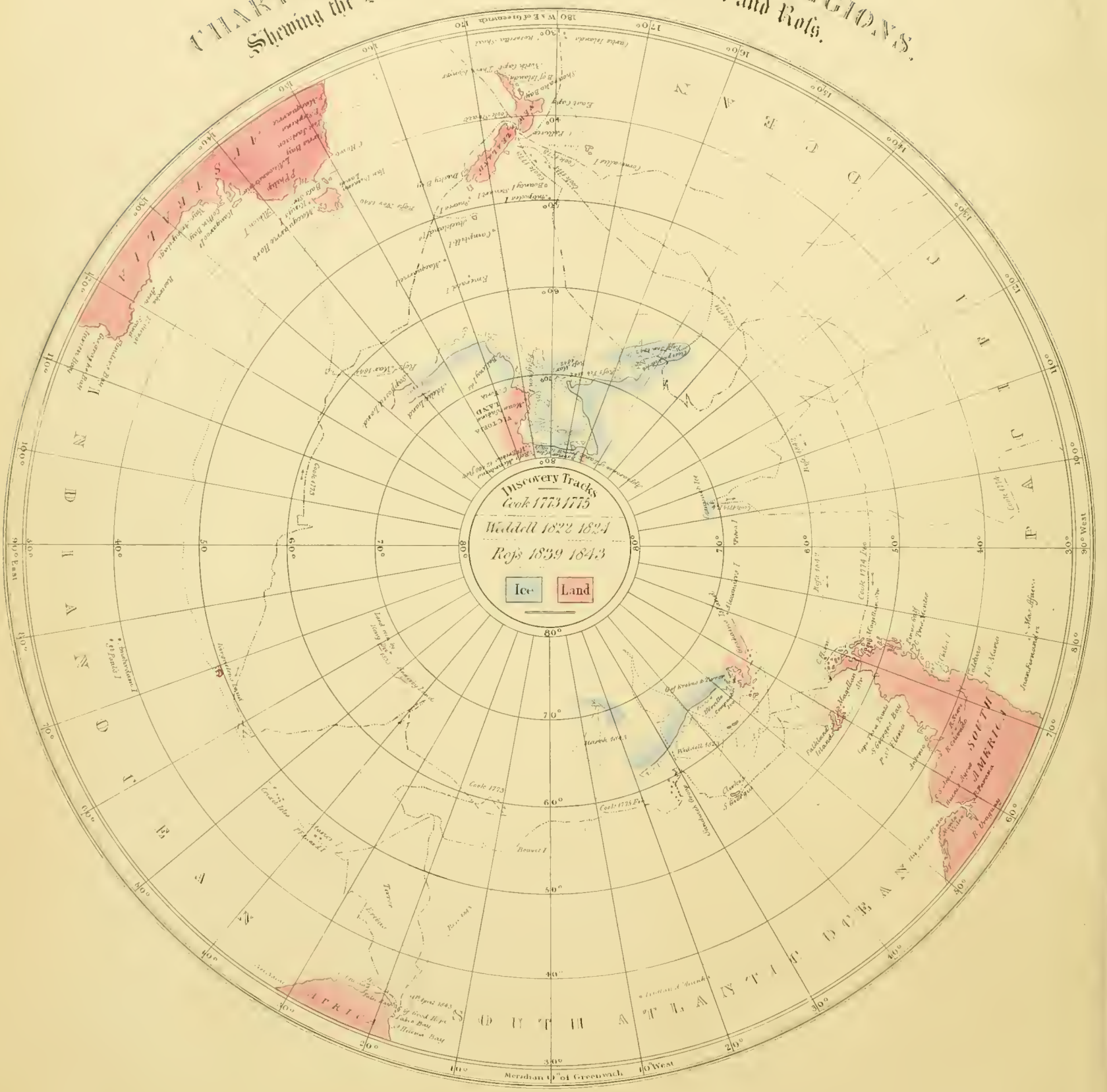
CHART OF THE SOUTH CIRCUMPOLAR REGIONS.

Shewing the Discovery Tracks of Cook, Weddell and Ross.



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THE

ZOOLOGY

OF THE

VOYAGE OF H.M.S. EREBUS & TERROR,

UNDER THE COMMAND OF CAPTAIN SIR JAMES CLARK ROSS, R.N., F.R.S.,

DURING THE YEARS

1839 TO 1843.

BY AUTHORITY OF THE LORDS COMMISSIONERS OF THE ADMIRALTY.

EDITED BY

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VOL. I.

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SUMMARY OF THE VOYAGE,

BY JOSEPH DALTON HOOKER, M.D., R.N., F.L.S.

ASSISTANT SURGEON OF THE "EREBUS" AND BOTANIST TO THE EXPEDITION.

IN the beginning of the year 1839, the British Government having determined on fitting out an Expedition, for the purpose of investigating the phænomena of Terrestrial Magnetism in various remote countries, and for prosecuting Maritime Geographical Discovery in the high southern latitudes, H.M. Ships Erebus and Terror, commissioned by Captain Sir James Clark Ross, sailed from Chatham on the 29th of September 1839. In addition to carrying out the above-mentioned leading views, it was enjoined to the officers, that they should use every exertion to collect the various objects of Natural History which the many heretofore unexplored countries about to be visited would afford.

On the outward voyage we touched at most of the Atlantic Islands, making a longer stay at some of them than is usual, on account of the nature of the observations that were instituted. At Madeira, which was the first visited, we called in the middle of October, and remained eleven days; and then made Teneriffe and the Cape de Verds, whence we sailed for and landed upon St. Paul's Rocks*, under the Line, in long. 29° W. St. Helena was the next destination, and the course which it was found necessary to follow took us to the Island of Trinidad off the Brazilian coast, lat. 20° S.

After spending a week at St. Helena, the vessels sailed for the Cape of Good Hope, arriving there on the 4th of April 1840. The Cape may be regarded as the starting-

* For an admirable description of these remarkable rocks, distant 350 miles from the nearest land (the Island of Fernando Noronha), see Mr. Darwin's Journal, p. 8.

point, whence the real object of the voyage, namely that which included South Polar Discovery, would commence. On the 6th of April 1840 we quitted Simon's Bay, and first entered a cold and inhospitable latitude (42° S.) on the 17th of the same month; then, only four days after, holding a westward course, we passed to the south of Marion's Island, formed of flat terraces of black volcanic rock and cone-shaped mountains, often of a reddish tinge, and towering to a considerable height. Here occurred the first botanical phænomenon, the *Macrocystis pyrifera* (a remarkable gigantic seaweed), being exceedingly abundant. The ships were hove to between Marion's and Prince Edward's Islands, with the view to going ashore the following day; but during the night a heavy gale arose which drove them far to the westward, thus disappointing the hopes which had been formed of collecting objects of natural history on an island never previously explored by any scientific individual.

On the 28th, after a succession of storms, the Crozet Islands were gained: this group lies far to the westward of the position that had been assigned to it, namely in lat. 47½° S. and long. 46–48° E.; and here the same disappointment awaited us, for after being blown off, and again on the 1st of May beating up to Possession, the most eastern of the cluster, the threatening appearance of the weather forbade any attempt to land. The Crozet Islands are all volcanic, and of the wildest and most rocky aspect; the harbours are very few, and some of the islands are entirely inaccessible. The mountains rise in peaks and cones to an elevation of 4000–5000 feet, exhibiting patches of perpetual snow on the summits, while dense fogs frequently envelope their bases, borne from the sea, to such an elevation, that the highest points alone are visible. To all appearance the vegetation is equally scanty and stunted as that which Kerguelen's Island afterwards afforded, and the questions which were put to a party of miserable sealers who came off to the ship, elicited no satisfactory information as to whether the valuable "*Cabbage*" of the latter island also inhabits the Crozet group. Scudding before heavy westerly gales, on the 6th of May a remarkable conical rock, called Bligh's Cap, was descried; it lies off the north-west extremity of Kerguelen's Island; but thick weather prevented Sir James Ross from making the land, from which the ships were again driven to a distance of 150 miles and obliged to beat back, finally casting anchor in Christmas Harbour, on the 12th of May 1840.

At Kerguelen's Island, all the plants that had been originally detected by the illus-

trious Cook were gathered during the two and a half winter months that the "Erebus and Terror" staid there, together with many other species, a remarkable proof of the uniformity of the climate, and the comparative mildness of the winter season. The ships left Kerguelen's Island on the 20th of July, and arrived in the river Derwent, Van Diemen's Island, on the 16th of August 1840.

On the 12th of November 1840, we quitted Hobarton for our first voyage to the South Pole, during which the only places visited which yielded many plants were Lord Auckland's Islands, lat. 50½° S., long. 166° E., where we arrived after a week's sail from the last-mentioned coast, and staid there during the spring months of that latitude, and Campbell's Island, in lat. 52½° S., long. 169° E. Quitting that island again on the 17th of December, the ships finally sailed for an entirely unexplored region of discovery. The *Macrocystis* and *D'Urvillæa* were found in large vegetating floating patches, nearly as far south as any open water remained free of bergs, in lat. 61° S. The vessels entered the pack-ice in lat. 68° S., long. 175°.

During this voyage the vast extent of continent, since called "Victoria Land," was discovered*, together with the active volcano "Mount Erebus," the extinct one "Mount Terror," and that icy barrier, which, running east and west, in the parallel of 78° S., prevents all farther progress towards the pole†. Two small islets were landed upon: one in lat. 71° 49′ S., long. 170° 52′ E.; the other, Franklin Island, in lat. 76° S. and long. 168° 59′ E.; but neither of these spots presented the slightest trace of vegetation. On the return voyage the *Macrocystis* again occurred, floating as usual in immense masses, in lat. 51° 10′ S., and long. 137° E.

The expedition returned to Hobarton, Van Diemen's Island, late in the autumn (of that latitude), April 7th, 1841; on the 7th of July again started from Van Diemen's Island, and after a short visit to Sydney, cast anchor in the Bay of Islands, New Zealand, August 18th, 1841, where we remained three months. This time was spent in collecting materials for a Flora of New Zealand, in which object we received great assistance from Mr. Colenso and many other gentlemen, by means of whose zealous cooperation our collections were rendered extremely valuable.

The second exploring voyage was commenced on the 15th of November 1841. It had been Captain Ross's intention to land on Chatham Island, in lat. 44° S. and 176°

* *Vide* Chart. † *Vide* Vignette.

W , but the prevalence for several days of the densest fogs frustrated all attempts to sight the land. This was much regretted, for few* of the plants of that interesting group are known to botanists. After tracing the *Macrocystis* into the 57th parallel, the ships entered an ice-pack of immense magnitude on the 18th of December, in lat. 62° S. Here we were entangled till Feb. 2nd, 1842 (the midsummer of those cheerless regions), making no more progress during that time than from the latitude just mentioned to 68°, where we emerged into comparatively open water to the southward of a large body of the pack, which however trended to the westward. At this time the season was far advanced, and as, in the preceding year, the retreat had been commenced, through absolute necessity, on the 9th of February, so Captain Ross did not think proper now to re-enter the pack-ice, but proceeded along its edge to the westward, advancing so far as 187° W., and then to the southward and eastward. On the 20th of February a gale came on, which, though in open water, was sufficiently trying ; the wind was very high, and the spray which beat over the ships became frozen ere it reached the deck, forming every object into a mass of ice ; the coils of rope were covered by an icy incrustation several inches thick, and most of the running-gear about the bowsprits was carried away by the weight of ice formed on it.

On the 23rd of February the expedition came in view of the grand Victoria Barrier : the day being fine, the voyagers approached within a mile and a half of the Barrier, finally reaching 78° 10′ S. lat. in the long. 162° W., having made six miles farther than in the preceding year, the highest latitude hitherto attained. Under all circumstances, this was more than had been expected ; for after the long detention, the rapidly closing season rendered any progress very difficult ; but it was a great object to verify the magnetic and other observations, and to ascertain still more positively the position of the pole. Unable to proceed eastward, the retreat was commenced, tracing the pack edge. Seaweed was again met with on reaching the parallel of 64°, and occasionally seen when running down the parallel of 60°, from 170° W. to 80° W., and thence in great abundance to the Falkland Islands, where the ships anchored in Berkeley Sound on the 6th of April 1842, not having seen land for 138 days, since leaving New Zealand.

A prolonged stay in the Falklands, though the season was winter (April to the beginning of September), afforded ample opportunities for thoroughly investigating the

* These few were collected by Dr. Dieffenbach, and are now deposited in the collection of Sir W. J. Hooker.

Flora of that interesting and now highly important group, which, though it had been partially examined by Admiral D'Urville, and previously by the officers of that unfortunate ship, the "Uranie," under the command of Captain Freycinet, still afforded considerable novelty.

On the 6th of September, the early spring of the southern latitudes, the "Erebus and Terror," with a portion of the officers, sailed from Berkeley Sound for the neighbourhood of Cape Horn, and arrived there, after having been driven far out of their course by the equinoctial gales, on the 21st, casting anchor in St. Martin's Cove, Hermit Island, lat. 56°, within a few miles of the far-famed Cape Horn, which is immediately opposite the mouth of the Cove. This is the most southerly spot on the globe which possesses anything above a herbaceous vegetation. Here, in the sheltered bays, the two kinds of *Antarctic Beech*, the *Evergreen* and *Deciduous*, form a dense, though small forest, and ascend, in a stunted form, to an elevation of 1000 feet on the hills. Many of the plants gathered during Cook's first voyage, by Sir Joseph Banks and Solander, and by Forster during his second, as also those which Mr. Menzies had detected, when accompanying Vancouver's expedition, and which have not been hitherto published, were found again; and when the ships returned to the Falklands in November, Captain Ross transported many hundreds of young *Beech-trees* and caused them to be planted there, in hopes that the productions of so near a country might be found to succeed on these treeless islands. Some were also sent home and have since been distributed in England, from the Royal Botanic Gardens of Kew.

The third cruise to the South Polar Regions was commenced on the morning of the 17th of December 1842, when the expedition sailed from Berkeley Sound. An opportunity was afforded again of tracing the southern limit of Seaweeds. The *Macrocystis* was lost in lat. 55° S., long. 57° W.; but on attaining lat. 63°, long. 54°, another species appeared which had been originally discovered by Webster during the stay of Captain Forster's ship, the "Chanticleer," in Deception Island, one of the South Shetland group, and again found by the expedition of Admiral D'Urville, and has since been published under the name of *Scytothalia Jacquinotii*. On the 28th land was made, a portion of Palmer's Land, to which the name of "Terre Louis Philippe" has since been given by D'Urville. The ships were already in the pack-ice, through which we penetrated, tracing the land to 64°, and seeing a small volcanic island, lying a few miles off

the coast (Cockburn's Island), we landed upon it. The vegetable productions only amounted to twenty Cryptogamic species, three of them *Seaweeds*. Unable, after a series of fruitless efforts, to penetrate farther than 65°, and after having been more or less entangled in the ice for thirty-seven days, Sir James Ross finally bore up, and when, with great difficulty, the ships had been extricated from the pack-ice, we commenced tracing its edge to the eastward. A succession of easterly gales rendered the progress in the advancing season tedious, most uncomfortable, and hazardous. At last however, on the 22nd of February 1843, the pack was lost sight of, trending to the south-west. On the 28th the Antarctic Circle was recrossed, and in spite of the rapidly shortening days, dark nights, and continual bad weather (for throughout the month of February, corresponding to an English August, only one day elapsed without snow), the Commander persevered in holding a southerly course. On Sunday the 5th of March, the weather being very thick, with snow-squalls, white petrels were seen, a bird whose appearance affords a sure indication of the proximity of pack-ice, and on the afternoon of the same day a heavy pack was descried, only a few yards ahead, with a terrific surf beating on it. The ice here was such as not to allow of being "taken" (or entered), even under the most favourable circumstances, and the ships were accordingly put about in lat. 71° 30′ S., long. 15° W.

The thickness of the weather made it impossible to ascertain the course and position of the pack, and the Northward Voyage was commenced under violent N.E. equinoctial gales. Beating to the northward, the ice occurred on both tacks, and the vessels were found to be in a bight of the pack, with the ocean loaded with bergs, and while the continued snow-squalls prevented the possibility of seeing any object ahead, the heavy seas and snow-laden state of the rigging rendered all human exertions ineffectual. From that date till the 11th of March, matters remained much the same, the ships beating to the northward with as much press of sail as could be exposed, trusting to Providence alone for guidance among the bergs. On the 19th the position assigned to Bouvet's or Circumcision Island was gained, but the weather rendered all endeavours, for three days, to discover land in this place of no avail. Both ships had a narrow escape of running foul of an iceberg, over which the sea was breaking, eighty feet high. The "Erebus," passing to windward, struck one of the floating masses from it; and the "Terror," to windward of her consort, did not discover the danger till almost too late,

when bearing up, she ran along the edge of the berg in the wash of the surf. On the 24th *D'Urvillæa* and *Macrocystis* were seen in lat. 51° S., and the last berg on March 25th, in lat. 47° S., the ships finally gaining the Cape of Good Hope on the 4th of April 1843, within two days of three years after they had first quitted that port for the high southern latitudes.

Respecting the climate of the various regions visited by the expedition, and especially that which prevails within the Antarctic Circle, little need here be said; except that the vast proportion which water bears to land, tends to render the temperature uniform throughout the year, and the farther south is the position, the more equable does the climate seem to be. No analogy can prove more incorrect than that which compares the similar degrees of latitude in the north with those of the south. The most casual inspection of the map suffices to show the immense proportion of sea to land in the southern hemisphere, the mass of the continents terminating to the north of lat. 40° S., America alone dwindling away to the fifty-sixth degree. The scattered islands discovered to the south of this are therefore removed from the influence of any tracts which enjoy a better or continental climate. The power of the sun is seldom felt, and unless in the immediate neighbourhood of land, and accompanied by a comparatively dry land-wind, that luminary only draws up such mists and fogs as intercept its rays. After entering the pack-ice between 55° and 65°, the thermometer seldom, during any part of the summer day, rises above 32° or falls below 20°; and while the southerly winds bring snow, the northerly ones transport an atmosphere laden with moisture, which, becoming at once condensed, covers the face of the ocean with white fogs of the densest description.

All islands and lands to the southward of 45° partake more or less of this inhospitable climate, which, though eminently unfavourable to a varied growth of plants, still, from its equable nature, causes a degree of luxuriance to pervade all the vegetable kingdom, such as is never seen in climates where the vegetable functions are suspended for a large portion of the year. The remoteness of these islands from any continent, together with their inaccessibility, preclude the idea of their being tenanted, even in a single instance, by plants that have migrated from other countries, and still more distinctly do they forbid the possibility of man having been an active agent in the dissemination of them. On the contrary, the remarkable fact that some of the most

peculiar productions are confined to the narrowest limits, is a strong argument in favour of a general distribution of vegetable life over separate spots on the globe. Hence it will appear, that islands so situated furnish the best materials for a rigid comparison of the effects of geographical position and the various meteorological phænomena on vegetation, and for acquiring a knowledge of the great laws according to which plants are distributed over the face of the globe. These subjects are however foreign to the present sketch, the author of which hopes, ere long, to have an opportunity of dwelling upon them at large and in a different form.

Those persons who have spent a series of years on the ocean, in pursuit of a favourite science, know how little can be effected by the unaided efforts of one individual, and where much is accomplished, how large is the debt of obligation incurred, not only to the facilities afforded by shipmates, but to the accommodating disposition of those with whom he comes in daily contact, and with whom he literally shares one cabin and one table. The author may here be allowed to say, that no man can be more deeply sensible than he is of the rare privilege he enjoyed, in having messmates who were ever ready to sacrifice their own convenience for his accommodation. Most especially does he feel it incumbent on him here to return his thanks to the commanding Officer of the expedition (as is his first duty) for the opportunity afforded of accompanying him, for the kindness always shown during this the most important and interesting scientific voyage that has been accomplished since the days of Cook, and for the generous manner in which that officer's private cabin and library were unreservedly placed at his disposal during the whole time the expedition was afloat. Attached as Sir James Clark Ross has ever been to the various branches of Natural History, he took a pleasure in promoting the interests of the collections at all times, and himself gathered many of the plants here described.

There were few of the officers of either ship who did not contribute something to the collection of plants ; but the botanist feels it peculiarly imperative on him here to enumerate and return his especial thanks to Mr. Lyall, Lieut. Smith, and Mr. Davis. Mr. Lyall indeed, as appointed to take charge of the botanical collections on board the "Terror," formed a most important herbarium, from which great assistance has been derived, amounting to no less than 1500 species.

MAMMALIA.

I.—THE SEALS OF THE SOUTHERN HEMISPHERE.

The Seals have been long considered as one of the most difficult families of Mammalia, partly on account of their great resemblance to one another in external characters, and the changes which they undergo during their growth in colour and form, but more especially on account of the difficulty of observing them in their natural habitations.

The labours of M. de Blainville, the two brothers Cuvier, and especially of Professor Nilsson of Lund, have done much to elucidate the characters of the European species and those frequenting the eastern coast of North America, — the species found on the west coast of North America being still known by the descriptions of Steller only; indeed many naturalists have been inclined to consider them as identical with those found in the southern part of the Pacific Ocean, believing that the species migrate from one extremity of the world to the other; though we have the testimony of all voyagers that seals are never found between the equatorial line and 21° north latitude, a fact first stated by Dampier (Voy. p. 90).

The Seals of the southern hemisphere have not been so well studied, from the want of sufficient materials. Cuvier, when he wrote the 'Ossemens Fossiles,' possessed only eight skulls, belonging to four species, (viz.—1. Phoca leptonyx; 2. P. elephantina; 3. P. pusilla; 4. P. leonina?), but as several of these had been brought home without the skins, he could only refer them doubtfully to established species. Indeed, almost the only knowledge that we have of these animals is derived from the observations of Cook, and the Forsters, who accompanied that intrepid navigator as naturalists; and the materials which they brought home were well collated together by Pennant, in his 'History of Quadrupeds,' a work of very extraordinary merit considering the date of its publication. To be sure that was a time when England might fairly be described as taking, as she should do, a lead in scientific Zoology; and it is yet a period which has not been fairly estimated by the modern school of Zoologists, who, at the opening of the continent after the war, appear to have been so dazzled by the brilliant progress made by the Professors in France named by Napoleon, that they appear to have overlooked the fact that these men were only following in the footsteps of Pennant, Latham,* Solander, the Forsters, Fabricius, and others, who were either natives of or had been fostered by the scientific men of this country, as Linneus followed in the footsteps of Ray.

Besides the particulars given by Cook and Forster in the account of their Voyages, Forster communicated to Buffon the figures of two of the species he had observed, accompanied by details of their organization and habits, which

* I may mention as a proof of the indefatigable energy and industry of Dr. Latham, that he commenced at the age of ninety a new edition of his 'Synopsis,' in which he arranged all the more recently discovered species, with references to where they were described, and adopted some of the modern genera. I have this work in my library, in three 4to volumes, all written in the dear old man's own hand. Such was his interest in science, that, having expressed a desire to procure a copy of the drawing of his Butool Pheasant, to send to India, he, then in his ninety-second year, copied the drawing and etched it, that I might have the impressions I required. He continued as much attached to the study of Antiquities and Architecture as to Natural History, to the end of his long and arduous life.

were printed in the supplementary volumes of Buffon's Natural History, and form the most complete and best account we have yet had of the history of these species.

Peron and Lesueur, in their record of Baudin's voyage, indicated some Seals found in the South Sea, and give fuller details of the Sea-Elephant, they having been so fortunate as to fall in with some males of that species, but the Natural History of the voyage was never published, so that we are indebted to Cuvier (Oss. Foss.) for the description of the only Seal they brought home, which appears to have been the Fur Seal of commerce.

In the Zoology of Captain Duperrey's 'Voyage of the Coquille,' a Seal is figured, under the name of *Phoca Molossina*, but the skull and skin, now in the Paris Museum, as Nilsson has correctly observed, is only the young Sea-Lion's. In the 'Voyage of the Astrolabe' two other southern Seals are figured, one called *Otaria cinerea*, Peron, which appears to be the Fur Seal of commerce, and the *Otaria australis*, which is very like my *Arctocephalus lobatus*, described from a skull in Mr. Brookes' collection many years previously. It is to be regretted that the figures here referred to, especially of the skull, are so bad as to be utterly useless for the determination of the species without comparison of the original specimens.

In the French 'Voyage to the South Pole,' now publishing, figures are given of the Sea-Leopard and the common White Antarctic Seal, which they name *Phoca carcinophaga*, the two most common species found everywhere in these regions on the packed ice.

Lastly, Mr. W. Hamilton has given an account of the Seals and other marine Mammalia, in Sir W. Jardine's 'Naturalists' Library,' which contains a carefully compiled account of these animals, and some original figures from the specimens in the Edinburgh and Liverpool Museums: but unfortunately, Mr. Stewart, the draughtsman, has been more intent on giving them an artistic effect than on attending to their zoological characters. Thus, some which should have no claws on their hind feet, have large ones, and sometimes one too many for any beast; and the toe-membranes of all the Eared Seals or Otaries are represented as hairy instead of bald.

The same author has given an account of the Fur Seal in the 'Annals of Natural History,' which he considers as different from the Sea Bear of Forster and other South-Sea navigators: according to Dr. Hooker, the Fur Seals rarely exceed $3\frac{1}{2}$ or 4 feet in length.

As it was necessary to study the species of the whole family the better to understand those of the southern hemisphere, I shall proceed, before I enter into a more detailed description of the southern species brought home by this expedition, to give the condensed results of my labour, in the form of a Synopsis of the Genera and Species of Seals, which will at the same time be useful in showing the systematic distribution of the southern species.

I. — Synopsis of the Species of Seals.

Sect. I.—*Grinders two-rooted; ears none; toes simple, of the fore-feet short, of the hind-feet unequal, the outer on each side longest, the middle shortest, the palms and soles hairy.*

Sub-family 1. Stenorhynchina. — *Cutting teeth* $\frac{4}{4}$; *hind-feet nearly clawless; muffle hairy to the edge and between the nostrils; fore-feet triangular; wrist very short.*

* *The* 1*st*, 2*nd and* 3*rd front upper, and the* 1*st front lower grinder single-rooted, the rest* 2*-rooted.*

1. Lobodon.

Skull elongate; muzzle elongate; grinders rather compressed, with a large lobe in front, and three lobes behind the larger central one.

1. Lobodon carcinophaga.

Phoca carcinophaga, *H. & J. Voy. Pol. Sud. t.* Stenorhynchus serridens, *Owen.*

Inhab. Southern Ocean.

** *The* 1*st front grinder in each jaw single-rooted, the rest* 2*-rooted.*

2. Stenorhynchus, *F. Cuv.*

Skull elongate; muzzle elongate; grinders compressed, with three cylindrical elongate lobes, the centre one longest and largest.

1. Stenorhynchus leptonyx, *F. Cuv. Mem. Mus.* xi. 191, *t.* 13, *f.* 1. Phoca leptonyx, *Bl. Cuv. Ham. N. L. t.* 11. P. Homeii, *Lesson.* P. Weddellii, *Lesson.* P. Leopardina, *Jameson.* Sea Leopard, *Weddell. Hamilton, t.* 12.

Inhab. South Sea.

3. Leptonyx, *Gray*, not *Swains.*

Skull broad, depressed behind; muzzle short, broad; grinders subcompressed, with a small, subcentral, conical tubercle, and a very small posterior one; the lower jaw narrow behind, without any hinder angle; fore-feet clawed.

1. Leptonyx Weddellii, *Gray, Mag. Nat. Hist.* (not the synon.)

Inhab. Southern Ocean.

4. Pelagios, *F. Cuv.* Pelagius, *Fischer.* Monachus, *Nilsson.*

Skull broad, depressed behind; muzzle short, broad, orbits large; grinders small, conical, "thick, with a small anterior and posterior lobe;" lower jaw broad, with a distinct posterior angle; "upper cutting teeth transversely notched."

1. Pelagios monachus, *F. Cuv. Cuv. Oss. Foss.* v. *t.* 17, *f.* 1—8. *Blainv. Osteog. t.* 5, 7, 8, 9. P. à ventre blanc, *Buffon, Supp.* vi. *t.* 44. Phoca monachus, *Herm. Berl. Abh.* iv. *t.* 12, 13. P. Hermanni, *Lesson.* Monachus Mediterraneus, *Nilsson, Vet. Acad. Hand.* 1837, 235.

Inhab. Mediterranean. Mus. Paris, bad state. Skeletons and skulls.

5. Ommatophoca.

Skull broad, depressed behind; muzzle very short, broad, orbits very large; grinders small, compressed, with a central incurved lobe, and a small lobe on each side of it; fore-feet very slightly clawed.

1. Ommatophoca Rossii.

Inhab. Southern Ocean.

Sub-family 2. Phocina. — *Cutting teeth* $\frac{6}{4}$; *the 1st front grinder in each jaw single-rooted, rest 2-rooted; muffle bald and callous between and above the nostrils, and divided by a central groove; wrist rather exserted; fingers subequal; claws 5-5, large.*

6. Callocephalus, *F. Cur.*

Muzzle rather narrow; whiskers waved; toes gradually shorter.

* *Palate angularly notched behind; hair subcylindrical, under fur thin; web between the hind toes hairy.*

1. Callocephalus vitulinus.

Phoca vitulina, *Linn.*? *Nilsson. Blainv. Osteog. Phoca, t.* 2, *t.* 5, *and t.* 9. *Buffon, H. N.* xiii. *t.* 43. *Supp.* vi. *t.* 46. P. littorea, *Thienem. t.* 6, 7. P. canina, *Pallas, Z. R. A.* 114. P. communis, *Linn.*

Inhab. Europe and North America.

2. Callocephalus annellatus.

Phoca annelata, *Nils. Scand. F.* i. 362. *t.* 38. *Thienem. t.* 9, 10, 11. Phoque commun, *F. Cur. M. lithog. t. Hamilton, t.* 4. Call. discolor, *F. Cuv. Mem. Mus.* xi. 186. P. Frederici, *Lesson.* P. fœtida, *Muller, Z. Dan.* P. equestris, *Pallas, Z. R. A.* iii. 40. P. Schreberi, *Lesson?*

Inhab. Europe.

3. Callocephalus Caspicus.

Phoca Caspica, *Nilsson.* P. canina, var. Caspica, *Pallas, Z. R. A.*

Inhab. Caspian seas.

** *Palate truncated behind; muzzle rather produced; hair dry, flat, close-pressed, without any under fur; web between the hind toes baldish.* Pagophilus.

4. Callocephalus Grœnlandicus.

Phoca grœnlandica, *Muller, Z. D. Thienem. t.* 15—19. P. oceanica, *Lepech, Act. Petrop.* 177. *Hamilton, t.* 7. P. semilunaris, *Bodd.* P. dorsata, *Pallas.* P. Mulleri, *Lesson.* Harp Seal, *Penn. Quad. Bell. Brit. Quad. Ham. t.* 7. Phoca laguros, *Cuv. Oss. Foss.* v. 206. *Blainv. Osteog. Phoca, t.* 9? *Home, Phil. Trans.* 1822, *t.* 28. P. albicauda, *Desm.* P. Desmarestii, *Lesson.* P. Pilayi, *Lesson.*

Inhab. Northern Ocean.

The teeth figured as *Phoca Lagurus* of De Blainville's 'Osteog. Phoca,' t. 9, appear to be some other, perhaps a new species.

7. Phoca.

Muzzle broad, short; forehead convex; whiskers smooth, simple; ear-hole large: fingers unequal, the 3rd longest, 2nd and 4th long, the 1st and 5th shorter, nearly equal: palate rather angularly notched behind.

1. Phoca barbata, *Fab. F. Græn.* 15. *Thienem. t.* 1—4. *F. Cur. Mem. Mus.* xi. 184, *t.* 12. *Blainv. Osteog. Phoca, t.* 9. P. leporina, *Lepech. Act. Petrop.* i. 264, *t.* 8, 9. *Ham. t.* 9. P. nautica, *Pallas, Z. R. A.* 108. P. albigena, *Pallas, Z. R. A.* 109. Great Seal, *Penn. Ham. N. L. t.* 5.

Inhab. Europe.

Sect. II. — *Grinders with single root (except the two hinder grinders of Halichœrus).*

A. *Ears, conch none. Toes simple, of fore feet exserted, of hind feet large; the inner and outer ones large, long, the three middle ones smaller: palm and soles hairy (sometimes chaffy and callous with wear). Muffle hairy to the edge and between the nostrils.*

Sub-family 3. Trichechina. *Muzzle large, truncated, simple; canines large; grinders lobed or truncated when old.*

8. Halichœrus, *Nilsson.*

Muzzle broad, rounded; cutting teeth $\frac{6}{4}$, grinders $\frac{5}{5}\frac{5}{5}$, conical, the hinder two upper and one lower double-rooted, rest simple, canines moderate; whiskers crenulated; muffle ——? palm and soles hairy; claws 5-5, elongate.

1. Halichœrus grypus, *Nilsson.* Phoca grypus, *Fab. Nat. Selsk. Skri.* i. 167, *t.* 13, *f.* 4. P. gryphus, *Licht. Berl. Acad.* 1821, *t.* 1, *f.* 1, 2. *Blainv. Osteog. Phoca, t.* 9. P. hispida, *Schreb. S.* 312, *t.* 86. *Hamilton, t.* 8. P. Halichœrus, *Thienem.* P. ochotensis, *Pallas.* Hal. griseus, *Horns. Isis,* 1824, 810. *Nilsson, Scand. F.* 377, *t.* 34, *f.* 1, 2. *Hamilton, t.* 10. Grey Seal, *Bell, Brit. Quad.* 284, *f.* "Long-bodied Seal, *Parsons,*" *Donovan. Home, Phil. Tr.* 1822, *t.* 27.

Inhab. North coast of Europe, (Ireland and Scotland).

9. Trichechus, *Linn.*

Muzzle very broad, truncate, swollen and convex above; muffle, palm and soles chaffy, callous, with the hair more or less worn off in the adult (hairy when young?): cutting teeth $\frac{2}{2}$ in young, $\frac{2}{0}$ in adult; grinders $\frac{4}{4}\frac{4}{4}$, truncated, all single-rooted; canines, upper very large, exserted.

1. Trichechus Rosmarus, *Linn. S. N. Blainv. Osteog. Phoca, t.* 1 & *t.* 4. Rosmarus arcticus, *Pallas, Z. R. A.* i. 269. T. obesus and T. divergens, *Illiger.* Pale brown, when young black, when old white.

Inhab. North Sea. Mus. Brit. adult.

Sub-family 4. Cystophorina. *Muzzle of the males with an inflatile appendage: cutting teeth* $\frac{4}{2}$; *grinders with a large swollen root, and a small, compressed, simple, plaited crown: muffle hairy.*

10. Morunga, *Gray*. Macrorhinus, *F. Cur.* Cystophora pars, *Nilsson*.

Nose of the male with an elongated tubular proboscis; muzzle of the skull broad, truncated in front; forehead convex; hinder palatine bone short, transverse: hair flat, truncated, adpressed; whiskers round, rather waved, thick: claws, front obsolete, hinder distinct.

1. Morunga Elephantina.

Phoca Elephantina, *Molina, Sagg.* 280, 341. P. proboscidea, *Peron & Lesueur*, ii. 32, *t.* 32, males. *Hamilton, t.* 16, 17. *Cur. Oss. Foss.* v. *t.* 18, *f.* 1. *F. Cur. Mem. Mus.* xi. *t.* 14, *f.* 1, skull. Phoca Leonina, *Schreb.* 297, *t.* 83, (cop. from Anson). *Blainv. Osteog. Ph. t.* 5. *t.* 9. Sea Lion, *Dampier, Voy.* 91. *Anson, Voy.* 122, *t.* 19. Bottle-nose Seal, *Penn. Quad.* ii. 531. Phoca dubia, *Fischer, Syn.* from *Cur. Oss. Fos.* v. 213. Phoque de Patagon, *F. Cur. Mem. Mus.* xi. *t.* 14, *f.* 2.

Inhab. Southern Ocean. Brit. Mus. Females and skulls.

11. Cystophora, *Nilsson*. Stemmatophus, *F. Cur.*

Nose of the male with a large compressed hood, extending to the back of the head; muzzle very broad, hairy; nostrils large; muzzle of the skull broad, narrowed on each side in front; forehead flat; palatine bone broad, square; hair elongate, cylindical; whiskers flat, waved; claws 5-5, distinct.

1. Cystophora cristata, *Nilsson*. Phoca cristata, *Dekay, Ann. Lyc. N. Y.* 1, *t.* 7. *Fab. Nat. Selsk. Skri.* i. 120. *Hamilton*, t. 14. P. mitrata, *Milbert, MS. Cur. Oss. Foss.* v. 210. *Hamilton, t.* 13. P. leucopla, *Thienem.* 102, *t.* 13, (young). P. leonina, *Linn. S. N.* i. 55.—P. leonina, *Muller*. C. borealis, *Nilsson, Scand. F.* i. 383. P. cucullata, *Bodd. Elen.* 107. Seal with a Caul, *Ellis, Hudson's Bay*, 134, *t.* 6, *f.* 4.

Inhab. North Sea. Brit. Mus. two males, one female and one young.

The young is like the young of *Callocephalus grœnlandicus* in external appearance, but it is easily known from that species by the hairiness of the muffle between the nostrils, and by the teeth not being lobed, but only plaited on the surface.

B. *Ears with a subcylindrical, distinct, external conch. Toes of the hind feet subequal, short, with long membranes at the end: fore feet fin-like: palm and soles bald, longitudinally grooved. Nose simple, with a rather large callous muffle above and between the nostrils: cutting teeth* $\frac{6}{4}$, *upper often bifid; grinders* $\frac{6\,6}{6\,6}$.

Sub-family 5. Arctocephalina.

12. Arctocephalus, *F. Cur.*

Cutting teeth $\frac{6}{4}$, upper subequal; muzzle rather tapering in front; whiskers cylindrical, thick, not waved; palate (of the skull) rather narrower behind than in front, short, scarcely reaching to the middle of the zygomatic arch; lower jaw narrow, rounded below, without any angle behind.

* *Fur long, under coat thick, soft, silky.*

1. Arctocephalus ursinus.

Ursus marinus, *Steller, Nov. Com. Petrop.* ii. 331, *t.* 15, (copied in). Phoca ursina, *Schreb.* iii. 289, *t.* 82. *Gmel. S. N.* i. 62. Otaria ursina, *Desm.* O. Stelleri, *Lesson*, O. Krachenninikovii, *Lesson, D. C. H. N.* xiii. 420.

"Hair long, erect, thick, under fur brownish red. Males black, older ones with the hairs white-tipped, the hair of the neck longer and stiff: females ash-coloured: of the very young black: flaps of hinder toes very long slender: length 8 or 9 feet."

Inhab. Northern Pacific Ocean, Kamschatka.

2. Arctocephalus Falklandicus.

Sea Bear, *Forster, Voy.* i. 174. Ours marin, *Buffon, H. N. Supp.* vi. 336, *t.* 47. Otaria Forsteri, *Lesson, D. C. H. N.* xiii. 42.

Falkland Isle Seal, *Penn. Quad.* i. 275. Phoca Falklandica, *Shaw, Zool.* i. 256. Otaria Falklandica, *Desm. Mam.* 252. O. Shawii, *Lesson, D. C. H. N.* xiii. 424.

Otaria Falklandica, *Hamilton, Nat. Lib. t.* 25. *Ann. N. H.* ii. 81, *t.* 4.

Petit Phoque, *Buffon, H. N.* xiii. 341, *t.* 43, (young). Little Seal, *Penn. Quad.* Phoca parva, *Bodd. Elench.* 78. P. pusilla, *Schreb.* 314, *t.* 85. *Gmel. S. N.* i. 68. Otaria pusilla, *Desm.* O. Delalandii, *F. Cur. D. S. N.* xxxix. 423. O. Peronii, *Desm. Mam.* 250.

Otaire de Peron, *Blainv. Journ. Phys.* xci. 295. Otaria Hauvillii, *Lesson, D. C. H. N.* xiii. 425: from *Cur. Oss. Foss.* v. 220.

Grey, under fur red, young blackish. Length 4 feet.

Inhab. Antarctic Ocean, Falkland Islands. Cape of Good Hope?

There may be more than one species combined in these synonyma.

3. Arctocephalus cinereus.

Otaria cinerea, *Peron. Voy. T. Aust.* ii. 54? *Quoy et Gaim. Voy. Astrol. Mam.* 89, *t.* 12, 13 *and* 15. Phoca cinerea, *Fischer, Syn.* 233?

Grey, hair of neck rough, elongate, yellowish, hairs yellowish white and blackish, under fur red. Length 7 feet.

Inhab. South coast of Australia. Port Western, *Quoy*. Kangaroo Island, *Peron?*

Peron indicates a species from Eugene Island, Australia, under the name of *Otaria albicollis;* and Molina one from Chili, which he calls *Phoca porcina*, which he says has a nose like a pig, but of which I can find no other indications.

** *Fur short, close-pressed, without any under fur.*

4. Arctocephalus lobatus, *Gray, Spic. Zool.* i. *t.* Phoca lobata, *Fischer, Syn.* ii. 574.

The flaps to the hind toes short, not so long as the toes: grinders large, with a lobe on each side; canines large.

Inhab. N. W. coast of Australia. Houtman's Abrolhos, *Mr. Gilbert.*

5. Arctocephalus australis.

Otaria australis, *Quoy et Gaim. Voy. Astrol. Mam.* 9, *t.* 14.—10. *Nilsson, Weigm. Arch.* vii. 322.

The flaps to the hind toes moderate. Grey, with yellow reflections, head, cheeks and side of muzzle whitish, beneath fulvous; neck thick: limbs beneath blackish; whiskers strong, flat, white.

Inhab. South coast of Australia, "King George's Sound," *Quoy.*

6. Arctocephalus Hookeri.

Hair Seal, *Weddell*, 141?

Flaps of the hinder toes elongate, unequal, of the outer toes on each side longest: canines moderate. Pale yellowish.

Inhab. Falkland Islands and Cape Horn.

The Eared Seal, *Pennant, Quad.* 278: Phoca flavescens, *Shaw, Zool.* i. 260, *t.* 73: Otaria flavescens, *Desm. Mam.* 252: 22 inches long, may be a young specimen of this species, but it is not stated if this seal has under fur or not. The young of *O. Forsteri* of the size mentioned is blackish.

13. Otaria, *Peron.* Platyrhynchus, *F. Cuv.*

Muzzle broad, high in front; forehead rather convex, occiput high: cutting teeth $\frac{6}{4}$, the upper outer ones very large, like canines; grinders (of the adults) with very large roots and small, compressed, lobed crowns: palate bone rather wider behind than in front, long, extending nearly to the articulation of the lower jaw behind; lower jaw broad, dilated below in front and behind at the angles.

Otaria Stelleri, *Lesson, D. C. H. N.* xiii. 420. *J. Muller, Weigm. Arch.* vii. 330, 333. Leo marinus, *Steller, Nov. Comn. Petrop.* ii. 360. Phoca jubata, *Gmel. S. N.* i. 63, part. Otaria jubata, *Peron et Lesueur, Voy.* Phoca Stelleri, *Fischer, Syn.* 231. Otaria Californiana, *Lesson, D. C. H. N.* xiii. 420, from *Chloris Voy. Pict. t.* 11.

Inhab. Northern Pacific Ocean.

Otaria Leonina, *Peron et Lesueur, Voy.* ii. 65. Phoca Leonina, *Molini Say.* 281, 341, not Schreb. nor Blainv. P. jubata, *Blainv. Osteog. Phoca, t.* 5 *and t.* 9. P. jubata, part, *Gmel. S. N.* i. 63. Otaria jubata, part, *Desm.* O. Pernettii, *Lesson.* O. Forsteri, *Lesson.* Phoca Byronii, *Desm.* P. Scout, *Bodd.* Leonine Seal, *Shaw.* Platyrhynchus (leoninus), *F. Cuv. Mem. Mus.* xi. 208, *t.* 15, *f.* 2, adult skull. Otaria Platyrhynchus, *Muller, Weigmann, Arch.* vii. 333. O. Molossina, *Lesson, Voy.* 109, *t.* (young) Phoca Molossina, *Lesson, Bull. Sci. N.* viii. 96. Lesson Ottary, *Hamilton, Nat. Lib. t.* 24, from Lesson. Platyrhynchus Molossina, *Lesson, Man.* 203. P. Uraniæ, *Lesson, Man.* 204? Otaria Guérin, *Quoy et Gaim. Zool. Uran.* 71? Sea Lion of Forster, *Hamilton, Nat. Lib. t.* 18. Sea Lion of Pernetty, *Hamilton, Nat. Lib. t.* 19, from Edinb. Mus. Sea Bear of the British Museum, *Hamilton, Nat. Lib. t.* 23?

Inhab. Southern Pacific Ocean. Patagonia.

The upper jaw elongate and dilate with age.

II. — DESCRIPTION OF THE SEALS OF THE SOUTHERN HEMISPHERE.

Lobodon.

Phoca, part, *Homb. et Jacq.*

Leptorhynchus, part, *Owen.*

Head elongate; ear-conch none externally; muzzle broad; nostrils ovate, hairy to the edge; whiskers rigid, tapering, waved; skull elongate, rather depressed; muzzle broad, rather produced: orbits moderate: the petrose portion of the temporal bone very convex, nearly hemispherical.

Cutting teeth $\frac{4}{4}$, the upper middle ones moderate, with a smaller rather compressed crown, the two others large, conical, like the canines; the lower pair small, the two middle ones subcylindrical, rather internal, projecting forwards and rounded at the end, the outer ones rather larger, blunt; canines $\frac{1}{1}$, conical, curved, small, the upper largest; grinders $\frac{5}{5}$, with large swollen roots, the crown triangular, subtrigonal, lobed, lobes rather recurved at the tip, the larger lobe with one, or sometimes a second, small lobe in front, and with three lobes behind; the 1st upper one smaller, with a single large root, the 2nd, 3rd and 4th nearly equal and the 5th smaller and more compressed, the 2nd and 3rd have the root only divided at the base, the 4th and 5th have them divided nearly to the crown, and diverging; the first under is smallest and single-rooted, the rest are all similar, 2-rooted, the 3rd being the largest and the 5th most compressed in the crown; the symphysis of the lower jaw is very long.

The teeth of the younger animals have a rather broader crown, with rather shorter tubercles, a rugose surface with some smaller tubercles on the inner side, near the base of the hinder lobes, but separated from them by a groove.

Body tapering behind. The fore limbs moderate, rather elongate, triangular, hairy above and below: toes 5, tapering, with a narrow, thick, hairy web between them; claws 5, elongate, acute, subequal: the hind limbs large, broad, triangular, hairy above and below, the outer toes on each side of the foot very large, broad, rounded at the end, the three middle ones smaller, narrow, tapering, with a thick hairy web between them, the central one smaller and shorter, all clawless: tail short, conical, depressed.

Fur close-set, rather rigid, directed backwards, soft at the end; the hairs flat at the base, tapering to a fine point, without any under fur at the roots.

Inhab. Antarctic Ocean.

The Crab-eater Seal. Lobodon carcinophaga.

Plate 1, animal; plate 2, skull.

Phoca carcinophaga, *Homb. et Jacq. Voy. à Pole Sud, t.* 10 *and t.* 10 *a*, (not described).

Leptorhynchus serridens, *Owen, Ann. Nat. Hist.* 1843, 331.

Head, back, hind feet and upper part of the tail pale olive; fore feet, side of the face, body and tail beneath yellowish white, the hinder part of sides of the body, the base of the hind fins yellow-spotted, spots unequal, often confluent: whiskers white, the upper one smaller, dusky.

Inhab. Antarctic Ocean, on the packed ice.

This species has been figured by MM. Hombron and Jacquinot in the French Voyage to the South Pole, though I believe, not yet described, but the skull is so characteristic that there can be no excuse for not using their specific name because the description has not appeared. They represent it of a nearly uniform olive colour.

Dr. M'Cormick, the surgeon of H. M. S. Terror, having sent a skeleton of this Seal to the College of Surgeons, Mr. Owen gave a description of it in the 'Annals of Na-

tural History' for November, 1843, not knowing that it had before been figured by Messrs. Hombron and Jacquinot, and referred it to the genus *Stenorhynchus*, with a new specific name, slightly modifying the character of the genus to contain it. It is certainly more nearly allied to that genus than to *Phoca*, to which the French surgeons had referred it, but still it differs so much from it in the conformation of the skull and the lobing and rooting of the teeth, that it can scarcely be left in it: but the latter peculiarity appears to have escaped Mr. Owen's research, for in his generic character of *Stenorhynchus* he says, "Anterior molars with one root, the rest with two roots," while in this genus the three front upper molars are single-rooted, a character by which this genus differs from all the others in the family.

Stenorhynchus, *F. Cuvier.*
Phoca, *Home*, *Blainville.*

Head elongate: ear-conch none externally; muzzle broad, elongate; muffle hairy to the edge and between the nostrils; nostrils acute; whiskers slightly waved; face elongate, rather compressed; muzzle tapering, rather produced and compressed on each side; orbits moderate; the petrose portion of the temporal bone rather convex.

Cutting teeth $\frac{4}{4}$, conical, acute, incurved, granular, and with a cutting edge on each side in a regular row, the two outer larger, the upper much larger than the lower, and separated from the canines by a broad space; canines conical, with sharp cutting edges within and on the sides, the upper largest: grinders $\frac{5}{5}\frac{5}{5}$, with moderate roots, separated from the crown by a narrow groove, the crown compressed, divided into three elongate lobes, the centre lobe much the largest, longest, and subcylindrical, the anterior and posterior lobes conical, the bases of the lobes are surrounded by a sharp-edged ridge, with two small, short, conical tubercles on the inner side, the larger one being at the base of the separation of the hinder from the middle lobe: the front grinder in each jaw is rather the thickest, with a single thick conical root, all the rest have two rather diverging roots, divided nearly to the crown; the hinder tooth in each jaw is rather the smallest. Symphysis of the lower jaw short.

Body tapering behind. The fore limbs moderate, rather elongate. The toes are rather larger than the wrist, and each furnished with a small nearly terminal claw: the hind limbs are rather large, of two nearly equal lobes, destitute of any claws. The three middle toes small, tapering.

The fur close-set, short, without any under fur; hairs flattened, tapering at the tip to a point.

Inhab. Antarctic Ocean.

MacMurtrie, in his translations of Cuvier, erroneously adds to the generic character in the text of the author, "but with single roots;" this is repeated in the reprint of the American edition published by Orr, i. 98.

The Sea Leopard. Stenorhynchus leptonyx.
Plate 3, animal; plate 4, skull.

Phoca Leptonyx, *Blainv. Jour. Phys.* xci. 288. *Desm. Mam.* 247, from Home's specimen. *Cuv. Oss. Fos.* v. 208, *t.* 18, *f.* 2. *F. Cuv. Mem. Mus.* xi. 190, *t.* 13, *f.* 1. *Blainv. Osteogr. Phoca, t.* i. *and t.* 4, *f.* *Skull*, (Mus. Paris).

Stenorhynchus Leptonyx, *F. Cuv. Dict. Sc. N.* xxxix. 549, *t.* 44.

Seal from New Georgia, *Home, Phil. Trans.* 1822, 240, *t.* 29, (skull).

Phoca Homei, *Lesson, Dict. Class. H. N.* xiii. 417.

The Small-nailed Seal, *Hamilton, Nat. Lib.* 180, *t.* 11, (nails too large).

Stenorhynchus aux Petits Ongles, *Hombr. & Jacq. Voy. à Pol Sud. t.* 9.

Phoca Leopardina, *Jameson, Weddell, Voy. South Pole*, 22, 24, 134, *t.* not good.

Leopard Seal, *Weddell, l. c.*

Otaria? Weddellii, *Lesson, Bull. Sci. Nat.* vii. 438, 343.

Stenorhynchus Weddellii, *Lesson, Mam.* 200.

Leopard Seal, *Hamilton, Nat. Lib.* 183, *t.* 12, (from Capt. Weddell's specimen).

Grey, paler beneath, with small black spots on the sides of the neck and body, and with a few smaller white spots on the sides; upper part of the hinder limbs dark, pale-marbled.

