

ON THE GENUS "GONORRYNCHUS" (GRONOVIVS)

By J. DOUGLAS OGILBY.

THE presence of a *Gonorrynchus* in Moreton Bay, being the first record of the genus from the State of Queensland, enables me to supplement the short account of the family given by Günther in the seventh volume of the British Museum Catalogue of Fishes, and copied *verbatim* by Macleay in his "Descriptive Catalogue of Australian Fishes," ii, pp. 190-1*; and also to correct some trifling orthographic errors in Waite's notice of its occurrence in the neighbourhood of Port Jackson.† The discovery now announced is due, like so many others from the same locality, to the acumen of Mr. J. T. Jameson, of Woody Point, who, recognizing that the fish belonged to a species with which he was unacquainted, brought it to me for identification; the specimen, which is immature, is now in that gentleman's private collection. Waite's figure of the young fish (*loc. cit.*) might have been taken from Mr. Jameson's example, so accurate is it in every detail.

FAMILY GONORRYNCHIDÆ.

Ryynchance Kner, Reise Novara, Fisch. p. 342, 1867.

Gonorhynchidæ Günther, B.M. Catal. Fish., viii, p. 373, 1868—Woodward, B.M. Catal. Foss. Fish., iv, p. 271, 1901.

Isospondylous fishes, with elongate subcylindrical body, covered with minute oblong adherent ctenoid‡ scales, which are arranged in regular series. Head conical, terminating anteriorly in a pointed cartilaginous snout, which overlaps the mouth, and bears on its lower surface one or two small barbels. Mouth inferior, small, and subovate; premaxillaries not protractile, forming the entire border of the upper jaw; behind them lie the slender maxillaries,

* Originally published in the Proceedings of the Linnean Society of New South Wales, vol. vi, 1881, pp. 254-5.

† Rec. Austr. Mus., v, 1904, p. 146, pl. xvii, fig. 3.

‡ In our young example the scales are perfectly smooth to the touch, nor can I detect any trace of terminal spinules under a strong lens.

which are without a supplemental bone. Jaws, vomer, palatines, and tongue, toothless. Opercular apparatus complete, the interopercle not enlarged. Dorsal and anal fins short, the latter below the middle of the dorso-caudal interspace; no adipose fin; caudal fin homocercal; pectorals inserted on the lower half of the body; ventrals well separated, opposite to or slightly in advance of the dorsal fin. Branchiostegals three or four. Frontal bones large, extending forward to above the mouth and backward to connect with the supraoccipital, which thus entirely separates the parietals; basis cranii simple; vertebræ with strong parapophyses.

The family, as at present constituted, consists of three genera, two of which are extinct. The more recent of these is *Notogoneus* Cope,* to which the following three species have been referred. *N. osculus* Cope,† from the Eocene Beds (Green River Shales) of Wyoming, from whence, also, it is instructive to note, come the ancestors of our "barramundi" (*Osteoglossidæ*) and of our "rough-backed herrings" (*Potamalosa* and *Hyperlophus*); *N. squamosseus*‡ from the Upper Eocene of Aix-en-Provence; and *N. cuvieri*§ from the Upper Eocene of Montmartre. One of the most interesting points in connection with these early Tertiary gonorrhynchids is that they belonged to a fresh-water fauna, as is shown by the other fishes, the remains of which are associated with them in these formations. The second extinct genus is *Charitosomus* Marck||, with two, perhaps three, species—*C. formosus*¶ from the Upper Cretaceous of Westphalia; *C. hakelensis*** from the Cretaceous of Mount Lebanon,

* *Notogoneus* Cope, American Naturalist, xix, Nov. 1885, p. 1091—id., Mem. Nat. Acad. Sci. Washington, iii, pt. 1, 1884, p. 163.

† *Notogoneus osculus* Cope, ibidd., pl., figg. 4 & 5—Woodward, Proc. Zool. Soc., 1896, p. 501, pl. xviii, figg. 1 & 2.

‡ *Cyprinus squamosseus* Blainville, Nouv. Dict. d'Hist. Nat., xxvii, 1818, p. 371=*Sphenolepis squamosseus* Agassiz, Poiss. Foss., v., pt. 1, p. 13, pt. 2, p. 87, pl. xlv, 1844=*Notogoneus squamosseus* Woodward, ibid., p. 502, pl. xviii, figg. 3 & 4.

§ *Sphenolepis cuvieri* Agassiz, ibidd., pp. 13 & 89, pl. xlv, figg. 1 & 2.=*Notogoneus cuvieri* Woodward, ibid., p. 503.

|| *Charitosomus* W. von der Marck, Fisch. Ober. Kreid. Westfalens, Palæontogr., xxxi, p. 257, 1885.

¶ *Charitosomus formosus* Marck, ibid., pl. xxiv, fig. 1.

