

II.—On a Collection of Fishes from the Inland Sea of Japan made by Mr. R. Gordon Smith. By C. TATE REGAN, B.A.

[Plates II. & III.]

THE British Museum has recently received from Mr. R. Gordon Smith a large series of fishes collected by him in the Inland Sea of Japan, containing examples of thirteen species which appear to be new to science.

In the following list I have included the new species, with some which appear to be new to the Japanese fauna and others which it seems useful to notice or to redescribe.

1. *Clupea zunasi*, Bleek.

Günther places this species in the section with toothless palate, but although the palate appears to lack teeth in the typical example preserved in the British Museum, several specimens collected by Mr. Gordon Smith have small teeth on the palate, as stated by Bleeker in his description of the species.

2. *Ophichthys intermedius*, sp. n.

Depth of body  $2\frac{2}{5}$  in the length of head, which is  $3\frac{1}{5}$  in the length of the trunk or  $10\frac{2}{3}$  in the total length of the fish. Length of tail  $1\frac{3}{5}$  that of head and trunk. Diameter of eye  $1\frac{4}{5}$  in the snout, which is  $5\frac{1}{2}$  in the length of head. Teeth pointed, in a single series in each jaw. Pectoral a little more than  $\frac{1}{3}$  the length of head. Origin of dorsal above anterior  $\frac{1}{4}$  of pectoral. Upper part of the body brown, with some yellow blotches or irregular bands; lower part of the body yellowish. Dorsal with alternate light grey and blackish blotches and with a blackish edge; anal grey, black-edged; pectoral blackish.

A single specimen, 910 mm. in total length.

The genus *Microdonophis*, distinguished from *Ophichthys* by having the origin of the dorsal in front of the base of the pectoral instead of behind it, seems hardly worth recognition. The species described above approaches more nearly to *Microdonophis* in respect of this character than to most species of *Ophichthys*.

3. *Belone annulata*, Cuv. & Val.

Previously recorded from China and various Indo-Pacific localities.



4. *Exocoetus Solandri*, Cuv. & Val.

Previously recorded from the Indian Ocean.

5. *Ammodytes alascanus*, Cope.

Previously recorded from Alaska.

6. *Sphyræna pinguis*, Günth.

Previously recorded from Chefoo.

7. *Bregmaceros Macclellandi*, Thomps.

Previously recorded from the Indian Ocean, China, and the Philippine Islands.

8. *Caprodon Schlegelii*, Günth.

Depth of body  $2\frac{2}{3}$  in the length, length of head  $3\frac{2}{5}$ . Snout nearly as long as eye, the diameter of which is  $3\frac{2}{3}$  in the length of head. Maxillary extending to below posterior edge of pupil, the width of its distal extremity  $\frac{2}{3}$  the diameter of eye. 24 gill-rakers on the lower part of anterior arch. Dorsal X 21, the spines increasing in length to the fourth, which is  $\frac{2}{5}$  the length of head and nearly as long as the longest soft rays. Anal III 8. Pectoral  $1\frac{1}{3}$  the length of head; ventral shorter than the head, not extending to the anal. Caudal truncate. Scales  $66\frac{6}{24}$ . Lateral line 62. Pink; two yellow stripes in front of the eye; fins yellowish; posterior part of spinous dorsal with an irregular blackish blotch.

Total length of the specimen described, 270 mm.

This species is principally distinguished from the South Pacific *C. longimanus*, Günth., by the wider mouth and the truncate caudal.

9. *Chætopterus Sieboldii*, Bleek.