Inhab. Antarctic Ocean, on the packed ice.

A skull of this species, which was brought from New Georgia by Mr. Kearn, was presented by Mr. Chevalier to the Museum of the College of Surgeons, and was described by M. de Blainville, on his visit to England in 1819, and published under the name of *Phoca leptonyx*, in the 'Journal de Physique' (of which he was then the editor), in 1820. This skull was also figured by Sir E. Home, in the 'Philosophical Transactions' for 1822.

M. Blainville afterwards found a skin with its skull from Falkland Islands, in the collection of M. Hautville of Havre, which was afterwards presented to the Paris Museum, and has furnished all the material for the descriptions of this species until the two late Antarctic Voyages. M. F. Cuvier's figure, copied in Mr. Hamilton's work on Seals, is said to be taken from this specimen; but it is anything but like the slender subcylindrical animal preserved in the Paris collection: and in the latter work it is represented as having five large claws on each foot!

The "Sea Leopard" of Capt. Weddell, described by Professor Jameson in that intrepid navigator's Voyage, and since figured by Mr. Hamilton as a second species of *Stenorhynchus*, does not appear to differ from the species described by M. de Blainville, but unfortunately I have not been able actually to compare the specimens, or to get from Edinburgh any drawing of the teeth, to make myself quite certain on this point. Lesson's names were only given from the description in the Voyage above quoted.

The following notice of this species has been kindly communicated to me by Dr. Frederick Knox, with a skeleton and part of the viscera, which was caught on the coast of New Zealand. "It was of a dull yellow olive color irregularly spotted. The nostrils opened much after the manner of the Cetacea, in the form of the elongated fissures, $1\frac{1}{2}$ inch from the extremity of the snout, whilst the position and vast size of the pelvic extremities, added to the extreme shortness of the tail, so nearly approached in form and appearance the lateral flanks of the tail in whales,

as to deceive any one but a comparative anatomist. The specimen was shot and captured in Evans Bay, Port Nicholson, in November, 1843. The skin was hairy. The stomach of the seal contained numerous fish-bones, a few feathers (gulls'), and some considerable portions of a pale green, broad-leaved, marine Fucus: thousands of a small, hard, round, white worm (parasitical) pervaded all parts of the intestines. The intestinal tube measured 71 feet, 10 inches: caput cæcum, 1 inch, 9 lines: diameter of small intestines, 1 inch; of large intestines, 1 inch, 6 lines. Liver weighed 14 lbs.: kidneys, 2 lbs. each: spleen, 1 lb.: heart, 6 lbs. The arch of the aorta gave off an extremely short *innominata*, which divided it into a right carotid and subclavian, and left carotid; the left subclavian came off separately; it resembles Tiedemann's third variety, Pl. III. (copy published in Edinburgh). Teeth, $\frac{4}{4}$-$\frac{2}{2}$-$\frac{10}{10}$ = 32: the two lower middle incisors appear peculiar; the arrangement at least was *new* to me. Vertebræ: — cranial, 4; cervical, 7; dorsal, 14; lumbar, 6; sacral, 3; coccygial, 13; = 47."

Dr. Frederick Knox called it the "Sea Bear," so that this is probably the animal so named by Pollack and other authors, which has caused *Phoca ursina* to be included in the New Zealand Fauna.

Mr. Owen (*Ann. N. H* 1843, 831), appears to think that this animal is one-coloured, for he says the Sea Leopard is distinguished from it "by the spotted hide."

Leptonyx, *Gray, Mag. Nat. Hist.* not Swainson.

Head flattened. Muzzle broad, rather short, rounded; muffle hairy between and to the edge of the nostrils; nostrils ovate; whiskers compressed, slightly waved. Ears, no external conch.

Skull slightly depressed, expanded behind; muzzle rather short, broad, high above; orbits rather large: the petrose portion of the temporal bone convex, hemispherical.

Cutting teeth $\frac{4}{4}$, conical, rather recurved, those of the upper jaw largest; the middle in each jaw smaller; the outer upper much larger. Canines $\frac{1}{1}\frac{1}{1}$, large, conical, curved, rather compressed, upper largest. Grinders $\frac{5}{5}\frac{5}{5}$, moderate, rather far apart, parallel to the edge of the jaw, compressed, with subcentral, conical, prominent tubercle; the second, third and fourth, in the more perfect specimens, with a small conical tubercle on the hinder edge, and a sharp edged ridge round the inner side of the base. The front grinder in each jaw smaller, and with a single conical root, the rest all 2-rooted nearly to the crown. Lower jaw slender, with a short symphysis in front, and narrow, without any angle at the hinder part of the lower edge.

Fore feet small, elongate, triangular, hairy above and below, with five graduated, distant, marginal claws: hind feet moderate; the two marginal toes largest, rounded at the end; claws small, rudimentary, two middle largest.

Fur short, adpressed, without any under fur; hair slender, tapering, slightly flattened.

The skull of this genus resembles, in many respects, Cuvier's figure of a skull of *Phoca bicolor;* but it differs from it in all the grinders being placed more longitudinally, and in the lower jaw being slender, and without any angle on the hinder part of the lower edge. It is far more nearly allied to that genus than *Stenorhynchus*, to which Mr. Owen (*Ann. N. H.* 1843, 331, 332) has referred it; observing that his *Sten. serridens* (our *Lobodon cancrivora*) shows modifications of the molar teeth which would give it a better claim to subgeneric distinction than the *Sten. Weddellii* (which he observed is the type of the subgenus *Leptonyx* of Mr. Gray) has been supposed to possess; — an observation not borne out by the specimen. But Mr. Owen made the remark, and drew up his specific character, without having seen the teeth; for the skull was not then removed from the skin, and the specimens in the British Museum — the only ones then known — were stuffed with their mouth nearly closed.

Mr. Swainson, in 1832, applied the name of *Leptonyx* to a genus of birds; and in 1837, the same name to a second: but the former had before been named *Pteroptychos*, and the latter *Coryphospiza*, so that the name may still be used for the Seal.

This animal is easily known from *Stenorhynchus* by the shortness of the wrist, and the triangular form of the fore feet, being intermediate in this respect between that genus and *Ommatophoca*.

The False Sea Leopard. Leptonyx Weddellii.

Plate 5, animal. Plate 6, skull.

Leptonyx Weddellii, *Gray, Mag. Nat. Hist.* 1836 (not the synonymes).

Fulvous, with the front of the back, and a line down the back, blackish grey: whiskers brown, tapering.

Female and young blackish grey above; sides with a series of longitudinal yellowish spots.

Inhab. South Seas, — Santa Cruz. Capt. Fitzroy, R.N.

This Seal was first described by me from two specimens sent to the British Museum, by Capt. Fitzroy, R.N., when employed, with Capt. P. P. King, R.N. on the survey of the South American continent. I was then led to believe that it was the Sea Leopard of Weddell, which induced me to name it after that intrepid navigator; but I now find that the *Stenorhynchus Leptonyx* is the animal so called by the whalers, and therefore the one intended by Capt. Weddell, and consequently the references to his description must be erased, and referred to the *Stenorhynchus*.

We have a third specimen in the Museum, which was brought home by the Antarctic Expedition. The skin is not in a very good state, and is of a reddish colour, but this is probably produced by the staining of the blood. In proportions and skull it exactly agrees with the two before described; and it is the skull of this specimen, as being most perfect, that is here figured.

Ommatophoca.

Head short, broad; ears small, with no external conch; muzzle very short, rounded; muffle hairy between and to the edge of the nostrils; nostrils ovate: whiskers tapering, conical.

Skull depressed, expanded behind; orbits very large; muzzle very short, broad, truncated in front, high behind; petrose portion of the temporal bone convex.

Cutting teeth $\frac{4}{4}$, small, conical, sharply recurved at the

tip, ridged within, those of the upper jaw largest, the two central in each jaw smaller; canines $\frac{1}{1}$, rather small, conical, curved, rather compressed, with a sharp internal keel: grinders $\frac{5}{5}$, small, longitudinal, rather far apart, compressed, with a subcentral, rather large, broad, slightly incurved, lobe; having a very small lobelet on the inner side of its front, and a larger conical one in the middle of its hinder edge; the front grinder of each jaw is smaller and thicker, with a single conical root, the rest all with two diverging roots to the crown: lower jaw rather slender, with a short symphysis in front, and rather narrow, with a thick rounded edge in the hinder part of the lower edge in the place of the angle.

Fore feet moderate, elongate, triangular, hairy above and below; toes 5-5, tapering, subequal, separated by a thick, narrow, hairy web; claws 2 or 3, very small, rudimentary, horny, acute: hind feet large, broad-triangular, hairy above and below; the outer toes on each side of the foot very large, broad, rounded at the end, the middle ones small, narrow, tapering, with a thick, hairy web between them; the central one smaller and shortest; all clawless: tail short, conical.

Fur very close set, rather rigid.

Inhab. Antarctic Ocean.

Ross's Large-eyed Seal. Ommatophoca Rossii.

Plate 7, animal; plate 8, skull and teeth.

Greenish yellow, with close, oblique, yellow stripes on the side, pale beneath.

Inhab. Antarctic Ocean.

There is a skin with its skull, and a separate skull, which appears to belong to this species, in the collection brought home by the Antarctic Expedition.

The skulls differ considerably from one another in the form of the palate and in the teeth; but it is probable that the teeth of the skull belonging to the skin (plate 8, f. 1, 2 and 4), is a malformation.

In the separate skull (pl. 8, f. 3 and 5), the first upper and lower grinder has a single large subcylindrical root, tapering to a point beneath, and each of the other grinders has two conical separate roots diverging nearly from the collar. The palate is broad and rather truncated behind, and the transverse suture between the two bones in the palate is rather more than two-thirds the distance from the inner edge of the cutting teeth.

In the other skull (pl. 8, f. 1, 2 and 4), the first and second grinder of the upper jaws are small, with a single conical root; and on the right side both these teeth are united together in one cavity: and as there are four other grinders in each side, it would appear as if there were front grinders of two sets. The third, fourth, fifth and sixth of the same jaw have a compressed, single, tapering root, with a deep central groove nearly dividing it into two parts, the groove being deepest and most distinguishable on their outer side. In the lower jaws the front grinder has a double crown, with a thick single root, tapering below, as if formed of two teeth united together by their roots. The second and third grinders have a broad, compressed, single root, divided by a rather deep, central, longitudinal groove on each side, and the fourth and fifth grinders each have two tapering, nearly parallel roots, well separated at the base from each other. In this skull the palate is rounded behind, and the suture between the two bones is much more nearly in its centre. I do not recollect to have observed such a malformation, or soldering together of the roots of the teeth, in any other beast.

Morunga, *Gray*.

Macrorhinus, *F. Cur.*

Cystophora, part, *Nilsson*.

The head broad, short, truncated in front, with a tuft of bristles over each eye, and one on each side of the middle of the muzzle; the upper lip longer than the lower; the forehead convex; the nostrils of the male "are wrinkled, and can be blown up into a crest" (*Forster*), "with an elongate tubular proboscis," (*Peron*); of the female simple, rounded, with a hairy muffle between and around the edge of the nostrils.

Cutting teeth $\frac{4}{2}$, far apart, conical, the two middle upper smaller, the rest nearly equal; the grinders with large, swollen, subcylindrical roots, and a small, compressed, simple, plaited crown; the hinder palatine bones short, transverse.

The whiskers are very long and large, roundish, very slightly compressed, rather waved.

The fore feet are rather small, oblong, obliquely truncated, the wrist being nearly as long as the feet, with 5 elongated claws, the first the smallest; the hinder feet are moderate, the marginal toes upon each side large, rounded, the three middle ones very small, tapering; all clawless. The tail conical.

Fur short, hair short, flat; broad and rounded at the tip in the adult; rather more tapering in the young; hair on the lips rather longer, more slender and slightly curled.

Inhab. The Southern Ocean.

This genus has many characters in common with the Crested Seal of the North American Continent, but differs from it in the characters given in the Synopsis at the commencement of this article (see p. 4), but especially in the male being provided with a proboscis, while in that genus it has a hood-like swelling proceeding up the nose to the back of the head.

The Sea Elephant. Morunga Elephantina.

Plate 9, female; plate 10, skull.

A Sea Lion and Lioness from Juan Fernandez, *Anson, Voy. Round the World* (1786), 122, *t.* 19, copied. *Pernetty, Voy. Isle Malorines*, ii. 47, *t.* 9*, *f.* 1, and altered *t.* 8*, *f.* 1. Hence Phoca Leonina, *Linn. S. N.* i. 55. *Schreber, Saugth.* 297, *t.* 83, *a*. Bottle-nosed Seal, *Shaw, Zool.* i. *t.* 73. — *Penn. Quad.* ii. 531, (with an original description of the female). Phoca Ansonii, *Desm. Mam.* 239, 369, (part only).

Grand Phoque à Museau ridè, *Buffon, Suppl.* vi. 316.

Anson's Sea Lion, *Forster, Voy. Round the World*, ii. 527.

Phoca major, &c. n. 5. "Manate from Nicuragua," *Parsons, Phil. Trans.* 1751, 121, (female).

Phoca Elephantina, *Molini Saagi*, 260, (1782).

L'Elephant marine, ou Phoque à trompe. Phoca proboscidea, *Peron & Lesueur, Voy. Terre Austr.* ii. 34, *t.* 32,

Hamilton, Jardines' Nat. Liby.

Mirounga proboscidea, *Gray, Griff. An. King.* v., 180 (1827).

Morunga elephantina, *Gray, Cat. Osteol., Spec. B. M.* 33 ; *Cat. Seals B. M.* 34 ; *Cat. Seals & Whales* 38, *fig.* 13 (skull).

Leo marinus (Cap. B. S.) *Pallas. Zool. Rosso-Asiat.* i., 106.

Sea Elephant, *Weddell, Voy.* 53, 84, 134.

Macrorhynchus proboscideus, *Gray, in Brooke's Mus. Cat.* 36 (1828).

Phoque gris argenté à os nasaux très courts, *Mus. Paris* from M. Dubrodie ; Cuvier, *Oss. Foss.*, v., 213 ; *Nilsson, Wiegm. Archiv.* vii., 325—hence

Phoca dubia, *Fischer, Mamm.* i., 225.

Phoque des Patagons, *F. Cuvier, Mem. Mus.* i., 203, *tab.* 14, *f.* 2 *d. e. f.*

Mirounga Patagonica, *Gray, Griff. An. King.* v., 180.

Stemmatopus Patachonicus, *Brooke's Mus. Cat.*

Rhinoplura proboscidea, *Wagler, Nat. Syst. Amph.* 27.

The noses of the male and female differ in width as is well seen in the collection of skulls in the Museum.

McGill describes a skull, said to come from California, in the "Proceedings of the Essex Institute" 1866, v. 13, under the name of *Macrorhinus angustirostris*, which may be from a female specimen.

Inhab. Southern Ocean.

Plate 9 (adult female), plate 10 (its skull). Both in B.M.

Family Otariadae, *Gray.*

Suppl. Cat. Seals and Whales Brit. Mus. 6.

Nose simple; muffle rather large, callous above and between the nostrils. Ears with a cylindrical external conch. Arms and legs rather elongate. The fore and hind feet fringed. Fore feet fin with a scolloped naked membrane. Palms and soles bald, longitudinally grooved, more or less triangular. Fingers gradually diminishing in size from the inner side. Hind feet elongate, narrow, all clawless. Toes nearly of equal length, the outer one on each side being rather the strongest (see Cat. Seals and Whales 44, f. 15). Three middle toes clawed. The fur is generally provided with a more or less thick under fur. Skull with a post-orbital process. An alisphenoid canal. Mastoid process strong and salient, extending aloof from the auditory bulla. Cutting teeth $\frac{6}{4}$, 4 middle upper bifid ; lateral upper cutting teeth and canines conical; grinders $\frac{5}{5}$ or $\frac{6}{5}$. The scapula is curved backwards to the upper angle, but with its spine or crest near the posterior margin.

These animals are thus arranged—

I. The palate produced behind the opening of the inner nostrils just before the condyles. Upper grinders 6-6. Under fur sparse. Sea Lions. Otariina.
   1. Otaria.

II. The palate shorter, with the opening of the inner nostril some distance before the line of the condyles. Sea Bears.
   i. Gypsophocina. The upper grinders 6-6, the fifth and sixth quite behind the back edge of the front of the zygomatic arch.
      2. Gypsophoca.
   ii. Arctocephalina. The upper grinders 6-6, the sixth behind the back edge of the front of the zygomotic arch, the fifth is even with it, and is sometimes rudimentary.
      * Head elongate ; face produced in front.
      3. Phocarctos.
      ** Head elongate ; face short, arched.
      4. Callorhinus.
      *** Head broad.
      5. Arctocephalus. Crown of grinders broad, slightly lobed.
      6. Euotaria. Crown of grinders compressed, lobed.
      7. Eumetopias. Fifth upper grinder soon deciduous.

III. Zalophina. Upper grinders 5-5, the fifth in a line with or before the back edge of the front of the zygomatic arch.
   8. Zalophus. 9. Neophoca.

These animals have been divided into many species, founded on the accounts of travellers and defective figures. In the "Catalogue of Seals and Whales" I have attempted to unravel these nominal species, but here I have only referred to the species established upon the examination of specimens.

Otaria, *Gray.*

Suppl. Cat. Seals and Whales B.M. 12.

Sea Lions.

Skull with the palate elongate, produced behind, the opening of the nostrils just before a line drawn between the condyles. Upper grinders 6-6. Under fur sparse. The palate concave, becoming deeper and contracted behind with age, nose and palate dilated in front in the males. The flap of the toes very long. The ears small.

Otaria jubata.

Otaria jubata, *Gray, Suppl. Cat. Seals and Whales B.M.* 13 ; *Murie, P.Z.S.*, 1869, viii., 101.

Otaria leonina, *Gray, Cat. Seals and Whales*, 59.

Sea Lion, *Cook's Voy.* ii., 203 ; *Forster's Voy.* ii., 509.

Inhab. Coast of Patagonia and Chili.

Pl. 17, fs. 1 and 2. The skull of a young specimen without a lower jaw, received from Chiloe, in the British Museum. Blainville described a skull in the Royal College of Surgeons as *Phoca Byronii*, but I cannot see any difference between his skull and those in the British Museum. Dr. Peters, from a difference in the position of the teeth in the figure, was inclined to consider it distinct, but, on examination of the skull itself, he decided that the figure was inaccurate in this respect.

Otaria minor. The smaller Sea Lion.

Otaria minor, *Gray, Ann. and Mag. Nat. Hist.*, 1874.

Skull elongate narrow; lower jaw elongate, sides flat

compressed in front, with the lower edge from the angle to the gonyx longer than the jaws are wide at the angle. Palate very deep and wide, broad in front, contracted behind, with the lateral processes rather contracted.

Inhab. Coast of South America.

Only known from two skulls.

1. Perfect skull of an adult male in the British Museum, which is 11½ inches long, and 6½ inches wide at the condyles. Sixth upper grinder behind the hinder edge of the front of the zygomatic arch, the lower jaw 8½ inches long, wide and strong, contracted on the sides in front. The scar of the masseter muscle in the lower jaw is elongate and narrow in front.

2. An imperfect skull (335*e*) about 12 inches long, and 6¾ inches wide, wanting the intermaxillary bones, and having only the canine teeth; with the palate deep, slightly contracted behind, lobes erect, the sixth upper grinder separated from the fifth by a space just before the back edge of the front of the zygomatic arch. Lower jaw compressed in front.

This species may be the same as *Otaria Godeffroyii*, described and figured by Dr. Peters from a specimen in the Hamburg Museum, but the front of the lower jaw does not appear to be the same as that of the skulls in the British Museum; it and the scar of the masseter muscle are broad and rounded at the end as in the jaws of the common Sea Lion, *Otaria jubata*, and *Otaria Godeffroyi*, may indicate another species.

OTARIA ULLOÆ. The Pygmy Sea Lion.

Otaria Ulloæ, *Tschudi, Fauna Peruana*, 136, *t.* vi. (animal); *Peters, Monastb.* 1866, 667, *t.* (skull).

Otaria (Phocarctos) Ulloæ, *Peters, Monatsb.*, 1866, 270.

Otaria pygmæa, *Gray, Ann. & Mag. Nat. Hist.*, 1874.

The skull elongate, narrow. Lower jaw elongate, sides flat compressed in front, with the lower edge from the angle to the gonyx longer than the jaws are wide at the angle. Palate very narrow, deep, scarcely wider behind. Sixth upper grinder behind the hinder edge of the front of the zygomatic arch. Lower jaw comparatively slender, 6½ inches long, compressed and flat in front.

Only known from an adult, most probably female skull, in the collection of the British Museum, received from the Zoological Society in 1858.

Inhab. South America. Coast of Peru (*Tschudi*).

Since I described the skull in the Museum under the name of *O. pygmæa* I have again compared it with the figure of *Otaria Ulloæ* given by Dr. Peters, from one of the skulls of the original animals described by Tschudi, and have very little doubt it is the same, though Dr. Peters does not mention the form of the lower jaw which is so characteristic.

III.—THE SEA LIONS AND SEA BEARS OF THE SOUTHERN HEMISPHERE.

Since the Synopsis of the species of Seals was published specimens of the Sea Lion have been exhibited in England, and the British Museum has received many specimens of them and of their skulls, and a few skeletons, and the examination of them has proved that instead of their forming a tribe of the Seals, which was called *Arctocephalina* in the Synopsis, they form a distinct family from the earless Seals, *Phocidæ*, with a distinct habit and structure; they have more power of using their limbs, like the more typical Mammalia, walking on them, with the body raised from the ground, they rest with their hind limbs bent forward. These habits were well shown in Dr. Forster's figure engraved by Buffon, and they have been verified by the study of the living animal in the Zoological Gardens.

Their scrotum and genital organs are exposed as in the dog.

The Sea Bears and Sea Lions inhabit the more temperate and colder parts of the Southern Hemisphere and more northern regions of the Pacific Ocean.

They are said to make periodical migrations towards the poles. They come to the surface during the process of mastication and do not drink like the Seals. The pupils of the eyes dilate and contract to a great extent. The females lie on their backs to receive the caresses of the male: they bring forth their young far inland, and they are gradually taught to swim.

They generally have a very close soft under fur between the roots of the longer and more rigid hairs, hence they are called Fur Seals.

The quantity and fineness of the under fur differ according to the seasons, and the age of the animal. Some have so little under fur when they arrive at the adult age that they are of no use for making *Seal Skins*. The under fur is only attached to the surface of the skin, while the long rigid hair is rooted to the inner layers of the skin, they therefore come out when the inner surface of the skin is shaved off, leaving the under fur, which forms what is called *Seal Skin* by the furriers, attached to the outer surface of the skin.

So much improvement has taken place in our knowledge since the "Synopsis" given at page 4 was written that I give an abstract of what is at present known of the Sea Lions and Sea Bears of the Southern Seas.

If one had the opportunity of examining these animals alive there is no doubt that they would present very decided characters in the form of the face and size and structure of the ears and feet, and the length of the flaps of the toes, but all these parts are liable to be altered in the preparing of the specimens for Museums, therefore the chief characters for the distinction of genera and species are those afforded by the skulls, as these alone are accessible to the scientific zoologist and afford the only means by which he can compare the Sea Bears from different localities, and the different genera and species peculiar to each locality.

Steller described a *Leo marinus* and an *Ursus marinus* from Kamschatka, and Temminck figured the animal and skeleton of a Seal in the "Fauna Japonica" under the name of *Otaria Stelleri*, confounding it with the *Leo marinus* of Steller, which Lesson had called *Otaria Stelleri*. Mr. McBain, who received the skull of this animal, named

it *Otaria Gilliespii*. I have figured the skulls of these three animals from the North Pacific, P.Z.S., 1859, under the names of, 1. *Callorhinus ursinus*, P.Z.S., 1859, t. 58. 2. *Eumetopias Stelleri*, P.Z.S., 1859, t. 72. 3. *Zalophus Gilliespii*, P.Z.S., 1859, t. 70. Mr. Allen has given a further account of these animals, and I have figured and described a fourth species under the name of *Eumetopias elongata*, P.Z.S., 1872, 738, fs. 2 and 3, but the examination of a second specimen of a skull has shown me that it is more like a *Phocarctos* than a *Eumetopias*.

Gypsophoca, *Gray*.

Proc. Zool. Soc., 1872, *pp.* 659 and 743.

The palate short, contracted behind; the opening of the inner nostrils on a level with the middle of the zygomatic arch. The grinders $\frac{6\cdot6}{5\cdot5}$ the fifth and sixth upper quite behind the front edge of the zygomatic arch.

Gypsophoca tropicalis. The Sub-tropical Fur Seal.

Gypsophoca tropicalis, *Gray, P.Z.S.*, 1872, *p.* 659, *fs.* 5 and 6 (skull).

Arctocephalus cinereus, *Gray, Cat. Seals & Whales, p.* 56; *Suppl., p.* 24; *Ann. & Mag. Nat. Hist.*, 1866, xviii., *p.* 236.

Black, grey beneath, under fur abundant, reddish brown.

Inhab. N. Australia (*MacGillivray*).

Dr. Peters describes a Fur Seal, in the British Museum, sent from Juan Fernandez Island, under the name of *Arctophoca Philippii*, Peters, Monatsb. May, 1866, pp. 276 and 671, t. 2 (skull), and I have noticed it, in the Suppl. Cat. Seals & Whales as the Chilian Fur Seal, but have never seen the skull on which it is described, and have a suspicion that it represents a species of *Gypsophoca* that has lost its hinder grinders.

Dr. Philippi sent a description of a skull that he had received from the Island of Massafuera, on the west coast of S. America, which is published by Dr. Peters, Monatsb., 1871, p. 588, t. 1 and 2, which he calls *Arctophoca argentata*. The skull wants the hinder part of the brain case, has six grinders in its upper jaw, and is in every respect very like the skull of *Gypsophoca tropicalis*, and the *Arctophoca Philippii* from Juan Fernandez. It chiefly differs from the figure of the latter skull, as Dr. Philippi shows in his plate, in the hinder portion of it being narrower, and the condyles much shorter or rather narrower.

These three skulls appear to me to belong to one group, but whether they are three distinct species, two from the west coast of South America, and one from North Australia, I will not attempt to determine, as I have seen only the skins and skull of the one from the latter region, but they are all Fur Seals, and may be distinct.

Phocarctos, *Gray*.

A..& M. N. H., 1866, xviii., 234; *Suppl. Cat. Seals and Whales*, 13.

Skull elongate; face rather produced in front; palate short, contracted behind, the inner nostrils in a line with the middle of the zygomatic arch. Grinders $\frac{6\cdot6}{5\cdot5}$, with compressed lobed crowns, the sixth upper behind the back edge of the front of the zygomatic arch, and the fifth even with it. Under fur none, or very sparse.

Phocarctos Hookeri. The Southern Hair Seal.

Arctocephalus Hookeri, *Gray, Cat. Seals, Brit. Mus.*, 45, *f*, 15 (skull); *Cat. Seals & Whales*, 53, *f.* 17 (skull).

Hair Seal, *Weddell, Voy.*, 141.

Pale yellowish, flaps of hinder toes elongate, unequal.

Inhab. Falkland Islands. Cape Horn.

Plate 14. Drawing of animal from a stuffed skin. Plate 15, its skull.

Arctocephalus.

Skull rather broad, oblong. Palate contracted behind; the opening of the inner nostrils in a line with about the middle of the zygomatic arch. Grinders $\frac{6\cdot6}{5\cdot5}$, the crown of the upper compressed, slightly lobed, of the lower ones broad, slightly lobed. The sixth upper behind and the fifth level with the back edge of the front of the zygomatic arch. Under fur moderately developed.

Grinders of the upper jaw compressed, with an elongate triangular central crown, with a collaret on the inner side, and a small lobe on the back and often on the front of the collaret.

The form of the crowns of the lower grinders is very peculiar and characteristic; having only two skulls of adult animals in the British Museum it had, until lately, escaped my observation, as the crowns of these skulls were mostly broken off or chipped, but on very minute examination I find the crowns of two or three teeth of one of the specimens are perfect, and present a decided difference of structure from that of all the other species of Sea Bears.

Arctocephalus antarcticus. The Cape Fur Seal.

Phoca antarctica, *Thunb., Mem. Petrop.* iii., 322.

Phoca ursina, *Cuv., Oss. Foss.*

Arctocephalus ursinus, *F. Cuv., Mem. Mus.* xi., 205, *tab.* 15, *no.* 1 (skull).

Arctocephalus Delalandii, *Gray, P.Z.S.*, 1859, *tab.* 60 (skull).

Inhab. Cape of Good Hope.

Euotaria.

Arctocephalus ** Euotaria, *Gray, Suppl. Cat. S. & W.*, 20.

Skull rather broad oblong. Palate contracted behind, the opening of the inner nostrils in a line with about the middle of the zygomatic arch. Grinders $\frac{6\cdot6}{5\cdot5}$, the upper and lower with a compressed elongated triangular central crown with a small lobe on its back, and often on its front edge. The sixth upper behind, and the fifth even with the back edge of the front of the zygomatic arch.

Euotaria schisthyperoës, *Turner*.

Arctocephalus schisthyperoës, *Turner, Journ. Anat.*, 1868, 113, *f.* (skull).

Skull, palate narrow. The cutting teeth narrow, forming a short series.

Inhab. Cape of Good Hope.

Only known from the skull of a young animal evidently having an undeveloped palate, which is in the Museum of Edinburgh, and of which Professor Turner has kindly sent to the British Museum a beautiful cast.

I formerly thought that this skull might be an undeveloped specimen of *Arctocephalus antarcticus*, never having seen a young skull of that species, but having since had the opportunity of examining the skull of a young animal of *A. antarcticus* with perfect crowns to the grinders, it shows that this cannot be the young of it. It is said to come from the Cape; it differs from *Euotaria cinerea* in its narrower palate, and smaller cutting teeth.

Euotaria cinerea. The Australian Fur Seal.

Arctocephalus cinereus, *Gray, P.Z.S.*, 1873, 656, *f.* 1 and 2 (skull, misnamed *A. nigrescens*).

Otaria cinerea, *Quoy and Gaimard, Voy. Astrolabe, Mamm.*, 89, *tab.* 12, 13, 15.

Phoca ursina, *J. R. Forster, Descr. Anim.*, 64.

Sea Bear, Cook's second voyage.

Grinders short, thick; crowns short.

Inhab. Australia. Dusky Bay, New Zealand.

Euotaria nigrescens. The Southern Fur Seal.

Euotaria nigrescens, *Gray, A. & M. N. H.*, 1866, xviii., 236, 1868, 192.

Arctocephalus nigrescens, *Gray, P.Z.S.*, 1850, 100, and 360, 1872, 658, *f.* 4 (skull, misnamed *A. cinereus*).

Otaria falklandica, *Abbot, P.Z.S.*, 1868, 192.

Grinders compressed, crown elongate.

Inhab. Falkland Islands, Volunteer Rock (*Capt. Abbott*).

Euotaria latirostris. The broad nosed Sea Bear.

Arctocephalus nigrescens, *Gray, P.Z.S.*, 1872, 656 (not fig.)

Upper cutting teeth forming a broad line.

Inhab. Falkland Islands. Zool. Soc.

This species is only known from an adult skull without lower jaw or teeth, which was received from the Zoological Society as coming from the Falkland Islands, but it is most distinct from any other species in the Museum.

Euotaria falklandica. The Falkland Island Fur Seal.

Arctocephalus falklandicus, *Gray, A. & M. N. H.*, 1868, i., 103; *Suppl. Cat. Seals & Whales*, 25.

The Seal of Commerce (*Otaria falklandica*), *Hamilton, A. & M. N. H.*, 1838, ii., 81, *tab.* 41; *Jardine's Naturalists' Library.*

Falkland Seal, *Pennant Quadrupeds.*

Inhab. Falkland Islands (*Abbott*).

Only known from skins without skulls, which are very peculiar for the closeness and softness of the fur, and the abundance of the under fur. Dr. Hamilton gives a good account of the fishery of these Seals, and sent two specimens to the Museum of Edinburgh. Shaw gave the name of *Phoca falklandica*, Pennant *Otaria falklandica*, and Lesson *Otaria Houvillii*, and Fischer *Phoca Houvillii*, all from the same animal shortly noticed by Cuvier.

I have determined that the Seal described and figured by Mr. Hamilton is the one here described by the comparison of his specimens, which are now in the Edinburgh Museum, with the skins in the British Museum.

This is a most distinct species, and easily known from all the other Fur Seals in the British Museum by the evenness, shortness, closeness, and elasticity of the fur. The fur is soft enough to wear as a rich fur without the removal of the longer hairs which are always removed in the other Fur Seals.

Neophoca, *Gray.*

Ann. & Mag. Nat. Hist., 1866, xviii., 231.

Grinders $\frac{5\cdot5}{5\cdot5}$, the fifth upper grinder in a line with or before the front edge of the zygomatic arch.

Neophoca lobata. Australian Hair Seal.

Arctocephalus lobatus, *Gray, Spicel. Zool.*, 1828, *tab.* 4, *f.* 2 (teeth); *Cat. Seals & Whales*, 50.

Neophoca lobata, *Gray, Ann. & Mag. Nat. Hist.*, 1866, xviii., 231; *Suppl. Cat. Seals & Whales*, 28.

Otaria australis, *Quoy and Gaimard, Voy. Astrolabe, tab.* 10, 14.

Inhab. W. Australia, Houtman's Abrolhos Island (*Mr. Gilbert*).

Plate 16. Adult and young animal from stuffed skins. Plate 17, fig. 3-5. Different parts of the face of the skull of the same animal; both in the British Museum.

II.—MISCELLANEA.

Jacchus rufiventer. The red-bellied Marmozet.
Plate 18.

Midas rufiventer, *Gray, Ann. & Mag. Nat. Hist.* xii., 398, *P.Z.S.*, 1865; *Cat. Monkeys, &c., Brit. Mus.*, 66.

Midas elegantulus, *Slack, Proc. Acad. Nat. Sci. Philad.*, 1861, 463.

Black, hinder part of the back washed with ashy grey. The chest, belly, inside of limbs and the under-side of the base of the tail bright dark rufous. Tip of the nose and edges of the upper and lower lip white. Crown of the head with a rufous spot, and the nape grey.

Inhab. Mexico.

Scotophilus Gouldii. Gould's Scotophilus.
Plate 19, fig. 1.

Scotophilus Gouldii, *Gray, App. Grey's Narrative*, 406; *Gould, Mamm. Austr.* iii., *pl.* 40.

Blackish; hinder half of the back brownish; sides and abdomen brownish ash. Ears rather large, broad. Tragus half ovate. Under-side of the wings, and interfemoral membrane with lines of hairs.

Inhab. Australia, New South Wales, and Victoria.

Miniopteris morio. The plain Miniopterus.
Plate 19, fig. 2 (*Scotophilus morio*).

Scotophilus morio, *Gray, App. Grey's Narrative*, 405 (1841); *Gould, Mamm. Austr.* iii., *pl.* 41.

Back uniform brownish black, scarcely paler beneath. Cheeks nearly black. Underside of wings, and interfemoral membrane with lines of hairs. Heel-bone elongated, slender; Ears moderate, rounded. Tragus oblong, blunt.

Inhab. Australia.

Mr. Tomes, P.Z.S., 1858, 121, refers this species to the genus *Miniopteris*, and considers it a variety of *Miniopteris blepotis* of Java, and he considers *Vespertilio Eschscholtzii*, Waterh., from Amboyna, as a variety of the same species. It is said to be very much like *Miniopteris Schreibersii*, but the face appears more elongated, and rather more pointed, and the nostrils more prominent; the ears are somewhat longer.

Scotophilus Greyii. Captain Grey's Scotophilus.
Plate 20, fig. 2.

Scotophilus Greyii, *Gray*; *Gould, Mamm. Austr.* iii., *pl.* 45.

Inhab. Port Essington.

Scotophilus pumilus. The Dwarf Scotophilus.
Plate 20, fig. 1.

Scotophilus pumilus, *Gray, App. Grey's Narrative*, 403; *Gould, Mamm. Austr.* iii., *pl.* 46.

Grey-brown, base of the fur blackish, beneath paler. Cheeks blackish. Ears small, rather thin, longer than the fur. Tragus elongate, half as long as the ears, rounded at the end. Wings nearly bald, except near the arm-pit. Interfemoral membrane hairy at the base. Heel-bone elongate, two-thirds the length of the margin of the interfemoral membrane.

Inhab. Australia, New South Wales.

Mr. Tomes describes an allied species of a rather larger size from Australia under the name of *Scotophilus pumiloides*, P.Z.S., 1857, 51.

Nyctophilus Geoffroyi. The Nyctophile.
Plate 21, fig. 1.

Nyctophilus Geoffroyi, *Leach, Linn. Trans.* xiii., 73; *Temminck, Monogr.* ii., 47; *Tomes, P.Z.S.*, 1858, 29; *Gould, Mamm. Austr.* iii., *pl.* 36.

Fur of the upper part conspicuously bicoloured, black for nearly two-thirds of its length, the remainder being olive brown, with the extreme tips darker. Fur of the throat and flanks uniformly brownish white, of all the rest of the under part black at base and brownish white at the end.

Inhab. Western Australia.

Nyctophilus major. The larger Nyctophile.
Plate 21, fig. 2.

Mr. Tomes, since these figures were made, has described three species from Australia; *N. Timorensis*, from W. Australia, *N. Gouldii*, from Moreton Bay, *N. unicolor*, from Van Diemen's Land, and I am not quite sure to which of these species the above figure refers.

Mystacina tuberculata. The Mystacine.
Plate 22, fig. 1.

Mystacina tuberculata, *Gray, Cat. Mamm. B. M.* 34, 1843; *App. Dieffenb. Trav. N. Z.*, 296, 1843; *Zool. Voy. Sulphur* ii., 23; *Tomes, P.Z.S.*, 1857, 138.

Inhab. New Zealand.

I at first thought this was the little Bat named and figured as *Vespertilio tuberculata* by Forster, collected during Cook's voyages, the drawings of which are in the Banksian Library, British Museum, and of which Lichtenstein published Forster's MS. descriptions and notes in 1844, but Mr. Tomes, who has found in the British Museum two kinds of Bats from New Zealand, believes that the one which is a *Scotophilus* is the one which Forster described, on account of the number of incisors he indicates, and he describes it as *Scotophilus tuberculatus*, P.Z.S., 1857, 154, *pl.* 43, and he also describes and figures the one that I have described as *Mystacina tuberculata*, P.Z.S., 1857, 138, pl. 44.

Molossus Norfolkensis. The Norfolk Island Bull-dog Bat.
Plate 22, fig. 2.

Molossus australis, *Gray; Gould, Mamm. Austr.* iii., *pl.* 31.

Antechinus flavipes.
Plate 26, fig. 2.

Phascogale flavipes, *Waterh., P.Z.S.*, 1837, 75.

Antechinus flavipes, *Gould, Mamm. Austr.* i., *pl.* 40; *Kreft, P.Z.S.*, 1866, 432.

Fur brownish yellow, intermixed with black hair. Underside of body and limbs yellow. Throat whitish. Tail as long as the body, blackish, beneath yellow, clothed with short appressed hairs.

Inhab. New South Wales north of Hunter's River.

Antechinus Stuartii, MacLeay, Ann. & Mag. Nat. Hist. viii., 242, has been thought to be identical with this species, Waterh., N. H. Mamm. i., 419.

Antechinus affinis.
Plate 25, fig. 3.

Phascogale affinis, *Gray, App. Grey's Narrative*, 406.

Above brown, grizzled, with yellowish brown tips to the hairs; beneath grey-brown; under fur lead colour. Tail short. Male darker; length of body and head $6\frac{1}{2}$, tail $4\frac{1}{2}$ inches. Female, length of body and head $4\frac{1}{2}$, tail $2\frac{3}{4}$ inches.

Inhab. Tasman's Peninsular (*Gould*).

Mr. Waterhouse considers this species and *Phascogale minima* varieties of *Antechinus flavipes*.

Antechinus leucopus.
Plate 27, fig. 2.

Phascogale leucopus, *Gray, Ann. & Mag. Nat. Hist.*, x., 1842, 261.

Podabrus leucopus, *Gould, Mamm. Austr.* i., *pl.* 35.

Fur grey, washed with blackish, head rather redder. Lips, chin, throat, chest, inside of limbs, and feet white. Tail slender, lower half white, upper blackish brown. Ears large.

Inhab. Australia.

This species is distinguished from *P. leucogaster*, Gray, by the feet being white.

Antechinus crassicaudatus.
Plate 26, fig. 1.

Phascogale crassicaudata, *Gould, P.Z.S.*, 1844, 105.

Podabrus crassicaudatus, *Gould, Mamm. Austr.* i., *pl.* 47.

Fur moderately long and soft, above ash coloured with a yellow tint. Under-side of the body and feet pure white. Ears moderate, clothed with pale hairs, and with a large blackish spot externally. Eyes encircled with blackish

hairs. Tail short, much swollen, especially in the middle, and clothed throughout with minute pale hairs.

Inhab. Western Australia.

Size of the common mouse, and coloured like *Mus sylvaticus*.

Antechinus albipes.

Plate 27, fig. 1.

Phascogale albipes, *Waterh.*, *P.Z.S.*, 1842, 48.

Podabrus albipes, *Gould, Mamm. Austr.* i., *pl.* 43.

Fur extremely soft, upper part of body brownish, the hairs deep slate colour at the base, annulated with yellow, and with a black tip. Under-side of body greyish white, hairs deep grey with white tips. Feet white. Tail long, covered with many minute hairs, brownish above and paler beneath.

Inhab. Western Australia.

Antechinus Swainsonii.

Plate 25, fig. 1.

Phascogale Swainsonii, *Waterh.*, *Mag. Nat. Hist.* iv., 304.

Antechinus Swainsonii, *Gould, Mamm. Austr.* i., *pl.* 34.

Fur long, and moderately soft. Above brown, deeper on the hinder part of the back. Hairs annulated, and tipped with yellowish. Feet uniform dusty brown. Tail clothed with small appressed dusty brown hairs.

Inhab. Van. Diemen's Land.

Antechinus leucogaster.

Plate 25, fig. 2.

Phascogale leucogaster, *Gray, App. Grey's Narrative* ii., 407.

Antechinus leucogaster, *Gray, List Mamm. Brit. Mus.*, 99; *Gould, Mamm. Austr.*, i., *pl.* 38.

Fur rather soft, above dark brownish grey, tinted with rusty brown behind, and beset with numerous fine black hairs. Ears sparingly clothed with minute pale coloured hairs. Chin and under-surface greyish white. Tail dusky, darker at apex.

Inhab. W. Australia.

Antechinus apicalis.

Plate 27, fig. 3.

Phascogale apicalis, *Gray, Ann. & Mag. Nat. Hist.* ix. 508.

Antechinus apicalis, *Gray, List. Mamm. Brit. Mus.*, 99; *Gould, Mamm. Austr.* i., *pl.* 39.

Fur above reddish brown, interspersed with numerous black hairs, with white tips. Outside of fore and hind legs rufous, Chin and beneath whitish. Tail like back, blacker at tip, covered with rigid hairs.

Inhab. W. and S. Australia.

Phascogale calurus.

Plate 26, fig. 3.

Phascogale calurus, *Gould, P.Z.S.*, 1844, 105.

Phascogale calura, *Gould, Mamm., Austr., pl.* 32.

Cinereous, under-side and feet white, indistinctly yellow tinted. Tail longer than the body, the basal half with short rufous hairs, apical part with long black hairs. Ears large, with yellow hairs at the base.

Inhab. Western Australia.

Allied to *P. penicillata*, but smaller.

Hapalotis melanura.

Plate 29, fig. 2.

Hapalotis melanura, *Gould, P.Z.S.*; *Gray, List. Mamm. Brit. Mus.*, 1843, 115.

Fur harsh. Upper surface and sides sandy brown, with numerous long black hairs, the surface buffy white. Tail black.

Mr. Gould has described a somewhat similar species, which the British Museum has received, collected by Mr. Elsey in the interior of Australia, under the name of *Hapalotis hemileucura*, P.Z.S., 1857, 243, it differs from *H. melanura* in the tip of the tail being white.

Hapalotis albipes.

Plate 28, fig. 1.

Hapalotis albipes, *Lichtenstein, Darstellung, pl.* 29; *Gould, Mamm. Austr.* iii., *pl.* 1.

Conilurus constructor, *Ogilby, Linn. Trans.* xiii., 125.

Inhab. New Holland.

Hapalotis longicaudata.

Plate 29, fig. 1.

Hapalotis longicaudata, *Gould, P.Z.S.*, 1844, 104; *Mamm. Austr.* iii., *pl.* 8.

The upper surface and outside of limbs pale sandy, interspersed on the head and over the back with numerous fine black hairs, longer on the lower part of the back and rump. Ears naked, dark brown. Sides of muzzle, all the under-surface, and the inner surface of the limbs white. Tail clothed with short dark brown hairs at the base, with long black hairs tipped with white on the apical half of its length.

Inhab. W. Australia. Called "Kortung" and "Gootawas."

Smaller than *H. albipes*, but has a much longer tail and longer hind legs.

Hapalotis Richardsonii.

Plate 28, fig. 2.

Hapalotis Richardsonii, *Gray, Zool. Erebus and Terror, Mamm., pl.* 28, *fig.* 2, *ined.*

H. Mitchelli, *Gould, Mamm. Austr.* iii., *pl.* 9.

H. Gouldii, *Gould, P.Z.S.*, 1851, 127.

Inhab. W. and S. Australia.

Mr. Gould described an imperfect skin and skeleton, from Port Essington, under the name of *Mus hirsutus*.

In the Appendix to Grey's Travels in Australia, p. 403, and in the List of Mammals in the British Museum, I named these specimens *Hapalotis Gouldii*, since that time more perfect specimens have been received from the N. W. coast of Australia, and Mr. Gould notes them under the name of *Hapalotis hirsutus*, P.Z.S., 1851, 127, notices that it is the largest species of the genus, and erroneously retains the name of *H. Gouldii* for the one I named *H. Richardsonii*.

ON THE CETACEOUS ANIMALS.

It has been observed by Cuvier that the largest animals are most imperfectly known, arising from the impossibility of bringing the specimens side by side, and carefully comparing them with each other. If this is true of the land animals, it is particularly the case with the Whales, Dolphins, Bottlenoses, and other marine Mammalia, which can only be seen at distant periods, and often under most unpromising circumstances. For though we may have Elephants, Giraffes, Elands, &c. in our Zoological Gardens and Parks, there has no plan yet been discovered whereby we could preserve alive, even for a short time, any of the gigantic Whales or Cachalots, or even of the Dolphins.

Having been under the necessity of studying the subject for the purpose of putting into scientific order the materials brought home by this Expedition, and especially for the purpose of arranging and naming the extensive collection of specimens of these animals, and their osseous remains, in the British Museum; and thinking that I have been successful in elucidating some few points which appear to have escaped the Cuviers, almost the only modern authors who appear to have attempted an extensive and systematic examination of the subject, I have been induced to follow the plan adopted in the Seals; and throw the result of my labours into a synoptic revision of the species of the entire family.

In this examination I hope I have been able to arrange the species on more secure bases, and placed them together in more natural groups, with definite characters; but I make no doubt I have overlooked many things which I ought to have observed, and left much for my successors to accomplish.

I may add that our insular position, by enabling us more frequently to examine these animals, and the extensive trade which we formerly carried on in them, have caused our writers to be better acquainted with them, and for us to collect together a greater mass of their remains than our continental neighbours.

Belon and Rondelet appear to have known the Dolphin (*Delphinus Delphis*), the 'Ondre' (*D. Tursio*), and the Phocæna (*P. vulgaris*); but their account of the Spermaceti Whale is very indistinct.

Clusius, in 1605, first described and figured the Sperm Whale in a recognizable manner, from two specimens thrown on the coast of Holland in 1598 and 1601; and Johnston (t. 41 and 42) well figures one of these specimens.

In 1671, Martens, in his 'Voyage to Spitzbergen,' gave a description and figure of the Whalebone Whale, the "Fin Fish" (*Balænoptera Physalus*), the Weise Fish (*Beluga Catodon*), and of the Botzkopt (*Orca Gladiator*): and his figures of the first and second have been the chief authorities for these animals until our time.

In 1692, Sibbald published a small quarto pamphlet, with three plates, describing the Whales which had come under his observation. He divides them into three groups: — 1. The small Whales with teeth in both jaws, of which he notices three: — the Orca (*O. Gladiator*), the Beluga, and one from hear-say, which, from its size, was probably a Porpesse (*Phocæna vulgaris*). II. The larger Whales with teeth in both jaws: — 1, the Sperm Whale; and, 2, the Black-fish. And III. The Whale-bone Whales, of which he describes three specimens. The arrangement he proposed is the one used in this paper; and his work forms the ground-work of all that was known on the larger Cetacea up to the Linnæan time: but Artedi and Linnæus committed the mistake of regarding individual peculiarities resulting from accidental circumstances as specific distinctions, so that three of their species have to be reduced to synonyma.

In 1725, Dudley, in the 'Philosophical Transactions' (No. 387), describes all the Whales now recognized by the whalers, except the Black-fish; viz., 1. The Right or Whalebone Whale. 2. The Scrag Whale. 3. The Fin-back Whale. 4. Bunch or Hump-back Whale. And 5. The Spermaceti Whale. Cuvier, in his historical account, does not I think sufficiently estimate either Sibbald's or Dudley's contribution.

Bonnaterre, and after him Lacepède, in their Catalogues, collected together all the materials they could find, and ransacked every work that came in their way; and the latter especially formed a number of species on most insufficient authority: for example, making a genus on the otherwise good figure of the Sperm Whale figured by Anderson, because the artist had placed the spout on the hinder part of the head; and a division of a genus for the Fin-fish of Martens, because he did not notice in his description or figure the fold on the belly. Yet the characters given by

Lacepède, and genera formed by him, have been used in our latest works, some even in Cuvier's last edition of the 'Animal Kingdom;' and many of these species still encumber our Catalogues.

Cuvier, dissatisfied with this state of things, in his 'Ossemens Fossiles,' examined the various documents and consulted the authorities which had been used by Lacepède; but, unfortunately, instead of examining with diligence the various descriptions, and comparing the various figures and their proportions, &c., he appears to have undertaken the work with a predisposition to reduce the number of species which his predecessor had described, to the smallest number. Thus, he concludes that there are only eleven species of Dolphins, one Narwhal, one Hyperoodon, one Cachalot or Sperm Whale; and he appears to think there are only two Whalebone Whales, the Right Whale and the Finner. To make this reduction, he believes that the Hump-backed Whale of Dudley is only a Whale that has lost its fin, not recognizing that the *Cape Rorqual*, which he afterwards described from the fine skeleton now shown in the inner court of the Paris Museum, is one of this kind, and that the Black-fish and the Sperm Whale are the same species; an error which must have arisen from his not having observed that Sibbald had figured the former, for he accuses Sibbald of twice describing the Sperm Whale, and when he came to Schreiber's copy of Sibbald's figure, he thinks the figure represents a Dolphin which had lost its upper teeth, overlooking the peculiar form and posterior position of the dorsal fin, and the shape of the head, which is unlike that of any known Dolphin. This mistake is important, as it vitiates the greater part of Cuvier's criticism on the writings of Sibbald, Artedi, and others, on these animals. And unfortunately his views have been very generally adopted without re-examination, especially in the 'Catalogue of the Osteological Specimens in the Museum of the College of Surgeons,' p. 169. It is but right to observe that in making these remarks I do not in the least desire to underrate the great obligation we owe to Cuvier for the papers above referred to. It is to him that we are indebted for having placed the examination of the Whales on its right footing, and for directing our enquiries into the safe course on these animals, which only fall in our way at distant periods, and generally under very disadvantageous circumstances for accurate examination and study.

