

Notes on Some Rare Fishes of Japan, with
Descriptions of Two New Genera
and Six New Species.

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With 2 plates.

In the present paper are given notes on some rare Japanese fishes, of which one species is from Ishigaki Island (one of the Riu-Kiu Islands) and all the rest are from the eastern coast of Japan proper. The material are contained either in the Zoological Institute, Science College, Imperial University of Tokyo or in Mr. ALAN OWSTON'S collection. Of the eight species noted upon, six are apparently new to science. The list is as follows:

1. *Gymnosimenchelys leptosomus*, n. g., n. sp.
2. *Sphagebranchius cinctus*, n. sp.
3. *Macrostoma quereinum japonicum*, n. subsp.
4. *Astronesthes ijimai*, n. sp.
5. *Pseudoscopelus scriptus sagamianus*, n. subsp.
6. *Bassogigas grandis* (GÜNTHER).
7. *Ceratias (Paraceratias) mitsukurii*, n. subg., n. sp.
8. *Corynolophus reinhardti* (LÜTKEN).

Gymnosimenchelys, n. g.

The new genus here established is very closely allied to *Simenchelys* of Dr. GILL, but differs from it in having scaleless skin.

Gymnosimenchelys leptosomus, n. sp.

Pl. II., fig. 2.

Head 10 in total length, head and trunk $2\frac{2}{3}$; eye 5 in head, snout about 4, interorbital width 4 to 3.

Body elongate, eel-like, compressed; head slightly compressed; eye lateral, high up; interorbital broad, very gently convex; nostrils without tube; posterior nostril above upper lip and immediately in front of eye; anterior nostril near tip of snout; snout broadly rounded in profile; mouth terminal, its angle not nearly reaching halfway between the tip of snout and the anterior edge of eye. Jaws equal; teeth also equal, small, bluntish, rather close-set in several rows; none on vomer and palatines. Gill-openings inferior, horizontal, well separated from one another, slit-like, extending backward and outward. Pectoral placed rather low, small, with sharp tip, its length slightly longer than the length of snout. Dorsal inserted a little behind tip of pectoral and at a point slightly farther than half length of head behind gill-opening. Vent placed about head length before middle of total length. Caudal fin distinct, confluent with vertical fins. No scale. Lateral line high, faint, concurrent with back. Pores on anterior parts of head well developed; a row of about 6 pores

runs antero-posteriorly near outer edge of chin. Another row of pores extends from tip of snout immediately above the angle of mouth to the under rim of eye. A group of pores rather irregularly scattered around the anterior nostril.

Color in alcohol pale, without markings; vertical fins and caudal with black narrow margin posteriorly.

The species is allied to *Simenchelys parasiticus* GILL, but differs from it in having much slenderer body and in the skin being naked.

Three specimens of the species, the largest one of which is the type, were captured by Mr. K. AWOKI, collector of the Misaki Marine Laboratory, at Outside Okinose by the Iwado-line,* in February 1902. The specimens are registered under Mus. No. 1855.

MEASUREMENTS OF THE SPECIES.

Specimen	A. (Type)	B.	C.
Total length.....	13. 0 cm.	11. 5 cm.	9. 5 cm.
Length of head.....	1. 2 ,,	1.25 ,,	1. 0 ,,
Length of head and trunk.....	5. 3 ,,	4. 3 ,,	3. 5 ,,
Height of body.....	0. 9 ,,	0. 7 ,,	0.65 ,,
Horizontal diameter of eye.....	0.25 ,,	0.25 ,,	0. 2 ,,
Length of snout.....	0.35 ,,	0. 3 ,,	0. 2 ,,
Interorbital width.....	0.45 ,,	0.45 ,,	0.25 ,,
Length of pectoral.....	0. 6 ,,	0. 4 ,,	0. 3 ,,
Length from tip of snout to insertion of dorsal.....	2. 2 ,,	2.05 ,,	1. 6 ,,

* For orientation of localities in Sagami Sea see the chart compiled by Professor Ijima in Jour. Sci. Coll., Tokyo, vol. XV, pl. XIV.

Sphagebranchus cinctus, n. sp.

Pl. I., fig. 4, A & B.

Head about 14 in total length, $7\frac{1}{2}$ in head and trunk ; height of body $53\frac{1}{2}$ in head and trunk ; eye 11 in head, inter-orbital width 11, snout $5\frac{1}{2}$.

