

32. On Commerson's Dolphin and other Species of *Cephalorhynchus*. By Sir SIDNEY F. HARMER, K.B.E., Sc.D., F.R.S., F.Z.S., Director of the Natural History Departments of the British Museum *.

(Plates I-III. †)

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The literature of the Cetacea includes numerous specific names which are of little use to science, owing to a want of knowledge of the animals to which they were originally applied. Many descriptions are based on external features alone, while others depend exclusively on osteological characters. The correlation of these two kinds of description is difficult and often impossible, and there is probably no group which includes a larger proportion of doubtful species than could be found in a complete list of the names which have been given to Cetacea.

Under these circumstances I have felt much satisfaction in being able, as I think, to rescue one of these doubtful species from its present position. In 1804, Lacépède (pp. xliv, 317) gave a brief description of a Dolphin which had been observed by Commerson, near Tierra del Fuego and in the Straits of Magellan, during Bougainville's voyage round the world. Commerson's MSS., addressed to Buffon, by whom they were sent to Lacépède, included a diagnosis of this Dolphin:—"Tursio corpore argenteo, extremitatibus nigricantibus." It is further stated that the black colour appears only on the "extremities," and that the back and almost all the surface of the animal shine like a polished surface, white and, so to speak, silvered. These Dolphins, somewhat inferior in size to the Common Porpoise, were observed, during the Southern summer, playing round the vessel, and were described as being among the most beautiful inhabitants of the sea. They were given the name of "Le jacobite," obviously in allusion to their striking black and white colour.

Quoy and Gaimard (1824, p. 87) mention a Dolphin, "moitié blanc, moitié noir, à museau peu alongé," which they saw at the Falkland Islands. A specimen was killed, but it sank immediately. Lesson (1827, p. 181) states that during the voyage of the 'Coquille' they only once observed, at the Falkland Islands, the Black-and-white Dolphin of Quoy and Gaimard, and that everything authorised him to think it was the *Delphinus commersonii*.

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† For explanation of the Plates, see p. 638.

Other authors of the early part of the last century are unable to do more than quote the original account, although Gray (1846, p. 30) surmised that this Dolphin might be identical with his own *Beluga kingii*.

The external characters of the species which forms the special subject of this paper were admirably figured by Moreno (1892, pl. ix.), who described it (p. 385) under the name of *Lagenorhynchus floweri*, and gave satisfactory figures of the skull (pl. viii.). It was first observed by him, in October 1874, in the bay of the River Santa Cruz, which is on the Patagonian coast, almost in the same latitude as the Falkland Islands. It was seen in hundreds on certain occasions, but no specimen could at first be obtained, although a female, the original of the three figures of the larger individual shown in pl. ix., was secured from the same locality in December 1876, and two other specimens were obtained from Tierra del Fuego or Santa Cruz in 1884. The colour-markings were identical in all the specimens. The individual whose external measurements are recorded was 138 cm. in length, and the total length given for the skull is 28 cm.

It is unfortunate that Moreno's specific name, which was based on a good and well-illustrated account of external and cranial characters, cannot be accepted. It must be regarded, I think, as a synonym of *Delphinus commersonii*, which, although described inadequately and without illustrations, appears to be perfectly recognisable in the light of the evidence now available. Not only were Commerson's and Moreno's specimens from substantially the same locality, but the silvery colour, with black confined to the "extremities," described by the earlier observer, is equally noticeable in Moreno's figures, which represent an animal mainly white, with the head, tail, flippers, and dorsal fin black.

The only other actual description of this animal with which I am acquainted is that of the late Dr. W. S. Bruce (1915, p. 500, pl. i.), who shows the external characters of a specimen, 4 ft. 4 in. in length, which was obtained by him in 1893 at Port Stanley, Falkland Islands. It was referred, doubtfully, to *Lagenorhynchus cruciger* (d'Orb. & Gerv.), and it was styled the "Piebald Porpoise." Dr. Bruce records a number of positions to the south of the Rio de la Plata at which Dolphins believed to be "Piebald Porpoises" were observed from the ship.