Body ovate, moderately compressed. Depth of body  $2\frac{4}{5}$  in the length, length of head  $3\frac{3}{5}$ . Snout shorter than eye, the diameter of which is  $3\frac{1}{4}$  in the length of head, interorbital width  $2\frac{2}{3}$ . Mouth oblique; jaws equal anteriorly; maxillary exposed, without supplemental bone, extending to below anterior  $\frac{1}{4}$  of eye, the width of its distal extremity  $\frac{2}{5}$  the diameter of eye; præmaxillaries protractile; small villiform teeth in bands in jaws and on vomer and palatines; both jaws with a moderately enlarged outer series of teeth and with 2 or 3 moderate canines on each side anteriorly. Præorbital



narrow. Interorbital region, snout, jaws, suborbitals, and præoperculum naked; rest of the head scaly. Cheek with 6 series of scales; præoperculum rounded and slightly produced at the angle, with radiating ridges and crenulate margin; operculum with two spines. Pseudobranchiæ well developed; gill-rakers as long as gill-fringes, 20 on the lower part of anterior arch; six branchiostegals. Dorsal X 10, the spines increasing in length to the fourth, which is nearly  $\frac{1}{2}$  the length of head, the last a little more than  $\frac{1}{3}$  the length of head. Anal III 8. Dorsal and anal fins scaleless. Pectoral falcate, with 17 rays, longer than the head, extending to above the origin of anal. Ventrals commencing a little behind the pectorals, extending to the vent. Caudal deeply forked, covered with scales except near the posterior margin. Scales finely denticulated,  $72\frac{8}{19}$ . Lateral line concurrent with the dorsal profile. Uniformly olivaceous.

Total length of the specimen described, 230 mm.

This species has been referred by Jordan and Snyder to the genus *Aprion*, Cuv. & Val. I have compared it with the type species, *A. virescens*, which differs notably in the more elongate body, larger mouth and stronger dentition, deeper præorbital and very short pectoral. It is also evident that the structure of the skull must be very different. I have also compared *C. Sieboldii* with *Aspilus dentatus*, Guichenot, which is the type of the genus *Tropidinius*, Gill, but is placed by Messrs. Jordan and Evermann in *Aspilus*, Cuv. & Val. The two species appear to me to be closely allied and certainly congeneric. On the other hand, *Aspilus fuscus*, the typical species of the genus *Aspilus*, seems to be a very different fish, especially in lacking canine teeth. I am therefore inclined to retain the genus *Chatopterus* and to regard *Tropidinius* as a synonym of it.

#### GYMNAPOGON, gen. nov.

Allied to *Telescopias*, Jord. & Snyder. Body oblong, compressed; scales entirely wanting; sides of head with a network of series of small pores; body with 20 or more vertical series of small pores on each side, and with the lateral line apparently represented by a longitudinal series running to below the soft dorsal and usually commencing again on the middle of the side and running to the base of the caudal. Mouth wide, oblique; jaws equal anteriorly; maxillary exposed; teeth pointed, in a single series in the jaws and on the palatines; vomer with a few teeth; lower jaw with 3 or 4 curved canines on each side, placed laterally;



upper jaw with 2 or 3 anterior canines on each side. Præoperculum entire, with a produced membranous flap at the angle. Gill-membranes not united; seven branchiostegals; gill-rakers slender. Two dorsals, with VI, I 10-11 rays, the spines slender; anal with II 9-10 rays; dorsal and anal fins scaleless. Pectoral symmetrical, rounded or obtusely pointed, with 13 or 14 rays. Caudal subtruncate or rounded, the posterior edge usually slightly emarginate.

10. *Gymnapogon japonicus*, sp. n.

Depth of body 4-5 in the length, length of head 3. Snout as long as eye, the diameter of which is  $4-4\frac{1}{2}$  in the length of head and nearly equal to the interorbital width. Maxillary extending a little beyond the posterior edge of eye. Gill-rakers as long as gill-fringes, 9 or 10 on the lower part of anterior arch. Dorsal VI, I 10-11, the fourth spine the longest, less than  $\frac{1}{3}$  the length of head; longest soft rays about  $\frac{1}{2}$  the length of head. Pectoral  $\frac{3}{4}$  the length of head; ventral not extending to anal. Caudal peduncle about twice as long as deep. Olivaceous; caudal often blackish posteriorly.

Numerous specimens, measuring up to 45 mm. in total length.

11. *Pagrus unicolor*, Quoy & Gaim.

