

B. 4; D. 12/16; A. 2/12; C. 15, and 4 short; P. 21; V. 1/5.

Length 3 inches.

COLOUR.—Not noticed in the recent state. *In spirits*, the whole fish, fins included, appears of a uniform dark brown.

Habitat, Porto Praya, Cape Verde Islands.

The only specimen of this new genus which exists in the collection was taken by Mr. Darwin off Quail Island, in the bay of Porto Praya. It is small, but probably full-sized, or nearly so; since the greater part of the species of *Pomacentrus*, to which genus it is so strongly allied, average about the same dimensions. Possibly some of the generic characters, which I have given above, may prove hereafter to be merely specific; but till other species shall have been discovered, their exact value cannot be ascertained.

FAMILY.—SCOMBRIDÆ.

GENUS—PAROPSIS. *Jen.*

Corpus altum, rhomboideum, valdè compressum, squamis minutissimis obtectum. Linea lateralis anticè sursum paulò arcuata, per totam longitudinem inermis. Cauda lateribus hand carinatis. Dentes in utroque maxillâ uniseriati, tenuissimi, acuti; in linguâ, vomere, et palatinis, velutini brevissimi. Apertura branchialis amplissima, membranâ decem-radiatâ. Spinæ quinque liberæ loco pinnæ dorsalis primæ; spinâ minutâ præeunte reclinatâ antrorsum flexâ. Dorsalis secunda, æquè ac analis, continua, sine pinnulis falsis: ante analem spinæ duæ liberæ. Pectorales parvæ. Ventrals nullæ. Caudalis profundè furcata, lobis acuminatis, subelongatis.

This new genus belongs to that section of the *Scombridæ* characterized by having a number of short free spines, instead of a first dorsal fin. It is most nearly allied to *Lichia*, especially to the *L. glaucus*, which it resembles in general form, as well as in many of its particular characters. It has the same reclined spine in front of those which represent the first dorsal, and the same two free spines in front of the anal; also the same form of opercle; the same deeply-forked caudal, and small pectorals. But it may be at once distinguished from that genus by the absence of ventrals, of which there is not the least trace: the body is also deeper, rhomboidal rather than oval, and more compressed. In all these respects it agrees better with *Stromateus*, which would seem particularly to meet it in those species, such as the *S. candidus* and *S. securifer*, which are represented by Cuvier and Valenciennes as having a number of minute truncated

spines before the dorsal and anal fins, and which, by virtue of this character, though in the case of the former the spines are not apparent externally, serve manifestly to re-conduct to the section to which *Lichia* belongs. The discovery of the present genus, therefore, furnishes a more completely connecting link between these two groups.

Rhynchobdella and *Mastacembelus* agree with *Paropsis*, both in wanting ventrals and in having the first dorsal represented by free spines; but the form of these two genera is so totally different in all other respects, that it is impossible they can be confounded with it.

This new genus is from the east coast of South America.

PAROPSIS SIGNATA. Jen.

PLATE XIII.

P. argentea, nitens, summo dorso cærulescente; operculo ad angulum superiorem maculâ nigrâ signato; pinnis pectoralibus maculis duabus in axillis et ad radices radiorum, minoribus.

B. 10; D. 5—1/33; A. 2—1/35; C. 17, et circa $\frac{1}{2}$ accessor.; P. 21; V. 0.

LONG. unc. 9.

FORM.—Body very much compressed, of a rhomboidal form, the dorsal and ventral lines rising to an angle at the commencement of the dorsal and anal fins respectively. Head a laterally compressed cone: tail becoming suddenly attenuated before the setting on of the caudal fin, without any keel at the sides. Back sharp and elevated; the greatest depth contained not more than two and a half times in the entire length: thickness only one-fifth of the depth. The length and depth of the head are equal, each being half the depth of the body. The upper and under profile meet at the extremity of the snout at nearly a right angle, the former falling in a very regular curve from the commencement of the dorsal fin. Mouth moderately large, the commissure reaching to beneath the eye, with the lower jaw projecting and of considerable strength and thickness. In each jaw a single row of very fine sharp teeth. The tongue, which is of a triangular form, free at the tip, and pointed, is rough, with some extremely fine closely shorn velutine teeth: a small triangular patch of these last teeth on the front of the vomer, and a narrow row on each palatine: pharyngeans with rather stronger teeth. The intermaxillary is very slightly protractile. The maxillary reaches, when the mouth is closed, to a vertical from the posterior part of the orbit: it is very visible from without, having only its anterior portion concealed by the suborbital, and being much dilated at its posterior extremity, which is in shape somewhat securiform. Eyes above the middle of the cheek, and nearer the end of the snout than the posterior margin of the opercle; their diameter rather more than one-fifth the length of the head: the suborbital forms a narrow band beneath each. Nostrils half-way between the eyes and the end of the snout; the anterior orifice round; the posterior, which is the larger one, oval. Preopercle with the ascending margin nearly vertical; the angle at bottom rounded. The opercle and subopercle together present a rounded margin posteriorly,

though at the upper portion there are two small blunt points distinguishable by the finger, between which there is a very shallow notch: the line of separation between these two bones descends obliquely forwards to a little above the rounded angle of the preopercle, where it meets the line of the interopercle, which descends obliquely backwards:* all the margins of the opercular pieces entire. Gill opening very large, the aperture reaching to beneath the anterior margin of the eye: the membranes, each of which has as many as ten rays,† cross a little over each other, and are not united to the isthmus.

Snout, jaws, and cheeks, as well as the several pieces of the gill-cover, without scales: ‡ body covered with extremely minute ones, of an oval form, longer than broad, marked with concentric circles, and entire on the margin. The lateral line is slightly arched above the pectoral, and its course a little undulating, but it descends gradually to near the middle of the body, whence it runs straight to the caudal.

The first dorsal is represented by five short free spines, each capable of separate motion, and each furnished with its own membrane; in advance of them is a somewhat smaller reclined spine with its point directed forwards: the first erect spine is above the middle of the pectoral, and distant from the end of the snout nearly one-third of the entire length. Beyond the five free spines, and immediately before the commencement of the second dorsal is another small spine closely pressed down, and almost concealed beneath the skin, pointing backwards. The second dorsal, which has also at its anterior edge a small spine one-third the length of the first soft ray, commences at the middle point of the entire length, caudal excluded. The general form of this fin is similar to that of the genus *Lichia*, long, with the anterior portion elevated; the greatest height about one-fourth of the depth, or hardly so much. The anal answers exactly to the second dorsal in form and extent, and is preceded by two free spines, separated from it by a small space, besides a longer one at its anterior edge. Caudal forked nearly to the base, where there are a number of minute scales; the lobes equal, pointed, and moderately elongated, each contained about four times and one-third in the entire length. Pectorals attached at about the middle of the depth, a little behind the opercle; of a somewhat triangular form, small, their length not much exceeding half that of the head. No trace of ventrals whatever.

COLOUR.—“Uniform bright silvery, the ridge of the back bluish; a black patch on the gill-cover, and another under the pectoral fin.”—D.—The first of the patches alluded to by Mr. Darwin is very conspicuous, and is situate at the upper angle of the opercle, immediately in advance of the commencement of the lateral line. The second may be described as consisting of two distinct spots; one at the root of the upper rays, and completely in the axilla; the other, a small one of an elongated form, immediately beneath the lowest ray, and partly visible without raising the fin. The elevated portion of the second dorsal is also dusky, and a faint edging of this colour runs for a short way along the margin of this fin. The anal is pale.

Habitat, Northern coast of Patagonia.

* This part is exactly as described by Cuvier and Valenciennes in the *Lichia Amia*, to which genus the present one is so nearly allied.

† *Lichia Amia* is represented as having nine; and this forms another mark of affinity between the two genera.

‡ There are scales on the cheeks in *Lichia*, according to Cuvier and Valenciennes, but I see no appearance of them in this genus.

I have termed this species *signata*, in reference to the black patch on the opercle, which is a conspicuous character. The only specimen in the collection was obtained by Mr. Darwin at Bahia Blanca, on the coast of North Patagonia.

1. CARANX DECLIVIS. Jen.

PLATE XIV.

C. corpore elongato, altitudine quintam, capite quartam partem longitudinis æquante; maxillâ inferiore longiore; lined laterali infra quintum radium dorsalis secundæ subito declivi, per totam longitudinem armatâ, laminis 82 altioribus quam longis, ubique æqualibus; spinâ reclinatâ ante pinnam dorsalem parvâ, mucrone tamen nudato; pectoralibus ultra pinnulam analem, et prope ad analem ipsam, pertinentibus.

B. 7; D. 8—1/35; A. 2—1/30; C. 17, &c.; P. 21; V. 1/5.

LONG. unc. 7. lin. 10.

FORM.—Rather more elongated than the *C. trachurus* of the British seas. Greatest depth one-fifth of the entire length: head one-fourth of the same: thickness about half the depth. Diameter of the eyes a little less than one-third the length of the head. Lateral line bending downwards more suddenly, and at a more backward point than in that species. The bend commences in a line with the fifth ray of the second dorsal, and is entirely comprised within a space equal to that occupied by four fin rays,* so that opposite the ninth ray it again advances in a horizontal line. The posterior portion about equals in length the anterior, the bend being included in this last. The laminae which protect the lateral line, and which extend throughout its whole length, are well developed, and everywhere of the same breadth; this breadth equalling nearly, but not quite, one-third the depth of the body. In number they are eighty-one or eighty-two; of which the last thirty-eight or forty, forming the posterior portion of the line, have keels terminating backwards in sharp spines: these spines are at first small and inconspicuous, but gradually increase in size as they advance towards the thinnest part of the tail, where they are sharpest and most developed.

In most of its other characters this species so closely resembles the *C. trachurus*, as to render a detailed description unnecessary. The reclined spine before the first dorsal, however, is smaller, though the point is sharp and exposed: also the number of rays in the second dorsal and anal is greater by five in each fin. The length of the second dorsal is two-and-a-half times that of the first. The pectorals are long, narrow, and pointed; a little shorter than the head, or rather less than one-fourth of the entire length; when laid back, they reach beyond the anal finlet, and very nearly to the commencement of the true anal itself.

COLOUR.—Not noticed in the recent state. So far as can be judged from a specimen in spirits, the colours appear to have been similar to those of the *C. trachurus*; and there is the same black spot on the upper part of the opercle.

* In the *C. trachurus*, the bend begins in a line with the commencement of the second dorsal, and from its more gradual obliquity, extends over a space equal to that occupied by nine fin-rays.

Habitat, King George's Sound, New Holland.

Cuvier and Valenciennes have noticed several variations of form occurring in different specimens of the *C. trachurus*, from different seas, which they have not ventured to raise to the rank of species. That the one here described is entitled, however, to this distinction, I can hardly entertain a doubt. The suddenness of the bend in the lateral line, and the more backward point at which the bend commences; the larger number of laminae which protect it; and also the larger number of rays in the second dorsal and anal; all seem to indicate a specific difference. Whether it be identical with any of the varieties noticed by them is uncertain; but it seems to be distinct from the only one they speak of as having been received from New Holland, in which the number of laminae did not exceed seventy-three. I have called it *declivis*, in reference to the character of the lateral line above alluded to. It was obtained by Mr. Darwin in Princess Royal Harbour, in King George's Sound.

2. CARANX TORVUS. Jen.

PLATE XV.

C. corpore crassiusculo, subelongato; altitudine vix quartam partem longitudinis æquante, capite quartam superante; maxillâ inferiore longiori; oculis magnis; suborbitalibus venis nonnullis subparallelis obscuris notatis; lineâ laterali parum flexâ, anticè squamis parvis inermibus, posticè laminis carinatis 35 vel 36 tectâ; spinâ reclinatâ ante pinnam dorsalem sub cute occultâ; pectoralibus longis, falcatis, ad initium pinnæ analis prope pertingentibus.

D. 8—1/26; A. 2—1/22; C. 17, &c.; P. 21; V. 1/5.

LONG. unc. 11. lin. 9.

FORM.—Thicker and deeper in the body than the *C. trachurus*. The greatest depth a little less than one-fourth of the entire length; the thickness exceeding (but by a very little) half the depth. Head large; its length a little more than one-fourth of the entire length; its height or depth, taken in a line forming a tangent to the posterior part of the orbit, less than its own length by two-sevenths. Eyes large; their diameter very nearly one-third the length of the head; partially covered at the sides by two fatty membranous veils, as in several other species. The ventral line of the body is rather more curved than the dorsal, and the upper profile in like manner a little more approaching to rectilinear than the lower. The lower jaw a little the longer, and ascending to meet the upper. Maxillary reaching not quite to beneath the middle of the eye; its extremity truncated in the form of an arc, with the curvature inwards. In each jaw a single row of very fine, minute, closely set teeth; two small patches on the anterior extremity of the vomer, a band on each palatine, and one on the tongue, all closely shorn velutine. Suborbital, on each side of the extremity of the snout, marked with several nearly parallel dark-coloured veins. Preopercle with the angle very much rounded; the limb broad,

slightly striated or veined, and not separated from the cheek by any salient ridge. The other pieces of the gill-cover taken together are bounded posteriorly by a sinuous and very irregular margin, the notch in the bone at the upper part of the opercle being nearly semicircular, beneath which is an obtuse point, whence the obliquely descending margin first slopes slightly inwards, then passes outwards to form another blunt point lower down, then slopes inwards again. The course taken by the margin of the membrane in some measure follows that of the bone, but the sinuosities and salient angles are more rounded. Cheeks and opercle scaly, as well as the cranium and forehead between the eyes.

The lateral line does not deviate very much from rectilinear. The deflection, such as it is, may be said to commence in a line with the termination of the first dorsal, and to end beneath the first third of the second dorsal. Up to this point, the scales which cover it are small and round; but they then begin gradually to enlarge, and to assume a keel terminating posteriorly in a short spine: these scaly laminae continue increasing in size till they arrive beneath the last quarter of the fin, where they are most developed; none of them, however, are very large, and even here they do not extend over the whole breadth of this part of the tail, nor their own breadth exceed one-eighth of the greatest depth of the body. After passing the dorsal and anal fins, they rapidly diminish as they approach the caudal. The entire number of laminae may be set at thirty-five or thirty-six; but as it is difficult to fix the exact point where they commence, it will vary according as the computation is made more or less in advance. The anterior portion of the lateral line, bend included, is a little longer than the posterior.

The reclined spine in this species is entirely concealed beneath the skin. The pectorals are long and falcate, terminating in a sharp point: their length nearly equals that of the head, or about one-fourth of the entire length: when laid back, they reach over the anal finlet, and very nearly to the commencement of the true anal. The ventrals are attached a little behind the pectorals, and are only half as long. The other fins are much as in the other species of this genus. The height of the anterior part of the first dorsal equals exactly half the depth. The lobes of the caudal are one-fifth of the entire length.

COLOUR.—Not noticed in the recent state. *In spirits*; silvery on the abdomen and lower half of the sides, passing above the middle, and on the back, into pale lead blue, tinged with gray and brownish: fins pale greyish brown. No conspicuous markings, except the usual spot on the notch of the opercle, which, however, is small, and confined entirely to the membrane.