** *Spaniodon hakelensis* Davis, Trans. Roy. Dublin Soc. (2) iii, 1887, p. 591, pl. xxxiv., fig. 4=*Charitosomus hakelensis* Woodward, Ann. and Mag. Nat. Hist. (7) ii, 1898, p. 41 2.

and possibly *C. lineolatus** from Sahel Alma in the same locality and formation. The genera associated with these Mesozoic fossils are essentially marine.

The following is a brief synopsis of the three recognized gonorrhynchoid genera:—

- a. Dorsal and ventral fins inserted mesially.
 - b. Head scaly; mouth wholly toothless. Fresh-water Tertiary fishes
Notogoneus
 - b1. Head naked; teeth present on the pterygoid and hyoid bones. Marine cretaceous fishes
Charitosomus
- a1. Dorsal and anal fins inserted posteriorly.
 - c. Head scaly; teeth present on the pterygoid and hyoid bones. Recent marine fishes
Gonorrhynchus

GONORRYNCHUS Gronovius.

Gonorrhynchus Gronovius, Zoophyl., i, p. 55, 1763.

Gonorrhynchus Cuvier, Règne Anim., ed. i, p. 196, 1817 (*gonorynchus*)—Cuvier Valenciennes, Hist. Nat. Poiss., xix, p. 207, 1846—Schlegel, Faun. Japon., Pisc. p. 217, 1846—Kner, Reise Novara, Fisch. p. 342, 1867—Günther, B. M. Catal. Fish., vii, p. 373, 1868.

Rynchana Richardson, Zool. Erebus and Terror, Fish. p. 45, 1845 (*greyi*).

Body anguilliform, compressed posteriorly. Scales subquad-rangular, with the free border feebly rounded. Lateral line complete, nearly straight, the tubes simple. Head almost wholly scaly; a single short median barbel in front of the mouth; lips thick and profusely ciliated; a transverse membranaceous lobe dependent from the roof of the mouth; maxillary entirely hidden when the mouth is closed. A small patch of short granular teeth on each pterygoid region, opposed to which is a rather larger patch on the hyoid arch. Nostrils anterior and contiguous. Eyes large, median, superolateral, covered with a transparent skin. Fins partly scaly; dorsal inserted near to the commencement of the posterior third of the body; pectoral asymmetrical; ventral nine-rayed; a long scaly appendage above the pectoral and ventral fins. Vent close to the anal fin. Gill-opening rather small; gill-membranes attached to the isthmus; four branchiostegals; pseudobranchiæ present; a fringed gill-like organ between the last gill-arch and the pectoral arch; gill-rakers long and slender; no air-bladder. Stomach simple, without blind sac; intestinal canal simple and straight. (*γωνία*, an angle; *ρύγχος*, snout).

* *Splenognathus lineolatus* Pictet Humbert, Nouv. Rech. Poiss. Foss. Mont Liban, p. 56, pl. iv, figg. 4-7, 1866.

Coasts of South Africa; Bourbon; St. Paul Island; New Zealand, Tasmania, Temperate Australia, Lord Howe Island, and Japan.

Small fishes, habitually frequenting sandy flats in shallow water, though sometimes taken at considerable depths; feeding on small mollusks, crustaceans, annelids, and the like; these they obtain by burrowing, the formation of the snout, combined with the conical head and elongate fusiform body, being eminently fitted for facilitating their passage through so dense a medium as sand; while the mobile cartilaginous snout forms an admirable tactile organ by which to locate its prey. The flesh is said to be firm and white, and of excellent quality.

I give below a synopsis of the species into which I propose to separate the remarkable fish which has of recent years been most commonly known as *Gonorhynchus greyi*. In making this division I have been chiefly guided by characters which must be regarded as structural, and cannot therefore be affected by the age of the individual.

1. GONORRYNCHUS ABBREVIATUS Schlegel.

Gonorhynchus abbreviatus Schlegel, Faun. Japon., p. 217, pl. ciii, fig. 5, 1846: Nagasaki—Jordan Snyder, Proc. U.S. Nat. Mus., xxxi, 1907, p. 643, fig. 5: Yokohama.

Length of head 4.40 in that of the body; dorsal fin inserted posteriorly, the space between its origin and the root of the caudal 2.50 in its distance from the tip of the snout; eight anal rays; pectoral very large, its length 2.35 in its distance from the ventral.

Seas of Southern Japan.

2. GONORRYNCHUS GONORYNCHUS (Linnæus).

Gonorhynchus Gronovius, Zoophyl., No. 199, pl. x, fig. 2, 1763.

Cyprinus gonorynchus Linnæus, Syst. Nat., ed. 12, i, p. 528, 1766: Cape of Good Hope—Gmelin, Syst. Nat., i, p. 1422, 1788—Schneider, Syst. Ichth., p. 443, pl. lxxviii, fig. 1, 1801—Lacépède, Poiss., v, p. 570, 1803.

Gonorhynchus gronovii Cuvier & Valenciennes, Hist. Nat. Poiss., p. 207, pl. dlxviii, 1846: Bourbon.

