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C. Tate Regan M.A.

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THE ANNALS

AND

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[EIGHTH SERIES.]

No. 6. JUNE 1908.

LXXII.—*A Synopsis of the Sharks of the Family* *Scyliorhinidæ.* By C. TATE REGAN, M.A.

THE *Scyliorhinidæ* may be diagnosed as sharks with two dorsal fins not preceded by spines, with an anal fin, with five gill-openings on each side, the last one or two above the base of the pectoral fin, with cuspidate teeth of small or moderate size, and without nictitating membranes or oro-nasal grooves.

Three genera may be recognized, which may be distinguished thus:—

- I. First dorsal fin not in advance of the pelvics.
 Dermal denticles on the upper surface of the caudal fin similar to those on the body or uniformly enlarged 1. *Scyliorhinus*.
 A series of enlarged flattened denticles on each side of a strip of normal denticles on the upper edge of the caudal fin 2. *Pristiurus*.
- II. First dorsal fin long and low, in advance of the pelvics.
 3. *Pseudotriacis*.

1. SCYLIORHINUS.

Scyliorhinus, Blainville, Journ. Phys. 1816, p. 263.

Scyllium, Cuv. Règne Anim. ed. 1, 1817, p. 124.

Catulus, A. Smith, Proc. Zool. Soc. 1837, p. 85.

Poroderma, A. Smith, *l. c.*

Halaelurus, Gill, Ann. Lyc. N. York, vii. 1861, p. 467.

Cephaloscyllium, Gill, *l. c.*

Twenty-seven species.

Ann. & Mag. N. Hist. Ser. 8. Vol. i.

Synopsis of the Species.

- I. Upper lip overlapping the lower at the corner of the mouth; upper labial fold, if present, very short; lower labial fold short or of moderate length. Dorsal fins equal or the first larger than the second; first dorsal originating above or behind the posterior end of the base of pelvics; pelvic fins, in the males, with their posterior edges either united or contiguous at the base. (*Scyliorhinus*.)

- A. Anterior nasal valves well separated from each other and from the mouth, each with a cirrus; anal fin ending below the middle of second dorsal; pelvic fins not united.

1. First dorsal considerably larger than the second.

Nasal cirri moderate, not reaching the mouth 1. *africanus*.
 Nasal cirri long, extending to the mouth 2. *pantherinus*.

2. First dorsal scarcely larger than the second; nasal cirri short, projecting but little beyond the edges of the valves.

3. *stellaris*.

- B. Anterior nasal valves well separated from each other and from the mouth, each with a ridge which does not project as a free cirrus; anal fin ending below the anterior part of second dorsal.

1. First dorsal considerably larger than the second.

Mouth about twice as wide as long*; base of first dorsal not or scarcely more than $\frac{1}{2}$ its distance from the second; pelvic fins, in the males, united at the base 4. *retifer*.

Mouth about $2\frac{1}{2}$ as wide as long; base of first dorsal $1\frac{1}{2}$ to $1\frac{2}{3}$ in its distance from the second 5. *rudis*.

2. First dorsal scarcely larger than the second; pelvic fins, in the males, completely united 6. *capensis*.

- C. Anterior nasal valves separated from each other by a very short interspace and confluent with the upper lip; no trace of cirri; anal fin ending below the origin of second dorsal; pelvic fins, in the males, united for nearly the entire length of their posterior edges 7. *canicula*.

- II. Lower lip not overlapped by the upper; labial folds absent or vestigial. First dorsal fin considerably larger than the second, originating above or a little in advance of the middle of the base of pelvics; origin of second dorsal above anterior part of anal; pelvic fins not united. Anterior nasal valves separate from each other and from the mouth; no cirri. Head broad, depressed; snout short, obtuse; mouth wide; stomach inflatable. (*Cephaloscyllium*.)

Pectoral fin extending $\frac{3}{4}$ to $\frac{3}{4}$ of the distance from its origin to that of the pelvics; end of anal a little before that of second dorsal 8. *laticeps*.

* The length of the mouth is measured from the symphysis of the lower jaw to a transverse line between the corners of the mouth.

- Pectoral fin extending nearly $\frac{2}{3}$ of the distance from its origin to that of the pelvics; end of anal below that of second dorsal 9. *ventriosus*.
 Pectoral fin extending $\frac{1}{2}$ of the distance from its origin to that of the pelvics 10. *umbratilis*.