Body very elongate, compressed. Head very broad posteriorly ; eye lateral, high ; interorbital convex, equal to diameter of eye in width ; snout long, slender and sharp, projecting beyond lower jaw ; tip of the latter midway between anterior edge of eye and tip of snout ; angle of mouth beneath centre of pupil. Teeth strong, directed backward ; those on upper jaw arranged in one row laterally, about 16 in number on each side ; some sharp and straight teeth placed medianly and at a short distance in front of the above-mentioned row of teeth. Teeth on lower jaw 9 in number on each side, arranged in one row ; vomer with 2 longitudinal rows of small teeth, rather closely apposed to one another. Tongue entirely adnate to floor of mouth. Gill-opening small, lateral but placed low. Pectoral small, its length a little larger than diameter of eye. A very slight fold along back and under surface, indicating dorsal and anal fins. No caudal fin. Vent slightly behind middle of total length. Skin smooth, without scales. Lateral line conspicuous, running in the median line.

Color in alcohol reddish yellow. About 29 broad brown cross-bands, of which the first lies immediately before eye and has the width equal to diameter of eye ; the second a little broader and including the posterior half of eye ; the last in

front of the posterior tip of body and thus leaving a pale space there; the broadest of the bands one-half length of head in width.

The type is the only specimen known. It was taken in Yaeyama, a village on Ishigaki Island (Riu-Kiu Islands) and was sent us by Mr. OGAWA, then principal of the normal school of the district. It is registered under Mus. No. 1547.

MEASUREMENTS OF THE SPECIES.

Total length.....	31. 0 cm.
Length of head.....	2. 2 „
Length of head and trunk.....	16. 0 „
Height of body.....	0. 3 „
Height of head.....	0. 5 „
Horizontal diameter of eye.....	0. 2 „
Length of snout.....	0. 4 „
Interorbital width.....	0. 2 „
Width of body a short distance in front of vent.....	0.35 „

Macrostoma quercinum japonicum, n. subsp.

Pl. I., fig. 3.

Head $4\frac{1}{4}$ in total length exclusive of caudal, height of body $6\frac{1}{2}$; eye $4\frac{1}{7}$ in head, interorbital width $3\frac{5}{8}$, snout $5\frac{1}{5}$, maxillary $1\frac{2}{3}$.

Body elongate, subcylindrical, a little compressed; caudal peduncle high, compressed. Head moderately long; eye large, lateral, close to upper profile of head; interorbital broad, convex;

snout short, slightly longer than half diameter of eye, the upper profile rather acutely curved. Anterior and posterior nostrils very close to each other, situated about midway between tip of snout and anterior rim of eye. Mouth large, directed slightly upward; lower jaw a little included; teeth very slender, rather closely set on both jaws; none on vomer and palatines; maxillary extending to near preopercular angle; no barbels on the mouth parts. No spine on preopercular and opercular parts. Gill-openings wide, the membranes procurrent below, slightly confluent with each other, free from isthmus. Branchiostegals 8, gills 4 in number. Gill rakers on first gill-arch 9+13, the raker elongate, its length about one-fifth length of head. Pesudobranchiæ developed. Pectoral placed rather low, slender, its rays extending a little beyond the middle between its insertion and that of ventral. Ventral inserted a little before middle between its insertion and that of anal, its tip hardly extending to vent. Vent just in front of anal.

Dorsal inserted a little nearer tip of snout than to insertion of adipose fin, the insertion being over the eleventh scale of the lateral line and above the origin of ventral; length of the base of dorsal fin longer than length of head, and its longest ray $1\frac{1}{2}$ in head, its last ray inserted over the eighth ray of anal (excluding the first 2 rudimentary rays). Anal originates under the eighteenth scale of the lateral line; length of its base about $1\frac{1}{2}$ in head and equal to that of head without snout; its longest ray about $1\frac{2}{3}$ in head. Adipose fin very slender, nearer to end of dorsal than to caudal base by a distance of diameter of eye. Caudal moderate, deeply forked.

Scales moderate, their posterior edge strongly toothed; caducous, a few scales persisting on the lateral line and under

surface of body; those on the former not much larger than those on the latter. Lateral line high, concurrent with the contour of back. All the fins without scales.