The habitat of this species is thus given by Dr. Günther: "New Zealand; Australian Seas. (Chinese Seas?)"

12. *Sciæna albiflora*, Richards.

Previously recorded from China.

13. *Minous monodactylus*, Bl. Schn.

*Minous Adamsi*, Richards., cannot be maintained as a distinct species. I have compared numerous specimens from Japan with examples of *M. monodactylus* from the Indian Ocean, and am quite unable to see specific differences. I regard *Minous echigonius*\*, Jord. & Starks, as merely a nominal species; it is based on a single specimen, and the characters which are supposed to differentiate it from *M. Adamsi* are all subject to considerable variation, as I have convinced myself by examining a large series of examples.

14. *Pterois Jordani*, sp. n.

Depth of body 3 times in the length and equal to the

\* Proc. U.S. Nat. Mus. xxvii. 1904, p. 153, fig. 14.



length of head. Snout as long as eye, the diameter of which is 3 times in the length of head and twice the interorbital width. Maxillary extending to below anterior  $\frac{1}{3}$  of eye. Interorbital space concave, scaly; supraorbital tentacles feeble; supraorbital ridge with 2 or 3 teeth and anteriorly and posteriorly with smaller denticulations; suborbital ridge denticulated, separated from the eye by a space as wide as  $\frac{1}{2}$  the diameter of eye; præoperculum with 3 spines. Scales deciduous, about 35 in a longitudinal series. Dorsal XIII 10, the fourth and fifth spines the longest, nearly  $\frac{2}{3}$  the length of the fish (without caudal). Anal III 6. Pectoral without detached rays, extending to base of caudal; ventral extending a little beyond origin of anal. Caudal peduncle  $1\frac{1}{3}$  as long as deep. Olivaceous; vertical fins pale, the soft dorsal with a few dark spots; pectoral and ventral blackish.

A single specimen, 68 mm. in length to the base of caudal.

Allied to *P. nigripinnis*, Gilchrist, which has a smaller eye and broader interorbital region.

Named after Dr. D. S. Jordan, who has so greatly added to our knowledge of the Fishes of Japan during the last few years.

15. *Erispheæ achrurus*, sp. n. (Pl. II. fig. 3.)

Depth of body  $2\frac{3}{4}$ –3 in the length, length of head  $3\frac{1}{4}$ – $3\frac{1}{2}$ . Snout as long as eye, the diameter of which is  $\frac{1}{4}$  the length of head and equal to the interorbital width. Maxillary extending a little beyond anterior margin of eye. Præorbital with 2 spines, the posterior the longer; præoperculum with 4 spines, the uppermost the longest. Body covered with velvety prickles; lateral line with about 12 pores. Dorsal XII 12, the first spine  $\frac{1}{2}$  the length of head, the third and fourth the shortest and about  $\frac{1}{3}$  the length of head, from it the rays increase in length to the middle soft rays, which are  $\frac{2}{3}$  the length of head. Anal II 10. Pectoral extending to origin of anal or a little beyond. Ventral I 2. Caudal subtruncate. Reddish brown, marbled with darker; dorsal, anal, and pectoral with dark markings or nearly uniformly blackish; caudal pale, sharply separated from the dark ground-colour of the body.

Four specimens, measuring up to 70 mm. in total length, from depths of 30–40 fathoms.

Comparison of the largest example with one of *E. Pottii*, Stdr., of 76 mm., shows the latter species to differ in having a larger head and larger mouth, as well as in coloration.



16. *Lepidotrigla Smithii*, sp. n. (Pl. II. fig. 4.)