Cobitis gonorynchus (Gronow) Gray, Catal., p. 41, 1854.

Gonorhynchus brevis Kner, Reise Novara, Fisch. p. 342, pl. xvi, fig. 1, 1867: Island of St. Paul.

Length of head 5·00 in that of the body ; dorsal fin inserted anteriorly, the space between its origin and the root of the caudal 1·90 in its distance from the tip of the snout ; ten anal rays ; pectoral large, its length about 3·10 in its distance from the ventral.

Cape Seas ; Bourbon ; St. Paul.

3. GONORRYNCHUS FORSTERI nom. nov.

Gonorhynchus greyi, Cuvier & Valenciennes, Hist. Nat. Poiss., xix, p. 212, 1846 : New Zealand—Hutton, Fish. New Zealand, p. 61, & Hector, p. 119, pl. x, fig. 98, 1872. Not *Rynchana greyi* Richardson.

Gonorhynchus gonorynchus Waite, Rec. Canterb. Mus., 1., No. 1, p. 11, 1907. Not *Cyprinus gonorhynchus* Linnæus.

Length of head 5·00 in that of the body ; dorsal fin inserted anteriorly, the space between its origin and the root of the caudal 2·15 in its distance from the tip of the snout ; nine anal rays pectoral large, its length 3·10 in its distance from the ventral.

Seas of New Zealand. Closely allied to *G. gonorynchus*, from which it differs chiefly in the more posterior insertion of the dorsal fin.

4. GONORRYNCHUS GREYI (Richardson).

Rynchana greyi Richardson, Zool. Erebus & Terror, Fish. p. 44, pl. xxix, figg. 1-6, 1845 : South-Western Australia.

Length of head 6·35 in that of the body ; dorsal fin inserted posteriorly, the space between its origin and the root of the caudal 2·50 in its distance from the tip of the snout ; nine anal rays ; pectoral moderate, its length 3·50 in its distance from the ventral.

Coast of South-Western Australia.

5. GONORRYNCHUS PARVIMANUS sp. nov.

? *Gonorhynchus greyi* Ogilby, Mem. Austr. Mus., No. 2, 1889, p. 72 : Lord Howe Island. Not *Rynchana greyi* Richardson.

Gonorhynchus gonorynchus Waite, Rec. Austr. Mus., v, 1904, p. 146 : Narra-been. Not *Cyprinus gonorynchus* Linnæus.

Length of head 5·60 in that of the body ; dorsal fin inserted anteriorly, the space between its origin and the root of the caudal 2·15 in its distance from the tip of the snout ; nine anal rays ; pectoral small, its length 5·30 in its distance from the ventral.

Coasts of New South Wales and Southern Queensland.

D. 12; A. 9; C. 16; P. 12; V. 9. Body a trifle wider than deep, its depth 1.48 in its length and 2.65 in the length of the head, which is 5.60 in that of the body.* Snout pointed, projecting well beyond the mouth, in front of which is a short barbel. Diameter of eye 1.50 in the length of the snout and 3.85 in that of the head. Interocular region feebly convex, 2.50 in the eye. Dorsal fin commencing a little behind the last third of the body, the space between its origin and the root of the caudal 2.15 in its distance from the tip of the snout, as long as high, its height equaling the head behind the middle of the eye. Anal fin inserted one seventh nearer to the root of the caudal than to the ventral, shorter and lower than the dorsal, its height equaling the head behind the eye. Caudal fin emarginate, with the lobes rounded, the middle rays 1.45 in the outer and 2.00 in the head; length of free portion of tail thrice its depth, which is subequal to the diameter of the eye. Pectoral as long as the middle caudal rays and 5.30 in the space between its origin and the ventral; axillary appendage 2.25 in the length of the fin. Ventral inserted partly in front of the dorsal, its length 1.60 in its distance from the anal, the exobasal appendage shorter than that of the pectoral. Palest lemon yellow, with a series of dark brown spots above and below the lateral line, many of the upper ones being lost anteriorly and some of the posterior ones being confluent; snout and occiput brown-spotted; opercles with one large and several small brown spots. Dorsal, caudal, and anal fins with dusky tips, formed by innumerable, partly coalescing, brown dots, the caudal also with some basal and marginal spots (*parvus*, small; *manus* hand, *i.e.* pectoral fin).

Type in the collection of Mr. J. T. Jameson of Woody Point, Moreton Bay.

Length of type 88 millimeters.

Coasts of Eastern and South-Eastern Australia north to Moreton Bay. Probably also Lord Howe Island, Victoria, and Tasmania.

The Queensland National Museum possesses two small specimens without locality, which were doubtless taken in Moreton Bay.

* It will thus be seen that, contrary to the statement of Dr. Günther (*ibid.*, p. 374) that "young examples are constantly less elongate than adult," the opposite is *de facto* the case. Possibly the word "less" in the above quotation is a *lapsus calami* for "more."