Photophores:—The photophores of the species are like those of *Scopelus elongatus* described by RAFFAELE* and of *Notoscopelus queireinus* described by GOODE and BEAN† and differ from the description of these only in very trifling points. Three photophores on mandible, 1 just behind angle of preoperculum; pectorals 4 and thoracics 7 in number, of which the lowest one pectoral and the posterior 6 thoracics form a strongly-curved row, the convexity directed downward; a pectoral on base of pectoral fin, and the uppermost pectoral immediately beneath lateral line, the line of the two uppermost pectorals directed downward and backward; anterolaterals 2, the upper of which is above second pectoral counting downward from above, the row of these photophores being directed backward and downward; ventrals 6, forming a strongly curved row; mediolaterals 3, the convexity directed backward; superanals 10, forming a series above anal, one on the posterior end of the series being elevated above the general level of the series; posteroanals 8, in a horizontal series behind anal; posterolaterals 2, placed horizontally beneath the lateral line, of which the posterior one lies slightly before adipose fin; precaudals 3, of which the posteriormost one lies immediately beneath the lateral line. Three granular whitish spots on back before caudal base, and two of same on the root of lower rudimental caudal rays; a small luminous streak directly above eye; still another luminous patch on the middle part of interorbital; luminous parts before and behind eye fainter than in other allied species.

* Mittheil. Zool. Stat. Neapel, IX, p. 185, pl. VII, fig. 11.

† Oceanic Ichthyology, pp. 83-84, pl. XXVI, fig. 83.

Color in formalin jet black ; all the fins black.

The species is very closely allied to *Scopelus elongatus* of RAFFAELE and *Notoscopelus quercinus* of GOODE and BEAN, but differs from both these species in having longer snout, slightly slenderer body, a little more numerous scales and in having somewhat differently located photophores. Moreover, it has a range of distribution different from that of the other two species, of which *Scopelus elongatus* was taken in Naples and *Notoscopelus quercinus* off Newfoundland. So that, the specimens before me I will consider to represent a new subspecies of *Macrostoma quercinum* (GOODE and BEAN) JORDAN and EVERMANN.

The type is the only specimen known. It was in all probability obtained off Misaki, Province of Sagami and is contained in Mr. OWSTON'S collection.

MEASUREMENTS OF THE SPECIES.

Total length ex. of caudal.....	12.3 cm.
Height of body.....	1.9 „
Height of caudal peduncle.....	1.1 „
Length of head.....	2.9 „
Horizontal diameter of eye.....	0.7 „
Length of snout.....	0.5 „
Interorbital width.....	0.8 „
Length of maxillary.....	2.1 „
Length from tip of snout to insertion of dorsal.....	4.5 „
Length from posterior end of base of dorsal to caudal base...	3.9 „
Length of base of dorsal.....	3.2 „
Length of the longest ray of dorsal.....	2.1 „
Length from tip of snout to anal.....	6.4 „
Length of posterior end of base of anal to caudal base.....	2.7 „

Length of base of anal.....	2.5 cm.
Length of the longest ray of anal.....	1.7 „
Length from tip of snout to insertion of pectoral.....	3.0 „
Length from insertion of ventral to tip of snout.....	4.6 „
Length from insertion of pectoral to that of ventral.....	1.6 „
Length from insertion of ventral to that of anal.....	2.0 „
Length of the longest ray of pectoral.....	1.1 „
Length of the longest ray of ventral.....	1.5 „
Number of dorsal spines.....	2
Number of dorsal rays.....	20
Number of anal spines.....	2
Number of anal rays.....	17
Number of ventral rays.....	8
Number of pectoral rays.....	12
Number of caudal rays (excluding rudimentary rays).....	17
Number of scales in lateral line.....	44
Number of scales counted forward and upward above lateral line.....	4
Number of scales counted backward and downward beneath lateral line.....	4

Astronesthes ijimai, n. sp.

Pl. I., fig. 1.

Head $5\frac{1}{2}$ in total length without caudal, height of body 7; horizontal diameter of eye 4 to $3\frac{1}{4}$ in head, interorbital width 4, snout $4\frac{1}{3}$ to 4.

Body elongate, subcylindrical, slightly compressed. Head rather small; eye lateral, high up; interorbital width "equaling diameter of orbit, rather strongly grooved, and bounded on each

side by 2 sharp ridges, which are closely apposed over the middle of the orbit and diverge forward and backward from this point; a minute bluntish protuberance at the upper posterior margin of the orbit, and behind this a third ridge, outside the 2 which bound the interorbital area;”* snout slightly shorter than eye. Mouth large, oblique; maxillary reaching to angle of opercle. Mandible massive, slightly protruding beyond maxillaries. Teeth on jaws, vomer and palatines; all pointed, subequal; 4 very long, slender canines near tip of upper jaw, of which the inner pair is slightly smaller; lateral teeth of the upper jaw smaller and subequal, arranged two by two; mandible with 2 long canines near tip, similar in form and size to the external pair near tip of upper jaw; lateral teeth on the jaw smaller and diminishing in size posteriorly, sometimes arranged two by two; one or two minute, slender teeth on each side of the head of vomer; teeth on palatines very small and slender, arranged in one row; tongue with a row of slender teeth near each lateral edge. Maxillary with close-set, fine teeth on lower edge of the posterior half, the teeth directed backward and increasing in size posteriorly. Barbel from under surface near tip of mandible, long, with dilated tip, extending midway between tip of pectoral and insertion of ventral.