It is shown by the records of Moreno and Bruce, as well as by the new evidence now submitted, that a Porpoise characterised by its strongly contrasted black and white colours arranged in a very definite pattern, is common in the neighbourhood of the Falkland Islands and of Tierra del Fuego. I think there can be no doubt that this Porpoise belongs to the same species as the "Jacobites" which played round Bougainville's ship in the Straits of Magellan, and were observed later at the Falkland Islands by Quoy and Gaimard, and by Lesson.

Liouville (1913, p. 165), in a discussion, under the heading of *Lagenorhynchus fitzroyi*, of certain Dolphins which have been recorded as *L. cruciger* or by other names, comes to the conclusion that a number of conspicuously marked Southern Dolphins, recorded under various specific names, are colour-varieties of a single species. Whether this view be correct or not, the concordant evidence derived from several distinct sources, with regard to Commerson's Dolphin, shows that this species at least is remarkably constant in the position of its areas of black and white. It may be suggested that these striking markings have the protective value which has been ascribed to the "disruptive" type of coloration in animals. As seen in the water, the white area probably divides the body into two parts which seem to have little, if any, connection with one another. The Dolphin is, in fact, effectively camouflaged, and perhaps the protection is specially successful in water liable to contain floating ice. The principal enemy of Commerson's Dolphin is probably *Orcinus*, the Killer Whale.

The British Museum has recently received the following material, referable to the genus *Cephalorhynchus*, in which I place *Delphinus commersonii* Lacép. (= *Lagenorhynchus floweri* Moreno and *L. cruciger* Bruce, *nec auctt.*):—

A. An eviscerated male specimen (in salt), 4 feet 6 inches long, captured in Stanley Harbour, Falkland Islands; presented by Mr. J. E. Hamilton, Magistrate of West Falkland, who stated that the stomach contained "krill" (the Norwegian whalers' name for the small Crustacea which form the food of Whalebone Whales) and the pens of cuttlefish. The vertebral epiphyses are quite free, and the animal was accordingly immature.

B. A skull, with lower jaw, picked up on the shore of Byron Sound, West Falkland; presented by Mr. Rupert Vallentin.

C. Two photographs of a specimen stranded in the Falkland Islands on another occasion; presented by Mr. Rupert Vallentin, who stated that these Porpoises are fond of basking in the beds of *Macrocystis* when the sun is shining, and that he knew of no other species in that locality.

D. A note-book, lent by Mr. Lionel E. Adams, containing observations on Dolphins observed by him from a ship in the Straits of Magellan, together with a small photograph showing two of them in the air during a jump out of the water. The note-book included an excellent sketch, completely agreeing with A and C, and the passage "Jet black and pure white (no "shades). I did not see any variation in the markings of one of "the hundreds that played about the ship."

The following notes were made on Mr. Hamilton's specimen (Pl. I. figs. 1 & 2) before its skeleton was prepared. The skin, although somewhat abraded, showed the external coloration perfectly distinctly.

Colour.—Jet-black and pure white, the principal white area shading to some slight extent through grey to the black areas in front and behind (as in Moreno's pl. ix. fig. 1), but the junctions of the two colours otherwise very sharply marked. The black occurred on the whole of the head and lower jaw (interrupted ventrally by a pear-shaped, median, white area on the throat), extending backwards obliquely from the sides of the head to the pectoral fins, which were black on both surfaces, and was continued across the ventral side as a broad band, behind the white marking on the throat, this band giving off an acutely pointed median prolongation backwards, between the flippers. The tail, including the flukes on both surfaces, was black all round, for nearly a foot from its emargination, and this colour was continued forwards obliquely on the back beyond the dorsal fin, but separated by a white interval even in the mid-dorsal line from the black of the head. A large heart-shaped black area surrounded the reproductive opening, and was observed by Mr. Hamilton in another male specimen examined by him. The white part of the skin consisted of (*a*) the median ventral area on the throat, (*b*) the main white area encircling the body obliquely, much more developed ventrally than dorsally, and including most of the ventral and lateral regions of the body.

