

AUSTRALIAN MUSEUM SCIENTIFIC PUBLICATIONS

Ogilby, J. D., 1889. The reptiles and fishes of Lord Howe Island. *Australian Museum Memoir* 2(3): 49–74, plates ii–iii. [31 December 1889].

doi:10.3853/j.0067-1967.2.1889.481

ISSN 0067-1967

Published by the Australian Museum, Sydney

nature culture **discover**

Australian Museum science is freely accessible online at
www.australianmuseum.net.au/publications/
6 College Street, Sydney NSW 2010, Australia



THE AUSTRALIAN MUSEUM, SYDNEY.

MEMOIRS, No. 2.

LORD HOWE ISLAND.

ITS

Zoology, Geology, and Physical Characters.

PRINTED BY ORDER OF THE TRUSTEES,
E. P. RAMSAY, CURATOR.

SYDNEY: CHARLES POTTER, GOVERNMENT PRINTER.

1889.

No. 3.

THE REPTILES AND FISHES OF LORD HOWE
ISLAND.

BY

J. DOUGLAS OGILBY.

Assistant in Zoology, Australian Museum.

THE REPTILES AND FISHES OF LORD HOWE ISLAND.

REPTILES.

IF we exclude the Green Turtle, which has not been found since 1789, the recent Reptiles recorded from Lord Howe Island are but three in number, and all belong to the Lacertilian group: of two of these the Museum now possesses excellent series. So far as I know none of them have as yet been obtained in New Zealand*, and only the first of them has been recorded with any degree of certainty from Australia, this example, which is in the British Museum, having been obtained at Champion Bay, N. W. Australia, but not recorded from any intermediate locality; it is also found on Phillip Island, an outlying rock off Norfolk Island, on which latter strange to say no reptiles whatever occur. The second has a very wide range through Polynesia and New Guinea to the Moluccas, and has been doubtfully recorded from Port Essington, while the third species seems to be peculiar to the island.

GECKONIDÆ.

PHYLLODACTYLUS, *Gray.*

PHYLLODACTYLUS GUENTHERI, *Blg.*

There is now in the Museum a fine series of this Gecko in all stages of growth. The members of the various expeditions agree in stating that it is much more abundant in the vicinity of the coast than on the more elevated districts inland.

GEHYRA, *Gray.*

GEHYRA OCEANICA, *Less., sp.*

The British Museum contains a specimen collected on the island by the late Mr. J. Macgillivray.

SCINCIDÆ.

LYGOSOMA, *Gray.*

LYGOSOMA LICHENIGERUM, *O'Shgn., sp.*

The remarks under the first species apply equally to this Lizard.

* There is no record, so far as I am aware, of the occurrence of *Gehyra oceanica* in New Zealand, though from its wide Polynesian range it seems strange that it is not found at least in the northern district of the North Island.

FISHES.

THE present catalogue of the Fishes of Lord Howe Island is as complete as the means at my disposal allow, having been compiled from the following sources:—(i) The British Museum Catalogue of Fishes, 1859–70, by Dr. Albert Günther, who however appears to have been acquainted with a single species only, and that of very doubtful authenticity; (ii) specimens collected by Captain Armstrong, late Resident Magistrate of the island, and forwarded by him to the Museum; (iii) a collection made by Mr. A. Morton; (iv) a fish presented to the Hon. Wm. Macleay by the late Mr. H. T. Wilkinson, at that time the Visiting Magistrate, and which is undoubtedly the most interesting of the entire collection, as proving the existence of the genus *Tetragonurus* in the southern hemisphere, while the species itself is absolutely identical with Lowe's Atlantic species*; (v) Fishes presented to the Museum from time to time by Mr. Langley; (vi) specimens in the Macleay Collection at Elizabeth Bay, and kindly placed at my disposal by the owner; (vii) the collection formed by Messrs. R. Etheridge, jun., T. Whitelegge, and J. Thorpe; and (viii) the specimens obtained by Mr. E. H. Saunders. The two latter collections, the first of which was specially organized and equipped by the Australian Museum, yielded by far the most important results, and added greatly to our knowledge of the Biology and Palæontology of this interesting oceanic islet.

It is unfortunately out of my power to give any definite account of the Palæichthyan fishes of the island, but from information elicited from Messrs. Etheridge, Langley, and Saunders, I am convinced that *Galeocerdo raymeri*, and *Carcharodon rondeletii* will prove to be the most abundant of the large sharks.

The number of species included in the present list is eighty-eight, five of which, a *Petroscirtes*, a *Lotella*, a *Pseudoscarus*, a *Balistes*, and a *Gobioides*, are irre recognizable owing to the bad condition in which they now are. Of the remaining eighty-three species fourteen are described as new, one of which belongs to a new genus of deep-sea fishes (*Sternoptychidæ*); these are as follows:—*Apogon chrysurus*, *Chætodon aphrodite*, *Haplodactylus etheridgii*, *Cirrhithichthys splendens*, *Pempheris unwini*, *Gobius æolosoma*, *Pomacentrus fasciolatus*, *Glyphidodon polyacanthus*, *Anampses elegans*, *A. variolatus*, *Solea ramsaii*, *Sternoptychides dentata*, *Monacanthus howensis*, and *Tetrodon callisternus*; while of the sixty-nine species then left, no less than twenty-one are here recorded for the first time from Australian waters. These are as follows:—*Anthias ciklops*, *Scorpena cooki*, *Plesiops nigricans*, *Salarias variolosus*, *S. marmoratus*, *S. quadricornis*, *Acanthoclinus littoreus*, *Cossyphus atrolumbus*, *Labroides paradiseus*, *Anampses twisti*, *Stethojulis axillaris*, *PlatyGLOSSUS pseudominiatus*, *P. trimaculatus*, *Julis lunaris*, *J. trilobata*, *Saurus varius*, *Exocætus dovi*, *Sprattelloides gracilis*, *Congromurena mellissi*, *Ostracion fornasini*, and *Tetrodon valentini*. Of the remaining forty-eight species, one of which, *Serranus ouatalibi*, has a very doubtful record, thirteen only have been recorded from New Zealand, of which number eleven are also known from the Australian coast; it therefore follows that so far as the fishes are concerned the fauna is strictly Australian, only two species, *Acanthoclinus littoreus* and *Ostracion fornasini*, having been recorded from New Zealand, and not from Australian seas, while the former was, previous

* See the paper "On the genus *Tetragonurus*," by Dr. Ramsay and the author, published in the Proc. Linn. Soc. N. S. Wales, III (2), 1888, p. 9.

to this record, a purely New Zealand family,* and the latter is sure to turn up sooner or later on our north-eastern seaboard. Five species—*Plectropoma cinctum*, *Trachypoma macracanthus*, *Apogon norfolcensis*, *Platystethus cultratum*, and *Parma poiylepis*—are peculiar to Lord Howe and Norfolk Islands.

ACANTHOPTERYGII.

PERCIDÆ.

ANTHIAS, *Bloch.*

ANTHIAS CICHLOPS, *Blk., sp.*

A single example, so far as I am aware the second which has fallen into the hands of any naturalist, was picked up dead, but in a fresh and perfect state, on the beach by Mr. E. H. Saunders during last April; its length is three and four-fifths inches.

SERRANUS, *Cuvier.*

SERRANUS OUATALIBI, *Cuv. & Val.*

This species is mentioned here on the authority of Dr. Günther (Catal. i. p. 120), but the occurrence in Australian waters of a West Indian fish belonging to this genus is so improbable that I am inclined to believe either that the specimen will eventually turn out to belong to a different species—the fin rays are noticed by Dr. Günther as slightly differing from the normal number—or that the example may by some chance have been erroneously labelled.

SERRANUS FUSCOGUTTATUS, *Rüpp.*

A single young example under seven inches in length.

SERRANUS DEMELLI, *Gnth.*

The "Black Rock Cod" of the islanders. It is plentiful and grows to a large size; one which Mr. Saunders collected weighed seventy-five pounds, and measured forty-two inches, while Captain Langley brought a rather dilapidated skin measuring no less than fifty-four inches, and it is said to attain to even greater dimensions. As it is caught solely by hook and line, it may be imagined that tackle of great strength is required, since, in addition to its weight, it fights with great determination in its efforts to escape. Small examples up to ten pounds in weight are excellent for the table; and with reference to the Sydney market, where however it is scarce and of small size, not more than half a dozen species excel it. At the Solitaires, a group of islets about two hundred miles north of Sydney, it is said to reach the weight of one hundred pounds.

PLECTROPOMA, *Cuvier.*

PLECTROPOMA CINCTUM, *Gnth.*

The "Striped Rock Cod" is common both in rock pools and in the open sea; it grows to at least eighteen inches in length, and both it and the succeeding species are used as food.

* Since writing this sentence I find that Mr. Francis Day has described a species from Madras (Proc. Zool. Soc. 1888, p. 264).