Dorsal inserted midway between caudal base and posterior rim of eye, the posterior end of its base at a distance of head length without snout in front of the insertion of anal; the rays slender, the longest ray $1\frac{1}{2}$ in head; adipose fin very slender, situated about midway between the posterior end of the base of dorsal and caudal base. Anal inserted before

* The passage here quoted is from the description of *Astronesthes lucifer* by Dr. GILBERT (Bull. U. S. F. C. for 1903, pt. 2, 1905, p. 606) and holds equally good, so far as it goes, for the new species here described.

adipose fin, the latter being over middle of base of anal; preanal adipose fin in front of anal, inserted nearer to anal than to tip of ventral, and behind posterior end of the base of dorsal. Pectoral slender, rather long, extending not quite to the middle of the distance between its insertion and that of ventral; ventral inserted at a short distance before dorsal or at a point about midway between the insertion of pectoral and that of anal, nearly not reaching the middle between insertion of ventral and that of anal. Gill-openings procurrent beneath and slightly confluent, free from isthmus. Gills 4; no pseudo-branchiæ; gill-rakers represented by short spinous teeth arranged in pairs, 3+11 pairs in number.

Photophores:—Branchiostegals 21; jugulars 8, along the sides of the isthmus; thoracics 22, 3 of these in advance of the pectorals. The jugulars and thoracics form continuous series; the 2 anterior pairs of thoracics parallel, strongly diverging posteriorly to reach the bases of ventral fins. Ventrals 20, the anterior 2 pairs in advance of ventral fins, between the diverging ends of the thoracic series. Anals 2+7, with a wide interspace between the second and third; the last 2 are smaller than the others and diverge upward. Caudals 4. Close to and outside these series, runs a series which consists of 19 between pectoral and ventral fin and of 21 behind ventral fin. A subocular photophore located a little behind pupil. Near the anterior and the posterior rim of eye an inconspicuous photophore each; a rather conspicuous photophore at some distance behind the postorbital one.

Body scaleless. Lateral line invisible.

Color in formalin dark brown; back and belly much dark. All the fins pale. Body including the mandibular barbel with

dark spots, these forming transverse oblique rows directed downward and backward on the side of body.

The species is very closely allied to *Astronesthes lucifer* GILBERT from the Hawaiian waters, but differs in the slenderer body and in the longer ventrals and barbels.

Five specimens of the species were taken in the Sagami Sea, May 1907, and are contained in Mr. ALAN OWSTON'S collection.

The species is named for Prof. IJIMA of the Imperial University of Tokyo.

MEASUREMENTS OF THE SPECIES.

Specimen	A.	B.	C.	D.
Total length exclusive of caudal.....	7. 1 cm.	8. 3 cm.	8. 0 cm.	7. 4 cm.
Height of body.....	0.95 „	1. 3 „	1. 0 „	1. 0 „
Length of head.....	1. 3 „	1. 6 „	1. 5 „	1. 3 „
Horizontal diameter of eye.....	0. 4 „	0.35 „	0. 3 „	0. 3 „
Interorbital width.....	0.35 „	0. 4 „	0. 3 „	0.45 „
Length of snout.....	0. 3 „	0. 4 „	0. 3 „	0. 4 „
Length of maxillary.....	1.05 „	1. 2 „	1. 2 „	1. 0 „
Length of mandibular barbel.....	2. 4 „	2. 6 „	2. 5 „	?
Length of base of dorsal...	0. 7 „	0. 9 „	1. 0 „	0. 7 „
Length of the longest ray of dorsal.....	1. 0 „	1. 2 „	0. 9 „	0. 8 „
Length of base of anal...	0. 5 „	0.85 „	1. 0 „	0. 8 „
Length of the longest ray of anal.....	0. 6 „	0.75 „	0.65 „	0. 6 „
Length of the longest ray of pectoral.....	0. 8 „	1. 0 „	0. 9 „	0. 8 „

