

NOTES ON GOBIOID FISHES
6. ON THE SYNONYMY OF SOME SPECIES FROM
THE INDO-AUSTRALIAN ARCHIPELAGO

by

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Bathygobius fuscus (Rüpp.)

- Gobius fuscus* Rüppell, Atl. Reise N. Afr. Fische 1828, p. 137.
Gobius punctillatus Rüppell, l.c., p. 138.
Gobius soporator Cuvier & Valenciennes, Hist. Nat. Poissons XII. 1837, p. 56.
Gobius albopunctatus Cuvier & Valenciennes, l.c., p. 57.
Gobius nebulopunctatus Cuvier & Valenciennes, l.c., p. 58.
Gobius cyclopterus Cuvier & Valenciennes, l.c., p. 59.
Gobius albopunctatus Rüppell, Neue Wirbelthiere Fische 1838, p. 138.
Gobius nebulopunctatus Rüppell, l.c., p. 139.
Gobius lineatus Jenyns, Zool. Voy. Beagle 1842, p. 95, pl. 19, fig. 2.
Gobius nox Bleeker, Nat. Tijdschr. Ned. Indië I. 1851, p. 248.
Gobius padangensis Bleeker, l.c., p. 249.
Gobius tjilankahanensis Bleeker, l.c., p. 251.
Gobius cocosensis Bleeker, Nat. Tijdschr. Ned. Indië VII. 1854, p. 47.
Gobius breviceps Blyth, Journal Asiat. Soc. Bengal XXVII. 1858, p. 271.
Gobius catulus Girard, Proc. Ac. Nat. Sc. Philadelphia 1858, p. 169.
Gobius mapo Poey, Memorias II. 1861, p. 277.
Gobius lacertus Poey, l.c., p. 278.
Gobius carolinensis Gill, Proc. Ac. Nat. Sc. Philadelphia 1863, p. 268.
Gobius kreftii Steindachner, Sitz. ber. Ak. Wiss. Wien LIII I. 1866, p. 451.
Gobius criniger Steindachner (not of C. & V.), ibid., LVI I. 1867, p. 326.
Gobius brunneus Poey (not of Temminck & Schlegel), Synopsis 1868, p. 393.
Gobius homocyanus Vaillant & Sauvage, Rev. Mag. Zool. III 3. 1875, p. 280.
Glossogobius giuris Streets (not of H.B.), Bull. U. S. Nat. Mus. 7. 1877, p. 60.
Gobius darnleyensis Alleyne & Macleay, Proc. Linn. Soc. N.S.W.I. 1877, p. 331,
pl. 12, fig. 1.
Gobius nigripinnis, Alleyne & Macleay, l.c., p. 332, pl. 12, fig. 2.
Gobius sandvicensis Günther, Challenger VI. Shore Fishes 1880, p. 60.
Gobius andrei Sauvage, Bull. Soc. Philom. Paris (7) IV. 1880, p. 44.
Gobius caledonicus Sauvage, l.c., p. 46.
Gobius buccatus Macleay (not of C. & V.), Proc. Linn. Soc. N.S.W. V. 1881, p. 601.
Gobius flavidus Macleay (not of C. & V.), l.c., p. 602.
Gobius filamentosus Sauvage (not of Risso), Bull. Soc. Philom. Paris (7) VII.
1883, p. 157.
Evorthodus catulus Jordan & Gilbert, Synopsis Fishes N. Am. 1883, p. 632.
Gobius marginalis De Vis, Proc. Linn. Soc. N.S.W. IX. 1884, p. 686.

Gobius aeolosoma Ogilby, Mem. Austr. Mus. II. 1889, p. 161.

Gobius variabilis Steindachner, Abh. Senck. Ges. XXV. 1901, p. 430, pl. 18, fig. 4—4 b.

Gobius poecilichthys Jordan & Snyder, Proc. U.S. Nat. Mus. 24. 1901, p. 52, fig. 4.

Mapo mearnsi Evermann & Seale, Proc. U.S. Nat. Mus. 31. 1907, p. 510, fig. 2.

Gobius ophthalmicus M. Weber, Notes Leyden Mus. XXXI. 1909, p. 150. — Siboga Exp. Fische 1913, p. 463, fig. 90.

Gobius villosus M. Weber, l.c., p. 151, l.c., p. 466, fig. 92.

Bathygobius bravoii Herre, Monogr. 23, Bur. Sc. Manila 1927, p. 112, pl. 8, fig. 1.

Drombus whitleyi Fowler, Mem. Bishop Mus. 11. 1931, p. 362.

D. 1 VI, D. 2 I. 9—10; A. I. 8—9; P. 19—20; L.l. 38—40; L. tr. 11—13; Predorsal scales 24 or less.

Body elongate, anteriorly cylindrical, posteriorly compressed; height $4\frac{3}{4}$ —5 in length, 6 — $6\frac{1}{2}$ in total length. Head depressed, $3\frac{1}{4}$ — $3\frac{3}{5}$ in length, $4\frac{1}{5}$ — $4\frac{2}{3}$ in total length, profile convex. Eye 3 — $4\frac{1}{2}$ in head; interorbital $\frac{2}{5}$ — $\frac{2}{3}$ in eye. Snout obtuse, as long as, or shorter than eye, tip before lower margin of eye. Anterior nostril in a short tube. Lips thick. Jaws subequal. Maxillary extends to below posterior part of eye or not so far. Teeth in several rows, in upper jaw outer row enlarged, in lower jaw outer row enlarged, extending to halfway the jaw, inner row laterally enlarged. Tongue more or less emarginate. Longitudinal rows of mucous canals over cheeks. An open pore anteriorly median in interorbital, another on each side behind eye at the beginning of the supraopercular groove. Head scaled above behind eyes with rudimentary scales; sometimes upper parts of operculum scaled. Scales of head, nape, breast and belly cycloid, on rest of body ctenoid. D. 1 lower than body, the middle rays are the longest. D. 2 a little lower than body, pointed posteriorly. A. shorter than D. 2. P. rounded, a little shorter than head, upper rays silklike. V. obtusely rounded, about as long as P., basal membrane laterally with a lobe on each side. C. obtuse, about as long as head.

Color in spirits: Very variable, olivous above, lighter below. Head and body with irregular dark spots, on body often placed in two alternating longitudinal rows. Head sometimes with shiny spots, body sometimes with a shiny spot laterally on each scale. Fins dark to light, with or without dark markings. Rays of dorsal fins, pectoral fin and caudal fin spotted.

Type specimens seen of: *Gobius soporator* C. & V., *albopunctatus* C. & V., *cyclopterus* C. & V., *nox* Blkr., *cocosensis* Blkr., *homocyanus* Vaill. & Sauv., *caledonicus* Sauv., *filamentosus* Sauv., *ophthalmicus* M. Web., *villosus* M. Web.

Length: 120 mm.

Bathygobius fuscus (Rüpp.) is known from the Red Sea to the Sandwich Islands, China, Japan, Australia, America.

This species varies very much in color and in squamation on neck and head. The number of predorsal scales varies, as the scales are rudimentary and are more or less embedded in the skin. So *Gobius nox* and *cocosensis* were described by Bleeker differing from *fuscus* only in the number of scales on neck between dorsal fin and eyes. In the same way the pattern of color differs so much in the specimens, that Eigenmann wrote: "If any value could be placed upon the coloration, almost every specimen would be a distinct species."

Gobius kreftii Steind. differs in having one ray more in anal fin. If this deviation is constant, this group of specimens can form a variety *kreftii* of *Bathygobius fuscus*, for this single character does not suffice to make it a distinct species.

The new synonyms which I add to those, which are already known in literature are: *Gobius cyclopterus* C. & V., *G. nox* Blkr., *G. tjilankahanensis* Blkr., *G. cocosensis* Blkr., *G. kreftii* Steind., *G. caledonicus* Sauv., *G. filamentosus* Sauv. (not of Risso), *G. variabilis* Steind., *Mapo mearnsi* Everm. & Seale, *Gobius ophthalmicus* M. Web., *G. villosus* M. Web., *Bathygobius bravoï* Herre and *Drombus whitleyi* Fowler.

Here I note that the bottle in the Paris Museum¹⁾ labelled *Gobius albopunctatus* C. & V. Isle de France, Desjardins, contains 2 specimens of *Bathygobius fuscus*, and 1 specimen of *Acentrogobius cauerensis* (Blkr.). The bottle labelled *Gobius albopunctatus* C. & V. Isle de France, Péron, contains 1 specimen of *Bathygobius fuscus* and 1 specimen, which is badly preserved. This specimen is very long and marbled with dark markings, it has about 38 scales in a longitudinal line; the teeth are placed in several rows, no canines; tongue truncate; head and nape are naked; caudal fin oblong. Probably it belongs to *Ctenogobius*. The specimen collected by Fauvel in Swatow (Sauvage Bull. Soc. Philom. Paris (7) V 1881, p. 106) labelled as *Gobius albopunctatus* belongs to *Glossogobius giuris* (H. B.). The bottle containing 3 specimens and labelled: *Gobius viridipunctatus*, Dussumier, Bombay, contains 2 specimens of *Acentrogobius viridipunctatus* (C. & V.) and 1 specimen of *Bathygobius fuscus* (Rüpp.).

Acentrogobius bonti (Blkr.)

Gobius bontii Bleeker, Verh. Bat. Gen. XXII. 1849, p. 27.

Gobius triangularis M. Weber, Notes Leyden Mus. XXXI. 1909, p. 150. — Siboga Exp. Fische 1913, p. 464, fig. 91.

1) I thank Prof. L. Roule and Dr. J. Pellegrin for their kindness of allowing me to study the rich material of the Muséum National d'Histoire Naturelle de Paris.

D. 1 VI, D. 2 I. 10—11; A. I. 8—10; P. 17—19; L.l. \pm 36; L. tr. 12; Predorsal scales \pm 18.

Body elongate, anteriorly subcylindrical, posteriorly compressed; height $4\frac{3}{4}$ —5 in length, $6-6\frac{1}{2}$ in total length. Head obtuse, about as high as broad, profile convex, $3\frac{1}{2}$ —4 in length, $4\frac{1}{2}$ —5 in total length. Eye $3\frac{1}{2}$ in head, interorbital less than $\frac{1}{2}$ eye-diameter. Snout obtuse, shorter than eye, tip before inferior margin of eye. Mouth oblique, lower jaw prominent. Maxillary extends to middle of eye or not so far. Lips thick. Teeth fili-form, in many rows, outer enlarged; in lower jaw on each side 2 curved canines. Tongue rounded. Two or three longitudinal mucous canals over cheeks, crossed by transversal ones. Some open pores round the eyes, one open pore behind each eye at the beginning of the supra-opercular groove. Head naked above behind the eyes, the scales beginning from above the operculum; scales of nape, breast and belly cycloid, on body ctenoid. D. 1 higher than body, 2nd and 3rd rays filiform (only in the male?). D. 2 lower than body, pointed posteriorly. A. similar to D. 2. P. obtuse without free silklike rays. Basal membrane of V. ending laterally in a free, pointed lobe.

