

M0014496: Description of two plates showing the electric organ of the torpedo fish by John Hunter, 1782

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PLATE LIII.

Male and Female TORPEDO^a.

Fig. 1. A view of the under surface of the female.

- a.* An exposure, on flaying off the skin, of the right electric organ, which consists of white pliant columns, in a close and for the most part hexagonal arrangement, giving the general appearance of a honey-comb in miniature. These columns have been sometimes denominated cylinders; but, having no interstices, they are all angular, and chiefly six-cornered. *b.* The skin which covered the organ, showing on its inward side an hexagonal net work. *c.* The nostrils in the form of a crescent. *d.* The mouth in a crescent contrary to that of the nostrils, furnished with several rows of very small hooked teeth. *e.* The bronchial apertures, five on each side. *f.* The place of the heart. *g g g.* The place of the two anterior transverse cartilages, which, passing one above and the other below the spine, support the diaphragm, and uniting towards their extremities, form on either side a kind of clavicle and scapula. *h h.* The outward margin of the great lateral fin. *i i.* Its inner margin, confining with the electric organ. *k.* The articulation of the great lateral fin with the scapula. *l.* The abdomen. *m m m.* The place of the posterior transverse cartilage which is single, united with the spine, and supports on each side the smaller lateral fins. *n n n n.* The two smaller lateral fins. *o.* The anus. *p.* The fin of the tail.

^a *Torpedo Narke*, Cuv.

Fig. 2. A view of the upper surface of the female.

- a a.* An exposure of the upper part of the right electric organ. *b.* The skin which covered the organ. *c.* The eyes, prominent and looking horizontally outwards, but capable of being occasionally withdrawn into their sockets. *d.* Two circular apertures communicating with the mouth, and furnished each with a membrane, which in air, as well as in water, plays regularly backwards and forwards across the aperture in the office of inspiration. *e.* The place of the right branchiæ. *f.* The two fins of the back. *g g.* The place of the anterior transverse cartilages.

Fig. 3. A view of the under surface of the male, whose size, as here represented, is, in general, smaller than that of the female.

- a a.* Two appendices, distinguishing the male species.

PLATE LIV.

Electric Organs of the TORPEDO.

Fig. 1. The upper surface of the electric organ.

- A A.* The common skin of the animal. *B.* The inspiratory opening. *C.* The eye. *D.* The part in which the gills are inclosed. *E E E.* The skin dissected off from the electric organ, and turned outwards; the honey-comb appearance on its internal surface corresponding with the upper surface of the organ. *F.* The part of the skin which covered the gills, with some ramifications of an excretory duct upon it. *G G G.* The upper surface of the electric organ, formed by the upper extremities of the perpendicular columns.

Fig. 2. The right electric organ divided horizontally into nearly two equal parts at the place where the nerves enter; the upper half being turned outwards.

- A A. B B. C C. D D.* The corresponding parts of the trunks of the nerves, as they emerge from the gills, and ramify in the electric organ. *A A.* The first or anterior trunk arising just before the gills. *B B.* The second or middle trunk arising behind the first gill. *C C.* The anterior branch of the third trunk arising behind the second gill. *D D.* The posterior branch of the third trunk arising behind the third gill.

Fig. 3. A perpendicular section of the *Torpedo* a little below its inspiratory openings.

- A A.* The upper surface of the fish. *B B.* The muscles of the back as divided by the section. *C.* The medulla spinalis. *D.* The œsophagus. *E.* The left gill split, to expose the course of a trunk of the nerve through it. *F.* The breathing surface of the right gill. *G G.* The fins. *H H.* The perpendicular columns which compose the electric organ, with a representation of their horizontal partitions. *I.* One of the trunks of the nerves, with its ramifications.