Specimen	A.	B.	C.	D.
Length of the longest ray of ventral.....	0.85 cm.	1. 0 cm.	1. 0 cm.	0. 8 cm.
Length from insertion of pectoral to that of ventral.....	2. 0 ,,	2. 4 ,,	2. 2 ,,	2.25 ,,
Length from insertion of ventral to that of anal...	2. 2 ,,	2. 4 ,,	2. 4 ,,	2.25 ,,
Length from origin of dorsal to tip of snout...	3. 7 ,,	4. 5 ,,	4. 1 ,,	3. 9 ,,
Length from posterior end of base of dorsal to adipose fin.....	1.25 ,,	1. 5 ,,	1. 3 ,,	1. 3 ,,
Length from adipose fin to caudal base.....	1. 1 ,,	1. 3 ,,	1. 5 ,,	1.35 ,,
Number of rays of dorsal...	11	11	11	10
Number of rays of anal...	12	12	12+4 rudimentary rays.	13
Number of rays of pectoral.....	6	6	5 or 6	6
Number of rays of ventral...	7	7	6	7

***Pseudoscopelus scriptus sagamianus*, n. subsp.**

Pl. I., fig. 2.

Head $3\frac{1}{2}$ in total length exclusive of caudal, height of body $5\frac{2}{7}$ to 5, eye $5\frac{2}{4}$ in head, interorbital width $3\frac{3}{8}$, snout 4, length of maxillary $1\frac{1}{2}$.

Body perciform, elongate, subcylindrical, slightly compressed; caudal peduncle compressed. Head moderate, slightly compressed,

the upper and lower profiles gently declined anteriorly; eye moderate, lateral, very close to upper profile of head; interorbital broad, gently convex; snout moderate, the profile moderately oblique; nostrils in two pairs, in front of eye. Mouth large, oblique; lower jaw slightly included. Teeth on both jaws slender, close-set, arranged in a rather broad band; tip of upper jaw notched, non-toothed, fitted to symphysis of lower jaw. Teeth on palatines smaller, conical, in one row; none on vomer. Maxillary extending to the vertical through the middle between centre of eye and tip of opercular flap. No barbel near mouth-parts. Suborbital parts smooth, without spines; a very small spine at angle of preoperculum.

Gill-openings wide, procurrent below and slightly confluent. Pseudobranchiæ developed. Gills 4; no pit behind last gill; gill-rakers on first gill-arch small, slender, set apart from one another, about 4+18. Pectoral situated rather low, its base rather narrow; the rays long, a little shorter than head, extending to the sixth ray of anal. Ventral thoracic, beneath lower margin of base of pectoral, extending to the middle between insertion of ventral and that of anal. Vent midway between tip of ventral and insertion of anal.

Dorsals 2, separated from each other by a very short interval; first dorsal inserted slightly behind insertion of pectoral, the membrane joining the spines adnate to body posteriorly, but not continued to second dorsal; second dorsal long, higher than first dorsal; whether a membrane exists or not behind the last ray of dorsal is uncertain owing to the mutilation of all the specimens. Anal below third ray of second dorsal; both fins higher anteriorly, similar in form. Caudal forked.

Skin smooth, without scales; lateral line rather high,

concurrent with the contour of back, extending to caudal base. A row of pores runs along maxillary from beneath middle of eye to beyond the vertical through the posterior end of maxillary. Two rows of pores run parallel to each other longitudinally near symphysis of mandible; two more rows behind the last mentioned rows. A median row of pores before ventrals extending head length without snout and eye; a cross line of pores connecting ventrals. A series of pores extends from vent forward to beyond half distance of ventral. Behind the vent a row of pores begins taking a median course to the origin of anal; from the origin of the row two rows of pores are given off at once from behind the vent, these diverging from each other at 60° angle and each extending forward length of eye diameter. Two rows of pores, each situated above the base of anal on each side of body, diverging forward above the origin of the fin to disappear after a short course, and posteriorly converging behind anal but without completely uniting into one. Posterior half of the under surface of caudal peduncle with an elongated patch of pores. All the above enumerated pores except those of the lateral line black in color. Head with numerous pores; a few in a row on opercle near the posterior edge of preoperculum; the pores beneath and behind eye form a row encircling the orbit. In the specimens before me, 2 in all, the middle parts of interorbital and a small area behind second dorsal are mutilated.

Color in formalin blackish brown; lower parts darker. All the fins pale, without distinct markings. All the pores whitish excepting those mentioned above as otherwise colored.

The subspecies is very closely allied to *Pseudoscopelus scriptus* described by LÜTKEN, in 1892 from Old Bahama Straits, but

differs from this in the slenderer form and in some other trifling characters, and further in the different range of distribution.