Color: reddish green above, lighter below; laterally on posterior part of body 5—7 dark spots in a longitudinal line. Dorsal fins with dark spots on base, anal fin with dark margin. Caudal fin with irregular spots.

In the variety *triangularis* M. Weber, the body has indistinct dark blotches and some silvery spots; at the upper part of base of pectoral fin a light triangular spot.

Types of *G. bontii* Blkr. and *triangularis* M. Weber seen.

Length: 72 mm.

Known from Strait Madura and Ambon (reef).

Acentrogobius bonti (Blkr.) in general appearance is very similar to *Bathygobius fuscus* (Rüpp.), but it belongs to *Acentrogobius*. It is at once distinguished from *B. fuscus* in wanting the free upper rays of pectoral fin and in having the tip of the tongue rounded.

Stenogobius genivittatus (C. & V.)

Gobius genivittatus Cuvier & Valenciennes, Hist. Nat. Poissons XII. 1837, p. 64.

Gobius ophthalmoporus Bleeker, Nat. Tijdschr. Ned. Indië V. 1853, p. 340.

Gobius blokzeyli Bleeker, ibid., XXII. 1861, p. 240.

Gobius polyzona Bleeker, Arch. Néerl. sc. ex. et nat. II. 1867, p. 413.

Gobius lacrymosus Peters, Monatsber. k. pr. Ak. Berlin 1868, p. 265.

Gobius beauforti M. Weber, Nova Guinea V. Livr. 2. 1908, p. 261.

Gobius (Stenogobius) genivittatus Koumans, Zool. Med. Leiden XIII. 1930, p. 3.

Gobius polyzona Pellegrin, Mem. Ac. Malgache XIV. 1933, p. 148, fig. 86.

D. 1 VI, D. 2 I. 10—11; A. I. 10—11; P. 15—16; L.l. 50—55; L. tr. 12—14; Predorsal scales 16—20.

Body elongate, compressed, height $3\frac{3}{4}$ —6 in length. Head compressed, profile convex, $3\frac{1}{2}$ — $4\frac{1}{2}$ in length. Eye 4 — $5\frac{1}{2}$ in head, interorbital $\frac{1}{2}$ —1 eye-diameter.

Anterior nostril in a very short tube. Snout blunt, a little shorter or longer than eye, tip below inferior margin of eye. Mouth oblique, jaws subequal. Maxillary extends to anterior half of eye or not so far. Teeth of outer row enlarged. Below eye some oblique mucous canals, the second of these curved below and running longitudinally over cheeks. On each side in interorbital space an open pore, behind each eye an open pore at the beginning of the supra-opercular groove. Head scaled above behind the eyes and on upper parts of preoperculum and operculum, in some specimens the cheeks are fully scaled. Nape scaled in the median line. Scales of head and anterior part of body cycloid, of posterior part of body ctenoid. D. 1 as high as body, middle rays elongated. D. 2 pointed posteriorly. A. similar to D. 2. P. obtuse, about as long as head. V. pointed, longer than head. C. oblong, longer than head.

Color: greenish. 8—12 dark cross bars on each side of body. Each scale of the dorsal part of body with a vertical brown streak. A broad dark, transversal band from eye downward to lower edge of preoperculum, or not so far. D. 1 with some dark longitudinal stripes, D. 2 with streaks and spots in longitudinal rows. Central part of caudal fin black, marginal parts reddish-violet. P. yellowish; upper part of base of P. with a dark stripe. V. blue to colorless. A. reddish in male, blueish in female.

Types seen of *G. genivittatus* C. & V., *ophthalmoporus* Blkr., *blokzeyli* Blkr., *polyzona* Blkr., *beauforti* M. Weber; 2 specimens seen in Paris Museum labelled: *Gobius lacrymosus* Peters Luçon Mus. Berlin.

Length: 165 mm.

Known from Madagascar, through the Indo-Australian Archipelago to Polynesia, Australia and Japan.

In comparing the type specimens of *G. ophthalmoporus* Blkr., *blokzeyli* Blkr., *polyzona* Blkr. and *beauforti* M. Weber with other specimens, I found that they are to be united into one species, the different described species are only specimens of different age. In the same way *G. lacrymosus* Peters belongs to the same species. In 1930 I united *G. polyzona* and *G. genivittatus*, not having seen the type-specimen of *G. genivittatus*. Dr. Pellegrin (1933) did not agree with my opinion, for he wrote on p. 149: "Effectivement les formules des nageoires et de l'écaillage sont identiques (*G. genivittatus*: D. VI I 11; A. I 10—12; Sq. L. long. 47—50), cependant, on peut noter quelques petites différences. Le corps est plus allongé dans la forme de Madagascar, le pédicule caudal est plus long (1 fois $\frac{3}{4}$ aussi

long que haut au lieu de 1 fois à 1 fois $\frac{2}{5}$). De nouveaux matériaux sont nécessaires pour trancher définitivement la question."

During my visit at Paris in 1934 I compared the type-specimen of *G. genivittatus* and two specimens from Sandwich Islands, collected by Ballieu, with the description which I made from the species. The measurements which I found are expressed in hundredths of length (caudal fin excluded).

	Bleeker types <i>polyzona</i>		C. & V. types <i>geni- vittatus</i>	Kopstein Haroekoe	Brit. Mus. Ceram	Sandwich Ballieu Paris Mus.		
Length in mm	110	110	51	58	44	60	97	110
Depth of body	18.2	16.4	17.6	20.7	25	22.1	21.1	21.8
Depth caudal peduncle	12.3	11.8	11.8	11.2	11.4	12.5	11.3	14.5
Head	24.5	25.4	25.5	25.9	27.3	25	26.3	23.6
Snout	8.2	8.2	6.9	8.6	9.1	7.5	8.8	7.7
Interorbital	3.2	3.2	—	3.5	3.4	3.3	3.1	3.2
Orbit	4.5	5	5.9	6	6.9	5	5.2	5.9
Distance snout-spinous dorsal .	34.5	33.6	33.3	31.9	34.1	33.3	34	33.2
Distance snout-soft dorsal . . .	53.6	52.7	52.9	51.7	53.4	50.4	52.6	53.6
Length caudal peduncle	15.5	15.5	13.7	15.5	15.9	15.8	16	15.5

In this table I compare the measurements of the types of Bleeker's *G. polyzona* with the type of Cuvier & Valenciennes' *G. genivittatus*, 2 specimens collected by Kopstein at Haroekoe near Ambon, a specimen in British Museum (N. H.) from Ceram and 2 specimens from the Sandwich Islands in the Paris Museum, collected by Ballieu.

In the type specimen of *Gobius genivittatus* C. & V. the caudal peduncle is shorter than in the other specimens which I have seen, but as may be evident from the measurements given above, *G. polyzona* does not differ from the other specimens collected far away from Madagascar. So I believe that it is not allowed to regard *Gobius polyzona* from Madagascar as a distinct species, but I unite it with the other described species to *Stenogobius genivittatus*.

Oxyurichthys tentacularis (C. & V.)

- Gobius tentacularis* Cuvier & Valenciennes, Hist. Nat. Poissons XII. 1837, p. 128.
Gobius erythrinus (Kuhl & v. Hasselt) Cuvier & Valenciennes, l.c., p. 128.
Gobius macrurus Bleeker, Verh. Bat. Gen. XXII. 1849, p. 35.
Gobius ophthalmonema Bleeker, Nat. Tijdschr. Ned. Indië XII. 1856—1857, p. 208.
Gobius (Oxyurichthys) uronema M. Weber, Notes Leyden Mus. XXXI. 1909, p. 153. — Siboga Exp. Fische 1913, p. 477, fig. 95.

D. 1 VI, D. 2 I. 12; A. I. 13; P. 19—22; L.l. 60—65; L. tr. 14—16; Predorsal scales 17.

Body very elongate, compressed, height $5-5\frac{3}{5}$ in length, $7-7\frac{1}{2}$ in total length. Head obtuse, compressed, profile convex, 4—5 in length, 6—7 in total length. Eyes $3\frac{1}{4}-4$ in head, interorbital $\frac{1}{3}-\frac{1}{2}$ of eye. At the upper margin of each eye a tentacle, which is about as long as diameter of eye. Snout obtuse, as long as or shorter than eye; tip before lower margin of eye. Anterior nostril in a short tube. Mouth oblique, lower jaw prominent. Maxillary extends to below posterior part of eye. On each side 20 curved teeth in upper jaw; in lower jaw 2—3 rows, inner enlarged. Some longitudinal mucous canals over cheeks, an open pore on each side anteriorly in interorbital space, the open pore behind the eye at the beginning of the supreopercular groove is more or less distinct. Head scaled above behind the eyes, median line of head and nape naked. On nape a low dermal crest posteriorly ctenoid. D. 1 lower than body, D. 2 and A. lower than body, to insertion of D. 1. Scales of head and anterior part of body cycloid, posteriorly pointed and increasing in height. P. obtuse, about as long as head. V. about equal to head, basal membrane often fringed. C. lanceolate, about $2 \times$ length of head.

Color: reddish green above, reddish pearl-colored below. Each scale of back and sides above with a round red spot at the margin. Below the eye an oblong dark spot. D. 1 spotted with 3 longitudinal rows of reddish-violet spots. D. 2 with 5—6 alternating longitudinal rows of oblong reddish-violet spots. P. orange. V. and A. violet. Base of A. with a row of reddish-violet spots and with violet streaks along the blue border. C. yellowish, violet below with oblique reddish-violet streaks.

G. ophthalmonema differs from *G. tentacularis* especially in color markings, so I propose to unite the species and to form a variety *ophthalmonema* Blkr. This variety has laterally on body 5 round dark spots, placed in a longitudinal row, body moreover with many shiny spots.

Types seen of *G. tentacularis* C. & V., *ophthalmonema* Blkr. and *uronema* M. Weber.

Length: 132 mm.

Known from seas of India to the Indo-Australian Archipelago, Polynesia, Hongkong.

The comparison of the type specimens of *G. uronema* with specimens of *ophthalmonema* and *tentacularis* showed that the differences named by Prof. Weber are not of such importance that it is allowed to separate *uronema* as a distinct species. The greater head and eye, the greater number of rays of pectoral fin and the elongate caudal fin-rays were found by

me in several specimens, which partially show the characters given by Bleeker for *ophthalmonema*, so that the different described species gradually pass into each other.