III. Lower lip not overlapped by the upper; usually a distinct labial fold at the angle of the mouth. Dorsal fins usually subequal, the first rarely longer than the second; pelvic fins not united. No nasal cirri. (*Halaelurus*.)

A. Length of base of anal more than its distance from the caudal.

1. Anal from a little less than 2 to nearly 3 times as long as the second dorsal; dermal denticles on upper surface of tail not enlarged.

a. Labial fold extending along the lower jaw $\frac{1}{2}$ or a little less than $\frac{1}{2}$ of the distance to the symphysis.

Anal $2\frac{3}{4}$ as long as second dorsal, which is larger than the first 11. *indicus*.

Anal $2\frac{1}{2}$ as long as second dorsal, which is slightly larger than the first 12. *brunneus*.

Anal more than twice as long as second dorsal, which is as large as the first 13. *spongiceps*.

Anal twice as long as second dorsal, which is as large as the first 14. *profundorum*.

b. Labial fold extending along the lower jaw $\frac{1}{3}$ the distance to the symphysis; anal nearly twice as long as either dorsal. 15. *analisis*.

c. Labial fold extending along the lower jaw $\frac{1}{2}$ the distance to the symphysis; anal twice as long as either dorsal. 16. *hispidus*.

2. Anal $1\frac{1}{2}$ as long as second dorsal; a band of enlarged dermal denticles on the upper surface of tail . . . 17. *xanurus*.

3. Anal not much longer than second dorsal; dermal denticles on upper surface of tail not enlarged; labial fold extending along the lower jaw about $\frac{1}{4}$ the distance to the symphysis.

Second dorsal entirely above the anal 18. *cephalus*.

Anal ending below the middle of second dorsal. . . . 19. *canescens*.

B. Length of base of anal equal to or less than its distance from the caudal.

1. Anterior nasal valves separate from each other and from the mouth.

a. Labial fold extending along the lower jaw not more than $\frac{2}{3}$ the distance to the symphysis; anterior nasal valves nearly rectangular.

a. Snout rounded; labial fold very short or absent.

20. *buergeri*.

β . Snout pointed; labial fold distinct.

Interspace between the nasal valves a little more than $\frac{2}{3}$ the præoral length of snout; a short labial fold at the angle of the mouth 21. *quagga*.

Interspace between the nasal valves not more than $\frac{1}{2}$ the præoral length of snout; a labial fold at

the angle of the mouth, extending along the lower jaw $\frac{1}{3}$ to $\frac{2}{3}$ of the distance to the symphysis

22. *natalensis*.

b. Labial fold extending along the lower jaw about $\frac{1}{2}$ the distance to the symphysis; anterior nasal valves acutely pointed and with notched posterior edges.

No dorsal tubercles; anal $1\frac{1}{2}$ to $1\frac{1}{2}$ as long as first dorsal, which measures $\frac{1}{3}$ to $\frac{2}{3}$ of its distance from the second

23. *bivius*.

Two series of tubercles on the back from head to first dorsal fin; anal $1\frac{1}{2}$ as long as first dorsal, which measures nearly $\frac{1}{2}$ of its distance from the second

24. *chilensis*.

c. Labial fold extending along the lower jaw nearly to the symphysis.....

25. *maculatus*.

2. Anterior nasal valves overlying the edge of the upper lip.

Labial fold extending along the lower jaw nearly to the symphysis; anterior nasal valves separated by a moderate interspace

26. *marmoratus*.

Labial fold extending along the lower jaw nearly $\frac{1}{2}$ the distance to the symphysis; anterior nasal valves nearly or quite meeting in the middle line

27. *edwardsii*.

Section 1. *Scyliorhinus*.

(Incl. *Scyllium*, *Catulus*, and *Poroderma*.)

1. *Scyliorhinus africanus*.

Squalus africanus, Gmelin, Linn. Syst. Nat. i. p. 1494 (1793).

Scyllium africanum, Cuv. Règne Anim. ed. 2, ii. p. 386 (1829); Müll. & Henle, Plagiost. p. 12, pl. vii. fig. (1841); Smith, Ill. Zool. S. Afr., Fish. pl. xxv. fig. 1 (1845); Duméril, Elasmobr. p. 321 (1865).

