R. M. Johnston's Memoranda Relating to the Fishes of Tasmania.

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Plates II.-IV.

(Communicated by L. F. Giblin.)
(Read 12th August, 1928.)

Thanks to the kindly interest of Professor T. T. Flynn, I have been allowed to examine and report upon an interesting note-book inscribed "Memoranda relating to the Fishes of Tasmania examined by Robt. M. Johnston." This is an old exercise book, belonging to the library of the University of Tasmania, which contains the original notes from which Robert MacKenzie Johnston wrote his invaluable paper, (2) "General and Critical Observations on the Fishes of Tasmania; with a Classified Catalogue of all the known "Species," and is especially important because some sketches therein illustrate the types of Johnston's new species which have not been figured in scientific publications. Most of the notes and drawings were made in the early 'eighties, but one entry, dated 14th March, 1818, concerning the Nanuyni (Trachichthodes aequinus), shows that Johnston was keenly interested in fishes up to the year of his death.

Johnston's notes are mostly still legible and many are transcribed in this paper. Descriptions which have already been published are not however repeated, though quotations are made from some of the newspaper cuttings which had been pasted in the note-book. Such additions and annotations as have been thought advisable are enclosed in square brackets to distinguish them from Johnston's actual notes. I have brought the nomenclature of the species up to date, whilst including the original identifications. References to literature have been added and the notes arranged in an order more in conformity with modern classifications.

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Isurus glaucus (Müller & Henle).

Oxyrhina glaucus, Müller & Henle, Syst. beich. Plagiost., 1838, p. 69, pl. xxix. Java.

Isurus glaucus, Walter, Rec. S. Austr. Mus. ii., 1921, p. 21, fig. 27.

["A good pencil sketch of a Blue Pointer Shark is unfortunately without data. This species was first recorded from Tasmania by Cross (3) as Oxyrhina gypnodon.

Clupea bassensis, McCulloch.


Salmo erioch, Linnaeus.


Salmo fario: A specimen caught in Latrobe Creek, Tasmania, 27 Jan. 1889. 22 lbs. in weight, 2'9" long, girth 2'7". Pale pinkish fully developed ova.

Retropinna tasmaniae, McCulloch.


Galaxias weedoni, Johnston.

(Pl. II., Fig. 1.)


Galaxias atkinsoni, Johnston, ibid., p. 131. Pieman River, Tasmania.


[Note added later:—] Mr. Irving in early May 1894 sent me from Great Lake one of several specimens almost identical with the above, as regards dusky bar markings, but close to the characters of G. attenuatus in other respects.

Galaxias truttaceus (Cuvier).

Esox truttaceus, Cuvier, Règne Anim., ed. 1, 1816, p. 184, footnote. No loc.


G. truttaceus. D. 11, last nearly double. A. 13. [P.] 15. V. 7. Head broad, depressed. Mr. Seal tells me that this variety is always found high up the mountain slope in broken water, generally seen under stones or lying upon them, not swimming about in still pools as is the habit of the spotted trout found lower down. He is of opinion that the head also is more depressed, while the colour markings are very distinct. The position and rays of fins do not however seem to differ and, if like the Mountain Lake Trout (G. auratus), may be hardly [more than] a racial variety.

Contents of stomach—remains of Bettaupella legrandiana and Lymnaea huonensis.

Specimen 2/2/80 from Longford [sent] by Mr. Wilson, who informs me that they are very abundant there in backwater reaches of the South Esk. I am also informed that the Brown Trout frequently attacks them. The fins are sometimes nearly destroyed by their voracity. I have frequently seen the fins of the Blackfish, Gadopsis marmoratus, destroyed in this manner.

[Transportation of Tench from Tasmania to Sydney is mentioned in Proc. Roy. Soc. Tasm., August, 1863, p. 3.]

Seriolella dobula (Günther).


Neptomenus dobula. The Mackerel Snotgall or Mackerel Trevally. Large shoals at Dunkley's Point, July 5th, 1881. Four dozen caught, made up of the two species which seem to run together in schools. They are also reported to be abundant on the same day at Kangaroo Pt. where they were found the year previously in numbers.

A great shoal now in the bay, caught 2 or 3 dozen on Garth's Bank; fine size. 14 & 19 May 1883. D.7/1/37-39; A.2/1/23.

