The Javanese Fishes described by Kuhl and van Hasselt

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IN DECEMBER 1820, Heinrich Kuhl and Jan Coenrad van Hasselt arrived in Java to begin their investigations on the natural history of the Dutch territories in the Far East. The results of their ichthyological studies were the subject of various letters from van Hasselt to C. J. Temminck who was then Director of the Rijksmuseum van Natuurlijke Historie in Leiden. Of these letters, there were two which are of some importance to systematic ichthyology. The first letter dated 29th October, 1822 which was subsequently published in two parts (van Hasselt, 1823a & 1823b), mentions or describes some 50 species of fishes. The published extract from the second letter dated 29th December, the same year (van Hasselt, 1823c), includes 28 species. Owing to the untimely death of these two scientists, no further ichthyological reports were forthcoming and information on the extensive collections that they made and the manuscript drawings they prepared, was made known only subsequently by Cuvier and Valenciennes in their volumes of *Histoire Naturelle des Poissons,* and later by Bleeker who obtained some of the manuscript drawings.

A brief list of the collections received in Leiden was given in a letter dated 3rd December, 1824 from Temminck to the Minister of Education (Veth, 1879, p. 37). In this the fishes were numbered as some 1,400 specimens of 420 species. The manuscript drawings were stated as being yet to follow. Most of these and other manuscripts arrived in Leiden on 24th December, 1825. In the same letter, Temminck pointed out that the fish collections would be described by Cuvier and Valenciennes for which purpose the latter had already arrived in Leiden at that time. Owing to the high cost of publishing, it had been also decided that these descriptions would be incorporated into the *Histoire Naturelle des Poissons* being prepared by these two authors.

A much altered version of the van Hasselt letters, translated from the published Dutch text, was given in the French language by de Ferrusac (van Hasselt 1824a and 1824b). A footnote to the first letter (Footnote (1), van Hasselt, 1824a, p. 91), amply indicates that most of these alterations were provided by Valenciennes, although it is very likely that the general translation was made by Dr. H. Boie. It is possible that the amendments that occur in this version of the second letter, could also be attributed to the same sources.

In September 1959, I was able to examine copies of the original published texts of these letters which were kindly provided by Dr. M. Boeseman of the Rijksmuseum van Natuurlijke Historie, Leiden. Dr. Boeseman and his colleague Mr. H. E. Muller rendered much assistance in the preparation of an English translation. This is reproduced below. Typographical errors and mis-spellings of names, evidently caused by the poor handwriting in the original letters, are all repeated exactly as they appear in the original printed version. The footnotes are my own. Most of the plates which are herein reproduced were photographed and sent to me through the kindness of Dr. E. Trewaves of the British Museum (Natural History), London. I am indebted to Dr. M. Boeseman for having read the manuscript of this paper and for his criticizms and advice.

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Extract from a letter from Dr. J. C. van Hasselt, to Mr. C. J. Temminck. Algemeene Konst-en Letter-Bode, 1823, part I, No. 20, Friday 16th May, pp. 315-317.

I am now willing to fulfil what Kuhl promised in one of his letters, by making you acquainted with that which we together, and which after his death I was able to discover about the Ichthyology of Java. We had as yet visited no sea-beach before the decease of my friend[1]; my sojourn after that in Batavia is known to you; thus everything concerning the sea fishes has been done after Kuhl's death[2]; as concerns the river fishes this has mainly been done by us together. Already last July I sent a general report of my activities since the decease of my friend to his Exc. the Minister of Education[3] and in this are implied the general results of the Ichthyological discoveries. For you I have reserved to myself to give now the latter in further detail.

To pursue in this a Systematic sequence will be not unsuitable.

CHONDROPTERYGIENS.

Of the Family of the *Cyclostomes* Dum., I have nothing.

— —— ——— — —— *Plagiostomes* — 2 *Scyllia* Cuv., of which *one* is figured Seba III ? Tab. 34 No. 1 and which seems to me to distinguish itself sufficiently from the other related species and to which I have given the name *Quinquecornuatum*[4]; I have specimens of over 8 feet. To the *second* species I have given the name *Griseum.*

My *Carcharias Javanicus* approaches mostly *Meni Sauru,* which is in the Museum at Paris, and from which it differs however in the shape of the Pinna Caud; these 3 species have been figured under my eyes[5].

The *Zygaena* which is figured in Russel Tab. 12[6], and which according to Cuv. is the same as *Z. Zygaena,* seems to me to differ in the shape of the head and it would then deserve the name *Z. Indica*[7].

My *Z. Laytcephala* is totally different from the known species; I have both in drawings.

page 316:

The only *Pristis* which I have received has to be compared with the P. Cuspidata, Lath. L. Transact. T. 26 T. 3[8].

Rhinobatus laevis and *Thouini* I have manyfold and from the comparison it will be easy now to affirm or to disprove that which Cuv. believes about its identity (namely of the latter) with *Rh. Rhinobatus.*

Of *Rhina anchylostomus* Schn. I have only one specimen. The figure of Schn. is very correct.

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1. Kuhl died 14th September, 1821.

2. With the exception of those species referred to Kuhl in these letters, information on the marine fishes accredited by Cuvier and Valenciennes to Kuhl or to both Kuhl and van Hasselt in their volumes of *Histoire Naturelle des Poissons* should accordingly be referred to the authority of van Hasselt alone.

3. Kuhl & van Hasselt, 1822.

4. Superseded by *Stegostoma tigrinum* (Forster), 1781, p. 24.

5. The artists commissioned to work with Kuhl and van Hasselt were Keultjes, van Raalten and Bik.

6. Russel, 1823, I, p. 8, pl. XII: Vizagapatam.

7. See Plate 3, figure 1.

8. Latham, 1794, p. 279, pl. 26, fig. 3.

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Of *Torpedo Tuclei* Schn. I have 2 small specimens; this fish has never come into my hands than as already half putrified.