Habitat, Tahiti.

This species belongs to the second section adopted by Cuvier and Valenciennes in this genus; or that in which the form of the body resembles that of the *C. trachurus*, but in which the laminae on the lateral line only extend over the posterior portion, the anterior being smooth and simply covered with small scales. But it will not exactly accord with any of the species described by those authors. It seems to approach most nearly the *C. Plumieri*; but though the eyes are of considerable size, they are not quite so large as they are represented to be in that. There seem, in fact, to be several species characterized by large eyes. Spix and Agassiz have figured one from America under the name of *C. macrophthalmus*; and under the same name Ruppell has figured another from the Red Sea. Both

these, however, appear likewise different from the one here described, at the same time that their different geographic range renders their identity *à priori* improbable. The present one was taken by Mr. Darwin at Tahiti.

3. CARANX GEORGIANUS. *Cuv. et Val.*

Caranx Georgianus, Cuv. et Val. Hist. des Poiss. tom. ix. p. 64.

FORM.—Of an oval compressed form, with the back elevated. Greatest depth one-third of the entire length, caudal excluded: thickness not half the depth: head one-fourth of the entire length, caudal included. Profile ascending obliquely, and in nearly a straight line, to meet the dorsal curve. Upper jaw a little the longer. The maxillary, which is truncated and cut nearly square at its posterior extremity, not quite reaches to beneath the anterior margin of the orbit. In each jaw a row of about thirty-five teeth, which are small, somewhat cylindrical, set regularly, nearly equal, and rather blunt at the point; very little trace of any secondary row, simply four or six smaller ones behind those in the middle of the upper jaw, and perhaps in the lower also, but they are not very obvious. A triangular patch of velutine teeth on the vomer, and a narrow band of the same on each palatine; also on the tongue: these last, however, very closely shorn. Eyes a little above the middle of the cheek, but exactly half-way between the end of the snout and the posterior margin of the opercle; their diameter one-fourth the length of the head. Preopercle rounded at the angle; its limb separated from the cheek by a slight but not very salient ridge. Opercle with the notch at the upper part not very deep; the obliquely descending margin straight.

The lateral line follows the curvature of the back until it arrives beneath the middle of the second dorsal, at which point it becomes straight, and the scales gradually pass into carinated spinous laminae. These laminae, however, are very little developed anteriorly to the last quarter of that fin; and even beneath the end of it, where they are largest, they do not extend over more than half the breadth of the tail, nor does their own breadth exceed one-seventeenth of the greatest depth of the body. The number of them is from twenty to twenty-five, according to the point at which the reckoning commences, the transition from the scales to the laminae being very gradual. The pectorals are falcate and sharp-pointed, and one-fourth of the entire length, caudal included. The height of the anterior part of the dorsal is contained two and a half times in the depth. The lobes of the caudal are contained four times and three-quarters in the entire length.

D. 8—1/27; A. 2—1/24; C. 17, &c.; P. 20; V. 1/5.

Length 7 inches 6 lines.

COLOUR.—Not noticed in the recent state. The colour of the back and upper part of the sides appears to have been bluish grey, with steel and other reflections, and was probably very brilliant in the living fish: belly silvery. No markings, except a conspicuous black spot on the upper part of the opercle.

A second specimen.—Differs in no respect from the above, excepting in having one ray less in the second dorsal and anal fins.

Habitat, King George's Sound, New Holland.

I entertain not the least doubt of this species being the *C. Georgianus* of

Cuvier and Valenciennes; but as the notice of it in the "Histoire des Poissons" is extremely brief, I have deemed it advisable to annex a detailed description. Both Mr. Darwin's specimens are from King George's Sound, where the species was first discovered by MM. Quoy and Gaimard.

SERIOLA BIPINNULATA. Quoy et Gaim.

Seriola bipinnulata, Quoy et Gaim. Voyage de l'Uranie (Zool.) p. 363, pl. 61. f. 3.

Cuv. Regne An. (2d Edit.) tom. ii. p. 206.

FORM.—Elongated, and fusiform. Greatest depth contained four times and a half in the length, measuring this last to the base of the caudal fork. Head four times and a quarter in the same: depth of the head not quite once and three-quarters in its own length; the cheeks nearly vertical. Snout pointed: profile straight, and but slightly falling. Lower jaw a little longer than the upper, the commissure reaching to beneath the orifices of the nostrils: maxillary very conspicuous, and greatly dilated at its posterior extremity. A band of minute velutine teeth in each jaw, broadest in front; a disk of similar teeth on the vomer, and a band on each palatine. Eyes large; their diameter one-fifth the length of the head; situated a little above the middle of the cheek, and a little nearer the end of the snout than the posterior margin of the opercle; exactly two diameters between the eye and the end of the lower jaw. The nostrils consist of two small, round, closely approximating orifices, the anterior one partially covered by a membrane; situated rather nearer the eye than the extremity of the snout. Preopercle with the ascending margin vertical, and the angle at bottom rounded; the limb very broad, and marked with veins, and between the veins, along the basal margin, with fine striae. The rest of the pieces of the gill-cover, taken together, present a rounded and regularly curved outline posteriorly; the line of separation between the opercle and subopercle ascends obliquely backwards from a point about two-thirds down the posterior margin of the preopercle; that between the subopercle and the interopercle (which last is well developed) passes downwards and backwards, forming an angle of about 45° with the axis of the body. Branchial aperture large; the membrane deeply cleft. Snout, jaws, and pieces of the opercle, smooth and naked; cheeks scaly, the scales on the upper part of the cheek, between the eye and the upper angle of the preopercle, being of a narrow pointed form. The scales on the body are of a moderate size, oval, marked with fine concentric circular striae, with a fan of coarser diverging striae on their concealed portion. The lateral line is smooth throughout its length, and runs nearly straight from the upper angle of the opercle to the caudal, its course being a little above the middle.

The first dorsal commences at about one-third of the entire length, measuring this last as before: it is low and inconspicuous, consisting of only six weak spines, of which the third and fourth are somewhat the longest, but whose length is less than one-fifth of the depth of the body. The length of the fin itself is rather less than half the depth. Second dorsal closely following, and much longer; of the form usual in this family, with the anterior portion elevated and somewhat triangular, but beyond the ninth ray low and even: its spine half the length of the first soft ray: its greatest elevation contained about two and a-half times in the depth. The last two rays of this fin are broke away from the rest, with an intervening space, to form a spurious finlet, and are rather longer, the last especially, than those which precede. The anal com-

mences opposite the fourteenth ray of the second dorsal, and is similar in form to that fin, but of course shorter, and also less elevated at its anterior extremity: finlet and the intervening space exactly corresponding. Caudal deeply forked; the lobes very long and pointed, each equalling nearly one-fourth of the entire length; the middle rays not one-fourth the length of the lateral ones. Pectorals attached a little below the middle; in length a little exceeding half that of the head. Ventrals about the same size as the pectorals, but attached a little further back. A slight elevation at the sides of the tail, but no distinct keel, properly so called.

D. 6—1/24—I; A. 1/16—I; C. 17, &c.; P. 20; V. 1/5.

Length 18 inc. 3 lines.

COLOUR.—“Band on the side azure blue; above a duller greenish blue; beneath two greenish metallic stripes: lower half of the body snow white.”—D. No trace of the longitudinal stripes remains in the dried skin.

Habitat, Keeling Island, Indian Ocean.

A tolerably exact figure of this species occurs in the Zoological Atlas of Freycinet's Voyage, but I can find no notice of it in the “Histoire des Poissons” of Cuvier and Valenciennes. Although referred by Cuvier in his “Regne Animal” to *Seriola*, it rather departs from that genus in some of its characters. Independently of the spurious finlets in the dorsal and anal fins, which separate it from all the other species, I see no trace of any reclined spine before the first dorsal, nor of two free spines before the anal; in both which respects *Seriola* is said to resemble *Lichia*. Possibly, however, as Mr. Darwin's specimen is a dried skin, these characters may have been destroyed in the process of preparation. And to the same cause, perhaps, is to be attributed the circumstance of my not being able to observe more than one spine in the true anal, Quoy and Gaimard mentioning two. On the other hand, these naturalists appear to have overlooked the narrow pointed scales on the upper part of the cheeks, which are of a different character from the scales on the body.

Mr. Darwin's specimen of this species was obtained at the Keeling Islands. The one figured in Freycinet's Voyage was procured at Papua or New Guinea. It probably, therefore, has a considerable range over the Indian Ocean.

PSENES — ?

Psenes leucurus, Cuv. et Val. ? Hist. des Poiss. tom. ix. p. 197.

Mr. Darwin's collection contains two individuals of a species of *Psenes*, in reference to which his notes state that they were taken in Lat. 17° 12' S., Long. 36° 33' W., a hundred and twenty miles from the nearest land above water, though shoals were considerably nearer. They do not measure more than one inch eight lines in length; and from their small size, and their not being in a very

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firm state of preservation, it is hardly possible to say whether they are new or not. In form, they differ but little from the *P. cyanophrys* of Cuvier and Valenciennes: still they are evidently not that species, and one point of difference consists in the lateral line, which terminates beneath the end of the second dorsal, and is not carried on to the caudal, as represented in the figure of the above species in the "Histoire des Poissons:" the eye too appears rather larger; the forehead is hardly so much elevated, and the pectorals are shorter than the head. Perhaps it may be the *P. leucurus* of the above authors; though this species is from the Indian seas, so that its range must be considerable if the same. The description of the *P. leucurus* in the "Histoire des Poissons" is too short to determine this point. It is said to have been so named on account of its whitish tail, all the other fins being black. In the present species, the fins are likewise black, or at least dusky, except the caudal, which Mr. Darwin's notes, taken from the recent fish, state to have had "a pink tinge." In the same notes it is added,—"belly silvery white mottled with brownish black; sides bluish with dusky greenish markings; iris yellow, with dark blue pupil." The fin-ray formula is as follows:

D. 10—1/27; A. 3/27; C. 17, &c.; P. 17 or 18; V. 1/5.

Though these specimens are small, they have the appearance of being nearly full-sized. Cuvier and Valenciennes state that their specimens of the *P. leucurus* do not exceed two inches in length.

STROMATEUS MACULATUS. Cuv. et Val.?

Stromateus maculatus, Cuv. et Val. Hist. des Poiss. tom. ix. p. 296.

FORM.—General form so extremely similar to that of the *S. Fiatola* of the Mediterranean as to preclude the necessity of a detailed description. Greatest depth one-third of the length: head one-fifth of the same. Number of rays in the dorsal and anal fins somewhat greater than in the *S. Fiatola*. The height of the dorsal also a little greater, being contained about three times and a half in the depth: the fifth and sixth soft rays longest. Fleishy part of the tail more slender. Pectorals about the length of the head.

B. 6; D. 7/41; A. 5/40; C. 17, besides several short; P. 23; V. 0.

Length 8 inches 6 lines.

COLOUR.—"Silvery blue above, with regular circular leaden spots."—D. The spots are small, and of nearly equal size: they prevail from the back downwards to about the middle of the depth, and advance a little on the base of the dorsal fin. The arrangement of them is much as described in the "Histoire des Poissons."

Habitat, Chiloe, West Coast of S. America.

It is just possible that this may not be specifically the same as the *S. maculatus* of Cuvier and Valenciennes, but it comes so extremely near that species that I do

not feel authorised in describing it as distinct without seeing more specimens. It is stated by the authors above mentioned, that the fin-ray formula of the *S. maculatus* is the same as that of the *S. Fiatola*: in the specimen here described, the number of rays in the dorsal and anal fins appear to me somewhat greater; but as the spines of these fins are very minute at their commencement, and not readily counted, nor very distinguishable from the soft rays, perhaps the discrepancy may arise from a difference in the mode of computation. What is more to be noted is, that the spots, although they agree in form and mode of arrangement, are said by Mr. Darwin, in his notes taken from the recent fish, to have been "leaden;" whereas it is stated in the "Histoire des Poissons" that they are "yellow." Perhaps they may vary in colour according to the period of the year. There is likewise a difference in locality as regards latitude. The *S. maculatus* is said to be common in the market at Lima, and to have been brought also, both by M. D'Orbigny and M. Gay, from Valparaiso. Mr. Darwin's specimen, however, was taken as far south on the western coast of S. America as Chiloe.

Mr. Darwin's collection contains another specimen, either of the same species as that described above, or one so extremely similar to it as not to be distinguishable in the case of this specimen, which is in too bad preservation to admit of an accurate description of it being given. The following, however, are Mr. Darwin's notes taken from the recent fish:—

COLOUR.—"Whole body silvery; upper part of the back iridescent blue, lower greenish; spotted with coppery-lead circular patches."—D.

This specimen measures ten inches and a half in length. It will be observed that the colour of the spots is still said to have been "lead," though inclining to coppery. It was not taken at the same place as the other, but at Port St. Julian, in central Patagonia; if therefore they are both referable to the *S. maculatus*, this species will have been proved to have a wide range in point of latitude, and also to occur on both sides of the S. American Continent, which is remarkable, considering that it is found so high up the western side as Lima.

FAMILY.—TEUTHYDIDÆ.

1. ACANTHURUS TRIOSTEGUS. *Bl. Schn.*

Acanthurus triostegus, *Cuv. et Val. Hist. des Poiss.* tom. x. p. 144.

——— *Hirudo, Bonn. Fish of Ceyl.* pl. xi.

This species, which appears to be well known, and to have been described by several authors, was found by Mr. Darwin on coral reefs at the Keeling Islands. Cuvier and Valenciennes observe that it has a wide range through the Indian and

Pacific Oceans. Mr. Darwin's specimen agrees in every respect with the description in the "Histoire des Poissons," except in having one ray more in the anal fin : its length is not quite five inches.

2. ACANTHURUS HUMERALIS. *Cuv. et Val.*

Acanthurus humeralis, *Cuv. et Val. Hist. des Poiss. tom. x. p. 170.*

FORM.—General form oblong-oval. Greatest depth just behind the insertions of the pectorals; contained exactly twice in the length of the oval of the body (measuring this last from the end of the snout to the base of the caudal spine), and three times in the entire length (measuring this last to the extremities of the lobes of the caudal fin.) Profile convex before the eyes, whence it descends nearly vertically to the mouth. Height of the head a little exceeding its own length. Eyes very high in the cheeks, and in front of each a grooved line passing horizontally forwards towards the nostrils; which last consist of two small round orifices, the anterior one larger than the other, and partially covered by a membranous flap. There are seventeen teeth in the upper jaw, and sixteen in the lower: those above have the cutting edges crenated, and likewise the lateral edges for nearly half way down; this most observable in the middle ones, in which the crenations amount to eight or ten in number: those below similar, but with the crenations not quite so numerous, and in some of the teeth at the sides of the jaw almost confined to the cutting edges. Scales minute; those taken from the middle of the body appear of an oblong form, their apical portions dotted, and ciliated with from twelve to eighteen very minute denticles, their surface marked with extremely fine delicate striae, not distinguishable without a strong lens.