M. F. Cuvier's 'Cetacea' (Paris, 1836) is little more than an expansion of his brother's essays, with a compiled account of the species; but he has consulted with greater attention the works of Sibbald and Dudley, has some doubts about the finned Cachalots being the same as the Sperm Whale (p. 475), but at length gives up the subject. He has found out that the Hump-backed Whale is evidently a Rorqual (p. 305), but does not record it as a species, nor recognize it as the Cape Rorqual nor as Dr. Johnston's Whale; the latter he incorrectly considers the same as *B. Physalus*. He combines together as one species Quoy's short-finned Rorqual of the Falkland Islands with Lalande's long-finned Whale of the Cape, (p. 352). He is quite at sea about the hump of the Cachalots, (p. 279); his remarks on that subject, and on the Cachalots of Sibbald, show how dangerous it is for a naturalist to speculate beyond his knowledge.

Sir William Jardine's WHALES in the 'Naturalists' Library' is an abridgement of M. Lesson's miserable compilation, with some extracts from English writers on the subject.

Nor are the British species better known; for in Fleming's work they are left nearly in the same state they were in when Linnæus published his twelfth edition of the 'Systema Naturæ;' and Mr. Bell's account and figures are entirely derived from preceding authors, without any addition being made to our knowledge: while this revision, though not undertaken with any view to this subject has taken three or four species from our list, and determined the specific identity of one hitherto neglected, and added two or three species for the first time to our Fauna.

I am by no means convinced that all the species in the following Synopsis are distinct. It is rather to be regarded as a collection of the accounts of the Whales of different localities, derived from the materials at present at our command; and I have endeavoured to select from these sources what appeared to afford the best characters for defining them, so as to furnish to those naturalists who might enjoy the opportunity of observing the animals, a short abstract of what has been said with regard to them, and of referring them to where they could find a more detailed account of each kind. I have been induced to adopt this course, as wherever I have had the opportunity of examining and comparing the proportions of the allied species of distant seas, and of comparing their bones, they have invariably proved distinct, which leads me to believe that many of the other species of different countries, which have been regarded as the same, will be found to be distinct, though representatives of those found in other seas.

The CETACEA may be divided into the *Whales* (Cete), which are carnivorous, and the *Manates* or Mermaids, which are herbivorous.

I. CETE. Skin smooth, without hair. Limbs clawless, fore fin-like, hinder caudal, horizontal, forked. Teats 2, inguinal. Nostrils enlarged and close together, called blowers. Carnivorous. The group contains three families, the *Balænidæ*, *Physeteridæ*, and the *Delphinidæ*.

Fam. 1. BALÆNIDÆ. WHALEBONE WHALES.

Head very large, one-third the size of the body. Jaws toothless. Palate with crowded, transverse, triangular, pendant, horny plates (whalebone or baleen), with a fibrous inner edge, forming "a screening apparatus." Head shelving in front. Blowers far back, longitudinal, separate, each covered with a valve. Spout double. Gullet small. Eyes small, near angle of the mouth.

1. BALÆNA, Ray, Linn. RIGHT WHALES.

Head rather blunt, swollen. Throat and belly smooth, not plaited. Dorsal fin none.

These Whales yield the *train oil* of commerce; but *train* appears to be applied by the whalers as we use *drain:* they refer to the *train* of the blubber, when speaking of the oil of dolphins, &c., and appear to call all blubber-oil *train*, in contradiction to head-matter, or spermaceti, which Sibbald says is called "*whale-shot*" by the English; it is so called by the Dutch whalers.

* *Body smooth above.*

The RIGHT WHALE. Balæna mysticetus.

Balæna mysticetus, *Linn. S. N.* i. 105. *O. Fab.* 32. *Cuv. R. A.* i. 296. *Oss. Foss.* v. 361, *t.* 25, *f.* 9, 11, *t.* 26, *f.* 25.

The Right, or Whalebone Whale, *Dudley*, *Phil. Trans.* xxxiii. 256. *Scoresby*, *Arctic Regions*, i. 448, *t.* 12, *f.* 1.

B. Grœnlandica, *Linn.*

B. vulgaris, *Brisson.*

Head depressed, temporal bone narrow, oblique. There are two series of tubercles on each side of the lower lip; and according to Scoresby's figure, the head is $\frac{2}{7}$, the fins are $\frac{1}{3}$, the vent $\frac{2}{3}$, and the sexual organs $\frac{4}{7}$ from the head.

Females larger than the males.

Inhab. North Sea.

The Nord Caper, *Anderson*, B. Islandica, *Brisson*, B. glacialis, *Klein*, Nord Caper, *Bonnat. & Lacep. t.* 2, 3, does not appear to differ from the former. It is said to be thinner, and infested with Barnacles; this would lead one to think that it was established on a specimen out of health. Lacepède's figures above cited, from a drawing by Backstrom, communicated by Sir Joseph Banks, are the best figures of the Right Whale after Scoresby's.

Cuvier gives a figure of the skull of this species from the specimen in the British Museum. The nose of the skull is regularly and gradually arched above, rather wide behind, near the blow-hole, the nose and the intermaxillary bones regularly taper in front. The hinder end of the jaw-bones is obliquely produced behind, and the frontal bones are narrow, nearly linear, and oblique.—*Cuv. Oss. Foss.* v. *t.* 25, *f.* 9—11.

Mr. Pearsall informs me the fœtus of the Whalebone Whale in the Museum of the Hull Philosophical Society has no rudiment of whalebone on the palate, and the lips are very large, and longly depending over the sides of the under jaw. Camper (t. 1, f. 1, 2) figures the fœtus of this species, and the skull of a young specimen, t. 4—6.

A variety, or probably different species, is thus noticed by M. Guérin, a surgeon of a whaler.

The ROCK-NOSED WHALE is said "never to leave the coast, and even to make the circuit of the bays. The most important point (of difference) is the comparative size of the head and body. The head is always considerably more than $\frac{1}{3}$, while in the true *B. mysticetus* it is, as stated by Scoresby, less than $\frac{1}{3}$, or as 16 to 51. The whalebone is longer in comparison to the length of the animal, but the laminæ are thinner for their length, the body is broader and terminates more abruptly; the skin is dark velvet-brown, and has fewer spots and yields less oil. The whalers in general seem to think that it is merely a difference of age that causes this difference in their external characters, but cubs or sucklers are as often found amongst the Rock-noses as amongst the Middle Ice Whales; the former must have attained the age of maturity."—*Guérin, in Jameson's N. Edin. Phil. Jour.* 1845, 267.

The CAPE WHALE. Balæna australis.

Balæna australis, *Desmoulin*, *Dict. Class. H. N. t.* 140, *f.* 3, fœtus.

B. du Cap, *Cuv. Oss. Foss.* v. 368, *t.* 24, *t.* 25, *f.* 1—8, *t.* 26, *f.* 7, 11, 13, 23, *t.* 27, *f.* 10, 15, 24.

Skull convex, temporal bone broad, erect.

Inhab. South Sea, *Delalande.* Cape of Good Hope.

Skeleton and fœtus, Mus. Paris.

Cuvier gives the details of the skeleton of this species, and figures them. The nose of the skull is high, straight, and rather suddenly bent down in front; the nose and the intermaxillary bones contract in the middle, and then continue of the same width in front. The hinder part of the jaw-bones is nearly perpendicular, and the temporal bones are broad and erect.—*Cuv. Oss. Foss.* v. *t.* 25, *f.* 5—7.

Cuvier also figures the skull of a newly born specimen of the same species, only two feet long, which only differs in being shorter, lower, and in the hinder part of the jaw-bone being more slanting.—*Cuv. Oss. Foss.* v. *t.* 25, *f.* 1—3.

In False Bay they carry on the fishery from the shore, and during the time Mr. Warwick was there, only one bull out of sixty specimens was killed, the females coming into the bay to bring forth their young. He skinned one, which was supposed to be not more than eight or ten days old, and it was 20 feet long.

The JAPAN WHALE. Balæna Japonica.

Balæna australis, *Temm. Fauna Japon. t.* 28, 29.

Temminck's figure is black; the middle of the belly to the vent, and a spot on the chin and over the eye, white; the nose has a rounded prominence in front; the head is $\frac{2}{7}$ the entire length; the pectoral fin large, pointed.

Inhab. Japan.

They visit the coast periodically. The head is often covered with barnacles.

This species is only described from a model, made in porcelain clay by a Japanese, under the inspection of a Japanese whaler and M. Siebold; but no remains of the animal were brought to Europe. The figures in the 'Fauna Japonica' are from this model.

This is probably B. Japonica, *Lacepède*, *Mem. Mus.* iv. 473, from a Japanese drawing, which is white below. Lacepède also notices another Japanese drawing, in the same place, under the name of *B. lunulata*.

Lesson (Tab. Reg. Anim. 202) gives the name of "*B. antarctica* to the Right or Black Whale of the whalers of the antarctic seas."

The New Zealand Whale. Balæna antarctica.

Plate 1.

Balæna antarctica, *Gray*, *Dieff. New Zealand*, *t.* 1.

I described this species from a very accurate drawing of a specimen taken in Jackson Bay: it is very like Temminck's figure of *B. australis*, but there is a roundish prominence on the front of the under jaw similar to, as well as the one on the nose, figured in that species; the pectoral fin is, as in that species, about $\frac{2}{7}$ from the chin.

Chamisso figures a species of these animals as Balæna Kuliomoch, found in the Aleutian seas, from a wooden model made by the Aleutians; see N. Act. Nat. Cur. t. 17, f. 1. It is noticed as B. Culammak by Pallas, Zool. Ross. Asiat. i. 288.

** *Back knobbed.*

The Scrag Whale. Balæna gibbosa.

Balæna gibbosa, *Brisson*.

Besides these Dudley (Phil. Trans. xxxiii 259) described "*a Scrag Whale*," which he says "is near akin to the Fin-back, but instead of a fin upon its back, the ridge of the after part of its back is scragged, with half-a-dozen knobs or knuckles. He is nearest the *Right Whale* in figure and quantity of oil. His bone (whalebone) is white, but wont split."

Cuvier thought the Scrag Whale (*B. gibbosa*) was only a Rorqual (Oss. Foss. v. 267) which had been mutilated, but I suspect, from Dudley's account of the form, that it must be a *Balæna*, probably well known formerly.

Bonnaterre, and all succeeding authors, have referred to this genus, the *Hump-backed Whale* of Dudley, not understanding his description of the belly "being reeved," that is, plaited; they call it *B. nodosa*.

2. Megaptera. Hump-backed Whales.

Balænoptera, part, *Lacep.* B. nodosa, *Bonat.*

Head broad, moderate, flattened. Throat and chest with deep longitudinal folds. Dorsal fins low or tuberous, rather behind the middle of the body. The pectoral very large, $\frac{1}{3}$ to $\frac{1}{5}$ the entire length of the animal, as long as the head, consisting of only four fingers. The eyes rather above the angle of the mouth. The navel is rather before the front edge, the male organs under the back edge of the dorsal, and the vent rather nearer the tail, and the female organs are rather behind the back edge of the dorsal, with the vent at its hinder end. Skull, nose narrow, broad behind, and contracted in front. Temporal bone broad. Interorbital space wide. Lower jaw much arched.—*Cuv. Oss. Foss.* v. *t.* 26, *f.* 1, 3.

These Whales are easily known from the Finners (*Balænoptera*), in being shorter and more robust, the skull nearly $\frac{1}{4}$ the entire length, the head wider between the eyes, the mouth larger, the lip warty, and the nose large and rounded; the plaits of the belly and throat are broad; the dorsal is more forward, the pectoral larger and narrow, from $\frac{1}{3}$ to $\frac{1}{5}$ the length of the body, and the tail is wider, and the lobes generally more pointed.

The skull of this genus is intermediate in form between that of *Balæna* and *Balænoptera*.

This kind of Whale was noticed by Dudley (Phil. Trans. xxxiii. 258). He says, "the *Bunch* or *Hump-backed Whale* has a bunch standing in the place where the fin does in the Fin-back; this bunch is as big as a man's head and a foot high, shaped like a plug pointing backwards. The bone (whalebone) is not worth much, tho' somewhat better than the *Fin-back*. His fin (pectoral) is sometimes 18 feet long, and very white. Both *Fin-backs* and *Hump-backs* are shaped in reeves (folds) longitudinally from head to tail, on their belly and sides, as far as their fins, which are about half way up the sides."

This description is the origin of *Balæna nodosa* of Bonnaterre and other authors. The French authors have evidently not understood the word "reeves," and have therefore arranged these with the smooth-bellied finless whales, and Bonnaterre translates the position of the fins on the sides into "presque au milieu du corps." Dudley, when speaking of the Spermaceti Whale, says "he has a bunch on his back like a Hump-back," which explains what he means by a bunch.

These Hump-backs are well known to the whalers, for Beale says, "The Hump-back Whale possesses, like the Greenland Whale, the baleen, and spouts from the top of the head, yet has a hump not very dissimilar to that of the Sperm Whale."

Schlegel considers *Balæna longimana*, the Rorqual du Cap, and the drawing he received from Japan, as all belonging to a single species, though he owns there are differences between them; but then it is his custom to regard all the species which they have not in the Leyden Museum as the same as those they have, which has rendered his works on the geographical distribution of tortoises, snakes and other animals, far less valuable than they would be if it was not for this theory.

Cuvier (Oss. Foss. v. 367) thinks that the Hump-back Whale was probably only a Whale of another kind whose fins had been injured, not recognizing in the Cape Rorqual the genus of Whale here noticed.

Olafsen speaks of a Whale under the name of *Hnufubakr* (French translation, iii. 22), which is said to have a smooth belly, and a horn instead of a fin on the back; but the account of the animals in this work is evidently only a compilation, and this appears like an incorrect translation of Dudley.

Poeskop, or Cape Hump-back. Megaptera Poeskop.

Rorqual du Cap, *Cuv. Oss. Foss.* v. *t.* 26, *f.* 1—4 and 19, from Lalande's specimen.

Balænoptera Poeskop, *Desmoulin, Dict. Class. H. N.* iv. 160, from Lalande's MSS.

B. Lalandii, *Fischer, Syn.* 525, from Cuvier.

B. Capensis, *A. Smith*, from Cuvier.

Inhab. Cape of Good Hope, *Lalande.* Skeleton, *Mus. Paris.*

Laland's account was published by Desmoulin, who merely gives the following particulars, except what appears to be common to the genus. He says "it has a bosse on the occiput, and its dorsal is nearly over the pectoral," in the European and Bermudean figures it is over the end of these fins.

Cuvier's figures of the adult skull differ from Rudolphi's figure of *M. longimana*, in the intermaxillaries being narrower and contracted in front of the blowers, and then rather widened again and linear, and the temporal bone is broader and more triangular; which makes me believe it is a distinct species.

Johnston's Hump-backed Whale. Megaptera longimana.

Balæna longimana, *Rudolphi, Mem. Acad. Berl.* 1829, 133, *t.* 12, *mas*, cop. *Brandt and Ratzeburg, t.* 15, *f.* 2.

Whale, *Johnston, Trans. Newcastle N. H. Soc.* i. 6, *t.* 1, female on back.

Black, pectoral fin and beneath white, black varied; lower lip with 2 series of tubercles; pectoral nearly $\frac{1}{3}$ the entire length; dorsal elongate, the front edge over end of pectoral; throat and belly grooved.

Female, upper and lower lip with a series of tubercles; dorsal an obscure protuberance.—*Johnston, l. c. t.* 1.

Inhab. North Sea, mouth of the Maese, *Rudolphi.* Newcastle, *Johnston.*

Dr. Johnston's description chiefly differs from Rudolphi's in both lips having a row of tubercles, and in the dorsal being said to be a small obscure protuberance; but the animal laid on its back, sunk in the sand.

Rudolphi (*Berl. Abhand.* 1829, *t.* 1, 4) figures the bones of this species, with enlarged details of the skull. They nearly resemble the skull of the Cape Rorqual of Cuvier in form, but the nasal bones are broad and nearly of the same width from the front of the blow-holes to near the tip, where they gradually taper: the temporal appear more quadrangular.

Schlegel points out that Rudolphi, in his description of *B. longimana*, has confounded the figure of *Baleine du Cap* and *Rorqual du Cap*, of Cuvier's 'Ossemens Fossiles,' together; and that M. F. Cuvier has done the same thing, (*Faun. Japon.* 21, note).

Professor Eschricht, according to M. Schlegel, has found this species not uncommon on the shores of Greenland.—*Fauna Japonica*, 24.

Rudolphi, and after him Schlegel, refers *B. Boops*, O. Fabricius, to this genus, but the description does not bear them out. They must have overlooked the character furnished by the position of the sexual organs.

Schlegel refers the *Rorqualus minor* of Knox to this species, probably misled by the inaccurate figures of this species in Jardine's Nat. Lib. vi t. 6. See note on this figure under *Balænoptera Physalus.*

Bermuda Hump-back. Megaptera Americana.

I have a tracing of a *Bermuda Whale*, but do not know from whence it was derived, which is said to be common in that island. It is very like the figure of *Megaptera longimana*, but the dorsal fin is represented as lower, and the tail wider. This is doubtless the Whale described in Phil. Trans. i. 11, where an account is given of the method of taking it. It is described thus:—"Length of adult 88 feet; the pectoral 26 feet (rather less than $\frac{1}{3}$ the entire length), and the tail 23 feet broad. There are great bends (plaits) underneath from nose to the navel, sharp, like the ridge of a house behind, head pretty bluff, full of bumps on both sides, back black, belly white, and dorsal fin behind."

The Kuzira. Megaptera antarctica.

Balænoptera antarctica, *Tem. Faun. Jap. t.* 30.

Rorqual Noueux, *Voy. Pol Sud, t.* 24, *fem.* not descr.

Inhab. Japan and the Antarctic Seas.

Both these figures agree in having the dorsal smaller, and behind the middle of the back, and in having the pectoral fin rather shorter, in Temminck's less than $\frac{1}{4}$, and in the other about $\frac{1}{4}$ the entire length of the body. The Japan specimen has round warts on the nose and side of the throat, and the belly is plaited. The Antarctic one, on the contrary, has only warts on the upper part of the head, and the throat smooth, but the latter may be occasioned by its being rather more dilated. They grow to 60 feet long.

The figure in the 'Fauna Japonica' is from a drawing brought home by M. Siebold, not accompanied by remains. M. Siebold observes that the Japanese distinguish three varieties:—

1. *Sato Kuzira.* Black, nose more elongate and rounded, and the pectoral long, the belly and lower face of the pectoral are gray, with white rays.

2. *Nagasu Kuzira.* Paler, nose more pointed, the belly has 10 plaits. In both, the lower jaw is larger than the upper.

3. *Noso Kuzira.* Distinguished from the first because the back and fins are white-spotted.—*Faun. Jap.* 24.

Forster, in Cook's Voyage, appears to have met with a species of this genus between Terra del Fuego and Stratten Island. He says, "these huge animals lay on their backs, and with their long pectoral fins beat the surface of the sea, which caused a great noise, equal to the explosion of a swivel."

Lesson (Tab. Reg. Anim .202) gives the name of *B. leucopteron* to "the Hump-back of the whalers in the high southern latitudes."

Chamisso figures a species of this genus from the Aleutian seas, under the name of *Aliomoch* (N. Acta Nat. Cur. xii. 258, t. 18, f. 5), from a wooden model made by the Aleutians: and Pallas (Zool. Ross. Asiat.) calls it *Balæna Allamack.* The pectoral fins are long; they, and the underside of the tail are white.

This genus is also found in the seas of Java, for there is an imperfect skull, brought from that country by Professor Reinwardt, in the Leyden Museum.—*F. Japon.* 24.

Pallas, under the name of *B. Boops*? (Zool. Ross. Asiat. 291), describes a Whale which appears to belong to this genus, found at Behring's Straits by Steller, when he was shipwrecked. The head was $\frac{1}{4}$, the pectoral fin $\frac{1}{5}$, the entire length, and the vent $\frac{7}{10}$ from the head, as by the following measurement: — length, 50 feet; head, 12 feet; pectoral fin, 10 feet long and 5 feet wide; tail, 16 feet wide, and the vent 35 feet from the head. If these measurements are correct, the pectoral fin is shorter and much wider than they generally are in this genus. The position of the dorsal fin is not noted.

Pallas, in the 'Zoologia Ross. Asiat.' 293, described a Whale under the name of *B. musculus*, observed by Merle at Kamtschatka. It was long and slender, ash-brown, white-clouded above, snow-white beneath and spotted on the sides. It was 22 feet 6 long; the dorsal was 6 feet from the tail, and 1 foot 11 inches high, behind the fin the back was 2-keeled; the pectoral fin was rounded at the end, and 10 feet 7 inches distant from the tip of the beak, 4 feet 2 inches long and 1 foot 2 inches wide: behind the vent, 7 feet before the tail, and 3 feet from the vent is a white kind of fin, and the genital organs are 1 foot 3 inches before the vent. If this description and these measurements are correct, it must be a most distinct species, if not a peculiar genus: the pectoral fins are nearly in the middle of the body, and I know of no whale with a fin behind the vent beneath, and with the genital organs nearly under the pectorals. The pectoral is nearly $\frac{1}{5}$ the entire length.

Balænoptera, Lacep. Piked Whales.

Rorqualus, *F. Cuv.* Mysticetus, *Wagler.* Bal. tripennis, *Ray.* Physalis, *Flem.*

The head elongate, flattened. The throat and chest with deep longitudinal folds and very dilatile. The dorsal fin compressed, falcate. The pectoral moderate, not more than half the length of the head, of four fingers. The eye is near the angle of the mouth, and the blowers lunate, covered by a valve and separated by a longitudinal groove. The vent under the front of the dorsal fin. Male organs $\frac{2}{5}$ from the chin, in front of line of dorsal; female near vent.

Ray calls these *Balæna tripennis*, thus separating them from those which have no dorsal fin; but Polach misunderstood this, and says they have three fins on their back.

The skull is broad, depressed: nose broad, gradually tapering, with straight sides, with a narrow interorbital space.—*Cuv. Oss. Foss.* v. 373, *t.* 26.

The Piked Whale, or Finner. Balænoptera Physalus.

Balæna Physalus, B. Boops, and B. musculus, *Linn. S. N.* i. 106, from Martens and Sibbald.

B. gibbar, *Bonnat, Lacep. t.* 1, *f.* 2, cop. *Martens.*

B. jubartes, *Lacep. t.* 4, *f.* 1, from *Sibbald, t.* 1, *f.* D.

B. Rorqual, *Lacep. t.* 5, *f.* 1, *t.* 6.

B. Boops, or B. rostrata, *Blumb. Abh. t.* 74.

B. rostrata, *Muller, Dan.* ii. *O. Fab. F. G.* 40. *Ravin, Ann. Sci. Nat. n. s.* v. *t.* 11, *mas,* xv. *t.* 9. *Hunter, Phil. Trans.* lxxiii. *t.* 20, *fem.* cop. *E. M. t.* 4. *Brandt & Ratzeburgh, t.* 15, *f.* 3, 4, *mas et fem. Scoresby, t.* 13.

Fin-back Whale, *Dudley, Phil. Trans.* xxxii. 258.

Balæna sulcata arctica, *Schlegel, Abh.* i. 39, *t.* 6.

Balænoptera arctica, *Schlegel, Abh.* ii. 10, *t.* 9, male.

Balænoptera acuto-rostrata, *Lacep. Cetac. t.* 8.

Rorqual de la Mediterranée, *Cuvier, Oss. Foss.* v. 372, *t.* 26, *f.* 5. *Lacep. Cetac. t.* 67.

Balæna antiquorum, *Fischer, Syn.* from *Cuv. Oss. Foss.*

B. Boops, *F. Cuv. Cetac.* 321, *t.* 20, cop. *Lacep. t.* 8.

Great Northern Rorqual, *Jardine, Nat. Lib. t.* 5, cop. *Bell, Brit. Quad. f.* 190, from Ostend Whale.

Blackish lead-coloured, pectoral fin and lips blackish, chin, under part of body below the pectoral fin, and large spot on upper part of pectoral white.

Pectoral, $\frac{1}{3}$ or $\frac{1}{10}$ the entire length.

Inhab. North Seas. English and Scotch coast, not uncommon.

The anatomy of this animal, and especially a description of its bones, have been given in *Albers. Anat. Comp. t.* 1. *Camper, Cetacea, t.* 11 *and* 12. *Cuv. Oss. Foss.* v. 564, *t.* 26, *f.* 5. *M. Ravin, Ann. Sci. Nat. Van Breda, Van der Linden,* and *J. Dubar,* in separate pamphlets on the specimens ashore at Ostend.

Cuvier (Oss. Foss. v. t. 26) figured the head of this Whale under the name of Rorqual de la Mediterranée. The upper jaw is much narrower than the lower, which is considerably arched. In his figure the upper jaws from the back of the blowers are nearly three times as long as the width at the part of the nose in the front of the orbit; it is gradually tapering in front, the sides being straight.

M. Ravin (Ann. Sci. Nat. n. s. xv. t. 9) also figures the skull; but although it generally resembles Cuvier's figure above quoted, it is shorter and broader in proportion, being only twice the length of the width of the jaws in front of the orbit.

	♂ Sibbald.	♂ Ravin.	♂ Schlegel.	♀ Van Breda.	♀ Scoresby.	♀ Hunter.	♀ British Museum.
Length, entire	78·0	42·0	40·0	25·0	17·6	17 0	14·0
... to mouth				4·8		3·3	2·8
... to pectoral	19·7	10 ?	12·0	6·9	5·0	6	4·10
... to navel			21	13·7			
... to genital organ			25·0	16·3			
... to vent or front of dorsal,	62·0	30·0	28·0	18·1	12·6	12·3	9·8
... of dorsal fin		3·0			1·3	1·0	
... of pectoral fin	10	4·4	3·7	3·1	2·0	2·4	1·10
Breadth of pectoral	2,6	1 3		0·68	0·7	0·9	0·11
... of tail	10	8·4			4·6	5·0	

The older specimens, viz., Sibbald's male, 78, Ravin's, 42, and Schlegel's, 40, and Van Breda of Ostend's female, 82 feet long, have the pectoral fin about $\frac{1}{4}$ the length from the head, and from $\frac{1}{3}$ to $\frac{1}{10}$ (probably as the inner or outer edge is measured) of the entire length of the body, in lengths, and the dorsal about $\frac{3}{4}$ the entire length from the nose. It would appear as if the middle of the body lengthened more rapidly than the other parts as it grew, at least the young females are shorter in proportion; for Scoresby's female, 17 feet 6 inches, Hunter's, 17 feet, and one I measured at Deptford, now in the British Museum, 14 feet long, have the pectoral rather less than $\frac{1}{3}$ the entire length,

and the dorsal and vent only about $\frac{2}{3}$ of the entire length, from the chin, so that the interspace between the pectoral and dorsal must have doubled its length, while those fins retained their original situations with regard to the head and tail.

Sibbald (Phalainologia Nova, 1692) figures two specimens of this genus caught on the coast of Scotland. Ray (Hist. Piscium, 17) notices these specimens; and Brisson and Linnæus have regarded them as separate species. Linnæus designated the one with the skin under the throat dilated *Balæna musculus*, and the other, with this part contracted and flat, *B. Boops*. Now, as I proved by the examination of the specimen we have in the British Museum, when alive, and as M. Ravin observes (Ann. Sci. Nat. v. 275) this skin is very dilatable, so that these characters appear to depend on the manner in which the specimen might lay when drawn. Ray, and after him Brisson and Linnæus, established a third species, *B. Physalus* (S. N. i. 186) on the Fin-fish of Martens (Spitz. 125, t. Q, f. c) copied E. M. t. 2, f. 2, which well represents our species; yet as there are no folds on the belly in the figure, it has been regarded by most authors as distinct from the *B. rostrata* of Muller and Hunter; but the name used by Martens, which is the one now given by the Greenland whalers, to the Whale under consideration, I think at once shows that it properly belongs to that species: and Martens neither mentions the colour, nor says a word about the belly; and Scoresby, who calls it *B. gibbar*, after Bonnaterre, says from report that the "skin is smooth, except about the sides of the thorax, where longitudinal rugæ or sulci occur," which at least must be a *Balænoptera*. Lacepède formed the Fin-fish of Martens, the Hunch-back and Scrag Whale of Dudley, into a section, which he calls *Rorqual à ventre lisse*. The Hunch-back has a "reeved" or plaited belly, and the Scrag Whale is shaped like, and doubtless is, a true *Balæna;* yet these species are kept together in Fischer, and other modern systematic works: and Dr. Fleming has made Lacepede's section into a genus, under the name of *Physalis*.

The skeleton of the young "*Balæna Boops*" (No. 1194, Mus. Col. Surg.) which formed part of the Hunterian collection, and is probably the skeleton of the *B. rostrata* described by him (as the head is about 4 feet long, which agrees with the measurements of his figure of the animal) belongs to this species, and has the lower jaws expanding considerably beyond the nose of the skull. Albers (Icon. Anat. 1822, t. 1) figures, under the name of *B. Boops*, the skeleton of a Whale cast ashore at Vegisack near Bremen, in 1669. The length was 29 feet; length of pectoral fin 3, width of tail 9. Camper (Cetac. 74, t. 11, 12) figures the skull of this specimen. Cuvier says he compared this skull with the one from St. Marguerite's, figured by Lacepede, and could see no difference between them. Alber's figures would lead to the idea that the lower jaw was scarcely wider than the upper; but this is corrected by Camper. M. Cuvier's *Rorqual de la Mediterranée* is founded on the skull of a whale described by Lacepède (Cetac. t. 5—7) which was stranded near the Isle of Marguerite in 1797. Lacepède gives the following measurement, viz., length, 60 feet; length to the pectoral, 14 feet 6 inches; from thence to dorsal, 10 feet 9 inches; and from dorsal to caudal, 8 feet 9 inches: but there must be some mistake, as this makes only 34 feet. The pectoral was 5 feet long, and all black. M. F. Cuvier regards this specimen as the type of *B. musculus* (Cetac. 334).

M. Van Beneden found by examining the ear-bone brought from Island by M. Quoy, that it belonged to the Rorqual de la Mediterranée of Cuvier (see Ann. Sci. Nat. n. s. vi. 159), not knowing that this is the commonest species of the North Sea.

M. F. Cuvier's Cetacea also refers to the Mediterranean Rorqual (*B. musculus*), a male Whale described by M. Companyo, which was cast ashore near St. Cyprien, which, from the account of the large size of the lower jaw, must belong to this species. It was 25,060 meters (82 feet) entire length; the head 5,038 meters (16 feet); length of pectoral 2,010 (13 feet). It had 7 cervical, 14 dorsal, 15 lumbar, and about 25 caudal vertebræ, in all 61. It was dark gray, with the throat and the sides of the pectoral white, the belly blue and white banded, pectoral grayish.

Dr. Knox notices a specimen of a Whale found off N. Berwick which was 80 feet long, the head 23 feet and the tail 20 feet wide from tip to tip (Edin. N. Phil. Jour. 1833, 181). The skeleton of this whale is now in Dr. Knox's Museum, and is figured in Jardine's 'Naturalist's Library,' vi. t. 5. Dr. Knox describes it as having 13 dorsal and 43 lumbar, sacral and caudal vertebræ, (Edin. N. Phil. Journ. 1834, 198).

Dr. Knox examined a young Rorqual, 9 feet 11 inches long, 3 feet from snout to ear, and 4 feet 8 inches in girth, at the end of the folds, which was cast ashore near Queensferry, Frith of Forth, in 1834. He considers it quite distinct from the Great Rorqual (*B. Boops*), because it has only 11 dorsal, 36 lumbar, sacral and caudal vertebræ, but he considers it the same as *B. rostrata* of O. Fabricius, Hunter and Scoresby (Edin. N. Phil. Jour. 1834, 199). Dr. Knox's specimen is figured by Jardine under the name of the Lesser Rorqual (Nat. Lib. vi. t. 7). Schlegel (Fauna Japon. 24, and Abhand. 44) refers to this figure as a representation of *Balænaptera antarctica*, but I cannot think correctly, for though the pectoral in the figures is larger in proportion than they should be for a *Balænoptera*, they are not of the shape of the fins of *Megapteræ*, and the artist of this work was more intent on making pretty pictures than accurate figures of the animals, and has made the fins of both the animal and skeleton of the larger Rorquals too large in proportion for the other parts of the body, and perhaps the length of the body is fore-shortened. The figure in other respects is a pretty accurate representation of a young common Finner. It is to be remarked that Dr. Knox does not mention the length of the pectoral fins, which he would have done if it had been a *Megaptera*.

Dr. Knox found 8 distinct bristles arranged in perpendicular rows on the extremity of the snout, in each jaw, (Knox, Edin. N. Phil. Journ. 1834); and Van Breda says there is a small tuft of 9 much-divided hairs, about a foot long, and united by a membrane at the base, observed at the end of the nose of the specimen he described.

Pallas, under the name of *B. Physalus*, (Zool. Ross. As. 290), described a specimen of this genus found in the North

Sea in 1740. It was 84 feet long; the pectoral, 9, the head 22 feet long, and the tail 14 feet wide. He describes the skin as brown.

The following description must be referred to this species with doubt.

Ascanius (Icon. Rer. Nat. iii. t. 26) gives a figure of a female *Balænoptera*, which he calls a Rorqual with a plaited belly, 66 feet long, from the North Sea, which he thought might be *B. musculus* of Linnæus, (it is not well copied by Bonnaterre E. M. t. 3, f. 1 and Schreber, t.), which has a larger pectoral fin, about $\frac{2}{9}$ the length of the body, but the drawing is not so good as the others in the work, and the fin is so awkwardly applied to the body, that perhaps its size may depend on the incompetence of the artist. The dorsal fin, which is only indicated as if doubtful in the original figure, is continued to the tail, but in Bonnaterre's copy it is represented as of equal authority with the other part. I may remark that the pectoral fin, instead of having the white spot occupying the greater part of its upper side, which is spoken of by Hunter, Ravin, and F. Cuvier, and found in our specimen, is represented dark like the back, with a pale edge. It is also to be observed that Schlegel, in the three figures he gives of the Rorqual Whale, represents the pectoral fin as all black, like the back.

Fabricius (Faun. Groen. 37) five years after, described a *Balænoptera* under the name of *B. Boops*, Linn. which appears to differ from *B. Physalus*, for he described the "Pinnæ pectorales magnæ, obovato-oblongæ, margine postica integra, regione cubiti parum fractæ, antica autem rotundato-crenatæ." And he continues, "Antes nares in vertice capitis tres ordines convexitatum circularium, huic forsitan peculiare quid," "Pinna dorsalis compressa, basi latior, apice acutiuscula, antice sursum repanda, postice fere perpendicularis," and "Corpus pone pinnam dorsalem incipit carina acuta in pinnam caudalem usque pergens." This, from the size of the pectorals, may be the same as the one figured by Ascanius. Both are true *Balænopteræ*, from the position of the genital organs and vent compared with the dorsal fin, and Fabricius especially says the pectoral fin is composed of five fingers.

Rudolphi's Finner Whale. Balænoptera laticeps.

Balæna rostrata, *Rudolphi*, *Berl. Abhand.* 1820, *t.* 1—4.

Rorqual du Nord, *Cuvier*, *Oss. Foss.* v. 564, *t.* 26, *f.* 6. copied from Rudolphi.

Black, beneath white; upper jaws wide, in the skull only twice as long as the width of their base in front of the orbits, the lower ones slightly curved and scarcely wider than the edge of the upper ones. Pectoral fin $\frac{1}{8}$ the entire length, and rather more than $\frac{1}{3}$, and the dorsal nearly $\frac{5}{4}$, from the nose.

Inhab. North Sea, coast of Holstein, 1819, *Rudolphi*.

The length was 31 feet 1; from nose to the eye, 2,9; to blower, 3,11; to pectoral, 3,6½; to the front of the dorsal, 19,2; to the vent, 21 feet.

Cuvier copies the figure of the head of this Whale as that of the Northern Rorqual, and points out its distinctions from that which he had received from the Mediterranean, which agrees with the head of the *Balæna rostrata* of Hunter, the one we have from Deptford, and with M. Ravin's animal, and that found on the shores of Ostend. It is very desirable that Rudolphi's skeleton should be more particularly examined and compared with the other species: in the figures, the nasal bones are much broader than in the common Finner, *Balænoptera Physalus*.

The Peruvian Finner. Balænoptera fasciata.

Bal. n. s. *Tschudi*, *Mammal. Consp. Peruana*, 13.

"Lower jaw scarcely longer than the upper; head and back ash-brown; belly whitish; tips of fins and a streak from the eye to the middle of the body white." *Tschudi*.

Inhab. Coast of Peru.

The Japan Finner. Balænoptera Iwasi.

Balænoptera arctica, *Schlegel*, *Faun. Japon.* 26.

A species of this genus is known in Japan under the name of *Iwasi Kuzira*. It is very rare. One was cast ashore in 1760 at Kii, which was about 25 feet long: black, belly whitish, sides white-spotted. They distinguish it from the other Whales by the head being smaller, narrower and more pointed, and the pectoral shorter. It was driven ashore by the *Sakanata* (grampus). No remains of this species were brought home by M. Siebold. Temminck's 'Fauna Japonica' says that it is the same as the northern species. It is very desirable that the bones of the Japan and northern specimens should be accurately compared. It may be observed that several animals, the Mole and the Badger for example, were said to be equally like the European species, but recent research has shown they are distinct, and are now so allowed in the 'Fauna Japonica.'

This genus also inhabits the Columbian shores. Lewis and Clarke mention the skeleton of a Rorqual found near the Columbia river, 105 feet long.—*Travels*, 422.

Chamisso, in his accounts of the wooden models of Whales which were made by the Aleutians, of the species found in their seas, which he deposited in the Berlin Museum, and described and figured in the *N. Acta Nat. Cur.* xii. 212, figures three kinds of this genus, viz., *Abugulich*, t. 16, f. 2; *Mangidach*, t. 16, f. 3; and *Agamachtschich*, t. 18, f. 4, the *B. Agamachschik*, Pallas, Z. Ross. t. *a*.

If reliance is to be placed in the wooden models made by the Aleutians, which have been described and figured by Chamisso, and many of them are not bad representations of known genera. There is a genus found at Kamschatka which has not yet been described: it is called Balæna Tschickagluk by Pallas, *Zool. Ross. Asiat.* i. 289. — *Nov. Act. Nat. Cur.* 259, *t.* 19, *f.* 6. It has no dorsal fin, and a smooth belly and chest; the upper and lower part of the under portion of the body is slightly keeled, the head rounded, like *Balænoptera*, with the blower on the hinder part of the crown. The lower side of the tail and the pectoral are white.

*** "*Male Organs under the Dorsal.*"

Southern Finner. Balænoptera australis.

B. Quoyii, *Fischer*, *Syn.* 526.

B. rostrata australis, *Desmoulin*, *Dict. Cl. H. N.* ii. 166.

Inhab. Falkland Islands.

Desmoulin (Dict. Class. H. Nat. i. 164), under the name of *Balæna rostrata australis*, described a Whale seen by

M. Quoy on the shores of Falkland Islands, which he says was exactly like *B. Physalus*. It was 55 feet long, and the pectoral fin 6 feet 3 inches, that is, about $\frac{1}{8}$ the entire length, the same as in *Balænoptera Physalus*, but he says the dorsal fin was over the male organ, a character which as far as I know is peculiar to the Hump-backed Whale, thus presenting a combination of characters which, if correct, will not only prove it to be a distinct species, but one forming a section by itself.

Fam. 2. Catodontidæ. Toothed Whales.

Head large. Upper jaw toothless; lower jaw with conical teeth fitting into cavities in the edge of the upper one. Blowers united together, with a lunate opening.

1. Catodon, part, Artedi. Spermaceti Whale.

Physeter, part, *Linn.* Physalus, *Lacep.*

Head truncated and rather compressed in front, with the blowers close together on the front of the upper edge, separated from the head by an indentation. Nose of skull elongate, broad, depressed, Lower jaw shorter than the upper one, very narrow, cylindrical in front, and united by a symphysis for nearly half their length. Back with a roundish tubercle in front, over the eyes, called the "bunch," and a rounded ridge of fat behind, highest in front over the genital organs, called the "hump," and continued in a ridge to the tail. No true dorsal fin. Pectoral broad, truncated. Teeth conical, often worn down. Males larger than the females.

Clusius describes the blowers as placed on the head near the back, and Artedi and Linnæus adopt this error in their character of *Physeter macrocephalus*. Anderson (Iceland, ii. 186, t. 4) gives a figure of a Whale with a truncated head, much resembling the old figures of the Sperm Whale, with the blower on the hinder part of the head, like a *Physeter*. Bonnaterre established on this figure his *Physeter cylindrus*; and Lacepède forms a genus for it, which he calls *Physalus*. The Dutch engraving of the animal described by Clusius, shows this to have been a mistake.

The bunch and hump referred to by Beale and the other whalers, appears first to have been described by T. Hasæus of Breme, in 1723, in a dissertation on the 'Leviathan of Job and the Whale of Jonas;' on "a specimen 70 feet long, with a very large head, the lower jaw 16 feet long, with 52 pointed teeth, with a boss on the back, and another near the tail, which resembles a fin." Cuvier, after quoting this very accurate description, observes, "Mais d'apres l'observation fait sur divers dauphins, cette disposition que personne n'a revue pourroit avoir été accidentelle, et alors cet animal n'auroit differe en rien du Cachalot vulgaire."—*Oss. Foss.* v. 331. Indeed Cuvier's mind appears to have been made up that the Sperm Whale had no hump in the place of the dorsal fin, for he wrongly accuses Bonnaterre of having added a tubercle in his copy of Anderson's figure, which is not in the original.—*Oss. Foss.* 332. Anderson, in the description of this animal, says that it has a prominence four feet long and a foot and a half high near its tail, as in his figure. But the fact was that Cuvier erroneously combined the Sperm Whale and the Black-fish (*Physeter*) together; and he could not otherwise reconcile how some authors, as Haseus, Anderson and Pennant, described the Sperm Whale with a hump; while Sibbald describes the *Physeter*, which he erroneously considered the same animal, with a dorsal fin, overlooking at the same time the great difference in the form of the head, and in the position of the blower of these two very dissimilar genera.—*Oss. Foss.* 338.

From the following extract it would appear that Mr. Bell has most unaccountably fallen into the same mistake. He says, — "After careful examination of the various accounts which have from time to time been given of Whales belonging to this family, called *Spermaceti Whales*, I have found it necessary to adopt an opinion in some measure at variance with those of most previous writers, with regard to the genera and species to which all those accounts and details are to be referred. The conclusion to which I have been led is, first, that the *High-finned Cachalot* is specifically but not generically distinct from the common one, and that therefore the genus *Catodon* is to be abolished, and the name *Physeter* retained for both species, and secondly, that all the other species which have been distinguished by various naturalists, have been founded upon trifling variations, or upon vague and insufficient data."—*Brit. Quad.* 507. Thus, though he differs from Cuvier in regarding them as distinct species, yet he overlooked Sibbald's figures, for he says there is none of the High-finned Cachalot in existence, and persists in keeping it in the genus *Physeter*, which he characterizes as having the "Head enormously large, truncated in front," which is quite unlike the depressed rounded head of the high-finned Cachalot, or Black-fish of the whalers; and he also adopts the mistaken description of the dorsal fin.

The Northern Sperm Whale. Catodon macrocephalus.

Spermaceti Whale, *Dudley, Phil. Trans.* xxxii. 258.

Blunt-head Cachalot, *Robertson, Phil. Trans.* lx. *t.*

Balæna macrocephala bipinnis, *Sibbald, Phal.* 13. *Raii, Pisces*, 15, 11.

Physeter Catodon, *O. Fab.* 44, *and Robertson*, not *Linn.*

Ph. Trumpo, *Bonnat. Cetac. t.* 8, *f.* 1, from *Robertson.*

Physeter macrocephalus, *Linn. S. N., O. Fab. F. Groen.* 41.

Physeter gibbus, *Schreb.*

Inhab. North Sea, Teignmouth, *Gesner*, 1532. Scotland, *Sibbald, Robertson.* Greenland, *O. Fab.* &c. New England, *Dudley.*

It is to be remarked that all the older writers only describe this animal as occurring in the Northern Seas, and Robertson and Fabricius described it as black when young, becoming whitish below.

All the figures, except Anderson's, are, by the unanimous experience of the whalers, far too long for the thickness, and Anderson's scarcely represents the "bunch" sufficiently prominent; besides having the blower on the wrong part of the head.

Beale (Hist. of the Sperm Whale) says there is but one species found in the North Sea, North America, New Guinea, Japan or Peru; but this is merely speaking the language of whalers, and by species he means, as he does in the other parts of his book, genus. I have no doubt, from

analogy of other Whales, that when we shall have had the opportunity of accurately comparing the bones and the various proportions of the parts of the northern and southern kinds, we shall find them distinct. Wishing to call attention to this subject for future examination, I may observe that Beale (*N. H. Sperm Whale*, 22, *f.* 1, 14) describes the Southern Sperm Whale as grey. Female one-fifth the size and bulk of the males, more slender and large in proportion. Young black, skin thicker. Varies sometimes black and gray mottled.

Quoy gives an engraving of a drawing of a Sperm Whale, which was given him by an English captain, which is probably the Southern Whale. He calls it *Physeter polycyphus* (and Desmoulin re-names it *P. australis*) because its back appears to be broken into a series of humps by cross ridges. In this particular it agrees with the Scrag Whale of Dudley (on which Bonnaterre established his *B. gibbosa*); but it cannot be that animal, as Dudley says it is a Whalebone Whale. Quoy's figure differs from Beale's in being much longer, but as Beale observes, when speaking of the figures of the northern kind, this is the common fault of all the drawings of the Sperm Whales.

Colnet, in his Voyage, p. 80, f. 9, (copied by Brandt and Ratzeburg, t. 14, f. 3) gives a very good figure of a Sperm Whale, 15 feet long, from measurements; with details of the manner of flenching or peeling it. It agrees with Beale's in proportions. It was caught in the North Pacific near Point Angles, on the coast of Mexico. This figure escaped Cuvier's researches.

Purchas says the Sperm Whale is found at Bermuda, where it is called Trumpo, a name which Lacepède applied to the northern animal; and Dudley describes those found on the east coast of North America.

The Japanese distinguish three varieties of this animal, according to their size. They live in herds on the Japanese coast.—*Faun. Japon.*

Upper jaw in British Museum: —

Length, entire, ...	179	inches.
„ of beak, ...	127	
Width at notch, ...	67	
„ at middle of beak, ...	52	

Lower jaws in British Museum: —

	No. 1.	No. 2.	No. 3.
Entire length, ...	157 inches.	92 inches.	51 inches.
Length of teeth-groove, ...		....	29
„ symphysis,	85	44	21½
Teeth on each side,	23	21	19
Width at condyle,	....	....	31

In these, the beak is not quite twice the length of the breadth at the notch, and more than ⅔ the length of the entire head. The lower jaw appears to increase in length in front, for in the older specimens the symphysis is more, and the younger ones less, than half the entire length of the jaw.

There is the head of a very young specimen, probably a fœtus of this animal, in the Museum of the College of Surgeons: the bones are of a very soft structure. The following are its measurements: —

Length, entire, ...	32	inches.
„ of nose, ...	20	
„ of lower jaw, ...	28	
„ of symphysis, ...	9·6	
Width at notch of nose, ...	12·6	
„ of condyles apart,	16·6	

Camper (Cetac. t. 17, 20—22, from the church of Scherclinge, t. 18, 19, 27, Mus. Paris), figured the skull of this Whale. He represents the nose of the skull as nearly twice and a half as long as the width at the notch.

II. Kogia. Short-headed Whales.

Head moderate, broad, triangular. Lower jaw wide behind, slender, united by a short symphysis in front. Jaw bone of skull broad, triangular, as broad as long.

This genus is intermediate between *Catodon* and *Delphinus*.

The Short-headed Whale. Kogia breviceps.

Physeter breviceps, *Blainv. Ann. Anat. Phys.* iii. t. 15.

Inhab. Cape of Good Hope, *Mus. Paris.*

Of this species only a single skull is known, which M. de Blainville thus described.

Skull very broad and high, the frontal crest very distinct, and the nasal pit very deep, rather like that of the Cachalot. Nose very short and pointed, very rapidly tapering, only 1 inch longer than the breadth of the occipital bone. The lower jaw is very wide apart at the condyles, bent sharply inwards, and united in front by a moderate symphysis, and very narrow but rounded at the end. Teeth 14 or 15, narrow, slender, conical, acute and rather arched inwardly. Length of the skull 14 inches 6 lines. Lower jaw 13 inches, separation at the condyles 12 inches, symphysis about ⅔ of the length of the lower jaw. Beak the length of the width at the notch.

This skull bears no resemblance to the skull of the young Sperm Whale.

III. Physeter, *Artedi.* The Black-fish, or Cachalot.

Physeter, part, *Linn. &c.* Cetus, *Brisson.*

Head rounded, convex above; upper jaw longest; the blowers on the middle of the top the head, separate, "covered with one flap," (*Sibbald*); pectoral fin moderate, triangular; dorsal fin high, falcate; teeth conical, compressed; the male organ is under the front edge of the dorsal, and the vent nearly under its hinder edge.

They produce spermaceti according to Sibbald, but this is denied by Beale; eat Porpesses and small Cetacea, and even attack the larger Whales and Seals.

Cuvier, in his 'History and Examination of the Synonyma of the Cachalots or Sperm Whales' (Oss. Foss. v. 328, 338), regards the description of this animal given by Sibbald as merely a redescription of the Sperm Whale, and finds great fault with Artedi, Bonnaterre, and others, for having considered them as separate; and he regards the second blunt-toothed specimen as either a *Delphinus globiceps*, or a *D. Tursio*, which had lost its upper teeth; this error is important, as it vitiates many of his remarks. To have come to these conclusions he must have overlooked Sibbald's figure, with ample details, of the first, and of the teeth of the second, which must have at once shown

him his error. That he did so is certain; for when he comes to Schreber's reduced copy of Sibbald's figures of the first (p. 337), he says Schreber does not indicate its origin, but here he goes on to remark of what he has before regarded as a Sperm Whale, "from the form of its lower jaw it most resembles a large Dolphin which had lost its upper teeth."

Thus, while he was reducing the numerous species of Sperm Whales that had been made by Bonnaterre, Lacepède, and other compiling French authors, to a single species, he has inadvertently confounded with it the very distinct genus of Black-fish, or *Physeter* of Artedi, which has a perfectly differently formed head, its top flatter, and with the blow-hole on the hinder part of its crown, and with a distinct dorsal fin, particulars, all well described by Sibbald and O. Fabricius, two original and most accurate observers, and conscientious recorders, and not badly represented by Bayer.

Some parts of Sibbald's description, and his reference to Jonston's figure, might lead to this error, but his figures, which exactly agree in proportion with his description, at once set this at rest, the drawing being $\frac{1}{7\frac{1}{2}}$ of the natural size, that is to say, 6 feet to an inch; and he observes that his animal is longer and more slender than Willoughby's figure of the Sperm Whale.

J. Bayer (Act. Nat. Cur. 1733, III, 1, t. 1) gives a rather fanciful but very recognizable figure of a male specimen of this genus, which was thrown ashore at Nice, on the 10th of Nov., 1736, where it is called *Mular*. He compared it with Clusius' description of the whale which was stranded on the coast of Holland, and observes that it has a dorsal fin, very small pectorals, and other characters not noticed by Clusius; and he says it agrees in all points with the Whale noticed by Ray (Syn. Pisc. 14), which is extracted from Sibbald as above quoted: and F. Cuvier remarks on this figure, "Elle est en effect d'un Cachalot; mais elle le rend de la maniere la moins fidele."—*Cetac.* 267.

The Black-fish. Physeter Tursio.

Physeter Tursio, *Linn. S. N.* i. 107, from

Balæna macrocephala, *Sibbald*, *Phal. t.* i. *f.* 5, copied P. microps, *Schreber*, *t.* 339, also *Anderson*, *Ice.* 248, *f.*

Black-fish, *Beale*, *H. Sperm Whale*, 11.

Ph. microps, *Linn. S. N.* i. 107. *O. Fab. Faun. Groenl.* 44, from

B. macrocephala, *n.* 2. *Sibbald*, *Phal.* 13, *t.* 2, *f.* 1, 2, 4, 5, teeth.

Ph. Mular, *Bonnat. Cet.* 17.