Of *Trygon* I have 5 species.

1. The *Wolgatzuke* of Russel Tab. 3.

I have had figured 4 others and of these one has to be compared with the *Lymnia* Cuv. Forskael p. 17[9]. The others distinguish themselves sufficiently from those thus far known.

The *first* species which I have of *Myliobatus* Dum, is a new one for which I consider the name *Cyclura* as characteristic. This one is figured; the second agrees much with Russel Tab. 8, designated by Kuhl by the name *Ocellatus*[10]; the form of my specimens has more resemblance to *R. Neruiari* Schn. than to this figure of Russel, the patches being similar to Russ. figure. The fear of the tail spine has been the reason why I could not get hold of an undamaged specimen from the fishermen, from which it would otherwise be easy to decide which of both should be my species, because *R. Nazinari* Schn. distinguishes itself so easily by 2 spines.

A scarce animal here is that which is found in Russel Tabula 6[11] or Schneider's *R. micrura*[12] which was placed by Kuhl, according to his papers as a special genus under the name *Gymnura*[13].

Cuv. cites Lacep. III, 5, Tab. 12 under the *Ceph. Cephaloptère*. Kuhl thought it to be identical with Russ. Tab. 9[14] and thus accepted a *C. Tatraniana*[15]. My specimens deviate solely from Russel's figure by a longer tail.

An animal close to though too much different in the main character of the Cephalopteres I have separated from the latter under the name *Rhenoptera;* this is figured too.

Of the GYMNODONTES I have 3 *Tetrodons,* of which one could be the *Lunaris* Schn., the others *Stellatus* Schn. and *Testudinius* Bl. The drawings of Bl. are too uncertain, especially regarding the colours, to make a decision on this.

page 317:

The *Stellatus* is Russel Tab. 18 which is found under that name in the Museum at Paris (according to Kuhl).

Regarding the poison of the *Tetrodons* this is sufficiently important to merit mention; see now what my researches have taught me.

The species mentioned here, known under the name *Bocutok,* are eaten only by the Chinese especially because only they know how to clean these of the poisonous matter and they unanimously say that only the *ovarium* possesses this harmful quality and that this being removed, the rest is consumed without fear by them. Such an *ovarium* thrown before a domestic animal causes it to die immediately after consumption.

How far this is in accordance with the truth experiments will soon prove to me. The paralytic condition of my arms did not permit this at that time.

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9. Forskal, 1775, p. 17.

10. Superseded by *Raja guttata* Shaw, 1804, p. 285, pl. 142 (on Russel, 1803, I, p. 5, pl. VIII): Indian and African Seas, Madagascar, Coromandel, Brazil.

11. *Raja poecilura* Shaw, 1804, p. 291 (on Russel, 1803, I, p. 4, pl. VI): Vizagapatam.

12. Bigelow & Schroeder (1953, p. 411), have distinguished *micrura* Bloch & Schneider from *poecilura* Shaw.

13. The Indo-Pacific species would consequently be referred to as *Gymnura poecilura* (Shaw).

14. *Mobula diabolus* (Shaw), 1804, p. 291 (on Russel, 1803, I, p. 5, pl. IX): Vizagapatam.

15. Kuhl was mistaken in considering the two as identical. Lacepede's figure (vol. V, pl. 20, fig. 3) is indicated with a tail spine.

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Balistes lineatus and *Stellaris* Schn., which I have found here, are both eaten throughout the year by Chinese and Malays without fear or caution, so that at least these 2 species have even no periodic harmfulness.

Bloch Tab. 414, the *Balistes monoceros* var. a. Schneid, p. 463 and which Kuhl gave as an own species under the name *Al. laevis* and *Al. Javanica* of myself, are the only *Alutherae* I have.

The *Monacanthus Geographicus* of Perron is found in my collection and two others of which one is figured Seba T. ? Tab. 24 No. 18[18] and Gronov. Tab. 6 No. 191 F. 5[19], to which I gave the name *Sarothrura*[20] and a second not figured called *M. inornatus*.

Extract from a letter from Dr. J. C. van Hasselt, to Mr. C. J. Temminck. Algemeene Konst-en Letter-Bode, 1823, part I, No. 21, Friday 23rd May, pp. 329–331.

(Continuation and End from Page 317.)

Of the Lophobranchies there lives in the rivers near Batavia a *Syngnathus,* which I have had figured, and have given the name *Fluviatilis*.

Of the Salmons I have nothing but a *Saurus,* the same which is figured by Russ., Tab. 172[21]. This is known in the Museum at Paris under the name *S. foetens* according to annotations of Kuhl; to me it seems to be sufficiently distinguished from that by a shorter anal fin, and I have therefore given it the name *Carinatus*[22].

In the Clupeae the Indies yields more.

Of *Clupea Melostom*a Schneid. I have several specimens.

The Koelee (?) of Russ. Tab. 195 is here in large numbers, and to that must be added one which I have had figured and have given the name *Macrura.*

To *Megalops cyprinoides* Lacep. Bl. 403[23] must be added a second which has very great resemblance to *Meg. Naso* Lacep., but in the numerous specimens I have never been able to find a Filamentous dorsal fin. The form of the upper jaw differs so much from Clupea and Megalops, that I felt myself urged to propose a special genus name and I have chosen that of *Gonostoma* for the figure made of it.

The *Engraulis* figured by Russel, Tab. 187[24] differs from *E. Commersonii* by a dorsal fin which is situated nearly opposite the anal and not the ventral fin; the name *Indicus* would be not inappropriate[25].