TRACHYPOMA, *Günther*.TRACHYPOMA MACRACANTHUS, *Gnth.*

The "Red Rock Cod"* of the islanders is also common, and grows to about ten inches in length. It is usually taken by hook off the rocks, but Mr. Saunders' examples were obtained under stones between tide-marks, a rather anomalous position for a Serranoid fish.

ARRIPIS, *Jenyns*.ARRIPIS SALAR, *Rich.*

The "Salmon" is abundant, and going as it does in large schools along the shore is easily caught in great numbers. It is considered one of the best fishes† for the table, whether fresh or smoked, and attains to a length of over three feet.

APOGON, *Lacépède*.APOGON NORFOLCENSIS, *Ogilby*.‡

The "Big-eye" is abundant, and grows to the length of six inches.

APOGON CHRYSURUS, *sp. nov.*

B. vii. D. 7. 1/9. A. 2/8. V. 1/5. P. 15. C. 17. L. I. 25. L. tr. 2/6.

The length of the head is one-third, the height of the body three-tenths of the total length; the diameter of the eye is from three to three and one-fifth in the length of the head; the snout is obtuse, from two-thirds to three-fifths of the diameter of the eye, while the interorbital space is flat, three-fourths of the same, and, along with the snout, divided by broad ridges into four deep poriferous areas. The upper surface of the head is flat. The lower jaw protrudes slightly beyond the upper, and the maxilla, which is provided with a strong median ridge reaching to the truncate posterior margin, extends to the vertical from the posterior fourth of the orbit. The opercle is armed with a short flat inconspicuous spine; the outer limb of the preopercle is very finely serrated on the vertical edge and rounded angle, the horizontal edge and the inner limb being entire; the post-temporal is denticulated in some specimens, but smooth in others. *Teeth*.—The jaws, vomer, and palatines are armed with bands of villiform teeth. *Fins*.—The dorsal spines are strong, the third the strongest and highest, five-sevenths of the length of the head; the origin of the second dorsal is above the ninth scale of the lateral line, and is situated midway between the tip of the snout and the extremity of the caudal fin; its spine is strong, one-half of the length of the head, and the anterior rays are about one-third longer than the spine: the anal commences beneath the anterior ray of the soft dorsal, and ends a little behind that fin; its second spine is strong and compressed, three-sevenths of the length of the head; the rays are similar to those of the dorsal, and the last is divided from the very base: the ventral fin is rounded, two-thirds of the length of the head, and not reaching beyond the origin of the anal fin; its spine is strong and compressed, sub-equal in length to that of the second dorsal: the pectoral fin is rounded, from two-thirds to four-sevenths of the length of the head: the caudal fin is slightly rounded, from four and

* The colonists of Lord Howe Island evidently show a more critical appreciation of the affinities of species than do the fishermen of New South Wales, among whom the name of "Red Rock Cod" is impartially given to *Scorpena cruenta* and *S. cardinalis*.

† In Sydney this fish is not considered fit to send to table. It is in my opinion coarse, dry, and tasteless, and as it decays very rapidly great care should be taken in choosing only the freshest specimens, especially during the summer.

‡ Described in the Proc. Linn. Soc. N. S. Wales, II (2), 1887, p. 99.

three-fifths to four and four-fifths in the total length. The *scales* are large, ctenoid, and firmly adherent; there are two scales between the occiput and the origin of the first dorsal fin, and ten on the ridge of the tail behind the second dorsal. The *lateral line* is strongly curved to opposite the termination of the soft dorsal, and the tubes are simple throughout its entire length; the elongate scale on the caudal fin bears three or four large open pores on either edge. *Colors*.—Head and body uniform yellowish-brown without ornamentation, excepting an iridescent spot on the opercle; the dorsal, anal, and ventral fins are of a darker shade, and the upper third of the spinous dorsal is jet black, while the basal third of the anal, the pectoral and the caudal fins are brilliant orange.

Mr. Saunders, who collected three specimens of the length of from three and two-thirds to three and four-fifths inches, informs me that they are rare, and are quite unknown to the islanders, who are well acquainted with the preceding species. His examples were taken from a pool between tide-marks. Register numbers, I. 1799–1801.

CHÆTODONTIDÆ.*

CHÆTODON, *Cuvier*.

CHÆTODON STRIGATUS, *Cuv. & Val.*

Very common, growing to six inches in length, but not used as food.†

CHÆTODON APHRODITE, *sp. nov.*

Plate III, f. 2.

B. vi. D. 12/26. A. 3/21. V. 1/5. P. 15. C. 17. L.l. 39/12. L. tr. 8/18.

The length of the head is three and one-fourth in the total length, the height of the body, which is strongly compressed and very high, five-ninths of the same measured above the vent. The eye is large, situated close to the upper profile of the head, in the length of which its diameter is contained two and three-fourths times; the snout is but little produced, not being as long as the diameter of the eye, and the slightly convex interorbital space is even less than the snout. The upper profile descends abruptly from a short distance in front of the dorsal to the snout, which is concave; the ventral profile, though considerably rounded, is not nearly so much so as that of the dorsal. The preopercle is entire. *Teeth*.—Brush like. *Fins*.—The dorsal spines are moderately strong, the fifth the longest, three-fourths of the length of the head, and longer than the rays; the soft portions of both this and the anal fins are rounded posteriorly: the anal spines are stronger than those of the dorsal, the second and third equal in length, and five-ninths of the length of the head: the ventral fin reaches to the third anal spine, and the pectoral somewhat further, the latter measuring one-fourth of the total length, while the truncate caudal only measures five and two-thirds in the same. The *scales* are of moderate size and ctenoid. The *lateral line* ceases opposite the twenty-fourth dorsal ray, there being thirty-nine tubular scales up to that point. *Colors*.—The upper surface of the snout and the interorbital

* I can see no reason why the ordinary rule, which provides that the name of a family shall invariably terminate in "*idae*," should be ignored in the present case, and I have therefore adopted Richardson's name; that he included species belonging to a totally different family in his *Chaetodontidae* is no argument against the use of the name, and even if it were a similar objection might be made to the use of Cuvier's *Squamipinnes*.

† *C. strigatus* is sometimes offered in considerable numbers in the Sydney market, and I have on several occasions used them for the table and found them delicious eating.

space yellow, the extreme tip of the snout and chin black, the preorbitals and mandibular region whitish; the ocular band is narrower than the eye, and runs obliquely forward from the hinder margin of the occiput to the eye, beneath which it curves backward in a lesser degree to the isthmus, but does not join the corresponding band on the opposite side; behind this there is a broad grey band, tipped with orange on both profiles, running from between the origin of the ocular band and the second dorsal spine downwards in front of and across the base of the pectoral to that of the ventral fin; the rest of the body, as far as the anterior dorsal and anal rays, dark purplish-brown, the fins only being tipped with orange; behind this there is a narrow golden band which is lost at the base of the anal; a large oval black spot between the sixth and sixteenth dorsal rays, below which is a brown band which suffuses itself over the entire base of the anal fin; the remainder of the dorsal and anal fins golden with a narrow black margin; the pedicle is golden, while the caudal fin is uniform grey, with a narrow dark brown basal band.

Mr. Saunders collected but one specimen of this beautiful little fish, and saw two others only. Our example measures just one inch and four-fifths, both the others having been larger. He states that they are very quick in their movements, and easily baffled him in his attempts to capture them. He found them in pools at very low water. Register number, I. 1791.

SCORPIS, *Cuv. & Val.*

SCORPIS ÆQUIPINNIS, *Rich.*

Two fine examples, the larger eleven inches in length, were brought back by Mr. Etheridge's party.

ATYPICHTHYS, *Günther.*

ATYPICHTHYS STRIGATUS, *Gnth.*

The "Leather Jacket" of the islanders. It is not used as food, though it grows to a length of ten inches,—almost double that of the largest of the many scores which I have seen from the neighborhood of Port Jackson,—and is common, especially so in a deep hole inside the reef known as the "Comet's Hole."

MULLIDÆ.

HYPENEUS, *Cuv. & Val.*

HYPENEUS SIGNATUS, *Gnth.*

Three specimens of this handsome Red Mullet have been brought back by our collectors, who state that it is considered rare. They are all of large size, measuring from eight and a half to ten inches in length, a size which is much greater than any I have seen from Port Jackson. As food they are soft, watery, and flavorless.

SPARIDÆ.

GIRELLA, *Gray.*

GIRELLA CYANEA, *Macleay.*

The "Blue-fish" is abundant at all seasons, and is one of the staple articles of food among the inhabitants, being used either fresh, salted, or smoked. It is taken principally if not altogether by means of hand-lines, and grows to about thirty inches in length. Its flesh is better flavored than that of the other species of *Girella*, which is probably owing to the fact that it habitually feeds on such substances as soft molluscs, crustaceans, and small fishes, instead of confining itself to a purely vegetable diet like its congeners.