Mular, *Bayer*, *Act. Nat. Cur.* III, *t.* 1, male.

Ph. orthodon, *Lacep. Cet.* 236, from *Anderson*, 246.

Delphinus Bayeri, *Risso*, *Eur. Merid.* iii. *F. Cuv. Cetac.* 224.

Black. Teeth 11 to 22 on each side, conical, compressed; head nearly $\frac{1}{4}$, pectoral fin $\frac{1}{13}$ the entire length; the length 50—60 feet.

Inhab. North Sea. Greenland, common, *O. Fab.* Scotland, *Sibbald.* Nice, *Bayer.*

The only zoologists who appear to have had the opportunity of seeing and describing this Whale are Sibbald and O. Fabricius. Bayer appears only to have had the drawing sent to him. This species has been divided into two, according to the more or less truncated state of its teeth. I shall quote their descriptions, somewhat abridged.

Fabricius says it "has in the lower jaw 22 teeth, 11 on each side, arched, falciform, hollow internally as far as the point, projecting scarcely a third part (and this visible part is enamelled, compressed-conical, with the point sharp, curved inwardly and at the same time verging a little backwards; but the concealed part broader and having two parts, compressed anteriorly and posteriorly, and, especially on the side nearest the throat, channelled); of the length of a finger, and $1\frac{1}{2}$ inch broad, the middle ones larger, the anterior and posterior smaller. Beak rather obtuse. Beside the pectoral fins it has a long, erect, dorsal fin. In size, it is to be considered as amongst the smaller Whales. Skin glabrous, black; the fat thick, but little oily; flesh red."—*Fabricius*, *Faun. Groenl.*

Sibbald observes that "the superior part of the body was swelled to a prodigious size. In length it was 52 or 53 feet, its height 12 feet, its girth above 32 feet. Its head was so large that it was (the tail being removed) half the length of the whole body. In form it was oblong-round, somewhat compressed in the upper part; inferior part of rostrum beyond lower jaw $2\frac{1}{2}$ feet, the superior part nearly 5. Lower jaw 10 feet long. The extreme part of the rostrum was distant 12 feet from the eyes, which were very small for the size of the head, about the size of those of the haddock. A little above the middle of the rostrum is a lobe, which is called "the lum," with two entrances covered with one operculum, called the "flap." The size of the cranium may be estimated by the fact that four men were seen inside it at one time, extracting the brain, which contained several cells or alveoli, like those which bees keep their honey in, and in these were round masses of a white substance, which, upon examination, were proved to be sperm. Some of this substance was also found externally on the head, in some parts to the thickness of 2 feet. In the superior jaw were 42 alveoli, hollowed out for receiving the teeth of the lower jaw; they were of a cartilaginous nature. In the inferior mandible there were 42 teeth, 21 on each side, all of the same form, which was like that of a sickle, round and a little compressed, thicker and more arched in the middle, and gradually becoming thinner, terminating superiorly in an acute cone turning inwards. Inferiorly it becomes thinner, and terminates in a more slender root, which is narrower in the middle. Of these teeth those in the middle of the jaw are larger and heavier, those external are smaller. One of the larger, 9 inches long, weighed $18\frac{1}{2}$ oz., and at the thickest end was of the same length as breadth. The smallest tooth which I got was 7 inches long and 5 in girth. The osseous part of these teeth projected 3 inches beyond the gums, was like polished ivory, smooth and white, the fang of each tooth was provided with a large cavity, which was so constructed that in the larger teeth there was a cavity 3 inches deep. It had 2 lateral fins, each about 4 feet long, and besides these a long fin on the back. Colour of skin black. The throat was observed to be larger than usual in whales. Only one stomach was found."

Of the *Aidlait*, which this species is said to be called in Greenland, wonderful stories are told: the following is not the most extraordinary. "Where these appear all the seals disappear, else they make desperate slaughter among them, for they have such sagacity and skill in catching them with the mouth and fins, that they are sometimes seen loaded with five at a time, one in the mouth, a couple under each fin and one under the back fin."—*Crantz, Greenland*, i. 116.

Sibbald describes the comparatively small triangular dorsal to be erect, like a "Mizam mast," which Artedi and Linnæus translate *pinna altissima*, and caused Shaw to call it the High-finned Cachalot. Dr. Fleming by mistake calls this species the Spermaceti Whale (Brit. A. 38); and he refers to *P. macrocephalus* (Linn.), as the true Sperm Whale figured by Robertson. Sibbald, in speaking of another specimen, says, "*spinam dorso longam*," as correctly quoted by Artedi and Linnæus, but used by them in opposition to the *altissima* of their other species.

Colnett (Voy. S. Pacific) speaks of innumerable shoals of Black-fish on the shores of California.

Mr. Warwick informs me that there is a stuffed specimen of this Whale perambulating this country in three caravans; unfortunately I have never had the opportunity of seeing it.

There is an etching of Van den Veld, of a "Pot Walwesk op Noortwijek op Zee, 28 Dec. 1614," which I think represents this species.

In the Catalogue of the Museum of the College of Surgeons the truncated Whales' teeth are called "the teeth of the High-finned Cachalot, *P. Tursio?*" p. 171, n. 1189—1194. And the small jaws of the Sperm Whale are called "the Lesser Cachalot (*Physeter Catodon*, Linn.)" Duhamel (Pech. iv. t. 9, f. 2) figured a whale from the "River Gabon" in Guinea, with teeth in the lower jaw, a dorsal on the hinder part of the back, and the blowers in the crown, as in this genus; but the jaws are equal, and the mouth bent up at the angles to the eyes. He says it is called *Grampus* by the English.

Fam. 3. Delphinidæ. Dolphins.

Head moderate. Teeth in both jaws, rarely rudimentary and early deciduous. Blowers united together, opening in a single transverse or lunate opening on the crown of the head.

This family is easily known from the Toothed Whales, or *Catodontidæ*, by the smaller and more proportionate head; and in those species which have lost their upper teeth at an early age, by there being no regular series of pits in the gum of the upper jaw for the reception of the teeth of the lower one: and also by the hinder part of the skull not being deeply concave, and surrounded on the sides and behind by a high ridge.

These animals when first born are large compared with the size of the parents, (according to Dr. Knox, the fœtus of the porpesse is half the length, that is, one fourth the size of the parent before it is born, *Trans. Roy. Soc. Ed.* ii. 208); and they appear to attain their full size very rapidly, which may account for the very slight difference to be observed in the size of the skull, and the great uniformity in the number, and in the space which the series of teeth occupy upon the edge of the jaws in different specimens of the same species. Hunter thought the exact number of teeth in any species was uncertain; observing the teeth in the middle of each series were the largest and the most firmly fixed, he states his belief that "the jaws increased posteriorly and decay at the symphysis, and while the growth is going on, there is a constant succession of new teeth, by which means the new-formed teeth are proportioned to the jaw."—*Phil. Trans.* 1788, 398. Dr. Fleming, from the examination of the jaws of two porpoises of different ages, thinks "the jaws lengthen at the symphysis and at the base;" and that the new teeth formed at these places are the smallest, and that there is no absorption."—*Fleming, Phil. Zool.* ii. 208. This may be the case with the specimens before they arrive at their full size; but no skull of this kind has fallen under my observation: and as far as my experience will carry me, I have found the numbers, size, and disposition of the teeth, one of the most important characters for the determination of the species and the definition of genera. M. F. Cuvier's remarks (*Cetac.* 103, 104) on the teeth as the characters of genera are not consistent with my observations, but I have found them quite as characteristic of the different genera as those of other orders of Mammalia, though they do not present so many different forms. At the same time, it is true, that compilers like Lesson, who have not taken the trouble to examine a single skull, have made far too many genera. And I may also observe that the genera *Phocæna* and *Delphinapterus*, as formed and adopted by the Cuviers are founded on very slight characters, and bring together species that have very little relation to each other. I have found it necessary, for the purpose of more distinctly defining the species, to divide them into into several new groups, which has enabled me to arrange them into what appears to be a more natural series, and to more nearly circumscribe the genera.

My thanks are due to Dr. Richardson of Haslar, to Mr. Brightwell and the Committee of the Norwich Philosophical Society, and to Mr. Bell, for allowing me to have at the Museum for comparison the specimens of these animals in the collections under their care; and to Mr. Owen and the Council of the College of Surgeons, and to Mr. Fraser and the Council of the Zoological Society, for permission to examine the skulls in their Museums.

The family is divided into sections by the form of the skull, and these into genera by the form and disposition of the teeth, and by the absence and presence of the dorsal fin.

A. *Jaw-bones dilated on each side behind.*
   - *a.* Pectoral fin tapering. Jaw-bones produced and bent up before the orbits. Teeth few. *Hyperoodontina.*
   - *b.* Pectoral fin truncated. Jaw-bone produced, bent up over the orbits. Teeth many. *Platanistina.*

B. *Jaw-bone not bent up behind.*
   - *a.* Wing of jaw-bone horizontal. Head produced into a beak. Teeth numerous. *Delphinina.*
   - *b.* Wing of the jaw-bone horizontal. Head rounded. Teeth numerous. *Orcadina.*

c. Wing of the jaw-bone and beak shelved downwards. *Monocerina.*

Having, since the above table was in type, had the opportunity of examining the skulls of *Ziphius Inia*, &c., I am induced to propose the following arrangement as more consistent with their natural distribution :—

A. *Jaws tapering, the symphysis of the lower jaw short (not half the length of the jaw). Dorsal fin generally distinct.* Marine.

a. Upper jaw toothless, lower jaw with only one or two teeth on each side, often hidden in the gums. Beak of skull keeled or winged on the side. *Hyperoodontina.*

b. Upper and lower jaw with few or deciduous teeth. Wings of jaw-bone shelving downwards. *Monoceratina.*

c. Upper and lower jaw with many teeth. Wings of jaw-bone horizontal. *Delphinina.*

B. *Jaws much compressed, the symphysis of the lower very long, more than half the length ; dorsal none ; teeth in both jaws.* Fluviatile.

d. Wings of jaw-bone bent up in front. *Platanistina.*

e. Wing of jaw expanded. *Iniina.*

A. *Jaws tapering, the symphysis of the lower jaw short, not half the length of the jaw. Dorsal fin generally distinct. Pectoral fin ovate acute.* Marine.

a. *Upper jaw toothless, lower jaw with only one or two teeth (which are often hidden in the gums) on each side. Beak of the skull keeled on each side, the keel being sometimes large, and forming a large kind of reflexed wing on each side.* Hyperoodontina.

Synopsis of the Genera.

1. Hyperoodon.—The beak of the upper jaw with a large erect wing-like expansion in front of the blowers, lower jaw with two rudimentary teeth in front.

2. Ziphius. — Beak of upper jaw keeled on each side, lower jaw broad, with large compressed teeth in the middle of each side.

3. Delphinorhynchus. — Beak of upper jaw keeled on each side, lower jaw with two or three small, rudimentary, conical teeth in the middle of each side.

Hyperoodon, Lacep.

Delphinus, part, *Lacep.* Uranodon, *Illiger.* Nodus, *Wagler.* Aodon, *Lesson.* Cetodiodon, *Jacob.*

Upper jaw toothless ; lower jaw with a small, conical, acute, rudimentary, moveable tooth, in a cavity under the gums, on each side of the front part. Blowers linear, transverse, sub-lunate.

According to Voight and Wesmael, the ends of the blowers, as in other Dolphins, point forward. Dale, Baussard and Doumet describe them as pointing backwards; Desmarest and others assumed the latter as a generic character. Illiger's genus, *Uranodon*, depends on the hard sharp points said to be found in the palate by Baussard. Wesmael did not find them in his specimen.

This genus is at once known from *Delphinorhynchus*, without examining the skull, by the head being more convex and rounded in front, and the two teeth being situated in the front end of the lower jaw, while in that genus they are in the middle of each side.

The descriptions of the species of this genus are so different, that I am inclined to keep them distinct, for the purpose of calling attention to them. Cuvier regarded them all as one.

* *Dorsal fin in the centre of the back.* Hyperoodon, *Lacep.* Uranodon, *Illiger.*

The Bottle-head. Hyperoodon Butskopf.

Tab.

1. Hyperoodon Butskopf, *Lacep. Cetac.* 319; from *Baussard, Jour. Phys.* xxxiv. 201, *t.* copied *F. Cuv. Cetac.* 241, *t.* 17, *f.* 1, *t.* 11, *f.* 1, cop.

Delphinus? edentatus, *Schreb. Saugth. t.* 347.

D. Hyperoodon, *Desm. Mam.* 521.

D. Honfloriensis, *Desm.*

D. Butskopf, *Bonnat.* 25.

2. Bottle-head, or Flounder's Head, *Dale, Hist. Harwich*, 411, *t.* 149, cop.

Beaked Whale, *Penn. Brit. Zool. t.*

Black, beneath lead-coloured; dorsal fin central; lower jaw with 2 pointed teeth in front, sunk in the gums; "palate with acute hard points;" blowers transverse, lunate, with the convexity in front.

Inhab. North Sea. Harwich, *Dale.*

	Baussard.				Dale.	
	Adult.		Young.		Female.	Male.
Length, entire, ...	23·6	ft.	12·6	ft.	13 ft.	18 ft.
„ of beak, ...			0·5			
„ to blower	4·4		1·11			
„ of head, ...	1·4					
„ of pectoral,	2·0		1·0			
„ to dorsal fin,	13·6		7·8			
Length of dorsal fin,	2·0		1·0			
„ to vent,			7·10			
Width of pectoral,	1·3		7·			
„ of caudal, ...	6·10		3·2			
Circumference, ...	15·7		8·0			
„ of head,	8·7					
Height of dorsal, ...	1·3		7.			

Lacepède called the genus *Hyperoodon*, and Illiger *Uranodon*, because of the teeth on the palate described by Baussard. They have not been observed on the other specimens; and Illiger, in his generic character, by mistake says the two teeth are in the upper jaw, (*Gen.* 143).

Heterodon Dalei (Lesson), is not from Dale's, but from Blainville's account of *Delphinorhynchus micropterus.*

Lacepède placed this species as the type of his *Hyperoodon*, and refers *Delphinus bidentatus* to *Delphinus?*

F. Cuvier considers Hunter's and Baussard's as incontestibly the same species, taking no notice of the position of the dorsal (*Cetac.* 242). Dale does not mention the teeth, but they are only to be seen when the flesh is removed.

** *Dorsal Fin behind the middle of the back, triangular.*

The Beaked Hyperoodon. Hyperoodon rostratum.

Blackish; pectoral nearly $\frac{1}{3}$, and dorsal $\frac{2}{3}$ the length from the tip of the beak; blowers lunate, concave in front.

Var. 1. Black above and below; vertebræ 46, 11 lumbar and 19 caudal. "Blowers concave towards the head, rather in front of the eye; palate smooth;" *Wesmael.*

Inhab. North Sea.

Hyperoodon rostratum, *Wesmael, Acad. Brux.* 1840, xiii. *t.* 1, 2.

Balæna rostrata, *Chemnitz, Berlin Besch.* iv. 183, hence Delphinus Chemnitzianus, *Blainv.*

Length, entire, ...	6·70	meters.
„ to blowers, ...	1·24	
„ to eye, ...	1·06	
„ to point of dorsal,	4·40	
„ of pectoral, ...	0·70	
„ to vent, ...	5·17	
Breadth of pectoral, ...	1·40	
„ of face, ...	0·86	
Circumference, ...	3·76	

Var. 2. Blackish brown, beneath brownish white. Vertebræ 45; 12 lumbar and 17 caudal, *F. Cuv.*

Bottle-nose Whale of Dale, *Hunter, Phil. Trans.* lxxvii. *t.* 19, copied *Bonnat. Cetac. t.* 11, *f.* 3. *Bell, Brit. Quad.* 292, *f.*

Delphinus Hunteri, *Desm.*

D. diodon, *Lacep.*

D. bidentatus, *Bonnat. from Hunter.*

Hyperoodon, *Cuv. Oss. Foss.* v. 321, *t.* 24, *f.* 19, 21, copied from

B. à museau pointu, *Camper, Cetac.* 78, *t.* 13—16.

Cetodiodon Hunteri, *Jacob, Dublin Phil. Jour.* 1825, *t.*

Hyperoodon, *Thompson, Mag. N. Hist.* 1838, 221. *Annals & Mag. N. H.* 1846.

Inhab. North Sea. Thames, *Hunter.* Humber, *Thompson.*

Length, entire, 21 feet. Skeleton, *Mus. Col. Surg.*

The skull of this specimen is about 45 inches long, and the elevated plates of the maxillary bone are thin, leaving a broad space between them, in front of the blowers, and as high as the frontal crest.

By the kindness of my friends, Mr. Pearson, of the Hull Philosophical Society, Mr. Ball, of Dublin, and Mr. W. Thompson, of Belfast, who have sent me various detailed drawings of the head of the *Hyperoodons* taken off the British and Irish coasts, in their possession; they appear all to belong to one species, the same as Hunter's specimens in the College of Surgeons, and the skull figured by Camper and Cuvier. These materials have made me quite satisfied that the skull of *H. latifrons* must be the remains of a perfectly distinct species: it not only differs from this in the thickness and solidity of the crest, but in the crest being much higher than the hinder part of the skull, while in all the heads referred to, the crest is of the same height with the frontal ridge. The skeleton which has lately been added to the Anatomical Museum of Paris agrees with the above-named specimens in these particulars.

Var. 3. Blackish gray, paler on the belly and round the eyes; upper part of lower jaw yellowish marbled; teeth none; the edge of the lower jaw shuts into a corresponding groove in the upper jaw; blowers lunate, with the concavity in front, exactly over the eye, 6 in. by 3.

Hyperoodon, "*Voight's Mem. t.* " *F. Cuv. Cetac.* 245.

Inhab. North Sea, *Kiel.* Skull, *Kiel. Bot. Gard.*

Length, entire, ...	20·6	feet.
„ of beak, ...	1·9	
„ to eye, ...	4·2	
„ fr. blower to dorsal	12·0	
„ of dorsal, ...	1·8	
„ of pectoral, ...	2·10	
„ fr. dorsal to caudal	6·2	
Breadth of beak, ...	1·0	
„ of pectoral, ...	0·8	
„ of tail, ...	6·2	
Height of dorsal, ...	1·4	
Circumference, ...	13·0	

The dorsal fin is said to be 12 feet from the blower, but that makes the body too long for the measurement.

Desmarest and Lesson have mistaken the upper for the lower jaw, in Chemnitz' description, (*Desm. Mam.* 520. *Lesson, Mam.* 427. *Cetac.* 120); and M. F. Cuvier has not well understood it, as pointed out by M. Wesmael, *l. c.*, and Illiger makes the same mistake with regard to his species.

This species has been well described by M. Dumortier and by Mr. W. Thompson, of Belfast, in the 'Annals and Magazine of Natural History,' 1846.

Physeter bidens (Sowerby) has been referred to this genus, but the form of the head and position of the fins, the teeth, and the form of the skull, show it is a *Ziphius.*

The Corsican Hyperoodon. Hyperoodon Doumetii.

Hyperoodon, *Doumet, Bul. Soc. Cuvier.* 1842, 207, *t.* 1, *f.* 2.

Jaws paved with acute tubercles; dorsal $\frac{3}{4}$ the length from the tip of the jaws: blowers lunate, with the convexity in front.

Inhab. Corsica.

"Jaws toothless, but paved with small, long and acute tubercular granulations; lower jaw with 2 rather longish, acute, slightly arched and longitudinally grooved teeth in front; larynx with a kind of funnel at the base of the tongue, like the beak of a duck, or rather of a spoonbill, $5\frac{3}{4}$ inches long; gape small; beak conical; eyes small, near middle of head; blowers lunate, with the points directed backwards; pectoral fin 19 inches long, $6\frac{3}{4}$ wide; dorsal nearly 8 inches high, $49\frac{1}{2}$ inches from the tail; the tail is broad, lobes equal." *Doumet.*

According to this description the dorsal fin of this species must be further back than in any other of the genus, and the pavement of the jaws is quite peculiar. It agrees with Dale and Baussard's descriptions in the form of the blower, but differs from them in the position of the dorsal.

*** *Dorsal fin posterior, oblong, truncated at the end? Jaws curved up.* Diodon, *Lesson.*

Desmarest's Hyperoodon. Hyperoodon Desmarestii.

Delphinus Desmarestii, *Risso, Europ. Merid.* iii. 24, *t.* 2, *f.* 3. *F. Cuv. Cetac.* 159.

Inhab. Nice, common, March and September.

"Steel-gray, with numerous, irregular, white streaks, beneath white; body thicker in the middle; tail slender, long, keeled, rounded on the belly; head not swollen, ending in a long nose; upper jaw shorter, toothless, lower much longer, bent up, and with two large conical teeth at the end; teeth nicked near the tip; the eyes small, oval; blowers large, semilunar; pectoral fins short, dorsal rather beyond the middle of the back, nearly above the vent; the caudal fin broad, festooned. Length nearly 16 feet. It differs from *D. Diodon* of Hunter in the forehead not being swollen, and in the lower jaw being produced and bent up, the pectoral being pointed, the dorsal more obtuse, and the body being white-streaked."

This species is only known by the above account extracted from Risso. F. Cuvier placed it in the restricted genus *Delphinus*. Risso appears more correctly to have compared it with *Hyperoodon*, but it differs from that genus in several particulars, especially in the form of the forehead and of the dorsal fin.

Lesson (Tab. R. A. 200) forms of this species, with *Physeter bidens*, Sowerby, the subgenus *Diodon*.

The Heavy-headed Hyperoodon. Hyperoodon latifrons.

Tab.

Skull large, heavy, solid, the reflexed part of the maxillary bones very thick and thickened internally, so as nearly to touch each other in front of the blower, much higher than the hinder part of the skull.

Inhab. North Sea. Orkneys, *Brit. Mus.*

This head is so different from any of those figured by Camper, Cuvier, Baussard &c., that I am inclined to consider it as distinct. Its measurements are as follows:—

Length of skull (wanting the end) 62 inches.
Height of skull behind, ... 42 inches.

Delphinus densirostris, *Desm. Nouv. Dict. N.* ix. 178. *Mam.* 522, note.

Only described from a fragment of a jaw, 9 inches long, 2½ inches high, and 2 inches broad at the widest part, straight, pyramidical, triangular at the end, and without any teeth or cavity for any tooth in the lower jaw. It is very heavy and dense. Probably the end of a *Hyperoodon*.

One of these species may probably be the Goose-beaked Whale of Pontoppidan, *Hist. Nat. Norway, chap.* v. 123, 124, *f.*

Ziphius, Cuvier, Oss. Foss.

Diodon, *Lesson, Bell.* Anodon, *Lesson.*

Head contracted behind; nose produced, not separated from the forehead; eyes moderate; blowers on crown lunate; teeth two, large, compressed, in the middle of the lower jaw; throat with two diverging furrows; body elongate; pectoral fins small, low down, oval, tapering; dorsal falcate, behind the middle of the body; skull-nose elongated, produced, keeled on each side; skull-cavity small; forehead high; hinder wing of the maxilla expanded, horizontal; palate smooth; lower jaw broad behind, narrowed and bent down in front of the large lateral teeth.

This genus is very like *Delphinorhynchus*, but is easily known by the peculiar form and large size of the teeth in the middle of each side of the lower jaw. Cuvier established the genus on three fossil fragments of heads:

1. Z. curvirostris, *Cuv. Oss. Foss.* v. 350, *t.* 27, *f.* 3.
2. Z. latirostris, *Cuv. Oss. Foss.* v. 352, *t.* 27, *f.* 4—8.
3. Z. longirostris, *Cuv. Oss. Foss.* v. 356, *t.* 27, *f.* 9, 10.

Cuvier remarks, describing the first head, that "cette tête a, comme on voit, de grands rapports avec le Cachalot, et encore de plus grands avec l'Hyperoodon. Elle ne diffère de ce dernier que parce que les maxillaires ne redressent point sur les côtés du museau en cloisons verticales, et que l'espece de mur de derrière les narines ne se borne pas à s'elever verticalment, mais qu'il se recourbe pour former un demi dome au dessus de les cavités."—*Oss. Foss.* v. 352.

Sowerby's Ziphius. Ziphius Sowerbiensis.

Tab.

Physeter bidens, *Sowerby, Brit. Mis. t. Icon. ined. Mus. Brit. t.*

Diodon bidens, *Bell, Brit. Quad.* 497, *fig. cop. Sowerby.*

Delphinus Sowerbii, *Jardin, Nat. Lib. t.* 12, *cop. Sowerby.*

D. Sowerbiensis, *Blainv.*

D. Sowerbeyi, *Desm.*

Delphinorhynchus bidens, *Gray, Ann. & Mag. N. H.* 1846.

Black, gray beneath; lower jaw moderately broad behind, and gradually narrower and slightly bent down in front of the teeth.

Inhab. North Sea. Elginshire, *Brodie*, 1800.

Length of entire animal 16 feet, circumference 11 feet.

Besides the beautiful figure engraved in Sowerby's 'British Miscellany,' there is a drawing of the head as sent by Mr. Brodie, made by Mr. Sowerby, and exhibited by him at one of Sir Joseph Banks's Sunday-evening parties, now preserved in the Banksian collection in the British Museum. The skull was preserved in Mr. Sowerby's Museum, in Mead's Place, and when distributed at his death, Mr. James Sowerby informs me it was purchased by the Rev. Dr. Buckland, the Dean of Westminster, and sent to one of the museums in Oxford. I have examined these collections with Mr. Hugh Strickland, but have not been able to discover it. Fortunately, while in Mr. Sowerby's possession, M. De Blainville, when on a visit to England, made a slight sketch of the skull, which I discovered in his portfolio, and he has kindly sent me a tracing of this sketch (which has been reduced in tab.), which has enabled me to determine that it belongs to the genus *Ziphius* of Cuvier, before only known in a fossil state. Before I was so fortunate as to discover the drawing of the skull, I was induced to regard this species, from the lateral position of the teeth, to be the same as the *Delphinorhynchus microp-*

terus, of the coast of France and Belgium (see Ann. & Mag. N. H. 1846), believing that the difference in the size of the teeth, (which Mr. James Sowerby remarks appear to indicate) to be only a peculiarity produced probably by the age of the specimen, instead of being, as it has proved to be, a distinctive character of the genus.

I have ventured, in reducing M. De Blainville's tracing, to reverse the position of the skull, as the part now uppermost, appears to me evidently to be the top of the head.

The Sechelle Ziphius. Ziphius Sechellensis.

Tab. Fig.

Ziphius de Seychelles (*M. Le Duc*, 1839), Mus. Paris.

The skull is very like that of *Delphinus micropterus*, but the nose-bones are thicker, heavier and higher. The teeth in the middle of the lower jaw, as in *micropterus*, but larger and compressed. The hinder part of the lower jaw is very broad, the front half much narrower and bent down in an arched manner.

Inhab. Seychelles.

Exactly like the fossil form, *D'Anvers*.

Delphinorhynchus, *Blainv.* part, *F. Cuv.* Delphinus, *Desm.* Aodon, *Lesson.* Heterodon, *Lesson*, *Mam.*

Head attenuated, contracted behind. Nose produced, bald, not separated from the forehead. Eyes moderate. Lower jaw fitting into a groove in the edge of the upper. Teeth few, small or rudimentary, in middle of lower jaw, not developed till late. Throat with 4 parallel slits beneath. Body elongate, rather swollen behind. Pectoral fin low down the side, oval, narrow, small. Dorsal falcate, behind the middle of the body, about $\frac{2}{3}$ from the nose. Blowers on the crown, curved, with the concavity in front. Tail with 2 falcate lobes, flat, without any central prominence. Sexual organs under middle of dorsal. Skull triangular. Forehead very high in front and swollen behind. Intermaxillaries curved in front. Nose very long, compressed at the hinder end, very narrow, slightly keeled on each side. Hinder wing of the maxilla expanded horizontally over the orbits. Nasal boneencased in the frontal and intermaxillaries. Temporal pit very small. Palate smooth. Lower jaw-bones elongate, tapering, slender, nearly straight.

This genus, which is in character intermediate between *Platanista* and *Delphinus*, has been confounded with *Hyperoodon* by M. F. Cuvier, but it is easily known from that genus, as was pointed out by his brother, by the structure of the skull, which agrees with *Delphinus*. The ear-bone is attached by an apophysis to the base of the skull. Vertebræ 38; 6 cervical separate, 10 costal, 11 lumbar, 11 true caudal. Metacarpal bones cartilaginous. — *Dumortier*, *Mem. Brux.* xiii. *t.* 10.

This genus has been confounded with *Hyperoodon* by many of the French authors, but it is easily known from that genus by the head not being rounded in front, and by the teeth being in the middle of the side of each jaw.

Mr. Bell, following Lesson, has considered this as a distinct genus from *Hyperoodon*; but he observes, "whether the generic distinction of the two be correct, appears very doubtful." — *Brit. Mam.* 499. Blainville, when he first saw the animal on the coast of France, considered it the same as Dale's *Hyperoodon*, and F. Cuvier followed him: but M. Cuvier pointed out, in the 'Règne Animal,' the difference in the form of the skull of the French animal.

Blainville's Whale. Delphinorhynchus micropterus.

Delphinorhynchus micropterus, *Dumortier*, *Mem. Acad. Brux.* xii. *t.* 1—3, good. *F. Cuv. Cetac.* 114, *t.* 9, *f.* 1, not good, *t.* 7, skull.

Delphinus micropterus, *Cuv. Reg. An.* i. 288.

Heterodon Dalei, *Lesson*, *Mam. Mem.* 419, from *Blain.*

Dauphin de Dale, *Blainv. N. Bull. Soc. Phil.* 1185. 329, *F. Cuv. Mam. Lith. t.* bad.

Teeth none; body deep ash, beneath white (when alive brownish ash-colour, belly whitish ash); forehead tapering; dorsal fin $\frac{2}{8}$, pectoral fin $\frac{2}{8}$, from end of nose; blowers before the eyes.

Inhab. Coasts of Europe. Havre, 1825, *Blainv.* Ostend, 1835, *Dum.*

	Blainv. ♀		Dum. ♀	
Length, entire, ...	15·0	ft.	3·45	metres.
„ of head, ...	2.7		(nose) 33	
„ to blowers, ...	2·3		44	
„ to pectoral, ...	3·4		91	
„ of pectoral, ...	1·6		30	
„ to dorsal, ...	9·1		2·04	
„ of dorsal, ...	10		27	
„ to eye, ...	....	....	49	
„ to the vulva,....	....	....	2.21	
Circumference, ...	7·6		2·0	
Width of pectoral, ...	6		12	
„ of caudal, ...	3·0		68	
Height of dorsal, ...	11		27	
Breadth of blower, ...	....	....	10	

M. Dumortier found, near the middle of each side of the lower jaw, a large alveolus, as if for a tooth. His figure represents the pectoral as $\frac{2}{9}$, and the dorsal as $\frac{5}{9}$ from the end of the nose.

b. *Upper and lower jaw with few or deciduous teeth. Wings of the maxillary bones expanded and shelving downwards. The beak short, deflexed. Forehead convex. Head rounded, without any beak.* Monocceratina.

Synopsis of the Genera.

a. *Lower jaw toothless.*

1. Monodon. Upper jaw of males with one or two very long, projecting, spirally twisted tusks. Dorsal none.

" 2. Anarnachus. Upper jaw with two small, conical, slightly curved, blunt teeth in front, dorsal none."

b. *Upper and lower jaw with conical, early deciduous teeth.*

3. Beluga. Dorsal fin none.

c. *Upper and lower jaw with compressed, permanent teeth.*

4. Neomeris. Dorsal none.

5. Phocæna. Dorsal triangular, in the middle of the back.

* *Teeth none. Upper jaw with tusk.*

Monodon, *Fab.*, *Linn.*, not *Swain.* Ceratodon, *Brisson*, *Pallas.* Diodon, *Storr.*, not *Linn.* Narwalus, *Lacep.*

Head round and convex in front; dorsal fin none; lower jaw not so wide as the upper.

The Narwhal. Monodon monoceros.

Monodon Monoceros and M. unicornu, *Linn.*
M. Narwhal, *Blumb.*
Narwhalus Andersonii and N. microcephalus, *Lacep. Scoresby, Arct. Reg.* i. 486—ii. *t.* 12, *f.* 1, 2. *Fleming, Wern. Trans.* i. 131. *Cuv. Oss. Foss.* v. *t.* 22, *f.* 7. *Home, Anat. Comp.* ii. *t.* 42. *Albers, Icon. t. Alton, Osteol.* ix. *t.* 6.
Narwal, *Camper, Cetac. t.* 29, 30. *Klien, Pisc. t.* 2, *f.* c. *from spec. at Dresden, taken in the Elbe*, 1736, cop. *Lacep. t.* 4, *f.* 3.

Black; when old whitish marbled.
Inhab. North Ocean, Scotland.

Right tusk generally not developed. Female generally without tusk, but sometimes has one; see *Linn. Trans.* xiii. 620.

1. Narwalus microcepalus, *Lacep. t.* 5, *f.* 2, from drawing of Mr. W. Brand, is only a bad representation of this species.

2. Narwalus Andersonianus, *Lacep. Cetac.* 163, from *Anderson*, described from same specimen, as figured by *Lacep. t.* 4, *f.* 2.

			♀
Skull, length entire	21·6	....	20·6
„ of nose	9·9	....	9·3
Width of orbit	14·6	....	14·0
„ of notch	8·0	....	7·9
„ intermaxillaries	3·0	....	3·6

In the Museum of the College of Surgeons there are several Hunterian preparations of the skull of this animal, *Nos.* 1147, 1148, 1149, 1150, 1151, showing the two rudimentary teeth inclosed in the cavity, in the female, and the single one in the male skulls. Narwal female skulls have two rudimentary teeth in upper jaw, which are rarely protruded, *Knox.* In the fœtus, on each side the upper jaw, in the usual place, are two hollow teeth, obviously the extremities of the spiral permanent teeth of the male; they are completely imbedded in the jaw, and if the animal is a male the left tooth continues to grow, the right after a time fills up, its central cavity for containing the pulp disappears, and after attaining a growth of five or six inches, the jaw elongates to correspond with the growth of the animal and the other tooth, and the abortive tooth remains imbedded in the jaw for life.—*Knox, Trans. R. Soc. Edin.* ii. 413. Scoresby gives a very good account of this animal, *Arct. Reg.* i. 131.

The best figures are those of *Scoresby, t.* 15, then *Sowerby, Brit. Misc. t.* , but this has a second horn erroneously added. Bonnaterre's figure is far too ventricose. It has been copied by *Lacep. t.* 4, *f.* 3, *Blumenbach, t.* and others; on the other hand, *Duhamel's Pech.* iii. *t.* 26, *f.* 1, is too slender, and with too small a head.

Anarnacus, *Lacep.* Monodon, *Fab.* Ancylodon, *Illiger.* Heterodon, part, *Desmarest, Cuv.*

Upper jaw with only two small, conical, slightly curved, blunt teeth, prominent in front; lower jaw toothless; body elongate, roundish; pectoral distinct; dorsal minute.

The Anarnak. Anarnacus Grœnlandicus.

Anarnakus Grœnlandicus, *Lacep. Cet.* 164.
Monodon spurius (Anarnak), *O. Fab. Fauna Grœn.* 31. *Bonnat. Cetol.* 11.
Delphinus anarnacus, *Desm. Mam.* 520.
Black; teeth scarcely an inch long.
Inhab. Greenland.

This species is only known from Fabricius' description; he is so accurate an observer that I am loath to doubt the existence of anything he has described; especially as he appears to have seen it himself. I am inclined to believe that Lacepède and Illiger were right in considering it as a distinct genus.

M. Cuvier (*Oss. Foss.*) regards it as a *Hyperoodon*, and he only believed in the existence of one species of the genus. M. F. Cuvier, who misunderstood the description of Chemnitz with respect to the teeth of *Balæna rostrata*, is inclined to unite it to that species, with which it agrees in being all black, but observes they differ greatly in size.—*F. Cuv. Cetac.* 226. It cannot be the young Narwhal, for the back is finned.

** *Teeth of upper and lower jaw conical, deciduous.*

Beluga, *Gray* (*Spic. Zool.*), *Lesson, Bell*, 1837. Physeter, *Linn.* part. Catodon, *Artedi*, part. Cetus, *Brisson*, part. Cachalot, *Lacep.* Delphinapterus, *Lacep.* Delphis, *Wagler.* Phocæna, part, *F. Cuv.*

Teeth conical only on the front half of the jaw, oblique, often truncated, and the upper often deciduous; head rounded; forehead convex; dorsal fin none; skull with the nose and the hinder wing of the maxilla bent down on the orbits, making the forehead very convex; lower jaw not so wide as the upper, with the condyle low down below the middle of the hinder edge; pectoral sub-oval.

The genus Delphinapterus was formed by Lacepède to contain this animal, which he before described as a *Catodon*, and the *D. Senedette*, which is probably a *Catodon*.

There is a great similarity in general form between the skull of the *Phocæna*, *Beluga* and *Monoceros*, but independent of the size and teeth, they differ in the form of the convexity in front of the blower; in *Beluga* the front of the blower is flattish, in *Monoceros* there is a broad, half-oblong convexity, and in *Phocæna* a squarish tuberosity.

The Northern Beluga. Beluga Catodon.

Physeter Catodon, *Linn.* from Balæna minor, *Sibbald. Phal.* ♀.
Balæna albicans, *Muller.*
Delph. leucas, *Pallas, Zool. Ross. Asiat. t.* 32, ♀. *Mem. Wern. Soc.* iii. 17, ♂. *Cuv. Oss. Foss.* v. *t.* 22, *f.* 5, 6. *Bell, Brit. Quad.* 491, *fig.*
Catodon Sibbaldii, *Fleming, B. A.* 29.
B. borealis, *Lesson.*
Physeter macrocephalus, *G. Gmelin, S. N.*

Delphinapterus Beluga, *Lacep. Scoresby, Arct. Reg.* i. 500, ii. *t.* 14.

Catodon albicans, *Lacep.*

White; young black; the nose of the skull nearly $\frac{1}{2}$ the entire length, $1\frac{1}{2}$ the length of its width at the anterior notch; teeth $\frac{0}{8}$-$\frac{0}{9}$.

Inhab. North Sea. Greenland. Scotland, *Sibbald.*

Skull in B. M. from Greenland, length entire 20·0, of beak 9·6, width at notch 6,″ at orbit 1·3.

Mr. Barnston informs me the *Beluga* is called *Keela luak* by the Esquimaux. In the St. Lawrence they rarely exceed 15 feet long. The male specimen he procured for the British Museum was $12\frac{1}{2}$ feet long, 6 feet 8 inches in circumference at the thickest part.

The Australian Beluga, Beluga Kingii.

Tab. 7. Skull.

Delphinus Kingii, *Gray, Ann. Phil.* 1827, 325.

Nose of the skull short, not half the entire length, scarcely longer than its width at the notch; teeth $\frac{1\,0}{9}$, small, hooked.

Inhab. Coast of New Holland, *Capt. P. P. King.*

Skull in Brit. Mus., length entire, 13·6, of beak 5·9, width at notch 4·6, at orbits 8·0.

This may be the Jacobite tursio corpore ngentis extremitatibus nigricantibus, *Commerson MSS.* D. Commersonii, *Lacep.* 317, from Cape Horn, cited by *Cuv. R. A.* i. 291, and *Oss. Foss.* v. 289.

According to Desmarest (*Mam.* 521), Raffinesque notices a Dolphin without any dorsal, and with rounded teeth in the lower jaw only, under the name of *Epiodon Urganantus* (Desmarest calls it *Delph. Epiodon*), from Sicily.

**** Teeth in both jaws permanent, compressed.*

Neomeris, *Gray.*

Teeth numerous, compressed, nicked, acute, extending nearly the whole length of the jaw; dorsal fin none; nose of skull short, rounded at the end, flat, shelving above.

The Neomeris. Neomeris Phocænoides.

D. Phocænoides, *Cuv. Reg. Anim.* i. 291.

Delphinus melas, *Temm. Faun. Japan. t.* 25, *t.* 26.

Delphinapterus melas, *Temm. Faun. Jap.* 7.

Black; teeth $\frac{1\,6}{1\,6}$. Length 4 feet.

Inhab. Indian Ocean, Japan.

The figure in the 'Fauna Japanensis' is from a drawing made by a Japanese artist under Burger's inspection.

The skull in the Leyden museum is more swollen and broader than that of *Phocæna*; the nose is shorter, broader, more rounded at the end and nearly flat, not shelving above; teeth $\frac{1\,6}{1\,6}$, larger and stronger; skull $\frac{1}{6}$ the entire length, (in Phocæna $\frac{1}{5}$). *Nameno-juo*, Japan.

The short description of the *D. Phocænoides* of Cuvier, which Dussumier discovered at the "Cape of Good Hope," agrees with this species. There is in Mus. Paris, a skull of "*D. Phocænoides*" brought from Malabar by Dussumier, in 1837. It is broader and shorter than *Phocæna communis;* teeth spathulate, rounded, oblique, $\frac{2\,0}{1\,9}$; palatines, bones and intermaxillaries broad, as seen in the roof of the beak.

Length of skull	7·0
,, nose	2·6
Width at notch	2·5

Phocæna, *Gray, Spic. Zool. Cuv. and F. Cuvier,* part. Delphinus, part. *Linn. Lacep.*

Teeth numerous, spathulate, compressed, extending nearly the whole length of the jaw; dorsal fin in the middle of the body; skull-nose depressed, broad, the hinder part of the maxilla slightly shelving downwards over the orbits; the intermaxillaries and vomer forming part of the palate.

Common Porpoise. Phocæna communis.

Phocæna communis, *Lesson, F. Cuv. Cetac.* 172.

Delphinus phocæna, *Linn. S. N.* i. 108. *Cuv. Oss. Foss.* v. *t.* 21, *f.* 1, 2. Skull.

Inhab. North Sea. Mouth of Rivers — Thames and Severn. Common.

c. *Upper and lower jaw with many teeth, rarely deciduous with age. Wings of the jaw-bone horizontally produced over the orbits.* Delphinina.

Synopsis of the Genera.

a. *Head rounded in front, not beaked. Nose of skull scarcely so long as the brain cavity. Dorsal distinct.*

1. Grampus. Teeth conical, truncated, early deciduous. Intermaxillaries broad. Pectoral ovate.

2. Globiocephalus. Teeth conical, deciduous when old. Intermaxillaries very broad. Pectorals narrow, linear.

3. Orca. Teeth conical, acute, permanent. Intermaxillaries moderate. Pectorals ovate.

b. *Head beaked. Nose of skull as long as or longer than the brain cavity.*

4. Lagenorhynchus. Head shelving in front. Dorsal rather posterior. Nose of skull depressed, expanded.

5. Delphinapterus. Head rather convex in front. Dorsal none. Nose rather depressed, convex above.

6. Delphinus. Head rather convex in front. Dorsal medial. Nose of skull rather depressed, convex above.

7. Steno. Forehead rather convex. Dorsal medial. Nose of skull compressed, higher than broad. Symphysis of lower jaws rather elongate.

a. *Head rounded in front, not beaked. Nose of skull scarcely as long as the brain cavity.*

Grampus, *Gray.*

Head rounded, forehead rather convex. Teeth conical, often truncated only in the front half of the lower jaw. Dorsal distinct, low, rather behind the middle of the back. Pectorals ovate, rather elongate; skull depressed; intermaxillaries dilated, covering great part of the maxilla above, rather swollen behind in front of the blowers, the

hinder wing of the maxilla horizontal and rather thickened and bent up over the orbit, and slightly dilated and reflexed just in front of the notch.

Cuvier's Grampus. Grampus Cuvieri.

Grampus Cuvieri, *Gray, Ann. N. H.* 1846. *Cat. Ost. B. M.* 36.

Delphinus griseus, *Cuv. R. A.* i. 290. *Ann. Mus.* xix. *t.* 1, *f.* 1, not good, cop. *Schreb. t.* 345, *f.* 1. *Oss. Foss.* v. *t.* 22, *f.* 1, 2. *F. Cuvier, Cetac.* 182, *t.* 12, *f.* 2.

Marsouin, *Duhamel, Pech.* iv. *t.* 9, *f.* 5.

Bluish black; beneath dirty white, passing into the black on the sides; nose of the skull broad at the base, narrow in front and concave on the sides, not quite half the entire length of the skull. "Teeth 9," *Schlegel.*

Inhab. North Sea. Coast of France, Rochelle, *D'Orbigny*, 1822. Isle of Wight, Hampshire, *Rev. C. Bury*, 1845.

	D'Orbigny. Adult.	D'Orbigny. Young.
Length entire	10·0 feet.	.... 7·0
„ to blowers	2·6	
„ to pectoral fin	3·6	
„ of pectorals	3·0	
„ of dorsal	5 ?	
Width of tail		
Height of dorsal	1·2	
Skull.		
Length entire	17.6	
„ of nose	8·0	
„ teeth, series l. j.	2·3	
„ of lower jaw	12·0	
Width at notch	7·0	
„ at orbit	11·0	
„ at middle of nose	3·10	
„ of intermaxillary	3·3	
Height at occiput	9·0	

It loses its upper teeth at an early period and preserves only a few of its lower ones. The dorsal fin is lower and further back than in *D. orca, Cuv. R. A.*

M. F. Cuvier (*Cetac.* 193) has referred the Marsouin of Duhamel (*Pech.* iv. *t.* 9, *f.* 5) to *D. Globiceps*, and M. Duhamel particularly observes that the pectoral and dorsal were nearly equidistant from the head, and that the under side is paler than the back, golden green, not white, which does not agree with *Melas*. It agrees in both these points better with this species.

This species was first described from a skeleton and drawing sent from Brest to Paris. The bad colouring of the drawing induced M. Cuvier to call it *D. griseus*, but it is black and not gray. M. F. Cuvier regards it as distinct from *D. aries* of Risso, which his brother thought was the same. *F. Cuv. Cetac.* 184.

The young, 7 ft. long, had eight conical, acute teeth. The older, two male and one female, 10 ft. long, had only six or seven blunt, carious teeth. — *D'Orbigny.* The upper jaw longest (4 inches), without any indication of teeth, even in the young one, but with a slight groove for the reception of the edge of the lower jaw. M. D'Orbigny says that this species has "most affinity in the external form to the *Grampus* of Hunter, *t.* 17, which Lacepède called *D. ventricosus*, but differs essentially in the total absence of teeth in the upper, and by the number in the lower jaw." Hunter does not figure any teeth in the upper and only a few in the lower jaw. In D'Orbigny's specimens the dorsal was injured, and in two of them nearly destroyed.

Risso's Grampus. Grampus Rissoanus.

Delphinus Rissoanus, *Laur. F. Cuv. Mam. Lithog. t. Cetac.* 196, *t.* 12, *f.* 1. *Schlegel. Abh.* 33.

D. de Risso, *Cuv. Ann. Mus.* xix. 12, *f.* 4, cop. *Schreb. t.* 345, *f.* 4. *Risso, Ann. Mus. H. N.* xix. *t.* 1, 2. *Europ. Merid.* 23.

Delphinus aries, *Risso.*

G. Rissii, *Jard. Nat. Lib.* vi. 219, *t.* 18.

Bluish white, with irregular, brown-edged, scratch-like lines in all directions. Females uniform brown, with similar scratches.

Var. Dorsal, pectoral and tail, and hinder part of the body below, varied with black. *F. Cuv. l. c. f.* 13, *f.* 1, Male.

Inhab. Nice. *Risso, Laurillard.*

Teeth conical, early deciduous, especially of the upper jaw, *Laur.*

Length entire	9	0	according to *Laurillard.*
„ of head	1	6½	
Height of dorsal	0	9	

Lesson refers this species to the genus *Globiocephalus*, but the position of the dorsal and the form of the pectoral, as well as the description of the teeth, make me believe it rather belongs to this genus. M. Cuvier observes that his *D. griseus* is only described from a bad drawing of this species, but M. F. Cuvier, who had a new description, and M. Laurillard, consider them as distinct. *Reg. Anim.* i. 290. *F. Cuv. Cetac.* 184.

Grampus ——— ?

Lower jaw straight, regularly diverging, scarcely bulging on the side behind, united by a rather long, wide symphysis in front. Obliquely truncated in front, with a rather prominent, tuberous gonyx. Teeth 4-4, rather large, far apart, conical, tapering at the tip, but subcylindrical at the base.

Inhab.———. British Museum, from Haslar Hospital.

This jaw appears to differ from the lower jaw of *G. Cuvieri* in being much thicker at the symphysis, very obliquely truncated in front, and rather projecting below. Teeth 4-4, large, conical, rather acute and recurved; the upper edge behind the teeth round, with many minute holes on the edge.

Length entire	16	0	inches.
„ front truncation	2	0	
„ of teeth series	2	0	
Breast, near condyle	4	0	
„ in front	1	0	
Width at condyles	11	6	

The Sakamata. Grampus sakamata.

D. Orca, *Schlegel, Faun. Jap.* 25.

Inhab. Japan.

M. Schlegel (*Faun. Japan.* 25), described a Dolphin found on the coast of Japan, and called *Saka mata kuzira*. It is said to have a high dorsal, and to be black with white spots on the belly, back and sides, near the pectoral fin. The eyelids and lips pale purple, the latter often white spotted; the head is rounded, the upper jaw pointed and toothless; the lower short and narrow and toothed.

Schlegel, who refers this species to *D. orca*, says the wanting teeth in the upper jaw is a mistake, but I should say that it is probably a *Grampus*, which often wants them in that jaw. I do not see why one part of the description should be relied on and not the other.

Globiocephalus, *Lesson*. Physeter, *Risso*. Globiocephala, *Lesson*, 1842.

Head round, forehead very prominent. Teeth conical, large only on the front half of the jaws; deciduous in the old one. Upper jaw largest? Pectoral narrow, linear-ovate, low down. Dorsal falcate, about the middle of the back. Skull flattened and concave in front of the blower. Nose broad, flattened, rugose above. Intermaxillary bones very broad, covering the greater part of the upper surface of the upper jaws; the hinder wing of the jaw-bone horizontal and bent up on the edge over the orbits and slightly expanded and reflexed just in front of the orbit notch.

The sucking young have no visible teeth; the adults have teeth in each jaw, but the aged individuals have generally lost them in both.—*Flem.*

The Pilot Whale. Globiocephalus Svineval.

Petit Cachalot, *Daub. Acad. Sci.* 1782, *t.* 1, cop. *Bonat. Cetol. t.*

Cachalot Svineval, *Lacep.*

Narwal edente, *Camper, Cetac. t.* 33, 34.

Ca'ing Whale, *Neil, Orkney and Shetland*, 1836, 221.

Delphinus Melas, *Trail, Nichol. Jour.* xxii. 21.

D. deductor, "Trail," *Scoresby, Arct. Reg.* i. 496, *t.* 13, *f.* 1.

D. globiceps, *Cuv. Ann. Mus.* xix. *t.* 1, *f.* 2, (cop. *Schreb. t.* 345, *f.* 2, 3). *Oss. Foss.* v. *t.* 21, *f.* 11.

Delphinus grampus, *Cat. Mus. Col. Surg. n.* 1137.

Black, streak from throat to vent (sometimes dilated into a cross band), white; teeth $\frac{2}{2}\frac{2}{2}$ to $\frac{2}{2}\frac{4}{4}$, rarely $\frac{2}{2}\frac{3}{4}$, *Fleming*. The upper surface of the maxillaries and intermaxillaries rugose in front; intermaxillaries form a triangular patch in front of the palate.

Length of animal entire	19	6 Fleming.
„ of pectoral	3	6
„ of dorsal	2	3
Width of pectoral	1	6
„ of tail	5	0
Height of dorsal	1	3
Circumference	10	0

	B.	M.	M. C. S. 1137.		M. C. S. 1138.	
Skull, length of, entire	28	0	29	0	24	0
„ of nose	15	0	15	0	12	0
„ of teeth, series	9	0	8	6	7	0
„ lower jaw					19	0
Width at notch	11	6	11	0	9	0
„ at orbit	19	6	19	6	15	6
„ of intermaxillary	9	0	7	0		
„ of middle of nose			9	6	6	6
Height at occiput	15	0				

Female suckling, with the young, 4 ft. 6 in. long in December, *Watson*, and 7 ft. long in January.