The lateral line follows the curvature of the back, at about one-fifth of the depth. The spine on the sides of the tail is strong, and sharp-pointed, and very slightly bent. No reclined spine before the dorsal. Both the fin just mentioned and the anal have their soft portions terminating posteriorly in rather an acute angle: also both have a scaly membrane at the base, and rows of minute scales between the soft rays extending for about one-third or more of their length. The first ray of the anal is very minute, and so much concealed in the skin as to be easily overlooked. The filaments of the caudal are sharp-pointed, and extend as far again as the middle rays: the upper one rather longer than the other. The pectorals are contained three times in the length of the oval of the body. Ventrals attached a little further back, sharp-pointed, and terminating in the same vertical line with the pectorals, both being laid back.

D. 9/23; A. 3/23; C. 16, &c.; P. 16; V. 1/5.

Length, to the end of the caudal lobes, 7 inches.

COLOUR.—The colours appear to have been exactly as described in the "Histoire des Poissons."

Mr. Darwin's notes taken from the recent fish state, "splendid verditer blue and green;" but do not enter into the details of the markings.

Habitat, Tahiti.

Obtained at Tahiti, where it had been previously found by MM. Lesson and Garnot. Mr. Darwin's specimen accords with the characters given by Cuvier

and Valenciennes, except in having two soft rays less in the dorsal, and one less in the anal. Their description, however, is not very detailed.

FAMILY.—ATHERINIDÆ.

1. *ATHERINA ARGENTINENSIS.* *Cuv. et Val.?*

Atherina argentinensis, *Cuv. et Val.* Hist. des Poiss. tom. x. p. 350.

FORM.—Depth exactly one-sixth of the length, measuring this last to the end of the middle caudal rays. The length of the head is five and a-half times in the same, measuring this last to the end of the caudal lobes. Thickness of the body at least half the depth. Head broad and flat, its breadth across the crown behind the eyes equalling three-fourths of its depth. Snout rounded horizontally, but sharp vertically. The profile is perfectly horizontal; and one uniform straight line extends from the extremity of the upper jaw to the commencement of the second dorsal. Ventral line swelling a little outwards, with its greatest curvature about the middle. Upper jaw a very little longer than the lower, which ascends to meet it at an angle of 45°: gape not reaching more than half-way to the eye, at first horizontal, afterwards deflexed. In each jaw two rows of teeth, stronger and more developed than usual in this genus, widely asunder, and at irregular intervals: in the upper jaw these two rows are equal; in the lower the outer row is stronger than the inner: the outer row above contains about thirty-two or thirty-three teeth; that below twenty-six or twenty-eight: no teeth on the tongue, and scarcely any that can be seen on the vomer or palatines, though a slight roughness can be felt on the last two. Eyes moderately large; their diameter a very little less than one-fourth the length of the head; situate a little in advance of the middle point, and also a little above the middle of the depth. Cheeks and gill-covers scaly. Form of the scales of the body, as well as the number of longitudinal rows, exactly as stated by Cuvier and Valenciennes. The same may be said of the lateral line, and the situation of the dorsal fins. The second dorsal and anal terminate in the same vertical line. Pectorals exactly the length of the head. Ventrals attached immediately below the tips of the pectorals. Breadth of the silver band, which runs straight along the middle of the sides, exactly one-fifth of the greatest depth of the body.

D. 5—1/9; A. 1/19; C. 17, &c.; P. 15; V. 1/5.

Length 8 inches.

COLOUR.—“Silvery, with a silver lateral band: above bluish grey.”—D. In spirits, it appears greenish brown, becoming deeper above the silver band and on the ridge of the back: the free margins of the scales are finely dotted with black: the rays of the caudal have been worn at the tips, but there is a trace of the dusky edging noticed by Cuvier: the pectorals are also stained with dusky.

Habitat Maldonado.

I conceive there is but little doubt of this being the *A. Argentinensis* of Cuvier and Valenciennes; but as the description in the “Histoire des Poissons” is short, I have thought it advisable to give a more detailed one of the above

specimen. Mr. Darwin took it at Maldonado, where he states that it is very common, adding that it is sometimes found in brackish water. M. D'Orbigny had also found it previously at the mouth of the Rio Plata.

2. *ATHERINA MICROLEPIDOTA*. Jen.

PLATE XVI. Fig. 1. Nat. size.

Fig. 2. a, b. Magnified scales.

A. gracilis; corporis altitudine partem octavam, capite quintam, longitudinis equante: oculis mediocribus: maxillis sub-æqualibus, parum protractilibus; commissurâ primum horizontali, deinde paulo deflectâ, haud oculos attingente: dentibus velutinis, serie externâ supra subtusque fortiori: dorsali primâ omnino pone ventrales reclinatas locatâ: squamis parvis, seriebus longitudinalibus octodecim ad minimum dispositis.

D. 5—1/11; A. 1/17; C. 17, &c. P. 15; V. 1/5.

LONG. unc. 4.

FORM—More slender and elongated than the generality of the species in this genus. Greatest depth not more than one-eighth of the entire length. Head one-fifth of the same. Greatest thickness (in the region of the gills) equalling two-thirds of the depth, or rather more. Ventral line of the body scarcely more curved than the dorsal. The upper profile falls, though very slightly, from the nape to the mouth, and the lower profile inclines upwards to meet it at about the same degree of curvature. Head broad, its breadth across the crown nearly equalling its depth. Snout horizontally rounded. Jaws nearly equal; not so protractile as in some other species: the commissure of the lips at first horizontal, but posteriorly inclining a little downward, and scarcely reaching more than half-way to the eye. In each jaw two rows of slender very distinct teeth, with traces of a third or even fourth row above, towards the middle: outer row longest and most conspicuous, consisting, in the upper jaw, of from forty-five to fifty teeth; in the lower of scarcely more than twenty-five. No teeth that can be seen on the vomer or palatines, though a slight roughness can be felt on both. Eyes of moderate size; their diameter rather more than one-fourth the length of the head; almost entirely before the middle, as well as above it: space between the eyes flat, and exceeding the diameter by about one-third: a slightly elevated line on each side of this space, but no other conspicuous sculpture. Opercle with the descending margin sloping obliquely forwards.

Crown, cheeks, and gill-covers scaly, the scales on the crown extending as far as the eyes. Scales on the body small, the number of longitudinal rows amounting to eighteen or twenty: in form nearly square, the length a little exceeding the breadth, the superficies marked with numerous very distinct concentric lines, the basal half with a fan of from four to six deeper cut striae, the basal margin rather sinuous, and obsoletely crenate where the striae meet it. No lateral line very distinguishable.

First dorsal small and delicate, commencing exactly at the middle point of the entire length, measuring this last to the bottom of the caudal fork, and in a line with the tips of the ventrals, these last fins being laid back. Space between the first and second dorsals a little exceeding two-thirds of the depth of the body. Length and height of the second dorsal equal

to each other, and also to the space just alluded to. From the end of the second dorsal to the commencement of the caudal is exactly one-sixth of the entire length. The posterior half of the anal nearly answers to the second dorsal, but the two fins do not terminate exactly in the same line, the dorsal extending a little the furthest. Caudal forked for about half its length. Pectorals about two-thirds the length of the head. Ventrals attached at a point beyond the extremity of the pectorals. Breadth of the silver band about one-fifth the depth of the body.

COLOUR.—Not noticed in the recent state. In spirits, the back and sides above the silver band are brownish, with the contour of each scale marked out by black dots. All below the band appears to have been silvery. The band itself is not very brilliant. Both the dorsals, as well as the caudal, are dusky: anal and ventrals pale.

A second specimen does not differ from the above, excepting slightly in the fin-ray formula, which is as follows:

D. 5—1/10; A. 1/15; &c.

Habitat, Valparaiso.

This species was found by Mr. Darwin at Valparaiso in fresh water, in the month of August. It would seem to be nearly allied to the *A. laticlavia* of Cuvier and Valenciennes, brought from the same locality by M. D'Orbigny; but, judging from the short description in the "Histoire des Poissons," it is more elongated, and has the head longer in relation to the depth of the body; also has the silver band narrower. In the *A. laticlavia*, the head is said to be equal to the depth, and to be contained six times in the entire length; the breadth of the silver band to be greater than in any other species. In the *A. microlepidota*, the depth is one-eighth and the head one-sixth of the length: the silver band not broader than in the *A. argentinensis* and some others. The colouring also of the fins appears different in the two species.

3. ATHERINA INCISA. Jen.

PLATE XVI. Fig. 2. Nat. size.

Fig. 2. *b*. Twice nat. size.

Fig. 2. *a*. Magnified scale.

A. gracillima; corporis altitudine partem vir nonam, capite sextam, longitudinis æquante: oculis mediocribus: maxillis æqualibus, valde protractilibus; commissurâ primum horizontali, posterius deflexâ: dentibus velutinis, in maxillâ inferiore minutissimis: dorsali primâ omnino pone ventrales reclinatas locatâ: squamis mediocribus, seriebus longitudinalibus duodecim ad maximum dispositis, marginibus liberis inciso-crenatis: vittâ laterali nitidè argenteâ.

D. 5—1/8; A. 1/17; C. 17; P. 12; V. 1/5.

D. 5—1/9; A. 1/19; &c.—

D. 6—1/10; A. 1/19; &c.—

LONG. unc. 2. lin. 6.

FORM.—Still more slender and elongated than the last species. Greatest depth scarcely one-ninth of the entire length: head one-sixth. Dorsal and ventral lines very little curved. General characters of the head, snout and mouth, as in the *A. microlepidota*, but the jaws more protractile. A row of minute velutine teeth in each jaw most developed above. Eyes moderately large; their diameter nearly one-third the length of the head; the space between them just equal to their diameter. Opercle with the posterior margin nearly vertical. Scales larger than in the *A. microlepidota*; the number of longitudinal rows not exceeding twelve: their form different, and rather peculiar, the anterior or free edge of each scale in some instances presenting two or three processes, separated by deep incisions; in others being irregularly notched or jagged, according to the spot whence taken: the surface is marked with concentric lines, but there is no fan of striæ on the basal half: the breadth of the scale a little exceeds its length, and the basal margin is irregularly sinuous.

First dorsal answering to the space between the tips of the reclined ventrals and the anal. Length of the second dorsal exceeding the intermediate space between it and the first. From the end of the second dorsal to the caudal is rather more than one-fifth of the entire length. Depth of the caudal fork not exceeding one-third the length of the fin. The anal commences in an exact line with the termination of the first dorsal: rather less than its posterior half answers to the second dorsal. Pectorals rather long, measuring nearly one-sixth of the entire length. Breadth of the silver band one-fourth the depth of the body.

COLOUR.—“Body semitransparent, colourless; with a bright silver band on each side; also marked with silvery about the head.”—D. The band is remarkably bright, and well defined, much more so than in the last species.

I have ventured to consider this as a new species, though none of the specimens in the collection, amounting to three in number, exceed two inches and a half in length, and are probably not full-sized. The form of the scales is so peculiar, that if it were only the young of some described species, it could hardly fail to be identified by such a character, which is not likely to be affected by age, nor to have escaped the notice of an observer. Yet I can find none answering to it in the “*Histoire des Poissons*.” The silvery band also is remarkably bright; though the slenderness of the body, another of its peculiarities, is perhaps due to immaturity. The fin-ray formula is somewhat different in the three specimens, as shown above, but in other respects they are similar.

Mr. Darwin's notes state that this species was taken in the month of September, in 39° S. Lat., 61° W. Long., several miles from the land. This last circumstance, indeed, would seem to indicate that the specimens were not so very young, as the fry of most fish keep close in shore.

FAMILY.—MUGILIDÆ.

1. MUGIL LIZA. *Cuv. et Val.?*

Mugil liza, *Cuv. et Val. Hist. des Poiss. tom. xi. p. 61.*

FORM.—Elongated: the depth contained about five and a half times in the entire length: the head

exactly five times: height of the head at the nape two-thirds its own length. Mouth chevron-shaped, with a tubercle at the extremity of the lower jaw: lips thin. Some extremely minute teeth in the jaws, but none on the palate or tongue. Suborbital obliquely truncated at the posterior angle, but not dilated towards the extremity; the lower or anterior margin straight, and scarcely if at all denticulated: the maxillary slender, not longer than the suborbital, and concealed beneath it when the mouth is closed. The eye has an adipose veil covering a large portion of the iris: diameter of the orbit one-fourth the length of the head: distance from the eye to the end of the snout, equalling only three-fourths of the diameter. Orifices of the nostrils widely separate. Number of scales in a longitudinal row about thirty-five; perhaps one or two more: in the depth about twelve. Fourth dorsal spine very weak. A large triangular scale above the pectorals; the same also above the ventrals; this last, which is the longer of the two, equalling one-fourth the length of the fin.

D. 4—1/3; A. 3/8; C. 14, &c. P. 16; V. 1/5.

Length 11 inches 3 lines.

COLOUR.—“Back coloured like Labrador felspar: iris coppery.”—D. The dried specimen shows traces of about twelve longitudinal lines similar to those of many other species.

A second specimen exactly resembles the above, except in being smaller, measuring barely eight inches, and in shewing rather more trace of denticulations on the suborbital.

Habitat, Bahia Blanca and Monte Video.

This species, which has the general characters of the *M. Cephalus* of the European seas, is probably the *M. liza* of Cuvier and Valenciennes; but the specimens are in a bad state of preservation, and some of the characters cannot be accurately ascertained. The depth of the body appears to have been rather greater than what is mentioned in the “Histoire des Poissons:” there is also some appearance of small scales on the second dorsal and anal, which, according to Cuvier and Valenciennes, is the distinguishing characteristic of their next species, the *M. curema*; but it will not agree with this last in its other details.

The larger of the above specimens was taken at Bahia Blanca, where Mr. Darwin's notes state that it is plentiful; the smaller one at Monte Video.

2. MUGIL — ?

Mr. Darwin's collection contains a second species of this genus from the Keeling Islands, which does not appear to be identical with any of those described by Cuvier and Valenciennes; but as there is but one specimen, in a very bad state of preservation, and the species inhabiting the Indian Ocean are very numerous, as well as extremely similar to each other, I refrain from describing and naming it as certainly new. I shall therefore merely point out some of its leading characters, so far as they can be ascertained; in the hope that they may prove of use in leading others to identify it who may visit the above Islands hereafter.

Form and appearance of the mouth similar to that of the *M. labeo* of the Mediterranean. Lips fleshy, and very much developed, with the borders fringed; the lower one partially reflexed. Apparently no trace of teeth anywhere. Suborbital with a shallow notch on its anterior margin, obliquely truncated at its posterior angle, and obsolete denticulated. Maxillary slender and slightly bent, nearly concealed beneath the suborbital, but showing a little beneath it, from its being a trifle longer. The head is a little less than one-fifth of the entire length: the snout short, and rather obtuse. Longitudinal diameter of the eye contained three and a-half times in the length of the head: no appearance of any adipose veil. Orifices of the nostril approximating. The depth of the body cannot be accurately ascertained, but it appears to have been about one-fifth of the entire length. The commencement of the anal is but very little in advance of that of the second dorsal; both fins appear to have been covered with small scales. Pectorals not quite so long as the head: apparently no elongated scale above them: one, however, above the ventrals, half the length of those fins. The fin-ray formula is as follows:—

D. 4—1/8; A. 3/9; C. 14; P. 16; V. 1/5.

The length of this fish is eight inches.