Oxyurichthys papuensis (C. & V.)

Gobius papuensis Cuvier & Valenciennes, Hist. Nat. Poissons XII. 1837, p. 106.

Gobius belosso Bleeker, Nat. Tijdschr. Ned. Indië VII. 1854, p. 316.

Gobius (Oxyurichthys) notonema M. Weber, Notes Leyden Mus. XXXI. 1909, p. 154. — Siboga Exp. Fische 1913, p. 477, fig. 96.

D. 1 VI, D. 2 I. 12; A. I. 13; P. 21—23; L.l. 75—80; L. tr. 20; Predorsal scales 17—20.

Body very elongate, compressed, height 6—6½ in length, 8—10 in total length. Head obtuse, compressed, profile convex, 4—4¼ in length, 5¾—6 in total length. Eyes 4 in head, interorbital ⅓ or less than ⅓ eye-diameter. No ocular tentacle. Snout obtuse, about as long as eye, tip before or a little below inferior margin of eye. Anterior nostril in a short tube. Mouth oblique, lower jaw prominent; maxillary extends to middle of eye or to posterior part of eye. On each side 17—20 curved, pointed teeth in upper jaw; teeth in lower jaw in 2—4 rows, the teeth of inner row enlarged and curved. Some longitudinal mucous canals over cheeks. An open pore behind each eye at the beginning of the supra-opercular groove. Head scaled above behind the eyes, median line of head and nape naked, nape with a low longitudinal dermal crest. Scales of head, nape and anterior part of body cycloid, on posterior part of body ctenoid. D. 1 lower than body, the rays are far prolonged beyond the membrane. D. 2 and A. anteriorly lower than body, posteriorly higher than body. P. rounded, about as long as head. V. pointed, about as long as P. C. lanceolate, 2 × head.

Color: greenish above, reddish below, body with many shiny spots. Body with 8 indistinct transversal bands. Dorsal fins and caudal fin reddish with many blue streaks. P. reddish with shiny spots, upper part of base with violet spot. V. reddish, outer part violet. A. yellowish-red, violet towards margin. A dark spot on caudal peduncle in middle of the side.

Types seen of *G. papuensis* C. & V., *belosso* Blkr. and *notonema* M. Weber.

Length 170 mm.

Known from the Indo-Australian Archipelago to Polynesia.

Oxyurichthys belosso Blkr. was described as differing from *papuensis* by having the teeth of the inner row of lower jaw enlarged and curved, in contrary to *papuensis*, where these teeth were supposed to be not enlarged.

The type specimen of Cuvier & Valenciennes from New Guinea, collected by Quoy & Gaimard, in the Paris Museum, has the teeth of the inner row of lower jaw enlarged and curved, and agrees fully with *belosso*.

I am not certain that *Gobionellus lonchotus* Jenkins, Bull. U. S. Fish. Comm. 22. 1902 (1903), p. 503, *Gobiichthys lonchotus* Jordan & Evermann, Bull. U. S. Fish. Comm. 23. pt. 1. 1903 (1905), p. 485 and *Oxyurichthys lonchotus* Jordan & Snyder, Bull. Bur. Fish. 26. 1906 (1907), p. 26 belong to this species.

In Bull. U. S. Fish. Comm. 23. pt 1. 1903 (1905), p. 485 Jordan & Evermann give a description of the species, which they call *Gobiichthys lonchotus*, which species differs in several points from the specimens of *Oxyurichthys papuensis* which I have seen. It has, e. g., P. 19, scales 105, 22, depth 5,2, eye 4,35. Fowler (Memoirs B. P. Bishop Museum X. 1928, p. 416) drew already attention to the inconsequence in their description of *Gobiichthys* "teeth of upper jaw in a single row" and in their description of *Gobiichthys lonchotus*: "teeth in jaws in several series, unequal, sharp-pointed, slightly curved and rather small".

As I stated already in A Preliminary Revision etc. 1931 on p. 67 and 68, the specimens in the Leiden Museum, named *Gobius mystacinus* C. & V.,

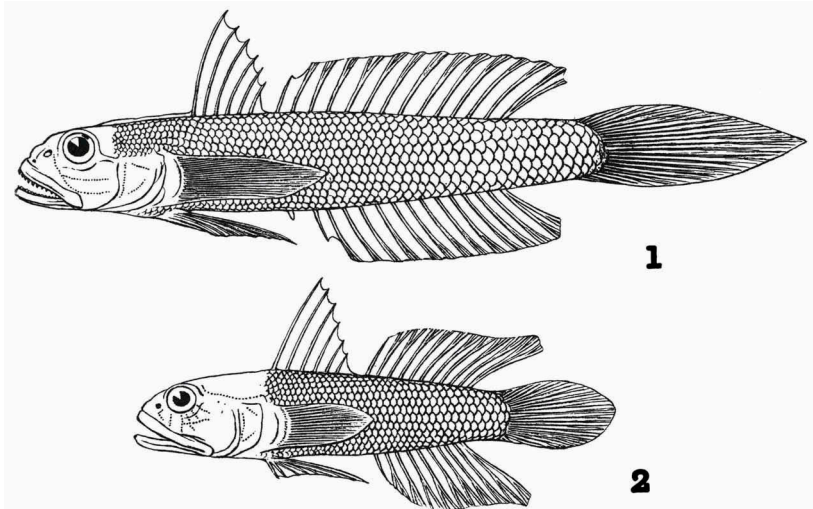


Fig. 1. Leiden Museum no. 1889, labelled as *Gobius mystacinus* C. & V., Java, Kuhl & v. Hasselt, belongs to *Oxyurichthys microlepis* (Blkr.). Natural size.

Fig. 2. Leiden Museum no. 12452, *Mahidolia normani* Smith & Koumans = *Waitea mystacina* (C. & V.). Natural size.

collected by Kuhl & Van Hasselt in Java differ from the description.
Zool. Meded. XVIII.

which Cuvier & Valenciennes give on p. 124 of their *Histoire Naturelle Poissons* XII. 1837. So I gave a description of these two specimens of the Leiden Museum no. 1889. Later on I found that these specimens belong to *Oxyurichthys microlepis* (Blkr.), so that the description on p. 67 and 68 of Preliminary Revision is a description of two specimens of *Oxyurichthys microlepis* (fig. 1). When I was in Paris in July 1934 I studied a specimen labelled: *Gobius mystacinus* C. & V., Kuhl & v. Hasselt, Java. This specimen agrees fully with the description of Cuvier & Valenciennes and there-

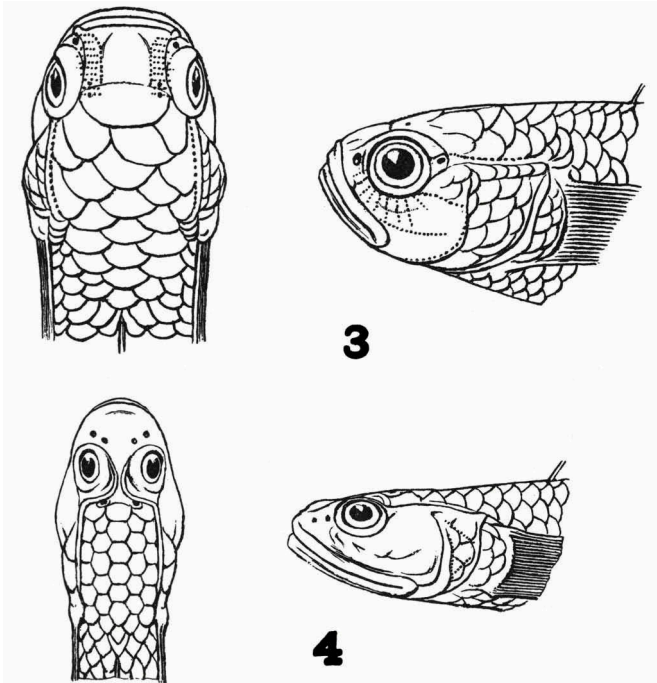


Fig. 3. *Stigmatogobius sadanundio* (H.B.). Leiden Museum no. 14376. $\times 2$.

Fig. 4. *Pseudogobioptis oligactis* (Blkr.). Leiden Museum no. 14050. $\times 2$.

fore I regard this specimen in the Paris Museum as the type of the species.

Gobius mystacinus was placed by Jordan & Seale into a new genus *Waitea*. The species is evidently closely allied to *Gobiopsis macrostomus* Steind., but as the description and the figure of *Gobiopsis macrostomus* Steind. are not clear in some characters, I am not able to decide whether *Gobiopsis* and *Waitea* are identical, therefore I keep them separate.

I found that the species *Mahidolia normani* Smith & Koumans is identical with the type-specimen of *Gobius mystacinus* C. & V. in the Paris Museum and therefore *Mahidolia* H. M. Smith and *Rictugobius* (Koumans M S.)

H. M. Smith, Journal Siam Soc. Nat. Hist. Suppl. VIII no. 4. 1932, p. 255 and 258 are named as synonyms of *Waitea* (fig. 2).

The species *Gobiopsis oligactis* Blkr. and *Gobius römeri* M. Weber differ from *Gobiopsis macrostomus* Steind. and *Gobius mystacinus* C. & V. in several important points. I therefore propose to bring *Gobiopsis oligactis* Blkr. and *Gobius römeri* M. Weber into a new genus, for which I propose the name *Pseudogobiopsis*. This genus *Pseudogobiopsis* in general appearance is close to *Stigmatogobius*, but differs in having the maxillary prolonged posteriorly (fig. 3 and 4).

Pseudogobiopsis new name

Gobiopsis Koumans Preliminary Revision 1931, p. 66 (pro parte).

Body elongate, anteriorly cylindrical, posteriorly compressed, covered with ± 28 ctenoid scales. Head compressed or depressed, scaled above behind the eyes and on operculum with large cycloid scales. The first predorsal scale is a large one, median close behind the eye. Interorbital less than 1 eyediameter. Mouth a little oblique. Maxillary prolonged posteriorly to behind the eye. Teeth small in several rows, outer row in upper jaw a little enlarged. Tongue emarginate to truncate. Gillopenings wide, continued forward below, isthmus narrow. Inner edge of shouldergirdle without fleshy flaps. Dorsal fins separate, D. 1 VI, D. 2 I. 6—7. V. united, under P. P. without free rays. C. oblong.

Type of the genus: *Gobiopsis oligactis* Bleeker.