Both the specimens were obtained by Mr. ALAN OWSTON in the Sagami Sea, May 1907.

MEASUREMENTS OF THE SPECIES.

Specimen	A.	B.
Total length exclusive of caudal.....	15. 0 cm.	12. 0 cm.
Height of body.....	3. 0 „	2. 1 „
Width of body.....	1. 7 „	1. 4 „
Length of head.....	4. 6 „	3. 6 „
Horizontal diameter of eye.....	0. 8 „	0. 7 „
Interorbital width.....	1. 4 „	1. 0 „
Length of snout.....	1.15 „	0.95 „
Height of caudal peduncle.....	1. 1 „	0. 8 „
Length of maxillary.....	3. 4 „	2. 7 „
Length of the longest spine of first dorsal.....	1. 6 „	1. 3 „
Length of the longest ray of second dorsal.....	2. 5 „	1. 7 „
Length of the longest ray of anal.....	2. 1 „	1. 4 „
Length of the longest ray of pectoral.....	4. 3 „	3. 5 „
Breadth of base of pectoral.....	0. 6 „	0.45 „
Length of the longest ray of ventral.....	1. 8 „	1.25 „
Distance from tip of lower jaw to insertion of anal.....	8. 3 „	6. 8 „
Distance from tip of upper jaw to insertion of dorsal.....	5. 5 „	4. 3 „
Distance from tip of upper jaw to insertion of pectoral.....	4. 8 „	3. 8 „
Distance from tip of lower jaw to insertion of ventral.....	5. 0 „	4. 1 „
Distance from insertion of ventral to that of anal.....	3. 0 „	2. 7 „

Specimen	A.	B.
Number of spines of first dorsal.....	8	8
Number of rays of first dorsal.....	22	22
Number of rays of anal.....	24	22
Number of rays of pectoral.....	13	12 or 13
Number of spine of ventral.....	1	1
Number of rays of ventral.....	5	5
Number of pores in lateral line.....	75	about 75

Bassogigas grandis (GÜNTHER).

Pl. II., fig. 1 A & B.

The single specimen before me was taken in the Sagami Sea ; it belongs to Mr. ALAN OWSTON. In its characters, the specimen tallies well with GÜNTHER'S description of *Bassogigas grandis*, except in some trifling respects. The following note was taken especially in reference to characters not described by that author or which seemed to deviate from his description.

The posterior end of the maxillary lies midway between the postorbital rim and the angle of preoperculum. The pectoral is long, extending a little beyond the middle between its root and the vent. The ventral filament originates a little nearer the end of maxillary than the angle of preoperculum, extending to the end of the first third of pectoral. The insertion of the dorsal agrees well with GÜNTHER'S description. No pseudo-branchiæ.

Color in formalin yellowish white ; posterior parts slightly brownish ; cavity of mouth and all the fins also slightly brownish.

MEASUREMENTS OF THE SPECIMEN.

Total length exclusive of caudal.....	117.5 cm.
Total length inclusive of caudal.....	125.0 „
Height of body at insertion of pectoral.....	20.7 „
Height of body at insertion of anal.....	16.3 „
Length of head.....	23.5 „
Width of head.....	11.0 „
Horizontal diameter of eye.....	2.2 „
Interorbital width.....	5.4 „
Length of snout.....	5.8 „
Length of maxillary.....	12.6 „
Breadth of posterior end of maxillary.....	3.4 „
Length of the longest ray of pectoral.....	11.6 „
Width of base of pectoral.....	6.0 „
Length of ventral.....	12.5 „
Distance from tip of snout to vent.....	44.0 „
Distance from tip of snout to anal.....	47.0 „
Number of rays of dorsal.....	140
Number of rays of anal.....	106
Number of rays of pectoral.....	28
Number of branchiostegals.....	8
Number of gill-rakers on first gill-arch.....	3 or 4 + 8,8

Ceratias (Paraceratias, n. subg.) mitsukurii, n. sp.

Pl. II., fig. 3.

The single specimen belonging to the family *Ceratiidae* and on which this new species is based, seems to deserve a new subgenus within the genus *Ceratias* rather than being erected into

a distinct genus. I propose to call the subgenus by the name of *Paraceratias*. It is characterized as follows:

Two tentacles, one above eye and the other on back; 3 dorsal caruncles perforated at tip; gill-openings much nearer to tip of snout than to caudal base; gills $2\frac{1}{2}$; no ventrals; skin very finely prickled.