Thrissa macrodon and *microdon* Cuv., *Natoptera Kapirat* Lacep. and *Elops Saurus* are in my collection; of this last genus I have one species which differs from the previous by a shorter upper jaw and by something strange to the *Elopes;* the Radii branchiostegi 14 in number while commonly 30 and more are found.

The sea which bathes Java has with that of Coromandel also *Chirocentrus dentex* in common.

I have both *Triacenthus biaculeatus* Cuv. and *Ostracion punctatus comm.*

(The Continuation and End hereafter).

18. Seba, 1758, III, p. 63, pl. 24, fig. 18.
19. Gronovius, 1763, p. 52, No. 191, pl. 6, fig. 5.
20. See Plate 4, figures 3 & 4.
21. Russel, 1803, II, p. 56, pl. CLXXII.
22. See Plate 5, figure 5.
23. Bloch, 1795, XI, p. 32, pl. 403.
24. Russel, 1803, II, p. 71, pl. CLXXXVII.
25. See Plate 6, figure 6.

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page 330:

Russel figures in his 207th plate[26] an animal which I don't find cited; it belongs to the *Clupeae* of Cuv. but can be brought down to no genus. Owing to the form of the Membrana branchiostega which looks like having an opening I have accepted the genus name *Lutodeira* and have called the species *Indica*[27].

Anticipate before long from me in the same way a continuation concerning the fishes of these provinces; now first, the *Cyprines* living in the rivers here in fair numbers and which are not only new species, but nearly all new genera. ——— The species of these are totally different corresponding with different altitude of the terrain and thus they are by no means the same *Cyprines* which are found near Batavia and in the mountains.

The sojourn in the various regions and our altitude measurements there will show how high each species ascends in the rivers, or where it is found and ends.

The miserable condition in which I found myself during nearly the whole of my sojourn at Batavia has been the reason why I have only been able to perform few anatomical investigations. Soon however, I reach the south coast of Java and then I hope to be more fortunate.

From the things mentioned above you will have seen that I am at the moment on route, namely, in the interior of Bantam; I have had the luck to get some species of birds . . .[28].

page 331:

I solicit the favour of your protection and friendship.

(signed) J. C. v. Hasselt.

Lebuk the 29th October, 1822.

Extract from a letter from Dr. J. C. van Hasselt to Mr. C. J. Temminck, written from Tjecande, Residency of Bantam, on 29th December, 1822. Algemeene Konst-en Letter-Bode, 1823, part II, No. 35, Friday 29th August, pp. 130–133.

Continuation of my last letter sent in October 1822.

The Family Esoses has given me 2 species of *Belone, B. Coromandelica* Cuv., Russel, T.175 and one that is figured in Russel, Tab. 176[29] and for which the name *strongylura* would be appropriate[30].

page 131:

The *Hemiramphus* differs so much from Russel's Tab. 177 to which Cuv. has given the name H. Russelii, that if at least Russel's figure is exact it has without doubt to be distinguished from the latter. It still remains however to be compared with H. Marginatus, Cuv., Lacep. V, VII, 2 and with Russel's Tab. 178. In my collection it is included under the name Viridis?

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26. Russel, 1803, II, p. 84, pl. CCVII.
27. See Plate 7, figure 7.
28. I have omitted this part of the letter since it contains no relevant ichthyological information.
29. Russel, 1803, II, p. 61, pl. CLXXVI.
30. See Plate 8, figure 8.

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A *Hemiramphus* which is found in the brooks around Buitenzorg and nearly all over Java has already during the lifetime of Kuhl, been separated by us from that genus under the name *Dermogenys* because of the membranous extension occurring on either side of the maxillae. The species bears the name *Pusillus*, is called by the Javanese Joelong-Joelong and it has been figured by us[31].

The *Exocetus* which is found near Batavia comes nearest to the *Mesogaster*, bl.399[32] but differs in having a fewer number of dorsal fin rays. It is included under the name *Javanicus*.

A diminutive species which I caught in the rivers near Buitenzorg differs in general form and from the *Cyprines* and the *Esores* though agreeing with those in other respects. On the strength of the teeth which span the lower jaw externally and the entire upper jaw, I have placed it in the *Esores* and in fact under the genus name *Odontopsis* while the species can be called *Armata*. From the drawing made of it the very characteristic form will be sufficiently clear.

The family CYPRINACAE is abundant in Java as will become clear further on and there are some species already found by me still missing in this report.

Although the different rivers have always many species in common they often contain a few which are wholly their own and not found in the others; whilst in one and the same river the species also differ considerably in connection with the amount the bed rises above sea-level; and those are not at all the same species which are found in the muddy rivers near the beach and which are found in the clear streams of the mountains. There are some notes lacking at this moment for giving you the distribution of each

page 132:

species but for which I will have a better opportunity in future with the shipment.

A true *Cyprinus* Cuv. I did not find indigenous in Java until now; there lives in the ponds one which would have been brought over from China and which the Javanese call *Tambra Maas*. The same is figured under me[33] under the name *floripenna*.

Of the genus *Barbus* six species are figured.

B. *obtusirostris* Nobis Gengehek in Sundanese, near Buitenzorg.
rubripinna Mihi Batavia.
hypseconotus Mihi idem.
maculatus Nobis Bocutoir in Sundanese, Buitenzorg.
tambra Nobis Tambra in Mal. Buitenzorg.
striatus Mihi Tjelarkahan.
leuciseus Cuv. *lateristriatus* Nob. et. Tab nostra Tjitjaerae Bat. Parai in Sundanese, prope Buitenzorg.