Ten dozen of these fish caught by one man during one evening on Queen's Birthday, 1883. There were thirty boats fishing at Kangaroo Bay, besides large numbers fishing from the wharves. All catching fish in abundance. They move about in schools, bite freely, and when hooked fight spiritedly in a zig-zag movement.

Derwent 28 March 1882. They are tender in the mouth. Large individuals must then be played easily. They were not accompanied by the snotgall [S. brama, Günther] as upon the former occasion.

[On another page] D.7/1/37; A.2/1/23. Tip of pectoral not reaching to anus, shorter than head, somewhat rounded. Body elongate, tapering to tail. Eye deep. Total length 8 3-8; Body 7; Head 2; Snout 4; Eye x; length of Pectoral 14; height of Body 1 7-8. Caudal deeply cleft.

Paramacurus australis (Richardson).


Macrurus australis. D. 13/88; A. 87; V. 7; L. Lat. 130; L. tr. 4/15; Vert. 14/53.

Trachichthodes affinity (Günther).


Australotobyx affinity, McCulloch, Zool. Res. Endeavour i., 1911, p. 43, fig. 11.

Beryx affinity. A fine specimen of Beryx affinity (Nannegai). D. 7/12; A. 4/13; V. 1/7; L. tr. 6/12; L. Lat. 43. Caught in Derwent 10 April, 1895. Examined by me and found to be in all characters identical with those caught more abundantly near Sydney.

[Note added much later, in shaky handwriting:—] 4 specimens in Fish Shop, Elizabeth [Street, Hobart]. Caught in Derwent Estuary, 14th March, 1918. One of the specimens about 15 inches long. Evidently this is about the season when the “Nannegai” Beryx affinity enters the estuary of the Derwent. R.M.J.

Lampiris regius (Bonnaterre).

(Pl. II, Fig. 2.)


Zeus guttatus, Brunnich, Nye Saml. K. Danske Skrft. iii., 1778, p. 403 (fide Sherborn, Ind. Anim.).


[A photograph by J. W. Beattie of a specimen found washed ashore at Port Arthur is inserted in Johnston's notebook, and is reproduced here.]
"A singular fish, closely allied to, but distinct from, the "ribbon fish family, has been received by Mr. John Swan, "and presented by him to the Fisheries Exhibition Commis­sion. The fish was captured in the neighbourhood of Emu "Bay, north-west coast. We are indebted to Mr. R. M. "Johnston for following description:—Although measuring "3 feet 8 inches in total length, and 72 inches in greatest "depth, the fish is very thin, not exceeding 1 5-8 inches at any "part along the sides of the body. Its snout projects beyond "the mouth—upwards and outwards, like the stem of a "ship. A fin of 257 pinkish rays extends continuously along "the dorsal, from snout to caudal fin, which latter is very "much attenuated. The sides are uniformly silvery. The "eyes are extremely large—black centre and yellow mar­"gin. The anal fin is very much reduced, and placed far back "near the caudal. Ventral fin thoracic, elementary. The fol­"lowing are the symbols of the general character:—B. 6. "D. 231/36. A. 16-14th. P. 14. V. 1/5. L. Lat. 208. L. tr. "23/49; teeth feeble on maxillaries and mandibles; two "series; a few on vomer and palatines. It is closely allied "to Lophotes copediatus, the only other species known, and "only hitherto reported as captured in the Mediterranean "and Japanese seas."

_Nannoperca tasmaniae_ (Johnston).

(Pl. III., Fig. 3.)


_Micropoma tasmaniae_. B. 5. D. 8/1/7-8; A. 3/8; V. 1/5; L. trans. 3/9; long. 28-30.