Scyllium africanum, var. *africana* s. *striata*, Günth. Cat. Fish. viii. p. 406 (1870).

Five or seven broad dark longitudinal stripes from snout to caudal fin, one mid-dorsal and two or three on each side.

Hab. South Africa.

In the British Museum two specimens, 400 and 600 mm. in total length.

2. *Scyliorhinus pantherinus*.

Scyllium pantherinum (Smith), Müll. & Henle, Plagiost. p. 13 (1841); Smith, Ill. Zool. S. Afr. Fish. pl. xxv. fig. 2 (1845); Duméril, Elasmobr. p. 322 (1865).

Scyllium variegatum (Smith), Müll. & Henle, t. c. p. 14; Smith, t. c. pl. xxv. fig. 3; Duméril, l. c.

Scyllium africanum, vars. *variegata* & *pantherina*, Günth. Cat. Fish. viii. p. 406 (1870).

Back and sides covered with blackish spots or vermiculations, which may unite to form rings or longitudinal stripes.

Hab. South Africa.

In the British Museum five specimens, 400 to 700 mm. in total length, including the types of the species and of *S. variegatum*.

3. *Scyliorhinus stellaris*.

Squalus stellaris, Linn. Syst. Nat. ed. 10, p. 235 (1758), and ed. 12, p. 399 (1766).

Scyllium catulus (non Linn.), Cuv. Règne Anim. ii. ed. 1, p. 124 (1817); Müll. & Henle, Plagiost. p. 9, pl. vii. (1841); Duméril, Elasmobr. p. 316 (1865).

Scyllium stellare, Günth. Cat. Fish. viii. p. 403 (1870).

Upper parts with numerous rounded dark spots.

Hab. Europe, from Scandinavia to the Mediterranean.

In the British Museum eight specimens, 140 to 900 mm. in total length.

4. *Scyliorhinus retifer*.

Scyllium retiferum, Garm. Bull. Mus. Comp. Zool. viii. 1881, p. 233.

Scyliorhinus retifer, Goode & Bean, Mem. Mus. Comp. Zool. xxii. 1896, p. 16, pl. ii. fig. 6, and pl. iv. figs. 14 & 15.

Catulus retifer, Jord. & Everm. Bull. U.S. Nat. Mus. xlvii. 1896, p. 25.

Catulus hæckelii, Ribeiro, Arch. Mus. Rio Janeiro, xiv. 1907, p. 163, pl. viii.

Hab. Atlantic coasts of America from the United States to Brazil, in deep water (40 to 200 fathoms).

An example of 250 mm. in the British Museum, from the North Atlantic, shows the typical coloration of the species. The back is crossed by seven pairs of narrow blackish transverse stripes, the fourth and fifth of which pass through the bases of the first and second dorsal fins respectively; on the sides these stripes give rise to a network with large polygonal meshes. Goode and Bean give the name *S. boa* to a variety which appears to be identical with the recently described *C. hæckelii*; the paired stripes are replaced by dark bars studded with darker spots, and the reticulations on the sides are broken up into spots and vermiculations.

5. *Scyliorhinus rudis*.

Scyliorhinus rudis, Pietschmann, Anz. Ak. Wien, 1908, p. 133.

Catulus torazame, Tanaka, Journ. Sci. Coll. Tokyo, xxiii. 1908, Art. 7, p. 6, pl. ii. fig. 2.

This species differs from *S. retifer* in the broader head,

shorter and blunter snout and wider mouth, as well as in coloration. Dark transverse bars on the back correspond to the interspaces between a series of dark bars or blotches on the lower part of the side, and there are scattered small round white spots on the body.

Hab. Japan.

6. *Scyliorhinus capensis*.

Scyllium capense, Müll. & Henle, *Plagiost.* p. 11 (1841); Duméril, *Elasmobr.* p. 320 (1865); Günth. *Cat. Fish.* viii. p. 404 (1870).

Upper parts greyish or brownish, with darker cross-bands and with numerous rounded whitish spots.

Hab. South Africa.

In the British Museum six specimens, 600 to 1000 mm. in total length.

7. *Scyliorhinus canicula*.

Squalus canicula, Linn. *Syst. Nat.* ed. 10, p. 234 (1758), and ed. 12, p. 399 (1766).

Squalus catulus, Linn. *t. c.* ed. 10, p. 235, and ed. 12, p. 400.