HAPLODACTYLUS, *Cuv. & Val.*HAPLODACTYLUS ETHERIDGII, *sp. nov.*

B. vi. D. 16/21-22. A. 3/6. V. 1/5. P. 9/vi. C. 15. L. l. 96-102. L. tr. 13/30.

The length of the head is five and a fourth, the height of the body four and three-fourths in the total length. The eye is situated in the upper third of the head, and encroaches slightly on the dorsal profile; its diameter is one-fourth of the length of the head, and two-thirds of that of the snout; the interorbital space is slightly concave, and a trifle more than the diameter of the eye. The snout is obtuse, and rises almost perpendicularly until opposite the lower margin of the eye, whence it ascends in an arcuate form to the middle of the interorbital space, while the profile formed by the occiput and the nape of the neck is slightly concave. The cleft of the mouth is small and transverse, and the upper jaw considerably overhangs the lower: the maxilla extends to beneath the posterior nostril. The anterior nostril is large and oval, and is furnished with a rather low ciliated membranaceous flap, much longer in front and behind than at the sides, while the posterior is smaller, sub-circular, and with the flap greatly reduced. The opercle is armed with a moderately strong and acute spine, which however does not extend to the margin of the skinny flap, and is separated by a deep semi-circular notch from an upper blunt point. *Teeth.*—The jaws are provided with several series of moderately elongate and compressed incisor teeth, some of which are simple, but the majority possess one, two, three, or even four pairs of lateral lobes; there are no vomerine or palatine teeth. *Fins.*—The dorsal fin commences above the extremity of the opercle; its spinous part is strongly convex along its outer edge, and is continuous with the soft part, the anterior rays of which are longer than the fifth and longest spine, which is four-sevenths of the length of the head; the upper margin of the soft dorsal is truncate and obliquely descending; the length of the pedicle between the extremity of the dorsal and the origin of the caudal fins is contained nine and three-fourths times in the total length, and is a little more than its height beneath the last dorsal ray: the anal fin is very short, the length of its base being only one-third of the distance between its extremity and the base of the caudal fin; it commences beneath the sixth or seventh dorsal ray, and terminates beneath the twelfth or thirteenth; the spines are short, the third, which is the longest, being but a third of the length of the anterior rays, which are equal in length to the head, and much longer than those of the dorsal fin: in one of my specimens the ventral fins reach to the vent, in the other only three-fourths of that distance,* nevertheless both bear a similar proportion to the head, than which they are a trifle shorter: the pectoral fin is more pointed than in *H. lophodon*; the six lower rays are simple, and the lowermost branched and first simple rays are appreciably longer than the others and equal in length to the head: the caudal fin is emarginate with acute lobes, the lower of which is the longer, one-fifth of the total length. The *scales* are small, cycloid, and adherent; the cheeks and opercles are covered with minute scales, as also is the throat, the bases of the dorsal and anal fins, and a considerable portion of the caudal fin. *Colors.*—The body and head are brownish green, the abdominal region grey, and the fins brown; all the lower parts of the body, the tail, and the fins are closely studded with small round white spots, and the outer half of the simple pectoral rays is uniform yellowish white.

* The latter example being a gravid female, this difference may prove to be sexual or perhaps only apparent owing to the condition of the fish.

Two examples of this handsome *Haplodactylus* were collected by Messrs. Etheridge and Thorpe on the Admiralty Islets, about a mile to the north of the main Island. They were found in a rock-pool between tide-marks, and would probably have spawned there, as the ova of the female was ready for extrusion, and the milt of the male was in almost as forward a condition. The lengths of the specimens were respectively sixteen and fifteen inches, and the stomachs of both were filled with sea-weeds. I have much pleasure in dedicating this species to Mr. Robert Etheridge, jun., the able leader of the expedition. Register numbers, I. 1515-6.

LETHRINUS, *Cuvier*.

LETHRINUS OPERCULARIS, *Cuv. & Val.*

Mr. Saunders collected a single specimen, measuring over sixteen inches, of this fine Sea-Bream. He informs me that the residents call it the "Red-mouthed Schnapper," and that it is not common, but is reported to be so at Norfolk Island. It is only caught by hook in deep water, and is said to be generally very good eating, but at certain seasons of the year to develop poisonous properties.

PAGRUS, *Cuvier*.

PAGRUS UNICOLOR, *Quoy & Gaim.*

One half-grown example; said to be uncommon.

CIRRHITIDÆ.

CIRRHITICHTHYS, *Bleeker*.

CIRRHITICHTHYS SPLENDENS, *sp. nov.*

Plate II.

B. vi. D. 10/12. A. 3/6. V. 1/5. P. 8/vi—7/vii. C. 13. L. 1. 43. L. tr. 5/11.

The length of the head is three and a half, the height of the body three and two-thirds in the total length; the eye is placed in the upper third of the head, and encroaches considerably on the profile; its diameter is four and three-fourths in the length of the head, and one and three-fifths in that of the snout, which is rather pointed; the interorbital space is deeply concave, and three-fourths of the diameter of the eye. The upper profile of the head is obliquely flat, and the upper jaw is decidedly longer than the lower; the maxilla reaches to the anterior fourth of the orbit, and its length is two-thirds greater than the diameter of the eye. The preorbital is as deep as long, and entire; the opercle bears two blunt flattened spines, the lower of which is much the larger; the preopercle forms a perfect arc, and is strongly denticulated on its hinder limb, the lower being entire; the post-temporal is crescentic in form, and is coarsely serrated; there is also a strong blunt spinous process at the postero-superior angle of the eye. The anterior nostril is furnished with a narrow, moderately long, ciliated flap behind. *Teeth*.—In the jaws villiform, with an outer row strongly conical, some of the posterior lateral teeth in the mandibles being curved and caninoid; there is an angular band of villiform teeth on the vomer, sparingly intermixed with conical teeth, while there is a similarly-constituted patelloid patch on the front of each palatine bone. *Fins*.—The dorsal fin begins vertically above the opercular spines, and terminates at a short distance from the caudal, the distance between the base of its last ray and the origin of that fin being equal to the least height of the pedicle, and one-third of the length of the head; there is a deep notch between the two

portions of the fin, and the length of the base of the soft dorsal is five-sevenths of that of the spinous; the spines are moderately strong, the fourth and fifth equal and highest, five-twelfths of the length of the head, and four-sevenths of the anterior ray, which is elongate; the margin of the spinous dorsal is convex, that of the soft—with the exception of the anterior ray—straight and gradually descending: the anal is very short; it commences beneath the second dorsal ray, and ends beneath the ninth; its spines are strong and acute, the third the longest, two-fifths of the length of the head; the rays are much longer than the spines and than all the dorsal rays except the first: the ventral fins are inserted far back, their origin corresponding to the base of the fifth dorsal spine, and they reach to the vent; their spine is rather shorter than the third of the anal fin, and is five-eighths of the length of the longest ray, which is three-fifths of the length of the head: the pectoral fins are composed of, on one side, seven branched and seven simple rays, on the other, of eight branched and six simple, the latter being probably the normal number; the ninth ray is the longest, nine-tenths of the length of the head, and two-fifths longer than the longest-branched ray, the remaining simple rays grow gradually shorter: the caudal fin is slightly rounded, and measures five and three-fourths in the total length. The scales are cycloid, firmly adherent, large on the body and opercle, but minute on the cheeks, throat, and bases of the fins. The lateral line is almost straight, and its tubes are slightly branched. Colors.—The head is rich brown with numerous round crimson black-edged spots, about two-thirds of the size of a body scale; the body is pale yellowish-brown with six broad dark brown bands which almost totally obliterate the ground color superiorly, but are discontinued on the lower third of the sides, while many of the scales above the lateral line are crimson, occasionally even forming short longitudinal bars, and in front of the bases of the pectorals there are several spots similar to those on the head; the spinous portion of the dorsal fin is mottled with black, crimson, and grey; the soft is light-colored with a broad black basal band, and indications of a dusky median longitudinal band more pronounced posteriorly; the anal fin is reddish brown; the ventral fins are crimson on the inner side, while the pectoral rays are crimson, with the intervening membrane grey; the base of the caudal is crimson, the remainder grey, and it is ornamented with two rows of oblong black spots.

Mr. Saunders, who obtained a single specimen of this superb fish by hook in deep water, tells me that it was quite unknown to the islanders; it measures eight and a quarter inches. Register number, I. 1,841.

CHILODACTYLUS, *Lacépède.*

CHILODACTYLUS VITTATUS, *Garr.*

Although Mr. Saunders was fortunate enough to secure a dozen examples of this species, some of which are a foot in length, he states that they were hardly known to the inhabitants. All his specimens were taken from rock-pools far out on the reefs at very low tides.

SCORPÆNIDÆ.

SCORPÆNA, *Artedi.*

SCORPÆNA COOKI, *Gnth.*

Abundant, and considered very good eating by the islanders, who call it the "Sandy Bay Cod"; it grows to over a foot in length, and is taken in large numbers with hand-lines off the rocks.

SCORPÆNA SCABRA, *R. & O., sp.**

A single specimen, three and a half inches in length, was collected by Mr. Saunders in a rock-pool.

PTEROIS, *Cuvier.*PTEROIS VOLITANS, *Linn., sp.*

The "Butterfly-fish" occurs in small numbers at all seasons of the year, and is not unfrequently washed ashore dead; it grows to a foot in length.