**Trachinops caudimaculatus**, McCoy.


"New Tasmanian Fish. Mr. R. M. Johnston read the following notes on a new Tasmanian fish:—Mr. Rodway, "who takes a keen interest in all branches of the natural history of Tasmania, besides that of his loved science of botany, of which he is now our chief local authority, has recently submitted for my examination a small fish, preserved in spirits. Unfortunately, there was only one specimen obtained, and it is so shrunken up that some of the ray characters cannot be very exactly determined. "This specially applies to the anterior portion of the dorsal "rays, which for nearly half the length of this fin are rudimentary or undeveloped, and closely enveloped in a some-what thick and (now) opaque skin. However, the principal dental, scale, and other characters leave no doubt in "my mind as to its true generic position, viz., the genus "Pseudochromis of the family Trachinidae. The following "contains a fuller description:—Family Trachinidae. Genus "Pseudochromis, Rupp. Head and body rather compressed, "more or less elongate; cleft of the mouth slightly oblique, "with the lower jaw longest; eye lateral. Scales of moderate "size, ciliated; lateral line interrupted. One dorsal with a "few spines anteriorly; ventrals thoracic; the lower pectoral "rays branched. Jaws with cardiform teeth, anterior with "canines; vomer and palatines bones toothed. Presuperculum "entire. Six branchiostegals; the gill-membranes joined "inferiorly; pseudo-branchial and air-bladder present; "pyloric appendages, none. Indian Seas, Port Darwin, "George's Bay, Tasmania. Pseudochromis rodwayi, R. M. "Johnston. D. 3/27? A. 3/17? P. 17. Scales moderately large, finely ciliate. Total length 29. Head 6½. Eye 1½. Caught about first week in April, 1902, or latter part of March, 1902.

Apogon lempieri, Johnston. (Pl. III., Fig. 4.)


Arrispa trutta (Bloch & Schneider).


Handsome compressed body and head. Silvery side and belly, leaden blue on back, dull brownish or golden spots above lateral line. Pectorals yellow. Caudal dullish yellow. Membrane of other fins pale white, the rays somewhat yellow-
ish. Five rows of apparently pierced scales above the regularly well-defined lateral line, and fifteen rows of [similar ones below it.] The latter have a bright sheen of silver.

_Percula fluviatilis_, Linnaeus.


Specimen obtained from Campbell Town where they were introduced from Hobart some years ago. Donor, Mr. Hardwicke Weeton. Localities where they are known to have been introduced: Reservoir, Hobart Town; Lake Dulverton; Campbell Town; Early Rises, Corra Lynn, near Launceston. Specimen very fat and full of immature ova. Contents of stomach in an advanced stage of decomposition—pulpy fatty matter—unknown.

_Cheilodactylus spectabilis_, Hutton.


Six simple pectoral rays, the second uppermost of which is the longest and nearly reaches to vent. Dorsal fin notched; 4th, 5th, and 6th spines (nearly equal) longest, not so high as soft dorsal. The second anal spine very strong, not so long as the third. Length equal to 3½-5 that of the head or 2½ that of the height of the body. Eye reddish. Diameter of eye scarcely one-sixth of the length of the head. Soft spine of operculum greatly produced, enveloped in a fleshy marginal skin. Back and sides dark reddish brown with six or seven transverse lighter broad equidistant bands directed slightly backwards; eight black bands including shoulder and caudal shades. Spinous dorsal, base of pectoral, ventral, and anal, reddish; lower parts of belly, hollow space behind gill-openings and protractile mouth mottled with brilliant red. Total length 19 inches. Body 16. Head 4 3/8. Longest pectoral ray 4; longest soft dorsal 13; longest soft anal 21, decreasing toward tail. Snout 1 5-8. Snout to junct. P.O. 3 inches. P.O. posterior margin vertical and forming a right angle to body. Eye 2. Girth, max. 14, and min. 4. Greatest depth 7, least 1 5-8. Dorsal situated in a groove, shielded by about two rows of smaller scales.

_Dactylopagrus macropterus_ (Bloch & Schneider).

(Pl. IV., Fig. 5.)


A double-mouthed Sea Perch (Chilodactylus macropterus). [Fishes with two mouths are rarely encountered. Johnston (4) recorded a specimen of _Galaxias truttaeus_ with this abnormality, but the existence of a second Tasmanian case of this sort is of considerable interest.]

The singular specimen figured was captured in the estuary of the Derwent on the sixth Feby. 1885. The ordinary mouth was perfectly sealed, and a new deformed mouth had been developed under the lower jaw at the base of the triangular area between the lower mandibles near the junction with the gill-openings. The abnormal mouth was not armed with bony jaws or teeth, but the tongue was perfectly developed and protruded slightly. The tongue and mouth were of an inky black colour like the interior part of mouth and throat of the ordinary species. It is difficult to say whether the normal mouth was permanently sealed or otherwise, but it is quite possible that the aperture was accidentally formed under the jaw and under such circumstances the necessity of existence rendered it necessary to close the normal mouth, and [led to] the formation of a new one at the accidentally formed aperture. The abnormally formed mouth seemed to answer its purpose satisfactorily, for the animal otherwise appeared perfectly formed, and was in a healthy condition.