Scyllium canicula, Cuv. *Règne Anim.* ii. ed. 1, p. 124 (1817); Müll. & Henle, *Plagiost.* p. 6, pl. vii. fig. (1841); Duméril, *Elasmobr.* p. 315 (1865); Günth. *Cat. Fish.* viii. p. 402 (1870).

Upper parts of the body covered with numerous small dark spots.

Hab. Europe, from Scandinavia to the Mediterranean.

In the British Museum twenty-seven specimens, measuring up to 700 mm. in total length.

Section 2. CEPHALOSCYLLIUM.

8. *Scyliorhinus laticeps*.

Scyllium laticeps, Duméril, *Rev. et Mag. Zool.* 1853, p. 84, pl. iii. fig. 2, and *Elasmobr.* p. 323 (1865); Günth. *Cat. Fish.* viii. p. 404 (1870).

Upper surface brownish, with numerous rounded blackish spots; a broad blackish transverse band covering the region between the eyes and the last gill-openings; a less distinct dark band behind this; a few dark blotches on the sides and at the base of each dorsal fin; lower surface yellow.

Hab. Southern Australia, Tasmania, and New Zealand.

In the British Museum three specimens, 300 to 850 mm. in total length.

9. *Scyliorhinus ventriosus*.

Scyllium ventriosum, Garm. *Bull. Mus. Comp. Zool.* vi. 1880, p. 167.

Catulus uter, Jord. & Everm. *Bull. U.S. Nat. Mus.* xlvii. 1896, p. 25, and 1900, fig. 12.

Upper surface brownish, with scattered rounded dark brown spots and smaller bright yellow spots; back with several dark cross-bands or pairs of bands which are more or less broken up into double series of dark spots; lower surface yellow, with numerous dark spots. In structural characters differing but slightly from the preceding species.

Hab. Pacific Coast of America from California to Chile.

In the British Museum one example, 620 mm. in total length.

10. *Scyliorhinus umbratilis*.

Cephaloscyllium umbratile, Jord. & Fowler, Proc. U.S. Nat. Mus. xxvi. 1903, p. 602, fig. 1.

Brownish, spotted and marbled with darker; back with dark transverse bands, the first behind the eyes, the second between the pectorals, the fourth and fifth through the bases of the dorsal fins.

Hab. Japan.

In the British Museum one example, 1000 mm. in total length.

Section 3. HALÆLURUS.

11. *Scyliorhinus indicus*.

Scyliorhinus indicus, Brauer, 'Valdivia' Tiefsee-Fische, p. 8, pl. xiv. fig. 1 (1906).

Dr. A. Brauer has kindly informed me that in this species the labial fold extends along the lower jaw a little less than $\frac{1}{2}$ the distance to the symphysis. As in most of the deep-sea species of this genus, the coloration is nearly uniform.

Hab. Indian Ocean, at depths of 1289 to 1840 metres off East Africa and in the Gulf of Aden.

12. *Scyliorhinus brunneus*.

Catulus brunneus, Gilbert, Proc. U.S. Nat. Mus. 1891, p. 542; Jord. & Everm. Bull. U.S. Nat. Mus. xlvii. 1896, p. 24.

Hab. Gulf of California, in deep water.

13. *Scyliorhinus spongiceps*.

Catulus spongiceps, Gilbert, Bull. U.S. Fish. Comm. 1903, p. 579 (1905).

Hab. Hawaii, 313 to 800 fathoms.

14. *Scyliorhinus profundorum*.

Scyliorhinus profundorum, Goode & Bean, Mem. Mus. Comp. Zool. xxii. 1896, p. 17, pl. v. fig. 16; Jord. & Everm. Bull. U.S. Nat. Mus. xlvii. 1896, p. 22, and 1900, fig. 11.

Hab. North Atlantic, at a depth of 816 fathoms, in lat. $39^{\circ} 9' N.$, long. $72^{\circ} 3' 15'' W.$

15. *Scyliorhinus analis*.

Scyllium anale, Ogilby, Proc. Linn. Soc. N. S. Wales. x. 1885, p. 445.
Catulus analis, Waite, Mem. Austral. Mus. iv. 1899, pl. ii. fig. 1.

Brownish or greyish, with scattered round dark spots.

Hab. New South Wales.

In the British Museum one specimen, 460 mm. in total length.

16. *Scyliorhinus hispidus*.