NANDIDÆ.

PLESIOPS, *Cuvier.*PLESIOPS NIGRICANS, *Rüpp., sp.*

A single specimen, four and a half inches in length, was obtained by Mr. Etheridge's party from a pool on the reef at low water.

CYRTIDÆ.

PEMPHERIS, *Cuv. & Val.*PEMPHERIS UNWINI, *sp. nov.*

Plate III, f. 1.

B. vii. D. 5/8. A. 3/22. V. 1/5. P. 16. C. 17. L. 1. 67. L. tr. 5/14.

The length of the head is three and one-third, the height of the body three and nine-tenths in the total length; the diameter of the eye is three-eighths of the length of the head, while the snout is four-sevenths of the diameter of the eye, and the slightly concave interorbital space three-fifths of the same. The body is oblong-oval, and greatly compressed posteriorly, and the dorsal profile is not nearly so much arched as the ventral. The lower jaw is prominent, the cleft of the mouth moderately oblique, and the maxilla, which is dilated and sub-truncate posteriorly, reaches to a little behind the middle of the orbit. *Teeth.*—There is a single row of small sharp teeth on the jaws, vomer, and palatines. *Fins.*—The dorsal fin commences immediately behind the base of the pectorals, and terminates above the vent, the distance between its origin and the tip of the snout being two and four-fifths in the total length; the last spine is much shorter than the first and longest ray, which is rather more than half the length of the head: the anal fin is short and its rays are lower than those of the dorsal, the anterior one being just four-ninths of the length of the head: the ventral fin does not nearly reach the vent, and its length is about equal to that of the longest anal ray: the pectoral fin is rather long and pointed, extending backwards to opposite the vent, and is three-fourths of the length of the head: the caudal is forked, and its length is one-fifth of the total length. The pedicle is strongly compressed and low, its height being three and three-fourths in that of the body. The *scales* are small and strongly ctenoid, and the bases of the dorsal and anal fins are naked. *Colors.*—Brick-red, the head being rather darker than the body.

The species here described probably belongs to Dr. Steindachner's genus *Parapriacanthus* founded on a Japanese fish; but as the only notice of the genus which I have seen is that in the "Zoological Record" for 1870 I am unable to speak positively on this point; the two species however agree in the greatly decreased number of anal rays. The foregoing remarks apply

* Described in the Proc. Linn. Soc. N. S. Wales, x, 1885, p. 577, under the name of *Sebastes scaber*.

equally to the genus *Pempherichthys* of Dr. Klunzinger (Zool. Rec. 1871), originally described from the Red Sea, with which my fish agrees in the ctenoid scales and the naked base of the anal fin. The specimen, which measures a little more than four inches in length, was picked up dead on the beach in a fresh condition. At the request of the members of the expedition, I have named this species after Mr. H. A. Unwin, of the Chief Secretary's Office, who accompanied them, and proved of great service in many ways. Register number, I. 1,478.

TETRAGONURIDÆ.

TETRAGONURUS, *Risso.*

TETRAGONURUS ATLANTICUS, *Lowe.*

Full information as to the occurrence of this genus will be found in the Proc. Linn. Soc. N. S. Wales, X. 1885, p. 718; I. (2) 1886, p. 511; and III. (2) 1888, p. 9.

CARANGIDÆ.

CARANX, *Lacépède.*

CARANX GEORGIANUS, *Cuv. & Val.*

The "Trevally" is very common and grows to a large size, specimens measuring thirty inches having been recorded. It is considered one of the best food-fishes, and is used fresh, salted, or smoked.

SERIOLA, *Lacépède.*

SERIOLA LALANDII, *Cuv. & Val.*

The remarks on the preceding species apply equally to the "Yellow-tail."

PLATYSTETHUS, *Günther.*

PLATYSTETHUS CULTRATUM, *Forst., sp.*

Mr. Saunders brought back three fine examples of this fish, the largest of which measures twelve and a half inches. The islanders call them "Herrings," and when the dorsal and anal fins are laid back within their sheaths they bear a strong outward resemblance to some Clupeoids; they also go in large schools, and are considered delicious eating, whether fresh, smoked, dried, or salted; they take a bait readily, but small hooks have to be used on account of the size of the mouth.

LOPHIIDÆ.*

ANTENNARIUS, *Commerson.*

ANTENNARIUS COCCINEUS, *Less. & Garn., sp.*

Two examples, the larger four inches in length, were obtained by Mr. Etheridge's party from a pool on the reef.

GOBIIDÆ.

GOBIUS, *Artedi.*

GOBIUS ÆOLOSONA, *sp. nov.*

B. v. D. 6. 1/9. A. 1/8. V. 1/5. P. 20. C. 15. L. 1. 36. L. tr. 11.

The length of the head is from four and one-third to four and one-half, the height of the body from six and one-fifth to six and four-fifths in the total

* For the same reason that I have adopted the name *Chatodontidæ* for the *Squamipinnes*, I would suggest the name *Lophiidæ* for the *Pediculati*. (See note on p. 55.)

length. The eyes are situated high up on the head, and their diameter is three and four-fifths in the length of the head, and equal to that of the snout. The interorbital space is slightly concave, and but two-fifths of the diameter of the eye. The head is much broader than high, and the snout is very obtuse, and rises abruptly to the level of the occiput; the cleft of the mouth is but little oblique, being entirely below the level of the orbit; the jaws are equal, and the maxilla extends to the vertical from the middle of the eye. *Teeth*.—Both jaws are armed with a broad band of villiform teeth, the outer row being greatly enlarged and conical, while the front teeth are the strongest and slightly curved. *Fins*.—The dorsal fins are separated by an interspace equal to the diameter of the eye*; the spines are weak and terminate in silky filaments; the third is the longest, about one-half of the length of the head, but not so high as the second dorsal: the anal fin commences beneath the first and ends beneath the eighth dorsal ray: the ventrals do not extend to the anus, their length being five-sixths of that of the head, while that of the pectorals is about equal to the head; these latter extend to the vertical from the anus, and have the five or six upper rays silk-like: the caudal fin is wedge-shaped, its central rays being the longest, and about one-fifth of the total length: the length of the pedicle is equal to that of the postorbital portion of the head. The *scales* are ctenoid, and extend forward to opposite the posterior edge of the preopercle; there are eleven rows between the origin of the second dorsal and the anal; the cheeks and gill-coverts are naked. *Colors*.—Rich brown above, yellow below; a series of about nine oblong dark-brown spots along the middle of the sides, each about one scale in breadth, and from two to four in length; some irregular dark spots between these and the dorsal profile; a dark spot on the opercle; mandibles yellowish; chin dark brown; remainder of head mottled in two shades of brown; all the fins hyaline, the dorsals and caudal with brown dots.

Two specimens of this handsome little Goby were brought back by our collectors, both having been obtained under stones between tide-marks, and the larger measuring almost three inches. Register numbers, I. 1,488 and I. 1,849.

GOBIOIDES, *Lacépède*.

GOBIOIDES, *sp.*

A single example, which has evidently been washed ashore, was presented by Dr. James Cox to the Hon. Wm. Macleay, in whose collection it now is.

BLENNIIDÆ.

PETROSCIRTES, *Rüppell*.

PETROSCIRTES, *sp.*

A five-inch example in bad condition, having evidently been dried, was obtained by purchase in 1882.

SALARIAS, *Cuvier*.

SALARIAS VARIOLOSUS, *Cuv. & Val.*

Several examples, the largest measuring five inches, were obtained by Mr. Saunders under stones at low water.

SALARIAS MARMORATUS, *Benn., sp.*

Three specimens; largest, four and a half inches, with last species.

* Measured from base of last spine of first to origin of second dorsal.

SALARIAS QUADRICORNIS, *Cuv. & Val.*

Three specimens; largest five inches; in rock-pools and under stones between tide-marks.

CRISTICEPS, *Cuv. & Val.**CRISTICEPS AURANTIACUS, *Cast.*

A single example, about four inches in length, was presented to the Museum by Mr. Jangley.

CRISTICEPS ROSEUS, *Gnth.*

Mr. Saunders brought back a small *Cristiceps* in bad condition, which agrees better with the above species than with others with which I have had an opportunity of comparing it.

TRIPTERYGIUM, *Risso.*TRIPTERYGIUM ATROGULARE, *Gnth.*

Mr. Saunders brought back numerous examples of this pretty little Blenny; they vary greatly in the amount of black on the head and breast, several specimens being absolutely without any indication of this color.

ACANTHOCLINIDÆ.

ACANTHOCLINUS, *Jenyns.*ACANTHOCLINUS LITTOREUS, *Forst., sp.*

Plate III, f. 3.

This species was found by Mr. Saunders to be very common under stones and in pools between tide-marks; like the preceding it is variable in its coloration, one specimen especially being distinctly banded. I give a figure of this individual for whom, should it prove distinct, *A. fasciolatus* would be a most appropriate name.

MUGILIDÆ.