The Delphinus globiceps, *Risso, Europ. Merid.* iii. *t.* 1, *f.* 1. *F. Cuv.* 223. Black, with a gray band on each side from the throat to the vent; head large, round, swollen; jaws equal; teeth $\frac{2}{2}\frac{0}{2}$, round, conical, curved. Inhab. Nice, *Risso*. Is probably the same as *D. Svineval*, but M. F. Cuvier regards it as distinct.

The Delphinus intermedius, *Harlan, Jour. Acad. Sci. Philad.* vi. 51, *t.* 1.

D. Harlani, *Schinz.*

Globiocephalus Melas, *Dekay.*

Phocæna globiceps, *Sampson, Silliman, Amer. Jour. Sci.* 23—301, *fig.*

Inhab. coast of North America.

May be distinct from the European species, but the specimens have not been examined with sufficient care.

Smaller Pilot Whale. Globiocephalus affinis.

Delphinus Grampus, *Cat. Mus. Col. Surg. n.* 1138. *Hunterian Col. n.* 686.

Delphinus Melas, *Owen, British Fossil Mammalia.*

Teeth $\frac{12}{12}$, small, conical, curved, very acute; nose exactly half as long as the head, rather tapering, and rather concave on the sides; intermaxillary nearly as wide as the jaw; lower jaw obliquely truncated in front.

Inhab. ——— ? Mus. Col. Surg.

Skull, length entire	24	0
„ of nose	12	3
„ teeth line	7	0
„ lower jaw	19	0
Width of nose at notch	9	0
„ of middle of nose	6	6
„ at orbits	15	6

This is probably a young specimen of *Globiocephalus Svineval*. The skull differs in being rather slenderer in front and in the intermaxillary not being rugose in front. In the Catalogue of the Mus. Col. Surg., 165, it is called "the skull of a small Grampus," Hunterian, and n. 1136 the skull of a large Grampus, Hunterian. This appears to be the skull which Mr. Owen gives the measurement of, under the name of *D. Melas*, in his account of *Phocæna crassidens*, in the work on British Fossil Mammalia.

The Naiso-gota. Globiocephalus Sieboldii.

Didelphis globiceps, *Temm. Fauna Japan, t.* 27.

M. Siebold brought with him a figure of a very young specimen, 5 ft. 6 inches long, of this species, made by M. Villeneuve, which is copied in the 'Fauna Japonica,' and a complete skeleton.

Mr. Temminck regards it as undoubtedly the same as the European, but yet allows that there are some differences between it and the adult specimen observed on the

European shores. The forehead is less swollen, and the pectoral fins are rather larger than in *G. Srineval* of Europe. This species is called *Naiso goto.*

The Japanese distinguish two other species: 1. Sibo golo, which is purple, with a white spot behind the dorsal fin, and the lower jaw furnished with many plaits. 2. Ohanan golo, black, with a larger muzzle and more spacious mouth; the dorsal $\frac{1}{3}$ from head, back edge before the middle; pectoral $\frac{1}{4}$ from head; pectoral $\frac{1}{6}$ length; length of skull 15·0; beak 6·9; width at notch 4·9.

The Delphinus globiceps (*Grant, Proc. Zool. Soc.* 1833, 65), brought by Capt. Delvitte from the North Pacific, which Schlegel thought might be this species, is an *Orca.*

The Large-headed Pilot Whale. Globiocephalus macrorhynchus.

Killer or Blackfish, *J. Bennet, MSS. Mus. Col. Surg.*

Nose of skull short and broad, rounded in front, nearly as broad in the middle as at the preorbital notch. Teeth subcylindrical, $\frac{8}{8}$. Lower jaw rounded in front.

Inhab. South Seas. Mus. Col. Surg. Presented by J. Bennett, Esq.

Skull, length entire	24	0
„ nose	11	6
„ from top of nose to back of palate	14	6
„ teeth line	5	6
„ lower jaw	16	6
Breadth at preorbital notch	9	6
„ at middle of nose	9	0
„ at temple	17	0
„ of intermaxillary	6	0

Delphinus feres, *Bonnat. Cetac.* 27.

Blackish; teeth $\frac{10}{10}$, large and small, curved, compressed before and behind; crown oval, rounded and divided in two lobes by a groove, which extends their whole length.

Inhab. Mediterranean, Malta.

Length, 14 feet. Skull, length 1 foot 10, breadth 1 ft. 5 inches; length of teeth, 1 in., breadth of line $\frac{1}{2}$ inch. Cuvier thinks this is probably *Orca gladiator.*

Orca. *Rondel.*

Teeth conical, acute, large, occupying the whole edge nearly to the notch, permanent; forehead flattened. Dorsal fin high, falcate, in the middle of the back. Pectoral broad, ovate. Skull rounded; the hinder wing of the maxilla horizontally spread over the orbits, the intermaxillaries only half the width of the jaw-bones. Palate convex.

The Killer. Orca gladiator.

Delphinus orca, *Linn. S. N.* 108.

Grampus, *Hunter, Phil. Trans.* 1787, *t.* 16, cop. *Bell. Brit. Anim. Bonnat. Cetac. t.* 12, *f.* 1.

Cachalot D'Anderson, *Duhamel.*

D. Duhamelii, *Lacep. Pisc. t.* 9, *f.* 1. *good.*

D. Orca, *Mag. Nat. Hist.* iv. 329, *fig.* 2. *Schlegel. Abh.* ii. *t.* 7, 8. from life. *Cuv. Oss. Foss.* v. *t.* 22, *f.* 3, 4, *R. A.* i. 289.

? Delphinus gladiator, *Lacep. Cetac.* 302, *t.* 5, *f.* 3. D. Grampus, *Desm.*

Black; circumscribed spot behind eye, spot on belly, and under side of tail white. Nose of skull twice as long as the width of the notch. Teeth $\frac{11}{11}$, large, conical, slightly hooked.

	B. M.	M. C. S. No. 1136.
Skull, length entire	33·0	.... 41·6
„ of nose	16·6	.... 22·6
„ of teeth line	14·6	.... 20·0
„ of lower jaw	27·3	.... 35·0
Breadth at notch	10·6	.... 14·0
„ at orbit	18·0	
„ at temple	18·0	
„ at middle of beak	9·6	
„ of intermaxillary		
„ in front	4·0	.... 6·0
„ in middle	3·6	.... 3·6

The skull, n. 1136, of the Museum of the College of Surgeons, is of most colossal size. It formed part of the Hunterian collection. It may probably be the skull of the large specimen, 31 feet long, killed at Greenwich, in 1793. — *Banks in Lacepède.* It is called the Large Grampus, *D. Grampus* in the catalogue, the *Globiocephalus affinis* being called the "Smaller Grampus" (n. 1138), and the Cape Killer, n. 1139; the Globe-headed Dolphin, *D. globiceps*, Cuvier.

There is a skull in Mr. Bell's museum, from a male 19 feet long, taken in Lynn harbour, Nov. 1830. The animal was described in *Loudon's Mag. Nat. Hist.* v. The following are the measurements of this specimen:—

Length along curve	21·3
„ straight	19·0
„ to dorsal fin	8·2
„ to pectoral fin	4·0
Height of dorsal	4·0
„ to dorsal	13·1
Length of dorsal	2·4
„ of pectoral	4·0
Breadth of pectoral	2·8

We have a beautiful skeleton of this species, 20 feet long, taken on the Hampshire coast, presented by R. Pearce, Esq., and a large skull from the coast of England.

Delphinus orca, *Linn. S. Nat.* 108, is evidently from Orca, *Belon, Pisc.* 18, *Rond. Pisc.* 483, *fig.* copied by *Gesner, Aquat.* 748. In the *Mantissa*, i. 523, the reference to the *Schwerdt fische* of Anderson and some other whalers is added, and probably from them there is added "Bellum gerit cum Phocis, quas ope gladii dorsalis e lapidibus detrudit; Balænarum Phocarumque tyrannus, qua turmatim adgreditur. Pinna dorsalis est spina ensiformis, sex pedalis, cute vestita, basi latior.—*Mant.* ii. 523. O. Fabricius never saw this animal. Bonnaterre gave the name of *Delphinus gladiator* to Anderson's figure, which represents the dorsal fin as near the nape.

Cuvier believed that the Orca of the ancients was probably a Cachalot, and that the Killer is the *Aries marinus* of Pliny, Ælian and the Latins, who compared the white streak behind the eye to a horn. Desmarest,

Mam. 515, confines the name *Delphinus Orca* to the animal intended by the ancients, and characterizes it "Museau conformé comme celui de Dauphin vulgaire; dents larges et crenulées, sur leurs bords," being a translation of Artedi (Gen. Piscium, 76, 3) "D. rostro sursum repando, dentibus latis serratis."

Professor Eschricht believes the *Physeter microps* of *O. Fab.* to be the Killer, *Dan. Trans.* xii.

The Lincolnshire Killer. Orca crassidens.

Phocæna crassidens, *Owen*, *Brit. Fossil Mam.* 516, *f.* 213, 216, 214.

Intermaxillaries rugose in front. Teeth $\frac{1\,0}{1\,0}$, large, conical, rather acute (all but the front lower false), near to the preorbital notch. Lower jaw very depressed and broad in front at the symphysis.

Inhab. Fens of Lincolnshire, Fossil, Mus. Stamford (now Mus. Col. Surg. ?)

Skull, length entire	23 or 24·0
„ nose	12·6
„ teeth line	10·0
„ lower jaw	21·0
Breadth at notch	8·6
„ at middle of beak	8·0
„ of intermaxillaries	5·6

In the figure the beak is $1\frac{1}{2}$ the length of the base at the notch and exactly the length of the skull.

The Cape Killer. Orca Capensis.

Tab. 9. Skull.

Delphinus globiceps, *Cat. Mus. Col. Surg.* 165, *n.* 1139. *Grant*, *Proc. Zool. Soc.* 1833, 65.

D. Orca, *Owen*, *Brit. Fossil Mam.* 516.

Skull flattish above, rather concave in the middle before the blowhole. Nose rather convex on the side, rather tapering in front. Teeth $\frac{1\,2}{1\,2}$, very large, thick, nearly to the preorbital notch, concave on each side, for the reception of the opposite teeth, of the front upper small, acute, front lower large, worn down, rounded. Intermaxillaries rather dilated, and broader over the front of the nose, contracted behind.

Inhab. Southern Ocean. Cape of Good Hope, *M. Vilete* (1818), Mus. Col. Surg. n. 1139. Northern Pacific Ocean, *Capt. Delvitte*, *R. N.*

Skull, length entire	37·0	....	36·6
„ of nose	18·0	....	18·0
„ of teeth line	14·6	....	14·6
„ of lower jaw	29·6		
Breadth at notch	12·6	....	12·0
„ at orbit	21.0	....	21·0
„ at temple above	20·0		
„ at middle of beak	10·0		
„ of intermaxillaries	3·9		
„ in front	4·6		
„ in middle	3·3		

The skull in the College of Surgeons appears to be the one which Mr. Owen gives the measurement of as *D. orca*, in his account of *Phocæna crassidens*.

Small Killer. Orca intermedia.

Tab. 8. Skull.

Delphinus intermedius, *Gray*, *Ann. Phil.* 1827, 396, not *Harlan*.

Nose of skull half the entire length. Teeth $\frac{1\,1}{1\,1}$ long, conical.

Inhab. ——— ? Skull, British Museum.

This skull, which has all the appearance of being that of a full grown animal, is just one quarter the length and breadth of the skull of the common Killer.

Skull, length entire	14·0 inches and lines.
„ of nose	7·0
„ of teeth line	5·6
„ of lower jaw	11·0
Breadth at orbits	8·3
„ at notch	4·6
„ at middle of beak	·9

B. *Head beaked. Nose of skull longer than the brain-cavity.*

Lagenorhynchus, Gray.

Head rather convex, gradually sloping into the beak in front. Beak short, tapering in front. Lower jaw rather longest. Body elongate, tapering behind, largest at the pectoral fins. Pectoral fins rather far back, rather elongate and slightly falcate. Dorsal fin high, falcate, rather behind the middle of the back. The back with a low, rounded, fin-like ridge near the tail. Tail-lobes rather narrow, elongate. Skull rather depressed, the hinder ends of the maxillary bones expanded, horizontal, and rather thickened on the edge. The nose is short, broad, flat above and rather narrowed in front, and scarcely longer than the length of the brain-cavity. The triangle in front of the blowers is elongate, and reaches beyond the middle of the nose of the skull, and the intermaxillaries are separated by a deep groove filled with cartilage.

This genus is easily known from *Delphinus* by the lowness of the forehead, the short and depressed form of the beak, the posterior position of the dorsal fin, and the body being attenuated behind. It is at once known by the breadth, and flat, expanded form of the nose of the skull.

The *os hyoides* of *L. leucopleurus* is large and broad.

* *Beak very short; nose of skull only as long as head; teeth nearly to the notch.*

White-sided Bottle-nose. Lagenorhynchus leucopleurus.

Tab. 6. Fœtus, 12. Skull. *t.* 26, *f.* 3, tongue.

Delphinus leucopleurus, *Rasch*, *Mag. Jul.* 1843, 369.

Above bluish black, beneath white, with a large, oblique, gray or white longitudinal streak on hinder part of each side. Teeth $\frac{2\,3}{2\,3}$, small, acute, curved.

Skull: brain-cavity large, high at the top behind the blow-hole; nose nearly as long as the brain-cavity, gradually and regularly tapering on each side; triangle in front

of the blower flattened and concave behind, with a slightly raised, lozenge-shaped space in the front half.

Inhab. North Sea, Gulph of Christiania.

Fœtal specimen and skeleton, Brit. Mus.

The skull of the skeleton in the British Museum is at once known from the skull of the *L. albirostris*, at Norwich, by being smaller, and the nose rather narrower, and especially by the hinder part of the intermaxillaries, which form the triangle in front of the blower, being flattened and concave instead of swollen and convex.

Skull, length entire ...	16·0 inches & lines.
,, of nose	8·6
,, of lower jaw	13·0
Breadth at notch	8·3
,, notch	4·0
,, middle of beak	2·9

** *Beak moderate; nose of skull only as long as head; teeth not quite to the notch.*

White-beaked Bottle-nose. Lagenorhynchus albirostris.

Tab. 10. Animal, 11. Skull.

Delphinus Tursio, *Brightwell, Ann. Nat. Hist.* 1846, 21, *t.* 1, ♀.

Delphinus albirostris, *Gray, Ann. & Mag. N. H.* 1846.

Upper part and sides very rich, deep-velvet, black, external cuticle soft and silky, so thin and delicate as to be easily rubbed off; nose, a well defined line above upper jaw, the whole under jaw and belly cream-colour, varied with chalky white; fins and tail black; teeth $\frac{25}{24}$ small, curved; jaws moderately elongate, lower rather the longest; blowhole horse-shoe-shaped and convex towards the head; nose of skull as long as the head cavity, gradually and evenly tapering to a rather rounded point in front, the edge rather reflexed on each side behind; the triangle in front of the blower convex and swollen on each side behind, smooth in front.

Inhab. North Sea, coast of Norfolk.

Mus. Norwich.—Skeleton.

Through the kindness of Mr. Brightwell, I have been enabled to examine the skull of this species, and to copy the beautiful drawing of the animal made by his daughter.

Animal, length entire	
,, of mouth	9·6 inches & lines.
,, of nose to eye	13·0
,, to pectorals	20·0
,, of pectoral	15·0
,, to dorsal	41·0
,, of dorsal	11.6
Height of dorsal	10·0
Width of tail	22·0
Skull, length entire	18·0
,, of nose	8.6
Width at orbit	9·5
,, at notches	5·6
,, of middle of beak	3·6
,, of lower jaw at condyles	8·0

The fœtus of this species has six bristles on each of the upper lips, the hinder one being rather farther from the rest than the others are apart, which are equally placed, and of the same size. The tongue (tab. 26, *f.* 3), is flat on the top and as wide as the space between the sides of the jaws, with a regular sharp denticulated edge on each side, and with a rather larger, conical, separate tubercle in front. The teeth are not developed through the gums. The nose is nearly $\frac{1}{5}$ the length of the distance between the end of the nose and the eye. The hinder part of the back has a rather thick convexity, like a long low rounded, second dorsal fin just before the tail; the same part of the fœtus of Delphinus (*Delphis?*), and *Steno? fuscus* has the part very much compressed, and fined off to a very thin, knife-like edge.

** *Nose of skull longer than the length of the brain-cavity; teeth-line some distance from the notch.*

The Electra. Lagenorhynchus Electra.

Tab. 13. Skull.

Skull rather depressed; nose flattened above, expanded and reflexed on the side behind, rather shelving in front; sides rather contracted in the middle, rather longer than the head and $1\frac{3}{4}$ the length of the width at the notch; intermaxillary broad, flattened, nearly $\frac{2}{3}$ of the width, with a large, wide groove for the greater part of its length; triangle flat, rather concave behind, with a lozenge-shaped, rather raised, rugose space in the front half; teeth $\frac{25}{24}$, rather small, cylindrical, conical, slightly curved, acute, four in an inch; the lower jaw regularly converging, straight on the sides in front, rather swollen behind, and shortly obliquely truncated in front, the gonyx rather produced.

Inhab. ———— ? Skull, British Museum.

This skull is very like the former, but it is considerably larger, and the nose is longer in proportion, and the head is much more depressed in the middle and spread out on the sides.

Skull, length entire	17·6 inches & lines.
,, of head	8·3
,, of nose	9·9
,, of teeth line	7·0
,, of lower jaw	14·6
Width of temple	10·3
,, at notch	5·7
,, at middle of beak	4·0
,, of intermaxillary	2·6

The Asia. Lagenorhynchus Asia.

Tab. 14. Skull.

Skull nose rather depressed, broad, flattened, rather contracted in the middle of each side; triangle concave, with a slightly raised, flat, rugose space in the front half; teeth $\frac{24}{23}$, small.

Inhab. ———— ? Skull, British Museum.

This species is only known from a skull without teeth. It very much resembles in the depressed and expanded

form of the brain-cavity and form of the beak, the skull of *L. Electra*, but it differs from it in the beak being rather more acute in front and more contracted on the middle of the sides, and in being rather smaller in size. It may only be a variety of that species.

Skull, length entire	16·9 inches & lines.
„ of nose	9·0
„ of lower jaw	12·6
Width at orbit	8·9
„ at notch	4·9
„ middle of beak	3.4

The Eschrichts. Lagenorhynchus acutus.

Delphinus acutus, *Gray, Spec. Zool.* 1, 2, from a skull.
D. Eschrichtii, *Schlegel, Abh.* 23, *t.* 1 & 2, *f.* 4, *t.* 4, *f.* 5.
Body ——— ?

Teeth $\frac{32}{31}$; nose of skull half its length and nearly twice as long as wide at the notch; lower jaw obliquely truncated in front.

Inhab. North Sea, Faroe Islands, *Eschricht.*

Skulls and skeleton in the Leyden Museum—

Length entire	7 2 inches and lines.
„ of skull	0 16

This species was first described by me from a skull in Brooks' museum, which is now at Leyden, and Mr. Schlegel has described it from a skeleton sent from the Faroe Islands. It differs from the other species of the genus in the nose of the skull being more slender and the teeth more numerous. The teeth series, as in *L. Electra* and *L. Asia*, do not reach to the notch which separate, the beak of the skull from the brain-cavity.

Professor Eschricht informs me this species is very like *D. leucopleurus.*

Delphinapterus, part. *Blainv.* not *Lacep.*
Delphinus, *Lacep.*

Head rather convex, shelving towards the nose. Nose rather produced, obscurely divided from the forehead. Dorsal fin none. Back rounded. Pectoral oblong, rather slender. Skull moderate. Beak broad, depressed, tapering, rounded above. The triangle before the blower, elongate, extending nearly to the middle of the beak. Palate flat. Teeth conical, tapering, acute, curved. Symphysis of the lower jaw short.

The Peron. Delphinapterus Peronii.

Tab. 15.

Delphinus Peronii, *Lacep.*
Delphinapterus leucorhamphus, *Peron, Lesson, Voy. Coq. t.* 9, *f.* 1, cop. *F. Curier, Cetac. t.* *Jardine, N. Lib. t.* *Cuv. Oss. Foss.* v. *t.* 21, *f.* 5, 6, skull.
D. bicolor, *Stephenson, MSS. Icon. ined.*

Teeth $\frac{38}{33}$ $\frac{40}{40}$; black; beak, pectoral fins, under part of body white.

Skull in Mus. Paris. Length 18.3, of beak 10.0, of teeth line 8·6, of lower jaw 14·6. Width at orbit 9·0, at notch 4·7, at middle of beak 2·7; teeth $\frac{44}{44}$, small, slender, six in an inch; beak broad, depressed, rather tapering in front, the sides spongy, the centre hollow, filled with cartilage, broader in front, flattened behind; triangle extending nearly to the middle of the length of the beak; orbit rather shelving above and slightly thickened on the edge; palate flat in front, rather convex behind, without any groove on the sides; lower jaw gradually tapering, angularly shelving and flat on the sides in front; symphysis short, not two inches.

There is a second skull, brought by M. Housard, in 1822, which is rather more depressed in the middle in front, and with the triangle reaching near to the middle of the beak; teeth $\frac{38}{35}$, length entire, 17·6, of beak 9·6, of lower jaw 14·6, width at notch 4·3, at middle of the beak 2·6. Orbits rather shelving above and slightly thickened on the edge.

Cuvier justly observes the beak of Lesson's (*Voy. Coq. t.* 9) figures is too pointed. Lesson also represents the black as only occupying the upper part of the back, as represented in figure 4, copied from his plate. I have therefore given a new figure of the species, copied from a drawing, $\frac{1}{12}$ the natural length, kindly given to me by W. Wilson Saunders, Esq., of Lloyd's, which was made by Dr. Stevenson, during the voyage of the ship Glenarn, Capt. Guy, in lat. 46° 48′ S., long. 142° west, Jan. 12, 1844.

Delphinus, *Linn.* Delphinorhynchus, part, *Lesson.*
Cephalorhynchus, *F. Cuv.*

Forehead rounded. Nose produced, bald. Dorsal fin falcate, in the middle of the back. Skull with the hinder wings of maxilla horizontal, sometimes thickened on the edge over the orbit. Nose elongate, tapering, depressed, broader than high, convex, roundish above, and slightly concave in front of the blowers, nearly parallel on the sides and rounded in front. Teeth small, conical, extending the greater part of the length of the jaw.

Most maritime persons call these animals Bottle-noses, Bottle-heads, Flounder-heads, Grampuses, Porpoises or Porpusses, sometimes adding Whale to the name. They generally confine the name of Dolphin (most used by landsmen) to the Scomberoid fish (*Coryphæna*), which changes colour in dying.

A. *Head shortly beaked. Nose of skull moderate. Triangle elongate, produced before the teeth line. Palate flat.*

* *Beak scarcely produced. Nose of skull rather depressed, scarcely longer than the brain-cavity.* Cephalorhynchus, *F. Cuv.*

The Hastated Dolphin. Delphinus Heavisidii.

Delphinus Heavisidii, *Gray, Spic. Zool. t.* 2, *f.* 6. *Schlegel. Abh. t.* 3, *f.* 1—4, *t.* 4, *f.* 6.
D. Capensis, *Cuv. R. A.* 289.
D. Dussumieri, *Fischer.*
D. Cephalorhynchus, *F. Cuv. Cetac.* 158.
Marsouin du Cap, *F. Cuv. Mam. Leth.* 3.
D. hastatus, *F. Cuv. Cetac.* 161. *Rapp. Cet. t.* 3.
Ph. Homei, and D. tridens, *A. Smith.*

Black, with a streak, and two diverging white lines beneath; teeth $\frac{25}{25}$; nose of skull nearly half the length of head; lower jaw truncated in front.

Inhab. S. Sea, Cape of Good Hope.

There is a skull, *D. Cephalorhynchus*, in the Paris Museum. Beak flat; palate flat, rather concave behind; teeth rather blunt $\frac{36}{23}$; orbits rather shelving; symphysis of the lower jaw very short, rather keeled below.

Skull, length	....	11·3 inches and lines.
Beak	....	4·9
Width at notch	....	2·7

M. Quoy's description and figure, on which F. Cuvier founded *D. hastatus*, was from the specimen originally described by me, and now transferred from the College of Surgeons to the British Museum.

This species has some character intermediate between *Phocæna* and *Delphinus*.

Dusky Dolphin. Delphinus obscurus.

Tab. 16. Skull.

Delphinus obscurus, *Gray, Spic. Zool. t.* 2, *f.* 2, 3.

D. superciliosus, *Garnot, Lesson, Voy. Coq. t.* 9, *f.* 2 ? & *F. Cuv. Cetac.* 149 ? *Schlegel, Abh.* 22, *t.* 1, 2, *f.* 3, *t.* 4, *f.* 4.

D. Fitzroyii, *Waterhouse, Zool. Beagle, t.* 10, Jun.

D. obscurus (var.), *Quoy, Voy. Astrol.* 151, *t.* 28.

Dauphin à museau courte, *Voy. Pole Sud, t.* 22, *f.* 1.

? D. superciliosus, *Lesson, Voy. Coq. t.* 9, *f.* 2 ? ?

Black, with oblique, diverging streaks on the side, and beneath whitish; teeth $\frac{24}{24}$-$\frac{26}{26}$; nose of skull about $\frac{5}{9}$ of its length and nearly $2\frac{1}{2}$ the length of its width at the notch; lower jaw truncated in front.

Inhab. Southern Ocean, Cape *Heariside.*

Skull, length entire		
„ of nose		
„ of lower jaw		
Width at orbit		
„ at notch		
„ at middle of beak		
Body, length entire	....	5·1 feet & inches.
„ to dorsal fin		2·1
Width of tail	....	1·2

M. Garnot's description, as given by F. Cuvier, is very short, but it appears to fit this species. The *D. à museau court* of the Voy. a Pole Sud is said to have $\frac{31}{29}$ teeth. It is evidently this species as determined by the examination of the skull at Paris, and there is a skull named *D. bivittatus, D'Orbigny*, 1830. Beak quite flat above; triangle to near the middle of the beak; which appears to be only a variety of this species.

Length of skull	....	14·0 inches and lines.
„ beak	....	7·0
Width at notch	....	4.1

The skull, *Dauphin à museau court*, in the Paris Museum, has teeth $\frac{30}{29}$; triangle extends much in front of the tooth-line; nasal grooves wide in front.

Skull, length	....	14·6
Beak	....	8·0
Width at notch	....	3·6

The skull of this species is intermediate in form between the *Lagenorhynchus* and *Delphinus*.

The Compressed-tailed Dolphin. Delphinus compressicauda.

Phocæna compressicauda, *Lesson, Cetac.* 199. *F. Cuv. Cetac.* 186 (from Garnot MSS.).

Teeth $\frac{44}{46}$, small, conical, hooked; head coloured; belly whitish; pectoral short; upper jaw longest; nose short; base of the tail compressed on each side.

Inhab. 4° south lat., 26° east long. of Paris.

Animal, length to pectoral	1·8 feet & inches.
Expanse of tail	1·7

†† *Beak short. Nose of skull thick, conical, convex above, half as long as the head.* Tursio.

‡ *Beak of skull rather thick and rather swollen on the sides.*

Bottle-nose Dolphin. Delphinus Tursio.

Tab. 10. Animal.

Delphinus Tursio, *O. Fab. Faun. Groen.* 49. *Wright, Mag. N. H.* ii. 1838, 609. *Bonnat. Cetol.* 21.

D. Nesarnak, *Lacep.* (Desm. from *O. Fab.*).

Delphinus truncatus, *Montague, Wern. Trans.* iii. *t.* 5, *f.* 3. Skull.

Bottle-nose, *Hunter, Phil. Trans.* lxxxvii. *t.* 18, cop. *Bonnat. Cetol. t.* 11, *f.* 1.

L'Oudre, *Bellon.*

D. Vulgaire, *Camper, Cetac.* 35, 40.

Var. ? D. Tursio, *Schlegel, Abh. t.* 5, *f.* 1, 2, *t.* 4, *f.* 9.

Black (whitish beneath ?); teeth $\frac{24}{24}$, truncated when old; skull-nose $\frac{5}{9}$ of entire length; intermaxillaries very convex, forming a strong rib on each side above; intermaxilla and vomer forming part of the palate.

Inhab. North Sea.

Mr. R. Templeton has sent me a most accurate drawing of a specimen caught on the south of Ireland, in November, 1828: he named it *D. Delphis.* Copied tab. 10. The following are its measurements :—

Length entire	....	7	6	0 feet, inches & lines.
„ eyes	....	1	0	0
„ ear	....	1	2	5
„ pectoral	....	1	6	9
„ end of the pectoral		2	6	7
„ front of the dorsal		3	2	5
„ end of dorsal		4	2	5
„ genital organ		5	3	0
„ to the vent	....	5	6	3
„ to base of tail		7	0	0
„ to end of middle of tail	....	7	6	0
„ to end of tail fin		8	1	3

The following are the measurements of four skulls, the first being Montague's specimen :—

Length entire	21·6	21·0	21·0	21·0
„ of nose	11·6	12·0	12·0	11·6
„ of teeth line		9·9	10·0	10·0
„ of lower jaw			18·6	
Width at notch	5·9	5·0	5·6	5·9
„ at orbit	10·3		10·6	10·6
„ at middle of beak		3·6	4·6	

In the skull of Montague's specimen, in the British Museum, the 4th and 10th teeth from the front on each side appear by the hole to have been larger than the rest. We have a second imperfect skull of the same measurement. M. F. Cuvier (*Cetac.* 223), as usual, complains of Montague's figure of the skull of this species: he does not recognize in it the *D. Tursio*, and thinks it most resembles *D. Delphis!*

The skull on the skeleton presented by Mr. Houship, in Mus. Col. Surg. (n. 1125), taken below the Nore, in June, 1828, has the teeth $\frac{2}{2}\frac{3}{1}$, the two hinder upper without any opposite, the 4, 5, 6 upper are largest, the middle lower are truncated, the lower jaw obliquely truncated, with a rather prominent gonyx. The elongated intermaxilla and the vomer are visible in the palate. In the old skulls the intermaxillaries are $\frac{1}{2}$ width above, and the sides of the maxillaries are shelving. In skull n. 1126 (Mus. Col. Surg.) the teeth are very oblique and truncated at the end.

In all the skulls I have seen of this species the teeth are more or less worn down, but Mr. Bell says he has two skulls in which they are acute. — *Brit. Quad.* 472. There is some difficulty about the colour of this species, which may arise from two being confounded under one name. Bonnaterre, Montague and Wright describe it as black above and whitish beneath; O. Fabricius as all blackish, the belly a little whiter and the young paler; Schlegel figures it as all of a uniform deep black colour.

The Abusalam. Delphinus Abusalam.

Delphinus abusalum, *Rupp. Mus. Senk.* 1842, *t.* 12, *f.* 1, 2, 3.

Black, below white, with small dark spots; teeth $\frac{2}{2}\frac{5}{5}$-$\frac{30}{30}$. Nose of skull about $\frac{5}{9}$ of length, $2\frac{1}{2}$ its width at the notch. Intermaxillary bones very convex, forming a strong ridge on each side. Lower jaw tapering in front.

Inhab. Red Sea.

Only known from Dr. Rüppell's description and figure. It has been said to be the same as *D. Tursio*, but it appears very different.

Delphinus aduncus, *Hemp. & Ehrenb. Syn. Phys.* ii.

Beak depressed, elongate; teeth $\frac{2}{2}\frac{5}{5}$, conical, strong; Expanse 6', head 7"; width of jaws at the end of the teeth 2"-6½"; at the middle of the jaws 1" 9."'

Inhab. Island of Belhosse.

Is perhaps the same as the former.

The Eurynome. Delphinus Eurynome.

Tab. 17. Skull.

D. Eurynome, *Gray, Cat. Ost. B. M.* 36.

Skull roundish; nose thick, broad, rounded above; intermaxillaries rather convex, $\frac{1}{2}$ as wide as maxillaries; nose $\frac{1}{3}$ longer than the length of the head (or $4\frac{1}{7}$ of entire length), twice and $\frac{1}{3}$ the length of the width at the notch; back of blower largely tubercular; teeth $\frac{2}{2}\frac{5}{5}$, moderate, cylindrical, rather curved, acute.

Inhab. ——— ? Skull, Mus. Brit.

Skull, Length entire	....	22·0
„ of head	....	9·1
„ of nose	....	12·3
„ of teeth line		10·0
„ of lower jaw	....	18·0
Width at temples	....	11·0
„ at notch	....	5·4
„ at middle of beak		3·6

The skull of this species is most like *D. Tursio*, but the nose is $\frac{1}{4}$th, slenderer and more rounded and the teeth smaller.

‡‡ *Beak of skull rather thick, conical, evenly tapering.*

The Metis. Delphinus Metis.

Tab.

D. Metis, *Gray, Cat. Ost. B. M.* 36.

Skull globular; back of blower tubercular; nose thick, rather conical, regularly tapering, upper part convex, rather longer than the head and rather more than twice as long as the width at the notch; intermaxillaries convex, rather more than half the width at the beak; teeth $\frac{2}{2}\frac{3}{2}$, rather conical, acute, curved.

Inhab. ——— Brit. Mus.

Skull, Length entire	....	21·0
„ of nose	....	11·9
„ of lower jaw		17·0
Breadth of orbit	....	9·6
„ notch	....	5·0
„ middle of beak		3·0

This skull is like the former, but differs in the nose being shorter compared with the length of the head, more tapering, and the teeth rather longer. It differs from *D. Tursio* in the nose being much shorter and more conical and acute.

The Cymodoce. Delphinus Cymodoce.

Tab.

D. Cymodoce, *Gray, Cat. Ost. B. M.* 35.

Skull roundish; nose broad, rounded above, broad at the base, gradually tapering in front and rather convex on the sides, $\frac{1}{1\cdot2}$ longer than the head, or rather more than half the entire length and rather more than twice as long as the width at the notch; the triangular impression in front of the blower rather elongate, extended rather beyond the line of the hinder teeth; teeth $\frac{2}{2}\frac{3}{1}$, moderate, conical, slightly incurved, acute (rather more than 3 in one inch); lower jaw regularly converging, straight on the sides, the front obliquely truncated, and the gonyx slightly produced.

Inhab. ——— ? Brit. Mus.

Skull, Length entire	....	18·6
„ of head	....	8·6
„ of nose	....	10·0
„ of teeth line	....	7·9
„ of lower jaw	....	15·0
Width of temple	....	8·6
„ of notch	....	4·9
„ at middle of nose	....	2·8
„ of intermaxillary	....	1·7

This skull is very like the former, but much smaller, and the beak more conical.

†† *Beak of skull slender, subcylindrical.*

The Doris. Delphinus Doris.

Tab. 20. Skull.

D. Doris, *Gray, Cat. Ost. B. M.* 36.

Skull roundish; nose depressed, $\frac{4}{7}$ of the entire length, and $2\frac{1}{3}$ times the length of the width at the notch, concave behind, rounded on the sides, convex in the middle of the central ridge, flattened in front; intermaxillaries convex, especially in the middle of their length, with a groove between them in front; an irregular impression in front of the blower, rather elongate, extending a little before the line of the hinder teeth; teeth $\frac{45}{44}$, slender, conical, incurved, acute; lower jaw, slender, very obliquely truncated; palate rather convex in front, tapering, shortly grooved behind.

Inhab. ——— ? Skull, Brit. Mus.

Skull, length entire, ...	17·4	inch.
„ of head, ...	7·3	
„ of nose, ...	10·1	
„ of teeth-line, ...	9·2	
„ of lower jaw, ...		
Width at temples, ...	7·9	
„ at nostrils, ...	4.4	
„ at middle of beak,	2·4	
„ at intermaxillaries,	1·1	

This species, in the slenderness and length of the beak forms the passage between this and the next section.

The Bridled Dolphin. Delphinus frenatus.

Delphinus frenatus, *F. Cur. Mam. Lith. t. Cetac. t.* 1, 158.

Blackish, paler on the sides, the belly white, end of tail black beneath; head black; sides ashy, with a dark band from the angle of the mouth under the eye.

Inhab. Cape Verd, from Dussumier's description and drawing.

Skull in the Paris Museum, from Cape de Verde, sent by Dussumier. Length 18·0 inches, of beak 8·3, width at notch 3·5, of middle of beak 1·11; teeth $\frac{33}{34}$, rather larger than *D. dubius*; palate smooth; intermaxillaries large, expanded; nasal convex beneath; triangle rather extended in front of the teeth-line, rugose, and rather more so than *D. dubius*. There is a second skull marked *D. frœnatus*, No. 2, width at notch 3·7; teeth $\frac{35}{35}$ or $\frac{36}{35}$; palate flat; nasal very convex, especially behind; triangle extending rather in front of the teeth line, very rugose; jaws rather strongly reflexed in front of the notch.

B. *Head longly beaked; nose of skull slender, light, rather depressed, especially in front, much longer than the head.* Delphinus.

* *Skull flattened behind; triangle to the teeth line; palate flat, not grooved on the side.*

The Metis. Delphinus Metis.

Tab. 18. Skull.

D. Metis, *Gray, Cat. Ost. B. M.* 36.

Skull rather depressed, the hinder part slightly convex; nose rather depressed, shelving on the sides; intermaxillaries convex, with an elongated groove between them in front, $\frac{3}{5}$ the entire length, twice and a half the length of the width at the notch; the triangular impression in front of the blower rather elongate, produced a little beyond the line of the hinder tooth, rugose in front, oblique, grooved on each side; teeth $\frac{40}{40}$, small, slightly incurved, acute, six in an inch.

Inhab. ——— ? Skull, Brit. Mus.

Skull, length entire, ...	15·7	inches & lines.
„ of head, ...	6·3	
„ of nose, ...	9·4	
„ of tooth-line, ...	7·4	
Width of temple, ...	6·10	
„ at nostril, ...	3·7	
„ at middle of back,	2·2	
„ of intermaxillaries,	1·0	

This species is like the *D. Doris* in size, but has more teeth, and the skull behind the frontal ridge is much flatter, and gradually shelving to the *foramen magnum*, and the beak is more depressed.

D. Metis, var. In the museum of the Bristol Institution there is an imperfect skull, apparently of this species, which differs in the nose being about $\frac{3}{4}$ of an inch shorter, and rather narrower. It has 36 teeth in the upper jaw.

Skull, length of nose	8	7
Width at notch	3	8
„ middle of nose	2	0

(There is a lower jaw fitted to it, which has no teeth and a short gonyx, but it is doubtful if it belong to the same animal); lower jaw 12·3, symphysis 1·5.

There is a second skull in the same collection, very similar, which has $\frac{39}{39}$ teeth.

Skull, length entire	15	0
„ of nose	9	0
Width at notch	3	4
„ at middle of nose	1	10

This skull only differs from the former in the lower jaw being slenderer and united by a longer symphysis in front.

Lower jaw 12 6 long.
Symphysis 2 0 wide.

They are probably indications of two other species. The hinder part of the skull of the latter is also rather more convex than the same part in *D. Metis*.

The Styx. Delphinus Styx.

Tab. 21. Skull.

Skull roundish, rather flattened behind; nose rather depressed, rather convex in the middle, shelving on each side, rather longer than the head, $\frac{5}{9}$ the entire length,

twice and nearly a half as long as the width at the notch; the triangular impression just to the line of the hindermost teeth; teeth $\frac{42}{42}$, slender, subcylindrical, acute, about five in an inch; palate nearly flat; lower jaw rather produced and rounded in front.

Inhab. W. Africa, Capt. W. T. W. Owen, R. N. *Mus. United Service Inst.*

Skull, length entire	18·0	17·6
„ of nose	10·3	10·3
„ of lower jaw	14·9	14·3
Width at the notch	4·6	4·3
„ at the orbit	8·6	7·6
Teeth	$\frac{42}{42}$	$\frac{45}{41}$

This species is very like *D. Euphrosyne*, but is rather smaller and the beak rather shorter: it may prove only a variety.

The Euphrosyne. Delphinus Euphrosyne.

Tab. 22. Skull.

Skull round, rather flattened behind; nose rather broad and rather tapering in front, depressed, flat at the base, shelving on the sides and rounded in the middle above, about half as long again as the head, or $\frac{3}{5}$ the entire length, and $2\frac{1}{2}$ times the length of the width at the notch; teeth $\frac{45}{42}$, slender, elongate, slightly curved, acute.

Inhab. ——— ? Skull, Mus. Norwich.

Skull, length, entire,....	18·6 inches & lines.
„ of head, ...	7·4
„ of nose, ...	11·3
„ of lower jaw, ...	16·0
„ of temple, ...	9·6
Width of notch, ...	4·6
„ at middle of beak,	2·4
„ at temples, ...	8·3

The intermaxillaries are convex and rounded above, with a wide groove between them for half their length in front.

Var. Rather smaller. Skull in British Museum only differs from the one at Norwich in being rather smaller in all its dimensions. This and the former species are very like *D. Metis*, but are rather broader and rather more depressed; the intermaxillaries are rather more convex, especially behind, and form a regular defined front edge to the triangle, which is rough in front, and marked with oblique, cross grooves, while in *D. Metis*, the triangle is furnished with an acute, raised margin on each side in front.

Skull in Mus. Col. Surgeons (Delphinus Delphis, *Cat. Mus. Col. Surg.* 161, *n.* 1117), with the palate convex, not grooved on the side; intermaxillary and vomer forming part of the palate; teeth $\frac{40}{39}$.

Skull, Length, entire, ...	16·0 inches.
„ of nose, ...	10
„ of lower jaw, ...	13·3
Width at notch, ...	3·6: obtained from

the Leverian Museum in 1806. May be another variety.

Dauphin a petit pectoral, *Voy. Pole Sud*, *t.* 21, *f.* 2, *t.* 23, *f.* 7, 8, not described.

Skull in Mus. Paris. Palate flat, rather convex behind; triangle extended rather in front of the teeth line.

Teeth $\frac{36}{39}$; nose narrowed in front, $\frac{3}{5}$ the length and $2\frac{3}{4}$ times the length of the breadth at the notch; lower jaw slender in front; nasal rather high and convex. Is this a Steno?

D. dubius, *Cuv. R. A.* i. 288. *F. Cuv. Mam. Lith. t. Cetac.* 154. *Ann. Mus.* xix. 14.

Nose depressed, like *D. Delphis*, but rather shorter; the teeth small and sharp, $\frac{36}{37}$, thin, pointed.

Inhab. Coast of France.

I found three skulls under this name in the Paris Museum.

1. "D. dubius, *Cuv. n.* 10." *Mus. Paris.*

Skull, length 15·3, of beak 10·0, width at notch 2·9, at middle of beak 1·7; teeth $\frac{48}{47}$ or $\frac{46}{47}$; palate flat, rather convex; lower jaw flat, obliquely in front and keeled in front beneath.

2. "D. dubius, *Cuv. n.* 2." *Mus. Paris.*

Skull, length 16·6, of beak 10·0, of teeth line 8·6, width at notch 3·8, at middle of beak $1·7\frac{1}{2}$; teeth $\frac{37}{46}$ or $\frac{38}{47}$, small, hooked; palate flat, rather convex; beak tapering in front, reflexed before the notch, intermaxillaries rather convex; triangle extending rather in front of the teeth line, rugose in front.

3. "D. dubius, *Cuv. n.* 7." *Mus. Paris.*

Skull, from the Cape de Verds, length 16·0, of beak 9·4, of teeth line 7·6, width at notch $3·7\frac{1}{2}$, at middle of beak 1·4; teeth $\frac{37}{37}$-$\frac{37}{36}$; triangle scarcely extended in front of the teeth-line; palate flat; lower jaw oblique, compressed and flat on the sides, rather turned up at the tip; intermaxillaries convex behind, nose tapering in front.

This last is perhaps D. frontalis, *Dussum. Cuv. R. A.* i. 288.

"Black, belly white, with a lead-coloured band from angle of mouth to pectoral.

Inhab. Cape Verd."

** *Skull roundish; triangle just to the tooth-line; palate with a deep groove on each side, and a high, central ridge behind.*

† *Beak moderate, $1\frac{1}{2}$ the length of the brain-cavity.*

The Dolphin. Delphinus Delphis.

Tab. 26. Fœtus and tongue.

D. vulgaris, *Lacep.*

D. antiquorum, *Ray, Will. Pisc.* 28, *t.* A 1, *f.* 1.

Delphinus Delphis, *Linn. F. Cuv. Cetac.* 123.

Cuvier, Mam. Lithog. t. *Schlegel, Abh.* i. 20, *t.* 4, *f.* 2, teeth. *Cuvier, Oss. Foss.* v. *t.* 21, *f.* 9, 10.

Black, sides gray, beneath white; the dorsal moderate; teeth $\frac{42}{42}$, ($\frac{50}{52}$, Schlegel); nose of skull half as long again as the length of the brain cavity.

Inhab. North Sea. Atlantic Ocean.

Measurement of different skulls in the British Museum. The particular localities are unknown.

Delphinus Delphis.	Length, entire.	Length of nose.	Breadth at notch.	Breadth at the commencement of teeth.	Length of nose as compared to width at notch.	Number of teeth.
a.....	19 0	12 0	3 10	2 9	3 $\frac{1}{4}$	45
b.....	18 0	11 4	3 10	2 9	3 0	43
c.....	18 3	11 3	3 8	2 3	3 $\frac{1}{4}$	45
d.....	17 0	10 0	3 4	2 2	3 0	46
e.....	17 0	10 6	3 6	...	...	46
f.....	...	...	...	...	...	...
g.....	17 0	11 0	3 5	2 2	3 0	45
h.....	17 0	10 6	3 9	2 9	2 $\frac{3}{4}$	46
i.....	18 0	11 6	3 8	2 2	3 0	50
k.....	17 6	10 6	3 6	2 2	3 0	48
l.....	16 6	10 3	3 6	2 2	2 $\frac{3}{4}$	46
m ...	17 6	11 6	3 7	2 2	3 0	48
n.....	18 0	11 0	3 7$\frac{1}{2}$	2 9	3 0	43

The most prominent difference between the specimens was in the width of the upper jaw in front of the notch, just over the commencement of the teeth-series; but I could not find any other character in connexion with it. There is also a slight difference in the form of the palate; in *a*, the central ridge is narrow and rounded above behind; in *b*, it is broad, flat, sharp-edged, and very deeply concave on the sides, under the edges, but the different specimens vary in this particular. In *d* and *g* the hinder part of the palate, near the entrance of the inner nostrils, is sharply keeled; and in *a* the two ridges are rounded.

I am by no means certain that with a larger series of skulls in a perfect condition, and with the animals they belonged to, it might not prove that there are more than one species amongst these skulls.

In all these skulls the intermaxillaries are seen below, forming a slender, elongated, triangular space in the front of the palate, and in some the vomer is also more or less seen in the middle of the palate; but the absence and presence of this bone in the palate, which Mr. Owen appears to regard as important in the distinction of species (see 'British Fossils,' p.), is of very little consequence, at least in this species.

In the British Museum there is a fœtus, figured with its tongue in detail at (Tab. 26.), which probably belongs to this species; it formed part of the collection of Sir Hans Sloane.

It differs from the fœtus of *Lagenorhynchus acutus* in the nose, being more produced (nearly $\frac{1}{3}$ the length of the distance from the end of the nose to the eye), it has seven black rigid bristles on each side, the two front, rather the largest, are on the side of the upper part of the nose, and the five hinder forming a descending line nearly parallel to the groove which separates the beak. The tongue is convex on the sides, with a rather narrow flat space on the hinder part separate from the under sides by a sharp entire edge, the front is rather dilated, sharp-edged and obscurely crenated.

The Janira. Delphinus Janira.

Tab. 23. Skull.

Delphinapterus Peronii, *Mus. Bristol Institution.*

Skull roundish; nose depressed, half as long again as the head; triangle rather in front of the tooth-line; intermaxillaries very convex behind, with a wide groove between, above in front; palate with very wide, deep grooves on each side, extending $\frac{2}{3}$ of the length, centre ridge flattened in the middle, the intermaxillaries forming a long triangle in front; teeth $\frac{4}{4}\frac{3}{2}$.

Inhab. Newfoundland. Presented to the Bristol Institution by G. Thorne, Esq.

Skull, length entire	....	17·10 inches & lines.
Head	....	6·1
Nose	....	11·9
Lower jaw	....	12·6
Width at orbit	....	7·8
Notch	....	4·3
Middle of beak		2·5

This skull differs from the D. Delphis of the Atlantic, in the beak being much shorter and narrower.

The New Zealand Dolphin. Delphinus Novæ Zelandiæ.

Delphinus Novæ Zelandiæ, *Quoy et Gaim. Voy. Astrol.* 49, *t.* 28.

Teeth $\frac{4}{4}\frac{3}{7}$; body elongated, rounded in front; nose cylindrical, rather flattened above; black-brown, edge of the upper jaw and beneath dull white, a yellow band from the eye along the side to below the dorsal; tail slate; pectoral and dorsal dull white, the latter dark-edged.

Inhab. New Zealand and Cape Gable.

Length, entire,	....	5·10 inches.
„ to blowers,	....	1·1
„ to eye, ...	....	1·0
„ to dorsal,....	....	2·8$\frac{1}{2}$
„ to pectoral,	....	1·5
Width of caudal, ...	....	1·2$\frac{1}{4}$
„ of pectoral,	....	4·6
Height of dorsal, ...	....	8$\frac{1}{2}$
Circumference, ...	....	2·11

The following is probably the same.

Dauphin à band fauve, *Voy. Pole Sud, t.* 21, *f.* 1, *t.* 23, *f.* 1, 2, not described.

Skull in figure rather suddenly contracted behind; nose $\frac{7}{11}$ of the entire length of skull, and 2$\frac{3}{4}$ times the breadth at the notch; intermaxillaries convex; teeth $\frac{4}{4}\frac{7}{4}$. Skull in Mus. Paris. Palate with a deep groove on each side; triangle to the teeth line.

Inhab. Van Diemen's Land.

The Sao. Delphinus Sao.

Skull. Length 17·0, teeth-line 8·9, beak 10·6, width at notch 3·7; beak elongate, shelving on the sides, with central cartilage near half its length in front; triangle to

the teeth line; teeth $\frac{5}{1}\frac{3}{5}$ $\frac{5}{5}\frac{2}{1}$, small, cylindrical, hooked; palate flat in front, with a broad groove extending nearly half its length behind; intermaxillaries and palatine distinct, former broad in front; lower jaw slender, shelving, and flat-sided in front.

Inhab. Madagascar, *Dussumier*, 1838. Mus. Paris.

Forster's Dolphin. Delphinus Forsteri.

Tab. 24, from *Forster, Icon.*

Delphinus Delphis, *Forster, Descrip. Anim.* 280. *Icon. ined. Brit. Mus. t.* 31.

Greenish brown or rust-coloured, beneath white; a small white spot on the disk of the dorsal and pectoral fin; teeth $\frac{44}{44}$=176, acute, erect, conical, incurved. Skull, ——— ?

Inhab. Pacific Ocean, between New Caledonia and Norfolk Island, *Forster*, 1774.

"Body straight, round, thickest behind; the pectoral fin tapering at both ends; head rounded, shelving in front, beaked; beak straight, pointed, cylindrical, depressed, attenuated and blunt at the tip; upper jaw shorter, both blunt, toothed; eyes small, lateral, oblong, nearly in the middle of the side, near the gape of the mouth, a small hole (the ears) above and behind the eyes; blower single, between the eyes in crown, lunate; a linear abdominal slit a little behind and beneath the dorsal fin, the front part the vulva, the hinder the vent; teats 2, one on each side the vulva, with a nipple the size of a pea; tail compressed on the sides, keeled above and below, and attenuated towards the tip; pectoral fin lanceolate, scarcely so long as the beak; dorsal fin in the middle of the back, nearly 3-sided, falcate behind, as long as the beak; tail horizontal, 2-lobed, each lobe oblong, lateral, subfalcate.

"Gregarious, swimming very rapidly around the ships and boats.