Scyllium hispidum, Alcock, Ann. & Mag. Nat. Hist. (6) viii. 1891, p. 21; Ill. Zool. 'Investigator,' Fishes, pl. viii. fig. 3 (1894); Cat. Ind. Deep-sea Fish. p. 15 (1899).

Scyliorhinus hispidus, Brauer, 'Valdivia' Tiefsee-Fische, p. 7 (1906).

Greyish, with or without dark cross-bars on the back.

Hab. Indian Ocean, 185 to 419 fathoms.

In the British Museum one specimen, 260 mm. in total length.

17. *Scyliorhinus xaniurus*.

Catulus xaniurus, Gilbert, Proc. U.S. Nat. Mus. 1891, p. 540; Jord. & Everm. Bull. U.S. Nat. Mus. xlvii. 1896, p. 24.

Hab. Coast of Southern California, at a depth of 184 to 684 fathoms.

18. *Scyliorhinus cephalus*.

Catulus cephalus, Gilbert, Proc. U.S. Nat. Mus. 1891, p. 541; Jord. & Everm. Bull. U.S. Nat. Mus. xlvii. 1896, p. 24.

Hab. Gulf of California and Revillagigedo Islands, at a depth of 362 to 460 fathoms.

A small specimen in the British Museum received from the Smithsonian Institution as *C. xaniurus* probably belongs to this species, as there are no enlarged denticles on the upper surface of the tail and the anal is only $1\frac{1}{3}$ as long as the second dorsal.

19. *Scyliorhinus canescens*.

Scyllium canescens, Günth. Ann. & Mag. Nat. Hist. (5) ii. 1873, p. 18, and 'Challenger' Deep-sea Fish. p. 1, pl. i. fig. A (1887).

Hab. Chile, 400 fathoms.

In the British Museum a single specimen, type of the species, 285 mm. in total length.

Alcock (Cat. Ind. Deep-sea Fish. p. 16) has recorded *S. canescens* from the Indian Ocean, but from his notes it is evident that his specimen does not belong to this species.

20. *Scyliorhinus buergeri*.

Scyllium buergeri, Müll. & Henle, Plagiost. p. 8, pl. ii. (1841); Schleg. Faun. Japon., Poiss. p. 301 (1850); Duméril, Elasmobr. p. 320 (1865); Günth. Cat. Fish. viii. p. 404 (1870).

Halaelurus buergeri, Jord. & Fowler, Proc. U.S. Nat. Mus. xxvi. 1903, p. 601.

Brownish, with darker cross-bars which are studded with blackish spots.

Hab. Japan to Amboyna.

In the British Museum five specimens, 390 to 480 mm. in total length.

21. *Scyliorhinus quagga*.

Scyllium quagga, Alcock, Cat. Ind. Deep-sea Fish. p. 17 (1899), and Ill. Zool. 'Investigator,' Fish. pl. xxvii. fig. 1 (1900).

Back with narrow dark cross-bands.

Hab. Malabar Coast, 102 fathoms.

22. *Scyliorhinus natalensis*.

Scyllium natalense, Regan, Ann. & Mag. Nat. Hist. (7) xiv. 1904, p. 128.

Greyish, with brown markings; back with cross-bands with dark edges, the anterior bands sometimes broken up into two or three large spots; interspaces between the anterior bands covered with reticulations; posteriorly narrower intermediate bands; a large dark spot on each of the dorsal, pectoral, and pelvic fins.

Hab. Natal and Cape Colony.

In the British Museum four specimens, 390 to 425 mm. in total length, including the type of the species.

23. *Scyliorhinus bivius*.

Scyllium bivium (Smith), Müll. & Henle, Plagiost. p. 8 (1841); Duméril, Elasmobr. p. 321 (1865); Günth. Cat. Fish. viii. p. 405 (1870).

Scyllium brevicolle, Philippi, An. Univ. Chile, lxxi. 1887, p. 558, pl. vii. fig. 5.

Scyllium gayi, Philippi, Zool. Garten, 1887, p. 86.

Scyllium chilense (non Guichen.), Vaill. Miss. Sci. Cap Horn, Poiss. p. 10, pl. i. fig. 1 (1891).

Back with dark blotches or transverse bars; upper parts with rounded blackish spots and usually with some pale spots.

Hab. Chile and Patagonia.