MYXUS, *Günther.*MYXUS ELONGATUS, *Gnth.*

These Mullet are abundant at all seasons, and form a staple article of food among the islanders, either fresh, salted, or dried.

GOBIESOCIDÆ.

DIPLOCREPIS, *Günther.*DIPLOCREPIS COSTATUS, *Ogilby.**

There are two very small specimens among the fishes brought by our collectors, both, as usual, taken while adhering to the lower side of a stone between tide-marks.

* Count Castelnau has described so many (*seven*) species of *Cristiceps* without sufficiently diagnosing them, that I am unwilling to add to the confusion caused thereby by describing these two species as new. The specimen which I have called *C. aurantiacus* differs from all other examples which I have seen by the great length and tenuity of the caudal pedicle, which is two-thirteenths of the total length without the caudal fin, and whose height is but a sixth of its length. Its color is pale yellowish-brown, the fins of a rather darker shade. Should it prove to be a good species, *C. pedicillatus* would be an excellent name for it.

† Described in the Proc. Linn. Soc. N. S. Wales, x, 1885, p. 270.

ACANTHOPTERYGII PHARYNGOGNATHI.
GLYPHIDODONTIDÆ.

AMPHIPRION, *Bl. Schn.*

AMPHIPRION MELANOPUS, *Blk.*

Mr. Saunders brought back two fine specimens—the larger measuring four and a half inches—of an *Amphiprion*, which agrees in everything with the above-named species, except that in both the dorsal and pectoral fins are black, and in the larger the opercular stripe is absent; he informs me that they are rare, and were taken in a rock-pool.

POMACENTRUS, *Cuvier.*

POMACENTRUS FASCIOLATUS, *sp. nov.*

B. v. D. 13/17. A. 2/13-14. V. 1/5. P. 20—21. C. 15. L. 1. 29. L. tr. 3/11.

The length of the head is from four and a half to four and three-fourths, the height of the body from two and seven-tenths to two and nine-tenths in the total length. The diameter of the eye is from three and one-third to three and two-thirds in the length of the head, nine-tenths of that of the snout, and four-fifths of the convex interorbital space. The upper profile from the tip of the snout to the origin of the dorsal fin is a regular and gentle curve. The greatest depth of the preorbital, which is entire, is about two-thirds of the diameter of the eye. The suborbital ring and the preopercle are coarsely denticulated, the teeth at the angle of the latter being much the strongest; there is a single small spine on the opercle. The maxilla extends almost to the anterior margin of the eye. *Fins.*—The dorsal spines are of moderate length and strong, the last eight sub-equal in length, and from three-fifths to four-sevenths of the length of the head, and about three-fourths of the middle dorsal rays, which are slightly longer than the base of the soft dorsal, as also are the anal rays, both of these fins being pointed: the second anal spine is very strong, longer than the longest dorsal spine, being about two-thirds of the length of the head: the first ventral ray is produced into a filament which reaches to the vent, and is equal in length to the head, while the pectoral fin is of a similar length: the caudal fin is slightly longer than the head, and is emarginate, each lobe being obtusely rounded. *Scales.*—The inferior half of the dorsal and anal fins are covered with scales which are much smaller than those on the body. *Colors.*—Dark brown, each row of scales on the body and tail having its anterior half pale yellowish-brown, so as to form numerous bands slightly broader than the intervening ground color; the opercles, cheeks, throat, and base of the anal fin are prettily marked with round light blue spots; all the fins are black, except the pectorals, which are bluish-brown.

Mr. Saunders collected several specimens of this handsome fish, all obtained from rock-pools, in which he tells me they are very common; the largest measured six and a half inches, the smallest one and two-thirds. This species is undoubtedly closely allied to *Pomacentrus scolopsis*, but the constancy of the number of the dorsal spines, of the slightly larger number of scales on both lateral and transverse lines, of the more elongate form, and of the absence of the black spot on the dorsal fin have induced me to consider it distinct. Register numbers, I. 1,897—I. 1,902.

GLYPHIDODON, *Lacépède.*

GLYPHIDODON CÆLESTINUS, *Cuv. & Val.*

This species is very abundant in pools on the reefs, and numerous examples were obtained by Mr. Saunders.

GLYPHIDODON POLYACANTHUS, *sp. nov.*

B. vi. D. 14/13. A. 2/14. V. 1/5. P. 16—18. C. 17. L. 1. 27. L. tr. 4/10.

The length of the head is from four and a half to four and three-fourths, the height of the body rather less than three in the total length. The diameter of the eye is from two and four-fifths to three and two-fifths in the length of the head, equal to or in large examples rather less than that of the snout, and equal to or five-sixths of the interorbital space, which is slightly convex. The greatest depth of the preorbital is almost equal to the diameter of the eye. The maxilla does not nearly reach the anterior margin of the orbit. *Fins.*—The dorsal spines are strong and moderately high, the middle ones rather higher than the posterior, about three-fifths of the length of the head, and two-thirds of that of the middle dorsal rays, which are one-half longer than the base of the soft portion of the fin, which is rather pointed: the second anal spine is very strong, slightly curved backwards, and equal to or but little more than the longest dorsal spine; the soft portion of the fin is rounded, the middle rays being barely longer than the base: the first ventral ray is produced into a filament, which reaches to the middle of the anal fin, and is one-third longer than the head: the pectoral fin is well developed, about one-sixth longer than the same: the caudal fin is forked with the lobes, more or less rounded in adults, but acutely pointed in young and half-grown examples, the upper much longer than the lower, and from one-seventh to one-third longer than the head. The *lateral line* ceases beneath the middle of the soft dorsal. *Colors.*—Varying with age; adult specimens are dull brown without any trace of markings whatever; the soft dorsal, anal, caudal, and ventral fins black, the pectorals yellowish-brown; half-grown examples are pale violet-brown shading into yellowish-brown on the lower third of the body; cheeks, opercles, and preorbitals with numerous round spots and short streaks of sky-blue; occiput and scales on the anterior part of the back above the pectoral fins with minute dots of the same color; a row of similar spots from the snout, where it joins the corresponding one of the opposite side, through the upper part of the eye to the dorsal ocellus, which is black, surrounded by a circle of blue spots, and lies beneath the tenth to thirteenth dorsal spines; a similar but smaller spot on the last two rays and the anterior part of the pedicle; vertical fins of the same shade as the body; ventrals and pectorals yellow or grey; a black spot at the base of the lateral line and another in the axil of the pectoral. In the young the ground color of both body and fins is pale buff, and the arrangement of the ornamental markings is similar to that of the half-grown, but the spots are much more accentuated, and the naso-dorsal line is composed of confluent blue black-edged spots.

In the series of ten examples received through Mr. Saunders, there are almost endless modifications of the colors above given, which however appear to be typical of the three stages of growth mentioned, and I am satisfied that they are the various ages of the same fish, while the difference in coloration is to my mind easily accounted for thus: The young frequent shallow rock-pools with a sandy or coralline bottom, exposed to the full light of the sun, and naturally assume a tint similar to their surroundings, but as they increase in size they gradually retire to the larger and deeper pools near the outer edge of the reefs, which are only exposed at low spring tides, and whose sides are covered with a rank growth of seaweeds, and here they take on the more sober livery of the adult fish.

Both in the inconstancy and the pattern of its coloration the present species bears a striking resemblance to *Glyphidodon brownriggii* but here again I am confronted by the unbroken constancy through a most typical

series of a number of dorsal spines, not only abnormal in that species, but, according to all the authors whom I have had an opportunity of consulting, also abnormal in the genus, where thirteen is given as the maximum. It is however worthy of remark that in the ninth volume of the "Atlas Ichthyologique"—of which I have not seen the letter-press—Dr. Bleeker figures *Glyphidodon leucogaster* and *Glyphidodontops zonatus* with fourteen dorsal spines. Now in the "Fische der Sudsee," Heft v. p. 232, Dr. Günther makes the latter species a synonym of *G. brownriggii*, but still holds to the thirteen dorsal spines; so that Dr. Bleeker's *G. zonatus* may be the same as the species above described, though none of my examples show the slightest trace of a zone, in which case my name would have to stand, his having been previously utilized by MM. Cuvier and Valenciennes.

My specimens measure from two to six inches in length; they are very common in all the reef-pools.

According too to Dr. Day ("Fishes of India," p. 387) *G. brownriggii* has only five branchiostegal rays, whereas my species undoubtedly has six. Register numbers, I. 1903—I. 1910.

PARMA, *Günther*.

PARMA POLYLEPIS, *Gnth.*

This species is well known to the islanders by the name of "Sailor Fish," and though it grows to a foot in length is not used as food. They are common in the rock-pools, and Mr. Saunders tells me that he could only get the larger examples by hook and line, and that each has his own lurking-place, whence he rushes out to seize the bait, and carries it back immediately to devour at his leisure. Our eight specimens measure from one to ten inches. Owing to their similar habits of life, it is not surprising to find that they are quite as variable in coloration as the last species; the adults being uniform purplish-black, and provided with four coarse bony protuberances on the head, one above the middle of each eye, and two on the occiput, these latter being sometimes confluent.