"Length 6 feet from nose to tail."—*Forster.*

This species resembles, in the distribution of its colouring, *Dauphin à band fauve* (Voy. Pole Sud), but the band on the side is whitish, not fulvous.

The Blue-and-white Dolphin. Delphinus cæruleo-albus.

Delphinus cæruleo-albus, *Meyen, Act. Nat. Cur.* xvi. 609, *t.* 43, *f.* 2.

Teeth $\frac{48}{50}$; white, back bluish, with oblique streaks on the sides, belly white. Skull ——— ?

Inhab. East Coast of South America, Rio de la Plata.

Length 5 feet 6 in. Skeleton in Mus. Anat. Mus. Berlin.

†† *Beak of skull twice as long as the brain-cavity.*

The Cape Dolphin. Delphinus longirostris.

Delphinus longirostris, *Gray, Spic. Zool. t. Cuv. R. A.* i. 288, from *Dussumier, MSS. Schlegel, Abh. t.* 1, 2 & 4, *f.* 1. *Faun. Japon. t.* 24.

D. Capensis, *Gray, Spic. Zool. t.* 2, *f.* 1, not *Cuv.* nor *Rapp.*

Black; dorsal fin large, high; teeth, $\frac{55}{55}$-$\frac{60}{60}$; nose $\frac{3}{5}$ of entire length; skull nearly $3\frac{1}{2}$ times the length of its breadth at the notch.

Inhab. Southern Ocean. Cape of Good Hope, *Gray.* Japan and Ceylon, *Schlegel.* Malabar, *Dussumier.*

Length, entire, ...	81	inches.
„ of beak, ...	7	
„ to angle of mouth,	13	
„ to blowers, ...	$7\frac{1}{2}$	
„ to dorsal fin, ...	38	
„ to pectoral fin, ...	21	
„ of dorsal, ...	12	
„ of pectoral, ...	13	
Breadth of pectoral, ...	5	
„ of tail, ...	26	
Circumference, ...	42	

The figure in the 'Fauna Japonica' is from a drawing by a Japanese artist, made under Mr. Burger's direction.

Skull in the Paris Museum (n. 4), from Malabar, brought by M. Dussumier, 1827.

Skull, length	2·0
„ of beak	13·9
Width at notch	3·2
„ of middle of beak	1·7

Palate with a deep groove on each side of a central ridge in the hinder half, slightly keeled behind near blower; beak very long, very tapering; nasal very convex, rounded; teeth $\frac{55}{54}$, small, slightly curved; triangle exactly to the teeth line.

*** *Skull round; triangle not reaching to the teeth-line; palate convex, with a very concave line on the hinder part of each side; beak twice as long as head.*

The Small-headed Dolphin. Delphinus microps.

Tab. 25. Skull.

Skull small, subglobular; palate convex; nose very long, slender, twice as long as the length of the brain-cavity, nearly four times as long as broad at the notch; intermaxillary convex above, with a broad cavity between them in front, rather contracted in front of the blowers; teeth $\frac{48}{49}$; maxillaries very spongy; the triangle in front of the blowers short, not nearly reaching to the line of the hinder tooth.

Inhab. ——— ?

Dimensions of skulls in inches and lines.

	Mus. Norw.	Mus. Brit.	M.C.S.
Length, entire, ...	17·6 in.	15·6 in.	15·0 in.
„ of nose, ...	....	....	9·6
„ of teeth-line, ...	....	....	8
„ of lower jaw, ...	14·9	13·0	12·6
Width at notch, ...	....	2·7	2·6
„ at orbits, ...	....	....	5·3
„ of middle of beak, ...	2·3	2·7	2·6
„ of intermaxillaries.....	8	9	....

Var. 1. Head smaller, and the nose rather shorter, only $1\frac{3}{4}$ the length of the brain-cavity, but quite as long as compared with the width of the notch.

This skull resembles Schlegel's figure of the skull of *D.*

longirostris in general form, but the beak is rather more slender, and the orbits more obliquely truncated in front.

STENO. *Gray.*

Head convex. Forehead convex. Beak moderate, tapering. Body elongate, fusiform. Pectoral fin moderate, ovate, falcate. Dorsal falcate, in the middle of the back. Skull round, subglobular. Forehead erect. Beak elongate, compressed, higher than broad, tapering in front, convex above. Triangle elongate, deep, produced rather beyond the teeth-line. Palate convex, not grooved on the side. Lower jaw elongate, compressed in front. Symphysis elongate, about $\frac{1}{4}$ the length.

This is at once known from *Lagenorhynchus* and *Delphinus* by the length, compression, and tapering form of the beak of the skull.

"* *Beak scarcely separated from the forehead.*"

The STENO. Steno rostratus.

Delphinus rostratus, *Cuv. Ann. Mus.* xix. 9. *R. A.* i. 289. *F. Cuv. Mam. Lith. t.* . *Cetac.* 156, *t.* 10, *f.* 2, not *Shaw.*

Dauphin de Breda, *Cuv. Oss. Foss.* 278, 296, v. 400, *t.* 21, *f.* 7, 8.

Delphinus Bredanensis, "*Cuv.*" *Fischer, Syn.* 505, from *Cuvier.*

D. oxyrhynchus, *Jardine, Nat. Lib. t.* 27, cop. *F. Cuv. Vert. Nederl. Hist.* 1829, 236, *t.* 1, 2.

D. planiceps, *Breda, Schlegel, Abh. t.* 4, *f.* 8.

"Forehead gradually shelving to the beak" (*Cuv.*); the skull with the nose as long as the brain-cavity; teeth $\frac{21}{21}$-$\frac{23}{23}$, rather large. Black, lower lip and body beneath rosy white, not separated by distinct lines, lower part of the sides black-spotted.

Inhab. North Sea. Holland, *Breda.* Brest, *D'Orbigny.*

"M. Blainville, who observed a skull of this species in the museum of Mr. J. Sowerby, says it had 22 teeth in each jaw, and the symphysis $\frac{2}{3}$ the entire length," *Desm. Dict. H. N.* ix. 160. Now, if this is not a mistake for $\frac{1}{3}$, it will at once separate it from the other *Stenos.*

** *Beak separated from the forehead by a cross groove.*

The MALAY DOLPHIN. Steno Malayanus.

Delphinus Malayanus, *Lesson, Voy. Coq. t.* 9, *f.* 5. *Hist. Cetac.* 152. *Schlegel, Abh.* i. *t.* 1, 2, *f.* 2, *t.* 4, *f.* 3.

D. Capensis, *Rapp. Cetac. t.* 2, *f.* 1, not *Gray* or *Cuv.*

D. plumbeus, *Cuv. R. A.* i. 288. *F. Cuv. Cetac.* 151. *Mam. Lithog. t.*

D. à ventre roux, *Voy. Pole Sud, t.* 22, *f.* 2, *t.* 23, *f.* 3, 4.

Grey ash above and below; nose of skull about $\frac{3}{5}$ of the entire length; teeth $\frac{36}{36}$.

Inhab. Indian Ocean.

Length, entire, ...	5·11 in.	8·0 in.
„ of pectoral, ...	1·1	
Width of tail, ...	1·11	

The Skull of Dauphin à ventre roux, in the Paris Museum, belongs to this species. The nose is very slender, attenuated. Palatal bone and intermaxillaries distinctly seen below; intermaxillaries very convex, dense; lower jaw very compressed in front; palate flat, rather convex on each side behind, very spongy. It came from Molucca.

The skull in the Paris Museum marked *D. plumbeus*, Malabar, Dussumier, also belongs to this species; it measures as follows:—Length, 22·0, beak, 13·6, teeth-line, 12·0, width at notch, 4·4½, symphysis of the lower jaw, 5″ 6‴, teeth, $\frac{37}{34}$-$\frac{37}{37}$, large; beak, elongated, higher than wide, compressed in front; triangle extending rather before the teeth-lines. There is, in the Anatomical Museum of the Jardin des Plantes, also a skull of a fœtal specimen of this species, from Malabar, which is 12 inches long, with the beak 8 inches 4 lines long, and 2·5 wide at the notch. The bones are not united, the upper teeth are 36, they are as large as those of the adult skull, and all inclosed in a cartilage, and very close together. From this skull it is evident that these animals are born with the full number of teeth, which only elongate as they gradually develope. The symphysis of the lower jaw is 2″ 6‴ long.

The FRONTED DOLPHIN. Steno frontatus.

Delphinus frontatus, *Cuv. Oss. Foss.* v. *t.* 21, *f.* 7, 8, *t.* 22, *f.* 8. *R. A.* i. 288.

D. Reinwardtii, *Schlegel, Abh.* i. 21, *t.* 2, *f.* 3, 4, *t.* 4, *f.* 7.

Nose of skull about $\frac{3}{5}$ of its entire length, three times as long as its width at the notch, rather compressed, rounded in front; lower jaw subangular, and bent up at the end, united about $\frac{1}{3}$ of its length; teeth $\frac{21}{21}$-$\frac{24}{24}$, often rather rugose.

Inhab. Indian Ocean.

Dimensions of skull in the British Museum.

Length, entire, ...	20·6 inches & lines.
„ of nose, ...	12·0
„ teeth-line, ...	10·0
Width at notch, ...	3·10
„ at orbit, ...	7·9
„ of middle of beak, ...	2·0
„ of lower jaw, ...	17·0
„ of symphysis, ...	5·6

Var. 1. Lower jaw rather straighter below, and rather wider behind, teeth $\frac{22}{21}$.

Var. 2. Nose much compressed on the side and depressed above, rather larger, rather more than three times as long as wide at the notch, teeth, $\frac{22}{21}$.

Var. 3. Tooth-series rather longer, 10″ 6‴; teeth $\frac{21}{21}$, lower jaw like var. 1.

D. Geoffroyi, *Desm.* An *Inia* has been confounded with this species.

The COMPRESSED-BEAKED DOLPHIN. Steno compressus.

Delphinus compressus, *Gray, Cat. Mam. B. M.*

Tab. 27. Skull.

Nose of skull much compressed, attenuated at the tip, $\frac{3}{5}$ the entire length, 3½ times as long as its width at the

notch; teeth conical, acute, $\frac{26}{26}$; head narrow, and rather compressed at the orbit.

Inhab. ——— ?

We possess two skulls of this species, which is easily known from the former by being much more slender and more attenuated in front, and by the head, though longer, being $2\frac{1}{2}$ inches narrower over the orbit; lower jaw nearly straight below, united for more than $\frac{1}{3}$ its length.

Length, entire, ...	20·6 inches and lines.
„ of nose	13
„ of lower jaw, ...	17
„ of symphysis, ...	$6\frac{1}{2}$
Width of notch, ...	3·6
„ at orbit, ...	6·9

This may be the same as *D. rostratus*, but the teeth are more numerous; and Cuvier's figure, which he thought might be Breda's species, certainly much better represents a common Indian species than this.

Var. 1. Nose rather shorter and more depressed.

The Attenuated-beaked Dolphin. Steno attenuatus.

Tab. 28. Skull.

Delphinus attenuatus, *Gray, List Mam. B. M.*

Nose of skull $\frac{3}{5}$ of entire length $1\frac{1}{2}$ the length of the skull, $2\frac{3}{4}$ the length of the width of the notch, slender, tapering in front; intermaxillaries forming a long triangular part of the front of the palate; vomer elongate, in middle of palate; teeth $\frac{40}{40}$.

Inhab. ——— ?

	a.	*b.*	*c.*
Length, entire, ...	15·9 in.	16·6 in.	15·6 in.
„ of nose, ...	8·9	10·0	9·3
„ of lower jaw, ...	13·3	....	13·0
Breadth of temples, ...	6·0	6·5	6·1
„ of notch, ...	3·3	3·3	3·6
„ of middle of beak,	1·6	1·7	1·8
„ of intermaxillaries,	0·01	·1	1·10

The Cuban Steno. Steno fuscus.

Tab. 26. Fig. 1. Fœtus and Tongue.

Black above and below, in spirits. Head conical; gradually tapering into a rather long nose, without any separating groove, with five black whiskers on each side.

Teeth ——— ?

Inhab. Cuba, W. S. MacLeay, Esq.

This species is only known by a fœtal specimen in spirit, not in a very good state. Presented to the British Museum by W. S. MacLeay, Esq.

It is very peculiar for the elongated tapering head, the pectoral fins are rather large, strongly falcate; the dorsal rather beyond the middle of the back.

The tongue is flat on the top, and nearly as broad as the space between the sides of the jaws; it is entire on the edges of the sides, and slightly dilated in front, crenulated on the edge, and with a larger flat lobe in the middle of the tip. See *t.* 26, *f.* 1, *a*, *b*, *c*.

Mr. Branston has sent me a specimen of *Beluga catodon*, with the tongue in the head, in salt. The tongue is oblong, with a simple, slightly raised edge. It is figured in Plate 29, fig. 3. The tongue appears to have been drawn towards the gullet when the head was separated. It thus appears, that each of the different genera has a peculiar kind of tongue; this is worthy of further investigation.

The fœtus of *Phocæna* has two bristles on each side of the nose; as the animal grows, these bristles fall out, and each leaves a small pit on the side of the nose, which Klein (*Hist. Piscium*, i. 24) mistook for the nostrils, as has been well observed by *Prof. Eschricht*, 250.

The following species require further examination.

1. Delphinus pseudodelphis, *Weigm. Schreb. t.* 378, skull.

Teeth $\frac{42}{22}$ or $\frac{43}{5}$.

Inhab. ——— ? Mus. Leyden.

" Skull in the form of *D. Malayanus*, but beak shorter, and teeth shorter and thinner, very like those of *D. Delphis*. Palate not grooved. Symphysis of lower jaw rather long."

This may be the same as the *Steno attenuatus*, but our copy of Schreber does not contain the plate referred to.

2. D. velox, *Dussum. Cuv. R. A.* i. 288. *F. Cuv. Man. Lith. t. Cetac.* 154.

Teeth $\frac{36}{32}$; grey, lips and lower jaw whitish, *F. Cuv.*

Teeth, $\frac{41}{41}$; nose rather more elongated. *Cuvier.*

Inhab. Ceylon.

3. Delphinus Boryi, *Desm. Mam.* 515. *Dict. Clas. H. N. t.* 141, *f.* 2.

Inhab. Madagascar. (Coast of New Holland?)

4. ? D. Bertini, *Desm.* from *Duham. Pech. t.* 3, *f.* 10.

Cachalot? *Blainv.*

No teeth in lower jaw, but has a beak.

Inhab. ——— ?

5. D. Chinensis, *Desm.* from *Osbeck, Voy.*

Shining white.

Inhab. Chinese seas.

The following species have been named and figured by the sight caught of them when swimming!

D. cruciger, *Quoy & Gaim. Voy. Uran. t.* 12, *f.* 3, 4. D. albigenus, *Quoy, l. c. t.* 11, *f.* 2. D. rhinoceros, *Quoy, l. c. t.* 11, *f.* 1, all from New Holland.

D. bivittatus, *Lesson*, perhaps the same as D. cruciger.

D. lunatus, *Lesson, Voy. Coq. t.* 11, *f.* 4.

D. leucocephalus. D. minimus and D. maculatus, *Lesson, Voy. Coq.* i. 183.

The following species have been named only from figures or very slight descriptions.

D. Senedetta, D. Commersonii, D. niger and D. Pernettii, *Lacep.*

D. Epiodon and D. mongitori, *Raffinesque.*

B. *compressed. Symphysis of the lower jaw very long. Dorsal none. Teeth in both jaws.* Fluviatile.

d. *Skull with the maxillary bones bent up in front of the blowers, and forming a vault. The teeth compressed. The paddles fan-shaped, truncated at the end.* Platanistina.

PLATANISTINA, *Gray.*

Head convex, back compressed, curved up at the end. Teeth compressed. Dorsal none; back keeled in the place of the fin, and obliquely truncate behind. Pectoral fan-shaped, truncated.

The SOU SOU. Platanista Gangetica.

Delphinus Gangeticus. *Lebeck, N. Schrift. Berlin, Natur.* iii. 280, *t.* 2. Home, Phil. Trans. 1818, 417, *t.* 20. *Roxburgh, Asiatic Researches*, vii. 170, *t. Cuvier, Oss. Fos.* v. *t.* 22, *f.* 8—10.

Delphinorhynchus gangeticus, *Lesson.* Platanista gangeticus, *Gray, Illust. Indian Zool. t. F. Cuv. Cetac.* 252.

Delphinus Shawensis, *Blainv. Jour. Phys. Desm. Dict. H. Nat.* ix. 153, *from spec. in Mus. Col. Surg.*

D. rostratus, *Shaw*, 514, from same specimen.

Blackish lead-colour, rather paler beneath.

Inhab. India, Ganges. Skull and specimen, British Museum.

As the animal increases in age, the ends of the jaws become more turned up, and the teeth enlarge and become thicker at the base.

e. *Skull with the maxillary bones simple, expanded over the orbit. Teeth conical. Paddles ovate or oblong.* Iniana.

Synopsis of the Genera.

1. INIA. — Teeth rugose, the hinder ones with a rounder tubercle on the inner side.

2. PONTOPORIA. — Teeth cylindrical, conical, acute, curved.

INIA, *D'Orbigny.* Delphinus, *Desm.* Delphinorhynchus, *F. Cuv.*

Head rounded, convex. Nose produced, nearly cylindrical, hairy. Blowers oblique, nearly above the pectoral fins. Ear-hole distinct. Teeth numerous, rugose, grooved, permanent; the front, hooked; the hinder, close at the base, with a large rounded tubercle on the inner side. Dorsal fin none. Back keeled, sub-triangular behind. Body compressed behind. Pectoral fin large. The skull depressed, with the nose twice as long as the brain-cavity, compressed, with a groove along each side. Temporal cavity very large, edged above by a strong crest, and the orbital hole very short, roundish. Muzzle of the young hairy.

The INIA. Inia Geoffroyii.

Delphinus Geoffroyii, *Desm. Mam.* 512.

D. Geoffroyensis, *Blainv. Desm. N. Dict. H. N.* ix. 151.

" D. à bec mince," *Cuvier, Desm.*

Delphinorhynchus frontatus, *F. Cuv. Cetac.* 121.

Inia Boliviensis, *D'Orbigny, N. Ann. Mus.* vii. *t.* 22, *f.* 3; cop. *F. Cuv. Cetac.* 166, *t.* 10*, *t.* 11.

Pale blue, reddish beneath; fins and tail olive, some reddish, others blacker; teeth $\frac{3}{3}\frac{3}{4}$-$\frac{3}{3}\frac{4}{4}$.

Inhab. Upper Peru or Bolino, River Moxos. Animal and skull Mus. Paris.

Length, entire, ...	1 met.	4 centim.
„ of muzzle, ...		23
„ to eye, ...		34
„ to blower, ...		40
„ to ears, ...		43
„ to pectoral fin, ...		52
„ to dorsal fin, ...	1 met.	30
„ of pectoral, ...		42
Breadth of pectoral, ...		18
„ of caudal, ...		50
Height of dorsal, ...		9
Circumference of thickest part,	1 met.	4

The specimen in the Paris Museum, which Desmarest described as *Delphinus Geoffroyii*, is evidently this species. It was taken from the Lisbon Museum, and is covered with paint. It has no dorsal, and it shows the teeth sufficiently to exhibit their rugose state, and the large and peculiar tubercle on the inner side of the hinder ones, which is characteristic of this genus, and which appear to have been overlooked by M. Desmarest, who describes them as " conique, obtuse, avec une sort de collet inférieurement et entre leur surface est rugueuse."

The skull in the Paris Museum from M. D'Orbigny, has a prominent tubercle behind the blowholes; eyebrows convex and rugose on the top; beak with a slight groove on each side above; lower jaw with scarcely any ridge on the sides; the symphysis long, occupying more than $\frac{1}{2}$ the length of the lower jaw; teeth large, regular, hinder ones with a rounded, regular tubercle on the inner side.

Length of skull	19·0
„ beak	12·0
„ symphysis	9·0
„ teeth line	11·0

CANADIAN DOLPHIN. Inia Canadensis.

Tab. 5. Animal.

Delphinus Canadensis, *Desm. Mam.* 516.

Dauphin blanc du Canada, *Duham. Pesch*, ii. x. *t.* 10, *f.* 4.

Inhab. Canada.

Dr. Richardson informs me he has seen many pure white dolphins as high as Quebec, on the St. Lawrence, and he has also seen a white dolphin, about 6 feet long, in Hudson's Bay; the latter was probably a *Beluga.*

M. De Blainville accidentally purchased in Paris the

original drawing from which Duhamel copied the front half of this animal. It shows the appearance of a keel in the middle of the back, which replaces the dorsal fin. Tab. 5, is a copy of a tracing of this drawing, kindly sent me by M. De Blainville. It can scarcely be a *Beluga*.

The external figure of this animal greatly resembles the *Hyperoodon*, and it agrees in the hinder position of the blower; but the large size of the pectoral, and the absence of the dorsal, prevent it being regarded as a species of that genus.

PONTOPORIA, *Gray*.

Skull roundish. Beak very long, compressed, with a strong groove on each side above. Eyebrow with a long, cylindrical crest. Lower jaw compressed, with a deep groove on each side. Symphysis very long. Teeth small, subcylindrical, smooth, rather hooked, acute.

The PONTOPORIA. Pontoporia Blainvillii.

Tab. 29. Skull.

Delphinus Blainvillii, *Fremenville*, *Mus. Paris*.

White, with a black dorsal streak; skull, with the tubercles behind the blowholes, broad, slightly convex; eye-brows with a strong, longitudinal crest; upper and lower jaw with a deep, well-defined ridge on each side; teeth $\frac{5}{5}\frac{3}{3}$, small, conical, hooked, smooth; symphysis more than $\frac{1}{2}$ the length of the lower jaw.

Inhab. Monte Video. Skull, Mus. Paris.

Length of animal	....	48·0 inches and lines.
„ skull	....	12·6
„ beak	....	8·0
„ symphysis	....	5·9
„ teeth line	....	5·4

According to Desmarest, Fremenville saw a dolphin on the coast of Brazil, which was 15 feet long, with a very convex forehead; ashy, with a white streak on each side of the head, on the back, throat and belly.

The Delphinus macrogenius, *Fischer*, *Curier*, *Oss. Foss.* v. 312, *t.* 23, *f.* 4, 5, *f.* 9—11, appears to belong to this tribe.

APPENDIX.

DURING the time the Plates have been engraving, and the text printing, the following new materials have come into my hands, which I think may be a useful addition to the knowledge of these difficult animals.

BALÆNIDÆ.

From the examination I have been able to make of the baleen of *Balænoptera rostrata*, and of different masses of small blades of *Balæna australis*, it would appear as if there was, at least, in those two species, two series of Baleen on each side of the palate; the external series being formed of large triangular blades placed at a certain distant apart, and the internal, in *Balænoptera rostrata*, formed of smaller, much thinner, triangular pieces, placed much closer together and forming a very dense screening apparatus; and in *Balæna australis*, the inner series is formed of numerous separate narrow strips of Whalebone, each ending in a pencil of hairs, which vary in size from that of small twine to that of tape, half an inch wide; these are placed behind the others, and gradually increase in size from the innermost, to the broad external series.

The Baleen or Whalebone, has generally been considered as the teeth of the whale; but this must be a mistake, for Professor Eschricht has shown that the fœtus of *Megaptera Boops* (*Danish Trans.* 1845, xi. *t.* 4), has numerous teeth on the edge of the jaw, though they are never developed. I am inclined to regard the Baleen as a peculiar development of hair in the palates of these animals, and somewhat analogous to the hair found in the palates of the genus *Lepus*.

The Baleen or Whalebone, affords good characters for the separation of this family into sections.

The Whalebone of the smooth-bodied whales without any back fins, is elongate, much longer than broad at the base, and gradually attenuated, and edged with a fringe of equal, lengthened, fine, soft bristles. The Baleen is internally formed of a thin layer of fibres covered on each side with a thick coat of 'enamel,' when dry and out of the whale they are flat. The Whalebone of the plaited bellied whale with a hunch (Megaptera) or a dorsal fin (Balænoptera), is short, broad, triangular, not much longer than broad at the base, and rapidly attenuated, and is edged with a series (sometimes, rather crowded) of elongate rigid unequal bristles like fibres, which become much thicker and more rigid near and at the tip, the Baleen is internally formed of one or two layers of thick fibres, covered on each side with a thin layer of enamel, and when dry and out of the palate they are curled up and somewhat spirally twisted.

The Baleen of the *Balænæ* is alone called *Whalebone* (or rather *Whale-fin*, as it is usually called) in commerce. The Baleen of the other genera of this family is called *Finner-fin*

or *Humpback-fin*. The wholesale dealers in Baleen, in the 'London Directory,' are called *Whale-fin Merchants*, and whalebone occurs under the name of Whale-fin in the Price-current. In the 'London New Price-current' for 1843, the *South Sea Whale-fin* varied during that year from £200 to £305 per ton, and there is no price named for *Greenland Whale-fin*.

Balæna. The Baleen or Whalebone, is narrow, elongate, linear, or very gradually tapering, fringed on the inner edge with numerous fine, soft, flexible fibres of a nearly uniform length, consisting internally of a thin series of several series of fibres, covered on each side by a thick coat of enamel.

Scoresby describes these animals as having a slight beard, consisting of a few scattered white hairs, surmounting the anterior extremity of both jaws.—*Arct. Regions*, i. 458.

The fins or bones of each series together, are called a "side of bone," the largest are in the middle, from whence they gradually diminish away to nothing at each extremity: the largest fin on the side is called the "sample blade."

Through the kindness of Messrs. Smith and Simmonds, and Mr. Smith of Messrs. W. Westall & Co., Whale-fin Merchants, I have been enabled to examine and compare numerous species of the *Baleen* received from the different countries, and to compare their peculiarities as exhibited during its preparation.

They know in the trade three distinct kinds. 1. The *Greenland*, from Greenland, Davies' Straits and various parts of the North Sea, which is the best. 2. The *South Sea*, or *Black fish whale-fin* brought by the South Sea Whalers. And, 3. The *North West Coast*, or *American whale-fin*, which was first imported about five years ago, and at first sold for a high price, but it has now fallen, and is considered as only a large kind of South Sea; but from the examination I have been able to make, I should believe that these three kinds are each produced by very different species of whales.

The *Greenland* has the hair on its edge generally stripped off, and is clean and bright when it is brought here; but this may be from the care the North Sea whalers take in collecting and cleaning it (as described by *Scoresby, Arctic Regions*, i. 418), and the bones are brought home in bundles about 100 weight each. On the other hand, the North West Coast and the South Sea, has the hair left on the edges, appears to be brought home in bulk, and is always covered with an ashy white soft laminar coat, looking like the rotted external layers of the enamel. This coat has to be scraped off with large knives before it is used or prepared,—and the surface after the scraping is not so polished and resplendent as that of the Greenland "fins."

The three kinds are very different in shape. The outer edge of the *Greenland* is curved considerably; in that of the *North-west coast*, it is much more straight; and in that of the *South Sea*, almost quite straight. Figs. 3, 4 and 5, in Plate I, represent the three different kinds in the same position, and on the same scale, being one-fourteenth of the natural length and breadth. The fibres on the edge in the *Greenland* and *Margined* Whales are very fine, flexible and long, forming only a thin series; in the *South Sea*, they are rather coarser; but in the *North-west Coast*, much thicker and coarser; quite bristly, and much more so towards the apex; and they are more erect, and form a thicker series.

The Whalebone is boiled for about twelve hours, to render it soft before it is divided into strips—it then divides very easily. The smaller pieces, when softened, are split by a small machine into very narrow strips like bristles, and used for bristles to make brooms, &c. &c.

For every purpose the Greenland "fins" are preferred, and last much longer, this is even the case with the false bristles; and they will alone do for the finer work, such as the strips for platting for bonnets, the platting to make ladies riding-whips, or the covering of telescopes and other tubes; the white strips for these purposes being taken from pale longitudinal lines on the enamel of the Greenland fins.

The Right Whale. Balæna Mysticetus.

Tab. 1, *f.* 4. Baleen.

The Baleen is very long, varying from 9 to 12 feet, linear, tapers very gradually, and of nearly the same moderate thickness from end to end, and covered with a polished grey or greenish black enamel. The internal fibres occupy a small part of the substance and are of a fine uniform texture, and are black; while the enamel which forms by far the greater part of the substance is generally blackish; but it is sometimes, especially on the inner side of the "fin," paler in longitudinal stripes. The fibres on the edge, like the internal fibres of which it is a continuation, are very fine and black. The "fins" or pieces of Baleen, are flat, or as the merchant calls them "kindly," so that they produce straight pieces fit for the better kind of parasols and umbrellas, &c., when cut into strips.

Some twenty-five years, a ship arrived with the "fins" taken from one "fish," which was peculiar for all being of a yellowish white colour, and for having the fibres as well as the enamel of this pale colour. There is a single "fin" of this animal, nearly 9 feet long, now in possession of Mr. Brunies, (6, Percy Circus, Spafields). It agrees in every other respect with the common Greenland Baleen, so that probably the fish was an albino.

A specimen of the Greenland whale, 41 feet long, was stranded in Caernarvon Bay, May 4, 1846, and towed into Liverpool.

The North West Whale. (Balæna Japonica)?

Tab. 1, *f.* 2. Baleen.

The Baleen is nearly as long as the Greenland, varying from 7 to 12 feet long, and is slender; but for the same length it is nearly twice as thick in the substance, and it gradually diminishes in thickness towards the ends.

The enamel, when the outer coat is removed, is not so polished as that of the Greenland, and when cut through, the centre fibres are thicker, tubular, and occupy about $\frac{1}{5}$ to $\frac{1}{8}$ of the thickness, much more in proportion than they do on the Greenland fins, and the enamel and fibre are coarser in texture and much more brittle.

The fins or blades of this Whalebone are generally

flexuous, or "not kindly," so that when cut into strips, they have the defect of being variously bent, and tapering towards the end, which, with their brittleness, greatly reduces their value.

The Cape Whale, Balæna australis.

Tab. 1, *f.* 3. Baleen.

The Baleen is about 6 feet long, elongate triangular, rather rapidly tapering to a fine point. The internal fibres are rather coarse, but much finer than the former.

There are sometimes imported with these Baleen, a few yellowish white "fins," which seldom exceed 2 feet in length; in these, the fibres as well as the enamel is white, they are not so transparent as the white Greenland fins before referred to, but have the same coarse texture, and are brittle like the black southern specimens, and as they do not take so good a polish, they cannot be used for making shavings for platting, &c.

There has lately been brought by the South Sea ships, several hundred weight of a very small kind of Whalebone, which is implanted in the remains of the palate, in three or four series gradually diminishing in size towards the innermost series; each piece is linear, compressed, almost $\frac{1}{4}$ to $\frac{1}{8}$ of an inch wide, rounded on the edge, varying from 5 to 8 inches in length, and ending in a tuft of black hair-like fibres; in texture, colour, and external appearance it exactly agrees with the Baleen of the Southern Whales, and I suspect it must form the inner part of the "screening apparatus" of that animal; and if that is the case, the existence of these separate pieces near the middle of the roof of the mouth will form a very peculiar character in this kind of whale. I am further strengthened in this belief by perceiving amongst some short pieces of "Southern Whale-fin," probably forming the end part of a side, at the inner or shorter or palatine edge of each blade, two or three small separate linear processes of Whalebone ending a parcel of hairs similar to the pieces and form, above described, but of a smaller size and rather more wavy. *Scoresby*, who gave a very detailed account of the position of the Baleen in Greenland Whales, (*Arct. Reg.* i. 457, and ii. 415), does not mention anything of the kind in that animal.

The Baleen of this animal is sometimes called the Whale-fin of the "Black Fish," the name that is sometimes applied to the *Physeter Microps*. It may be this species that Beale and other South Sea whalers refer to under the name of *Black Fish*.

M. Schlegel and F. Cuvier, are much distressed because in describing the *Delphinus Capensis*, I wrote by mistake shortness instead of length, (*see Faun. Japan*, 13; *F. Cuvier, Cetac.* 147). Yet, M. Schlegel is liable to the same mistake. Thus in p. 23, he has evidently written *B. Antarctique* for *B. Arctique*, and the Plates 26, *Balænoptera Antarctica*, though it is the same animal as *Balæna Antarctica*, in p. 27; but if such oversights are to be constantly referred to, we should have little else to do,—and as to M. F. Cuvier, Schlegel has pointed out many important mistakes in his description of the Cape Whale.—*Faun. Jap.* 2.

In the translation of Cuvier's Animal Kingdom, published by Henderson (which is a reprint of the American translation), the account of fishing for the Cape Whales at Table Bay, is placed under the *Manate* or *Sea-Cows*, apparently because "Cow or female whale are principally taken!" p. 182.

In the Museum of the Bristol Institution, Mr. Stutchbury informs me there are two lower jaws of the "Cape Whale," one 15 the other 16 feet long—and the ribs and scapula.

Mr. Warwick prepared the skeleton of the young one mentioned in the text, and sold it to M. Boissenaux of Paris.

Mr. Warwick has kindly sent me a measurement of a female whale of this species taken at False Bay Fishery, said to be full-grown, and considered by the whalers as of large size:—

	Ft.	In.
"Total length	68	0
Height of the body	14	0
Length of head	16	0
Width of tail	15	6
Length of ribs	10	6
Diameter of gullet		2

I could not pass my hand through it. Number of vertebræ 52. From all the conversations I have had with the whalers, I do not think the Cape Whale ever attains the size of the Greenland species. These whales of the Cape, I constantly found covered with *Tubicinella Balænarum* and *Coronula Balænaris;* but the *Spermaceti Whale* was seldom or never so covered: they occur principally on the head, where they are crowded, and but rarely on the body, and then only single scattered ones."

Western Australian Whale. Balæna marginata.

Tab. 1, *f.* 1. *Baleen.*

The Baleen very long, slender (nearly eight times as long as wide at the base), pure white, thin, with a rather broad black edge on the outer or straight side.

Inhab. W. Australia.

This species is only known from three laminæ of Baleen which have been kindly given to me by Mr. Warwick. It is so much smaller and broader, compared with its width at the base, and so differently coloured from the Baleen of any of the other species, that I feel called on to consider it as distinct.

Length, 20 inches, width at the base, 2 inches 6 lines.

The following are the measurements of the samples of the different kinds of "*Whale-fin*" in the British Museum.

	Greenland.		North Western.		Southern.	
	In.	L.	In.	L.	In.	L.
Length of blade, entire	144	0	112	0	90	0
Width at base	11	0	10	0	9	0
„ at middle	6	0	4	0	3	6
„ at $\frac{3}{4}$ length	....	....	2	4	2	0
„ of hair at end	10	0	7	0	7	0
Thickness at base	4	4	4	5	0	$3\frac{1}{2}$
„ at middle	4	4	0	$4\frac{1}{2}$....	0	$2\frac{1}{2}$
„ $\frac{3}{4}$ the length	0	$2\frac{1}{2}$....	0	$3\frac{1}{2}$....	0	2

Balænoptera.

The Baleen of this genus, and of the hump-back, is short,

broad, triangular, rather longer than broad at the base, and edged with a series of elongate, unequal, bristle-like fibres, which become much thicker and more rigid near the upper tip. It is internally formed of one or two crowded layers of thick tubular fibres, covered on each side with a thin coat of enamel, which becomes thinner and thinner near the edge, where the fibres are free; it is always twisted, and is only used to split into false bristles, but in this they are inferior to the Southern or lowest kind of *Baleen* of the *Balænæ*.

These animals are often called *Razor-backs*, by the sailors.

Balænoptera sulcata *Jacob*, (*Dublin Journ. Science*, 1825, 333.)

Dr. Jacob attempts to prove that *Balæna Boops*, *B. rostrata*, *B. musculus*, and *B. jubartes*, are but one species; and he has taken considerable trouble to bring together the measurements and proportions of the different specimens which have been described.

He gives an outline of his specimens, and contrasts it "with an outline of Hunter's Piked Whale, drawn according to the measurements given by him;" and he observes, "that the proportions of the body (of these two specimens) vary in a remarkable manner, not only as to the situation of the umbilicus and other parts, but in the breadth of the tail, the length of the fin and arms. This, however, is what should be expected, supposing Mr. Hunter's to have been a young animal, because such proportional superiority in size of the extremities is characteristic of the earlier periods of life."

In the following table (observes Dr. Jacob), the first column contains the dimensions of each part in feet and inches; the second, the proportion which each measurement bears to the entire length of the animal, which is supposed to be 1,000.

	Hunter, 17 feet.		Scoresby, 17 ft. 6 in.		Neils, 43 feet.		Sibbald, 46 feet.		Dr. Jacob, 70 feet.		Sibbald, 78 feet.	
Breadth of tail	5 0	294	4 6	257	10 6	232	9 6	206	14 0	200	18 6	237
Length of arm	2 4	137	2 0	114	5 0	116	5 0	108	7 0	100	10 0	128
Navel to tail	8 0	470	...	...	...	...	...	...	30 0	428	...	...
Anus to tail	4 4	254	...	...	...	...	14 0	304	20 0	285	...	...
Fin to tail	4 9	279	4 6	257	12 0	279	8 6	184	20 0	285	...	...
Gape	3 3	194	3 6	200	14 0	...	10 0	217	15 0	214	13 0	166
Horny plates	0 5	24	0 6	28	1 6	34	...	...	3 0	42	3 0	38
Breadth of fin	1 0	58	1 3	71	2 6	58	...	...	2 6	35	2 0	25
Bladebone to snout	2 6	147	3 0	171	...	...	6 8	144	...	...	...	...
Eye to ear	1 0	58	...	...	...	...	...	...	3 6	50	...	...
Height of fin	...	...	0 9	42	2 6	58	...	...	1 6	21	3 0	38

Professor Eschricht of Copenhagen, who has devoted much time to the study of the anatomy and development of the Northern species of this genus, and has published several papers in the Danish language on the subject, in 'Transactions of the Danish Academy' for 1845-1846, has kindly translated for me the following passage in his last published paper, as the then result of his examinations:—

"Of all that has been communicated in this chapter, it appears to me to be *proved*, that amongst the *Fin* whales, at least, three different species have their abode in the Northern Seas:—

I. *In the Group of the Longimana.*

1. The Greenland *Keporkak*. *B. Boops*, O. Fab. *B. longimana*, Rudolphi.

II. *In that of the Short-handed.*

2. The Norwegian *Vaaga kval*, *B. minor;* and
3. The common great short-handed, *B. Boops.*

To be *almost proved* that besides there exists,

4thly. A peculiar large short-handed species. The *Balænopterus Musculus.*

And, at least, it is highly probable, that—

5thly. The Greenlandian *Kepokartrak* is the representative of a particular form: and even that—

6thly. The Greenlandian *Tikagalik* or *Balæna rostrata*, O. Fab., may be a different species from the Norwegian "*Vaagekval.*"—*Eschricht, 4th Mem.* p. 157."

M. Eschricht is now engaged in examining the specimens of *Balænoptera*, to be seen in the different Museums of Northern Europe, to attempt to settle the synonima of

the species. He has found most distinct characters of the species in the formation of the bones of the neck, the ribs, the colour of the body, and the arms.

The account of this genus, in the former part of this paper, was only derived from the examination of a single specimen, and the comparison of the descriptions and remarks of preceding authors. Since that time, by the examination of Professor Eschricht's paper, and from personal communication with him, and the examination of the several skeletons of this genus, in different collections, I am satisfied that there are several distinct species which may be thus distinguished.

* *The pectoral,* $\frac{1}{3}$, *the dorsal,* $\frac{2}{3}$ *the length from the nose. Vertebræ,* 46 *or* 48, *lateral process of second vertebra ring-like.* Balænoptera.

Pike Whale. Balænoptera rostrata.

Tab. 2. Skull, *t.* 1, *f.* 5. Baleen.

Balæna rostrata, *Muller, Prod. O. Fab. Faun. Groen.* 40. *Hunter, Phil. Trans.* lxxvii. *t.* 20—23, cop. *E. m. t.*

Rorqualus rostratus, *Dekay, Zool. New York Mus.* 730, *t.* 30, *f.* 1.

B. musculus, *part. Flem. B. A.* 30.

B. Boops, *part, Flem. B. A.* 31.

Balænoptera acuto-rostrata, *Lacep. Scoresby, Arct. Reg.* i. 485, *t.* 13, *f.* 2.

Balænoptera microcephala, *Brandt.*

Rorqualus minor, *Knox, Jardine, Nat. Lib.* 142, *t.* 7.

B. borealis rostrata, *Fischer, Syn. s.* 25.

B. Boops, *Cat. Col. Surg.* 171, *n.* 1,199, skeleton.

Rorqualus Boops, *F. Cur. Cetac,* 321, *t.* 20.

Balænoptera Physalus, *Gray, l. c.* 18.

Vaagekral, *Eschricht's Danish Acad.* xi. *t.* 1, 2, and *p.* 286—299. *Fœtus and anat.*

Black, beneath reddish white. Pectoral fin, white near the base above. Baleen, broadly triangular, "white," *Fab.* "White and short," *Knox.*—Length, 20—30 feet.

Inhab. North Sea. New York Bay, *De Kay.* Valognes, France, *Geoffroy.* Greenland, called *Tikagulik.* Norway, called *Vaagekval.*

Scoresby says, "the Baleen of the Spitzbergen specimen is thin, fibrous, of a yellowish white colour, and semitransparent, almost like lantern-horn," *Arct. Reg.* i. 486.

The Greenland skull here figured, is 46·6 inches long, 28·0 at the beak, 23·0 inches wide at the orbit, 15·6 at the notch, and 10·6 in the middle of the nose. The nose is rather wider in proportion than in the skull of the whale figured by *Cuvier, Oss. Fos.* v. *t.* 26, *f.* 1, 2, 3. The nose of the skull is elongate triangular, with straight regularly converging sides, not quite twice as long as the width at the notch.

** *Pectoral fin* $\frac{1}{4}$, *dorsal fin* $\frac{3}{4}$, *the length from the nose; back gray. Vertebræ,* 54, *lateral process of nuchal vertebra ring-like* (*pierced*). Physalus.

The Razor Back. Balænoptera antiquorum.

Razor-back of the Whalers. "B. Physalus, *Linn.* B. Gibbar, *Lacep.*"—*Scoresby, Arct. Reg. t.* 479.

? Great Northern Rorqual, *Knox. Jardine, Nat. Lib. t.* 6, skeleton.

Rorqual de la Mediterranea, *Cuv. Oss. Foss.* v. 370, *t.* 26, *f.* 5, skull.

Balæna antiquorum, *Fisher, Syn.* 525.

Balænoptera musculus, *F. Cuv. Cetac.* 335. *Eschricht's* MSS. (not *Linn*).

Balein de Sainte Cyprien, *Companyo Mem.* 4to, 1830. *Carcassonne* and *Farines Mem. F. Cuv. l. c.* 337.

? Balæna rostrata. *Rudolphi, Abhand, K. Akad. Berlin,* 1822, 27, *t.* 1—5. Skeleton, &c., (31 feet).

? B. Boops, *Albers, Iron, Anat. t.* 1, (skeleton, 29 feet). *Camper ate,* 74, *t.* 11, 13. Skull.

Slate-gray, beneath whitish. Baleen slate-coloured, under edge blackish, inner edge pale streaked.

Inhab. North Sea. Berwick, 1831, *Dr. King.* Hamburg, *Rudolphi.* Coast of Hampshire, 1842. Skeleton at Black-gang Chine.

Its colour is a pale bluish black or dark bluish gray, in which it resembles the suckling of *B. mysticetus,* (*Act. Reg.* 479). Bluish black on the back, bluish gray on the belly. Baleen, 4 feet long, thick, bristly and narrow. Length 105 feet, fins, long and narrow, *Act. Reg.* 481.

There is a nearly perfect skeleton of this species (which I have lately visited in company with Professor Eschricht) exhibited at Black-gang Chine, the Isle of Wight, which was caught in April, 1842, near the Needles. It was, when first found, dark gray above, and whitish beneath.

The Baleen is slate-coloured with white streaks, on the near or inner side; nearly black and with a few darker streaks near the outer or straight side. It was 75 feet long. The skull is 16 feet 7 inches long, 5 feet wide at the notch, and the edge of the beak from the notch is 12 feet long. The lower jaw, 16 feet 9 inches; the upper arm-bone, 2 feet, and the larger fore-arm bone is 33 inches long. In this skeleton, the scapula and the chest-bones are wrongly placed, and the bones of the carpus and finger; and the lower processes of the vertebræ as well as some of the smaller parts of the head are deficient. There are seven cervical vertebræ; the first, very broad, with a very large lateral process, on each side pierced with a hole near the body; the second is higher than it; and the three following have a ring-like or pierced lateral process, which Professor Eschricht regards as one of the best characters of the species. There are 14 thoracic vertebræ. The ribs are long; the first, simple, shortish and broadish, the rest almost of equal size and length, the last being very nearly as long as the others. The lumbar vertebræ are fifteen, with considerably thicker bodies than the others. Caudal vertebræ eighteen, exclusive of those contained in the fin of the tail, which is preserved entire.

Professor Eschricht has two heads of this species at Copenhagen from Greenland. There is a head and some vertebræ at Paris, and some vertebræ at Berlin, and the St. Cyprian specimen, which was at Lyons in 1835.

M. Cuvier refers the drawing made from a specimen caught at Isle St. Marguerite, near Cannes, in March, 1797, which is engraved by Lacepède, (*Cetac. t.* 5), to this spe-

cies; it was 60 feet long. The upper part, and pectoral fin, are represented as black with gray reflections, and beneath white, *Lacepède*, *t.* 6 & 7; and Cuvier, *Oss. Foss. t.* 26, *f.* 5, represents the head of this specimen.

M. Companyo described the animal as deep slate-gray, the throat and lateral part of the pectoral fin glistening white. Vertebræ 60, the 15 lumbar are very large. The skeleton was at Lyons in 1835.

From the form of the first vertebræ in the figure, I am inclined to believe that Knox's Great Rorqual belongs to this species.

The colour of Albert and Rudolphis specimen is not stated, but they differ from Hunter's and Knox's account of the *B. rostrata*, in having 34 & 35 lumbar and caudal vertebræ. Professor Eschricht considers Albert's specimen the same as Hunter's. I have in the text (p. 20), regarded Rudolphi's specimen as the type of a species which I have called *B. laticeps*. It may be only a synonyma of *B. rostrata*, but the skeleton requires to be compared.

*** *Pectoral fin* $\frac{1}{4}$, *dorsal fin* $\frac{3}{4}$, *the length from nose. Back black, lateral process of two nuchal vertebræ entire. Vertebræ*, 62, 64. Rorqualus.

The Boops. Balænoptera Boops.

1. Balæna tripenni quæ rostrum acutum habet, *Sibbald, Palæog.* 29, *t.* 1, *f. D.*

Pike-headed Whale, *Penn. B. Zool.* iii. 40.

B. Boops, *Linn. S. N.* i. 106. B. borealis *Var.* Boops, *Fisher, Syn.* 524.

Balænoptera jubartes, *Lacep.*

2. Balæna tripenni que maxillum inferiorem rotundum, &c. *Sibbald, Palæog.* 33, *t.* 3. (*Edit.* 1792), 78, *t.* 3,

Round-lipped Whale, *Pennant, Quad.* iii. 42.

B. musculus, *Linn. S. N.* i. 106. B. borealis musculus, *Fisher, Syn.* 524.

B. rorqual, *Lacep.*

3. Fin-whale, *Neil, Wern. Trans.* i. (1811), 201.

Balæna sulcata, *Walker, MSS.? Neil, Wern. Trans.* i. 212.

Balæna sulcata arctica, *Schlegel, Veshand Nederl. Ins.* i. 1828, *t.* 1, 2. *Abhand, t.* 6.

4. Baleinoptere d' Ostende, *Van der Linden. Balænoptere Bruxell*, 1828. *Dubar. Osteographia, &c. Brux.* 1828, *t. Van Breda en letter bode*, 1827, 341. *Scharff's drawing of Ostend Whale, t.* copied.

Great Northern Rorqual, *R. borealis*, "Lesson," *Jardine, Nat. Lib.* 125, *t.* 5, from Scharff.

B. borealis, *Fisher Syn.* 524.

Above, black; beneath, whitish; pectoral, $\frac{1}{8}$ the length; black, above. "Baleen, black," *Sibbald.*

Length	....	78 feet.
Pectoral	....	10

"Back, deep black, where the epidermis had separated; belly and round the sexual parts white. End of the nose with a small tuft of 9 much-divided hairs, connected by a membrane at the base."

Inhab. North Sea. Scotland, *Sibbald, Neil.* Ostend, *Van Breda.*

The description in Jardine, is compiled from the accounts of Knox, Scoresby and Lacepède; and hence includes several species.

Var.? "Black above, beneath white. Pectoral black. Dorsal and caudal with white scar on the edge. Baleen of the first part of the series, white; of the rest, blackish blue, the colour changing suddenly from one to the other.

Balenoptera á bec. *Ravin. Ann. Sci. Nat.* x. 266, *t.* 11, xv. 337, *t.* 9, *young male.*

Inhab. coast of France, Somme," *Ravin.*

The Southern Finner. Balænoptera australis.

Lesson, (*Tab. Reg. Anim.* i. 202), gives the name of *Balænoptera australis*, to the "*Fin-back* of the Whalers of the South Sea." It is not possible to know if he intends this species or the *Megapteron Poeskop.*

There has lately been imported from New Zealand a quantity of finner-fins which are all yellowish white; this doubtless indicates a different species, which may be called *Balænoptera antarctica.* I have also received from Mr. Smith, specimens of what is called in trade *Bahai Finner.* This Baleen is black, the fibres on the edge of the larger fins are purplish brown, and of the smaller or terminal ones paler brown. They are 35 inches long by $11\frac{1}{2}$ inches wide; and the smaller, 10 inches long, and 4 inches wide at the base. This is so different in appearance from the other Baleen of this genus, that I propose to call it *Balænoptera Brasiliensis.*

Megapteron.

Professor Eschricht, in the Danish Transactions, has given another figure of this species, and a very detailed account of its anatomy and development, greatly founded on the examination of the fœtus.

He considers it as the *B. Boops* of O. Fabricius. It is the most common Greenland Whale, and, he believes, the Bermuda Whale is the same species, and that it migrates from Greenland to Bermuda, according to the season; and he cannot find any sufficient distinction in the skeleton of the Cape specimen in the Paris Museum, to separate it as a species from the Greenland examples.

In the Paper that Professor Eschricht has in the press, he has figured the dorsal fin of this genus, and shows that it is more properly a *bunch*, as Dudley calls it, than a fin.

The first rib is forked at the end near the vertebra.

Brandt, in the list of Altaian animals (*Voy. Alt. Orient.* 1845, 4to), has adopted this opinion, and formed a section for *Balænoptera longimana*, which he calls *Boops*, merely characterized as "Pectoral elongate."

The fœtal specimens exhibit numerous rudimentary teeth in both jaws. These are figured by *Eschricht, Danish Trans.* iv. *t.* 4, *f. a, b*, from specimens, 35 and 45 inches long.

Johnston's Hump-back. Megapteron longimana.

Professor Eschricht has no doubt that *Balæna Boops*

of O. Fabricius is intended for this species, as it is called *kepokak* by the Greenlanders. If this is the case, the description of the form and position of the dorsal fin is not correct.

Professor Eschricht observes, "this animal is always infested with *Diadema Balænarum*, and with a species of *Otion*, which he regards as new, while the Cirripedes are never found on any species of *Balænoptera*. On the other hand, the *Tubicinella*, *Coronula Balenacaris* and *Otions* are often found on the *Balæna Mysticetus* or Right whale of the Southern Seas. See *Eschricht*, 144.

The Bermuda Hump-back. Megapteron Americana.

The Baleen of this species is extensively imported; it is similar to the Baleen of the Gray Finner.

Hyperoodon.

Eschricht gives some figures illustrative of the jaw and throat of this species. *Danish Acad. Trans.* xi. 327, 331, 332, 334, 335.