Depth of body about 4 in the length, length of head 3. Diameter of eye  $3\frac{1}{3}$ –4 in the length of head, interorbital width about 4. Snout  $\frac{2}{5}$  the length of head or less, with a slightly emarginate or notched and feebly serrated or entire anterior edge, and with a pair of short spinous processes, the distance between the apices of which is equal to or a little greater than the diameter of eye. Maxillary extending to below anterior margin of eye; depth of suborbital nearly equal to the length of snout; no distinct transverse groove behind the orbits. Scales of the lateral line each with a short spine, 58–63 in number, each of the anterior ones corresponding to two of those below it; 23–26 spiny scutes along the bases of the dorsal fins. Dorsal VIII–IX, 15, the second and third spines subequal and  $\frac{1}{2}$  the length of head. Anal 14. Pectoral as long as the head, extending to above anterior  $\frac{1}{3}$  of anal. Ventral extending a little beyond origin of anal. Caudal truncate. Olivaceous, with a tinge of pink; a blackish spot on the upper part of the spinous dorsal between the fourth and sixth spines; an obscure dark stripe along the soft dorsal; inner surface of pectoral blackish, with small white spots; other fins uniformly pale.

Five specimens, 70 to 90 mm. in total length.

17. *Gobius elapoides*, Günth.

*Pterogobius daimio* \*, Jord. & Snyder, should be added to the synonymy of this species, from which it is said to differ in the absence of a band on the caudal. The numerous specimens I have examined certainly belong to one species; in some there is no trace of a dark vertical bar at the base of the caudal, in others there is a bar or vertically expanded spot, usually rather faintly marked, more rarely as dark as the bars on the body and like them edged with yellow.

18. *Tridentiger marmoratus*, sp. n. (Pl. II. fig. 2.)

Depth of body 5 in the length, length of head  $3\frac{1}{2}$ . Snout as long as eye, the diameter of which is 5 in the length of head. Width of osseous interorbital space  $\frac{3}{4}$ – $\frac{5}{6}$  the diameter of eye. Maxillary extending to below posterior edge of eye. 50–52 scales in a longitudinal series, 16 or 17 between soft dorsal and origin of anal. Dorsal VI, 13, the third and fourth spines the longest,  $\frac{3}{5}$  the length of head and a little longer than the longest soft rays. Anal 12. Pectoral  $\frac{4}{5}$  the length

\* Proc. U.S. Nat. Mus. xxiv. 1901, p. 91, fig. 17.



of head, extending to above the vent. Ventral  $\frac{3}{5}$ – $\frac{2}{3}$  of the length of head or of the distance from its base to origin of anal. Caudal rounded. Caudal peduncle  $1\frac{1}{2}$  as long as deep. Brownish, marbled with darker; a dark stripe from eye to upper part of opercle; fins dark greyish; first ray of each dorsal light, with 3 or 4 blackish spots; anal with a blackish intramarginal stripe; pectoral blackish at the base and with a white cross-bar.

Two specimens, 62 and 74 mm. in total length.

19. *Tridentiger genimaculatus*, sp. n. (Pl. II. fig. 1.)

Depth of body  $4\frac{3}{4}$  in the length, length of head  $3\frac{1}{2}$ . Snout shorter than eye, the diameter of which is  $4\frac{2}{5}$  in the length of head. Width of osseous interorbital space  $\frac{2}{5}$  the diameter of eye. Maxillary extending nearly to below middle of eye. 55 scales in a longitudinal series, 16 between soft dorsal and origin of anal. Dorsal VI, 12, the third and fourth spines the longest,  $\frac{1}{2}$  the length of head and about as long as the longest soft rays. Anal 11. Pectoral nearly as long as the head, extending to above the vent. Ventral  $\frac{3}{4}$  the length of head, extending nearly  $\frac{3}{4}$  of the distance from its base to the origin of anal. Caudal subtruncate. Caudal peduncle  $1\frac{2}{3}$  as long as deep. Olivaceous, with obscure darker cross-bars; sides of head with light spots; fins pale greyish; dorsals with alternate light and dark longitudinal stripes in their basal halves; caudal obscurely spotted; anal with a dark intramarginal stripe; pectoral blackish at the base, and with an indistinct pale cross-bar.

A single specimen, 53 mm. in total length.

20. *Luciogobius elongatus*, sp. n.