Pseudogobiopsis oligactis (Blkr.) (fig. 4)

Gobiopsis oligactis Bleeker, Arch. Néerl. sc. ex. et nat. X. 1875, p. 113.

D. 1 VI, D. 2 I. 6; A. I. 6; P. 18—19; L.1. 28; L. tr. 7—8; Predorsal scales 7—8.

Body elongate, anteriorly cylindrical, posteriorly compressed, height a little more than 4 in length, more than 5 in total length. Head depressed, profile convex, $3\frac{1}{3}$ in length, 4 in total length. Eye $4\frac{1}{2}$ in head, interorbital less than 1 eye-diameter. Snout convex, shorter than eye; tip before lower part of eye. Jaws equal; maxillary extends to posterior margin of operculum. Teeth in front in several rows, laterally the number of rows decrease. In front in upper jaw outer row a little enlarged. Tongue bilobate. Head scaled above behind the eyes and laterally on operculum with large cycloid scales. Scales of body ctenoid, except those before first dorsal fin and those on breast, which are cycloid. D. 1 pointed, much lower than body, 1st ray sometimes filiform. D. 2 and A. higher than D. 1. P. rounded,

not shorter than head without snout. V. a little shorter than P., basal membrane weak. C. oblong.

Color: reddish-green to olive-green above, lighter below; each scale with a number of dark spots, placed in a transversal row. Head laterally with crowded blackish spots. D. 1 with dark spot at the top. D. 2 and C. with dark bands.

Length: 53 mm.

Habitat: Ambon in sea, Siam (Bangpakong river).

Beside the type-specimen of Bleeker from Ambon and 2 specimens from Siam, I found in the collection of the Zoological Museum of Amsterdam a specimen without locality and in Bleeker's collection I found in a bottle, which contains his specimens of *Glossogobius celebius*, 5 specimens of *Pseudogobiopsis oligactis*.

Pseudogobiopsis römeri (M. Weber)

Gobius römeri M. Weber, Abh. Senck. Ges. XXXIV. 1911, p. 39, fig. 8. — Siboga Exp. Fische 1913, p. 459.

Vaimosa macrognathos Herre, Monogr. 23 Bur. Sc. Manila 1927, p. 145, pl. 10, fig. 2.

D. 1 VI, D. 2 I. 7; A. I. 6; P. 17; L.l. 26—28; L. tr. 7—8; Predorsal scales 7—8.

Body elongate, compressed, height 4—5 in length, 5—6 in total length. Head subcylindrical to compressed, 3 in length, $3\frac{2}{3}$ in total length; dorsal profile convex. Eye $4\frac{1}{2}$ in head, interorbital $\frac{1}{2}$ eye-diameter. Snout obtuse, a little shorter than eye, tip under inferior margin of eye. Anterior nostril in a short tube. Lips thick. Mouth a little oblique, wide, lower jaw prominent or jaws subequal. Maxillary extends to behind eye. Teeth in each jaw in some rows, outer enlarged, a little caninoid. Tongue rounded. Some open pores round the eyes and in supra-opercular groove. Two longitudinal mucous canals over cheeks. Head scaled above behind eyes and on operculum with large cycloid scales. Scales of nape cycloid, the anterior one is a large scale in the median line. Scales on body ctenoid, on breast cycloid. D. 1 about as high as body, the anterior rays are the longest, sometimes filiform. D. 2 and A. lower than body. C. oblong, a little shorter than head. P. as long as head, V. a little shorter.

Color: yellowish; body with two alternating rows of dark brown spots on the dorsal half. Two dark spots in a vertical line at the base of caudal fin. Head with bent brown transverse bands. D. 1 with dark band half-way and dark margin. D. 2 with 2—4 longitudinal dark bands. C. with some dark irregular transverse bands.

Length: 43 mm.

Habitat: Java (riv. Sliling); Celebes (riv. near Palopo); Buton (Rumbia); Aru Islands (Wokam); Obi major (Laiwu); New Guinea (Merauke); Sulu Province (Bungau). — Philippines. In rivers, estuaries and sea.

Type specimen of *Gobius römeri* M. Weber seen.

Waitea Jordan & Seale

Waitea Jordan & Seale, Bull. Bur. Fish. XXV. 1905, p. 407 (*Gobius mystacinus* C. & V.).

Mahidolia H. M. Smith, Journal Siam Soc. Nat. Hist. Suppl. VIII no. 4 1932, p. 255 (*M. normani* Smith & Koumans).

Rictugobius (Koumans M S.) H. M. Smith l.c., p. 258.

Body elongate, compressed, scaled with 30—40 scales, ctenoid posteriorly, becoming cycloid anteriorly. Head a little compressed, naked. Eye large. Interorbital space narrow. Snout about as long as eye. Mouth a little oblique, wide; jaws subequal. Maxillary prolonged posteriorly to halfway preoperculum. Teeth in both jaws in several rows, outer row a little enlarged. In lower jaw inner row enlarged. No canines. Tongue rounded. Gillopenings continued forward below, isthmus narrow. No fleshy flaps on inner edge of shouldergirdle. Dorsal fins very close together. D. 1 with 6 rays, D. 2 with I. 10 rays, A. with I. 9 rays. V. united, oblong. P. without free rays, base naked. C. obtuse to oblong.

Type of the genus: *Gobius mystacinus* C. & V.

Waitea mystacina (C. & V.) (fig. 2)

Gobius mystacinus Cuvier & Valenciennes, Hist. Nat. Poissons XII. 1837, p. 124.

Gobius pulverulentus (K. & v. H.) Cuvier & Valenciennes, l.c., p. 125.

? *Waitea mystacina* Jordan & Seale, Bull. Bur. Fish. XXV. 1905, p. 407, fig. 94.

Waitea mystacina Herre, Monogr. 23 Bur. Sc. Manila 1927, p. 208.

Mahidolia normani H. M. Smith & Koumans, Journal Siam Soc. Nat. Hist. Suppl. VIII, No. 4, 1932, p. 256, pl. 23.

D. 1 VI, D. 2. I. 10; A. I. 9; P. 16—17; L.1. 37; L. tr. 13—15; Predorsal scales \pm 8.

Body elongate, compressed, height $4\frac{1}{3}$ in length. Head compressed, $3\frac{1}{2}$ in length, dorsal profile convex. Eyes 3— $3\frac{1}{2}$ in head, interorbital space very narrow, about $\frac{1}{4}$ of eye-diameter. Snout oblong, shorter than eye, tip before inferior margin of eye. Jaws subequal. Maxillary prolonged to halfway preoperculum or to posterior border of preoperculum. Teeth in both jaws in several rows, outer row a little enlarged, in lower jaw inner row enlarged. No canines. Tongue rounded. Some short mucous canals under eye, some longitudinal ones over cheeks. Scales of body

ctenoid posteriorly, cycloid anteriorly. Head naked, nape naked, except some scales just before insertion of D. 1. Breast scaled. First ray of D. 1 filiform, the other rays decreasing in length. D. 2 and A. high, the posterior rays are a little prolonged, reaching the caudal fin. C. obtuse to oblong. P. pointed, base naked. Color in spirits: light brown. Body with about 8 transverse bands, which are a little obliquely placed. Head and anterior part of body with dark dots. P. dark. Tip of D. 1 black; on D. 1 some dark bands. D. 2 indistinctly spotted. A. with a pale band near margin.

Length: 80 mm.

Habitat: Java; Ambon. — Siam (Chantabun estuary); East coast of Africa (Dar-es-Salaam); Philippines (Iloilo on Panay, Aparri on Luzon); Samoa?

The figure of *Waitea mystacina* (C. & V.) published by Jordan & Seale (Bull. Bur. Fish. XXV. 1905, p. 407, fig. 94) differs from the type specimen in Paris Museum in several respects. The anal fin shows I. 11 rays instead of I. 9 in the type specimen; in the figure the 5th ray of D. 1 is the longest, in the type specimen the first ray is the longest, the other rays decrease gradually in length. The shape of the caudal fin is not lanceolate in the type specimen, but much shorter, and finally the pattern of coloring is a totally other one. So I am not quite certain that Jordan & Seale had the real *Gobius mystacinus* of C. & V. in hands and therefore the locality Samoa is uncertain.

Callogobius hasselti (Blkr.)

This species was placed into several genera before Bleeker founded for it the genus *Callogobius* in 1853. Bleeker himself placed it in *Eleotris*, *Eleotriodes*, *Valenciennea* and *Valenciennesia*.

In 1880 Sauvage described in Bull. Soc. Philom. (7) IV p. 50 a specimen collected by Kuhl & v. Hasselt in Java as *Gobius (Oxyurichthys) coelidotus* C. & V. MS., which species is identical with *Callogobius hasselti*, as I found in examining the type specimen in Paris Museum. Prof. Weber stated already (Siboga Exp. Fische 1913, p. 480) that the collection of the Rijksmuseum van Natuurlijke Historie in Leiden contains a bottle with 3 specimens, labelled: *Gobius coelidotus* = *Callogobius hasselti* Blkr., collected by Kuhl & v. Hasselt Java.

Acentrogobius viridipunctatus (C. & V.)

In examining the type specimens of *Gobius venenatus* C. & V. and *viridipunctatus* C. & V. I found that these species are identical with one

another and with *Gobius chlorostigma* Blkr. (Verh. Bat. Gen. XXII. 1849, p. 27). The 4 specimens in Paris Museum labelled *Gobius sinensis* Osbeck, P. Roux Mer des Indes, belong to *A. viridipunctatus*. Of two bottles in Paris Museum, which are labelled: *Gobius viridipunctatus*, A. Dussumier Bombay, one contains a specimen of *A. viridipunctatus*, the other contains 2 specimens of *A. viridipunctatus* and 1 specimen of *Bathygobius fuscus* (Rüpp.).

***Acentrogobius chlorostigmatoides* (Blkr.)**

Gobius unicolor Cuvier & Valenciennes, Hist. Nat. Poissons XII. 1837, p. 88 (not of Kuhl & v. Hasselt).

Gobius chlorostigmatoides Bleeker, Verh. Bat. Gen. XXII. 1849, p. 26.

Gobius phaiomelas Bleeker, l.c., p. 28.

The specimens of *Gobius unicolor* Kuhl & v. Hasselt Java, preserved in the Leiden Museum and in the Paris Museum are totally different. The description of Cuvier & Valenciennes was probably made after the specimen, which is now preserved in the Paris Museum, as the specimens in the Leiden Museum no. 1919 belong to *Glossogobius giuris* (H.B.). On p. 37 of his Catalogue of Fishes, 1861, Günther writes: "Valenciennes' description of *G. unicolor* is evidently taken from a fish very different from the typical specimen preserved in the Leyden Museum." Therefore this species has to be named *chlorostigmatoides*.