Professor Eschricht, in the Danish Transactions, has given an account of the history of this species, and many details of its anatomy, including some admirable details of its brain. He also shows that there are numerous small teeth in the jaws. (See fig. at pp. 331-335), besides the two large teeth in front. He regarded the *Anarnac* or *Monodon spurius*, O. Fab. as the common *Hyperoodon*, in which Fabricius mistook the lower for the upper-jaw. The fat of *Hyperoodon* is purgative, as Fabricius describes to be the peculiarity of the *Anarnac;* and Professor Eschricht, in his unpublished paper, has proposed the name of *Chenocetus*, instead of *Hyperoodon*, which is founded on an erroneous description. The name *Goose-whale*, or its translation, is applied to this animal, in most part of the seas where it inhabits.

This genus must be common in the Arctic seas. Franklin, in his second voyage, p. 206, observed many skulls round one of the winter houses of the Esquimaux, and Sir John Richardson informs me, they resemble a saddle, and that the blowers, of the animals were far back an admirable description of the peculiarities of this genus.

Hyperoodon rostratum.

By the kindness of Mr. S. Stutchbury, I have been enabled to give a new figure of this species, from a drawing made by Mr. W. H. Baily, from a specimen in the Museum of the Bristol Institution taken at Aust Passage, Oct. 1840. The measurements on the drawing are as follows:—

	Ft.	In.
Length, entire, along the back	22	2
„ straight line	21	0
Girth on widest part	12	6
„ of posterior part of fins	11	2
„ over the eyes to centre of blowhole	8	9
„ at highest part of head	6	6
„ at close of tail	2	11
Length of upper part of upper jaw	1	1
„ lower jaw	1	8
„ upper part of lower jaw	1	9
„ lower jaw to eye	3	3
Length from tip of lower jaw to anterior part of flipper	5	3
„ of flipper	2	3
Width of flipper	0	8
Length from anterior part of flipper to vent	8	0
„ from end of tail to posterior part of dorsal fin	9	8
„ from end of tail to posterior part of dorsal fin	7	0
Breadth of dorsal fin	1	6
Length of dorsal fin	1	2
Breadth of tail	6	4
Depth of tail	1	8
Length of orifice of vent	1	8

Fig. 2. is the detail of the tail. Fig. 3. the blowers.

The skeleton of this specimen is preserved in the Bristol Institution.

Mr. W. Thompson has given in the *Ann. & Mag. Nat. Hist.* 1846, 150, *t.* 4, iv. 375, the following description and measurement of a recently caught specimen; he calls it *H. Butzkopf.*

"Blackish lead hue, merely a lighter shade beneath, and not white. Teeth, two on each side, in front loosely covered by the gums; the front pair smaller; blower, slightly crescentic, pointed directly towards the head, and the eyes on the same vertical plane; eyes round; "a male."

	no. I. ♂
Length, entire, straight	20·4
„ over curve	23·4
„ of nose	·11
„ of gape	1·7
„ to eye	3·1
„ to pectoral fin	5·11
„ of pectoral fin	2·2
„ to dorsal fin	10·9
„ of dorsal at base	1·7
Girth, greatest	11·6
Width of pectoral	·7
„ of caudal	5·6
Length of dorsal	1·0

Dr. Jacob, in his description of Cetodiodon Hunteri, *Dublin Phil. Jour.* 1825, observes, there are no teeth in the palate. There is a skeleton in Mus. Col. Surg. Dublin; a skull, Royal Dublin Society; and a skull in the Museum of the School of Anatomy, Peter's Street, Dublin. He further remarks—The four skulls in Dublin belong to one species, and have two teeth in lower jaw, hid in the gums.

Fig. 4 and 5 of the same plate, represent one of the skulls of this species in the Dublin Museum, from a drawing kindly communicated by R. Ball, Esq.

There is a skeleton in the Museum of the Edinburgh University.

Mr. Thompson (Mag. Nat. Hist. 1838, 221), considers Hunter's and Boussard's cetacean as identical, and Dal's the male of the same species. He describes a specimen stranded near Hull, in 1837; it has two strong, robust teeth at the extremity of the lower jaw, covered and

entirely concealed by the gums. The skull corresponded in its general form with the figures in Bell's work; but the rise of the back part of the head is larger in proportion to the anterior rise than in that figure. The skull measures from the snout to the base of the front rise 9 inches; from thence across the rise to the base of the second rise 1 foot; from thence across the hinder rise to the neck, 1 ft. 11 inches. The length of the skeleton was 17 ft. 6 in.; vertebræ, 39; viz., 2 cervical, 9 dorsal, with ribs; 20 lumbar and 8 caudal. The skeleton of this specimen is in the Museum of the Hull Philosophical Society.

The Sowerby's Ziphius. Ziphius Sowerbiensis.

I find the following description of the skull of this species, under the name of *D. Sowerbiensis*, Blainv. "Tête ossens la machoire supérieure est plus courte et infiniment plus etroite que l'inférieure qui la recoit; en outre cette machoire inféricure est armé à chaque côté et au milieu de son bord d' un seul dent très fort confirmé et dirigé obliquement en arrière. L'orifice de le vent est en croissant dont les cornes sont tournée en avant."—*Blain. Desm. Dict. H. N.* xx. 177.

Catodon.

The figure of the *Sperm Whale* in *Duhamel, Pes.* iv. *t.* 15, *f.* 3, is good for the form and blower, and has the "*taquet*" marked; but a fin has been added below, between the vent and tail, in the position of the anal fins of fishes! in *t.* This author has figured and described *Orca gladiator* for the sperm whale!

Bonnatèrre figures E. M. *t.* 7, *f.* 2, of the *grand cachalôt* taken at Andiene, 1784, and copied by Lacepède, *t.* 10, *f.* 1, is not so bad for form, but has a fin instead of a hump on the back.

Physeter.

Professor Eschricht observes that it is most important in determining of M. Fabricius Synonyma, to attend to the Greenlanders' names, as they are most accurate *cetologists;* he observes (on the authority of Capt. Holbroll), "that two of the animals which Fabricius referred to Physeter, viz., the 'Pernak,' which he called *P. Catodon*, is probably, and the 'Ardluck,' *P. microps*, (which Cuvier has thought might be *D. globiceps*) is certainly, the Northern swordfish, *Delphinus Orca.*" *Kong. Danske. Afhandl.* xi. 136.

I may remark, that as far as I can make out the Danish, it appears that the black fish or *Balæna microcephala* of Sibbald, which I thought might be *Ardluk*, has entirely escaped the notice of Professor Eschricht. I must own, that Fabricius's description will do for *Orca gladiator;* except that he calls it black, and does not mention the very remarkable white marks of that species, and he only described the lower jaw as toothed. Now the teeth of *Orca* are not deciduous.

THE

ZOOLOGY

OF THE

VOYAGE OF H.M.S. EREBUS & TERROR,

UNDER THE COMMAND OF CAPTAIN SIR JAMES CLARK ROSS, R.N., F.R.S.,

DURING THE YEARS

1839 TO 1843.

BY AUTHORITY OF THE LORDS COMMISSIONERS OF THE ADMIRALTY.

EDITED BY

JOHN RICHARDSON, M.D., F.R.S., &c.

AND

JOHN EDWARD GRAY, Esq., Ph.D., F.R.S., &c.

BIRDS.

BY

GEORGE ROBERT GRAY, F.R.S., &c.,

AND

R. BOWDLER SHARPE, F.L.S., F.Z.S., &c.,

Of the Zoological Department, British Museum.

LONDON:

E. W. JANSON, 28, MUSEUM STREET, W.C.

M.DCCC.XLVI.—M.DCCC.LXXV.

BIRDS.

I.—BIRDS OF NEW ZEALAND.

As the species of Birds of New Zealand and the neighbouring Islands are scattered among numerous works, and remain little known, it has been thought advisable to give a list of them, including those brought by the Antarctic Expedition, and those obtained from other sources.

The second Expedition under the command of Capt. Cook, was accompanied by John Reinhold Forster, and his son, George Forster, as naturalists. The species discovered by them amounted to thirty-six. Their drawings having remained in the possession of the late Sir Joseph Banks, were thus accessible to all scientific persons, and were examined and described by the late Dr. Latham, and by him inserted in his 'Synopsis of Birds,' with engravings of some of the species, taken from Forster's Icones. The species characterized by Latham, were by Gmelin inserted in his edition of the 'Systema Naturæ,' with Latin specific names; and from this compiler they obtained places in the works of subsequent authors. Latham also referred to six species as new, or described by older authors from other quarters, as also found in New Zealand. Sparrman, Shaw and Kuhl, have each added one or more species to the Fauna of these Islands. MM. Quoy and Gaimard, in the 'Zoology of the Voyage of the Astrolabe,' gave descriptions and figures of eight new species; and MM. Lesson and Garnot, in that of the Coquille, added four species: while the Chev. Dubus has augmented the number of species by three; and MM. Hombron and Jacquemont by two. Four additional species have been described by Mr. Gould; and in the Appendix to Dieffenbach's 'Travels in New Zealand,' I gave descriptions of eight species. These notices, together with those which I shall add for the first time in the present work, give about a hundred and one species to the Ornithological portion of the Fauna of New Zealand, Chatham and Auckland Islands.

Family, Falconidæ,

Subfamily 1. *Falconinæ*.

Falco Novæ Zealandiæ.

Falco harpe, *Forst. Descr. Anim. p.* 68, *et Icon. ined.* 36, 37 *and* 38.

New Zealand Falcon, *Lath. Gen. Syn.* i. 57 (*not pl.* 4).

F. Novæ Zealandiæ, *Gmel. Syst. Nat.* 268: *Lath. Ind. Orn.* i. 28.

F. brunnea, *Gould, Proc. Zool. Soc.* 1837, *p.* 139.

F. australis, *Homb. et Jacq. Ann. des Sci.* 1841, *p.* 312: *Voy. de la Pole Sud. Ois. t.* 1.

Blackish brown; eyebrows, line on each cheek and sides of the neck varied with rufous; throat white; wing-coverts blackish brown, sometimes punctated on the greater coverts with grey and banded interiorly with white; quills nearly black, with white bands on the inner webs and outer webs spotted with grey; tail blackish brown, with interrupted white bands; breast and upper part of abdomen rufous brown, spotted with rufous white; abdomen and under tail coverts rufous white.

Young. Upper surface blackish brown, with the back of neck, back, wings and tail banded with greyish or rufous white; throat white; breast rufous white with oblong spots of brown; sides brown spotted with white; abdomen white with oblong brown marks; thighs pale rufous with dashes of brown.

Length, 1 foot 5¼ inches; bill from gape, 11 lines; wings 10½ inches; tarsi 2¼ inches.

Length of female, 1 foot 7½ inches; bill from gape, 15 lines; wings 11¾ inches; tarsi 2¾ inches.

Forster's specimens were taken in Queen Charlotte's Sound and Dusky Bay: according to him, the young is called Kari-area. The native names of Kahu and Kauaua are also referred to this bird.

Great confusion has hitherto existed in regard to this species, owing to Latham having given a figure (with doubt) of the Milvago leucurus, or Falco australis of Gmelin, which has caused that bird to be considered the Falco Novæ Zealandiæ, but this is not the case. Latham took his description from the three figures of Forster referred to above. The sexes vary much in size, and the adult specimens of each sex lose the transverse interrupted bands on the back and wings; and become of an uniform dark chocolate black. The Expedition brought several specimens of this bird, both from New Zealand and Auckland Island, which enable me to identify the description and drawings. Mr. Percy Earl obtained specimens at Otago, South Island.

Subfamily 2. *Circinæ.*

Circus assimilis.

Circus assimilis, *Jard. and Selby's Ill. Orn. pl.* 51. *Gould's B. of Austr. pl.*

Black brown, feathers of the head and back of neck broadly margined on the sides, and the tips of those of the back, rufous white; greater wing-coverts silvery grey barred with black; quills black, with the outer webs silvery grey barred with black; tail-coverts white, marked on each feather near the tip with a bar of rufous; tail silvery grey with six bars of brown black; under surface rufous white, marked down the middle of each feather with brown, especially on the breast.

Female. Brown, with pale edges; feathers of the head and back of neck margined with rufous; quills and tertials blackish brown, with the outer webs silvery brown; tail-coverts white with an irregular mark of rufous on each feather; tail silvery grey tinged with rufous, with six irregular bands of dark brown, margined above and below with rufous white, the silvery grey becoming rufous on the outer feathers; under surface rufous brown, margined on the sides of each feather with rufous white; under side of tail buff.

Young. Dark auburn brown, with pale edges; back of neck varied with white, slightly tinged with rufous; upper tail-coverts rufous: under surface paler than the upper; quills black.

Length, 1 foot 9 inches; bill from gape, 1 inch 2 lines; wings, 1 foot 4 inches; tarsi, 3 inches 5 lines.

Length of female, 1 foot 11 inches; bill from gape, 1 inch 7 lines; wings, 1 foot 4¾ inches; tarsi, 3 inches 9 lines.

The Expedition's collection contains three specimens of this bird, all marked as obtained in New Zealand.

The descriptions of the male and of the young were taken from specimens brought by Mr. Percy Earl. They were shot at Waikouaiti and Otago, and were considered rare birds; they are now deposited in the British Museum.

Family, Strigidæ.

Subfamily 1. *Surninæ.*

Athene Novæ Seelandiæ.

Strix fulva, *Forst. Descr. Anim. p.* 71, *et Icon. ined.* 39.

New Zealand Owl, *Lath. Gen. Syn. Suppl.* 48.

S. novæ Seelandiæ, *Gmel. Syst. Nat.* 296: *Lath. Ind. Orn.* i. 65.

Noctua Zealandica, *Quoy et Gaim. Voy. de l'Astrol. Zool.* i. 168. *Ois. t.* 2, *f.* 1.

Brown, feathers of nape spotted with fulvous; wing-coverts, interscapulars spotted with white or pale fulvous; quills brown, spotted on the outer webs with white and banded on the inner with greyish brown; tail brown, banded and tipped with the greyish brown; under tail-coverts pale fulvous; forehead and eyebrows streaked with fulvous; round the bill white; throat and breast dark brown streaked with fulvous; side feathers banded with white.

Length, 11 inches; bill from gape, 10 lines; wings, 8 inches; tarsi, 1 inch 5 lines.

Forster gives Queen Charlotte's Sound as the habitat of this species, and the name of Herooroo. Quoy and Gaimard's specimen was taken in Tasman's Bay, and they record the native name as Eou Hou. Kou Kou, Kao Kao, and Ruru Ruru have been published as the names of these birds by other authors.

Specimens of this bird were procured by the Expedition during their stay at New Zealand.

Athene albifacies.

Plate 1.

Dark brown, each feather margined on the sides at the tip with fulvous; quills and tertials brown, spotted on the outer webs with white and marked on the inner with obsolete bands; tail dark brown, with five bands and the tip of each feather rufous white; forehead and cheeks white, with the shaft of each feather black; tarsi covered with white feathers slightly tinged with rufous; toes covered with scattered white hairs.

Length, 1 foot 3½ inches; bill from gape, 1 inch 4 lines; wings, 11 inches; tarsi, 2 inches 5 lines.

The specimen formed part of Mr. Percy Earl's collection; and is now deposited in the British Museum. It was obtained at Waikouaiti, South Island; where it was known to the natives by the name of Wekau. It is supposed, by Mr. P. Earl, not to exist in the North Island.

Family, Alcedinidæ.

Subfamily 1. *Halcyoninæ.*

Halcyon vagans.

Plate 1*.

Alcedo cyanea, *Forst. Descr. Anim. p.* 76, *et Icon. ined.* 59.

Sacred Kingfisher, *Lath. Gen. Syn.* ii. 612.

A. sacra, *Gmel. Syst. Nat.* i. 453: *Lath. Ind. Orn.* 251.

Halcyon sanctus? *Vigors et Horsf. Linn. Trans.* xv. 206.

A. vagans, *Less. Voy. de la Coq. Zool.* i. 694: *Id. Man. d'Orn.* ii. 89.

Crown of the head, back and wing-coverts deep sea-green; lower part of back, tail-coverts, and a broad line from the eye to the hind head, verditer-green; quills and tail black, more or less margined with bright blue; broad collar round the neck white, slightly tinged with buff, and some of the feathers narrowly margined with black, which colour also forms a half collar both above and below the white one; breast and all the under surface rufous white, the feathers of the breast slightly margined with black.

Bill black, lower part of the under mandible white.

Total length, 9¾ inches; bill, 2¼ inches; wings 4 inches; tarsi, 6 lines.

"Habitat in insula Australi Novæ Zeelandiæ, victitat pisciculis, helicibus, chamis et cancris littore ab æstu maris relictis; *Forster*.

The native name of this bird has been variously given by different authors, viz., Ghotarre, Kotoretare, Kotaritari, Kotare-popo.

The Expedition's specimen was marked as from the Bay of Islands.

Halcyon cinnamominus.

Halcyon cinnamominus, *Swains. Zool. Illustr.* ii. *pl.* 67. *Voy. de la Coqu. Zool.* i. *p.* 696.

Delicate fawn colour; back, wings and tail changeable blue green; ears sea-green and dusky, united to a narrow black nuchal collar.

Length, 10 inches; bill from gape, 2½ inches; wings, 4 inches.

This species was originally recorded by Mr. Swainson as from New Zealand; Mr. Gould considers it as an Australian species; while M. Lesson remarks that "Cet oiseau parait habiter toutes les parties boreales et orientales de la Nouvelle Hollande, les îles de la Nouvelle Zélande, de la Caledonie, des Hebrides, de Salomon, la Nouvelle Guinée et les Moluques."

Family, Upupidæ.

Subfamily 1. *Upupinæ*.

Neomorpha Gouldii.

Neomorpha acutirostris, *et* N. crassirostris, *Gould, Syn. Austr. Birds: Birds of Australia, pt.* iii. *pl.*

N. Gouldii, *G. R. Gray, List of Genera of Birds, 2nd edit. p.* 15.

Uniform black, glossed with green, with a broad band of white at the end of the tail. Each gape furnished with a rounded orange wattle.

Length, 1 foot 9½ inches; bill from gape, 4 inches 3 lines; wings, 8 inches 3 lines; tarsi, 3 inches 2 lines.

Length, 1 foot 7¼ inches; bill from gape, 2 inches 3 lines; wings, 8 inches; tarsi, 3 inches 2 lines.

Through information furnished by a friend of Mr. Gould, we learn that "these birds, which the natives call Ellia (or Huia), are confined to the hills in the neighbourhood of Port Nicholson [*i. e.* the Torirua range of mountains], whence the feathers of the tail, which are in great request among the natives [being highly prized as ornaments for the ear], are sent as presents to all parts of the island. The natives regard the bird with the straight and stout beak as the male, and the other as the female. In three specimens shot this was the case, and both birds are always together. These fine birds can only be obtained with the help of a native, who calls them with a shrill and long-continued whistle, resembling the sound of the native name of the species. After an extensive journey in the hilly forest in search of them, I had at last the pleasure of seeing four alight on the lower branches of the trees near which the native accompanying me stood. They came quick as lightning, descending from branch to branch, spreading out the tail, and throwing up the wings. Their food consists of seeds and insects. Of their mode of nidification the natives could give no information. The species is apparently becoming scarce, and will probably soon be exterminated." *Gould's Birds of Australia.*

Family, Meliphagidæ.

Subfamily, *Meliphaginæ*.

Prosthemadera novæ Seelandiæ.

Certhia cincinnata, *Forst. Descr. Anim. p.* 78, *et Icon. ined.* 61.

Poe Bee-eater, *Lath. Gen. Syn.* ii. 682.

Merops novæ Seelandiæ, *Gmel. Syst. Nat.* 464.

M. cincinnata, *Lath. Ind. Orn.* i. 275.

Sturnus crispicollis, *Daud. Elem. d'Orn.*

Meliphaga cincinnata, *Temm.*

Philemon cincinnatus, *Vieill. Ency. Méth.* 613. *Leraill. Ois. d'Afr. pl.* 92.

Bluish black, with shining green reflections, especially on the lower part of back and under tail coverts; back of neck shining green, each feather curled and with a white line down the shaft; back bronze; wings with a band of white between the lesser and greater coverts; throat ornamented in front with two tufts of curly white feathers.

Length, 12½ inches; bill from gape, 1 inch 3 lines; wings 6 inches 4 lines; tarsi, 1 inch 5 lines.

"Habitat ubique in Novæ Zealandiæ insulis, et ab incolis appellatur Ròghee Etooee, et quòd incolæ insularum maris pacifici vitreos globulos, pro collaribus usitatos Pòhe appellare soleant, nautæ Angli hanc avem 'the Pohe Bird' nominarunt, quòd plumæ juguli cincinnatæ, quandam inaurium vel globulorum vitreorum candidorum similitudinem habeant. Avis hæc plerumque gregaria est, victitat insectis et florum nectare; capta pane et saccharo. Imitatrix, irrequieta, in arena pulveratus, in aqua se lavat, pugnax, garrula, dulce canit voce fistulari. Volatu gravi et strepero, ex arbore in arborem se proripit, æstus impatiens. Nidificat in fruticetis. Nidus ex virgultis minimis et muscis; ova ponit plerumque quatnor." *Forster.*

It is the Toui and Tui of the natives of North Island. "In January," says Mr. P. Earl, "the *Phormium tenax* is in full flower. The Koko, the name given to the bird by the natives of the South Island, now has his feast; the bird inserts his long hairy tongue into the flower to extract the korari or honey, of which it is very fond: at this time it is ensnared with great facility by the Maori boys." Mr. Earl kept one alive for two months on nothing but sugar and water; he brought one to England, but having had him from the nest, he would readily eat potatoes or rice.

Their food usually consists of insects and various small berries, such as those of the *Ripogonum parviflorum*.

Several specimens of this bird were brought by the Expedition from New Zealand and Auckland Island. They vary much in size.

Ptilotis cincta.

Meliphaga cincta, *Dubus, Bull. Acad. Sc. Brux.* 1839, *pt.* 1, *p.*2 95, *pl.*

Ptilotis auritus, *Lafr. Rev. Zool.* 1839, 257. *Mag. de Zool.* 1840, *Ois. t.* 11.

Shining black; back varied with yellow; lower part of back greyish yellow; lesser wing-coverts bright yellow; greater coverts black, narrowly margined with yellow, a large spot of pure white near the middle of wing and back; quills and tail black, margined with yellow; lower part of breast bright yellow; abdomen brownish white, marked with darker in the middle of each feather; a tuft of pure white feathers behind each eye.

Length, 7 inches 9 lines; bill from gape, 9 lines; wings 4 inches; tarsi, 1 inch 2 lines.

Young. Olivaceous black; wing-coverts black margined with dull yellow; some of the medial coverts white; quills and tail brownish black, margined with dull yellow; under surface pale brown, washed with dull yellow.

This remarkable bird is the Kotihe or Ihi of the natives.

Specimens were obtained in North Island by Mr. P. Earl, who remarks that when surprised these birds spread their ear-tufts, and elevate their tails, which gives them a strikingly beautiful appearance. Their flight is rapid, and they feed on berries and larvæ of insects.

Anthornis melanura.

Certhia olivacea, *Forst. Descr. Anim. p.* 79; *et Icon. ined.* 62.

Mocking Creeper, *Lath. Syst.* ii. 735.

Certhia melanura, *Sparr. Mus. Carl. t.* 5.

C. sannio, *Gmel. Syst. Nat.* 471: *Lath. Ind. Orn.* 735.

Philedon Dumerilii, *Less. Voy. de la Coq. Zool.* 644, *t.* 21, *f.* 2, (young).

Anthomyza cæruleocephala, *Swains. Classif. of Birds*, ii. 327.

Philedon sannio, *Less. Compl. Buff.* xi. 165.

Olivaceous, with violet reflections on the head; lower part of back and abdomen yellow; quills and tail glossy black, slightly margined with yellow.

Young. Olivaceous, beneath greenish yellow; cheeks with a line of white from the gape; quills and tail slightly margined with yellow.

Length, 7 inches 3 lines; bill from gape, 10 lines; wings 3 inches 4 lines; tarsi, 1 inch 1 line.

"Habitat in utraque insula Novæ Zeelandiæ, iisdem locis cum Certhia cincinnata. Suaviter cantillat instar Curucæ, at ita variata et modulata voce, ut omnes silvarum aves imitetur; unde ipsi nomen apud Anglos hæsit ab imitatione, (the Mocking Bird). Iisdem pene moribus et victu ac Certhia cincinnata." *Forster.*

Found in Queen Charlotte's Sound, according to Forster's drawings, and is there called He-ghobarra. It is the Koho-i-mako, Kohorimako and Korimako of the natives.

Two specimens of this bird were brought from the Bay of Islands. Two others were also in the collection, marked from Auckland Island: these differ in being somewhat larger in all their proportions.

Anthornis melanocephala.

Plate 2.

Anthornis melanocephala, *G. R. Gray, App. to Dieff. Voy. to New Zeal.* ii. *p.* 188.

Yellowish olive, with the base of the feathers plumbeous; head steel black, tinged with the same colour on the neck, breast, and on the upper coverts of the tail; wing-coverts steel-black, deeply margined with yellowish olive; larger coverts, quills and tail blackish brown, margined with paler or yellowish olive, the latter probably deep black, margined with steel-black, in the adult

Total length, $11\frac{1}{4}$ inches; bill, 13 lines; wings $4\frac{1}{4}$ inches; tarsi, $1\frac{1}{2}$ inch.

The specimen was brought by Dr. Dieffenbach from Chatham Island; where it was called Mako mako.

Family, Certhiadæ.

Subfamily 1. *Sittinæ.*

Acanthisitta longipes

Plate 3, f. 1.

Motacilla longipes, *Forst. Descr. Anim. p.* 88, *et Icon. ined.* 165.

Long-legged Warbler, *Lath. Syn.* iv. 465.

M. longipes. *Gmel. Syst. Nat.* 979.

Sylvia longipes, *Lath. Ind. Orn.* ii. 529.

Green; forehead brown; eyebrows, and a spot beneath each eye white; throat white; abdomen cinereous; vent greenish cinereous; tail and thighs green.

Total length, $3\frac{1}{2}$ inches; bill, $\frac{1}{4}$ of an inch; legs 1 inch.

This is the E tectee tee pomou of the natives, according to Forster's drawing; from which the figure is taken.

Acanthisitta chloris.

Sitta chloris, *Sparrm. Mus. Carls. pl.* 33.

Acanthiza tenuirostris, *De Lafr. Rev. Zool.* 1841, 242.

Acanthisitta tenuirostris, *De Lafr. Mag. de Zool.* 1842: *Ois. t.* 27.

Green; forehead and top of head tinged with brown; wing-coverts and quills black, margined with green; between the coverts and quills a band of yellow; greater coverts and tertials black, with large broad marks of greenish white; throat, sides of neck, breast and eyebrows white, tinged with brown; abdomen white, tinged with yellow; tail black, tip of each feather yellowish white.

Length, 3 inches; bill from gape, 7 lines; wing, 1 inch 9 lines; tarsi, 9 lines.

Female, (Plate 3, f. 2).

Motacilla citrinella, *Forst. Descr. Anim. p.* 89, *et Icones ined.* 164.

Citrine Warbler, *Lath. Syn.* iv. 464.

M. citrina, *Gmel. Syst. Nat.* 979.

Sylvia citrina, *Lath. Ind. Orn.* ii. 529.

Brownish white, marked with black streaks; the throat,

breast and eyebrows white; quills brown-black, margined exteriorly, their base traversed by a band, and the tips of the two last tertials, yellow; uropygium, abdomen and tips of tail-feathers brownish white.

Length, 3 inches 1 line; bill from gape, 7 lines; wings 1 inch 9 lines; tarsi, 9 lines.

Young male.

Sitta punctata, *Quoy et Gaim. Voy. de l'Astrol.* i. 221, *t.* 18, *f.* 1.

Head varied with black and fulvous; throat and breast white, spotted with brown; the abdomen brownish white, tinged with yellow; back olive; uropygium yellow tinged with green; quills black, slightly bordered outwardly with greenish olive; some of the tertials with broad lines of white; tail black, tinged with green, tip of each feather brownish white.

Length, 2 inches 10 lines; bill from gape, 5 lines; wings, 1 inch 9 lines; tarsi, 9 lines.

The Museum collection contains four specimens of this curious little bird; two of which are the young. In this state the bill is shorter and thicker than that of the adult. Dr. Dieffenbach states this species to be the Piwauwaw of the natives; while Mr. P. Earl says, it is called Miru miru at Port Nicholson, and that it feeds on larvæ of insects. Dr. Sparrman gives the Cape of Good Hope as the habitat of his bird, which must be considered a mistake.

Subfamily 2. *Orthonycinæ.*

Mohoua ochrocephala.

Muscicapa chloris, *Forst. Descr. Anim. p.* 87, *et Icon. ined.* 157.

Musc. ochrocephala, *Gmel. Syst. Nat.* 944: *Lath. Ind. Orn.* ii. 479.

Certhia heteroclites, *Quoy et Gaim. Voy de l'Astrol. Zool.* i. 223, *pl.* 17.

Orthonyx icterocephalus, *De Lafr. Rer. Zool.* 1839.

Orth. heteroclitus, *De Lafr. Mag. de Zool.* 1840, *Ois. t.* 8.

Mohoua —, *Less. Compl. Buff.* ix. 139.

Head bright yellow; back, wing-coverts and tail yellowish brown; breast and abdomen yellow; sides and under tail-coverts yellowish-white, with dashes of rufous; quills blackish brown, margined with brownish yellow.

Length, 6 inches; bill from gape, 7 lines; wings, 4 inches 1 line; tarsi, 1 inch 1 line.

MM. Quoy and Gaimard tell us that "Cet oiseau doit grimper le long des arbres pour y prendre des insectes; cependant nous n'avons trouvé dan son estomac que de petites graines." They also inform us that the natives of Tasman's Bay called this bird the Mohoua houa; while Dr. Dieffenbach says it is the Popokatea of the natives of Cook's Straits.

Family, Luscinidæ.

Subfamily 1. *Malurinæ.*

Sphenœacus punctatus.

Synallaxis punctata, *Quoy et Gaim. Voy. de l'Astrol.* i. 225, *t.* 18, *f.* 3.

Blackish brown, broadly margined on each feather with fulvous; forehead rufous, with a black streak in the middle of each feather; wing-coverts, quills and tertials black, slightly bordered with fulvous; throat and breast white, each feather with a black spot near the tip; abdomen fulvous, marked down the shaft of each feather with brown black; tail brown, margined on the sides with fulvous.

Length, 7 inches; bill from gape, 9 lines; wings $2\frac{1}{2}$ inches; tail, 4 inches; tarsi, 10 lines.

Dr. Dieffenbach says this bird "lives in the Typha-swamps and amongst ferns. Its flight is very short and heavy;" and that it is the Mata or Matata of the natives. According to Mr. Percy Earl, it is the Toetoe of the natives, and "low bushes in marshy grounds or flax-swamps are its usual haunts; flight very weak, and never seen above three feet from the ground. Builds its nest on the ground, formed of moss and grass, and lays four or five eggs of a greenish white, with spots of a dark colour."

The collection of the Expedition contains specimens.

Subfamily 2. *Accentorinæ.*

Gerygone igata.

Curruca igata, *Quoy et Gaim. Voy. de l'Astrol.* i. 201, *t.* 1, 2, *f.* 2.

Olivaceous; eyes surrounded with white; uropygium rufous; under surface white, tinged with yellow, and with green on the sides of breast; quills brown, slightly margined with yellowish white; tail black, with a white lunule bordered with black on the side.

Length, $3\frac{1}{2}$ inches.

Inhabits Tasman's Bay, Cook's Straits; where it is called by the natives Igata.

Gerygone flaviventris.

Plate 4, f. 1.

Olivaceous above, with the base of the feathers plumbeous; wings brownish black, slightly margined outwardly with yellow; tail with basal portion brownish olive and the apical part black, with an apical white spot on the inner web of each feather, and the outer one banded across near the tip white; front, throat and breast greyish white, abdomen white tinged with yellow.

Total length, 4 inches 3 lines; bill, 6 lines; wings, 2 inches 3 lines; tarsi, 9 lines.

The specimen was brought by the Expedition from the Bay of Islands. The Museum possesses a specimen from Mr. Percy Earl's collection, with which he informed us, that it is named "Titiripænamu" by the natives of Waikouaiti, South Island. It is always found on low bushes, feeding on small insects.

Gerygone? albofrontata.

Plate 4, f. 2.

Yellowish brown, with the base of the feathers dark plumbeous; forehead, streak over eyes, throat and breast, white; abdomen and sides white, tinged with yellow; wing-coverts and quills deep brown, margined with yellowish brown; tail with the lateral feathers black, with an oblique band of rufous white, the tips brown; two middle feathers nearly of an uniform brown, except a blackish

brown band near the tips; upper tail-coverts pale rufous brown, under coverts buff.

Length, 6 inches 3 lines; bill from gape, 6 lines; wings, 2 inches 8 lines; tarsi, 10 lines.

This fine species was brought by Dr. Dieffenbach from New Zealand.

Subfamily 3. *Parinæ.*

CERTHIPARUS NOVÆ SEELANDIÆ.

Plate 5, f. 1.

Parus urostigma, *Forst. Descr. Anim. p.* 90, *et Icon. ined.* 166.

New Zealand Titmouse, *Lath. Gen. Syn.* iv. 558.

P. novæ Seelandiæ, *Gmel. Syst. Nat.* 1013.

Certhiparus novæ Seelandiæ, *De Lafr. Rev. Zool.*

Pale cinereous red, mixed with brown; forehead and top of head rufous; eyebrows white; sides of head and nape dark cinereous; under surface pale rufous grey; quills pale brown; tail like the back, but brighter, middle feathers rufous, the lateral ones marked on the inner webs with a square black spot near the middle of each feather.

Length, 5 inches; bill from gape, 7 lines; wings, $2\frac{1}{2}$ inches; tarsi, 11 lines.

Toe toe of the natives of Dusky Bay, according to the drawing of Forster; while Dr. Dieffenbach looks upon it as the Riro riro of the natives of the Northern Island.

As we become better acquainted with the birds, I have no doubt that MM. Quoy and Gaimard's P. Zelandicus may eventually prove the same as the present species.

CERTHIPARUS MACULICAUDUS.

Parus Zelandicus, *Quoy et Gaim. Voy. de l'Astrol.* i. 210, *t.* 11, *f.* 3.

Reddish brown, mixed with ashy; front, throat and abdomen fawn; tail rufous, marked in the middle of each with a broad brown spot.

Length, 4 inches.

MM. Quoy and Gaimard give the native name of Momohoua to this species.

CERTHIPARUS ALBICILLUS.

Plate 5, f. 2.

Fringilla albicilla, *Less. Voy. de la Coqu. Zool.* i. *p.* 662.

Parus senilis, *Dubus, Bull. Acad. Sc. Brux.* 1839, *pt.* 1, 297.

Certhiparus senilis, *De Lafr. Rev. Zool.*

Head, neck, breast, and middle of abdomen white, slightly tinged with rufous; back and wing-coverts rufous brown, paler on the tail-coverts; quills blackish brown, slightly margined outwardly with grey, and interiorly with yellowish white; tail pale brown, tinged with yellow.

Length, 6 inches 4 lines; bill from gape, $6\frac{1}{2}$ lines; wings, 2 inches 10 lines; tarsi, 1 inch 1 line.

A specimen of this species was brought by the Expedition from the Bay of Islands.

According to Mr. P. Earl, this bird is the Popokotea of the natives of Port Nicholson, North Island. Its food consists of seeds and larvæ of insects.

Subfamily 4. *Saxicolinæ.*

PETROICA MACROCEPHALA.

Turdus minutus, *Forst. Descr. Anim. p.* 83, *et Icon. ined.* 149.

Great-headed Titmouse, *Lath. Gen. Syn.* iv. 557, *pl.* 55.

Parus macrocephalus, *Gmel. Syst. Nat.* 1013: *Lath. Ind. Orn.* 571: *Lath. Hist.* vii. *pl.* 110.

Rhipidura macrocephala, *Swains. Nat. Libr. Flyc. p.* 122.

Miro Forsterorum, *G. R. Gray, App. to Dieff. Trav. in N. Zeal.* ii. *p.* 191.

Pachycephala? australis, *Steph.*

Upper surface and fore part of neck deep black; spot on forehead, base of tertials and of some of the quills, and an oblique broad band on the three outer tail feathers, pure white; under surface pale yellow, brightest on the breast.

Female. Upper surface cinereous black; tail and quills black, base of tertials and of some of the quills, and an oblique band on the three outer tail feathers, white; throat white, spotted with black; breast and abdomen yellowish white.

Length, $5\frac{1}{4}$ inches; bill from gape, 7 lines; wings, $3\frac{1}{4}$ inches; tarsi, 13 lines.

Forster has placed the name of Mirro mirro upon his drawing, while Dr. Dieffenbach states it to be the Pirangirangi of the natives.

The specimen brought by the Expedition, was marked as from Auckland Island.

PETROICA DIEFFENBACHII.

Plate 6, f. 1.

Miro Dieffenbachii, *G. R. Gray, App. to Dieff. Trav. in N. Zeal. p.* 191.

Shining black; the wings tinged with brown, the base of the secondaries, spots of the primaries near the base, and the greater part of the three outer tail-feathers, white; the lower part of the breast and abdomen yellowish white, rather darker on the breast.

Total length, $4\frac{3}{4}$ inches; bill, 6 lines; wings, 3 inches; tarsi, 11 lines.

The present species is very like the preceding, but it is altogether smaller in size, and with the small and narrow bill of the *P. toitoi.*

PETROICA TOITOI.

Muscipeta toïtoi, *Garn. Voy. de la Coqu. Zool.* i. *p.* 590. *Ois. t.* 15, *f.* 3.

Black; spot on forehead, base of tertials and of some of the quills, breast, abdomen, and an oblique broad band on the three outer tail-feathers, pure white.

Length, 5 inches; bill from gape, 6 lines; wings, 2 inches 10 lines; tarsi, 11 lines.

This species is considered the Nirungiru, Ngirungiru, Miro-miro and To-i-toe of the natives. It is very common, says Mr. P. Earl, at Port Nicholson, flying about the gardens near the houses.

PETROICA ALBIFRONS.

Plate 6, f. 2.

Turdus ochrotarsus, *Forst. Descr. Anim. p.* 82, *et Icon. ined.* 148.

White-fronted Thrush, *Lath. Gen. Syn.* iii. 71.

Turdus albifrons, *Gmel. Syst. Nat.* 822: *Lath. Ind. Orn.* 354.

Upper surface and fore part of neck sooty black; under surface pale rufescent; front with a small spot of white.

Length, 7 inches.

"Habitat in australi insula Novæ Zeelandiæ, victitat insectis et minutis cancellis ad littora maris, suaviter cantillat; homines non formidat, sed ubique ob insecta in ambulando inter frutices excussa et circumvolitantia sequitur, sæpius manu captus vel pileo." *Forster.*

The original of this description is contained among the drawings of Forster, and it is very like Petroica longipes, (*Garn.*) The figure of Forster differs, however, from the bird referred to, by the white extending from the fore part of the breast to the base of tail, leaving the throat of the same colour as the back. I have subjoined a figure, for the purpose of making known the original drawing from which Latham took his description, that it may assist in elucidating the species, should it hereafter be discovered. It may eventually prove to be the same species of bird as the following.

PETROICA AUSTRALIS.

Turdus australis, *Sparrm. Mus. Carls. t.* 69.

Muscicapa longipes, *Garnot, Voy. de la Coq. Zool.* 594: *Ois. t.* 19, *f.* 1.

Myiothera novæ Zelandiæ, *Less.*

Miro longipes, *Less. Tr. d'Orn.* 389.

Slaty black, shafts of the feathers white, throat and breast greyish white, margined broadly with slaty black; abdomen white, mixed with slaty black; greater wing-coverts, quills, secondaries and tertials, brownish black, the base of inner webs of secondaries with a spot of white on each; tail black; a small spot above the bill pure white.

Length, 8 inches; bill from gape, 10 lines; wings, 5 inches; tarsi, 1 inch, 5½ lines.

The female and young are tinged with brown on the upper surface, throat and breast lighter coloured and without the prominent white spot over the bill.

Garnot informs us that this bird is the Miro miro of the natives, and that it "vit dans les broussailles qui entourent l'immense baie des îles à l'extremité nord de la Nouvelle Zélande." The settlers call this bird the Robin, which Mr. P. Earl supposes is from its tameness; if you sit down but for a minute in the bush in any part of New Zealand, one or more of these birds will make their appearance, hopping round you without showing the slightest symptom of fear. It is mostly seen on or near the ground. He further remarks that the native name is Totoara.

Two specimens of this species were brought by the Expedition.

Subfamily 5. *Motacillinæ.*

ANTHUS NOVÆ ZEALANDIÆ.

Alauda littorea, *Forst. Descr. Anim. p.* 90, *et Icon. ined.* 143.

New Zealand Lark, *Lath. Gen. Syn.* iv. 384, 51.

Alauda novæ Zealandiæ, *Gmel. Syst. Nat.* 799: *Lath. Ind. Orn.* ii. 497.

Head and back brownish grey; from the nostrils and above the eyes a line of white; from the ear through the eyes a black line; cheeks white, spotted with brown; the throat white, breast pale ferruginous, spotted with brown; abdomen white, with brown streaks on the sides; quills brown, margined with grey; tail blackish brown margined with grey, especially on the two middle feathers, the outer feathers white, the last but one white, with a line down the shaft and the inner web margined with blackish brown.

Length, 7 inches; bill from gape, 8 lines; wings, 3½ inches; tarsi, 11½ lines; middle toe, 10½ lines.

"Habitat ad littora maris in insula australi Novæ Zeelandiæ, victitans cancris pulicibus inter Fucos in littore ejectos viventibus." *Forster.*

According to Forster, this is the Kogoo-aroure of the natives; while Dr. Dieffenbach gives it the name of Kataitai. The specimen brought by the Expedition, was from the Bay of Islands. In the same collection were also three other specimens, from Auckland Island, which may eventually prove a distinct species, with a triflingly larger foot. It agrees in this respect, as well as general appearance, with *Anthus australis* of Vigors and Dr. Horsfield.

ANTHUS ——— ?

Alauda ——— ? *Forst. Desc. Anim. p.* 91.

Upper surface and tail-feathers ferruginous, with longitudinal streaks of brown; fore part of neck and breast whitish brown; abdomen nearly white; sides, thighs and vent ochraceous white; a line from each nostril over each eye to the nape white; quills deep brown, with testaceous grey margins.

Length, 7 inches.

"Hæcce Alaudæ species est affine Motacillis, sed ob rostrum magis cylindricum ad Alaudas spectare videtur: at digitus posticus erat rectiusculus et vix digito longior: semper inter fruticeta latebat et celerrime cursitabat in insula vulgo Longa appellata in Æstuario Reginæ Charlottæ." *Forster.*

Family, TURDIDÆ.

Subfamily 1. *Timalinæ.*

TURNAGRA CRASSIROSTRIS.

Loxia turdus, *Forst. Descr. Anim. p.* 85, *et Icon. ined.* 145.

Thick-billed Thrush, *Lath. Gen. Syn.* iii. 34, *pl.* 37.

Tanagra capensis, *Sparrm. Mus. Carls. t.* 45.

Turdus crassirostris, *Gmel. Syst. Nat.* 815: *Lath. Ind. Orn.* i. 335.

Tanagra macularia, *Quoy et Gaim. Voy. de l'Astrol. Zool.* i. 186, *t.* 7, *f.* 1.

Keropia crassirostris, *G. R. Gray, List of Genera, 1st ed.*

Olivaceous brown; front, cheeks and sides of neck with

a few spots of rufous; quills black, margined with olivaceous brown; wing-coverts with two transverse bands of rufous; breast, abdomen and under tail-coverts brown, with longitudinal broad rufescent white spots; tail rufous, with the two middle feathers and margins of others olivaceous brown.

Length, 10½ inches; bill from gape, 11 lines; wings, 4½ inches; tarsi, 1 inch 2 lines.

Forster placed the name of Golobieo on his drawing. It is also said to be the Pio pio, Keropia and Koho Eou of the natives. According to Mr. P. Earl, it is the Kakaroco of the natives of South Island. It haunts low bushes, or is seen on the ground, searching for seeds, which constitute its chief food. Their flight is only extended for a short distance at a time.

Family, Muscicapidæ.

Subfamily 1. *Muscicapinæ.*

Rhipidura flabellifera.

Plate 6, f. 2.

Muscicapa ventilabrum, *Forst. Descr. Anim. p.* 86, *et Icon. ined.* 155.

Fan-tailed Flycatcher, *Lath. Gen. Syn.* iii. 340, *pl.* 49.

M. flabellifera, *Gmel. Syst. Nat.* 943.

Muscipeta flabellifera, *Temm. Man. d'Orn.*

Brownish olivaceous; head black, eyebrows and throat white; breast and abdomen yellowish rufescent; middle tail-feathers black tipped with white, outer feather on each side entirely white, intermediate ones white, with the outer margin of each bordered with black.

Length, 6 inches; bill from gape, 5 lines; wings, 2 inches 10 lines; tarsi, 10 lines.

"Habitat in insula australi Novæ Zealandiæ. Continuo insecta venatur, volitans, cauda in ventilabri formam expansa; mansueta homines ob insecta in ambulando exturbata sequitur, ac sæpe capiti vel humeris insidet; sono pipiente canit." *Forster.*

According to Forster, this is the Diggowaghwagh of the natives of Dusky Bay; and other authors have called it the Piwaka-waka and Pi-oua-ka-oua-ka.

The Expedition's specimens were from the Bay of Islands.

Rhipidura melanura.

Rhipidura melanura, *G. R. Gray, App. to Dieff. Trav. in N. Zeal.* ii. *p.* 190.

Dark olivaceous brown; beneath rufous brown; head and neck greyish black, with a superciliary spot on each side white; the tail is entirely black.

Total length, 6½ inches; bill from gape, ½ an inch; tail, 4 inches; tarsi, 10 lines.

This species is from Chatham Island and New Zealand.

Family, Corvidæ.

Subfamily, *Callœatinæ.*

Callæas cinerea.

Callæas cinerea, *Forst. Desc. An. p.* 74, *et Icon. ined.* 52.

Cinereous Wattled Bird, *Lath. Syn.* i. 364, *pl.* 14.

Glaucopis cinerea, *Gmel. Syst. Nat.* i. 363: *Quoy et Gaim. Voy. de l'Astrol. Ois. t.* 15.

Blackish cinereous; lower part of back and abdomen tinged with rufous brown; above each nostril a patch of velvety black; with a round caruncle at the gape on each side.

Length, 1 foot 3 inches; bill from gape, 1 inch; wings, 6¾ inches; tarsi, 2½ inches.

"Habitat in utraque Novæ Zeelandiæ insula, ambulat humi et per arbores et fruticeta quoque vagatur. Cantillat voce fistulari, exæstuat quoque in arboribus simul obmurmurans. Vescitur baccis, insectis, et uti mihi relatum parvis quoque aviculis. Caro ejus satis sapida." *Forster.*

It is the Kokako of the natives, and the "New Zealand Crow" of the English settlers.

Family, Sturnidæ.

Subfamily 1. *Ptilonorhynchinæ.*

Aplonis Zelandicus.

Lamprotornis zelandicus, *Quoy et Gaim. Voy. de l'Astrol. Ois. t.* 9, *f.* 1.

Olivaceous brown; under surface ashy, tinged with yellow; quills, secondaries, tertials, uropygium and tail, rufous, paler on the uropygium.

Length, 6 inches.

Tasman's Bay is given as the locality of this species by MM. Quoy and Gaimard.

Aplonis obscurus.

Lamprotornis obscurus, *Dubus, Bull. Acad. Sci. Brux.* 1839, *pt.* 1, *p.* 297.

Brownish grey; head, fore part of neck, and breast rather black, tinged with deep green; wings and tail blackish brown; abdomen brownish ash.

Length 6½ inches.

Subfamily, *Sturninæ.*

Creadion carunculatus.

Sturnus carunculatus, *Forst. Descr. Anim. p.* 81, *et Icon. ined.* 144.

Wattled Stare, *Lath. Syn.* iii. 9, *pl.* 36 (adult and young).

Sturnus carunculatus, *Gmel. Syst. Nat.* i. 805.

Creadion pharoides, *Viell. Encyc. Méth. p.*

Icterus rufusater, *et* I. novæ Zelandiæ, *Less. et Garn. Voy. de la Coq. Ois. t.* 23, *f.* 1, (adult).

Xanthornus carunculatus, *Quoy et Gaim. Voy. de l'Astrol. Ois. t.* 12, *f.* 4, (young).

Oxystomus carunculatus, *Swains. Class. of Birds*, ii. 270.

Black; back, wing-coverts and uropygium ferruginous; a small blood-red caruncle hangs from the gape on each side of the lower mandible.

Adult male. Black, back only ferruginous.

Female or young. Blackish brown; lower part of back tinged with rufous.

Length, 9½ inches; bill from gape, 1 inch 4 lines; wings 3½ inches; tarsi, 1 inch 7 lines.

"Habitat in insula australi Novæ Zeelandiæ; voce fistulari canit." *Forster.*

MM. Quoy and Gaimard inform us, that "Cet oiseau habite les grands bois de la baie Tasman, où il parait vivre solitaire." It feeds on seeds, and inhabits both the North and South Islands.

The natives call this bird Tiaka, Purouroa or Tierawaki.

Family, Psittacidæ.

Subfamily 1. *Pezoporinæ.*

Platycercus novæ Zeelandiæ.

Psittacus pacificus, *Forst. Descr. Anim. p.* 73. *Icon. ined.* 44—46.
Pacific Parrot, *Lath. Syn.* i. 252.
Psittacus pacificus, var. β. *Gmel. Syst. Nat.* i. 329.
Psittacus novæ Seelandiæ, *Sparrm. Mus. Carls. t.* 28.
Platycercus novæ Seelandiæ, *Wagl. Monogr. Psitt. p.*
Platycercus pacificus, *Vigors, Zool. Journ.* i. 529, *pl. suppl.* 1.

Green; forehead, region of the ears, and some of the side feathers margined with crimson; beneath yellowish green; quills black, with the outer webs blue and margined with yellow.

Length, 9 inches; bill from gape, 6 lines; wings, $5\frac{1}{4}$ inches; tarsi, 8 lines.

Length, 12 inches; bill from gape, 9 lines; wings, $5\frac{1}{2}$ inches; tarsi, 9 lines.

"Habitat in tota insula australi Novæ Zælandiæ, victitat baccis, nam in arboribus et fructicibus bacciferis plerumque obvius: præcipue in Coccoloba australi et Phytolacca completa." *Forster.*

Kakiriki, Powaitere, or Po-é-tèrè are the names by which this species is known to the natives. It is found in New Zealand, Auckland and Chatham Islands.

Platycercus auriceps.

Psittacus auriceps, *Kuhl, Nov. Act. Acad. Cæs. Cur.* x. *p.* 46.
Platycercus auriceps, *Vigors, Zool. Journ.* 1825, 531, *pl. suppl.* 2.
Psittacus pacificus, var δ. *Lath. Ind. Orn.* i. 104.

Green; beneath yellowish green; frontal band and some of the side feathers margined with scarlet; vertex of the head golden yellow; quills black, the outer webs blue, margined with yellow; tail green, margined with yellow.

Length, 9 inches; bill from gape, $\frac{1}{2}$ an inch; wings, 4 inches; tarsi, 7 lines.

Length, 11 inches; bill from gape, 7 lines; wings, 4 inches, 5 lines; tarsi, $8\frac{3}{4}$ lines.

This species inhabits various parts of New Zealand.

Trichoglossus aurifrons.

Psittacus (Lathamus) aurifrons, *Less. Cent. Zool. t.* 18.
Trichoglossus aurifrons, *Wagl. Monogr. Psitt. p.*

Upper surface lively green; uropygium, forehead, and all the under surface golden yellow, tinged on the abdomen with green; quills azure blue, with the extremities black.

Length, 7 inches 4 lines, (French).

This species is given, as found in New Zealand, on the authority of M. Lesson.

Subfamily 2, *Cacatuinæ.*

Nestor meridionalis.