In the British Museum eight specimens, 280 to 750 mm. in total length, including the type of the species.

24. *Scyliorhinus chilensis*.

Scyllium chilense, Guichen. in Gay, Fauna Chilena, Pisces, p. 362 (1847); Günth. Cat. Fish. viii. p. 405 (1870); Philippi, An. Univ. Chile, lxxi. 1887, p. 556, pl. vii. fig. 4.

Coloration as in the preceding species, but no pale spots.

Hab. Chile.

In the British Museum four examples, 330 to 550 mm. in total length.

25. *Scyliorhinus maculatus*.

Squalus maculatus, Schneid. Bloch's System. Ichthyol. p. 130 (1801).

Scyllium maculatum, Günth. Cat. Fish. viii. p. 401 (1870).

Catulus labiosus, Waite, Rec. Austral. Mus. vi. 1906, p. 57, fig. 23.

Body with scattered rounded dark spots.

Hab. Australia.

The specimen in the British Museum, 550 mm. in total length, from Bramble Bay*, was erroneously described by Günther as having the nasal valves confluent in front of the mouth. Waite's figure, based on a specimen from Freemantle, Western Australia, shows very accurately the structure and position of the nasal valves, labial folds, &c.

26. *Scyliorhinus marmoratus*.

Scyllium marmoratum, Bennett, in 'Life of Raffles,' p. 693 (1830); Günth. Cat. Fish. viii. p. 400 (1870).

Scyllium maculatum (non Bl. Schn.), Gray, Ind. Zool. pl. xcvi. fig. 1 (1832); Müll. & Henle, Plagiost. p. 5, pl. vii. (1841); Dumeril, Elasmobr. p. 319 (1865).

Upper parts with numerous brown spots which may unite to form undulating bands or rings enclosing pale spots.

Hab. India; Malay Archipelago.

In the British Museum eight specimens, 340 to 620 mm. in total length, including the type of *S. maculatum*, Gray.

* ? Bramble Cay, an island in the Gulf of Papua.

27. *Scyliorhinus edwardsii*.

Squalus catulus (non Linn.), Edwards, Glean. Nat. Hist. iii. pl. cclxxxix. (1764).

Scylium edwardsii, Cuv. Règne Anim. ed. 2, p. 386 (1829); Müll. & Henle, Plagiost. p. 4, pl. i. (1841); Duméril, Elasmobr. p. 319 (1865); Günth. Cat. Fish. viii. p. 401 (1870).

Scylium pictum, Müll. & Henle, t. c. pp. 4 & 189.

Upper parts of head, body, and paired fins with dark brown reticulations; back with several irregular dark cross-bars.

Hab. South Africa.

In the British Museum three specimens, 160 to 520 mm. in total length.

2. PRISTIURUS.

Pristiurus, Bonap. Faun. Ital., Pesc. (1834).

Differs from *Scyliorhinus* in having a series of enlarged dermal denticles on each side of the upper edge of the caudal fin.

Three species.

Synopsis of the Species.

I. Anal fin ending at a short distance from the caudal.

Base of anal fin considerably longer than the distance from anterior edge of eye to origin of pectoral fin. 1. *melanostomus*.
Base of anal fin equal to the distance from anterior edge of eye to origin of pectoral fin. 2. *murinus*.

II. Anal fin separated from the caudal by a distance not much less than the length of its base . . . 3. *castmani*.

1. *Pristiurus melanostomus*.

Galeus melastomus, Rafin. Caratt. p. 13 (1810).

Pristiurus melanostomus, Bonap. Faun. Ital., Pesc. (1834); Müll. & Henle, Plagiost. p. 15 (1841); Duméril, Elasmobr. p. 325 (1865); Günth. Cat. Fish. viii. p. 407 (1870).

Pristiurus atlanticus, Vaill. Expéd. 'Travailleur' et 'Talisman,' Poiss. p. 59, pl. i. fig. 1 (1888).

Hab. Coasts of Europe, from Scandinavia to the Mediterranean.

In the British Museum twenty-four examples, measuring up to 650 mm. in total length.

2. *Pristiurus murinus*.

Pristiurus murinus, Coll. Forh. Vid. Selsk. Christian. 1904, no. 9, p. 4, and Rep. Norweg. Fish. ii. 1905, no. 3, p. 32, pl. i. fig. 3.