The genus *Hampala* after the local name *Hampel* has been erected by us already during Kuhl's lifetime just as the next genera *Crostocheilus, Lobocheilus, Naunacheilus* while the genera *Diplocheilus, Labio-barbus, Homalophra, Oxygaster, Acantopsis, Acantophthalmus* have been accepted by me.

31. Although the description is far from adequate, the stated fact that the fish occurs in the brooks around Buitenzorg and nearly all over Java would sufficiently characterise the species. *D. pusillus* Kuhl & van Hasselt is as yet the only true fresh-water Hemiramphid known from Java.

32. Bloch, 1795, IX, p. 17, pl. 399.

33. Meaning, under my supervision.

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The genus *Hampala* Nob. comes nearest to *Leuciseus* Cuv. but differs in having 2 filaments at each corner of the mouth; the species is figured under the name *Macrolepidota* Nob. and occurs near Buitenzorg.

The genus *Labiobarbus* Mihi consists of Labiones with 4 small barbels, with a single dorsal fin of which the second ray is not serrated and thus combines the characters of *Labio* and *barbus,* wherefore I adopted the name *Labiobarbus*. The names *L. Leptocheilus* M. and *Lipocheilus* M. distinguish the two species which were both found in the river near Batavia and figured under me.

Crossocheilus Nob. is a genus related to Leuciseus, distinguishes itself by a mouth opening directed downwards in the form of a parallelogram; the drawing bears the name *Oblongus* Nob.

Lobocheilus Nob. is too much distinguished by a totally different form of the mouth

page 133:

to be combined with any other genus; in our drawing it bears the name *Falcifer*.

The genus *Deplocheilus* Mihi, species *Erythropterus* Mihi *Mellung* in Sundanese, has been figured as well; it occurs near Buitenzorg, and though approaching *Labocheilus* most closely it however merits to represent an own genus by the own form of the mouth and maxillary bones.

Noemacheilus Nob. approaches by the flat maxillae the genus Poecilia Schn; the Sundanese call it *Jelaer;* it occurs near Buitenzorg and the species has in our drawing the name *fasciatus* Nob.

Cobitis Octocirrhus Tab. nostra, Irivroet in Sundanese, Kitjaerae has, in common with *Cobitis taenia* Linn. a moveable spine below the eye; this character seems to me to be as important as various characters in the genera of Cyprines erected by Cuv., and as a section of Cobitis would consequently deserve the name *Acantophthalmus*. The unusual structure of the air-bladder is exactly as that of the Cobites and it lives just like these in small brooks. To this *Acantophthalmus* I reckon another 2 species which distinguish themselves solely by a more backwardly placed dorsal fin. In the drawing they bear the names *fasciatus* and *Javanicus* Mihi both Rambockassang in the Sunda region.

A genus approaching these Acantophthalmus, to which I have given the name *Acantopsis* distinguishes itself from them by a very elongate pointed face which in those is blunt and so short that the eyes are situated nearly in a vertical line with the mouth-opening. Owing to this elongation the moveable spines are situated far in front of the eyes and the whole form too divergent (for them) to be combined with each other. I found this animal in the river at Batavia and in my drawing it bears the name *Dialuzona* Mihi[34].

The genus *Homaloptera* Mihi, distinguishes itself mainly by the horizontal position of the pectoral and abodminal fins as a consequence of which it somewhat attains the form of the Rhinobates. The species Javanica and fasciata Mihi Tab. the Sundanese call Toeloesoer.

Oxygaster Mihi, especially distinguished by a knife-like keel on the abdominal surface, is perhaps incorrectly placed in the Cyprinacae by me, for which reason I will come back to this later on. I have written *Anomalura* as the species name under the figure.

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34. This brief diagnosis would adequately characterise the species (and the genus). There are no other Javanese Cobitids with similar features.

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Explanation of Plates

PLATE 3.

1. Russel, 1803, pl. XII: *Zygaena indica* van Hasselt.

PLATE 4.

3. Seba, 1758, pl. 24, fig. 18: *Monacanthus sarothrura* van Hasselt.
4. Gronovius, 1763, pl. 6, fig. 5: *Monacanthus sarothrura* van Hasselt.

PLATE 5.

5. Russel, 1803, pl. CLXXII: *Saurus carinatus* van Hasselt.

PLATE 6.

6. Russel, 1803, pl. CLXXXVII: *Engraulis indicus* van Hasselt.

PLATE 7.

7. Russel, 1803, pl. CCVII: *Lutodeira indica* van Hasselt.

PLATE 8.