Depth of body 10–12 in the length, length of head 7–8. Eyes small, rather widely separated; cheeks swollen; cleft of mouth oblique, extending to below middle of eye. Dorsal and anal fins short and low, the former with about 7 rays, the latter with about 9. Pectoral about  $\frac{2}{5}$  the length of head. Ventrals represented by a very small scale-like flap, without distinct rays. Caudal rounded. Olivaceous, with numerous small dark spots.

Several specimens, measuring up to 40 mm. in total length.

21. *Callionymus ornatipinnis*, sp. n. (Pl. III.)

Depth of body 7–8 in the length, length of head (measured to the gill-opening) nearly 4. Snout longer than eye, the



diameter of which is equal to or a little less than its distance from the gill-opening. Interorbital space slightly concave, its width  $\frac{1}{3}$  the diameter of eye or less. Head covered with smooth skin; maxillary not extending to below the eye; gill-opening small, superior; præopercular spine rather short and stout,  $\frac{2}{3}$  the diameter of eye or less, with 3 (rarely 2) recurved spines at the tip and with a small forwardly directed spine at the base. A single lateral line. Dorsal IV, 9. Anal 9. (In one specimen D. IV, 10; A. 10.) Males with the dorsal spines produced into filaments; the second the longest, a little longer than the first and about equal to the distance from tip of snout to gill-opening. Females with none of the dorsal spines produced; the first and second subequal, about  $\frac{2}{5}$  of the distance from tip of snout to gill-opening. Soft dorsal with the 2 or 3 anterior rays longer than the 4 or 5 succeeding ones, about  $\frac{1}{2}$  the distance from tip of snout to gill-opening; last ray longer, extending to the base of caudal (females) or beyond (males). Caudal fin  $\frac{1}{3}$  the length of the fish (without caudal) or less. Brownish; upper part of head and body covered with small dark rings enclosing lighter areas; sometimes 3 or 4 dark cross-bars on the back; usually 3 or 4 blackish spots along the middle of the side. Spinous dorsal, in the male, dark greyish, with small light spots with darker centres and a small blackish spot on the margin of the membrane between the third and fourth spines; in the female, pale in front of the third spine, black behind it. Soft dorsal greyish with several series of oval light spots with darker centres, which are smaller and better defined above, and with 1 or 2 series of small blackish spots. Caudal with numerous round or oval black spots intermixed with light ones. Anal pale. Pectoral pale, obscurely spotted in its upper part. Ventral usually with a blackish bar near its outer margin in the male, but not in the female.

Four males and three females, 98–174 mm. in total length.

## 22. *Callionymus lunatus*, Schleg.

The species figured by Messrs. Jordan and Snyder under this name is certainly not Schlegel's species, but appears to be the *Callionymus inframundus* of Gill. There are considerable discrepancies between Messrs. Jordan and Snyder's description and their figure, and it is possible that the former may be in part based on specimens of *C. lunatus*. The male specimen described and figured by Schlegel has the first dorsal spine produced into a long filament, reaching beyond



the end of the soft dorsal when laid back ; the last dorsal ray, when laid back, reaches the caudal, which is  $\frac{2}{3}$  the length of the fish (without caudal) ; there is a lunate blackish spot on the upper part of the membrane behind the fourth dorsal spine. Three female examples from the Inland Sea of Japan have the first dorsal spine slightly produced, reaching the first or second soft ray when laid back ; the last dorsal ray, when laid back, does not reach the caudal, which is  $\frac{2}{7}$  the length of the fish ; the spinous dorsal is pale, with some darker spots and with a large blackish spot on the upper half of the fin between the third and fourth spines.