DAJAUS DIEMENSIS. *Richards.*

Dajaus Diemensis, *Richards.* in *Proceed. of Zool. Soc.* 1840, p. 25.

This genus, which was established by Cuvier and Valenciennes, differs from *Mugil* principally in having vomerine and palatine teeth: the snout also is rather more produced, and the mouth less chevron-formed. There is but one species described in the "Histoire des Poissons," which is found in fresh water in the Caribbee Islands. Dr. Richardson has briefly noticed a second from Van Diemen's Land, in his recent description of a collection of fishes from that country, in the "Proceedings of the Zoological Society." Mr. Darwin's collection contains a specimen of this genus from King George's Sound, which, having reason to think it might be the same as that described by Dr. Richardson, I sent to this latter gentleman, requesting him to compare them. This he obligingly did, and informed me in his answer that he could detect no differences between them, beyond what might be the result of the different manner in which they were preserved, his own specimens being in spirits, and Mr. Darwin's dried.

I forbear giving a detailed description of this species, as one by Dr. Richardson will appear shortly in the Transactions of the Zoological Society; and Mr. Darwin's specimen is in such a bad state of preservation, as hardly to admit of an accurate description of it being taken. I may just allude, however, to some of its more striking peculiarities.

It appears to differ from the *D. monticola* of Cuvier and Valenciennes in having the teeth in the lower jaw, if they really exist, so minute and thinly scattered as to be scarcely perceptible: those in the upper jaw, however, are very distinct; so likewise are the vomerine and palatine bands. There are also some very obvious teeth on the tip, and at the sides of the tongue, though few in

the middle: this part is said to be without any asperities in the *D. monticola*. The suborbital is more rounded off at the lower angle anteriorly, and the denticulations thereon rather more numerous and better developed. The scales on the body, those especially above the lateral line, have a few minute teeth on their free edges, communicating a roughness to the touch; a character not alluded to in the description of the *D. monticola*, and which therefore may be presumed absent. There are also three more rays in the anal, and one in the second dorsal.

The depth of the body in this specimen, from its bad state of preservation, cannot be ascertained; but the head is contained about four and a-half times in the entire length. The diameter of the orbit is one-fourth the length of the head; and there is nearly one diameter between it and the end of the snout. The jaws are nearly equal, but when the mouth is closed, the upper one projects a trifle; this last is also moderately protractile. The maxillary retires beneath the suborbital. The fin-ray formula is as follows:—

D. 4—1/9; A. 3/12; C. 14, &c.; P. 15; V. 1/5.

There is but one individual of this species in the collection, which measures seven inches in length. The colours do not appear to have been noticed.

FAMILY.—BLENNIDÆ.

BLENNIUS PALMICORNIS. *Cuv. et Val.*

BleNNius palmicornis, *Cuv. et Val. Hist. des Poiss. tom. xi. p. 159.*

The Blenny, which I have referred above to the *B. palmicornis* of Cuvier and Valenciennes, seems somewhat intermediate in its characters between that species and the *B. parvicornis* of the same authors. This inclines me to suspect that the two species are not really distinct, as those authors themselves seem to have thought possible, though they state that they never received the *B. palmicornis*, except from the Mediterranean.*

In this specimen the head is one-fifth of the entire length, and the ventrals one-eighth, which is worth noticing, because it is stated that in the *B. palmicornis* the head is contained nearly five and a-half times, and sometimes nearly six times in the total length; and the ventrals nearly ten times in the same. The filaments above the eyes, however, are similar to those of the species just mentioned; quite as much developed, and each divided nearly to the base into five or six flattened bristles. There are about forty teeth in the upper jaw, and twenty-eight or thirty in the lower: the canine below is very distinct, but above it is almost, if not quite wanting. The fin-ray formula is as follows:—

D. 11/21; A. 21; C. 11, &c.; P. 13; V. 2.

The length of the specimen is nearly five inches. The anal is marked and coloured exactly as described to be the case in the *B. palmicornis*.

This species was obtained by Mr. Darwin at the Cape Verde Islands.

* According to Mr. Lowe, however, the *B. palmicornis* is common at Madeira, (see *Proc. of Zool. Soc.* 1829, p. 83), and a specimen received from him, undoubtedly belonging to that species, is in the Museum of the Cambridge Philosophical Society.

1. *BLENNECHIS FASCIATUS*. *Jen.*

PLATE XVII Fig. 1.

B. flavescens, fusco-variatus; maculis tribus infra pinnam dorsalem, et unâ in pinna ipsius anticam partem, nigris, subocellatis: dentibus maxillaribus supra circiter viginti quatuor, subtus triginta; caninis nullis: tentaculis palpebrâlibus duobus, parvis, subpalmaris: pinnâ anali haud ultrâ dorsalem extensâ.

D. 13/16; A. 20; C. 13, &c.; P. 14; V. 2.

LONG. unc. 2. lin. 4.

FORM.—Body much compressed behind: the depth one-fifth of the entire length: head rather less than one-fourth of the same. Snout blunt and truncated; the profile nearly vertical; the eye placed just within the angle formed by this last with the line of the crown. Diameter of the eye one-fourth the length of the head; distance between the eyes half a diameter; the interocular space very slightly concave, with a double row of mucous pores rather widely separate, but without any lines or sculpture. Similar mucous pores are thinly scattered over the occiput and the front of the snout, as well as beneath each eye. Above each eye is a short slightly palmated filament not exceeding in length the diameter of the eye: also an extremely minute one at each nostril. Mouth reaching to beneath the eyes. Teeth not extending the whole length of the jaws; fine and close-set, with the points of those at the sides, more especially in the lower jaw, reclining backwards; the number above twenty-four, below thirty: no canines. Gill membrane fastened at bottom, the slit at the sides not descending below the pectorals.

The dorsal commences at the nape, and extends nearly to the caudal, with which, however, it is not connected: it is slightly depressed or notched above the twelfth and thirteenth rays, beyond which it is again elevated to the height of the anterior portion. The anal does not approach quite so near the caudal as the dorsal, but the difference is trifling: the last ray in both fins is united by the membrane to the fleshy part of the tail. Caudal rounded, with the greater part of the principal rays slightly divided at the tips. Pectorals broad, and not quite equal to the head in length. Ventrals short, not more than half the length of the head, or a little less than one-eighth of the entire length: they appear to consist of only two rays, but on dissection there will be found three soft rays with a short spine closely adhering to the first of them; the third soft ray is slender, and also adheres to the second.

The anterior portion of the lateral line takes a sweep over the pectoral, and is very distinctly marked by a close series of short elevated mucous tubes between two rows of pores; but the rest of the line is only faintly traced out by nine or ten slender depressed tubes at long intervals, without any accompanying pores.

COLOUR.—(*In spirits.*) Yellowish ground; the upper half of the sides very much mottled, and clouded with fuscous; three spots darker than the rest, arranged longitudinally beneath the posterior half of the dorsal, and having a subocellated appearance, the last the largest, and also the most distinct of the three: from the median line there are eight or nine descending fasciæ, alternating with the same number of oblong lanceolate spots: the throat is marked with three angulated transverse dark fasciæ: cheeks and gill-covers with small spots. A large black spot on the first three rays of the dorsal fin, which is covered all over with smaller spots, as are also

the pectorals and caudal: anal with a dusky edging. In the living state there were probably some bright colours, as in the *B. biocellatus* of Cuvier and Valenciennes.

A second specimen has the fin-ray formula as follows:—

D. 13/18; A. 21, &c.

This specimen also differs from the one above in having the teeth in the lower jaw not quite so numerous, and the ventrals longer, equalling one-seventh of the entire length. The colours are on the whole similar, but more of the yellow ground is visible above the median line, and the descending fasciæ beneath it are not so distinctly traced out.

Habitat, Concepcion, Chile.

This species is very closely allied to the *B. biocellatus* of Cuvier and Valenciennes, from the same coasts. It agrees with it in all its essential characters, and in the general disposition of the markings. It appears to differ, however, in having fewer teeth; in the anal reaching hardly so far as, certainly not beyond, the dorsal, as described to be the case in that species; in the fin-ray formula; and slightly in the colours. The *B. biocellatus* derives its name from two ocellated spots, one *beneath* the last rays of the dorsal, the other *upon* the first three rays of that fin. In the *B. fasciatus* here described, there appear to be three subocellated spots beneath the dorsal, though the last is the most distinct, besides the one upon the fin itself. The *B. biocellatus* was observed by M. Gay at Valparaiso. The present species was taken by Mr. Darwin at Concepcion. Possibly it may be a mere variety.

2. BLENNECHIS ORNATUS. Jen.

PLATE XVII. Fig. 2.

B. cinereo-griseus; maculis, vel lituris paucis, infra pinnam dorsalem obsoletis, pallidè nigricantibus: dentibus caninis nullis: tentaculis palpebralis duobus, parvis, subfurcatis: pinnâ anali haud ultrâ dorsalem extensâ.

D. 12/17; A. 20; &c.—

LONG. unc. 2. lin. 2.

FORM.—Closely resembling the last species, but rather deeper in proportion to its length, less compressed in front, with the head more inflated about the throat and gills. Snout, profile, and position of the eye, similar. Superciliary filaments scarcely longer, but rather broader and more conspicuous, and cleft at the extremity. Filaments at the nostrils a little longer, but very slender and delicate. Teeth similar, both in number and form. Fins and lateral line exactly similar. Behind the vent a papilla not present in the last species.

COLOUR.—Different from that of the *B. fasciatus*, but with traces of the same markings. The ground colour is cinereous grey, which almost every where prevails: there are faint traces of the angulated fasciæ beneath the chin, as well as of three dark stains beneath the dorsal, but these last no longer deserve the name of ocellated spots. Fins, checks, and gill-covers,

dotted in like manner: also some indication of the larger spot on the first three rays of the dorsal: anal with the same dusky edging.

Obs. Of this species there are five specimens in the collection. The next in size to the one described above, measures one inch seven lines in length, and resembles it in every respect, excepting that the superciliary filaments are broader and longer, equalling at least one diameter and a half of the eye. The colours and markings are exactly the same, only the fasciæ on the throat can hardly be discerned.

No. 3 is exactly similar in size, as well as in all its other characters, to No. 2. Has the superciliary filaments equally developed.

No. 4 resembles Nos. 2 and 3, but is smaller, measuring one inch five lines in length.

No. 5, the smallest of all the specimens, and measuring only one inch three lines, has the dark markings more developed, especially the angulated fasciæ on the throat, which are almost as distinct as in the *B. fasciatus*: the spots beneath the dorsal assume the appearance of abbreviated transverse fasciæ reaching from the base of the fin to the median line; and besides the three faintly indicated in the other specimens, there are two others nearer the head, forming altogether a series of five. In this specimen the superciliary filaments are shorter, not exceeding the diameter of the eye.

Habitat, Coquimbo, Chile.

This species differs but slightly from the last, and both may hereafter prove to be mere varieties of the *B. biocellatus*; but it is desirable for the present to keep them distinct, as, though all found on the same coast, they are from distinct localities on that coast. Also the above five specimens, though varying in the intensity of the markings, have all a ground colour quite different from that of the *B. fasciatus*, and a peculiarity of aspect immediately noticeable to the eye. Had they been found mixed with that species, the presence of the anal papilla might lead to the suspicion of their being the other sex; but, under the circumstances, this seems hardly probable. They were all taken at Coquimbo.

7. SALARIAS ATLANTICUS. *Cuv. et Val.*

Salarias atlanticus, *Cuv. et Val.* Hist. des Poiss. tom. xi. p. 238.

Two individuals of this species were obtained by Mr. Darwin at Porto Praya. They accord in all respects with the descriptions in the "Histoire des Poissons," excepting as regards the fin-ray formula, in which there is a slight difference observable; and in this respect they are also different from each other.

The larger specimen, measuring three inches seven and a half lines in length, has the fin-ray formula as follows:

D. 13/21; A. 24; C. 13; P. 15; V. 2.

The other, two inches eleven lines in length, has one ray less in the spinous portion of the dorsal, and two more in the soft:

D. 12/23; A. 24; &c.—

It may be mentioned that in this species, as in some others, the last spinous ray in the dorsal is entirely invested by the membrane, and does not attain to the margin, so that in counting, it may be very easily overlooked.

In Mr. Darwin's notes, it is stated that this species bites very severely, having driven its teeth through the finger of one of the officers in the ship's company. Its two very long sharp canine teeth at the back of the lower jaw are well calculated to inflict such a wound.

2. SALARIAS QUADRICORNIS. *Cuv. et Val.?*

Salaris quadricornis, *Cuv. et Val. Hist. des Poiss. tom. xi. p. 243. pl. 329.*

Mr. Darwin's collection contains a species of *Salaris* so closely resembling the *S. quadricornis* of Cuvier and Valenciennes, that I dare not describe it as distinct. Yet it offers some slight differences as follows:

The profile, instead of being merely vertical, presents a rounded and projecting front between the eyes, advancing further than the mouth (as in the *S. gibbifrons*, *Cuv. et Val.*) The filamentous appendages are similar, but the superciliary ones are shorter than the diameter of the eye: the palmated ones at the nostrils consist of six or seven bristles. The occipital crest is hardly so much elevated; its height being not more than one-sixth or one-seventh the height of the head, and only one-third its own length. The height of the dorsal equals at least half the depth of the body; the depth of the notch above the thirteenth spinous ray is rather more than half its height. The fin-ray formula is—

D. 13/21; A. 25; C. 13, &c.; P. 14; V. 2.

The colour, as it appears in spirits, is nearly of a uniform olivaceous brown, with scarce any indication of vertical bands; paler on the abdomen. There are four or five oblique narrow whitish lines on the dorsal, but not very distinct; also two on the anal, more decided: these lines appear to have been bluish, and there are traces of the same colour about the head and gill-covers.

In all other respects it accords exactly with the description in the "Histoire des Poissons," where it is added, in reference to colour, that this species is subject to much variation. Mr. Darwin's specimen measures five inches two lines in length. The number attached to it has been lost, so that there is nothing to shew where it was taken. It is probably, however, from the Keeling Islands, as there is in the collection, from that locality, another specimen, which I have little doubt of being the female of the one above noticed.

This second specimen wants the nuchal crest, as is stated to be the case in the female of *S. quadricornis*. It is not full sized, measuring only three inches four lines in length, which may account for the proportions being a little different from those of the adult. The depth is one-sixth of the entire length, or rather less. The filamentous appendages resemble those of the first specimen, but the nasal ones have rather fewer bristles. In the form of the head,

fins, and all its other characters, it is exactly similar. The fin-ray formula is a little different; but such here coincides with that of *S. quadricornis* at least in the male sex.

D. 13/20; A. 23; &c.—

The *colours*, also, as they appear in spirits, are rather different. The general ground of the body is olivaceous grey, but paler than in the male specimen, and inclining to yellowish, with faint indications of vertical bands, and also a few dark spots towards the tail end. Dorsal and anal spotted, the former more so than the latter. Mr. Darwin's notes, taken from the recent fish, merely state,—“with dull red transverse lines.”