**Dactylopagrus morwong** (Ramsay & Ogilby).


**Chilodactylus morwong**, Ramsay & Ogilby, Proc. Linn. Soc. N.S. Wales (2) i., 1886, pp. 879 & 881. **Botany Bay.**

**Chilodactylus carponemus**, Parkinson. The Old Man Perch. Oct. 3rd, 1883. [A species which] on examination proved to be **Chilodactylus carponemus** referred to by Dr. Richardson in his first contribution to our knowledge of Tasmanian fishes, but which was subsequently supposed to be an error, as a specimen had not been recorded as captured in Tasmanian waters since that time. Moreover, the original specimen described had lost its colour in spirits, and it is inferred that the references to colour taken from the descriptions of other writers were not altogether to be relied upon, as there seems to be no satisfactory proof that colours noted by local observers referred to the specimen described by Dr. Richardson.

The species hereafter described is therefore unusually interesting, as the colour was noted when the fish was in life and the other characters carefully examined and noted immediately after being taken from the well of the fisherman's boat.

The following is the description:

1. Greatest length . . . . . . 29 inches 36 inches
2. Length of body . . . . . . 25½ inches 55 inches
3. Length of head . . . . . . 7¼ inches 9¼ inches
4. Length of snout . . . . . . 4 inches —
5. Diameter of eye . . . . . . 1½ inches 11 inches
6. Greatest depth . . . . . . 8¼ inches 12 inches
7. Least depth . . . . . . 1½ inches 3 inches
8. Longest pectoral ray . . . . 9½ inches 10 inches
9. Snout to root of pectoral . . 7½ inches —
10. Snout to vent . . . . . . 14½ inches —
11. Girth . . . . . . — 26 inches

Two of **C. carponemus** caught 14 miles off Tasman Island on what is described as a beach coral bottom (26 fathoms). [23 Oct., 1883.]

20 Sept., 1888. To-day examined a fine specimen of **C. carponemus** of much larger dimensions than the two captured near the same spot on October 22nd, 1883, a description of which is given above. B. 6. D. 17/31-32 (G.Y); A. 3/17-18 (17 Y); F. 15; L. lat. 64; L. tr. 7/18. The description is similar to the above.

**Latridopsis ciliaris** (Bloch & Schneider).


Caught at George's Bay, Tasmania, where it is stated to be a stranger, and is known as Blue Bastard Trumpeter. Caught 18/8/1884. This is the first specimen seen by me.
Formerly I inferred, not having seen any representative, that the reference to Tasmania was erroneous, and that it had been mistaken for the mature form of the abundant L. forsteri.

**Latridopsis forsteri** (Castelnau).

Formerly I inferred, not having seen any representative, that the reference to Tasmania was erroneous, and that it had been mistaken for the mature form of the abundant L. forsteri.


The Bastard Trumpeter; Red Bastard. 31 March, 1882. Latris forsteri? B. 6. D. 16/1/42; A. 3/34; P. 10/8. I have to-day examined the Red and Silver Bastard. There is now little doubt in my mind that the Red is the immature form of the White Bastard. The opinion among fishermen that the Bastard red or white are all barren fish is erroneous. I invariably found well-developed genital organs in the silver or mature form which is in a very fat and well condition. The white generally is more rounded; the bony obsolete ridges seen in the red form cease to be seen in the more mature and well conditioned white form. The latter has a large mass of pure white fat enveloping the genital organs, and their concealment, or part concealment, may have led to the commonly received opinion that they are sterile, and so explain the origin of the name “Bastard” as a term.

**Mendosoma allporti,** Johnston.


The second specimen seen by me differs from the type by l spine less, thus proving the force of my comment as regards variability of species within certain limits. D. 23/26; A. 3/19; Lat. 73. Mouth very protractile. Sent by Mr. B. Webb. P. 17. L. tr. 5-6/15-14. The Real Bastard Trumpeter.

**Neoodax beddomei** (Johnston).

(Pl. IV., Fig. 6.)