### 23. *Pseudorhombus ocellifer*, sp. n.

Depth of body  $2-2\frac{1}{5}$  in the length, length of head  $3\frac{2}{5}$ . Snout shorter than eye, the diameter of which is  $3\frac{1}{2}-3\frac{2}{3}$  in the length of head. Eyes separated by a ridge. Maxillary extending to below middle of eye or beyond. Gill-rakers longer than gill-fringes, 17 or 18 on the lower part of anterior arch. Scales ctenoid on the ocular side, cycloid on the blind side, 64-72 in a longitudinal series, 11-13 in a transverse series from dorsal fin to curve of lateral line. Dorsal 68-73. Anal 53-57. Pectoral of the ocular side  $\frac{2}{3}-\frac{3}{4}$ , of the blind side nearly  $\frac{1}{2}$  the length of head. Caudal with the middle rays the longest,  $\frac{1}{4}$  the length of the fish (the caudal not included). Caudal peduncle  $\frac{1}{3}-\frac{1}{2}$  as long as deep. Brownish, with darker spots and markings, of which 5 ocelli arranged thus ::· are most prominent ; fins with small dark spots.

Total length 125 mm.

Five specimens, including two from the 'Challenger' collection, referred by Dr. Günther to *P. pentophthalmus*, an allied species especially distinguished by the smaller eye.

### 24. *Pseudorhombus dupliciocellatus*, sp. n.

Depth of body  $2\frac{2}{7}$  in the length, length of head 4. Snout a little shorter than eye, the diameter of which is  $4\frac{3}{4}$  in the length of head. Eyes separated by a ridge. Maxillary extending to below middle of eye. Gill-rakers short and stout, 8 or 9 on the lower part of anterior arch. Scales ctenoid on the ocular side, cycloid on the blind side, 98 in a longitudinal series, 18 in a transverse series between dorsal fin and curve of lateral line. Dorsal 74. Anal 56. Pectoral of the ocular side  $\frac{3}{5}$ , of the blind side  $\frac{2}{3}$  the length of head. Caudal with the middle rays the longest,  $\frac{2}{9}$  the length of the fish (the caudal not included). Caudal peduncle  $\frac{1}{2}$  as long as deep.



Olivaceous, with darker spots and markings, and with 5 conspicuous ocelli or double ocelli, arranged as in the preceding species; fins with small dark spots.

A single specimen, 380 mm. in total length.

25. *Cynoglossus purpureomaculatus*, sp. n.

Depth of body  $4\frac{1}{4}$  in the length, length of head  $5\frac{3}{4}$ . Snout a little more than  $\frac{1}{3}$  the length of head. Diameter of eye 8 in the length of head and twice the interocular width. Two nostrils on the left side, one between the anterior parts of the eyes, the other in front of the lower eye. Maxillary extending to below the middle of eye; rostral hook extending a little beyond the mandibular symphysis. Three lateral lines on the left side. 120 scales in a longitudinal series, 18 between upper and middle lateral lines. Dorsal 128. Anal 104. Brownish, with numerous irregular purplish spots.

A single specimen, 215 mm. in total length.

26. *Cynoglossus brunneus*, sp. n.

Depth of body 4 in the length, length of head  $4\frac{2}{3}$ . Snout  $2\frac{3}{5}$  in the length of head. Diameter of eye  $7\frac{1}{2}$  in the length of head and 3 times the interocular width. Two nostrils on the left side, one between the anterior parts of the eyes, the other in front of the lower eye. Maxillary extending beyond posterior margin of eye; rostral hook extending to below mandibular symphysis. Two lateral lines on the left side. 74 scales in a longitudinal series, 9 between the two lateral lines. Dorsal 129. Anal 104. Uniformly brownish.

A single specimen, 200 mm. in total length.

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III.—Notes on some Oriental Geckos in the Indian Museum, Calcutta, with Descriptions of new Forms. By NELSON ANNANDALE, B.A., Deputy Superintendent of the Indian Museum.

*Gymnodactylus Fedtschenkoi*, Strauch.

*Gymnodactylus caspius*, Stoliczka, Proc. Asiat. Soc. Bengal, xxii. 1853, p. 410.

*Gymnodactylus Fedtschenkoi*, Strauch, Mém. Acad. St. Pétersb. xxxv. 1887, p. 46; Boulenger, Faun. Ind., Rept. 1890, pp. 61, 62, and P. Z. S. 1891, p. 630; Nikolsky, Herpet. Turan. in Fedtschenko, Reise in Turkestan, p. 13, pl. iv. figs. 1, 1 a (Russian).





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