8. Russel, 1803, pl. CLXXVI: *Belone strongylura* van Hasselt.

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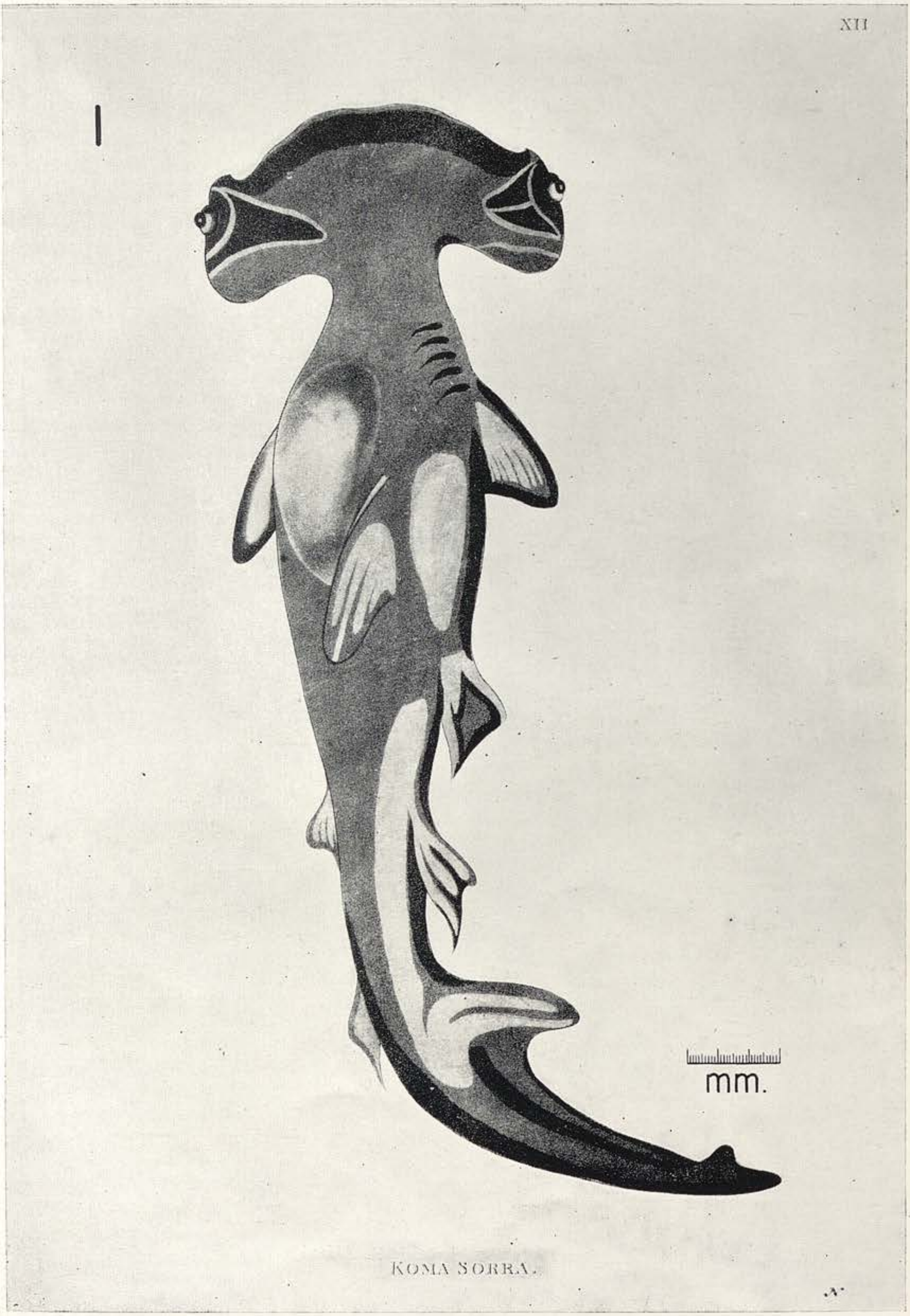

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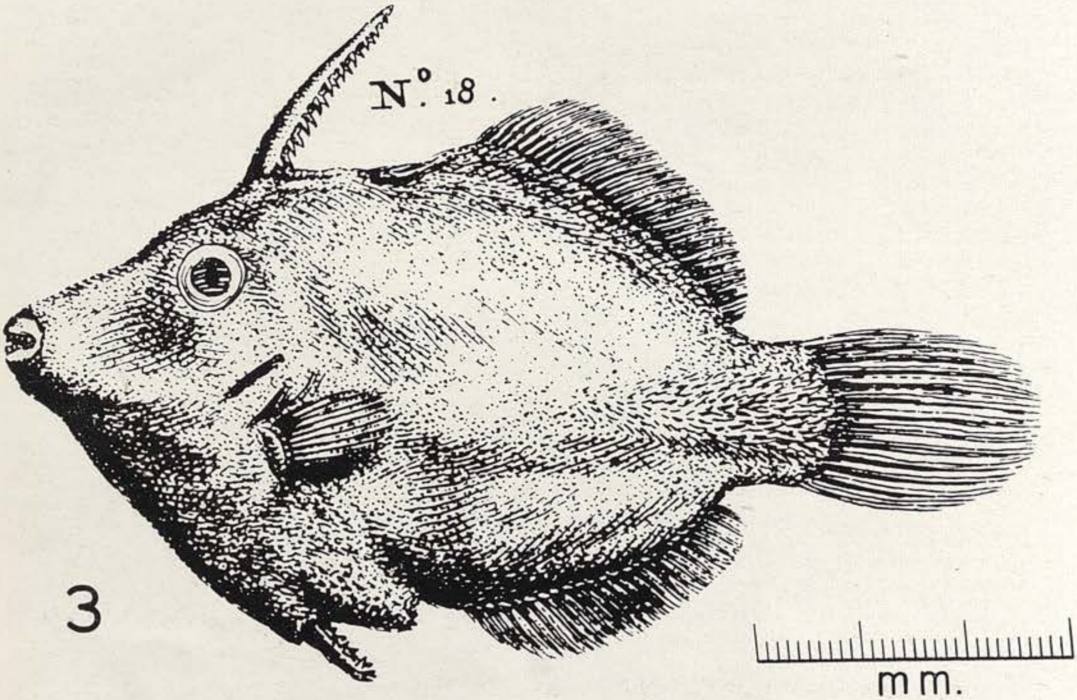