***Acentrogobius puntang* (Blkr.)**

As I have seen the type specimen of *Gobius canalae* Sauvage in Paris Museum, I can add this species to the synonyms of *Acentrogobius puntang*.

***Acentrogobius cauerensis* (Blkr.)**

Gobius cauerensis Bleeker, Nat. Tijdschr. Ned. Indië IV, 1853, p. 269.

Gobius ophthalmotaenia Bleeker, ibid., VII. 1854, p. 46.

Gobius capistratus Peters, Monatsber. Ak. Wiss. Berlin 1855, p. 443. — Arch. Naturgesch. 21. 1. 1855, p. 251.

?*Gnatholepis knighti* Jordan & Evermann, Bull. U.S. Fish. Comm. XXII. 1902, p. 204. — ibid., XXIII part I. 1903, p. 487, pl. 58.

?*Gnatholepis knighti* Herre, Monogr. 23 Bur. Sc. Manila 1927, p. 137, pl. 29, fig. 1.

Gobius (Gnatholepis) knighti De Beaufort, Bijdr. Dierk. 1913, p. 138.

D. 1 VI, D. 2 I. 10—11; A. I. 11; P. 14—17; L.l. 30; L. tr. 9; Predorsal scales 8—11.

Body elongate, compressed, height $4-4\frac{2}{5}$ in length, $5\frac{1}{2}-6$ in total length. Head obtuse, compressed, $3\frac{1}{2}-4$ in length, $4\frac{1}{2}-5$ in total length; profile convex. Eyes 3—4 in head, interorbital $\frac{1}{3}-\frac{1}{2}$ eye-diameter. Snout obtuse, as long as eye, or a little shorter, tip below inferior margin of eye.

Jaws subequal or upper jaw a little prominent. Mouth a little oblique, lips thick. Maxillary extends to middle of eye or not so far. Teeth in several rows, in upper jaw on each side 2 canines, in lower jaw on each side a curved canine. Tongue bilobate. Longitudinal mucous canals over cheeks. Anteriorly in interorbital on each side an open pore, behind each eye an open pore at the beginning of supra-opercular groove. Head scaled above behind the eyes with more or less ctenoid scales. Cheeks with large cycloid scales, operculum with smaller weakly ctenoid scales. Scales of breast and belly cycloid, on body ctenoid. D. 1 obtuse, lower than body. D. 2 and A. a little higher than D. 1, pointed posteriorly. P. without free rays, obtuse, about as long as head. V. rounded, a little shorter. C. rounded, about as long as head.

Color: greenish above, lighter below. A violet streak from eye to behind maxillary. Snout, cheeks and opercles with light spots, nape with dark spots. Operculum with 1—2 purple streaks. Laterally on body dark spots and lines, on ventral part light and dark spots. D. 1 anteriorly with dark spots, posteriorly 5—6 rows of oblong orange spots. D. 2 dark with light spots. A. with purple oblong spots, basal half whitish, outer half violet. C. orange, lower margin violet, rays spotted.

Length: 79 mm.

Habitat: Red Sea-Zanzibar, Indo-Australian Archipelago to Hawaiian Islands? China.

Here I note that the specimens in the Paris Museum labelled: *Gobius ophthalmotaenia* Blkr., Harmand Pulo Condor, and Marche Luçon, belong to *Acentrogobius ornatus* (Rüpp.). The bottle in the Paris Museum labelled: *Gobius albopunctatus*, Desjardins Isle de France, contains 2 specimens of *Bathygobius fuscus* and 1 specimen of *Acentrogobius cauerensis*, as I wrote already above; in the same way the specimen Deyrolles Bourbon is an *A. cauerensis*.

I agree with Prof. Weber that *Gobius ophthalmotaenia* and *cauerensis* are to be united. Having seen the specimens of *Gnatholepis knighti* of Prof. De Beaufort from Saonek, I cannot find differences with *A. cauerensis*. I am not certain that *Gnatholepis knighti* Jordan & Evermann and Herre belong to this species or that it is a true *Gnatholepis*.

Several species of *Acentrogobius* with fully scaled cheeks and opercles are very close to *Gnatholepis*, so that several species will have to be changed of genus. The only character which I find until now that separates *Gnatholepis* and *Acentrogobius* is the width of the isthmus. In *Gnatholepis* the gillopenings are continued far forward below and so the isthmus is

narrow, in *Acentrogobius* the gillopenings are not continued forward, the isthmus is broad. As in the descriptions of most of the species this character is not given, I cannot make out in which genus they belong.

Acentrogobius ornatus (Rüpp.)

Gobius ornatus Rüppell, Atl. Reise N. Afr. Fische 1828, p. 135.

Gobius elegans Cuvier & Valenciennes, Hist. Nat. Poissons XII. 1837, p. 58 (not of Cantor Cat. p. 1161, Günther Cat. p. 18, Day Fish. India p. 293).

Gobius ventralis Cuvier & Valenciennes, l.c., p. 113.

Gobius ornatus Rüppell, Neue Wirbeltiere Fische 1838, p. 137.

Gobius interstinctus Richardson, Zool. Erebus & Terror Fishes 1844, p. 3.

Gobius periophthalmoides Bleeker, Nat. Tijdschr. Ned. Indië I. 1851, p. 249.

Gobius venustus Fowler, Journ. Ac. N. S. Philadelphia (2) XII. 1904, p. 551, pl. 27.

D. 1 VI, D. 2 I. 10—11; A. I. 8—9; P. 19—20; L.l. 28; L. tr. 8—9; Predorsal scales 10—12.

Body elongate, anteriorly cylindrical, posteriorly compressed, height 5—6 in length, $6-7\frac{2}{3}$ in total length. Head obtuse, subcylindrical, profile convex, $3\frac{2}{3}-4$ in length, $4\frac{1}{2}-5\frac{1}{4}$ in total length. Eyes 3—4 in head, interorbital about $\frac{1}{3}$ eye-diameter. Snout very obtuse, about as long as eye, tip below inferior margin of eye. Anterior nostrils in short tubes. Jaws subequal. Maxillary extends to middle of eye or not so far. Lips thick. Teeth in upper jaw: outer row with 3—4 caninoid teeth on each side; in lower jaw in young specimens outer row not enlarged, in adult on each side one weak caninus. Two or three longitudinal mucous canals over cheeks. No pore in interorbital, no pore behind eye. Head scaled above behind eyes with cycloid scales. Cheeks and opercles naked. Scales median on nape and of breast cycloid; laterally on nape and of belly ctenoid. D. 1 obtuse, lower than body, 2nd and 3rd rays are the longest. D. 2 and A lower than body, pointed posteriorly. P. obtuse, about as long as head, upper rays free. V. rounded, about as long as head. C. obtuse, of the same length.

Color: green to olivous above, lighter below. Laterally on body each scale with a shiny spot. Head laterally with small yellowish spots and 3 purple transverse streaks: the first over angle of maxillary, the last on border of preoperculum. Dorsal half of head and body with irregular rows of violet spots, on ventral half of body larger violet spots in two longitudinal rows. Dorsal fins reddish to yellowish, the membranes with oblong violet spots alternating with yellowish streaks in oblique series. P. orange, rays dark-spotted; base of P. with 2—3 dark spots. V. orange, tip violet. A. yellowish, dark-bordered; on basal half 2—4 purple streaks. C. orange with dark and yellow spots.

Length: 100 mm.

Habitat: From Red Sea to Australia, Fiji and Samoan Islands.

The species *Gobius elegans* var., which Cantor describes in Catal. Malayan Fishes, Journ. Asiat. Soc. Bengal, 18. 1850, p. 1161, Günther in Catal. of Fishes 1861, p. 18 and Day Fishes of India 1878, p. 293, are not identical with *Gobius elegans* of Cuvier & Valenciennes. In the Leiden Museum I examined the specimens of Java Kuhl & v. Hasselt and in the Paris Museum 2 specimens, New Guinea Quoy & Gaimard, and 1 specimen, Java Kuhl & v. Hasselt. All these specimens are identical with *Gobius ornatus* Rüppell.

As I noted already above, the specimens in the Paris Museum labelled: *Gobius ophthalmotaenia* Blkr., Harmand Poulo Condor, and Marche Luçon belong to *Acentrogobius ornatus* (Rüpp.).

Amblygobius sphynx (C. & V.)

Gobius sphynx Cuvier & Valenciennes, Hist. Nat. Poissons XII. 1837, p. 93.

Gobius deilus Sauvage, Bull. Soc. Philom. Paris (7) IV. 1880, p. 47.

D. 1 VI, D. 2 I. 14—15; A. I. 14—15; P. 17—19; L.l. 55; L.tr. 18; Predorsal scales 20—22.

Body elongate, compressed, height $3\frac{3}{5}$ —4 in length, $4\frac{3}{4}$ —5 in total length. Head obtuse, compressed, equal to height; profile convex. Eyes 3—4 in head, interorbital $\frac{3}{5}$ — $\frac{1}{2}$ eye-diameter. Snout obtuse, a little shorter than eye, tip before or below inferior margin of eye. Anterior nostrils in short tubes. Mouth oblique, jaws equal. Maxillary extends to below middle of eye or a little farther. Lips thick. Teeth in upper jaw in 3 rows, outer enlarged, on each side 5—6 caninoid teeth. In lower jaw anteriorly 2—3 rows; outer row enlarged, extends to half of the jaw and is composed of 6—8 caninoid teeth on each side, last tooth a large, curved canine. Mucous canals indistinct. An open pore in interorbital, an open pore behind each eye at the beginning of supra-opercular groove. Head scaled above behind the eyes and on upper parts of operculum with cycloid scales; scales of nape, breast and belly cycloid, other scales ctenoid. D. 1 lower than body, the middle rays are the longest. D. 2 and A. about as high as D. 1, pointed posteriorly. P. obtusely rounded, about as long as head. V. not shorter than P., basal membrane very low. C. obtusely rounded, about as long as head.

Color: upper parts reddish-green, lower parts reddish-orange. Body with 5—6 blackish to reddish more or less diffuse transversal bands; head with numerous pearl-like spots. Dorso-lateral scales with shiny spots. Fins reddish to purple with pearl-like spots. C. at upper part of base with

blackish spot. Brancial membrane with blackish streak, which is bordered with orange.

Length: 110 mm.

Habitat: Red Sea; Pulo Condor; Philippines; Indo-Australian Archipelago.

Type specimens seen of *Gobius sphynx* C. & V. and *Gobius deilus* Sauvage in Paris Museum.

Amblygobius decussatus (Blkr.)