Mr. Vallentin's photographs (Pl. I. fig. 3; Pl. II. fig. 1), one of which shows that the specimen was a male, correspond in every essential detail with the above description. Mr. Adams's sketch (D), which represents animals seen in the sea, agrees closely with the others, but from the conditions under which it was made, it is not surprising that it does not show any black area round the reproductive opening. His photograph shows two living animals in the air, as seen from the ship, and it suggests the idea of a Porpoise "*moitié blanc, moitié noir*," as described by Quoy and Gaimard.

Neither Moreno nor Bruce shows a *broad* black marking round the reproductive opening. Moreno's ventral view indicates, however, a narrow, longitudinal, black mark in this situation, its posterior third being nearly constricted off from the front portion. The specimen was a female, and the question arises whether the individuals of this sex normally have a ventral black marking narrower than that of the male. One of Bruce's figures (the lowest in the Plate) of an animal of unrecorded sex gives some indication of a constricted, narrow marking like that shown by Moreno.

External form.—The head of A had no beak distinctly outlined from the remaining portion, but was nearly conical. The dorsal fin had an elongated base, and was low and rounded, with but little indication of a falcate shape. The flippers were also more rounded at their ends than in most Dolphins. These characters point to *Cephalorhynchus* (*cf.* True, 1889, pp. 108, 176), and this conclusion is confirmed by the cranial characters.

External measurements of Mr. Hamilton's specimen (A):—

	Cm.
Total length	137*
Dorsal fin (middle) to tip of snout	81
„ „ („) to emargination of tail	63·5
„ „ length of base	22·8
Flipper, length, from axilla	16·5
„ „ inferior border	23·5
Gape, length of, from tip of upper jaw ...	16·5
Snout to blow-hole.....	20·3
Tip of lower jaw to (middle of) umbilicus..	64
Umbilicus to reproductive aperture †	14
Reproductive aperture to anus.....	18·5
Anus to emargination of tail	40·5

The characters of *Cephalorhynchus* Gray were re-defined by Flower, in his well-known paper on the Delphinidæ (1883, p. 473), the type-species being *Delphinus heavisidii* Gray, 1828. In his Review of the Delphinidæ, True (1889, pp. 108, 176) recognises four species of the genus—the type-species from the Cape of Good Hope, *C. albifrons* True and *C. hectori* Van Beneden from New Zealand, and *C. eutropia* Gray from Chili. In 1893 and 1896 several new Dolphins from Chili were described by R. A. Philippi. His two papers were later criticised by True (1903), who expressed the opinion that *Phocæna* or *Tursio albiventris* (Perez, MSS.) Philippi, 1893, 1896, is a synonym of *C. eutropia*, and that *Tursio platyrrhinus* Philippi, 1896, is probably the same species. *Tursio* ? *panope* ‡ Philippi, 1896, was not thought by True to be referable to *Cephalorhynchus*, but it seems possible that it may also belong to this genus.

The external characters have been described in *Cephalorhynchus heavisidei*, *C. albifrons*, *C. hectori*, and *C. albiventris*. *C. eutropia*, *C. platyrrhinus*, ? *C. panope*, and ? *C. chiloënsis* are known from cranial characters alone.

The British Museum possesses the type-specimens of *C. eutropia* § and *C. heavisidei*. The skull of the latter was inside the mounted skin when Flower wrote his revision of the Delphinidæ in 1883. It has since been removed, and although defective in the occipital region, it is otherwise in good condition. The following table gives measurements of the skulls in the Museum :—

* The measurement recorded by Moreno is 138 cm., and that given by Bruce is 132·2 cm.

† The distances between the apertures were in each case measured from their middle points.