HELIASTES, *Cuv. & Val.*

HELIASTES HYPHILEPIS, *Gnth.*

Though originally described from Port Jackson, no example is to be found in the Australian Museum nor in that of the Hon. Wm. Macleay, and I was therefore agreeably surprised to find two specimens among the Lord Howe Island collections. Both were obtained from reef-pools, and they are said to be rare; they measure respectively six and two-thirds and five and a half inches.

LABRIDÆ.

COSSYPHUS, *Cuv. & Val.*

COSSYPHUS ATROLUMBUS, *Cuv. & Val.*

Mr. Saunders obtained a single specimen of this beautiful fish, which was taken by hook in water about twelve fathoms deep, and is said to be very rare.

LABRICHTHYS, *Bleeker*.

LABRICHTHYS INSCRIPTA, *Rich.*

This "Parrot Fish" (all the members of the family go by the same name) is abundant, and as it grows to at least eighteen inches and is easily obtained, it is esteemed as an article of food; it is almost entirely taken by hook and line.

LABRICHTHYS LUCULENTA, *Rich.*

Quite as common as the preceding species, but of no value, since its maximum length does not exceed seven inches. The variety with only a black spot between the two first dorsal spines, and that with other spots on the rays and lines on the snout are about equally divided as to number.

LABROIDES, *Bleeker.*LABROIDES PARADISEUS, *Blk.*

Mr. Saunders collected from a pool on the reef an example measuring close on five inches, and informs me that it is both scarce, and from its quick movements difficult to capture.

ANAMPSES, *Cuvier.*ANAMPSES ELEGANS, *sp. nov.*

B. vi. D. 9/12. A. 3/12. V. 1/5. P. 12. C. 14. L. 1. 26. L. tr. 4/10.

The length of the head is three and a half, the height of the body four in the total length. The diameter of the eye is four and two-thirds in the length of the head, two-thirds of that of the snout, and rather less than that of the flattened interorbital space. The mouth is small and oblique, and the maxilla does not extend to the vertical from the anterior nostril. The curve of the lateral line commences beneath the eighth dorsal ray. *Colors.*—Upper half of the head and back pale brown; sides and tail yellowish-gray; lower half of the head and thoracic region silvery; some blue dark-edged spots and lines on the upper surface of the head and behind the eye; scales between the lateral line and dorsal fin with numerous blue dots and transverse lines; below the lateral line seven longitudinal golden bands, as wide as the interspaces, which are ornamented by numbers of blue spots, which however fade gradually towards the abdominal region, which is immaculate. The dorsal and anal fins are golden with a very narrow dark border, the former with a basal and median row of pale-blue dark-edged spots, the latter spotless; the caudal fin is golden with its outer margin greyish; the pectorals and ventrals are grey, the base of the former with a broad golden band.

Mr. Saunders collected several specimens of this handsome *Anampses*, all of which measure between four and five inches in length, and were obtained from pools on the reefs. Register numbers, I. 1932—I. 1937.

ANAMPSES TWISTI, *Blk.*

A young example, but four inches long, was brought back by Mr. Saunders, and belongs I think to this species.

ANAMPSES VARIOLATUS, *sp. nov.*

B. vi. D. 9/12. A. 3/12. V. 1/5. P. 13. C. 14. L. 1.28. L. tr. 6/11.

Colors.—Pale reddish-yellow with a broad brown band from the middle of the operculum through the eye to the anterior edge of the snout, where it joins the corresponding band on the opposite side; a curved band from the centre of the cheek to the angle of the preopercle; occiput brown; body with brown blotches, which sometimes coalesce to form semi-transverse bands, and are visible but indistinct on the dorsal fin; a broad silvery band from the mouth to the opercle, partly interrupted by the curved brown band, and continued as far as the caudal fin by means of large irregular blotches; above

this is a much narrower and more indistinct band of similar blotches; the fins are pale yellow, with a small round black spot on the two penultimate rays of the dorsal and anal.

I have a single immature specimen only of this species, but the colors are so different from those ordinarily found in this genus that I am compelled to describe it as new. Register number, I. 1938.

STETHOJULIS, *Günther*.

STETHOJULIS AXILLARIS, *Quoy & Gaim.*

A single small example was taken from a rock-pool by Mr. Etheridge's party.

PLATYGLOSSUS, *Günther*.

PLATYGLOSSUS PSEUDOMINIATUS, *Blk.*

A single specimen, collected by Mr. Saunders, and measuring four and a half inches, seems to belong to this species.

PLATYGLOSSUS TRIMACULATUS, *Quoy & Gaim.*

A number of examples, of from five to seven inches in length, were obtained by Mr. Saunders from pools on the reefs where they are common.

JULIS, *Cuv. & Val.*

JULIS LUNARIS, *Linn., sp.*

Abundant in the larger pools on the reefs, where it grows to at least ten inches in length, but is not used as food so far as I can ascertain.

JULIS TRILOBATA, *Lacép., sp.*

Not uncommon, and taken principally by means of lines on rocky ground off shore, but small examples may occasionally be found in pools left uncovered by the lowest tides; they grow to eighteen inches in length, and are used, but not esteemed, as food.

CORIS, *Lacépède.*

CORIS AYGULA, *Lacép.*

The colors of these fishes vary so greatly with age, and no doubt also with their surroundings, that when the size of the scales and the comparative measurements* are found to differ but little in individuals from the same locality, it seems to me unnecessary and unscientific to describe such as new species from the mere fact of this variance. I have therefore decided to content myself with giving the life-colors of the five specimens which I have determined as belonging to this species, in the hope that such a course will tend to elucidate the life-history of this remarkable Labroid, and perhaps throw some light on the causes, the outcome of which is the variation here recorded. This is as follows:—

Nos. 1 & 2 are adult specimens, measuring respectively twenty-three and twenty-eight inches; the body and head are very dark purple, while the fins are violet, and the head is furnished with a prominent bony knob on the occiput, similar to that which is found on the adult Schnapper (*Pagrus unicolor*).

* All Ichthyologists will of course make allowance for the great differences which occur almost invariably in the measurements of the young and adult stages of the same fish.

Our next specimen, No. 3, which is slightly over eight inches in length, is much lighter in color, and has the vertical fins of the same shade as the head and body, but with a darker intramarginal line; at this age there is no sign of the occipital knob.

Specimen No. 4 is four inches long; its head is purple, beautifully ornamented on the cheeks and opercles with bluish-white spots and short crescentic or wavy lines, while the opercular flap is jet black; on the abdominal region the lines are longer and more pronounced, forming partially interrupted bands between the isthmus and the vent; the colors grow gradually lighter on the body and tail, and the stripes, which are very irregular in direction and often broken up into rows of spots, are duller and broader; the dorsal and anal fins are violet, with a narrow white margin, the former with numerous oblique silvery streaks running downwards and backwards, the latter with a median longitudinal dull grey streak, which is joined to the base of the fin by similar bars; the caudal fin is also violet, with small white spots on the rays and a white terminal border, broadest at the angles; the ventrals have the three inner rays white, the others purple; the pectorals are grey with a broad purple basal band.

Specimen No. 5 is but two inches and one-third in length; its ground color is also purple, and grows gradually lighter posteriorly; the head is ornamented with milk-white bands and spots, the upper of which runs from the angle of the intermaxillaries to the middle of the interorbital space, and throws off a narrow forked band opposite the front margin of the orbit, the anterior branch of which is very short, while the posterior branch forms a very narrow streak which skirts the upper margin of the eye, behind which it forms an irregularly oblong blotch, which itself terminates in a narrow band at the origin of the lateral line; a similar but interrupted narrow band runs from immediately above the angle of the mouth to the axil; on the mandibular region there are several series of white bands and spots, which are continued on the ventral and abdominal regions; the back is beautifully ornamented with three large milk-white blotches, the anterior of which lies beneath the five first dorsal spines, upon which however it does not encroach, and through the middle of which the lateral line runs, while some of the scales near that line are very dark purple with a central milky dot; the second lies between the lateral line and the median line of the third to seventh rays, while the third ornaments the inferior third of the last two rays and forms an arch across the pedicle almost as far as the base of the caudal fin; below this there are four similar blotches, the anterior of which is hidden by the pectoral fin: the dorsal and anal fins are deep violet with the tips of the rays white, the former with some spots and oblique white stripes, the latter with a basal band of the same hue; the caudal fin is purple with two slightly convergent oval spots on either side of the base, and a crescentic spot with the arc pointing forward between and behind their posterior angles; the entire margin, especially at the angles, is broadly tipped with silver, and a few other scattered white dots are visible; the ventrals and pectorals are similar to those in the preceding form.

If Dr. Day is correct in placing *Labrus cingulum* and *L. aureomaculatus* among the synonyms of *Lacépède's Coris aygula* (vide "Fishes of India," p. 408), it is evident that this species is more than ordinarily variable in its colors, even in a family so variable as that to which it belongs.