**Neoodax beddomei,** Lord & Scott, Vert. Anim. Tasm. 1924, p. 76.

[After examining the sketch and manuscripts of Johnston, the late A. R. McCulloch recognised the resemblance of Odax beddomei to Siphonognathus, and wrote to Mr. Clive Lord about the type. Mr. Lord replied, in lit., 21/5/24, “The type of Odax beddomei is not preserved in our collections, nor can I find any further trace of same in Johnston’s manuscript. In revising our specimens here recently and “adding to the collections, I failed to secure any species which would conform with Johnston’s description.”]

Johnston’s sketch is here reproduced; his notes have already been printed.]

39. L. tr. 5/11. Body elliptical, compressed. Scales minutely dented. Dorsal composed of 29 feeble rays; the first 17 of which are flexible, unarticulated and unbranched; the latter articulate and bifurcate. The 29th ray is cleft to the base. Anal composed of about 15 rays, all feeble and similar to the soft dorsal. The first two rays are simple, unarticulated and feeble. Pectoral 13-14 soft; anterior bifurcate ray. Opercle with a soft laminate spine at upper posterior angle, below which there is a small integumentary expanse with a truncate posterior margin which is distinctly dentate. Teeth in single series in upper and lower jaws. P.O. with a [finely] dentate posterior margin which is vertical. Bones of jaws with median sutures. Teeth apparently continuous into the bone and becoming distinctly longer as they approach the suture. Head pointed, depressed, contained 4 times in the total length. Depth of body 4 1-3 times, Pyloric ap[pendages] 2.

**Siphonognathus beddomei** (Johnston).
Gadopsis marmoratus, Richardson.


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Pseudaphritis urvillii (Cuv. & Val.)

Aphritis urvillii, Cuvier & Valenciennes, Hist. Nat. Poiss. viii., 1831, p. 484, pl. ccliii. No locality (D'Urville); probably Tasmania.


D. 7/0/20; A. 2/22; P. 17; D. 8/19; A. 24; P. 17. From River Jordan.

Gasterochisma melampus, Richardson.


The Butterfly Fish of New Zealand, Gasterochisma melampus. B. 5. D. 17/1/10/vl; A. 2/10/vl; P. 21; V. 1/5; L. lat. 64; L. tr. 25-27. Caught 22nd May, 1882, by Captain Langworthy of the schooner Malcolm while fishing for 'coota at the mouth of the Derwent. Total length 39 inches, or, without caudal, 33. Snout 4; Pectoral 54; Ventral 52. Vomerine and palatine teeth.

Johnston's notes, which also include a number of measurements now difficult to decipher, are accompanied by a newspaper cutting which states:—“Captain Langworthy, ‘of the schooner Malcolm, presented a very strange fish to the Royal Society's Museum on Monday. It measured 40 in. long; has something of the appearance of the tunny, and belongs to the mackerel family group Nomeina. The fish ‘has only been seen heretofore on rare occasions off the coast of New Zealand. This seems to be the first caught in Tasmanian waters, and for the benefit of ichthyologists, it may be as well to give its general description:—Total length 403 inches; length of body 35 in.; length of head 8 in.; snout 4 in.; depth of body at shoulder 9 in., at tail 1 in. Tail widely forked, 12 inches across from tips. Anterior dorsal composed of 17 somewhat feeble spines, the posterior dorsal of one spinous ray, 10 soft branched rays, and six detached finlets. The anal fin is composed of two spinous, 10 soft rays, and six detached finlets. Ventral fins one-five, blackish, 5 in. long, can be received in a groove; pectoral fin 21 rays, longest 51 in.; branchiostegals 7. It is known as the ‘butterfly fish,’ because of the great development of the ventral fins, especially in young individuals.”

Lepidopus caudatus (Euphrasen).


A sketch by Johnston is accompanied by the following dimensions:—Operculum 9 inches; depth behind head 5; at middle 6, and fourteen inches from tail, 4 inches; caudal peduncle 9-8 in. and caudal fin 31 in. long between parallels, in a specimen whose total length was 5 feet 6 inches.

Gobius tamarensis, Johnston.


[Johnston's notes are practically the same as the text of the published description, except for the measurements given below.]
Head 10½ sixteenths of an inch; eye 1-8; snout 3-16; greatest breadth between orbits and first dorsal 7-16. Snout to first spine of anterior dorsal 13-16, to first ray of posterior dorsal 11, to first spine of anal 1 3-8. Total length 2 11-16.

Gobius tasmanicus, nov. sp.
Gobius tasmanicus, Johnston, MS.