‡ Philippi (1901) later described a new Dolphin, *Tursio* ? *chiloënsis*, from Chili, which he stated to have resemblances to *T. panope*.

§ Figured by Gray 1846, pl. xxxiv. figs. 1, 2; see also Gray, 1866, p. 262.

	<i>C. entropia</i> . Type, 936a = 49.5.25.2.	<i>C. commersonii</i> .		<i>Cf. Flower</i> . P.Z.S. 1883, p. 506.
		A. Falkland Is. J. E. Hamilton.	B. Falkland Is. R. Vallentin.	<i>C. heavisidei</i> . Type, 41.17.32.
1. Total length (centimetres).....	36.3	29.8	29.5	29.0*
2. Rostrum, length	19.5	14.0	14.0	13.2
3. „ width at base	8.3	7.3	6.5	6.8
4. „ „ opposite 2nd tooth from hind end	7.7	6.5	6.2	5.9
5. „ „ at middle	7.0	5.3	5.2	5.1
6. „ vertical depth, at middle of tooth-row	1.7	1.6	1.6	1.5
7. Tooth-row, length of	16.8	12.3	12.3	11.6
8. Maxilla, right, posterior expansion of, length	10.5	10.9	11.2	10.4
9. Do. do. width (middle of orbit to nares)	6.5	6.2	6.0	5.1
10. Do. width at posterior end of tooth-row	2.2	1.6	1.5	1.3
11. Premaxilla, right, width at posterior end of tooth-row	1.7	1.8	1.5	1.8
12. „ „ width behind nares	...	...	...	1.2
13. Orbital width (at front of orbit)	15.1	12.7	12.4	12.9
14. Glenoid width	16.7	14.6	14.8	14.5*
15. Greatest height of skull	14.3	13.2	13.2	13.0*
16. Mandible, length	30.0	23.0	23.0	22.8
17. „ condyle to posterior end of tooth-row	13.5	10.8	11.0	11.0
18. „ depth, at middle of 17	5.8	4.8	4.6	4.3
19. „ „ at posterior end of tooth-row	3.7	3.3	2.9	2.6
20. „ „ at middle of tooth- row	2.2	1.9	1.7	1.5
PERCENTAGES.				
1. Total length	100.0	100.0	100.0	100.0
2. Rostrum, length	53.7	47.0	47.5	45.5
4. „ width opposite 2nd tooth from behind	21.2	21.8	21.0	20.4
7. Tooth-row, length of	46.3	41.2	41.7	40.0
8. Maxilla, right, posterior expansion, length	29.0	36.5	38.0	35.9
9. Maxilla, right, posterior expansion, width	17.9	20.8	20.4	17.6
18. Mandible, depth, middle of part behind teeth	16.0	16.1	15.6	14.8

* Estimated (skull imperfect).

The external characters of Mr. Vallentin's Dolphin were not definitely known, although he himself had no doubt that the skull belonged to the species shown in his photographs. Com-

parison of the skull with the other Falkland Is. specimen confirms this conclusion. The only difference of importance is that the rostrum of Mr. Vallentin's specimen (B) is distinctly narrower at its base than is that of Mr. Hamilton's skull (A). Flower (1883, p. 469) stated that the rostrum becomes longer and wider, in proportion to the brain-case, in older Dolphins. The skull B has an unfinished appearance in the region of the base of the rostrum, as if growth were there incomplete; and the notches in the maxillæ are wider than in A. The two skulls are practically alike in their orbital width, and by an addition to the rostrum at its base, B would become similar to A in the width of this structure and in the reduction of the maxillary notches.