The *S. quadricornis* is stated by Cuvier and Valenciennes to be very common at the Mauritius, whence it may not improbably range as far eastward as the Keeling Islands.

3. SALARIAS VOMERINUS. *Cuv. et Val.?*

Salarias vomerinus? *Cuv. et Val. Hist. des Poiss. tom. xi. p. 258.*

PLATE XVII. Fig. 3.

FORM.—Elongated and compressed, the thickest part being in the region of the gills. Greatest depth contained about six and a-half times in the entire length: thickness at the pectorals about two-thirds of the depth, or rather more. Length of the head rather exceeding the depth of the body, and exceeding its own depth by about one-fourth. Snout obtuse; broad and rounded when viewed from above. Lips crenated at the sides of the mouth, but not in the middle. Teeth in the jaws moveable, extremely fine and numerous: two long canines at the bottom of the lower jaw, curving backwards, and fitting into two corresponding holes in the palate: also a transverse row of minute teeth on the front of the vomer. Profile nearly vertical; the eyes placed just within the angle formed by it with the line of the crown. Two broad palmated superciliary filaments, not equal in length to the diameter of the eyes: two similar ones at the nostrils, each consisting of six or eight bristles: also two short simple filaments, one on each side of the nape.

The dorsal, which commences a little behind the nuchal filaments, is so deeply notched behind the twelfth ray as almost to appear like two fins. The height of the anterior or spinous portion is about two-fifths of the depth: the posterior is more elevated, equalling three-fourths of the depth: this portion is connected by its membrane with the upper part of the tail, but does not reach to the caudal, leaving an interval just equal to half the depth of the tail at this point. The anal commences opposite the eleventh ray of the dorsal, and does not reach so far as that fin, leaving three times the space between it and the caudal: the first two rays short and soft, the first scarcely connected by membrane with those that follow; the membrane deeply notched between all the rays, excepting the last three, where it is continuous. Caudal slightly rounded at the extremity. Pectorals broad, but a little pointed when the rays are not spread out; longer than the head, the fifth and sixth rays from the bottom being longest. Ventrals short, only half the length of the pectorals, or one-tenth of the entire length, consisting (which is unusual in this genus) of four distinct rays, two shorter and slender ones, besides the two ordinary thick ones.

The lateral line is faintly indicated by a fine line which sweeps over the pectorals, and then passes off straight along the middle. As far as the pectorals reach, the line is continuous:

beyond, it is interrupted, or only marked out by slightly elevated tubal pores at intervals; and it disappears altogether considerably before reaching the caudal.

D. 12/15; A. 18; C. 13, &c.; P. 14; V. 4.

Length 3 inches 2 lines.

COLOUR.—(*In spirita*.) The ground appears to have been pale yellowish-brown: sides marked with numerous approximating dark transverse fasciæ, twelve or fourteen in number: these fasciæ are continued on to the caudal, where there are five, narrower than those on the body. Head marked with black dots and undulating lines; especially two undulating lines commencing on the cheeks behind the eyes, and passing upwards to the nape: upper lip and sides of the throat marked with several fine lines. A row of black dots a little below the base of the anterior part of the dorsal. The fasciæ on the sides extend on to the dorsal, where they take an oblique direction backwards. Anal pale at the base, but with the tips of the rays dusky. Pectorals and ventrals uniformly plain dusky.

Habitat, Porto Praya, Cape Verde Islands.

Cuvier and Valenciennes state that they have received but one species of *Salarias* from the Atlantic Ocean north of the line, the *S. Atlanticus* already noticed. The present is a second found within that range, obtained by Mr. Darwin at Porto Praya. Perhaps it may be a new one; but it is so very nearly allied to the *S. vomerinus* of the above authors, that I consider it hazardous to describe it as distinct. It agrees especially with that species in having vomerine teeth, and four rays in the ventrals, as well as in the general disposition of the markings; but no mention is made in the "Histoire des Poissons" of the nuchal filaments, which, however, may have been overlooked, as they are small and simple, and not very obvious. If it be identical with that species, its range in the Atlantic must be considerable, as the *S. vomerinus* is found on the coast of S. America, near Bahia. Generally speaking the same species are not observed on both sides of that ocean; and perhaps this is an argument for its being distinct: but if so, it is difficult, without the opportunity of a more close comparison, to point out any essential differences by which it may be characterized.

This species appears also to have many points of agreement with the *S. textilis* brought by MM. Quoy and Gaimard from the Island of Ascension; but the colours do not exactly correspond, neither is there any mention made in the description of this last, of the vomerine teeth and four ventral rays, which so peculiarly characterize the one above noticed.

As I feel some doubts with respect to this species being new or not, I have thought it advisable to have it figured, more especially as there is no figure, either of the *S. vomerinus* or *S. textilis*, to both which it is so nearly allied.

CLINUS CRINITUS. Jen.

PLATE XVIII. Fig. 1.

C. fuscus, nigro-maculatus: tentaculis palpebratibus e crinibus octo a radicibus separatis formatis, nasalibus et nuchalibus palmatis, omnibus parvis subæqualibus: pinna anali radiis mollibus viginti quatuor.

B. 6; D. 26/11; A. 2/24; C. 13; P. 13; V. 3.

LONG. unc. 6. lin. 6.

FORM.—Depth one-fifth of the entire length. Head about one-fourth of the same, rather large, with the cheeks and gills a little inflated. Profile falling gently from the nape: the crown scarcely at all convex. Gape reaching to beneath the anterior part of the eye. Lips thick and fleshy, and partly reflexed, much resembling those of a *Labrus*. Lower jaw projecting a little beyond the upper, and inclining upwards to meet it. An outer row of strong conical teeth in each jaw, with a velutine band behind; the band broad above, but very narrow below. A largish triangular patch of velutine teeth on the vomer, and a smaller one on each palatine. Tongue free and fleshy, smooth. Eyes moderately large, their diameter one-fifth the length of the head; high in the cheeks, reaching to, but not interrupting, the line of the profile. The superciliary tentacles consist each of eight short bristles, all separate to the root, but forming together a closely compacted series: two on the nape, of the same length as them, are broad and palmated, the upper half only being divided into eight or ten slender filaments: two on the nostrils are similar to those on the nape, only somewhat smaller.

The dorsal commences at the nape, a little behind the nuchal appendages, and has the spinous portion long, and of nearly uniform height, but no where very high. The spines increase very gradually in length as they advance, the first being the shortest: in the middle of the fin, they equal about one-third the depth of the body, or hardly so much: above each is a short filamentous tag, as in the *Labridæ*. The soft portion is nearly twice the height of the spinous. A small interval between the termination of this fin and the caudal. The anal commences under the twelfth spine of the dorsal: its own two spines are very short, and not half the length of the soft rays, which last are not quite so long as those of the dorsal: the membrane between each of the rays is deeply notched. This fin terminates a very little before the dorsal. The caudal, when expanded, appears slightly rounded. Pectorals broad and rounded, about one-fifth of the entire length. Insertion of the ventrals directly underneath the commencement of the dorsal, and both in a vertical line with the posterior margin of the preopercle. These last fins are contained nearly nine times in the entire length.

Body covered with moderately small scales; the length and breadth of each scale nearly equal, with the basal portion nearly covered by an irregular fan of striae, eighteen or twenty in number. Head naked, but the crown and upper part of the snout studded with papillæ, terminating upwards in pores. There are rows of minute scales between the rays of the dorsal for about one-third of their height; also at the base of the caudal and pectorals, but none on the anal. The lateral line commences behind the upper angle of the opercle at one-fourth of the depth; when opposite the eleventh ray of the dorsal, it begins to bend downwards, and continues falling till opposite the seventeenth ray, when it gets to the middle of the depth; from that point it passes straight to the caudal.

COLOUR.—(*In spirits.*) Nearly uniform dark brown ground, but with some indications of round black spots, which were probably more conspicuous in the living fish. Eight or nine of these spots appear on the posterior half of the dorsal, forming a longitudinal row; and there is a row more faintly marked out along the base of the anal; these last are smaller than those on the dorsal. Chin, throat, and gill-membrane, thickly covered with small spots: also a black patch extending over a large portion of the eye from above and behind.

Habitat, Coquimbo, Chile.

This species, obtained by Mr. Darwin at Coquimbo, is nearly allied to several other Chilian species, described by Cuvier and Valenciennes, but differs from all of them in having more rays in the anal fin, independently of other respects. It seems to approach most closely the *C. variolosus*; but this latter is represented as having the superciliary tentacles palmated, composed of from twelve to fifteen bristles, and the nuchal ones papilliform and so small as to be hardly visible. In the present species, the superciliary tentacles consist, as above stated, of eight bristles separate quite to the root, while those on the nape are equally as large and as much developed, and strictly, as well as very distinctly, palmated. The crown also is scarcely convex, as represented to be the case in that species: to which it may be added, that the spots on the dorsal fin are more numerous, and their relative size compared with those on the anal different.

The *C. microcirrhis* is said to want superciliary tentacles altogether, otherwise there are several points of resemblance between that species and the one here described.

GENUS.—ACANTHOCLINUS. *Jen.*

Corpus elongatum, compressum, squamis minutissimis obtectum. Caput nudum, tentaculis nullis. Dentes maxillares seriebus plurimis dispositi, velutini; multis, hic illic sparsis, fortioribus, subconicis vel aculeiformibus: vomerini et palatini velutini omnes. Linguae linea longitudinalis media dentibus minutissimis aspera. Membrana branchialis undique libera, subter gulam continua et profundè emarginata, sex-radiata. Pinnae dorsalis et analis spinis plurimis, ad apices laciniis membranaceis investitæ. Lineæ laterales tres distinctæ.

Mr. Darwin has brought home several specimens of a small fish from New Zealand, which appears to me to form the type of a new genus in the family of the Blennies. It is most nearly allied to *Clinus*, to which group it may perhaps be subordinate in point of value; but it offers several differences which I shall proceed to point out. In the first place the number of anal spines is much greater, a character of considerable importance in this family, in which they hardly ever amount to more than two, whilst in some instances all the rays of this fin appear to be articulated. Secondly, in addition to the bands of vomerine and palatine

teeth, which are found in *Clinus*, this genus has a narrow line of very minute teeth running longitudinally down the middle of the tongue, communicating a sensible roughness to the touch. Thirdly, the ventrals are more backward, their point of insertion being only a very little in advance of that of the pectorals. Lastly, it is remarkably characterized by having three, or one might almost say four, distinct lateral lines. The uppermost of these lines commences at the posterior angle of the opercle, whence it turns abruptly upwards and runs immediately beneath the base of the dorsal: the second runs along the median line of the body, but does not commence till a little beyond the base of the pectoral: the third commences a little above the insertion of the ventrals, and answers to the upper one, taking its course a little above the anal: there is also part of a fourth, which originates between the ventrals, and joins the third at the commencement of the anal. All these lines are marked by larger and differently formed scales from those on the body, (which last are very minute,) with an elevated tube on each, the tubal pore, however, being most distinct on the middle or second line. In its general form, and in the large number of dorsal spines, this genus resembles *Clinus*: the form of the head and mouth are for the most part similar; also all the parts of the gill-cover; as well as the branchial membrane, which is six-rayed and free all round. The tags at the tips of the dorsal and anal spines are very conspicuous, and give those fins somewhat of a *labriform* appearance.

It is not improbable that the *Clinus littoreus* of Cuvier and Valenciennes, which they have characterized from a drawing and description in the Banksian Library, and which is said to possess twenty-five spines in the anal fin, may belong to this new genus. It is observed by those authors, in reference to its peculiarity in this respect, that such a circumstance, if correct, would be unexampled, and would tend to separate it from the genus in which they have placed it. It is also worth remarking that the *C. littoreus* comes from New Zealand, the same country as that whence Mr. Darwin obtained the above.

In the circumstance of having three lateral lines, this new genus seems to have some affinity with *Chirus* of Steller; but the scales are not ciliated as they are said to be in this last, neither are the ventrals five-rayed.

ACANTHOCLINUS FUSCUS. *Jen.*

PLATE XVIII. Fig. 2.

FORM.—Body elongated and compressed; the depth, which varies but little, one-sixth of the entire length; thickness in the region of the pectorals rather more than half the depth. Head contained very little more than four times in the length. Profile sloping but very little. Snout rather short: mouth protractile, and rather wide; lips somewhat fleshy and reflexed. Gape reaching to beneath the anterior part of the orbit, but the maxillary, which is dilated at its

posterior extremity, and cut nearly square, reaching to beyond the middle. Lower jaw a little the longest, and ascending to meet the upper. Several rows of sharp velveteen teeth in each jaw, with some here and there stronger and more hooked than the others, those below almost fine card: a band on the vomer and on each palatine. Tongue of a triangular form, free and pointed at the tip, with a ridge of asperities down the median line. Eyes high, but hardly interrupting the line of the profile; their diameter one-fifth the length of the head; distant one diameter from the end of the snout. No filamentous appendages of any kind on any part of the head; but an irregular circle of pores nearly surrounding the orbit; also a few very distinct pores beneath the lower jaw. Preopercle rounded, with distant pores along the margin. Opercle terminating posteriorly in a sharp salient angle with the basal margin ascending; beneath which the subopercle and interopercle are both very distinct. Branchial membrane free and open all round, not adhering to the isthmus underneath, but deeply notched in the middle.

The dorsal commences in a line with the posterior point of the gill-cover, and is very similar to that of *Clinus*. Spinous portion long, and, excepting the first two rays, of nearly uniform height, equalling nearly half the depth; the membrane deeply notched between the spines, the tips of which are invested with filamentous tags. Soft portion of the dorsal more elevated than the spinous, and with only four rays. Between the end of this fin and the caudal is a small space equalling nearly two-thirds of the depth beneath. The anal commences under the twelfth dorsal spine, and exactly corresponds to the posterior half of that fin, reaching also to the same point. The spines in both fins are sharp and moderately strong; the soft rays articulated and branched, and terminating rather in a point behind. Caudal rounded, with fourteen branched rays, and a few shorter simpler ones. Pectorals one-seventh of the entire length, rounded when spread open, with all the rays except the last branched. Ventrals narrow and pointed, about the same length as the pectorals, and inserted but very little in advance of those fins: the spine well developed, and half the length of the soft rays: first soft ray long, and deeply divided so as to appear like two; the second ray slender and shorter.

Body covered with very minute scales; but none on the head or on any of the fins. Three very distinct lateral lines, with a portion of a fourth, as already stated above.

B. 6; D. 20/4; A. 9/4; C. 16, &c.; P. 17; V. 1/2.

Length 3 inc. 8 lin.

COLOUR.—Not noticed in the recent state. *In spirits* it appears of a nearly uniform bister brown, with the fins and some portion of the head darker than the rest, especially a blackish spot on the opercle.

Habitat, Bay of Islands, New Zealand.

There are four specimens of this new fish in the collection, all similar except in size. The above is the largest. The others measure in length from one inch and three quarters, to not quite three inches. The two largest are from the Bay of Islands, New Zealand. The other two have lost their labels: I only presume therefore that they are from the same locality.