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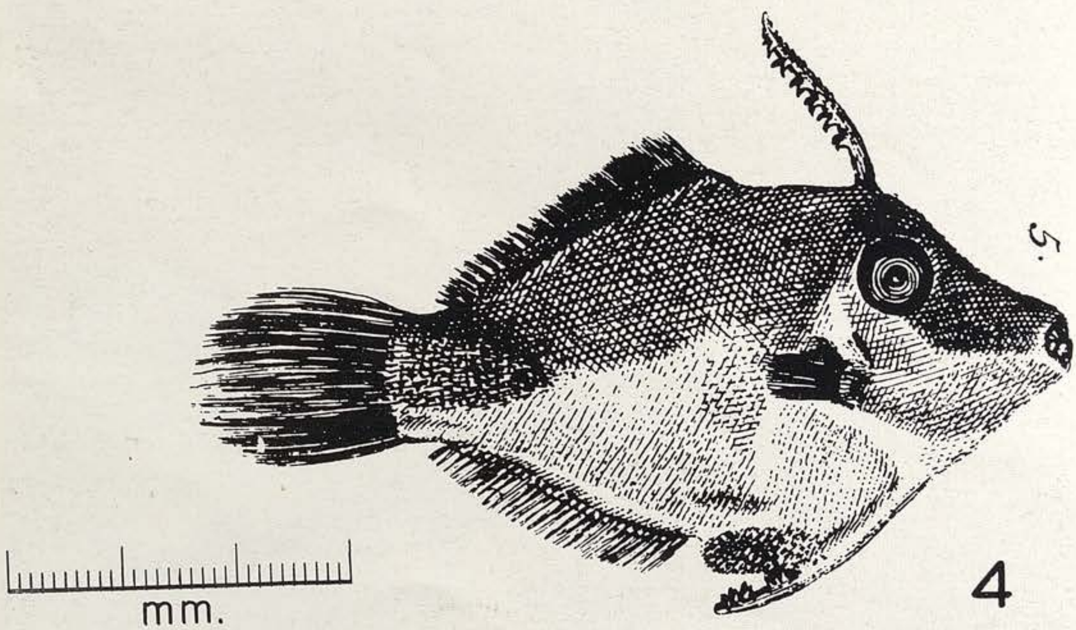

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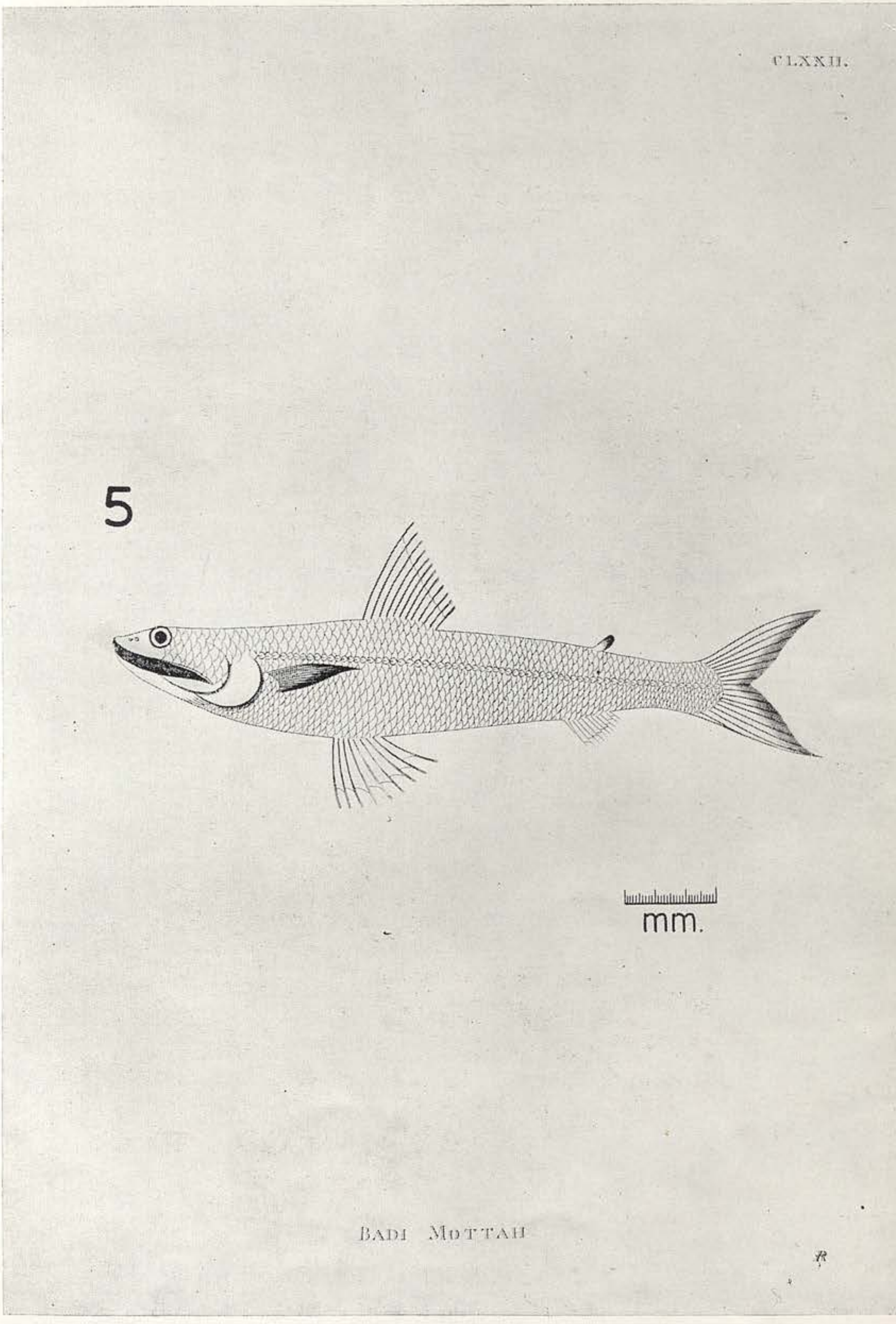