C. eutropia and Philippi's three species *albiventris*, *platyrhinus*, and *panope* agree with one another in having a rostrum which in length exceeds 50 per cent. of the total skull-length. The tooth-row is also relatively long in the same species, the percentage in *C. eutropia* (type) being 46·3, as shown by the preceding table, and ranging from 46·0 to 51·5, as shown by Philippi's measurements, in the other three species. *C. commersonii* agrees with *C. heavisidei*, and differs from the other four species, in having a rostrum less than half the length of the skull, and a shorter tooth-row, not exceeding 42 per cent. of the skull-length. The skulls of the two species are also absolutely smaller (29–30 cm.), *C. eutropia* having a skull more than 36 cm. long, and those of Philippi's three species ranging from 33·0 to 39·5 cm.

Although *C. commersonii* has a considerable resemblance to *C. heavisidei* in cranial characters, I have noted the following differences in the skulls available for comparison (Pl. II. figs. 2 & 3). The skull of *C. heavisidei* has previously been figured by Schlegel and by Van Beneden and Gervais, as pointed out below; and that of *C. commersonii* by Moreno (1892, pl. viii.).

Premaxilla.—The outer edge of this bone, in *Cephalorhynchus* generally, forms a prominent elevated ridge in front of the anterior nares (Flower, 1883, p. 473). In *C. commersonii* the left bone is not prolonged behind this ridge, that of the right side forming a slender splint passing towards the nasal of its side, but not reaching it. Moreno's fig. 1 *a* seems to agree in this respect. In *C. heavisidei* this posterior process is considerably larger in the left premaxilla, and still larger in the right bone, where it is 12 mm. wide and touches the nasal, passing back to about the middle of its length. *C. eutropia* resembles *C. heavisidei* in these respects, except that the right premaxilla does not reach the nasal, from which it is 11 mm. distant. The floor of the depressed triangle in the premaxillæ, in front of the anterior nares, is flatter in *C. commersonii* than in *C. heavisidei*, where it is slightly concave. The width of the premaxillæ in the front half of the triangle is distinctly greater in *C. heavisidei* than in the other species, and the maxillæ are here correspondingly narrower.

Maxilla.—*C. commersonii* seems to be characterized by the specially large posterior expansions of the maxillæ. Measuring the length of these expansions from the bottom of the maxillary notches along a line parallel with the middle line of the skull, and the breadth as indicated in the table of measurements, these parts are absolutely longer in *C. commersonii* than in the considerably larger type-skull of *C. eutropia*. In *C. heavisidei* they are relatively narrow, and do not completely cover the orbit, the whole upper margin of which is visible in a dorsal view, with part of the postorbital process, which slopes a good deal outwards.

In *C. commersonii*, the front of the orbit is completely concealed by the maxillary expansions, the only part visible dorsally being the postorbital process, which is more vertical than in the other species. Rather more of the upper surface of the orbit is shown in Moreno's figures, particularly in fig. 2, which is described as representing a younger specimen; and the extent of the overgrowth of the orbit by the maxilla is perhaps dependent on age.

In *C. heavisidei* there is a slight constriction of the outer margin of the rostrum, 20 mm. in front of the maxillary notches, so that a small lateral lobe is partially marked off at the base of the rostrum, on each side. These lobes do not occur in *C. commersonii*.

Nasal.—These bones, though no doubt variable, show certain features which may be distinctive. In *C. heavisidei* they are subdiscoidal, the central part the thickest and the margin thinner, and they are in contact with one another, on the upper side only, for about 7 mm., leaving a small triangle of the frontals uncovered between their lower borders and the mesethmoid. The greatest diameter is 25 mm. In *C. eutropia* each bone is quite twice as wide as long (25, 11 mm.), and has a sharply marked, nearly vertical, anterior face, which almost reaches the mesethmoid. The left nasal is wanting in skull B of *C. commersonii*, and the right nasals are not altogether alike in the two skulls. The shape seems to be somewhat intermediate between those of the other two species, being more quadrangular than in *C. heavisidei*, and rather longer in proportion to the width than in *C. eutropia*, the two bones having a median suture nearly reaching the mesethmoid. The right nasal of skull A measures 22 mm. in width and 17 mm. in length. Moreno's fig. 1a gives similar evidence.

