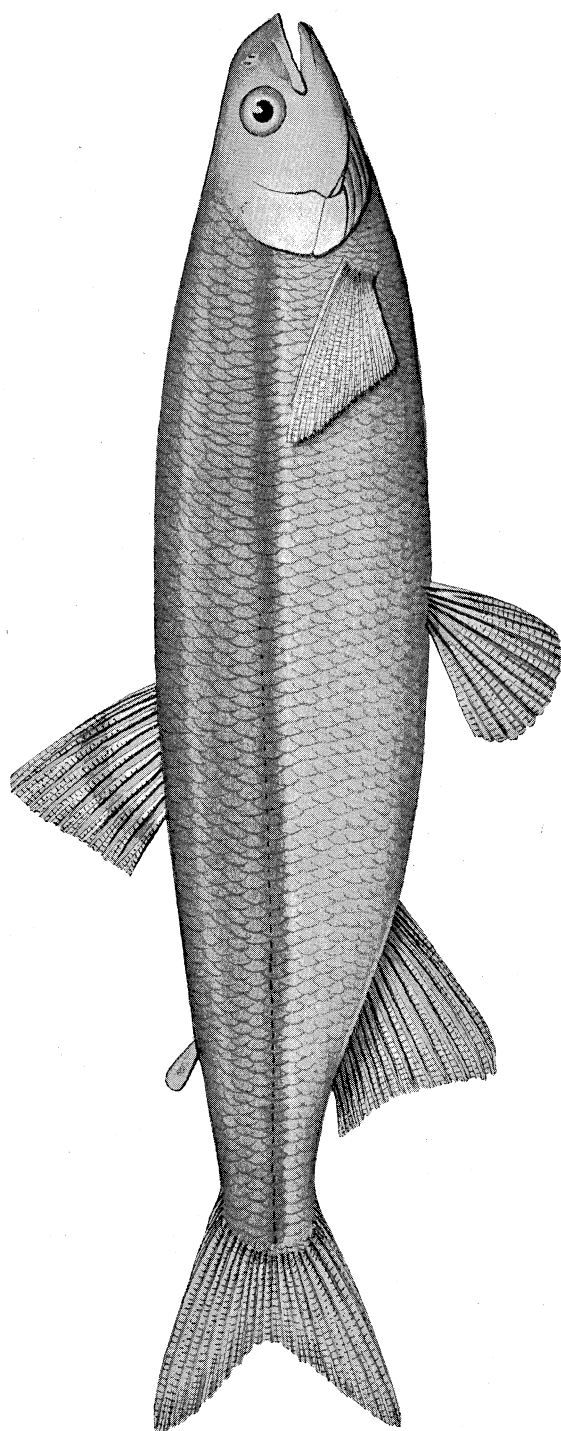
This species differs generically from the typical Eleotrids, and as Bleeker has identified it with his genus *Valenciennia*, I have no choice but to accept his ruling.

EXPLANATION OF PLATE XLI.

Prototroctes maræna, Günther.

Nine-tenths natural size.

[Reproduced from a drawing by the Author.]