The description of the new species is as follows:

Length of head $2\frac{1}{3}$ in total length without caudal, height of body at base of pectoral $2\frac{1}{2}$; snout $2\frac{1}{3}$ in head, eye $25\frac{1}{5}$, length of maxillary $2\frac{1}{3}$; width of gill-opening $4\frac{2}{3}$, length of cephalic tentacle $1\frac{1}{4}$, dorsal tentacle $2\frac{2}{7}$.

Body oblong, compressed; caudal peduncle also compressed; body highest at base of pectoral, more strongly tapering posteriorly than anteriorly. Head large, a little less than one half total length without caudal; eye very small, nearer to tip of snout than to gill-opening. Nostril one on each side of head, tubular, near tip of snout. Mouth subvertical, not very large; lower jaw included, its symphysis provided with a prominently protruding spinous tip; mandibular teeth anteriorly in 2 ill-defined series, posteriorly in one row; the inner series long and fang-like; all depressible. Premaxillary teeth smaller, in two or three series, the largest teeth located anteriorly; vomer with some fang-like teeth on the side of its head, the tip having no teeth; palatines almost without teeth. Tongue toothless. Gill-openings rather narrow, just below pectoral, partly extending around the base of the fin, the course of openings directed downward and forward. Gills $2\frac{1}{2}$; gill arches nearly smooth; no pseudo-branchiæ. Pectoral small, inserted nearer back than belly; no ventral. Distance from caudal base to vent contained $2\frac{2}{3}$ times in the length from vent to tip of snout. Cephalic tentacle

representing the first dorsal spine, horny, flexible, above eye, not reaching dorsal tentacle, with a pear-shaped bulb and a terminal tuft. Second dorsal spine represented by dorsal tentacle, a little shorter than the length of maxillary; the distance between the tentacle and the median dorsal caruncle one-fourth the distance between the latter and the insertion of dorsal. Dorsal rays inserted above vent; anal below the third ray of dorsal; membrane of both the fins adnate to caudal base; tip of rays of both fins extending far beyond caudal base. Caudal rays long, some of them branched into two posteriorly, but the length of the branches uncertain owing to the bad state of preservation. Three dorsal caruncles perforated at tip, at a short distance in front of dorsal rays; the median caruncle largest, at about $\frac{1}{2}$ head length in front of the insertion of dorsal; lateral caruncle about one-third the median one in size and slightly more advanced.

Skin covered throughout with fine shagreen; eyes and the groove for the cephalic tentacle are the only naked areas of the body surface.

Color in formalin jet-black; inner surface of mouth cleft, gill opening, all the fins and appendages similarly colored. Terminal fringe of cephalic tentacle whitish, but its bulb blackish.

The species is very closely allied to *Ceratias couesi* (GILL), but differs from this in having a second dorsal spine (fleshy dorsal tentacle), in the gill opening being nearer tip of snout than caudal base, and in the shorter cephalic tentacle.

The species also differs from *Ceratias holboelli* KRÖYER in having toothed vomer, in the shorter cephalic tentacle and in having 3 caruncles instead of 2, and in the relative position of these members.

Only a single specimen was obtained May 1907 at Yodomi,* Sagami Bay, from a depth of about 800 fathoms. It is contained in Mr. ALAN OWSTON's collection, numbered 21251.

The species is named for Prof. K. MITSUKURI of the Imperial University of Tokyo.

MEASUREMENTS OF THE SPECIES.

Total length exclusive of caudal.....	29.0 cm.
Height of body at base of pectoral.....	12.0 „
Height of caudal peduncle.....	3.0 „
Length of head.....	12.6 „
Width of head.....	6.6 „
Horizontal diameter of eye.....	0.5 „
Length of snout.....	5.4 „
Length of maxillary.....	5.5 „
Width of gill opening.....	2.7 „
Length of base of dorsal.....	3.8 „
Length of first ray of dorsal.....	3.9 „
Length of last ray of dorsal.....	3.5 „
Length of base of anal.....	2.7 „
Length of first ray of anal.....	3.5 „
Length of last ray of anal.....	3.9 „
Width of base of pectoral.....	1.3 „
Length of ray of pectoral.....	2.0 „
Length of upper ray of caudal.....	about 6.0 „
Length of middle ray of caudal.....	15.0 „
Length of cephalic tentacle externally visible (with subterminal knob but without terminal fringes of the cephalic organ).....	10.0 „
Length of dorsal tentacle (terminal portion mutilated.).....	4.5 „
Distance from tip of snout to the point of exposure of the cephalic organ from the groove.....	6.0 „

* See IJIMA, Jour. Sci. Coll. Tokyo, vol. XV, pl. XIV.