Mandible (Pl. III. fig. 2).—While differing in certain respects, all three species show, more or less distinctly, the outwardly bowed rami, corresponding with the expanded part of the rostrum, given by True (1889, p. 108) as a generic character. That of *C. eutropia* (c) is much larger and heavier than those of the other species, but it resembles the mandible of *C. commersonii* (b) in general form and in the shape of its coronoid process, which is a blunt triangle with its apex directed nearly vertically and lying

well in front of the condyle. In *C. heavisidei* (a) the coronoid process is directed backwards, so that its apex lies but little in advance of the condyle, while from its front end the upper edge of the jaw slopes down to the teeth, instead of remaining at first horizontal, as in the other two species; and the jaw is slighter and has less vertical depth than in them.

Pterygoid.—The importance of these bones in distinguishing genera in the Delphinidæ was pointed out by Flower (1883), who relied on Van Beneden and Gervais' figure (pl. xxxvi. fig. 1a) for evidence as to *Cephalorhynchus*, and reproduced it on p. 473. There can be no reasonable doubt that the figure was drawn from a skull with incomplete pterygoids, and it is thus to some extent misleading. The type-skull of *C. heavisidei* resembles the figure as reproduced by Flower, in respect of the pterygoids, but a comparison with the two skulls of *C. commersonii*, in both of which these bones are complete, shows that they are much longer than would be inferred from that figure. They resemble in shape the pterygoids shown by Flower (1883, p. 471) in *Globicephala* (*Globiceps*), but their posterior margin is more oblique, or less nearly transverse. In skull A (Pl. III. fig. 1), the palatal surface of each pterygoid measures 36 mm., from the point where it leaves the vomer, to its posterior tip. In their free, posterior portions the two bones are separated by a narrow, Π -shaped interval, 18 mm. long and widening to 8 mm. across, at the commencement of the posterior oblique borders. Skull B is similar, except that the interval between the free parts of the pterygoids is Λ -shaped, and the length to the tip is only 30 mm. The pterygoids are incomplete in Moreno's figure.

Teeth.—Skull A (*C. commersonii*) has $\frac{29-29}{30-30}$ teeth visible without cutting away any of the gum. One or two small ones may perhaps be present, beneath the gum, at the anterior end of the series. In skull B, in which many of the teeth are wanting, the number is about 29 on each side of each jaw. In *C. heavisidei* (type), the number is $\frac{27-27}{26-26}$, while in *C. eutropia* (type) it is 30-31 on each side of each jaw.

The osteological features of the Cetacea are so variable that it is often impossible to be sure how far characters selected from an examination of a limited amount of material are of any value. It is thus important to point out that, in the features enumerated above, the two skulls of *C. commersonii* are in substantial agreement with one another, except where attention is called to a difference. There is evidence, moreover, that other specimens of *C. heavisidei* agree with the type-skull. The skull of this species has been figured and briefly described by Schlegel (1841, p. 31, pl. iii. figs. 1, 4; pl. iv. fig. 6); and by Van Beneden and Gervais (1868-1879, p. 599, pl. xxxvi. figs. 1-1b), from a skull in the Paris Museum. The latter authors were inclined to regard the specimens of *Cephalorhynchus* from various southern localities

as belonging to a single species. I have to thank Prof. R. Anthony for the information that the skull figured in the 'Ostéographie' (figs. 1, 1 a) is from the Cape of Good Hope, Dussumier, 1827, although he thinks that the lower jaw figured (1 b) may not be from the same specimen. It may no doubt be assumed that Dussumier's specimen at least belonged to *C. heavisidei*.

The following may be noted as points of agreement between the type-skull of *C. heavisidei* and Schlegel's figures:—The small lateral lobes at the base of the rostrum on each side; the narrow posterior expansions of the maxillæ, not completely covering the orbit; the shape of the nasals, which do not quite touch one another and leave a triangular part of the frontals exposed between themselves and the mesethmoid; and the broad posterior ends of the premaxillæ, both of which nearly reach the nasals. In Van Beneden and Gervais' figure most of these resemblances are also noticeable, and attention may be specially directed to the right premaxilla, which reaches the nasal behind.