B. 5. D. 6/1/8; A. 1/8. The height of the body is fully one-seventh of the total length. The length of the head is fully one-fourth. The head is depressed, much broader than high. Snout obtuse, convex. Eyes close together, their diameter one-fourth of the length of the head. Cleft of mouth oblique. All the teeth are small. Lower jaw scarcely exceeds upper. Head naked. The second dorsal equals the body in height, and is higher than the first. Pectoral yellowish, reaching to vertical from third ray of second dorsal. Dull brown above, greyish under belly. Dorsal and caudal fins irregularly marked with bars and spots of pinkish brown. Anal and ventral fins dullish white, extremities blackish. Total length about three inches.

Total 69; body 56; head 16; snout 4; Eye 3½; depth 10; length of first dorsal 6; second dorsal 10.


[Genus Nesogobius, nov.]
Orthotype.—(Gobius) hinsbyi, McCulloch & Ogilby.
The genotype differs from all the other Australian gobies in having seven or eight dorsal spines instead of six.

Nesogobius hinsbyi (McCulloch & Ogilby).

D. 9 or 10?/1/10; A. 1/10; P. 19; L. lat. 40? L. tr. 11. Head 4½ [in] length. Greatest depth 5½ [in] length. Light brown, dotted and streaked with red. 11-12 dark brownish crossbands from head to tail. A few streaks of red near bases of both dorsals and caudal. May 5, 1902.
Iredale (5) entitled "Lhotsky's Lament." The name Scorpina crenata was appended to the description of the conspecific S. ergastulorum by Richardson with a few lines of descriptive matter, but the latter name has precedence through linepriority; it is derived from the Latin, ergastulum, "a house of correction for slaves."

Gnathanacanthus goetzei, Bleeker.


Holozenus guntheri, Johnston, ibid., p. 115. Tasmania.

Gnathanacanthus goetzei, Ogilby, ibid., 1896 (1897), p. 82 (synonymy).


The Velvet Fish. Possibly Holozenus cutaneus, Günther, although [it has] D. 8/5/10; A. 3/9; P. 11, simple; sometimes 12; C. 6.6 or 7.6 simple; V. 1/5. Total length 10 inches; body 7½; head 3½; snout 1 1-8; eye scarcely ½. Uniform purple red. Uniform red. [The notes are scattered around a rough pencil sketch. The fin-formulae show that they relate to the species named H. guntheri by Johnston.]

Pataeus maculatus, Günther, var. armatus, Johnston.


D. 32; A. 12; P. 8; B. 6. Teeth on jaws and vomer. Body mottled and speckled with reddish and dark or greyish brown rounded spots which vary in size. Fine interspaces crowded with minute dots of the same colour on a lighter or whiter ground. Warts, distribution and size of larger spots on body and fins as in example described p. 292 of Günther's Catalogue referred to above species.


Clinus despicillatus, Rich. B. 4; P. 14; D. 3/33, 4 soft; A. 2/25; V. 2 bld. Length equal to four times that of head which is nearly equal to height of body. Coast at the Leven or Flak, also Port Arthur.


Rhombosolea monopus, Günther.


Rhombosolea leporina? perhaps tapirina; a species of Brill. 5 Jan., 1882. B. 6-7; D. 64; A. 46. Head 1 13-16 (29); body 6 1-8 (98); height 3 3-16 (51); eye nearly 7; caudal 14; caudal peduncle (end of dorsal to commencement of caudal) 3-8. Uniform brownish, not marbled or spotted.

This fish seems to bridge the difference between R. leporina and tapirina. May the former not be a young var. of the latter?

[R. leporina, Günther, was regarded as a distinct species by Norman, 1926, who had access to Günther's types when preparing his report on the Flatfishes collected by the Endeavour.]
A sketch accompanies the notes:—“Sandy Bay, 7th April, 1882. D. 33; A. 29,” and indicates a black transverse bar on the caudal, bluish spots on the sides, a yellow or gold bar on the chin, and “blackish band with blue mark” on the face.

EXPLANATION OF PLATES.

PLATE II.

Figure

PLATE III.


PLATE IV.

Plate III.

Fig. 3. *Nannoperca tasmaniae.*

Fig. 4. *Apozoa lemprieri.*
Fig. 5. *Dactylomagenus macropterus*.

Fig. 6. *Siphonoglossus heidammii*.