This fish is common, and is taken when young or half-grown in the rock-pools, while the adults are taken by line in the open sea and are eaten with avidity. They are called "Double-heads" by the islanders.

CORIS SEMICINCTA, Ramsay.*

The type specimen was sent from Lord Howe by Capt. Armstrong, some years ago; the species appears to be rare everywhere, two only having come to hand since that time, these being respectively from Broken Bay and Port Jackson; all three measure about ten inches.

SCARICHTHYS Bleeker.*SCARICHTHYS AURITUS*, Cuv. & Val.

Young examples up to six inches in length are common in the rock-pools; all the specimens have nine anal rays.

PSEUDOSCARUS, Bleeker.*PSEUDOSCARUS*, *sp.*

A twenty-six inch specimen, in an advanced stage of decomposition, was picked up on the beach by Mr. Whitelegge, but is in so bad a state that I am unable to determine the species.

ANACANTHINI.

GADIDÆ.

LOTELLA, Kaup.*LOTELLA*, *sp.*

The only specimen I have seen was obtained by purchase in February, 1882, and is, besides being small—less than five inches in length—in such bad condition as to render it impossible to determine the species with accuracy.

PLEURONECTIDÆ.

SOLEA, Klein.*SOLEA RAMSAYI*, *sp. nov.*

Plate III, f. 4.

D. 71. A. 47. V. 5. C. 14. L. 1. 87.

The length of the head is one-fifth, the height of the body three-tenths of the total length. The upper eye extends half its diameter in advance of the lower; the diameter is equal to the length of the snout, and the interorbital space, which is scaly, is three-tenths of the same. The upper jaw overhangs the lower, and is produced into a lobe. The cleft of the mouth hardly extends beyond the anterior margin of the lower eye. The anterior nostril on the colored side is tubular, and the snout is provided with a few filaments. *Teeth*.—Distinct on the blind side. *Fins*.—The dorsal fin commences in front of the middle of the lower eye, and ends one diameter of the eye from the base of the caudal; the anterior rays bear a filamentous appendage, some of which, on the upper surface of the head, are as long as the ray itself: the anal fin commences behind the vertical from the gill-openings: the ventral fins are separate from the anal: pectorals absent: the height of the pedicle between the terminations of the dorsal and anal fins is half of the length of the caudal, which is equal to that of the head. *Scales*.—Ctenoid on both sides, and extending a short distance up the rays of the vertical fins. The *lateral line* is straight, and there is a second short line on the blind side from the middle of the snout immediately below the base of the dorsal to beneath the eighteenth ray of that fin. *Colors*.—Pale yellow with many small black spots and short wavy lines on the head and body, which on the lateral line take the form of streaks extending over from two to five scales; the fins are hyaline, all except the ventrals being closely dotted with white and black.

A small example three inches in length was obtained by Mr. Saunders. Register number, I. 1,951.

* Described in the Proc. Linn. Soc. N. S. Wales, VII, 1882, p. 301.

PHYSOSTOMI.
SILURIDÆ.

PLOTOSUS, Lacépède.

PLOTOSUS ARAB, Forsk., sp.

Abundant both in rock-pools and in the open sea, where it is taken by hand-lines; it grows to at least twelve inches in length, and is not used as food.

SCOPELIDÆ.

SAURUS, Cuvier.

SAURUS VARIUS, Lacép., sp.

A single specimen measuring seven inches was taken in a seine, and secured for us by Mr. Saunders, who considers it rare.

SCOMBRESOCIDÆ.

SCOMBRESOX, Lacépède.

SCOMBRESOX FORSTERI, Cuv. & Val.

Two specimens, each of a length of twelve inches, were obtained by our collectors, who state that they are rare, one or two only being taken in the nets along with the succeeding species.

HEMIRHAMPHUS, Cuvier.

HEMIRHAMPHUS INTERMEDIUS, Cant.

Abundant at certain seasons and growing to at least fifteen inches; they are taken in vast numbers by means of the seine net, and are much and justly esteemed as food.

EXOCÆTUS, Artedi.

EXOCÆTUS DOVII, Gill.

Like *Scombresox forsteri* this species occurs occasionally in the nets among the Garfishes.

STERNOPTYCHIDÆ.

*STERNOPTYCHIDES, Ogilby.**

Pseudobranchiæ present. Head and trunk much elevated and compressed, the latter passing gradually into the moderately long pedicle. Eyes large, directed upwards and outwards, and divided by an elevated bony ridge; cleft of mouth deep, and almost vertical; jaws equal when closed. The margin of the upper jaw is formed of the inter-maxillary and maxillary, each of which bears a row of long recurved teeth at a considerable distance from one another; mandible with a similar row, one of which on either side is much more developed. Dorsal fin short, preceded by an osseous plate pierced by neural spines. Adipose fin present or absent. Pectoral fins well developed. Ventrals moderate. Gill-openings wide; gill-rakers long. Body covered with a silvery pigment, but with no distinct scales. A series of imbricate scutes along the edge of the abdomen, forming with the prolonged pubic bones a slightly-serrated margin. Two series of phosphorescent spots along the lower side of the head, body, and tail.

STERNOPTYCHIDES AMABILIS, Ogilby.

D. 5/11—12. A. 13 (?). V ? P. 10 ? C. 6/18/6.†

The greatest height of the body is three-fifths of the total length. Least height of pedicle about one-tenth of that of the body. Length of the snout one-half of the diameter of the eye. Teeth and fins as in generic diagnosis. *Colors.*—Silvery.

* Described in the Proc. Linn. Soc. N. S. Wales, III (2), 1888, p. 1313.

† The specimens are in such bad condition that it is impossible to give the fin formula with certainty.

The three specimens examined by me, the largest of which is barely two inches in length, were picked up dead on the beach by Mr. Thomas Brown, who brought them to Sydney and gave them to Mr. George Masters, by whom they were placed in the Macleay Museum where they now are; and I am indebted to the Hon. Wm. Macleay for permission to describe them.

GONORHYNCHIDÆ.

GONORHYNCHUS, *Gronovius*.

GONORHYNCHUS GREYI, *Rich., sp.*

This species is common on the sandy beaches, and grows to at least eighteen inches in length; its flesh is excellent.

CLUPEIDÆ.

SPRATTELLOIDES,* *Bleeker*.

SPRATTELLOIDES GRACILIS, *Schleg., sp.*

A three-inches example was collected by Mr. Etheridge's party, and was the only one seen.

MURÆNIDÆ.

ANGUILLA, *Cuvier*.

ANGUILLA AUSTRALIS, *Rich.*

Very common in all the fresh and brackish water pools on the island, but seemingly not growing to a size of more than two feet; it takes a bait freely but is not eaten.

CONGROMURÆNA, *Kaup*.

CONGROMURÆNA MELLISSII, *Gnth.*

An eel sent to the Museum in 1882 agrees so well with this Atlantic species that I consider it unnecessary to separate them, at least until I can obtain other specimens in better condition.

MURÆNA, *Artedi*.

MURÆNA AFRA, *Bl., sp.*

This seems to be the most common Eel on the shore, and is easily obtained under stones between tide-marks up to a length of at least two feet; its flesh is excellent.

MURÆNA NEBULOSA, *Ahl.*

One example, which was obtained in a small pool on the reef, was brought back by Mr. Etheridge's party; it is said to be uncommon.

LOPHOBRANCHII.

SYNGNATHIDÆ.

SOLENOGNATHUS, *Kaup*.

SOLENOGNATHUS SPINOSISSIMUS, *Gnth.*

Frequently washed ashore after heavy storms.

HIPPOCAMPUS, *Leach*.

HIPPOCAMPUS ABDOMINALIS, *Less.*

Not uncommon in the pools on the reefs, or washed ashore with the preceding species; it grows to the length of twelve inches.

* Surely this is the correct orthography.

PLECTOGNATHI.
MONACANTHIDÆ.*
BALISTES, *Artedi.*

BALISTES, sp.

The upper jaw of a species of this genus was picked up on the beach by Mr. Saunders.