Distance from tip of snout to dorsal tentacle.....	20.5 cm.
Distance from dorsal tentacle to median dorsal earuncle.....	0.6 „
Distance from origin of last ray of dorsal to caudal base...	2.8 „
Distance from tip of lower jaw to vent.....	23.0 „
Distance from vent to first ray of anal.....	2.3 „
Number of rays of dorsal.....	4
Number of rays of anal.....	4
Number of rays of pectoral.....	16
Number of rays of ventral.....	0
Number of rays of caudal.....	8

Corynolophus reinhardtii (LÜTKEN).

Pl. I., fig. 5.

Himantolophus reinhardtii was proposed by Dr. LÜTKEN, 1878, based on a single specimen 14 inches long and from off the coast of Greenland. Some young specimens obtained in Mid-Atlantic and referred by LÜTKEN to this species, were doubted by Dr. GÜNTHER* as to the correctness of the identification. Now I am much pleased to see 3 specimens from the coast of Japan.

The first specimen was captured by a porgy (*Pagrus*)-fisherman, 2 miles off Port Shimoda, Province Izu, in June 1904. It had been exhibited at a show in Tokyo as a curiosity. The specimen is unfortunately so much damaged that an exact examination can not be made.

The second specimen with slenderer body came from Sagami Sea and is in the possession of the Science College. It has been sent to the Stanford University in California for Dr. GILBERT's examination.

* GÜNTHER, Challenger Report, Deep Sea Fishes, 1887, p. 51.

The third one was obtained February 1907 at Yodomi,* Sagami Sea, from a depth of about 700 fathoms. It belongs to Mr. ALAN OWSTON. This specimen served for drawing up the following description :

Body oval, not compressed ; rather abruptly tapering anteriorly and posteriorly ; caudal peduncle much compressed. Head large ; eye very small, lateral, nearer upper profile of head than angle of mouth by the distance from the profile to eye ; nostril tubular, with two lateral openings. Mouth horizontal, gape moderate. Jaws equal, armed each with a narrow band of long sharp teeth ; no teeth on vomer and palatines. Gill-opening small, behind and beneath pectoral, directed downward and backward. Gill arches $\frac{1}{2}$, 2, $\frac{1}{2}$; surface of the arch can not be determined whether tubercled or smooth. Cephalic tentacle above eye, the tip enlarged into a bulb which is provided with a four-lobed prominence ; from the middle of the bulb rises a forked process ; about 5 long filaments issue from the bulb and thereabout, one of which branches into two ; when pressed backward, the tip of the bulb nearly above base of pectoral and beyond the middle between the insertion of tentacle and that of dorsal ; the filaments reach to the terminal parts of the base of dorsal. Back with deep depression before and behind the tentacle ; soft dorsal and anal small, the rays of both the fins branched ; insertion of anal beneath the last ray of dorsal ; membrane of soft dorsal and anal adnate to caudal peduncle. Pectoral placed rather low, broadly rounded, the rays branched. No ventrals. Caudal broadly rounded, the rays branched. Skin smooth, with sparsely scattered spines. Cephalic tentacle without spines, but with fine prickles.

* See IJIMA, l.c.

Color in formalin jet-black; mouth and gill opening of a similar color; the membrane between fin-rays whitish; terminal portion of the bulb of cephalic tentacle whitish, the four-lobed prominence and the forked process on the bulb brownish.

MEASUREMENTS OF THE SPECIMEN.

Total length (from tip of snout to caudal base).....	26.0 cm.
Head (from gill opening to tip of snout).....	16.0 „
Height of body.....	14.3 „
Width of body.....	14.3 „
Height of caudal peduncle.....	3.8 „
Snout measured from front of eye.....	4.9 „
Horizontal diameter of eye.....	0.5 „
Width between eyes.....	6.1 „
Length of maxillary.....	6.9 „
Length from upper end of base of pectoral to angle of mouth...	11.7 „
Length from upper end of base of pectoral to postorbital rim...	9.1 „
Width of gill opening.....	1.4 „
Breadth of base of pectoral.....	2.3 „
Length of ray of pectoral.....	3.0 „
Length of cephalic tentacle (excluding filaments).....	11.5 „
Length of the longest filament on the tentacle.....	10.8 „
Number of rays of dorsal.....	5
Number of rays of anal.....	4
Number of rays of pectoral.....	16
Number of rays of caudal.....	8
Number of spines in a longitudinal series from insertion of dorsal to head.....	6 or 7
Number of spines in a transverse series from middle of base of dorsal to middle of belly.....	8 or 9