TRIPTERYGION CAPITO. *Jen.*

PLATE XIX. fig. 1.

T. fusco-griseum, pinnis concoloribus: tentaculis palpebralibus duobus parvis gracilibus e crinibus duobus vel tribus formatis; nasalibus minutis simplicibus: dorsali primâ humili sex-radiatâ, radiis subæqualibus; secundâ duplo altiore; tertiâ parum altissimâ: lineâ laterali abbreviatâ, vix ultrâ pectorales extensâ.

B. 6; D. 6—20—14; A. 25; C. 14, &c.; P. 16; V. 2.

LONG. unc. 2. lin. 5.

FORM.—Depth at the pectorals one-sixth of the length: thickness at the same part about two-thirds of the depth. Head rather large, thicker than the body, contained four and a half times in the entire length. Snout short, the profile falling very abruptly from between the eyes. These last large, one-third the length of the head, high in the cheeks, reaching to, but hardly interrupting, the line of the profile. Above each a short slender compound tentacle: that on the right side consists of two filaments, one simple, the other forked, so as to appear like three; that on the left appears undivided. Also a minute filament at each nostril. The maxillary reaches to beneath the middle of the orbit. Jaws equal: in each a row of small conical sharp-pointed teeth, with a broad velutine band behind, the band, however, only in front. A transverse band of velutine teeth on the vomer, extending a little on to the palatines. Opercle and preopercle rounded. Branchial membrane free all round, with a shallow notch in the middle underneath.

The first dorsal commences in a vertical line with the insertions of the ventrals; the rays are six in number, and so nearly equal in length as to cause the fin to appear quite even; its height is scarcely more than one-third of the depth. The second dorsal begins a little behind the origin of the pectorals: it is also nearly even, but twice the height of the first. The third closely follows the second: this fin is uneven, but its most elevated point is somewhat higher still than the second. The rays of the first and second of these fins are spinous: those of the third soft and articulated, but all simple. The anal, which has also simple rays, commences beneath the middle of the second dorsal, and terminates in the same vertical line with the end of the third, between which last and the caudal is a small space. Caudal square, with twelve of the principal rays branched. Pectorals a little less than one-fourth of the entire length; the ninth and tenth rays longest; the six lowermost rather stouter than the others, and, as well as the three uppermost, which are very slender, simple; the fourth to the tenth, both inclusive, branched. Ventrals contained about six and a half times in the entire length; consisting of only two slender filamentous rays.

Scales minute, their free edges finely ciliated; the concealed portion of each scale marked with twelve or fourteen striae. The lateral line rises at the upper angle of the opercle, and is well marked by a row of tubular scales till it reaches a little beyond the extremity of the reclined pectoral, where it abruptly terminates, and all further trace of it is lost.

COLOUR.—(*In spirite.*) Of a nearly uniform dark brown, inclining to griseous, with some appearance of darker clouds or spots between the second dorsal and the lateral line; this last also is indicated by a darker streak than the ground colour. Fins dark brown: there is, however, some trace of a white edging to the anterior half of the anal, which may have been more conspicuous in the living state.

A second specimen slightly differs from the above, but is evidently referable to the same species. It is smaller; and the profile falls more gradually. The caudal has only eight branched rays, with two lateral simple ones. The pectorals have the tenth and eleventh rays longest, with the seven lowermost (instead of six) stouter than the others and simple. The fin-ray formula is also different.

D. 6—19—13; A. 25; C. 10, &c.; P. 17; V. 2.

Length 2 inc. 1 line.

The colours are paler, and more decidedly grey, with the darker motlings more distinct. The dorsals and caudal are pale, minutely dotted with brown. Tips of all the anal rays white.

Habitat, Bay of Islands, New Zealand.

This species approaches very closely the *T. nigripenne* of Cuvier and Valenciennes, of which it may possibly be a variety; but the description in the "Histoire des Poissons," as regards the form, is limited to a very few words. If the figure given by those authors be correct, the *T. nigripenne* differs decidedly in the first dorsal being more elevated, with the rays more unequal, and in the lateral line extending the whole length of the fish. In the present species the first dorsal is low and even, with the rays all equal, and the lateral line cannot be traced much beyond the pectoral; and these characters are found in both specimens. There are also six rays in the first dorsal. According to the description, the *T. nigripenne* has but five, though six are represented in the figure.

From the *T. varium*, this species differs not only in its fin-ray formula, but in its markings: and the same characters serve to separate it still more widely from *T. Forsteri* and *T. fenestratum*.

This species was obtained by Mr. Darwin on tidal rocks in the Bay of Islands, New Zealand. Three out of the only four extra-european species described by Cuvier and Valenciennes come from the same locality.

FAMILY.—GOBIDÆ.

1. GOBIUS LINEATUS. Jen.

PLATE XIX. fig. 2.

G. nigro-griseus, lineis circiter decem longitudinalibus nigris: capite lato, subdepresso; genis inflatis: maxillis æqualibus: dentibus velutinis, externis fortioribus aculeiformibus; caninis nullis: oculis amplis, intervallo vix plus quam semidiametrum æquante: pinnis dorsalibus contiguis, altitudine subæqualibus; pectoralibus radiis supernis setaceis, liberis; caudali rotundatâ: squamis mediocribus, levissimè ciliatis.

B. 5; D. 6—1/9; A. 1/8; C. 13, &c.; P. 7 et 16; V. 1/5.

LONG. unc. 4. lin. 8.

Form.—Head large, sub-depressed, and much inflated about the gills: body compressed towards the tail. Depth at the pectorals contained about five and a half times in the length: thickness at the same point about three-fourths of the depth. Head about four and a half times in the length: its breadth nearly equal to its own length. Profile nearly horizontal. Eyes moderately large, with a diameter nearly one-fourth that of the head: the intermediate space a little hollowed out, and scarcely more than half a diameter in breadth. Some appearance of a shallow groove on the nape reaching to the first dorsal. Gape reaching to beneath the anterior angle of the eye. Jaws equal: each with a broad band of velutine teeth, the outer row stronger than the others, and slightly hooked; of these stronger ones there are twenty six in the upper jaw; below they are fewer, smaller, and more irregular: no canines: no vomerine or palatine teeth.

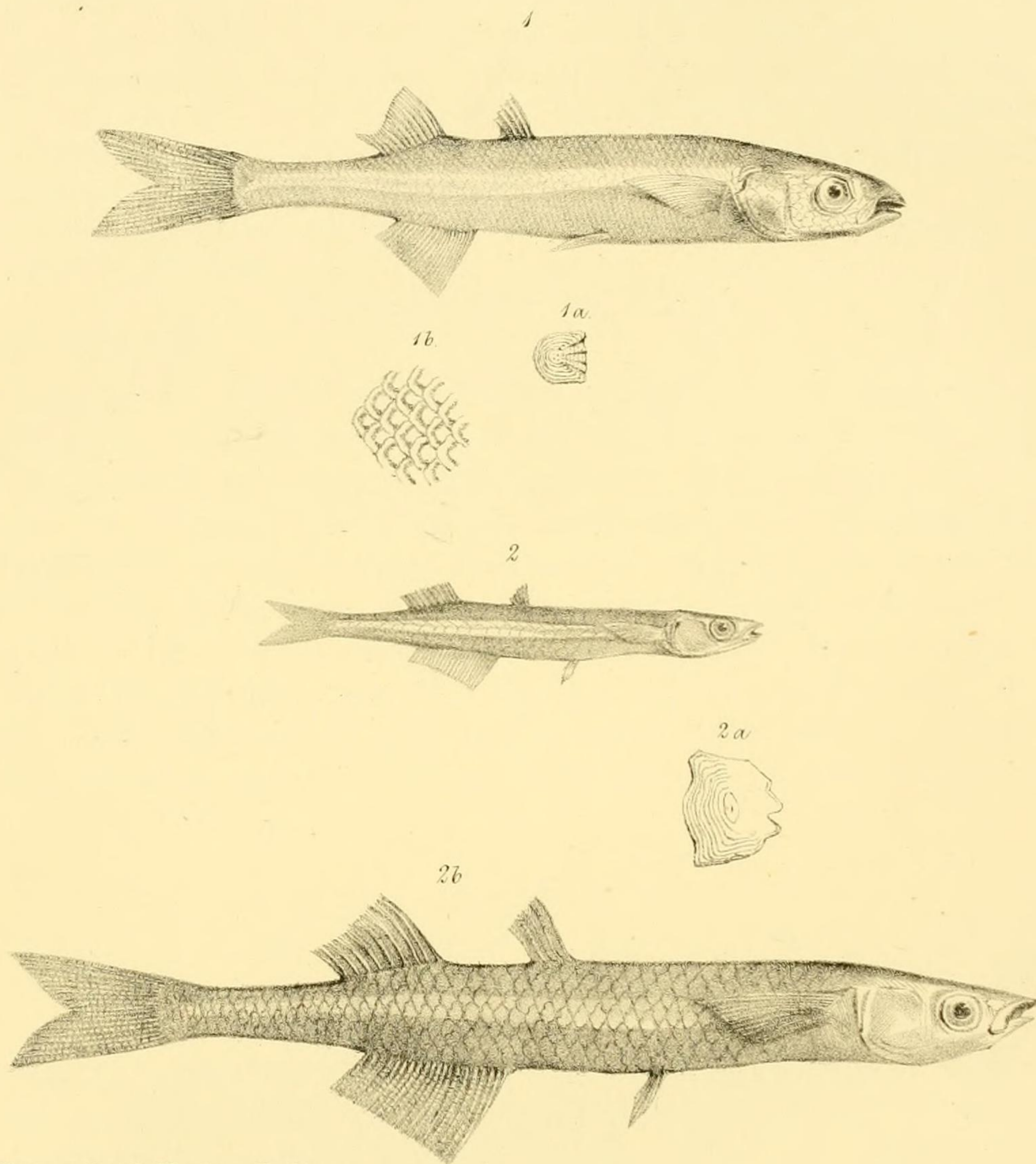
Pectorals about one-fifth of the entire length, oval; the first six or seven rays nearly free to their base, and setaceous, like those of *G. niger*; the sixteen that follow connected by membrane as usual, and much branched. Ventrals united in the usual manner, and a little shorter than the pectorals. The first dorsal commencing a very little behind the point of attachment of the pectorals, and reaching to the extremity of those fins when laid back: the anterior spines rather exceeding in length half the depth of the body; the last three gradually decreasing, with the membrane terminating at the foot of the second dorsal. This last fin with the first ray simple, and of the same height with the anterior rays of the first dorsal; those which follow, to the number of nine, nearly of the same height, and branched; from the root of the ninth springs a simple ray which might be reckoned as distinct, and if so, the entire number would be ten. Anal commencing a little more backward, and terminating a little sooner than the second dorsal, to which in other respects it answers; the last ray double as before: both these fins terminate in a point behind. Space between the anal and the caudal rather more than one-fifth of the entire length, and equalling twice the depth immediately beneath. Caudal rounded, about one-sixth of the entire length; the division between the principal and accessory rays (which last are numerous, especially above), not well marked; the former much branched. The usual papilla behind the vent.

No visible lateral line. Scales rather large; about thirty-seven in a longitudinal line, and eleven in a vertical; ciliated, the concealed portion of each scale with an irregular fan of very numerous striae, amounting to twenty-five or more. Skin of the suborbital marked with four longitudinal lines of salient dots, the third from the top forking posteriorly into two: a similar line at the upper part of the opercle at the boundary of the scales, whence another passes vertically across the branchial membrane; behind this is a third shorter one, taking an oblique direction backwards.

Colour.—(*In spirits.*) Dusky grey, with about ten, rather indistinct longitudinal dark lines on the body, extending from the pectorals to the caudal. Fins dusky, with some indication of small irregular whitish spots scattered here and there. A dark spot on the upper half of the eye.