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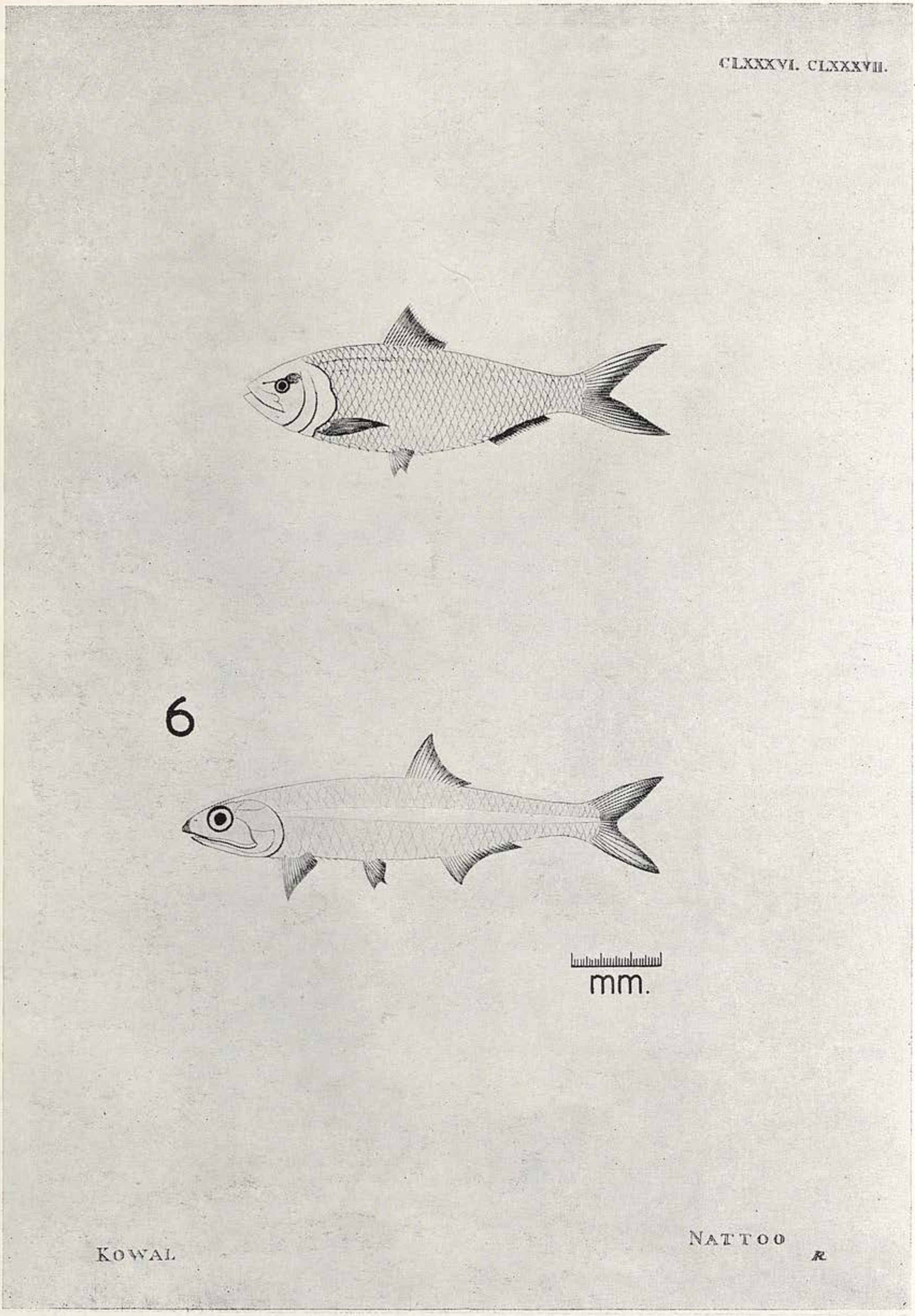

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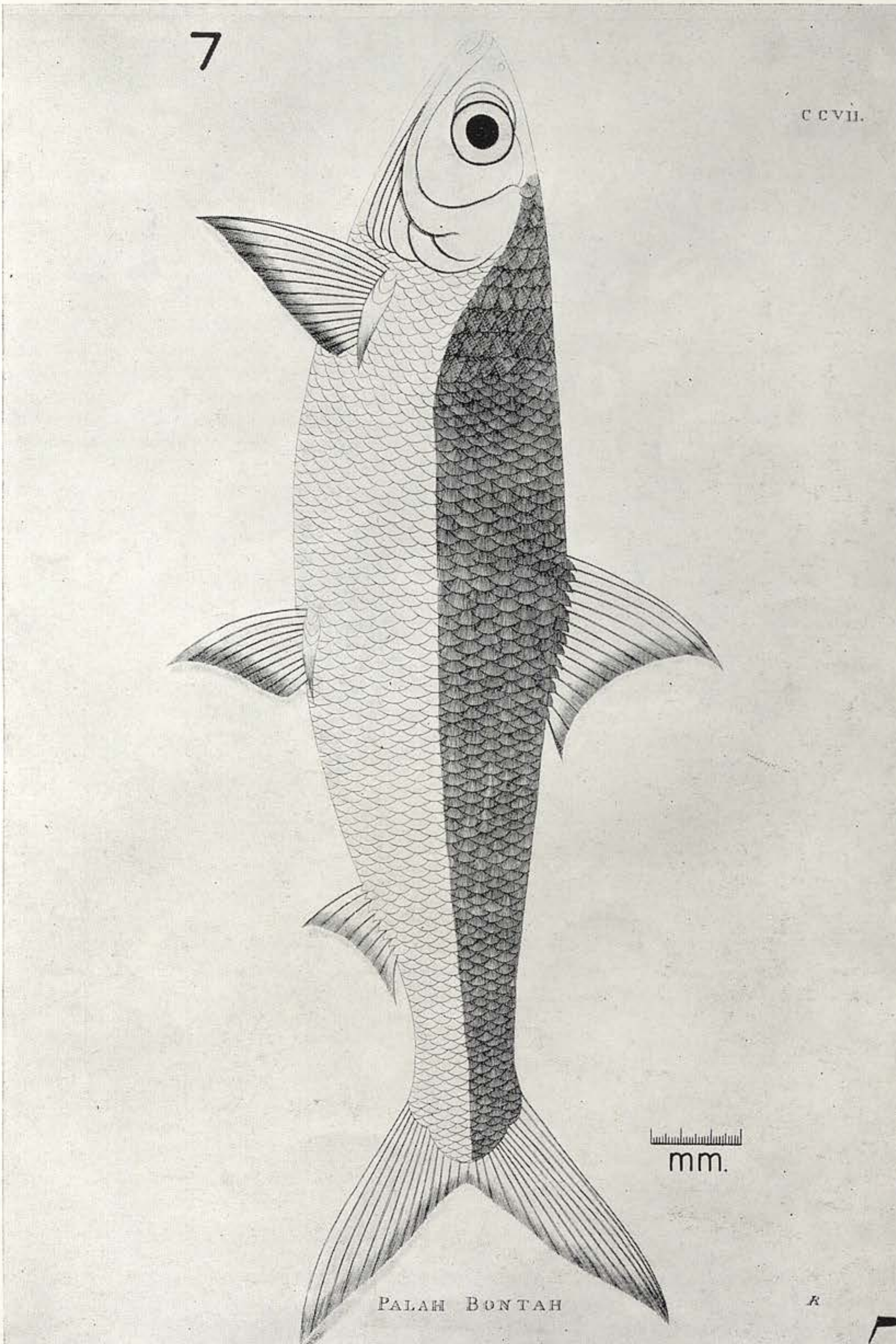