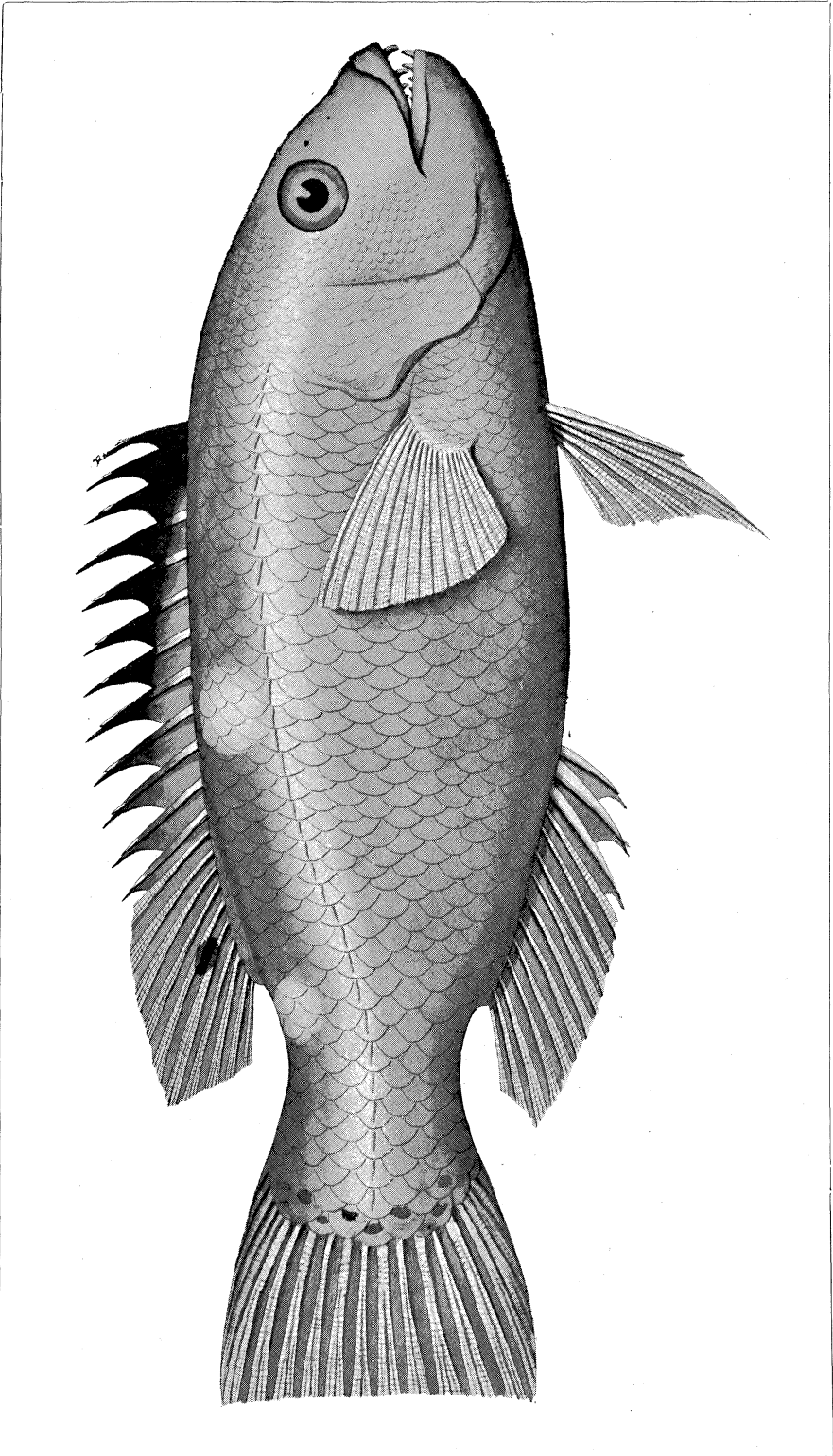
EDGAR R. WAITE, del.

EXPLANATION OF PLATE XLII.

Harpe vulpina, Richardson.

One-half natural size.

[Reproduced from a drawing by the Author.]



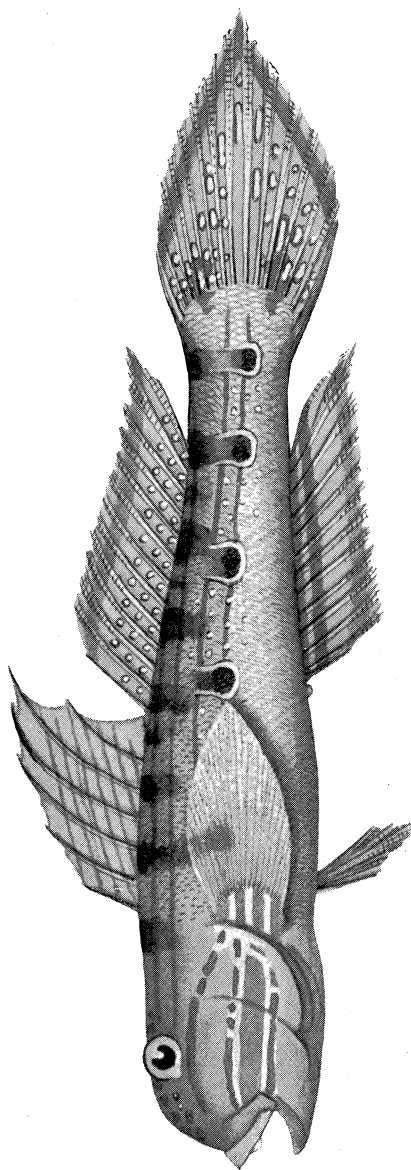
EDGAR B. WAITE, del.

EXPLANATION OF PLATE XLIII.

Valenciennia longipinnis, Bennett.

Natural size.

[Reproduced from a drawing by the Author.]



EDGAR E. WAITE, del.