Gobius decussatus Bleeker, Nat. Tijdschr. Ned. Indië VIII. 1855, p. 442.

Rhinogobius perpusillus Seale, Philipp. Journ. Sci. 1909, A IV. p. 534.

Amblygobius perpusillus buanensis Herre, Monogr. 23 Bur. Sc. Manila 1927, p. 230, pl. 18, fig. 2.

D. 1 VI, D. 2. I. 13—15; A. I. 13; P. 18; L.l. 60—65; L.tr. 18; Predorsal scales 28.

Body elongate, compressed, height $4\frac{1}{2}$ in length, $5\frac{1}{2}$ in total length. Head compressed, 4 in length, 5 in total length, profile convex. Eye $3-3\frac{1}{2}$ in head, interorbital about $\frac{1}{2}$ eye-diameter. Snout obtuse, a little shorter than eye, tip a little below inferior margin of eye. Anterior nostrils in short tubes. Jaws equal. Maxillary extends to below anterior half of eye. Teeth in upper jaw in 3 rows, outer enlarged, 4—5 caninoid teeth on each side. In lower jaw 2 rows, outer enlarged, composed of 6 teeth, the last one is a curved canine. Two open pores in median line in interorbital space. An open pore behind eye at the beginning of supra-opercular groove. A row of 3 open pores along posterior margin of preoperculum. Head scaled above behind eyes and on upper part of operculum with cycloid scales. Scales of nape, breast and belly cycloid, other scales ctenoid. Dorsal fins with the bases subcontinuous. D. 1 a half of height of body, middle rays the longest. D. 2 and A. not much higher than D. 1, pointed posteriorly. P. obtusely rounded, not longer than head. V. obtuse, not longer than head without snout, basal membrane very low. C. obtuse, a little longer than head.

Color: upper parts greenish-red, lower parts pearl colored. Head laterally with 2 red streaks, bordered with black or blue, upper one from snout through eye to supra-opercular groove, lower one from chin to behind maxillary to operculum. Head and breast with numerous small blue spots. On upper part of body 4 red to dark orange longitudinal streaks, crossed by 10—12 transversal streaks of the same color. Upper part of C. with orange ocellus, bordered by blue. Dorsal fins and A. orange with

many blue streaks, which are a little obliquely placed. P. violet, base orange. V. orange. C. orange, bordered with blue.

Length: 65 mm.

Habitat: Philippines; Indo-Australian Archipelago.

Type of Bleeker's *Gobius decussatus* seen. Although I have not seen specimens of *Rhinogobius perpusillus*, I believe that this species is a synonym of *Amblygobius decussatus* (Blkr.). It seems that the predorsal scales of this species are deciduous, for some specimens of Bleeker's collection have the nape nearly naked.

Amblygobius bynoensis (Rich.)

Gobius bynoensis Richardson, Voy. Erebus and Terror Fishes, 1844, p. 1, t. 1, fig. 1—2.

Gobius stethophthalmus Bleeker, Nat. Tijdschr. Ned. Indië I. 1851, p. 248, fig. 7.

Apocryptes lineatus Alleyne & Macleay, Proc. Linn. Soc. N. S. Wales I. 1877, p. 332, t. 12, fig. 3.

Apocryptes bivittatus Macleay, *ibid.*, II. 1878, p. 357, t. 9, fig. 5.

Gobius harmandi Sauvage, Bull. Soc. Philom. Paris (7) IV. 1880, p. 49.

D. 1 VI, D. 2 I. 13—16; A. I. 14—16; P. 17—20; L.l. 70—75; L. tr. 24; Predorsal scales 40.

Body elongate, compressed, height $4-4\frac{3}{4}$ in length, $5-5\frac{3}{4}$ in total length. Head compressed $3.4-4$ in length, $4\frac{3}{4}-5$ in total length. Eye $3\frac{1}{2}-4$ in head, interorbital $\frac{2}{5}-\frac{2}{3}$ eye-diameter. Anterior nostril in a short tube. Snout a little longer than eye, tip before lower margin of eye. Mouth oblique, jaws subequal. Maxillary extends to anterior half of eye. Teeth in upper jaw in 3 rows, outer enlarged, 4—5 caninoid teeth on each side. In lower jaw 2—3 rows, outer enlarged, laterally on each side 1—2 curved canines. A large open pore on inner side of anterior nostril, 2 in median line in interorbital, 5 pores in supra-opercular groove, 3 along posterior margin of preoperculum. Head scaled above behind the eyes, a few rudimentary scales at upper margin of operculum. Scales of head, nape, breast and belly cycloid, other scales ctenoid. Bases of dorsal fins subcontinuous. D. 1 a little lower than body. D. 2 and A. not higher than D. 1, posteriorly pointed. P. rounded, not longer than head. V. a little shorter than head. C. obtuse, about as long as head.

Color: yellowish-red above, pearly below. Head with 2 brownish violet bands, bordered with blue, the upper one from eye to beneath first dorsal fin, the lower one from behind maxillary across operculum to base of P., ending in a spot on base of P. Cheeks and opercles with blue spots surrounded by violet; on preoperculum an oblique blue streak. Upper parts of head and nape on each side with 5—7 blackish-violet ocelli,

placed in a longitudinal row. Beneath D. 1 2—3 dark, short transverse streaks, beneath D. 2 4—5 short oblong transverse bands. At base of C. a brown spot. Dorsal fins with many pearly spots. Dorsal fins and A. with violet margin.

Length: 94 mm.

Habitat: From Andaman Islands through Indo-Australian Archipelago to Australia.

In Paris Museum I found a bottle which contains 5 specimens, labelled *Gobius harmandi* Sauv., Poulo Condor Harmand; on this bottle another label was pasted: *Gobius (Amblygobius) bynoensis*. These 5 specimens belong indeed to *A. bynoensis*. In the same way the 5 specimens in the bottle labelled *Gobius harmandi* Sauv., Cochinchine Jouan belong to *A. bynoensis*. As these 10 specimens are the types of *Gobius harmandi*, this species is a synonym of *Amblygobius bynoensis* (Rich.).

In A Preliminary Revision 1931, I noted that the specimen of the collection of the Leiden Museum labelled: no. 1895 *Gobius baliurus*, Java Kuhl & v. Hasselt, did not belong to that species, but to the genus *Awaous*. This specimen is a very large one (170 mm) of *Awaous stamineus* Val. as I could determine in examining the type specimen in the Paris Museum.

The specimen in the Paris Museum, *Gobius baliurus* Kuhl & v. Hasselt Java, belongs without doubt to the genus *Gnatholepis*, so the genus *Isthmogobius*, in which Bleeker intended to place this species, is a synonym of *Gnatholepis*. In 1931 I named it on p. 86 with a? under the synonyms of *Gnatholepis*. The 6 specimens in the Paris Museum, *Gobius baliurus* C. & V., Mer des Indes P. Roux, belong to *Bathygobius fuscus* (Rüpp.).

Oligolepis acutipinnis (C. & V.)

Gobius acutipennis Cuvier & Valenciennes, Hist. Nat. Poissons XII. 1837, p. 80.

Gobius setosus Cuvier & Valenciennes, l.c., p. 81.

Gobius pasuruensis Bleeker, Verh. Bat. Gen. XXII. 1849, p. 32.

Gobius melanostigma Bleeker, l.c., p. 32.

Gobius spilurus Bleeker, l.c., p. 32.

Gobius temminckii Bleeker, l.c., p. 33.

Gobius oligolepis Bleeker, Nat. Tijdschr. Ned. Indië V. 1853, p. 508.

Rhinogobius ocyurus Jordan & Seale, Bull. Bur. Fisheries 26. 1907, p. 42, fig. 14.

D. 1 VI, D. 2 I. 10—11; A. I. 10—11; P. 20—21; L.1. 27—30; L. tr. 7—8.

Body elongate, compressed, height $4\frac{1}{4}$ — $4\frac{1}{2}$ in length, $5\frac{1}{2}$ —7 in total length. Head obtuse, a little compressed, 4 in length, 5—6 in total length, profile convex. Eyes 3—4 in head, interorbital $\frac{1}{3}$ eye-diameter. Snout obtuse, about as long as eye; tip below inferior margin of eye. Anterior

nostrils in short tubes. Jaws subequal. Maxillary extends to below inferior part of eye or not so far. Teeth anteriorly in several rows; in upper jaw outer row enlarged anteriorly, in lower jaw inner row enlarged. In interorbital anteriorly on each side an open pore, posteriorly an open pore in median line. An open pore behind eye at the beginning of supra-opercular groove. From posterior nostril a mucous canal, divided into 2 branches, running longitudinally over cheeks. Head and nape naked, a few scales close before insertion of D. 1. Scales on belly cycloid, other scales ctenoid. D. 1 about as high as body, middle rays are the longest, sometimes prolonged. D. 2 and A. about as high as D. 1, pointed posteriorly. P. obtuse, a little longer than head. V. obtuse, not longer than head. C. lanceolate, longer than head.

Color: yellowish. From eye to behind maxillary an oblique violet streak. Five dark large spots, alternating with short dark transversal stripes, in a longitudinal row along the side. Back with transverse bars. Head and back with minute black spots. Fins reddish. Membrane of dorsal fins and C. with rows of dark spots. Dark spot on base of P. V. reddish, in middle violet.

Length: 115 mm.

Habitat: From India to the Indo-Australian Archipelago, Philippines.

Types seen of *G. acutipinnis* C. & V., *G. setosus* C. & V., *melanostigma* Blkr. After studying the specimens of Cuvier & Valenciennes and Bleeker, I found that the species are identical.

This species has changed often from one genus to another. Bleeker created for it a new subgenus *Oligolepis* of *Stenogobius*. Smith & Seale placed it in *Acentrogobius*, Jordan & Seale in *Rhinogobius* and Jordan & Richardson in *Aparrius*. Herre placed *G. oligolepis* into *Gobius*, *G. acutipinnis* into *Aparrius*. He did so, because Bleeker mentions free rays in pectoral fin in *G. oligolepis*. I have seen the specimens of Bleeker's collection, and I cannot find that the upper rays of the pectoral fin are threadlike.

Gobius rouxi M. Weber, Abh. Senck. Ges. XXXIV. 1911, p. 40, from the Aru Islands, was described after young specimens of which the scales of nape and operculum were fallen out. I have seen the types of *G. rouxi*, and find them identical with *Stigmatogobius javanicus* (Blkr.).

Gobius baliuroides Blkr., Verh. Bat. Gen. XXII. 1849, p. 26 is a doubtful species, described from Madura. As the type is lost and the description does not give us characters, with which it is possible to determine it, we can only guess which species is meant.

