

**CATALOGUE OF
LOPHOBRANCHIATE FISH
IN THE COLLECTIONS OF
THE BRITISH MUSEUM**

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Catalogue of Lophobranchiate Fish in the Collections of the British Museum by J. J. Kaup

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BY

J. J. KAUP, Ph.D. &c.

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P R E F A C E.

THE object of this Catalogue is to give a description of all the species of Lophobranchous Fishes in the Collection of the British Museum, with an indication of their history and origin, and an account of the species to be found in other Collections which are desiderata to the National Museum.

Dr. Kaup observes that, "If my work has any value, it is chiefly owing to the liberality and great kindness of Professor Duméril, Director Temminck, Dr. Heckel, Dr. Rüppell, Professor Lichtenstein, and Dr. Krauss, who most kindly transmitted all the specimens of this Order from the French, Leyden, Vienna, Frankfort, Berlin, and Stuttgardt Museums, that I might compare them with the specimens in the British Museum, which has given me the means of comparing more than 2000 specimens of these fishes together, an advantage which no other Ichthyologist has hitherto enjoyed. From these sources I have been able to determine and describe ninety-five species, and to indicate one which appears to be distinct from any which has come under my examination. Of these ninety-five, fifty-three are to be found in two or more of the above-named collections; and of the other species, nineteen are peculiar to the

French, ten to the Leyden, seven to the Vienna, four to the British, and two to the Berlin Museums.

“Although I have described five or six times as many species as any of my predecessors, I am certain that hereafter we shall find a great number of new species, as the species of the West Coasts of Africa and America, and the shores of Australia and the Pacific Ocean are almost unknown to us, and there are evidently many gaps in the families and genera. Indeed our best works on Natural History must always be regarded as imperfect.

“You desired that I should give a list and short characters of the few species mentioned by preceding writers which I have not been able to identify with those that have come under my observation ; but I have not considered this desirable, as the descriptions are too short, or wanting in precision, to be of any useful purpose, containing generally little more than the generic characters, instead of being comparative and distinctive of the species.”

Sir John Richardson, M.D., F.R.S. &c., has most kindly compared Dr. Kaup's translation of the text with the original German version, to prevent any inaccuracies that might have occurred from Dr. Kaup's want of knowledge of the peculiarities of the English language.

JOHN EDWARD GRAY.

May 1, 1856.

CATALOGUE OF FISH.

Order I. LOPHOBRANCHII, *Cuvier*.

The gills, composed of small round tufts seated on the branchial arches, are so well hidden by the gill-cover (*operculum*) that only a small entrance to them is left in the membrane between the operculum and breast-ring. The nearly fleshless body is protected by bony rings. In most of the species the males perform the function of hatching the eggs, which for that purpose are deposited up to the time of the evolution of the young, either between the ventrals [*Solenostomus*], or in tail-pouches [*Hippocampus*], or in pouches on the breast and belly [*Doryrhamphus*], or in rows on the breast and belly [*Nerophis*], and are thus carried about by the fish. The egg-pouches may be compared to birds' nests, or to the skin-fold in which the Wandering Penguin [*Aptenodytes Patagonicus*] transports its egg; and remind one of the Marsupials among the Mammals.

Fam. 1. Solenostomidæ, *Kaup*.

Breast and belly distinctly separated. Mouth perforating the end of a long, compressed, leaf-like snout. The gills, which are covered as in other fish by a cutaneous gill-plate, are wholly exposed when the plate is raised.

Genus 1. SOLENOSTOMUS, (*Seba*) *Lacép.* 1803.

Snout sharp-edged on its dorsal and ventral aspects. A sharp denticulated ridge, passing from the occiput over the eyes and nostrils, disappears in the acute rostral crest. Surface of the forehead and occiput showing irregular acutely-edged lines. Gill-plate having three sharp lines, one of which runs along the middle. Back and breast acutely ridged; the leathery skin forms three rings, between which there are lines which increase to irregular folds in descending to the breast. Pectoral fin broad and short. The belly down to the tail-fin divided into rings and armed with three longitudinal rows of short spines. The first back-fin very long; the second as well as the anal rudimentary. Ventrals and caudal much developed.

In the males an egg-pouch is formed by the union of the inner borders of the ventrals to the skin of the belly. In the females the ventrals are free as in other fish.

1. *Solenostomus paradoxus.*

Solenostomus paradoxus, *Lacépède*, *Poiss.* v. p. 36.

Fistularia paradoxa, *Pall. Spicil. Zool.* viii. t. 4. f. 6.

Seba, *Thes.* t. 34. f. 4.

This is one of the strangest forms to be found in the whole class of fishes. The colour of a large specimen is blackish-brown; others are yellowish-brown dorted with black, except on the pectoral, second dorsal and anal. Some of the specimens have little skinny tags round the mouth and rostral tube, as represented in Pallas's figure. *Rud.*—D. 5—18 or 19; A. 18 or 19; C. 15; P. 27; V. 7.

Dr. Bleeker describes the colours in the following words:—
“*Corpore roseo, toto nigro punctato; pinnis roseis; dorsali prima inter radium primum et tertium macula magna, pulchra, cærulea, ventralibus caudalique pontice violaceis.*”

Five individuals exist in the Paris Museum. An old male, 4½ inches long, brought from the Isle of France by M. Lienard; a smaller female from the same sea, by the Expedition of Capt. Duperry; a black female from India, presented by Mr. Bosk; two young ones from New Guinea, by Quoy and Gaimard. Dr. Bleeker obtained his specimens in the sea of Hawaii and Ceram.

Fam. 2. Pegasidae.

Breast extraordinarily developed, much broader than high, with a long pectoral extended on 9-10 firm spine-like rays. Gill-opening lateral, lying under the flatly expanded gill-plate, which is depressed to the ventral aspect of the body. The mouth like that of a Sturgeon, placed at the base of the elongated upper piece of the snout. The body furnished with three rings, having knobs or spines. Breast-ring unusually broad, extended between the two gill-plates, and armed with two spines, pointing forwards near the gill-opening. On the belly two cartilaginous ventrals, of two rays, stand out from the narrow ring, the inner ray being lengthened out into a filament. The tail is flatly expanded, four-cornered, and spiny, with a dorsal and anal fin of five rays, standing on 2-4 rings. Tail-fin having 10 firm rays.

Genus 1. PEGASUS, *Linn.*

Cataphractus, *Gronov.*

Diagnosis and description of the genus, the same as that of the family.

1. *Pegasus laternarius*, *Cuv.*

Pegasus laternarius, *Cuv. R. A. ii. 365.*

Diagn.—Spines of the four dorsal edges directed backwards. Tail with 9-11 rings. Body oval.

Descr.—The snout is less elongated, more poniard-shaped, without a leaf-like appendage. On the under piece of the snout there appear two distinct, narrow appendages directed downwards, and six spines. The edge of the upper snout-piece is finely denticulated, with coarser teeth near the point of the appendage. A medial row of very variable spines exists on the point of the snout. The orbits have thin expanded borders, strongly notched before and behind, and denticulated on the edges. No deep cavities on the concave forehead, or on the breast-ring nigh the occiput. In the concave back there are four longitudinal keels, of which the middle one is formed by three laterally compressed, short spinous projections pointing backwards. On the prominent side-lines only two such spines