MONACANTHUS, *Cuvier.*

MONACANTHUS HOWENSIS, *sp. nov.*

D. 35. A. 31. P. 14—15. C. 12.

The distance between the tip of the snout and the upper angle of the gill-opening is three and two-fifths in the total length; the body is compressed and elevated, its height at the origin of the dorsal fin being two and one-fifth in the same. The eye is of moderate size, placed far back on the head, and not much below the frontal edge; its diameter is one-fourth of the length of the snout, two-thirds of the interorbital space, and four-sevenths of the branchial slit, the upper angle of which lies slightly behind its posterior margin, while the lower is opposite to the middle of the base of the pectoral fin. The upper profile of the snout is slightly concave, while that of the back is sinuous, and rises gently to the origin of the rayed fin. *Fins.*—The dorsal spine is strong, with an almost imperceptible convexity in front; it is inclined slightly backwards, and is situated above the middle of the orbit, its height being four-fifths of the length of the snout; it is armed with four rows of short stout conical teeth, which are bent downwards, and the anterior pair of which are much closer together than the posterior, and reach to the extreme tip of the spine, which the latter do not; the anterior and lateral edges of the spine between the rows are covered with irregularly-set small rugosities, especially on the basal portion. The origin of the soft dorsal is one-ninth nearer to the end of the caudal fin than to the tip of the snout, while the intradorsal space is but a fraction less than the length of the snout; both the dorsal and anal fins are moderately high, with a convex outer margin, and the latter commences beneath the ninth dorsal ray; the ventral spine is of moderate size and immovable, and is furnished with a lateral row of short conical teeth, the lower surface being also covered with granular projections; its tip is just half-way between the tip of the snout and the end of the tail; the pectoral fins are short, slightly convex posteriorly, and rather less than the length of the snout; the caudal fin is rounded, its middle ray being one-sixth of the total length. *Scales.*—The body is covered with small, spinate, transversely oblong scales, and is without cutaneous appendages; there are two pairs of short, upright, conical spines on each side of the pedicle, the upper pair about equally distant from the lower as they are from the dorsal profile. *Colors.*—Appear to have been olive-brown with numerous round white spots on the sides of the head and body; the dorsal, anal, and pectoral fins are pale yellow, the caudal dark brown.

Mr. Etheridge's party obtained a single specimen, taken by hook in about ten fathoms water between the main island and the Admiralty Islets, and measuring rather less than eight inches. Register number, I. 1,566.

OSTRACION, *Artedi.*

OSTRACION CONCATENATUS, *Bl.*

Is washed ashore commonly after heavy storms.

OSTRACION FORNASINI, *Bianc.*

Does not seem to be so common as the preceding species, nor to grow to an equal size, but is obtained only by the same means.

* See note on p. 55.

TETRODONTIDÆ***TETRODON**, *Linnæus*.**TETRODON HISPIDUS**, *Linn.*

Mr. Saunders obtained a single young example from a pool on the reef.

TETRODON VALENTINI, *Blk., sp.*

Collected with the preceding.

TETRODON CALLISTERNUS, *sp. nov.*

Plate III, f. 5.

D. 11. A. 10. P. 16. C. 9.

The length of the head is two-sevenths of the total length. The eyes are situated in the posterior half of the head, and their diameter is from three-fifths to one-half of the length of the snout; the nasal organs are inconspicuous; the dorsal profile is compressed into a distinct keel, which in the larger example has its origin in a bony knob. *Fins*.—The distance between the tip of the snout and the origin of the dorsal fin is four-sevenths of the total length, while that between the last ray and the root of the caudal fin equals the snout, and also the height of the pedicle immediately behind the anal fin, which is situated entirely behind the dorsal: the pectoral fins are short: the caudal, which is slightly concave posteriorly, is three-fourths of the length of the head. Cheeks, upper part of the head, and a strip along the dorsal and abdominal profiles, reaching nearly as far back as the vertical from the origin of the dorsal, armed with a few scattered strong three-rooted spines; the rest of the body and tail smooth. *Colors*.—The upper part of the body from the angle of the jaws passing obliquely upwards to a short distance beneath the eye, and thence following the curve of the back and on to the tip of the two upper caudal rays dark brown; the head with four blue black-edged lines running obliquely upwards from the snout through the eye, behind which they bend more abruptly upwards to meet the corresponding lines of the opposite side on the occiput; the anterior part of the snout and the interorbital space are ornamented with narrow black transverse lines joined on the rest of the snout by similar longitudinal lines; from the mandibular region touching the base of the pectoral fin and ending on the two lower caudal rays there is a narrow dark-brown band, parallel to the lower edge of the dorsal zone, and between these a pale yellowish band, the lower parts of the head and body being also of this color; these bands are much more pronounced in the smaller (four inches) than in the larger (seven inches) specimen; the sides of the head are ornamented with numerous blue black-edged bands and oblong spots, posteriorly almost rectangular to the ocular bands, but becoming much more horizontal on the chin, down the middle of which is a short longitudinal band; the entire body and tail is thickly crowded with oblong or round blue dark-edged spots, which are minute on the upper surface, and gradually increase in size until on the under parts they are as large or larger than the pupil; the throat is transversely banded. The dorsal and anal fins are pale yellow with the base dark brown, and the former has two or three irregular pale-blue bands on the inner half; the caudal has eight or nine interrupted brown transverse bands.

Two examples were obtained by our collectors on the reef, but they are said to be rare. Register numbers, I. 1,485 and I. 1,965.

DIODON, *Linnæus*.**DIODON HYSTRIX**, *Linn.*

Mr. Saunders brought back a half-grown specimen which he found dead on the beach.

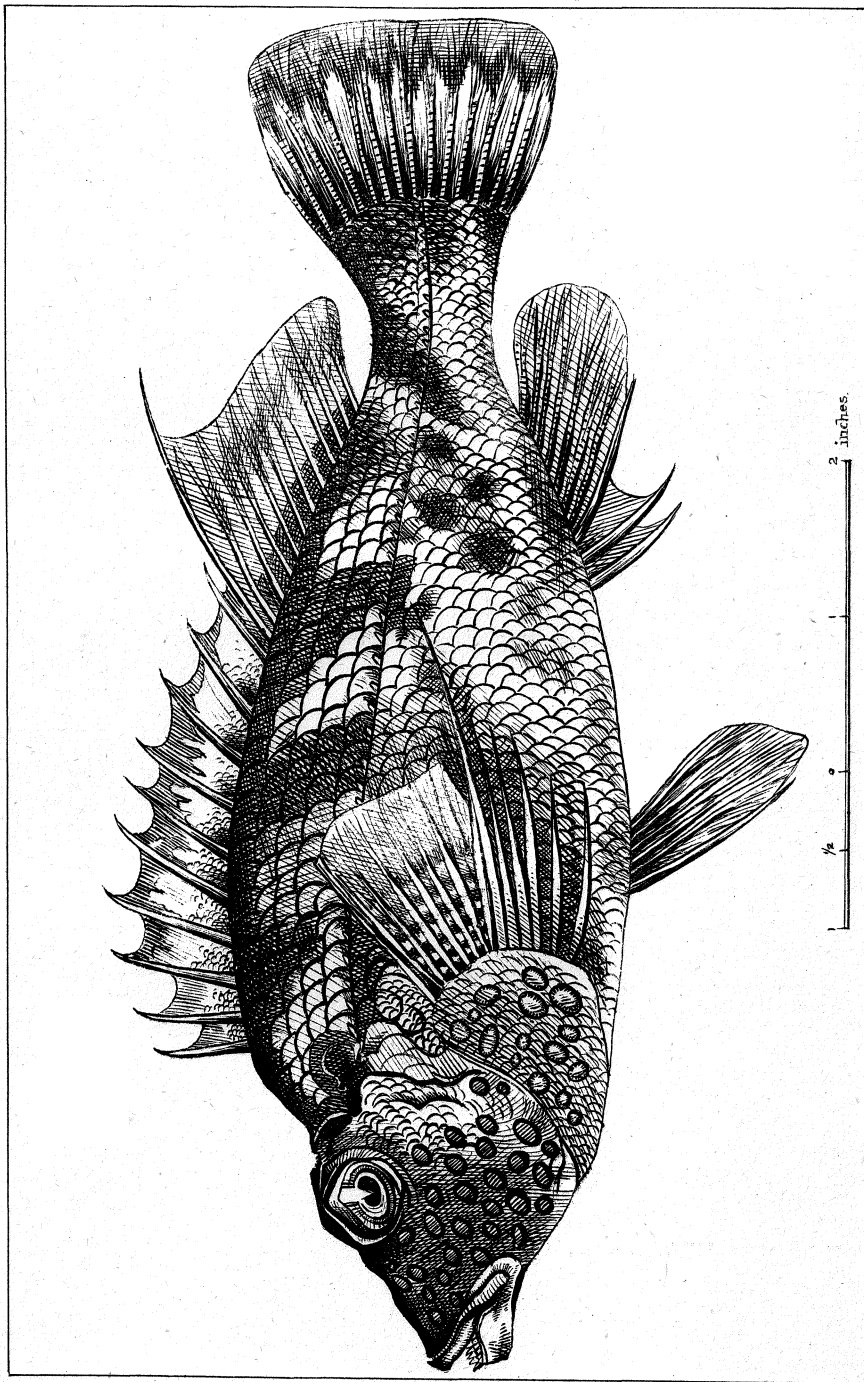
J. DOUGLAS OGILBY.

* See note on p. 55.

EXPLANATION OF PLATE II.

Cirrhichthys splendens, Ogl.

$\frac{1}{2}$ nat.



H. Irwin, Del., G.H. Barrow, Lith.

(5 e 26-88)

EXPLANATION OF PLATE III.

- Fig. 1.—*Pempheris Unwinii*, Ogl.
Fig. 2.—*Chætodon aphrodite*, Ogl.
Fig. 3.—*Acanthoclinus fasciolatus*, Ogl.
Fig. 4.—*Solea Ramsaii*, Ogl.
Fig. 5.—*Tetrodon callisternus*, Ogl.

The figures are all of the natural size.