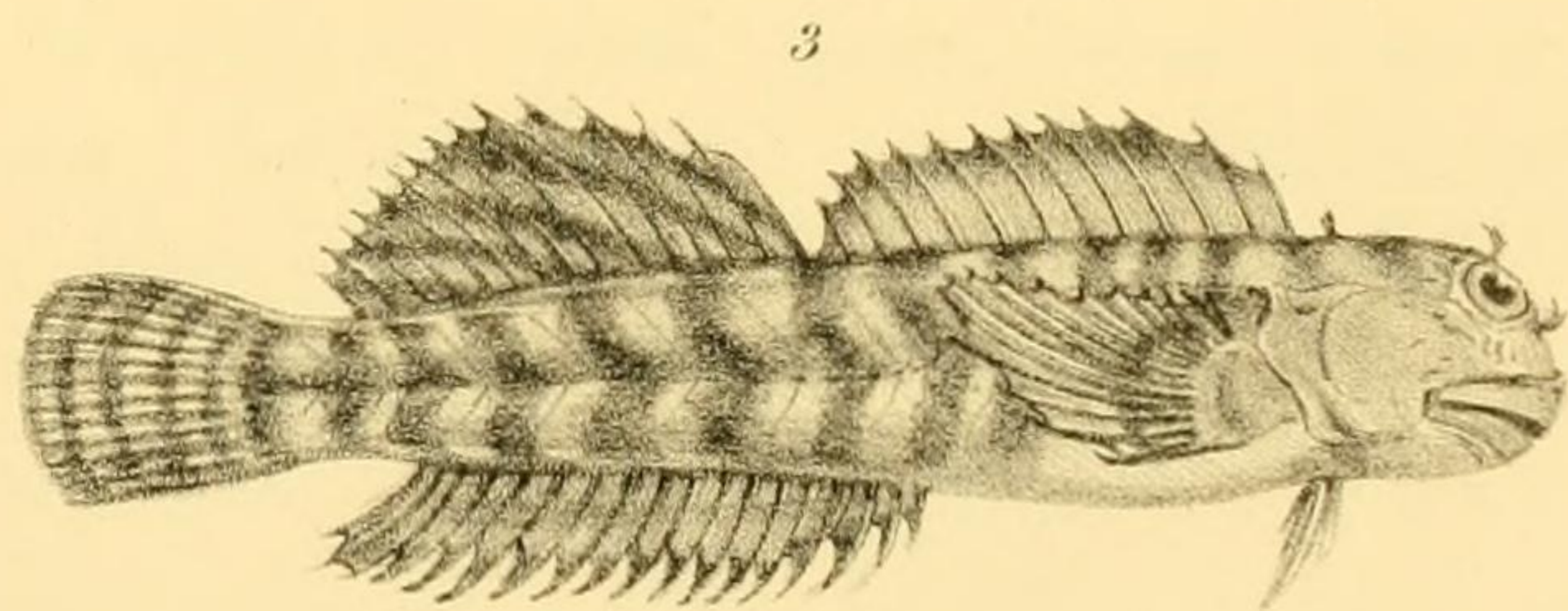
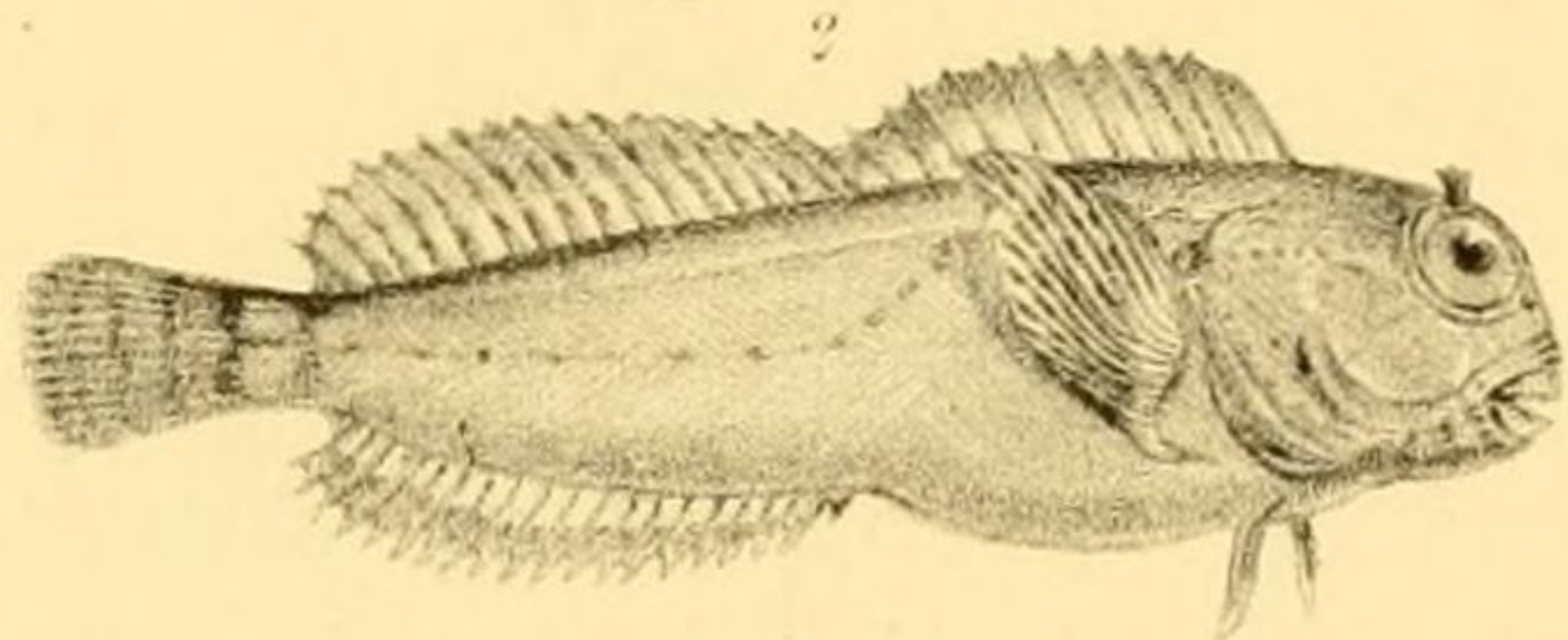
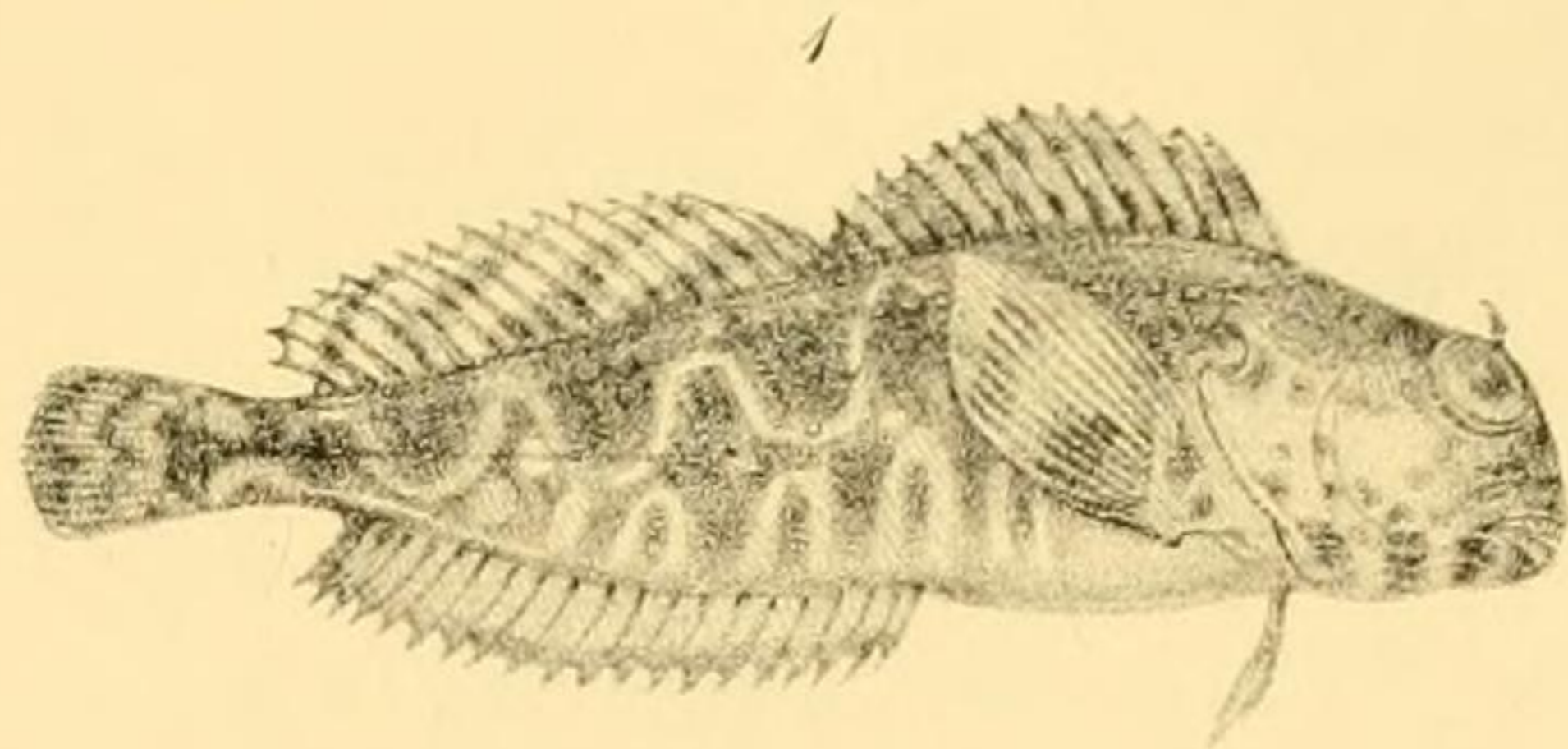
Habitat, Galapagos Archipelago.

This is undoubtedly a new species. It belongs to the same section as the *G. niger* of the European seas, which in form it very much resembles, especially in its large inflated head, and in having the uppermost rays of the pectorals free and setaceous. It differs, however, in having fewer rays in the dorsal and anal



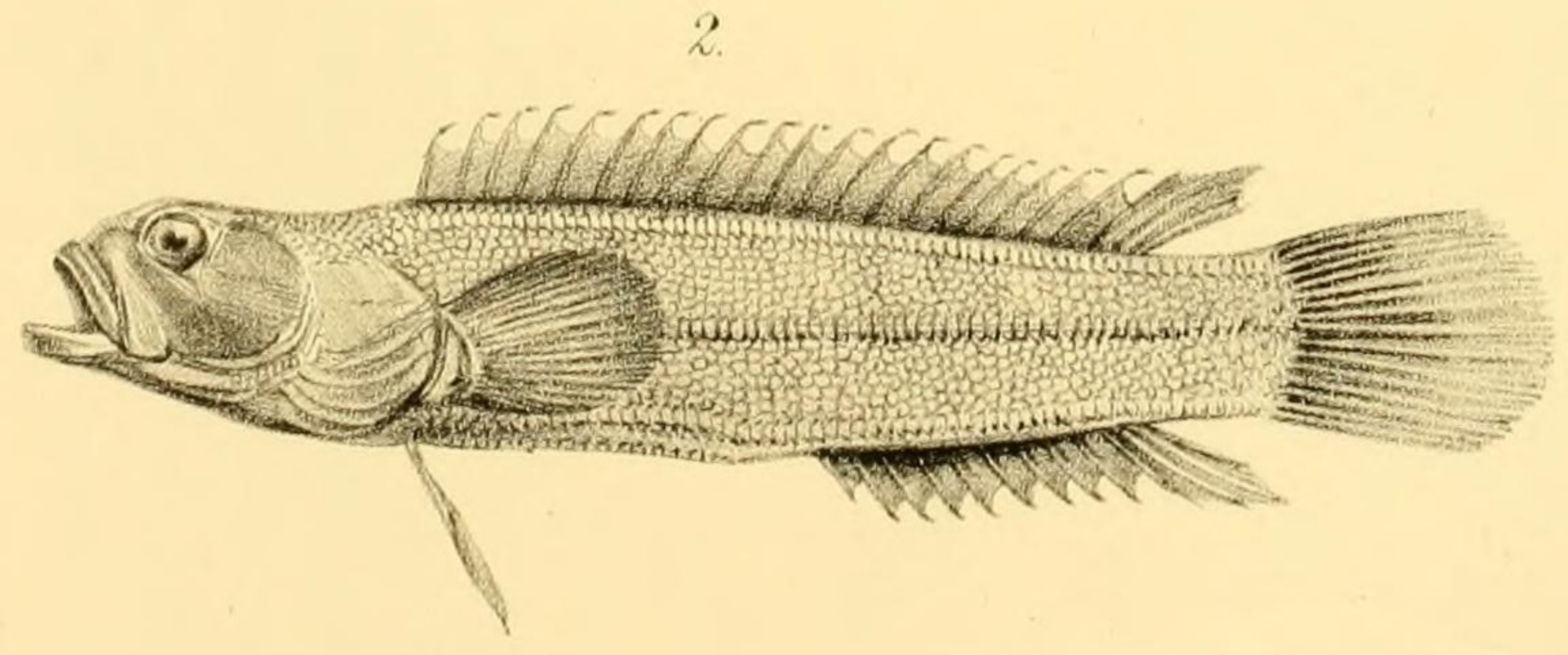
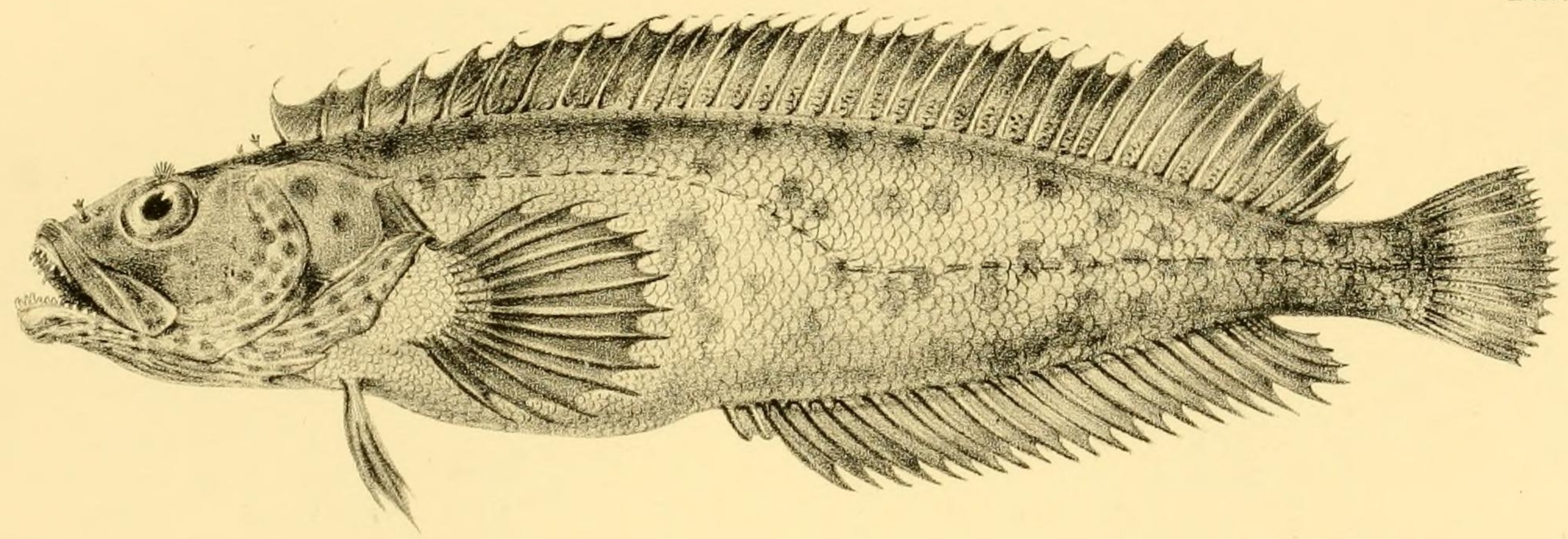
Drawn from Nature on Stone by Waterhouse Hawkins.