CEPHALORHYNCHUS Gray, 1850 (see Flower, P.Z.S. 1883, p. 473, and True, 1889, Bull. U.S. Nat. Mus. no. 36, pp. 108, 176).

C. COMMERSONII Lacép.

Delphinus commersonii, "Le Jacobite," Lacépède, 1804, Hist. Nat. Cét. pp. xlv, 317 (referred to by Quoy and Gaimard, 1824, Voy. 'Uranie,' p. 87; and by Lesson, 1827, Voy. 'Coquille,' p. 181).

Delphinus commersonii Desmarest, 1822, Mamm. 2^e Partie, p. 517.

Phocæna commersonii Lesson, 1827, Man. Mamm. p. 414.

Lagenorhynchus floweri Moreno, 1892, Rev. Mus. La Plata, iii. p. 385, pls. viii., ix.

Lagenorhynchus cruciger? Bruce, 1915 (*nec auctt.*), "Piebald Porpoise," Scotia Rep. vol. iv. p. 500, pl. i.

Known localities.—Tierra del Fuego, Straits of Magellan, coast of Patagonia, Falkland Islands.

External characters.—Length at least 140 cm. Head conical, without distinct beak. Dorsal fin bluntly triangular, not falcate. Flippers rounded at the end, not falcate. Most of the sides and ventral surface silvery white, this colour extending completely across the back, between the head and the dorsal fin. A large white, median, pear-shaped area, widest behind, on the throat. Head, tail, caudal, pectoral, and dorsal fins jet-black (the fins on both surfaces), a narrow dorsal band of black passing obliquely from the tail to just beyond the dorsal fin, a broad black band extending across the ventral side between the flippers, produced backwards into a median, acuminate process. A black area surrounding the reproductive opening. White and black areas very sharply defined. Visible teeth 29–30 on each side of each jaw.

Skull.—Total length at least 29–30 cm. Rostrum about 47 per cent. of the total, at base half as wide as long, without projecting lateral lobes posteriorly. Tooth-row 41–42 per cent. Posterior lobes of maxillæ large, almost completely covering the orbits; the postorbital process nearly vertical and hardly visible from above. Premaxillæ little prolonged behind the anterior nares, the floor of the depressed triangle flat. Nasals subquadrangular, meeting in a median suture, the width much less than twice the length. Pterygoids separated behind by a **Π**- or **A**-shaped interval; the posterior border oblique, its tip 30–36 mm. from the vomer. Upper border of mandible horizontal, behind the teeth, the coronoid process bluntly triangular.

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EXPLANATION OF THE PLATES.

PLATE I.

Cephalorhynchus commersonii.

Figs. 1 & 2. Mr. J. E. Hamilton's eviscerated specimen (A), lateral and ventral views. $\times \frac{1}{4}$.

Fig. 3. Ventral view of another individual (C). From a photograph sent by Mr. R. Vallentin.

PLATE II.

Cephalorhynchus commersonii.

Fig. 1. Side view of specimen C. From a second photograph sent by Mr. R. Vallentin.

Fig. 2. Skull of specimen A, dorsal view. $\times$ about $\frac{1}{3}$.

C. heavisidei.

Fig. 3. Skull of the type-specimen, dorsal view. $\times$ about $\frac{1}{3}$.

PLATE III.

Cephalorhynchus spp.

Fig. 1. *C. commersonii*. Skull of specimen A, ventral view. $\times$ about $\frac{1}{3}$.

Fig. 2. Lower jaws, from the right side. $\times$ about $\frac{1}{3}$.

a. *C. heavisidei*. Type-specimen.

b. *C. commersonii*. Specimen A.

c. *C. eutropia*. Type-specimen.



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