

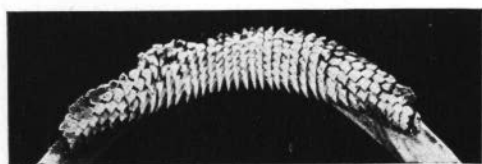
SELACHII
Hypotremata Raiidæ

Raia clavata

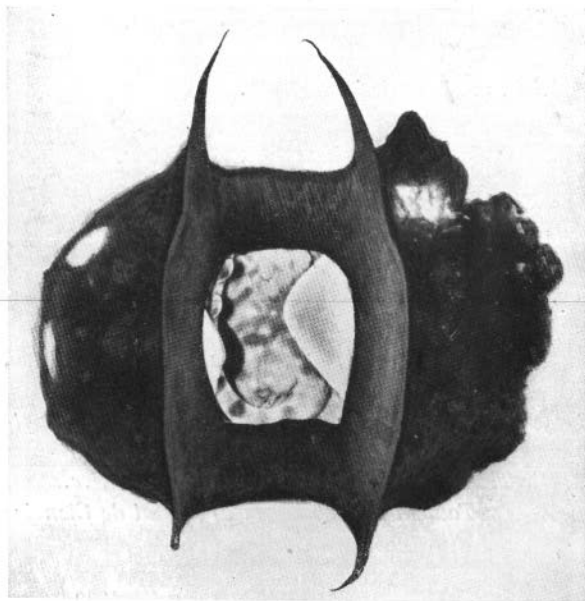
LINNAEUS, 1758.



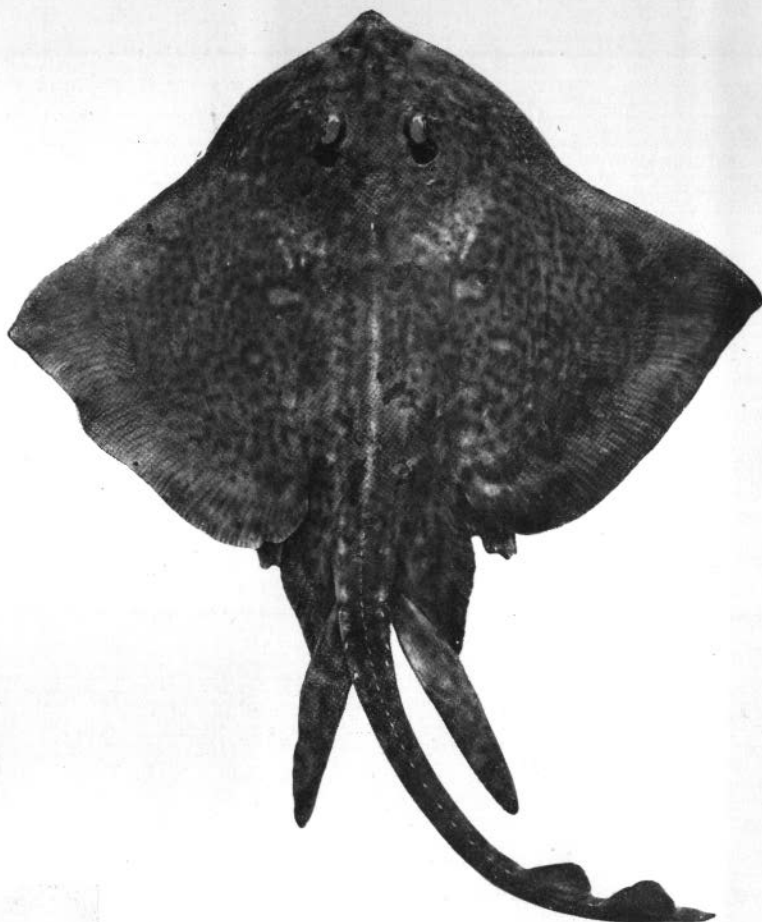
4



3



2



1

EXPLANATION OF FIGURES

Fig. 1. Adult male from Moray Firth.
Width of disc 485 mm.