- | | | |
|--------|--------------------------------|-------------------|
| 1 | <i>Atherina Microlepidota.</i> | Nat. Size |
| 1a. 1b | " | magnified Scales. |
| 2 | <i>Atherina incisa.</i> | Nat. Size |
| 2a. | " | magnified Scale. |
| 2b. | " | Twice Nat. Size. |



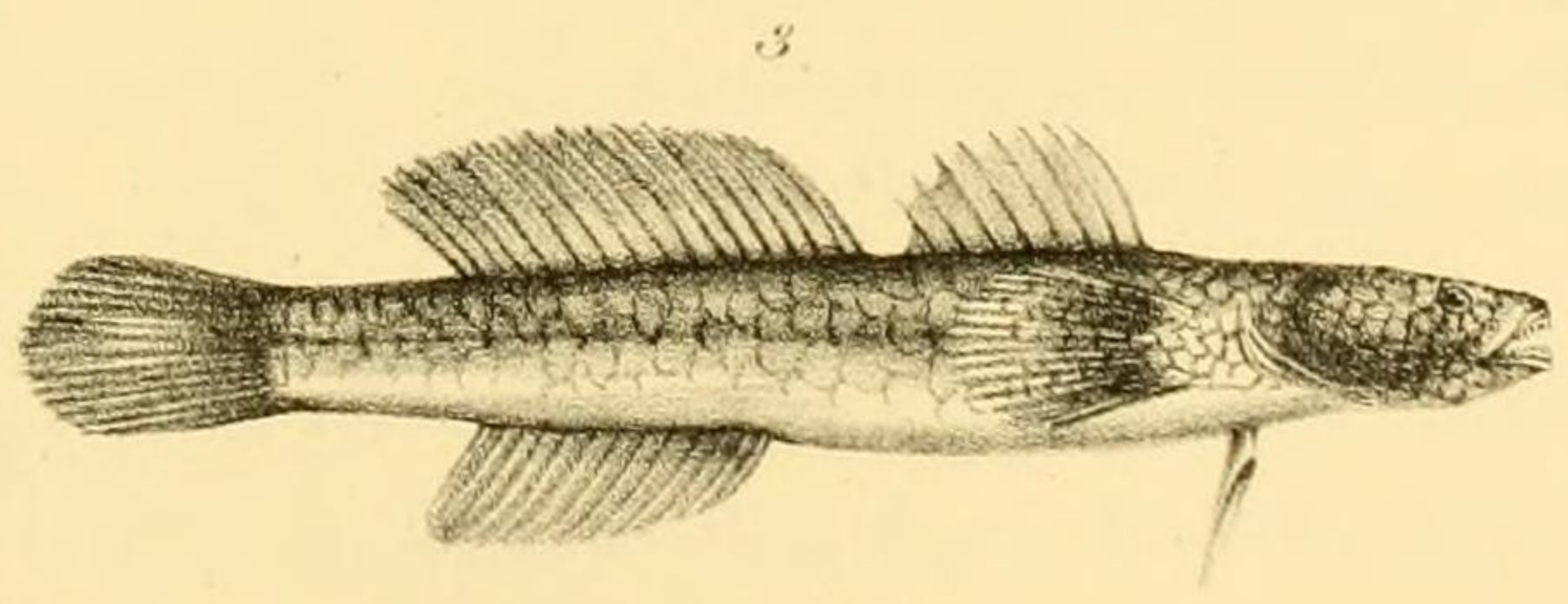
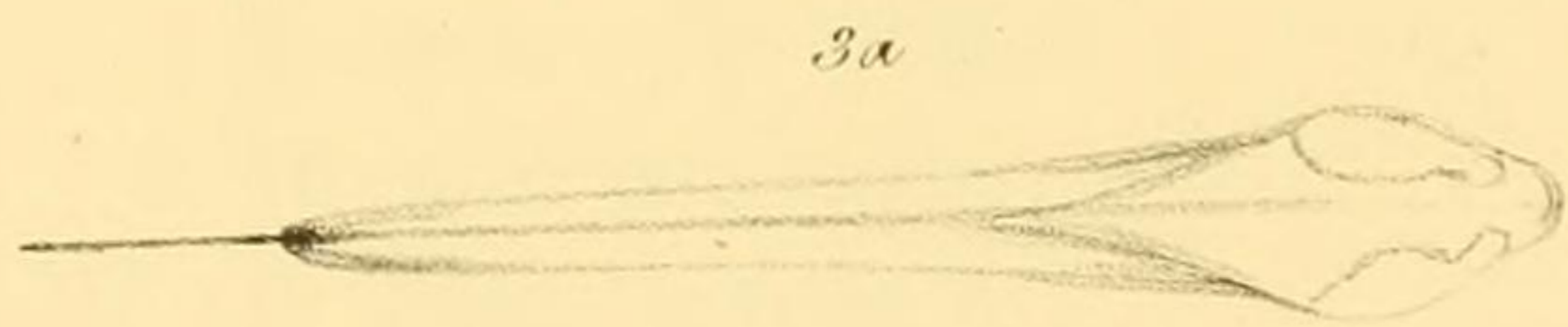
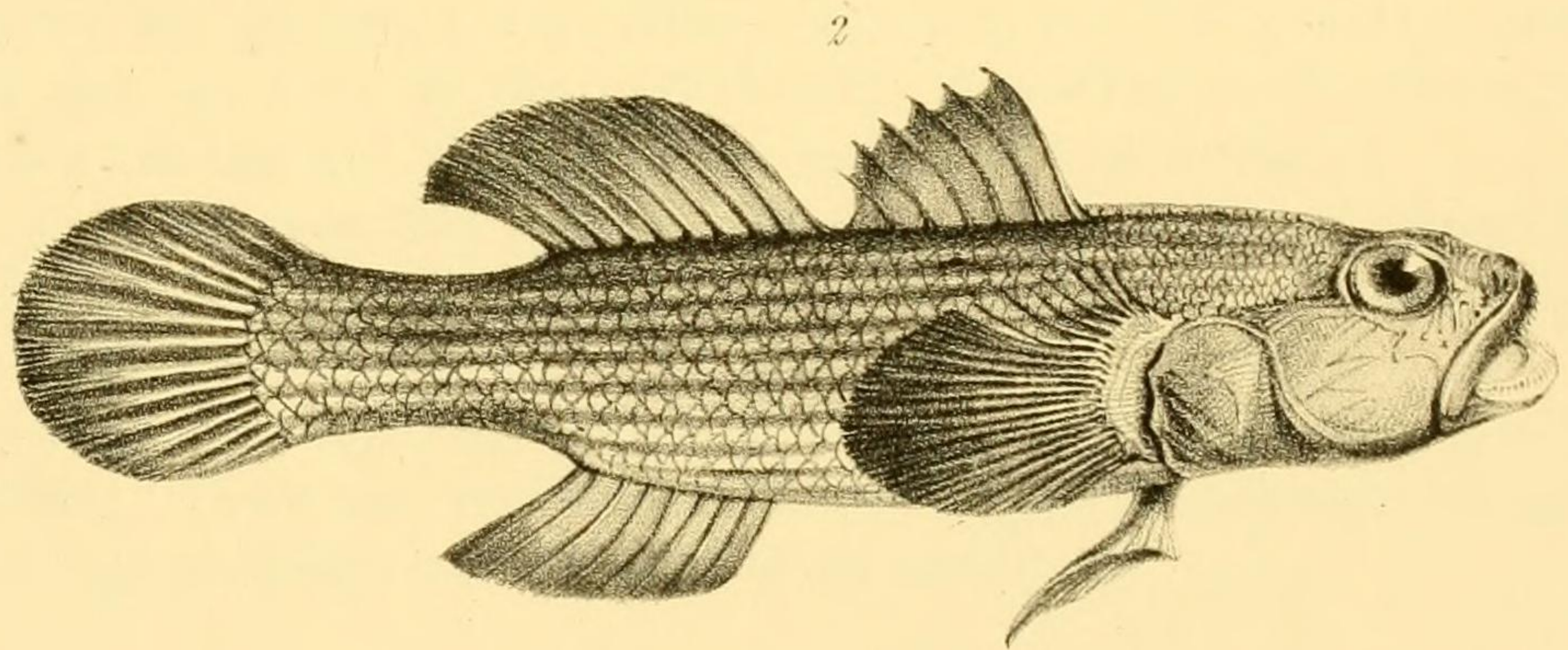
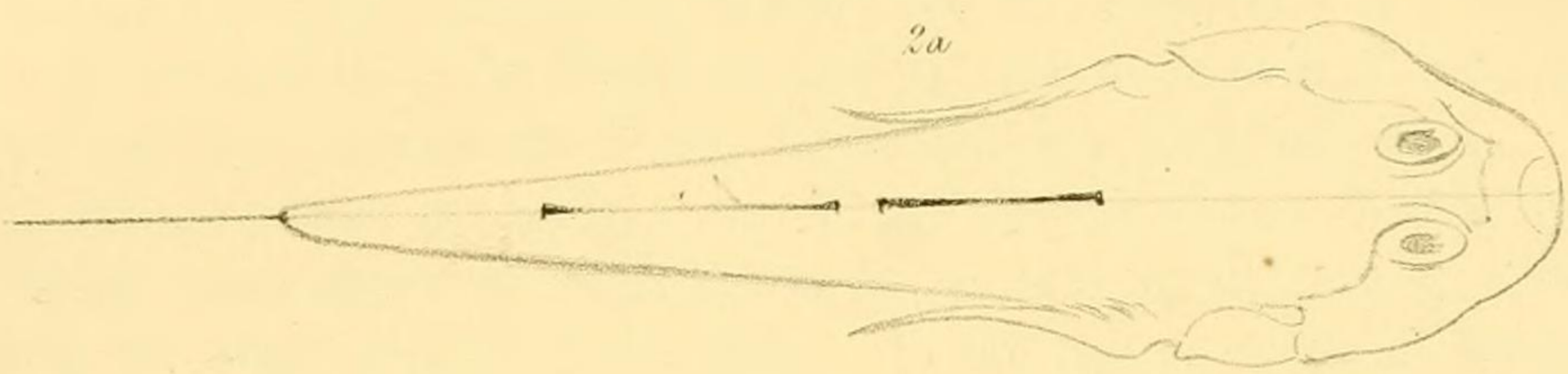
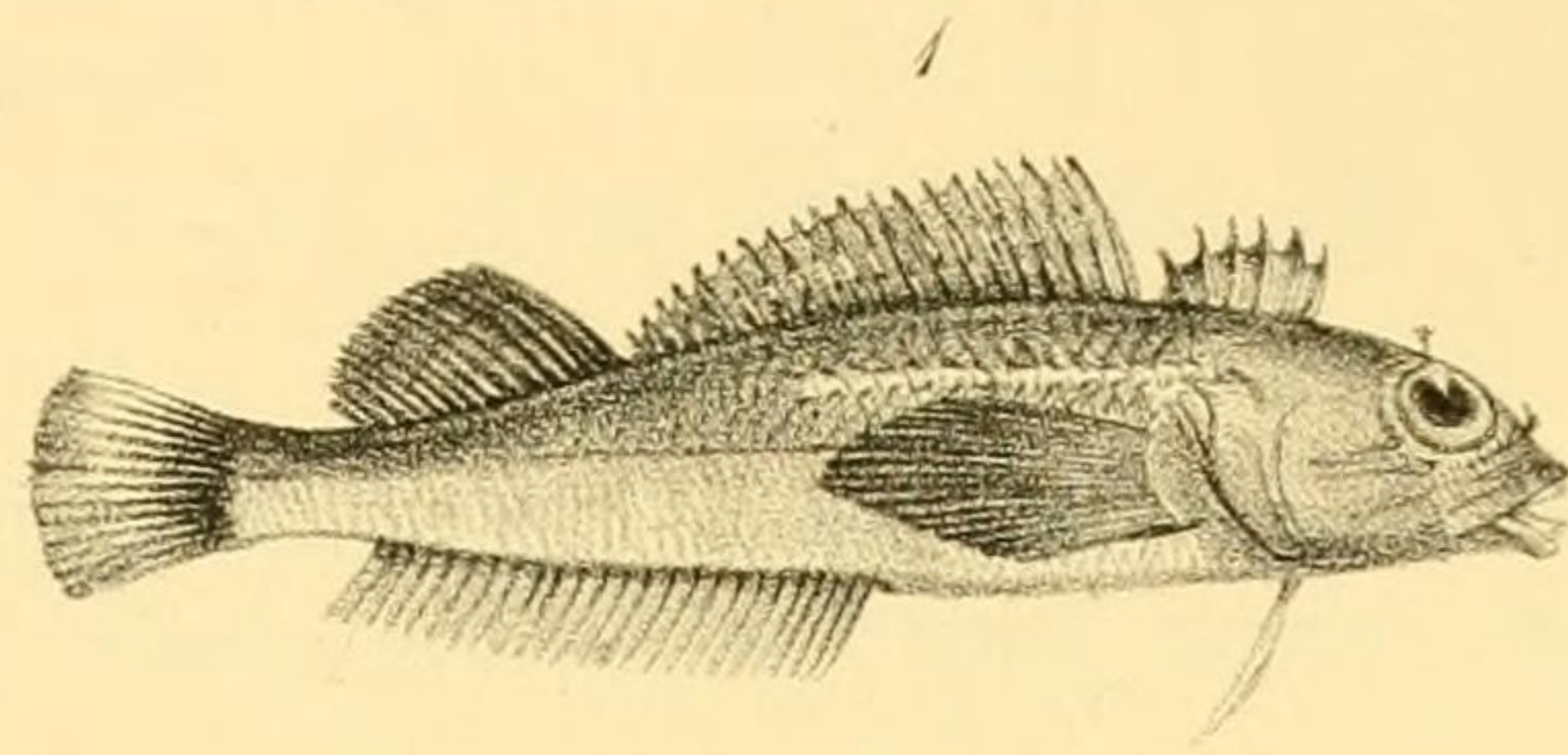
Waterhouse Hawkins del.

1. *Blennechis fasciatus*. Nat. size.
1a. " " Teeth magnified.
2. *Blennechis ornatus*. Nat. size.
3. *Salaria vomerinus*. Nat. size.



Waterhouse Hawkins del.

1. *Clinus crinitus*. Nat. size.
2. *Acanthoclinus fuscus*. Nat. size.



Waterhouse Hawkins del.

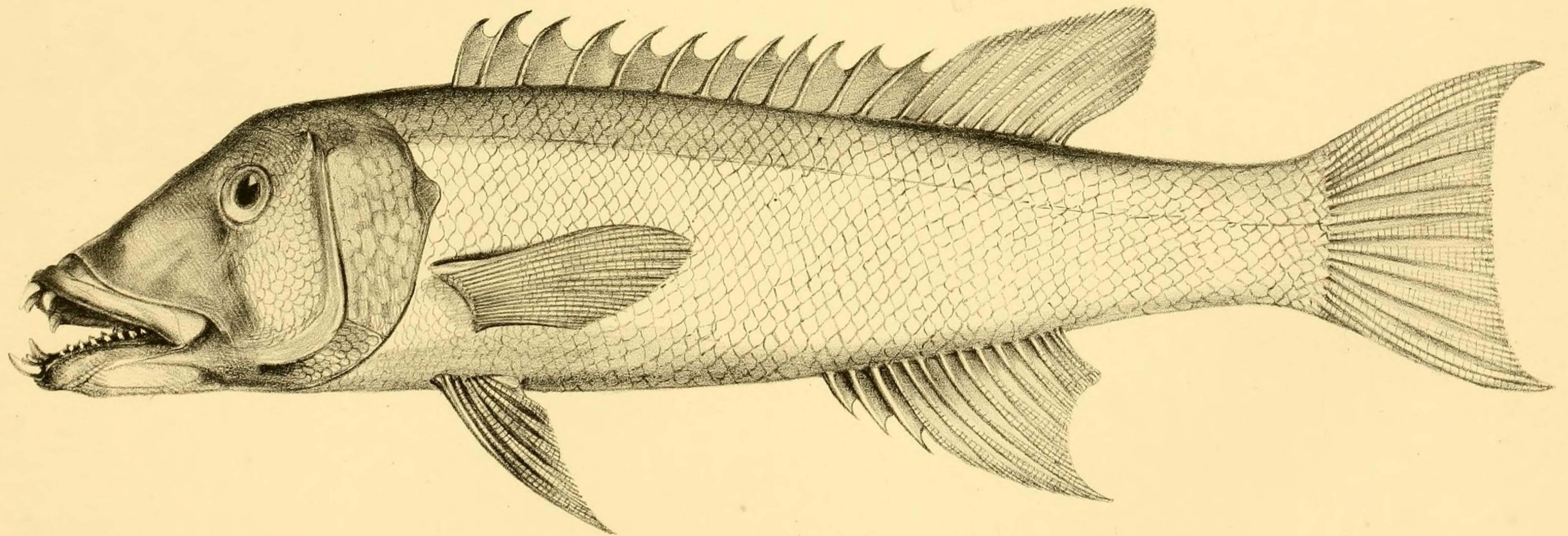
1. *Tripterygion Capite.*

2. *Gobius lineatus.*

2a. " " dorsal View.

3. *Gobius ophicephalus.*

3a. " " dorsal View.



W. Hamilton del.

Cossyphus Darwini. 7/8 Nat. Size.