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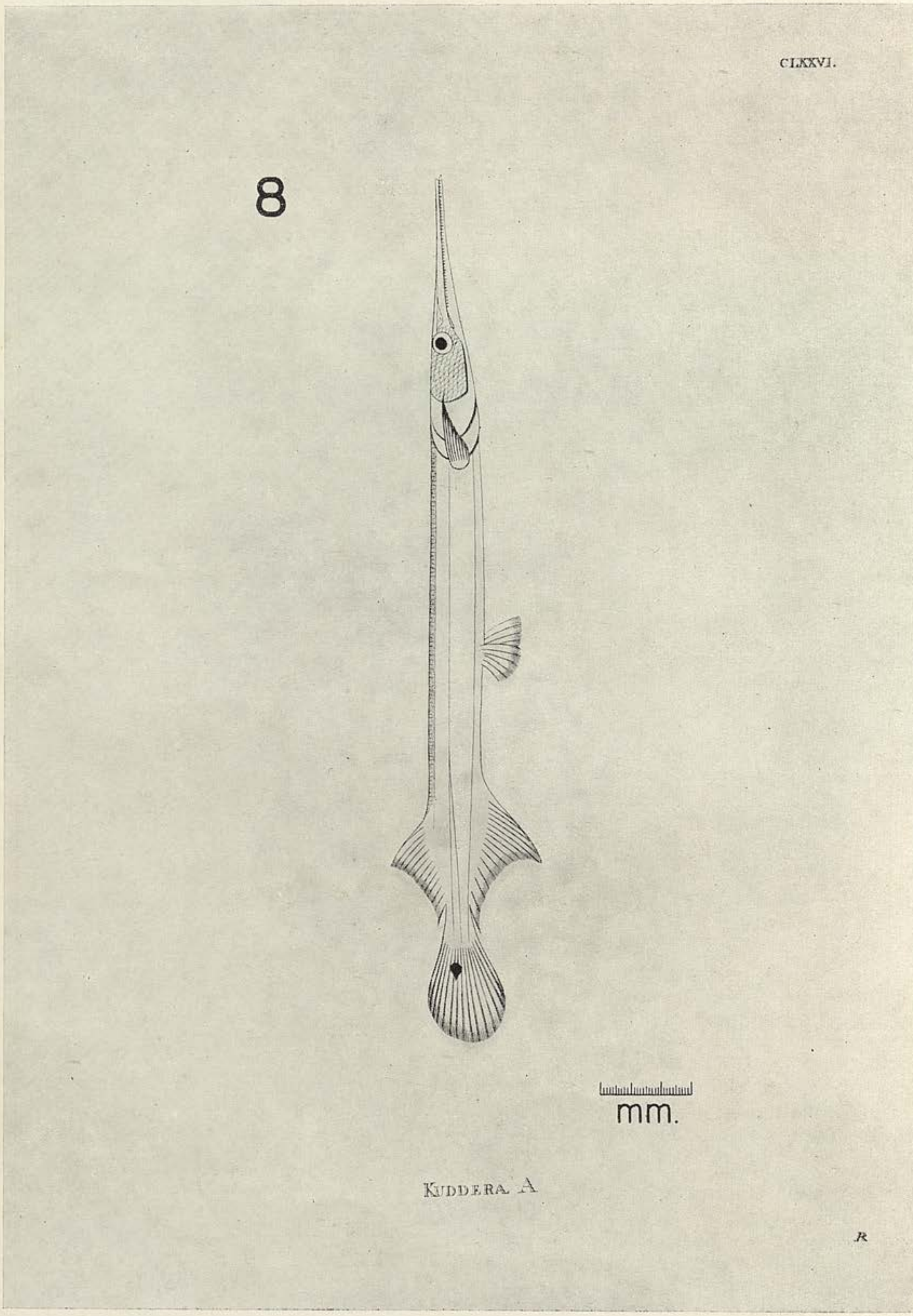

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