The specimens of *Gobius (baliuroides)* Blkr.?? from Flores (river near Mbawa and river near Ba near Endeh) published by M. Weber Zool. Ergeb. III. 1894, p. 413, belong to *Stiphodon elegans* (Steind.).

Rhinogobius baliuroides Jordan & Richardson, Bull. Bur. Fisheries 27. 1908, p. 276 and Herre, Monogr. 23 Bur. Sci. Manila 1927, p. 188, probably belong to *Ctenogobius reichei* (Blkr.)

Illana bicirrhosus (M. Weber)

Gobius bicirrhosus M. Weber, Zool. Ergeb. III. 1894, p. 412.

Illana cacabet Smith & Seale, Proc. Biol. Soc. Washington XIX. 1906, p. 80, fig.

Illana cacabet Herre, Monogr. 23 Bur. Sci. Manila 1927, p. 269, pl. 21, fig. 3.

D. 1 VI, D. 2 I. 9; A. I. 8; P. 18—19; L.l. 30—32; L.tr. 9; Predorsal scales 13—15.

Body elongate, compressed, height 6 in length. Head $3\frac{1}{2}$ — $3\frac{3}{4}$ in length, profile a little convex. Eye $3\frac{3}{4}$ —4 in head. Interorbital less than $\frac{1}{2}$ eye-diameter. Snout blunt, about as long as eye, tip before lower half of eye. Mouth a little oblique, lower jaw prominent. Maxillary extends to below the anterior border of eye or not so far. Teeth in upper jaw in some rows, outer and inner row enlarged; in lower jaw in front outer row enlarged, laterally inner row enlarged. Tongue deeply emarginate. 5—6 longitudinal mucous canals and 2 oblique ones over preoperculum. Two barbels under chin. Head scaled above behind eyes, rest of head naked. Scales of body ctenoid, scales of breast cycloid. D. 1 about as high as body, 2nd ray is the longest. D. 2 and A. lower than body. C. oblong, about as long as head. P. and V. a little shorter than head.

Color in spirits: yellowish brown with 4 indistinct bands over back, 1st before D. 1, 2nd on the place of insertion of D. 1, 3rd on the place of insertion of D. 2, 4th just behind D. 2. Along the side a longitudinal row of 5 dark blotches, alternating with the indistinct bands on the back. Cheeks clouded with dark. Dorsal fins with oblique lines of dark dots. C. with vertical brown bands.

Length: 85 mm.

Habitat: Philippines (Rio Grande in Mindanao); Celebes (Maros river); Java (Bezoeki).

Types of *Gobius bicirrhosus* M. Weber seen.

After examining the type specimens of *Gobius bicirrhosus*, which species belongs to *Illana*, I believe that *Illana cacabet* is identical with it. This species in general appearance is strongly alike to *Glossogobius*, especially to specimens, which were brought to *Gobius celebius* C. & V., but it is at once distinguished by the presence of two barbels at the chin.

Cryptocentroides insignis (Seale)

- Amblygobius insignis* Seale, Philipp. Journal Sci. D. 5. 1910, p. 116, pl. 2, fig. 1.
Gobius (Cryptocentrus) stigmatophorus De Beaufort, Zool. Anz. XXXIX. 1912, p. 136. — Bijdr. Dierkunde 1913, p. 141.
Cryptocentroides dentatus Popta, Zool. Med. Leiden VII. 1922, p. 33.
Amblygobius insignis Herre, Monogr. 23 Bur. Sci. Manila 1927, p. 234, pl. 18, fig. 3.

D. 1 VI. D. 2 I. 11—13; A. I. 12—13; P. 16—17; L.l. 70—75; L.tr. 25—30.

Body elongate, compressed, height $5-5\frac{2}{5}$ in length, $6-6\frac{3}{5}$ in total length. Head little compressed, more than 3 to $3\frac{3}{4}$ in length, $4\frac{1}{2}$ in total length. Eyes $3\frac{2}{3}-4\frac{5}{6}$ in head. Interorbital narrow. Snout obtuse, shorter than eye. Mouth oblique. Maxillary extends to below anterior half of eye. Teeth in several rows, outer enlarged, caninoid, 8 on each side in upper jaw, 5—6 on each side in lower jaw. Outer row in lower jaw extends to halfway the jaw, last teeth curved canines. Tongue rounded. Two longitudinal mucous canals on cheeks, one round the lower part of eye. An open pore in median line anteriorly in interorbital, one in median line posteriorly, some in supraopercular groove. A low dermal crest in median line before D. 1. Head naked, nape naked. Scales of body ctenoid, beginning from a line from the insertion of D. 1 to the upper end of the gillopenings, only the foremost rows are more or less cycloid. 2nd or 3rd ray of D. 1 is the longest. D. 1 lower than body. D. 2 lower than D. 1. C. oblong, shorter than head.

Color in spirits: greyish brown with ± 14 narrow light bands on body, running from back obliquely downwards and backwards. Most of the scales of the body have a blue vertical stripe. Cheeks and opercles spotted with light blue ocelli, surrounded by deeper blue, or some oblique bands on head? Black spots on sides of head and body. Some larger spots behind eye and above the hinder margin of operculum, forming a conspicuous dark patch. A black band across base of D. 1; 3 rows of black spots on D. 2. A. with submarginal dusky band and dark spot at the base between each ray. C. crossed by ± 5 dark bands, formed by spots between the rays. P. dusky at the base. V. pigmented with dusky spots.

Length: 66 mm.

Habitat: Saonek near Waigau, reef; Muna (Raha); Philippines.

Type of *Gobius (Cryptocentrus) stigmatophorus* Bfrt. seen.

Miss Popta gives some differences between *Cryptocentroides dentatus* and *stigmatophorus* (l. c. p. 35). The only difference I can find between the description of *dentatus* and the type-specimen of *stigmatophorus* is

the pattern of color of the head. The differences in measurements of head, eye, snout and length of dorsal rays in my opinion are due to difference of age of the specimens of Miss Popta and Prof. De Beaufort.

Cuvier & Valenciennes established in Hist. Nat. Poissons XII. 1837 a number of species, which have given some difficulties in literature. These species: *Gobius kokius*, *biocellatus*, *celebius*, *Russelii*, *catebus* and *kora*, are very similar among each other and to *Gobius giuris* H. B. So Günther, Catalogue of Fishes III. 1861, regarded these species, except *biocellatus*, as synonyms of *giuris* H. B. After him, Day, Fishes of India 1878, p. 289, regarded *Gobius biocellatus* as a valid species, but referred to it as synonyms *Gobius celebius* C. & V. and *G. subtilus* Cant. The other species of C. & V. were brought by him to *Gobius giuris* C. & V. Bleeker was the first, who regarded *Gobius celebius* C. & V. as a valid species in Nat. Tijdschr. Ned. Indië VII. 1854, p. 318. In his collection he has further separated specimens as *Glossogobius catebus* and *biocellatus* from his specimens named *Glossogobius giuris*. M. Weber has separated *Gobius biocellatus* and *celebius* from *giuris* in Zool. Ergeb. III. p. 411.

M. Weber gives in Siboga Exp. Fische 1913, p. 468—469 a description of the differences between *Gobius giuris* and *celebius*, which are repeated in Bijdragen Dierkunde 1914, p. 209—211 in the description of the new species *Gobius matanensis* M. Weber. These differences are brought by Prof. Weber into a key, which is translated:

Distance from tip of snout to hinder margin of eye shorter than postorbital part of head.	}	<i>Gobius giuris</i> . Head 4 in total length. Distance hinder margin of eye to insertion of D. 1 longer than head without snout.	}	more than 20 predorsal scales.
Distance from tip of snout to hinder margin of eye longer than postorbital part of head.	}	<i>Gobius matanensis</i> . Head less than 4 in total length. Distance hinder margin of eye to insertion D. 1 as long as or scarcely longer than head without snout.	}	less than 20 predorsal scales.
	}	<i>Gobius celebius</i> . Head 4 or more than 4 in total length. Distance hinder margin of eye to insertion D. 1 as long as or shorter than head without snout.	}	less than 20 predorsal scales.

These differences I have tested in the specimens of the Zoological Museum at Amsterdam and the Rijksmuseum van Natuurlijke Historie at Leiden.

The measurements given by Prof. Weber in his key I indicate with letters. The distance from tip of snout to hinder margin of eye, I indicate as a., the postorbital part of head as b., the distance hinder margin of eye to insertion of D. 1 as c., and the head without snout as d. (see figure 5). In this way the simplified key of Prof. Weber would become:

a. < b.	{	<i>Gobius giuris</i> . Head 4 in total length. c. > d.	}	More than 20 predorsal scales
		<i>Gobius matanensis</i> . Head less than 4 in total length. c. = > d.		
a. > b.	{	<i>Gobius celebius</i> . Head 4 or more than 4 in total length. c. = < d.	}	Less than 20 predorsal scales

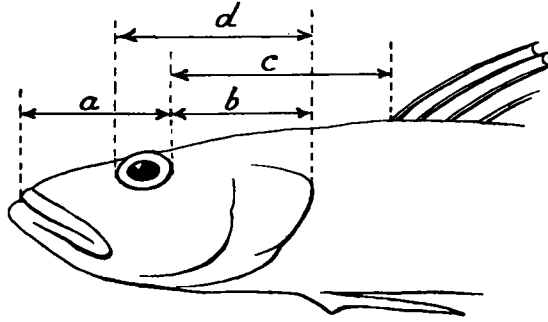


Fig. 5. Measurements of the head of a *Glossogobius*.

In the specimens from Bleeker's collection named by him *Glossogobius catebus* (C. & V.), I found a. < b.; c. > d. Head was $4-4\frac{1}{3}$ in total length, the number of predorsal scales 27—30. These 46 specimens agree therefore with *Gobius giuris* in Prof. Weber's key.

In examining the type-specimens of *Gobius matanensis* M. Weber, I found the measurements of the head as given by Prof. Weber. The number of predorsal scales was about 22.

In examining 20 specimens from Bleeker's collection, brought by him to *Glossogobius giuris*, I found a number of specimens, in which a. < b., in other specimens, however, a. was equal to b.; c. was longer than, or as long as d. The number of predorsal scales varied from 17—24. The same facts I found in other specimens from the collections mentioned above, which were brought to *Glossogobius giuris*. Some specimens from the Zoological Museum of Amsterdam, however, showed interesting differences, some of which have been published by Prof. Weber. A number of speci-

mens from Sentani-lake in New Guinea agreed with *Gobius giuris* in Prof. Weber's key, but the transversal line between the insertion of D. 2 and A. showed 10—12 scales instead of 8—10. The number of predorsal scales was about 29. In the number of scales in transverse line they show therefore affinity to *Gobius matanensis*, in which the number is 13—14. In specimens from Noord river, Alkmaar New Guinea, the transverse line showed 10—11 scales.