Fig. 2. Egg capsule with embryo just
before hatching.
Length (without horns) 80 mm.
Width (without attachment
threads) 62.5 mm.

Fig. 3. Teeth of adult male.

Fig. 4. Teeth of adult female.

DIAGNOSIS — Maximal length 850 mm. and width 610 mm. *Disc* — width greater than length, which latter is about half the total length of fish; anterior margin undulated; outer angle a right angle. Snout projecting as a short pointed process, its length 5 to 6 times in width of disc and 2 to 3 times the interorbital width which is greater than the longitudinal diameter of the eye. Internasal width about equal to width of mouth. *Teeth* pointed in adult males, flat and pavementlike in females; 36 to 44 rows in upper jaw. Praeanal shorter than postanal distance. *Upper surface* entirely spinulose, even in the early young. Adults with or without some large buckler spines with tumid bases on the disc. Orbital spines usually present. A complete series of median spines on the body and tail in young, reduced in number or absent on the body in adult males, well represented in adult females. Usually a few median nuchal spines. A pair of scapular spines in young, wanting in adults. Dorsals separate. Lateral tail spines absent in young, represented by a few spines in adult males or by an almost complete series in adult females. Colour usually mottled grey but very variable. Immature forms have the disc covered with numerous oval black spots and a few larger yellowish spots with dark margins. Adults generally show a marbled arrangement of dark and yellowish brown. The yellowish brown spots are very irregular in shape and in size, while the dark brown marks may be drawn out into wavy lines. *Lower surface* entirely spinulose, sometimes with a few large buckler spines in adult females. Males more or less spinulose, but usually with large smooth patches on the disc. Young stages smooth except snout and anterior margin of disc. Colour white, margin of disc often greyish. *Egg capsule* — one side almost flat, the other strongly convex. Shell rough, covered with a close-fitting network of fibres. Lateral keel prominent, with a loose fitting mass of fibres attached along its whole length. Tips or horns produced to fine points. Range in length (without horns) 63 to 90 mm, and in width 49 to 69 mm. Ripe females occur from March to August but mostly from May to July (in the English Channel). Period of incubation of embryo $4\frac{1}{2}$ to $5\frac{1}{2}$ months.

DISTRIBUTION — Coastal to moderate depths. Coast of Morocco and Madeira northwards to Iceland and Murman coast. Enters the Mediterranean and penetrates to the Black Sea (*Berg, Ehrenbaum*): English Channel: Irish Sea: North Sea general: W. Baltic: Norwegian coast: Skagerak and Cattégat: Dutch and Belgian coasts. Unknown within Arctic Circle.

COMMON NAMES — British, Thornback, Roker; Danish, Somrokken; French, Raie bouclée; German, Keulen-Stachel or Nagel roche; Swedish, Knaggrocka.

SYNONYMY — *R. pontica* Pallas 1811. *R. maderensis* Lowe 1841.

LITERATURE

1758. — LINNAEUS, C. Systema Naturæ. Ed. X. t. 1.
1870. — GÜNTHER, A. Catalogue of Fishes of British Museum, Vol. 8.
1880-4. — DAY, F. Fishes of Great Britain and Ireland.
1895. — SMITT, F.A. Scandinavian Fishes. Vol. 2.
1907. — JENSEN, Ad. S. Zoologia Danica. Heft 12.
1922. — CLARK, R. S. Rays and Skates. Egg Capsules and Young. *Journ. Mar. Biol. Assoc.*, Vol. XII. No 4.
1926. — CLARK, R.S. Rays and Skates. A Revision of the European Species. *Fisheries Scotland, Sci. Invest.* 1926-1
1927. — EHRENBAUM, E. Elasmobranchii. *Die Tierwelt der Nord und Ostsee. Teil XII. e.*
1928. — REY, L. LOZANO. Fauna Iberica Peces. *Tomo Primero Museo Nacional de Ciencias Naturales.* Madrid.

R. S. CLARK — 1930.