Hab. 150 kilomètres N.W. of the Hebrides, at a depth of 1100 to 1300 mètres.

3. *Pristiurus eastmani*.

Pristiurus eastmani, Jord. & Snyder. *Smithson. Coll.* xlv. 1903, p. 230, pl. lx. (1904).

Hab. Japan.

In the British Museum one specimen, 300 mm. in total length.

Garman has recently proposed a new genus *Parmaturus* (*Bull. Mus. Comp. Zool.* xlv. 1906, p. 203) to include a new species, *Parmaturus pilosus*, from deep water off Japan, in addition to *Pristiurus eastmani* and *Scyliorhinus xaniurus*.

I have examined a specimen of *Pristiurus eastmani*, which I regard as congeneric with *P. melanostomus*. On the other hand, *S. xaniurus*, as described, does not appear to differ generically from *Scyliorhinus*. The systematic position of *Parmaturus pilosus* is therefore, at present, uncertain.

3. PSEUDOTRIACIS.

Pseudotriacis, Capello, *Jorn. Sc. Math. Phys. Lisboa*, iv. 1867, p. 321.

This genus is distinguished by the numerous small teeth and by the long and low first dorsal fin in advance of the pelvics.

Two species.

1. *Pseudotriacis microdon*.

Pseudotriakis microdon, Capello, *Jorn. Sci. Math. Lisboa*, iv. 1867, p. 321, pl. v. fig. 1; Bean, *Proc. U.S. Nat. Mus.* vi. 1883, p. 147; Jord. & Everm. *Bull. U.S. Nat. Mus.* xlvii. 1896, p. 27, and 1900, fig. 14.

Pseudotriacis microdon, Günth. *Cat. Fish.* viii. p. 395 (1870).

Length of head (to last gill-opening) $5\frac{1}{3}$ in the length of the fish.

Hab. North Atlantic.

In the British Museum one example, 1050 mm. in total length.

This species attains a length of 3000 mm. The skeleton has been well described by Jaquet (*Bull. Mus. Monaco*, 1905, no. 36) and does not differ notably from that of *Scyliorhinus*. The secondary calcification of the vertebræ is reduced to a thin peripheral layer, as in *Pristiurus* (Regan, *Proc. Zool. Soc.* 1906, p. 745).

2. *Pseudotriacis acrales*.

Pseudotriacis acrales, Jord. & Snyder. Smithson. Coll. xlv. 1903, p. 232, pl. lxii. (1904).

Length of head (to last gill-opening) $4\frac{1}{3}$ in the length of the fish.

Hab. Japan.

Jordan and Snyder give a comparative table of the supposed differences between this species and the preceding, but a specimen of *P. microdon* from the coast of Portugal in the British Museum has the characters assigned by them to the Japanese form, except for the shorter head.

LXXIII.—*Description of a new Species of the Genus Conus.*

By G. B. SOWERBY, F.L.S.

Conus excelsus, sp. n.

Testa fusiformis, elongata, angulata, utrinque acuminata, sulcis transversis numerosis haud profundis cingulata, longitudinaliter irregulariter dense plicata; fulva, maculis albis diversiformibus, et lineis rufo-fuscis irregularibus interruptis, plerumque in balteis transversis dispositis ornata; spira elatissima, acuta, gradata; anfractus 13–14, angulati, supra leviter concavi, bisulcati, oblique aurantio lineati et albo variegati, primi 8–9 minute nodulati; anfractus ultimus acuminatus, antice valde attenuatus, postice angulatus, ad angulum tenuiter carinatus, flammulis rufo-fuscis et albis oblique arcuatis pictus; apertura mediocriter lata; labrum tenue, arcuatum, postice profunde sinuatum.

Long. 93, maj. diam. 33 mm.

Hab. New Caledonia?

This magnificent shell, at present unique, defies comparison with any hitherto known species. The most prominent feature is the extraordinary height of its acutely conical spire, which is quite symmetrical and has no appearance of abnormality. The whorls are angular, a little concave above the angle, with two shallow spiral grooves; the first eight or nine are coronated with minute tubercles at the angle. The body-whorl is gracefully attenuated towards the base and slightly rounded at the angle, which is surmounted by a narrow keel. The surface is sculptured by rather numerous shallow spiral grooves and longitudinal minute irregular plicæ. In colour it is rather light fulvous yellow, with white patches of various sizes and shapes, outlined with reddish