In some specimens from river Klipong and river Wagani, both on New Guinea, a. was equal to b.; c. was longer than d. In these respects therefore they belong to *Gobius giuris* of the key. The number of predorsal scales in specimens from river Klipong was 16—17, in specimens from river Wagani 13—14; specimens from river Wagani showed the black spot on the posterior part of D. 1, as mentioned by M. Weber in Siboga Exp. Fische p. 469. These specimens therefore show a passing over to *G. celebius*.

Examining 56 specimens brought by Bleeker in his collection to *Glossogobius celebius*, I found a. shorter than, equal to, or longer than b.; c. was longer than or equal to d. The number of predorsal scales was 12—16. In other specimens from the collections of the Zoological Museum Amsterdam and Rijksmuseum van Natuurlijke Historie Leiden, a. was longer than b.; c. however was longer than or equal to d. The number of predorsal scales was 12—14. In a specimen from Singapore (Leiden Museum no. 11209) a. is equal to b.; c. longer than d. Predorsal scales 13. A specimen from Raha on Muna (Leiden Museum no. 10661) has a. shorter than b.; c. is longer than d. Predorsal scales 16. This specimen shows therefore characters, both of *giuris* and *celebius*.

Specimens from Zoological Museum Amsterdam from Alkmaar, North New Guinea show a. longer than or equal to b.; c. longer than d.; predorsal scales 14—15. Dark spot posteriorly on D. 1. present or absent. These specimens are also intermediate between *giuris* and *celebius*. A specimen from Posso, Celebes, Kruyt 1898, shows a. longer than b.; c. longer than d.; predorsal scales 16; L.tr. 10. It has therefore characters of *matanensis* (a. > b.; c. > d.) and of *celebius* (pred. 16; L. tr. 10). The teeth of outer row were caninoid, no black spot on D. 1.

We see therefore that the forms, which Prof. Weber considered as species, can be neatly distinguished in a number of specimens. Other specimens, however, show characters, which stand between these forms. Therefore I cannot regard these forms as species.

Glossogobius giuris (H. B.) is a very variable species and forms the varieties *giuris*, *celebius* and *matanensis*, based on characters, which are present in the extreme forms, between which we can find a number of

specimens of which it is impossible to make out, to which variety they belong. Neither the number of predorsal scales, nor the distances as given by Prof. M. Weber, nor the number of scales in transverse series are without intermediate forms.

Glossogobius giuris (Ham. Buch.)

- ?? *Gobius gutum* Hamilton Buchanan, Fishes Ganges 1822, p. 50.
Gobius giuris Hamilton Buchanan, l.c., p. 51, 366, pl. 33, fig. 15.
Gobius kokiuis Cuvier & Valenciennes, Hist. Nat. Poissons XII. 1837, p. 68.
Gobius giuris Cuvier & Valenciennes, l.c., p. 72.
Gobius celebius Cuvier & Valenciennes, l.c., p. 74.
Gobius Russelii Cuvier & Valenciennes, l.c., p. 75.
Gobius catebus Cuvier & Valenciennes, l.c., p. 76.
Gobius kora Cuvier & Valenciennes, l.c., p. 77.
Gobius korpah Sykes, Ann. Mag. Nat. Hist. 4. 1840, p. 55. — Trans. Zool. Soc. London II. 1841, p. 352, pl. 61, fig. 1.
Gobius fasciato-punctatus Richardson, Voy. Sulphur Ichth. 1844, p. 145, pl. 62, figs. 13, 14.
Gobius phaiosoma Bleeker, Verh. Bat. Gen. XXII. 1849, p. 30.
Gobius fusiformis Bleeker, l.c., p. 30.
Gobius phaiospilosoma Bleeker, l.c., p. 30.
Gobius brunneus Temminck & Schlegel, Fauna Japonica 1850, pl. 74, fig. 2.
Gobius olivaceus Temminck & Schlegel, l.c., pl. 74, fig. 3.
Gobius platycephalus Peters, Monatsber. Ak. Berlin 1852, p. 681 (not of Rich.?).
Gobius unicolor Kuhl & v. Hasselt (not of C. & V.) Günther, Catalogue Fishes III. 1861, p. 23.
Gobius spectabilis Günther, l.c., p. 45.
Gobius pavo Steindachner, Sitz. ber. Ak. Wien LV. 1867, p. 715.
Gobius obscuripinnis Peters, Monatsber. Ak. Berlin 1868, p. 263.
Gobius olivaceus Bleeker, Versl. Ak. Amsterdam (2) III. 1869, p. 244.
Gobius sauroides Castelnau, Proc. Linn. Soc. N. S. Wales III, 1878, p. 48.
Gobius Boscii Sauvage, Bull. Soc. Philom. Paris (7) IV. 1880, p. 44.
Gobius circumconspectus Macleay, Proc. Linn. Soc. N. S. Wales VIII. 1883, p. 267.
Eleotris laticeps De Vis, Proc. Linn. Soc. N. S. Wales IX. 1884, p. 692.
Gobius concavifrons Ramsay & Ogilby, Proc. Linn. Soc. N. S. Wales (2) I. 1886, p. 12.
Gobius matanensis M. Weber, Bijdragen Dierkunde 1914, p. 209, fig. 7.
 ?? *Gobius gutum* Hora, Mem. Indian Mus. IX. No. 4. 1929, pl. XIV, fig. 7. — Rec. Indian Mus. XXXVI. 1934, p. 484, 486.

D. 1 VI, D. 2 I. 8—9; A. I. 7—8; P. 17—21; L.l. 28—36; L. tr. 8—14; Predorsal scales 12—30.

Body elongate, anteriorly cylindrical, posteriorly compressed, height 5— $6\frac{1}{4}$ in length, 6— $8\frac{1}{2}$ in total length. Head pointed, depressed, 3— $3\frac{3}{4}$ in length, $3\frac{3}{4}$ — $4\frac{1}{4}$ in total length. Profile straight to a little convex. Eyes 4—8 in head, interorbital $\frac{1}{3}$ —1 eye-diameter. On each side of interorbital space a low crest. Snout pointed, convex; in young specimens shorter than eye, in adult longer than eye. Tip of snout before middle or lower part of eye. Lower jaw prominent. Maxillary extends to below anterior part of

eye, or only to anterior border of eye. Lips thick. Teeth of outer and inner row enlarged, in front caninoid. Tongue bilobate. Some (3—5) longitudinal mucous canals over cheeks. Head scaled above behind the eyes and on upper part of operculum, upper part of preoperculum sometimes scaled. Scales of head nearly all cycloid, of breast and belly cycloid, other scales ctenoid. Dorsal fins close together, D. 1 lower than body, 2nd, 3rd and 4th ray are the longest, sometimes filiform. D. 2 and A. pointed posteriorly. P. as long as or longer than head without snout. V. obtuse, a little shorter than P. C. obtuse to oblong, about as long as head.

Color: olive green to blackish green above, lighter below. Head laterally with irregular dark to violet spots. Laterally on body two alternating longitudinal rows, each of 4—6 dark blotches, which disappear sometimes in large specimens. Fins yellowish green. The rays of dorsal fins, caudal and pectoral fin are spotted with dark spots. D. 1 sometimes with dark spot posteriorly. A. sometimes with black margin. P. with dark spot above on base. V. sometimes dusky.

Length: 349 mm.

Habitat: From the East Coast of Africa to Australia; Philippines; China; Japan.

Types seen of: *Gobius fasciato-punctatus* Rich., *brunneus* T. & Schl., *unicolor* K. & v. H., *spectabilis* Gthr., *bosci* Sauv., *matanensis* M. Web. 3 specimens seen in Paris Museum, labelled: *Gobius obscuripinnis* Ptrs. Luçon Mus. Berlin.

As I noted already above, the specimen *Gobius unicolor* C. & V. (not K. & v. H.) in Paris Museum is not identical with the specimens in the Leiden Museum, but belongs to *Acentrogobius chlorostigmatoides* (Blkr.).

The species *Gobius brunneus* T. & Schl. and *olivaceus* T. & Schl. are brought by several authors to *Glossogobius*. Indeed the figures given of these species in Fauna Japonica pl. 74, fig. 2 and 3, bear a strong resemblance to this genus. *Gobius olivaceus* was described after a figure of Bürger; of this species, therefore, no type specimen exists. The specimen, which Bleeker names as *Gobius olivaceus* Schl. (Versl. Ak. Amsterdam (2) III. 1869, p. 244) and as *Glossogobius olivaceus* in Verh. Ak. Amsterdam XVIII. 1879, p. 19, belongs to *Glossogobius giuris* (H. B.). The type specimen of *Gobius brunneus* T. & Schl. in the Rijksmuseum van Natuurlijke Historie Leiden no. 1923, is a young specimen, which does not belong to *Glossogobius*, but to *Rhinogobius*. It is closely allied to, perhaps identical with *Rhinogobius similis* Gill. The figure in Fauna Japonica pl. 74, fig. 2 is not made after this specimen. Below the original drawing of this figure was written: *Gobius* no. 52 and later on the name *brunneus* was placed be-

tween the word *Gobius* and no. 52. This number 52 refers to a manuscript by Bürger on Japanese Fishes in which no. 52 gives a description of a *Gobius*. Later on is added on this page the name *brunneus*, written by the same person, who has written the word *brunneus* on the original drawing, used in pl. 74, fig. 2 of Fauna Japonica. The description in the manuscript by Bürger is written in the Netherlands language and gives several characters, which are omitted in the description in Fauna Japonica. Some of these characters are (translated in English): "Head: short, thick, broad, in front blunt, totally smooth, without scales. Jaws: equal, with several rows of small, sharp, pointed teeth. Tongue: short, thick, rounded, smooth. Gill-openings: short, narrow". These characters agree with the type specimen of *Gobius brunneus*, but do not agree with the figure in Fauna Japonica. The description in Fauna Japonica does not give the characters, which are necessary to make out which species is meant. Therefore I believe that two species are mixed here, one (a *Rhinogobius*) on which Bürger based the description of his manuscript, and to which the type specimen of *Gobius brunneus* belongs, and another (a *Glossogobius giuris*) after which was made the figure in Fauna Japonica pl. 74, fig. 2.

In Records of the Indian Museum XXXVI, 1934, p. 484, 486, Hora regards *Gobius gutum* H. B. as a "pug-headed and abnormal form of *Glossogobius giuris* H. B. As I cannot test this opinion I place an interrogation sign before *Gobius gutum* in the list of synonyms.