Psittacus hypopolius, *Forst. Descr. Anim. p.* 72. *Icon. ined.* 50.
Southern Brown Parrot, *Lath. Syn.* i. 264.
Psittacus meridionalis, *Gmel. Syst. Nat.* i. 333.
Psittacus nestor, *Lath. Ind. Orn.* i. 110.
Psittacus australis, *Shaw, Mus. Lev. pl. p.* 87.
Nestor hypopolius, *Wagl. Monogr. Psitt. p.*

Olivaceous, each feather margined with brown; fore part of the neck and breast greyish brown, margined with dark brown; nape rufous brown, margined with yellow and black; uropygium and abdomen purplish blood red, banded with black; crown of head and lores grey, margined with dark brown; region of the ears golden yellow, margined with brown; feathers projecting over the lower mandible obscure red, streaked with grey in the middle; tail greenish brown, barred on the inner margins of the inner webs with pale red.

Length, 1 foot $7\frac{1}{2}$ inches; bill from gape, 1 inch 7 lines; wings, 11 inches; tarsi, 1 inch 2 lines.

"Habitat in insula utraque Novæ Zeelandiæ, victitat baccis et nucibus, garrulus, fistilat voce alta et clamosa, præsertim mane et vesperi. Maxime australis congenerum quippe vivens in 46° Lat. Austr." *Forster.*

This bird is the Kaka of the natives.

Family, Cuculidæ.

To this family, says Dr. Dieffenbach, probably belongs the bird known to the natives by the name of Kakapo, and judging from some tail-feathers of a green metallic lustre, which were obtained in the interior, the bird may belong to the genus *Centropus*(?). Dr. D. further remarks that the living birds, nor even an entire specimen, have not been seen by any of the missionaries, nor by the natives, for many years past. Its destruction he considers to be owing to the introduction of cats and dogs, as the bird used to perch only on the lower branches of trees, and therefore was easily obtained by those animals. The natives caught it by means of the glare of a torch during the night.

Mr. P. Earl is induced, from information which he obtained during his recent travels, to suppose that this rare bird still exists in the southern parts of the South Island, and that it seldom visits the northern portions. He was informed by Mr. Gerard, many years resident in New Zealand, that he had seen the bird in the bay in which he lived, and described it as a climbing bird; and by Mr. Hughes, a whaling master at Moiraki, that he had had a living specimen in his possession some years ago. Mr. H. said that it had a long tail; the bill was hooked like a hawk or a parrot's; and that it was very strong on the wing, and would attack other birds, even the *Nestor meridionalis*, to which it was little inferior in size.

Subfamily, *Cuculinæ.*

Eudynamis taitensis.

Cuculus fasciatus, *Forst. Desc. Anim. p.* 160. *Icon. ined.* 56.

Society Cuckow, *Lath. Syn.* ii. 514.

Cuculus taitensis, *Sparrm. Mus. Carls. t.* 32. *Voy. de la Coq. Zool.* i. *p.* 623.

Cuculus taitius, *Gmel. Syst. Nat.* i. 412.

Brown, transversely banded and longitudinally streaked on the head and neck, with rufous; under surface white with longitudinal streaks down the middle of each feather of brownish black; wing-coverts brown, banded with rufous and tipped with white; quills brown, banded with rufous; tail brown, numerously banded with rufous and tipped with white.

Length, 1 foot $4\frac{1}{2}$ inches; bill from gape, 1 inch 10 lines; wings, $7\frac{3}{4}$ inches; tarsi, 1 inch 3 lines.

When young, the feathers of the back, quills and secondaries are tipped with white, and the under surface is tinged with rufous.

This bird is the Kohepuroa or Koekoea of the natives. It is migratory, says Dr. Dieffenbach, and appears on the coast in the month of December. Forster has neither in his MSS. or drawings recorded it as a native of New Zealand.

From Mr. P. Earl's note we learn that it comes from the north to the neighbourhood of Port Nicholson in the month of October, and returns in April. They are also found as far south as Otago in the South Island, but they are scarce and very shy.

Chrysococcyx lucidus.

Cuculus nitens, *Forst. Desc. Anim. p.* 151. *Icon. ined.* 57.

Shining Cuckow, *Lath. Syn.* ii. 528, *pl.* 23.

Cuculus lucidus, *Gmel. Syst. Nat.* i. 421. *Temm. Pl. Col.* 102, *f.* 1.

Shining bronzy green; forehead, cheeks and beneath the body white, transversely banded with shining bronzy green; tail shining bronzy green, with some of the lateral feathers spotted on the sides and tipped with white.

Length, 7 inches; bill from gape, 8 lines; wings $4\frac{1}{4}$ inches; tarsi, 9 lines.

"Habitat ad Æstuarium Reginæ Charlottæ in sylvis (et ad Caput Bonæ Spei (?)." *Forster.*

This bird is closely allied to the Australian species, but appears larger in all its proportions; the transverse bands of the under surface are wider; the outer tail-feathers have four large spots and one small spot at the base; while the Australian species has five spots, which are all large, and equal in size: the feathers of the back are more of a golden green than in the Australian bird; and other differences are also distinguishable by comparison.

It is the Poopoo arouro or Pipiwawarou of the natives. Dr. Dieffenbach remarks, that like the former bird, it is migratory, and appears near the coast in the same month. He also observed that it lays its eggs in the nests of smaller birds, especially in that of the Fan-tailed Flycatcher (*Rhipidura flabellifera*). It arrives, says Mr. P. Earl, at Port Nicholson, in the beginning of October, returning north in March: it possesses a very strong flight and is exceedingly shy; its notes are like the sound of Kui kui tioro. He examined the stomach of one, and found several caterpillars in it.

Family, Columbidæ.

Subfamily, *Columbinæ.*

Carpophaga novæ Zealandiæ.

Columba argetræa, *Forst. Desc. Anim. p.* 80. *Icon. ined.* 137.

New Zealand Pigeon, *Lath. Syn.*

Columba novæ Zealandiæ, *Gmel. Syst. Nat.* i. 773.

Columba zealandica, *Lath. Ind. Orn.*

Columba leucogaster, *Wagl.*

Top of the head, back and sides of the neck, upper part of the back and wing-coverts, coppery purple; head, fore part of the neck, breast and outer portion of the wings, secondaries and lower part of the back, rich coppery green; abdomen and lower part of the breast pure white; quills bluish green, with lengthened spots of grey on the outer webs near the base, the tips of the inner ones black; tail black, tinged with blue green, tipped with pale brown.

Length, 1 foot $7\frac{1}{2}$ inches; bill from gape, 1 inch 3 lines; wings, $10\frac{1}{4}$ inches; tarsi, $1\frac{1}{4}$ inch.

"Habitat in insula Australi Novæ Zealandiæ. Victitat baccis Coriariæ sarmentosæ et Coccolobæ australis." — *Forster.*

According to Forster's drawings it is the Hagarreroo, but by other writers it is said to be the Kuku or Kukupa of the natives.

This fine bird is closely allied to the Australian *Carpophaga spadicea*, but which differs by the wings and lower parts of the back being silvery grey, more or less tinged with green. In the young birds the purplish ferruginous is more or less wanting.

MM. Hombron et Jacquinot have described a species with the name of *Columba spadicea leucophæa* (Ann. des Sci. Nat. 1841, 319), in the following terms. "Back and wing-coverts undulated with rufous; head, occiput, cheeks and back of neck, grey, marked with paler; quills and tail sooty grey, the latter tipped with white; under part of the throat and breast brownish grey, traversed with grey more or less pure; belly and under tail-coverts white." This description most likely refers to the very young bird of this species.

Latham has recorded two other species of pigeons, as found in New Zealand, namely, *Columba ænea, var.* β. and *Columba brunnea;* it is extremely doubtful whether these birds are inhabitants of that part of the world.

Among the notes of Mr. P. Earl I find the following description of a species of pigeon. "Head and neck white, the former crested; scapulars very light brown; the belly and breast white." Several specimens of this were seen at Tautuku, and near the Molyneux River.

Family, Tetraonidæ.

Subfamily, *Perdicinæ.*

Coturnix novæ Zealandiæ.

Plate 8.

Coturnix novæ Zealandiæ, *Quoy et Gaim. Voy. de l'Astrol. Zool.* i. 242. *Ois. t.* 24, *f.* 1, (femelle).

Male. Upper surface brownish ferruginous varied with black, with a narrow white streak down the shaft of each

feather; a line over each eye, cheeks and throat rufous; with two short lines on the cheeks and margin beneath, black; breast ferruginous white, each feather with a broad irregular band of black, and tipped with white; feathers of the sides pale ferruginous marked with black, and a white streak down the shaft; abdomen white, with black marks.

Length, $8\frac{1}{4}$ inches; bill from gape, 8 lines; wings, $4\frac{3}{4}$ inches.

The female is similar to the male, but wants the rufous throat. It is closely allied to the *Coturnix pectoralis* of Mr. Gould. MM. Quoy and Gaimard tell us that "Il habite la baie Chouraki (rivière Tamise de Cook), à la Nouvelle-Zélande. Nous n' avons pas pu nous procurer un seul mâle." Mr. Percy Earl informs me, that this bird is termed by the natives Koreke, and that it is found, but not in abundance, in the open fern lands on the South Island. He never saw one on the North Island, although he does not state positively that they do not exist there. The flesh of this quail is of a delicate flavour. The egg is of a yellowish white, irregularly spotted with umber brown. This species was observed by Dr. Dieffenbach on the Northern Island.

Family, Struthionidæ.

Subfamily, *Apterygiuæ*.

Apteryx australis.

Apteryx australis, *Shaw, Nat. Misc. pl.* 1057, 1058. *Gould's B. of Austr. pt.* 11. *pl.*

Dromiceius novæ Zealandiæ, *Less. Man. d' Orn.* ii. 210.

Chesnut brown, margined on the sides of each feather with blackish brown; head; fore part of neck and under surface lighter, tinged with grey.

Length of male, 2 feet 6 inches; bill from gape, $6\frac{3}{4}$ inches; tarsi 3 inches.

Length of female 2 feet; bill from gape, $5\frac{1}{2}$ inches; tarsi 2 inches 8 lines.

This singular bird (which is the Kivi or Kiwikiwi of the natives) is scattered over various parts of New Zealand, especially those covered with extensive and dense beds of ferns, which afford it a place of concealment, when hunted by the natives, who highly prize the feathers as an article to decorate their persons. It runs with swiftness, and sometimes hides itself in holes of rocks or hollow trees. Its food is supposed to consist of snails, insects and worms, which it mostly seeks for during the night; the latter are obtained by beating the earth with its foot, it seizes them with its bill the instant they appear above the ground. The nest is usually placed at the base of a hollow tree, or in deep holes excavated in the ground. It is composed of fern and grasses, but the number of eggs is unknown.

Family, Charadridæ.

Subfamily, *Charadrinæ*.

Charadrius virginianus.

Charadrius virginianus, *Pr. Bonap.*

Charadrius marmoratus, *Wagl.*

Charadrius xanthocheilus (Wagl.), *Jard. & Selby's Ill. of Orn. pl.* 85.

Blackish brown, spotted with yellowish white or deep yellow; feathers of the head and nape margined with yellow; greater wing-coverts and quills blackish brown, the former margined, and the basal part of the shafts of the latter, white; under surface yellowish white, with the abdomen varied with blackish brown bands; fore part of the neck and breast yellowish grey, with triangular spots and bands of pale blackish brown; under tail-coverts yellowish white, tinged with yellow; tail blackish brown, spotted with yellowish white.

Length, 10 inches.

The native names of this bird are Tuturiwhata, Takihikaki or Tuturuata.

Charadrius obscurus.

Plate 9.

Charadrius glareola, *Forst. Desc. Anim. p.* 109. *Icon. ined.* 122.

Dusky Plover, *Lath. Syn.* v. 211.

Charadrius obscurus, *Gmel. Syst. Nat.* i. 686.

Blackish brown, with the feathers margined with rufous grey, especially on the nape; front, streak over each eye, throat and abdomen rufous white; breast and upper part of abdomen rufous; under tail-coverts white, slightly tinged with rufous; quills black, base of the inner ones and the shafts of the others white; tail blackish brown, with the lateral feathers white.

Length, 10 inches; bill from gape, 1 inch 5 lines; wings $6\frac{1}{2}$ inches; tarsi, 1 inch, 8 lines.

"Habitat ad littora glareosa insulæ australis Novæ Zeelandiæ." *Forster.*

The young bird is of a lighter colour, especially on the under surface, where it is white, slightly tinged with rufous; and the throat and sides of the breast spotted with blackish brown.

This is called, according to the drawing of Forster, Hapoho-era, by the natives of Dusky Bay.

These birds, says Mr. Percy Earl, I never observed but at Waikonati, and then only during the month of September. They are usually six or eight together, but are very shy, and are very fat at that time, and of exquisite flavour. He further marked, that this species is the Moakura of the natives.

Thinornis.

Bill long, slender, scarcely swollen at the apex, which is acute; the nostrils lateral, basal, placed in a nasal groove that extends for two-thirds of the bill. *Wings* long, pointed, and with the first and second quills nearly equal and longest. *Tail* long and rounded. *Tarsi* as long as, or shorter than, the middle toe, and strong. *Toes* long, strong, united at the base and margined on the sides, the hind toe wanting.

These birds differ from *Hiaticula*, in the length and slenderness of their bills, and in the strength and shortness of their tarsi, and also in the strength of their toes.

Thinornis Rossii.

Plate 11.

Blackish brown, lighter on the wings; forehead, cheeks, sides, fore part of neck, and a narrow collar round the neck brownish black; band across the head, over the eyes and extending down to the nape, breast and abdomen, margins of secondaries, some of the tertials margined or entirely, and the outer tail-feathers, pure white; sides of the breast and abdomen varied with blackish-brown feathers.

Length, 8 inches; bill from gape, 11 lines; wings, 5 inches; tarsi, $9\frac{3}{4}$ lines.

A single specimen of this bird was brought by the Expedition from Auckland Island.

Thinornis novæ Seelandiæ.

Plate 11.*

Charadrius torquatula, *Forst. Desc. Anim. p.* 108. *Icon. ined.* 121.
New Zealand Plover, *Lath. Syn.* v. 206, *pl.* 83.
Charadrius novæ Seelandiæ, *Gmel. Syst. Nat.* i. 684.
Charadrius dudoroa, *Wagl. Syst. Av.*

Greyish brown; forehead, cheeks and fore part of neck, and a ring round the nape, black; throat varied with white; band across the head, extending over the eyes to the nape, breast and abdomen, pure white; quills blackish brown, with a white mark down the shaft of each; margins of the secondaries and some of the tertials margined or entirely white; middle feathers of the tail blackish brown, lateral feathers white, with the second and third with a black spot near the end.

Length, $7\frac{3}{4}$ inches; bill from gape, 1 inch; wings, $4\frac{3}{4}$ inches; tarsi, 11 lines.

"Habitat ad ostia rivulorum et littora maris glareosa in insula australi Novæ Zeelandiæ in Portu Obscuro." *Forst.*

According to Forster's drawing it is called by the natives Doodooroo attoo, and was found at Queen Charlotte's Bay.

Mr. Percy Earl found a pair of this, what he terms very rare, species, on the coast between Tairi and Otago, South Island. It was called by the natives Kukuruatu.

This species differs from the other by the lightness of its general colour, and by the toes being rather shorter.

Hiaticula bicincta.

Charadrius bicinctus, *Jard. & Selby's Ill. Orn. pl.* 28.
Ægialites bicincta, *Gould, Syn. Austr. Birds, p. pl. f.*
Chesnut-breast Plover, *Lath. Hist. of Birds,* ix.324.

Upper surface greyish brown, greater wing-coverts and some feathers of the back, margined with pale yellowish brown; quills black brown, with the shaft of the first quill white; forehead and beneath the body white, with a broad black band on breast, and a broad ferruginous band on the fore part of abdomen; tail with the middle feathers blackish brown, the lateral ones paler and the outer one entirely white.

Length, 7 inches; bill from gape, 9 lines; wings, $5\frac{3}{4}$ inches; tarsi, 1 inch 2 lines.

Anarhynchus frontalis.

Anarhynchus frontalis, *Quoy et Gaim. Voy. de l'Astrol. Zool.* i. 252. *Ois. t.* 31, *f.* 2.

Pale cinereous; forehead and the under surface of the body pure white; quills brown.

Length, 6 inches 2 lines; bill, 13 lines; tarsi, 13 lines, (French).

"Cet oiseau a les mœurs de tous ceux de sa famille. Il habite les bords vaseux de la mer, et vit en troupes dans les canaux d' eau salée qui entourent la baie Chouraki, à la Nouvelle Zelande."

Subfamily, *Hæmatopodinæ.*

Hæmatopus longirostris.

Hæmatopus longirostris, *Vieill. N. Dict. d' Hist. Nat.* xv. 410.
Hæmatopus picatus, *Vigors, King's Voy. Austr. Append.*
Hæmatopus australiasianus, *Gould, Proc. Z. S.*

Back of neck, back, wings and tail black, glossed with green; the latter with the base white; fore part of neck, breast and thighs cinereous black; beneath the body, uropygium, and the outer portions of the secondaries, white.

Length, 1 foot $7\frac{1}{2}$ inches; bill from gape 2 inches 10 lines; wings, 11 inches; tarsi, 2 inches 1 line.

The native name of this bird is Toria.

Hæmatopus unicolor.

Plate 10.

Hæmatopus unicolor, *Forst. Desc. Anim. p.* 112. *Wagl. Isis,* 1832, *p.* 1230.

General colour black, with a tinge of green; bill and legs crimson.

Length, 1 foot $6\frac{1}{2}$ inches; bill from gape, $4\frac{1}{2}$ inches; wings, $10\frac{1}{2}$ inches; tarsi, 3 inches.

"Habitat in scopulis, ad quos fluctus algas fucosque ejiciunt. Insectis marinis, cancris, testaceis victitat. Gregaria semper a me visa. Vox fistulans fere Scolopacis arquatæ. Natat et urinatur." *Forster.*

Differs from the Australian species, *H. fuliginosus* of Mr. Gould, by wanting the red ring round the eyes.

Family, Ardeidæ.

Subfamily, *Ardeinæ.*

Herodias flavirostris.

Ardea flavirostris, *Wagler, Syst. Av.*

Entirely white; bill yellow and the legs black.

Length, (female?) 2 feet $8\frac{1}{2}$ inches; the bill from gape, 6 inches; wings, 1 foot $4\frac{3}{4}$ inches; tarsi, $5\frac{3}{4}$ inches.

This bird, says Mr. P. Earl, is unknown in the North Island. It is called in the South Island (Tairi river) Katuka by the natives, who consider it very rare and extremely shy. They hold this bird in great estimation for its feathers to decorate their persons. An old chief offered Mr. Earl a large pig for the skin. Specimens of this bird were first observed by Capt. Cook, as inhabiting New Zealand.

HERODIAS MATOOK.

Ardea jugularis, *Forst. Desc. Anim. p.* 172. *Icon. ined.* 114. *Wagl. Syst. Av.*

Blue Heron, *Lath. Syn.* v. 79.

Ardea cærulea, var. γ. *Gmel. Syst. Nat.* i. 631.

Ardea Matook, *Vieill. N. Dict. Hist. Nat.* xiv. 416.

New Zealand Heron, *Lath. Hist. of Birds*, ix. 128.

Ashy blue; throat and a line down the middle of the fore part of neck, white.

Length, 1 foot 11½ inches; bill from gape, 4 inches; wings 10½ inches; tarsi, 3¾ inches.

"In nova Zeelandia ad Æstuarium Reginæ Charlottæ."

It is known to the natives of Queen Charlotte's Sound by the name of Matook.

BOTAURUS MELANOTUS.

Botaurus melanotus, *G. R. Gray, App. in Dieff. New Zealand*, ii. *p* 196.

Ardea (Botaurus) australis, *Cuv.? Less. Tr. d' Orn.* 572.

Blackish brown on the back, with some of the feathers and wings reticulated with yellowish white; head, neck, quills, secondaries and tail dirty brown; sides of the head, throat and streaks down some of the feathers and beneath the body yellowish white, the two latter with blackish brown streaks, more or less perfect, down several of the feathers.

Length, 2 feet 2 inches; bill from the gape, 3¼ inches; wings, 12¼ inches; tarsi, 3¾ inches.

Young. Blackish brown, reticulated all over with yellowish white.

This species is the Matuku or Matuku urepo of the natives, and the Crane of the Missionaries. It is also found in Australia.

Family, SCOLOPACIDÆ.

Subfamily, *Limosinæ.*

LIMOSA LAPPONICA, VAR. NOVÆ ZEALANDIÆ.

Greyish brown, with the middle of each feather fuscous, and some of the feathers more or less marked with white on the edges; quills brownish black, with white shafts; throat and fore part of neck brownish white, streaked with darker and tinged with rufous; breast and abdomen pinkish white; sides and sometimes the under tail-coverts irregularly banded or streaked with brownish black; uropygium white, irregularly marked with brownish black.

Length, 1 foot 3 inches; bill from gape, 3¾ inches; wings, 9 inches; tarsi, 2 inches.

According to Mr. P. Earl's notes, this species is called Ririwaka by the natives at Waikouaiti, and was found in abundance on the sea-shore in summer, but almost unapproachable on account of its shyness.

Subfamily, *Recurrirostrinæ.*

HIMANTOPUS NOVÆ ZEALANDIÆ.

Himantopus novæ Zealandiæ, *Gould, Proc. Z. S.* 1841, *p.* : *Birds of Austr. pl.*

Himantopus melas, *Homb. et Jacq. Ann. des Sci. Nat.* 1841, 320. *Voy. à Pol Sud, Ois. t.* 30, *f.* 2.

Male. Back and wings shining greenish black; head and beneath the body sooty black; throat cinereous.

Length, 13½ inches; bill from gape, 2¾ inches; wings, 9¼ inches; tarsi, 3 inches.

Female. Top and sides of head, back of neck, and abdomen sooty black; back, wings and tail shining greenish black; forehead, cheeks, fore part and sides of neck, breast and fore part of abdomen, white.

Length, 1 foot 3½ inches; bill from gape, 2½ inches; wings, 9¾ inches; tarsi, 3½ inches.

The natives, according to Dr. Dieffenbach, have named this bird Tutumata. "At Mataineka in South Island," says Mr. P. Earl, "it is called Poako. They are generally found feeding among ducks; and at the approach of danger, utter a peculiar cry, at hearing which the ducks instantly take flight. The young are mottled, even after they fly."

Subfamily, *Scolopacinæ.*

GALLINAGO AUCKLANDICA.

Plate 13.

Top of the head rufous, mixed with dark brown, with a narrow fulvous line down the middle; front and cheeks fulvous white, the former with a short brown line from the culmen, another broader from the nostrils passing under the eyes to the occiput, a third on each cheek running in an oblique direction; neck and breast fulvous white, with a brown mark in the middle of each margin; back, scapulars and wings fulvous, marked with blotches and narrow interrupted bands of black; abdomen fulvous white; bill and feet pale horn-colour.

Length, 9 inches; bill from gape, 2 inches 4 lines; wings, 4½ inches; tarsi, 1 inch.

Three specimens of this new species were procured by the Expedition on Auckland Island.

Family, RALLIDÆ.

Subfamily, *Rallinæ.*

OCYDROMUS AUSTRALIS.

Plate 14.

Rallus troglodytes, *Forst. Desc. Anim. p.* 110. *Icon. ined.* 126.

Troglodyte Rail, *Lath. Syn.* v. 229.

Rallus australis, *Sparrm. Mus. Carls. t.* 14.

Ocydromus australis, *Strickl. Ann. Nat. Hist.*

Adult. Yellowish olivaceous, with the middle of each feather brownish black; eyebrows, cheeks and throat pale cinereous; wing-coverts brownish black, irregularly banded with yellowish white or rufous white; quills black, irregularly banded with pale ferruginous; abdomen and sides greyish olivaceous, narrowly banded with yellowish white; under tail-coverts pale ferruginous, banded with black; tail brownish black, margined with olivaceous and spotted on the sides near the base with rufous.

Length, 1 foot 9 inches; bill from gape, 2 inches 4 lines; wings 7¾ inches; tarsi, 2 inches 2 lines.

Young. Rufous, with the centre of each feather brownish black; eyebrows, cheeks, throat, breast and abdomen cinereous, with a part of the neck and breast tinged with

rufous; under tail-coverts pale rufous, banded transversely with black.

Length, 1 foot 5½ inches; bill from gape, 2 inches; wings, 9 inches; tarsi, 2 inches.

"Habitat in Novæ Zeelandiæ insula australi, imprimis in Portu Obscuro numerosissimæ, per omnia littora maris dispersæ, imo in minimis insulis a nobis sunt inventæ, et quod mirum alas habent brevissimas nec unquam volare tentant, neque ob pedes fissos natare quennt, adeo ut difficile sit dictu qua ratione in omnes pervenerint insulas. In cavitatibus sub arborum radicibus degunt, et æstu recedente ad littora maris excurrunt, cancellos et varios vermes lecturæ, celerrime cursitant, gallinarum more ruspantur humum et in quisquiliis victum querunt, noctu et tempore pluvio misere clamant. Caro earum sapidissima, præsertim cute detracta." *Forster.*

These birds, which bear the name of Weka, observes Mr. P. Earl, are found in both islands; they are usually seen in what is called open country, *i. e.* in long grass or thickets of low bushes, where they can easily spring on small birds perched near the ground. Mr. Earl brought one of the South Island birds home alive; a small living bird was the greatest treat he could give him: they also feed upon berries. In the twilight or moonlight is the best time to find them. The brood generally consists of three to five young ones, which follow the parent until nearly full grown: at half growth they are of a light sandy colour. It is known to the settlers by the name of Wood Hen.

Ocydromus Dieffenbachii.

Plate 15.

Rallus Dieffenbachii, *G. R. Gray, Dieff. Trav. N. Z. App. p.* 197.

Back olive brown, irregularly banded with buff and black; the breast and lower posterior part of the neck and breast rufous yellow banded transversely with black; quills, secondaries and under tail-coverts deep rufous, banded with black; lower part of the breast, abdomen, sides and jugulum black, banded with white; top and hind part of head, cheeks and a streak below the eye, olive-brown, the two last tinged with rufous; a band from the nostrils to the middle above the eye, white; the continuation of this band behind the eye and throat grey, but white beneath the bill; tail dark brown, with longitudinal streaks of deep rufous near the base.

Length, 12½ inches; bill from gape, 1½ inch; wings 5 inches; tarsi, 1½ inch.

The specimen was obtained by Dr. Dieffenbach at Chatham Island, where it is known by the name of Moeriki.

Rallus assimilis.

Rallus assimilis, *G. R. Gray, Dieff. Trav. N. Z. App. p.* 197.

Blackish brown, each feather broadly margined with brownish olive; feathers of the nape and wings spotted with white surrounded with black; quills brownish black, banded with rufous; eyebrows, cheeks and neck before, grey; throat white; breast and sides of body black and white banded; abdomen and under tail-coverts buffy white; breast with a transverse irregular band of buff; a band from the base of upper mandible passing through the eyes, down the neck, and extending round the nape, brown varied with rufous.

Length, 12¼ inches; bill from gape, 1¾ inches; wings, 5 inches 4 lines; tarsi, 1½ inch.

The pectoral buff band on the breast, and the rufous colour of the cheeks and on the sides of the neck, are much less prominent than on the Australian specimens, otherwise these birds are very similar.

Dr. Dieffenbach says, this is the Konini of the natives of Cook's Straits; but in some parts of New Zealand it is called Katatai.

Ortygometra affinis.

Back and tail black, varied with spots of white; top of head, sides and back of neck, wing-coverts and tertials black, greatly margined with rufous brown; quills and secondaries brownish black; sides of head, throat and breast grey, feathers of the two latter margined with pale rufous brown; abdomen and under tail-coverts black, narrowly fasciated with white.

Length, 7½ inches; bill from gape, 9 lines; wings, 3¼ inches; tarsi, 13 lines.

This species is most like *R. palustris* of Mr. Gould, but it has not any white spots on the primaries, and the bill appears to be rather longer.

The specimen was brought by Mr. P. Earl, who states that it was shot on the banks of Nanganui River, in the North Island.

Ortygometra tabuensis.

Rallus minutus, *Forst. Desc. Anim. p.* 178. *Icon. ined.* 130.

Tabuan Rail, *Lath. Syn.* v. 235.

Rallus tabuensis, *Gmel. Syst.* i. 717.

Crex plumbea, *Gray, Griff. An. Kingd.* iii. 400.

Plumbeous; the back and wings purplish black; under tail-coverts plumbeous, banded with white.

Length, 6½ inches; bill from gape, 9 lines; wings, 3 inches 2 lines; tarsi, 13 lines.

The natives of Otago, South Island, informed Mr. P. Earl, that this was very rare, and that but a few of them knew the name, which is Mehotatai. It frequents the swamps or the sides of small water-runs.

Subfamily, *Gallinulinæ*.

Porphyrio melanotus.

Porphyrio melanotus, *Temm. Man. d' Orn.* ii. 701.

Fulica alba, *Lath. White's Journ. t.* 138 (albino variety).

Head, back and wings deep shining black; neck, breast and outer margins of wings indigo blue; abdomen sooty black; under tail-coverts pure white.

Length, 1 foot 5 inches; bill from gape, 1 inch 7 lines; wings, 10 inches; tarsi, 3 inches 8 lines.

The head of the female or young is blackish grey.

This bird is the Pukeko of the natives, according to Mr. Yate, while at Matainéka, South Island, says Mr. P. Earl, it is named Pakura. In the summer months these birds

are found in the fresh-water lagoons near the sea; and they are seldom seen in winter.

Family, Anatidæ.

Subfamily, *Anatinæ*.

Casarca variegata.

Plate 16.

Anas cheneros, *Forst. Desc. Anim. p.* 92. *Icon. ined.* 67.
Variegated Goose, *Lath. Syn.* vi. 441.
Anas variegata, *Gmel. Syst. Nat.* i. 505.
Casarca castanea, *Eyton, Monogr. Anatidæ, pl. p.* 108, (young).

Male. Head and neck shining green-black; breast and nape black, vermiculated with rufous; back, posterior part of breast and sides black, vermiculated with white; abdomen ferruginous, with bands and vermiculations of black; under tail-coverts ferruginous, varied with paler; uropygium and tail shining black; wing-coverts pure white; secondaries shining green; tertials with the outer webs ferruginous and the inner ones cinereous.

Length, 2 feet; bill from gape, 2 inches; wings, 1 foot $2\frac{1}{2}$ inches; tarsi, $2\frac{1}{2}$ inches.

The female is similar to the male, except that the head and part of the neck are pure white; the breast and nape are ferruginous, varied on the margins with black. The young birds differ by being entirely castaneous beneath, undulated on the abdomen with black.

"Habitat in australis insulæ Novæ Zeelandiæ Portu Obscuro. Semper per paria a me observata, inde suspicor eandam esse monogamam. Mas sonum streperum instar crotali edit. Difficiles accessu. Ad ostia rivulorum et aquarum dulcium semper reperta." *Forster.*

Forster placed on the drawing of this bird the name of Pooa dugghie dugghie, but Dr. Dieffenbach says it is the Putangi tangi of the natives (North Island, Mr. P. Earl), and the Paradise Duck of the settlers. "At Mataineka, South Island," says Mr. P. Earl, "it is termed Putakitaki, and is an exceedingly wild bird. They breed near the sea shore, so that at the approach of danger they run into the surf with their young, which vary from six to twelve in number, and are black and white. Flesh coarse and unpalatable."

Anas superciliosa.

Anas superciliosa, *Gmel. Syst. Nat.* i. 537.
Anas leucophrys, *Forst. Desc. Anim. p.* 93. *Icon. ined. t.* 77.
Supercilious Duck, *Lath. Syn.* vi. 497.

Brown, each feather margined with ochre white; eyebrows, cheeks and upper part of neck white or yellowish white; cheeks with two small bands of blackish brown, one of which passes through the eye; the quills obscure brown, with the speculum bright green, margined above and below with black; tail brown, margined with white.

Length, 1 foot 10 inches; bill from gape, $1\frac{1}{2}$ inch; wings 10 inches 4 lines; tarsi, 1 inch 3 lines.

"Habitat in insula australi Novæ Zeelandiæ, in Portu Obscuro et in Æstuario Reginæ Charlottæ." *Forster.*

This duck is the He Parrera or Parera of the natives, and is scattered throughout New Zealand, Chatham and Campbell Islands.

Anas chlorotis.

Plate 20.

Top of head black, margined with rufous; back of neck and nape greyish brown; back and wing-coverts greyish brown, more or less margined with pale rufous white; secondaries the same, but with blotches of black; cheeks and beneath pale rufous white, darkest on the fore part and sides of breast, from whence to the vent spotted with black; under tail-coverts black, varied with dark ferruginous; the region of the ears tinged with green; quills blackish brown; the speculum black tinged with green, and bordered above and below with rufous white.

The female differs by the under side being entirely blackish brown margined with pale rufous white.

Length, 1 foot 6 inches; bill from gape, 1 inch 11 lines; wings, 8 inches; tarsi, 1 inch 6 lines.

Found on the banks of the fresh-water streams of both islands. It is known, says Mr. P. Earl, by the name of Pateka.

Spatula rhynchotis.

Anas rhynchotis, *Lath. Ind. Orn. Suppl. p.* 70. *Lamb. Icon. ined.*

Male. Blackish brown, margined with white or ochre-white; nape greyish brown; the cheeks and throat ochre-white, dotted with brown; back with blotches of greenish black; breast pale ferruginous, margined with black; abdomen dark ferruginous marked with black; wing-coverts bluish lilac, greater coverts margined with white, speculum bright green; quills, tertials and tail brownish black; under tail-coverts black; a white lunate mark before each eye.

Length, 1 foot $5\frac{1}{2}$ inches; bill from gape, 2 inches 10 lines; wings, 10 inches; tarsi, 1 inch 4 lines.

This Shoveller is known at Mataineka, South Island, by the name of Kukupaku. It is found in pairs, says Mr. P. Earl, in small creeks inland.

Subfamily, *Fuligulinæ*.

Hymenolaimus malacorhynchus.

Anas malacorhyncha, *Forst. Desc. Anim. p.* 94. *Icon. ined.* 74.
Soft-billed Duck, *Lath. Syn.* vi. 522.
Malacorhynchus Forsterorum, *Wagl. Isis*, 1832, *p.* 1235.
Hymenolaimus malacorhynchus, *G. R. Gray, Ann. Nat. Hist.* 1843, *p.* 370.

Head and neck greyish brown, tinged with green; other parts grey, tinged with green reflections; breast and abdomen paler, each feather margined with white, the former varied with chesnut and some blackish spots; tertials margined exteriorly with velvety black; middle of the abdomen and under tail-coverts tinged with rufous.

Length, 1 foot $5\frac{1}{2}$ inches; bill from gape, 1 inch 11 lines; wings, $8\frac{1}{2}$ inches; tarsi, 1 inch 9 lines.

"Habitat in aquis dulcibus et rivulis silvestribus insulæ australis Novæ Zealandiæ in Portu præsertim Obscuro.

Constanter per paria reperta, unde eam monogamam suspicor. Sono acuto fistulat." *Forster.*

According to Forster's drawing, this bird is the He-weego of the natives of Dusky Bay. Mr. P. Earl procured his specimen at Waikowaiti, as it was swimming about with his tame ducks. It is seldom seen on the east coast of the South Island; it is, however, more abundant inland and on the east side: and he states that it is known by the name of Whiho. The bill of the living bird is a clear ivory white, margined with black.

Fuligula novæ Zealandiæ.

Plate 18.

Anas atricilla, *Forst. Desc. Anim. p.* 95. *Icon. ined.* 79.
New Zealand Duck, *Lath. Syn.* vi. 543.
Anas novæ Zealandiæ, *Gmel. Syst. Nat.* i. 541.
Fuligula novæ Zealandiæ, *Steph. Gen. Zool.* xiii. 123.

Male. Black, tinged with green, and the head and back of neck with purple; abdomen white, varied with black; sides deep rufous, speckled with white; the back minutely spotted with white; speculum white.

Female. Dull black, feathers of the head, neck and sides margined with castaneous; beneath the body white, mottled with ashy brown.

Length, 1 foot 3¼ inches; bill from gape, 1 inch 9 lines; wings, 7½ inches; tarsi, 15 lines.

"Habitat in insula australi Novæ Zealandiæ, præsertim in Portu Obscuro; ad ostia rivulorum in sinubus maris vento parum expositis, locisque æstu inundatis. Gregaria a me reperta." *Forster.*

This bird is named by the natives He patek, according to Forster's drawings, but Mr. P. Earl says it is Repo.

Subfamily, *Erismaturinæ.*

Nesonetta Aucklandica.

Plate 17.

Nesonetta aucklandica, *G. R. Gray.*

Upper surface blackish brown, with some of the feathers with green reflections, and margined with rufous, others varied with vermiculations of the same colour, especially on the upper part of the back and sides; cheeks and sides of neck brown, speckled with dusky white; breast ferruginous, varied with obscure spots; abdomen brown, banded with dusky white.

Length, 1 foot 4½ inches; bill from gape, 1¾ inches; wings, 5¾ inches; tarsi, 1¼ inch.

Two specimens of this bird were obtained by the Expedition when at Auckland Island.

Subfamily, *Merginæ.*

Mergus australis.

Mergus australis, *Hombr. et Jacq. Ann. des Sci. Nat.* 1841, *p.* 320.

Blackish brown, feathers bordered with a tinge of grey; head brown, spotted with black; neck reddish brown; the wings with a white spot in the middle, which is traversed by a zigzag black band; throat and anterior part of neck red; breast slaty grey, undulated with white; belly and uropygium white, undulated with slaty grey; sides and beneath the wings deep slate colour; some of the secondaries and scapulars white, the former mottled with a tinge of slaty; the lower tail-coverts slaty black, margined with white; tail-feathers greyish black.

Length, 20 inches.

This bird was found by the officers of the French Antarctic Expedition at Auckland Island.

Family, Colymbidæ.

Subfamily, *Colymbinæ.*

Podiceps rufipectus.

Plate 19.

Podiceps (Poliocephalus) rufopectus, *G. R. Gray, Dieff. Trav. N. Z. App. p.* 198.

Adult. Top of head black; sides of head, throat, nape and thighs dusky, the two former ornamented with white linear feathers; breast dark rufous; back black, some of the feathers margined with grey and tinged with green; wing-coverts and quills brownish black, with the base of the latter white; secondaries white, tipped with brownish black; beneath silvery white mottled with rufous.

Length, 10½ inches; bill from gape, 1 inch 1 line; wings 4¾ inches; tarsi, 1 inch 5 lines.

Young. Back ochreous black, with the feathers slightly margined with white; top of head and back of neck black, shafts of the former somewhat prolonged and light fulvous; cheeks and throat ash; lower part of the neck before and breast deep rufous; beneath the body white, tinged with rufous; under tail-coverts plumbeous; the quills brownish black; secondaries white-margined, tips brownish black; bill black and legs lead-coloured.

Total length, 12¼ inches; bill, 1¼ inch; wings, 4¾ inches; tarsi, 1¼ inch.

This species is very similar to *P. poliocephalus* of Australia; but the colours are more prominent, especially on the back, where it is also tinged with green; the buff of the breast becomes in this species dark rufous.

The adult specimen was procured by Mr. P. Earl at Tairi, South Island, where it was called Totokipio. The young of this species, when a few days old, are light grey striped with black.

Family Alcidæ.

Subfamily, *Spheniscinæ.*

Spheniscus minor.

Aptenodytes minor, *G. Forst. Comm. Gotting.* iii. *p.* 147. *Desc. Anim. p.* 101. *Icon. ined.* 84, 85.
Little Pinguin, *Lath. Syn.* vi. 572, *pl.* 103.

Upper surface pale blue, with olive down the centre of each feather; beneath the body silvery white; the wings black blue, margined inwardly with ochre-white.

Length, 15 inches; bill from gape, 1¾ inch; wings, 4¼ inches; tarsi, 9 lines.

"Habitat in insula australi Novæ Zeelandiæ in Portu Obscuro, inter scopulos." *Forster.*

Dr. Dieffenbach says that the female lays two white eggs in the crevices of rocks and holes near the sea-shore. The natives call this bird Korora.

Eudyptes pachyrhynchus.

Glossy dark blue in the middle of each feather, bordered on the sides with black, and the base white; sides of head and throat dusky black; front of the neck and beneath the body yellowish white; a broad line of pale yellow from each nostril passing over each eye and extending a little beyond it; upper side of wings pale blue, the under side mostly white; bill and feet red, the web black.

Length, 1 foot 8 inches; bill from gape, $2\frac{1}{2}$ inches; wings, $7\frac{1}{2}$ inches; tarsi, $1\frac{1}{4}$ inch.

This specimen differs from others by the bill being shorter, more elevated, and the supercilious crest commencing at the nostrils and not prolonged much behind each eye posteriorly, as in *E. chrysocome*.

It is a rare bird at Waikowaiti, and was known there by the name of Tauake.

Eudyptes antipodes.

Plate 27.

Catarractes antipodes, *Homb. et Jacq. Ann. des Sci. Nat.* 1841.

Eudyptes antipodes, *G. R. Gray, Dieff. Trav. N. Z. App. p.* 199.

Upper surface pale blue, with a narrow black mark down the middle of each feather; sides of the neck pale brown; top of head and cheeks pale yellow with black streaks; a band of pale yellow from the gape extending through the eyes and round the occiput; under surface and under the wings pure white; throat brownish white.

Length, 2 feet $7\frac{1}{2}$ inches; bill from gape, $3\frac{1}{4}$ inches; wings, $8\frac{3}{4}$ inches; tarsi, 1 inch 8 lines.

This species is found on Auckland and Campbell's Islands, and on the coast of New Zealand. It is known to some of the natives by the name of Korora.

Family, Procellaridæ.

Subfamily, *Procellarinæ*.

Pelecanoides urinatrix.

Procellaria tridactyla, *Forst. Desc. Anim. p.* 149. *Icon. ined.* 88.

Diving Petrel, *Lath. Syn.* vi. 413.

Procellaria urinatrix, *Gmel. Syst. Nat.* 560.

Top of head, hind part of neck, back, wings and tail, black; sides of neck and sides blue; throat, breast and abdomen pure white.

Length, 9 inches; bill from gape, $10\frac{1}{2}$ lines, beneath, 5 lines; wings, 5 inches; tarsi, $11\frac{1}{2}$ lines.

"Habitat ad Æstuarium Reginæ Charlottæ; gregaria, urinatur, in cuniculis in montibus sylvosis nidificat, noctu quoque volitat et clamat." *Forster.*

On Forster's drawing is written the name of Teetee, as if given to this bird by the natives. Specimens have been brought from the coast of Auckland Island.

Puffinus æquinoctialis.

Procellaria æquinoctialis, *Linn. Syst. Nat.* i. 213.

Brownish black, more or less white on the chin and head; bill white, with the sutures black.

Length, 1 foot 9 inches; bill from gape, $2\frac{1}{2}$ inches; wings, 1 foot 3 inches; tarsi, $2\frac{1}{4}$ inches.

Often seen on the coast of New Zealand, and the natives call it Taiko.

Puffinus major.

Procellaria puffinus, *Linn. Syst. Nat.* i. 213.

Puffinus major, *Faber.*

Procellaria tristis, *Forst. Desc. Anim. p.* 205. *Icon. ined.* 94.

Procellaria grisea, *Gmel. Syst. Nat.*

Puffinus fuliginosus, *Strickl.*

Puffinus cinereus, *A. Smith, Ill. Zool. S. Afr. t.* 56.

Young? Entirely sooty black, with the under surface paler; lower wing-coverts white, with the shafts and margins sooty black.

Length, 1 foot $6\frac{1}{4}$ inches; bill from the gape, 2 inches; wings, 12 inches; tarsi, 3 inches.

The only specimen brought home by the Expedition was shot off Auckland Island.

Thalassidroma marina.

Procellaria marina, *Lath. Ind. Orn.* ii. 826. *Gal. des Ois. t.* 292.

Procellaria æquorea, *Sol. MSS. Banks, Icon. ined.* 13.

Procellaria hypoleuca, *Webb. et Berth.?*

Top of head, hind part of neck and a spot on each side of breast, bluish ash colour; back and wing-coverts brown; upper and lower tail-coverts hoary blue; quills and tail black; forehead, streak over each eye, and the under surface, pure white.

Length, $8\frac{1}{4}$ inches; bill from gape, 10 lines; wings, $6\frac{1}{2}$ inches; tarsi, 1 inch 8 lines.

Specimens were obtained off Auckland Island by the Expedition.

Procellaria gigantea.

Procellaria ossifraga, *Forst. Desc. Anim. p.* 343. *Icon. ined.* 93 *a.*

Procellaria gigantea, *Gmel. Syst. Nat.* i. 563.

Top of the head dusky; sides and fore part of the neck, breast and belly, white; neck behind and upper parts of body pale brown, mottled with dusky white; scapulars, wing-coverts, quills and tail dusky brown; sometimes entirely sooty black.

Length, 2 feet 10 inches; bill from gape, $4\frac{1}{4}$ inches; wings, 1 foot $9\frac{1}{2}$ inches; tarsi, 3 inches.

Procellaria Cookii.

Plate 35.

Procellaria Cookii, *G. R. Gray, Dieff. Trav. N. Z. App.* 99.

Procellaria velox, *Banks, Icon. ined.* 16?

Upper surface grey, with the apex of each feather narrowly margined, as well as the bases, white; oblong spot through each eye; wing-coverts, secondaries and quills brownish black, with the basal portion of the inner webs of the two last white; front, cheeks, under wing-coverts and the whole of the under part white; bill black; tarsi and knees brownish yellow; toes black, with the intermediate webs yellow.

Length, 12½ inches; bill from gape, 1 inch 7 lines, depth in middle, 3½ lines; wings, 9¼ inches; tarsi, 1 inch 2 lines.

The bill is longer and more slender than that of *Procellaria relox*. The natives are acquainted with this bird by the name of E-titi.

Procellaria gavia.

Procellaria gavia, *Forst. Desc. Anim. p.* 148.

Bluish black; fore part of neck, breast, abdomen, under tail-coverts and under wing-coverts pure white; bill bluish black.

Length ——— ? bill from gape, 2 inches.

"Habitat ad Æstuarium Reginæ Charlottæ, gregaria, urinatur, in scopulis nidificat." *Forster.*

Prion vittatus.

Procellaria vittata, *Forst. Desc. Anim. p.* 21. *Icon. ined.* 87.

Broad-billed Petrel, *Lath. Syn.* vi. 411.

Procellaria Forsteri, *Lath. Ind. Orn.* ii. 827.

Procellaria latirostris, *Bonn. Ency. Meth.*

Prion Forsteri, *Steph. Jard. & Selby's Ill. Orn. pl.* 47. *Gould, B. of Austr. pl.*

Blue grey; smaller wing-coverts, a band on the middle of the wing, and scapulars, blackish blue; quills, tips of the middle tail-feathers and streak through the eyes, black; before and a streak over the eyes, cheeks and beneath the body entirely white.

Length, 12 inches; bill from gape, 1 inch 7 lines; wings 7 inches; tarsi, 1¼ inch.

"Habitat Tropico Capricorni in Circulum Antarcticum usque, volant celerrime. Nidos habent in cuniculis sub saxis et radicibus arborum in rupibus Novæ Zeelandiæ. Parentes mane relinquunt pullos et tota die cibum sibi et pullis in mari ex piscibus et vermibus colligunt, noctu vel vesperi redeunt gregatim ad pullos (nam multa earum millia simul redeuntia vidi) et tum cibum evomunt in ora pullorum; ante diluculum tantum clamorem faciunt, ubi in cuniculis degunt, ut nescias unde is oriatur, et ut vix prope te loquentem exaudire possis; ipso diluculo mare repetunt gregatim, et tum toto mari sparsæ indesinenter horsum vorsum volitando videntur." *Forster.*

Subfamily, *Diomedeinæ.*

Diomedea exulans.

Diomedea exulans, *Linn. Syst. Nat.* i. 214. *Forst. Desc. Anim. p.* 27, *et Icon. ined.* 99.

Diomedea spadicea, *Gmel.*

White, more or less waved with black; wings black, occasionally mottled with white.

Young. Dark chocolate brown; face and throat white.

Length, 4 feet; bill from gape, 8½ inches; wings, 2 feet 3 inches; tarsi, 4½ inches.

Family, Laridæ.

Subfamily, *Larinæ.*

Lestris antarcticus.

Lestris antarcticus, *Less. Tr. d' Orn.* 616.

Lestris catarractes, *Quoy et Gaim. Voy. de l' Uranie, Ois. t.* 38.

Brownish black; the head, neck and beneath the body brownish grey, with some of the margins brownish white; feathers of the sides and hind part of the neck with yellowish white streaks; base of the quills white; bill and feet black.

Length, 2 feet 2 inches; bill from gape 2¾ inches; wings 1 foot 3½ inches; tarsi, 2½ inches.

The Expedition procured specimens of this bird off Campbell Island.

Larus dominicanus.

Larus fuscus, *Linn. Dieff. Trav. N. Z. App. p.* 200.

Larus littoreus, *Forst. Desc. Anim. p.* 46.

Larus dominicanus, *Licht. Cat. Dupl. Berl. Mus.*

White; back bluish black; quills black, with the tips white, and the first quill with a white spot near the tip; the scapulars, tertials and secondaries broadly tipped with white; bill yellow, with the gonys red.

Length, 25 inches; bill from gape, 2¼ inches; wings, 1 foot 4½ inches; tarsi, 2 inches.

These birds, says Mr. P. Earl, are very numerous at the whaling stations; in such numbers were they seen on the carcase of a whale, after the blubber was taken off, that not a spot remained visible of the animal. They are known to the natives by the name of Karoro. They have also been obtained at Mount Egmont and Auckland Island.

Larus novæ Hollandiæ.

Larus scopulinus, *Forst. Desc. Anim. p.* 106. *Icon. ined.* 109.

Crimson-billed Gull, *Lath. Hist. Birds.*

Larus novæ Hollandiæ, *Steph. Gen. Zool.*

Larus Jamesoni, *Wils. Ill. of Zool. pl.* 23.

Head, neck, uropygium, tail and under surface, white; back and wings pale silvery grey, the latter exteriorly margined with white; quills black, the first and second with a large spot of white near the tip of each, most of the basal parts and tips of the others white or grey, the former margined interiorly with black; bill and legs crimson.

Length, 1 foot 5 inches; bill from gape, 2 inches; wings, 12¼ inches; tarsi, 1 inch 11 lines.

Young. Front, nape, uropygium, tail and beneath the body white; the tail with an irregular band near the tip; back, scapulars, and some of the wing-coverts varied with irregular brown marks; back and wings more or less grey; quills the same as those of the adult, but the white spots of the first and second quills are smaller; bill and legs pale brown, and the tip of former black.

Length, 1 foot 4 inches; bill from gape, 2 inches; wings, $11\frac{1}{4}$ inches.

"Habitat ad scopulos quos mare alluit, in insula australi Novæ Zeelandiæ, et imprimis in Portu Obscuro; natat, piscatur pisces gregatim æstuaria intrantes pro generandis et pariendis ovis." *Forster.*

The native name of this bird is Piapuka. They are numerous at the whaling stations, especially during the season for taking the whales; also at Mount Egmont, and off Auckland Island.

Subfamily, *Sterninæ.*

Sterna frontalis.

Plate 20.*

Front, below the eyes, nape, throat, breast, abdomen, tail and inner margin of the webs of quills, white; back and wings pale silvery grey; top of the head above the eyes and hind head deep black.

Length, 1 foot 4 inches; bill, 2 inches 4 lines; wings, 10 inches 7 lines; tarsi, 9 lines.

Young? Striated Tern, *Lath. Syn.* vi. 358, *pl.* 98.

Sterna striata, *Gmel. Syst. Nat.* i. 609.

Crown and sides of head below the eyes white, mottled with black; back part of head and nape black; neck behind, back and scapulars white, transversely waved with black, many of the feathers being tipped with that colour; wing-coverts bluish white, some of the lesser mottled with black; quills bluish white, with the outer margins black; tail white, some of the feathers edged and others tipped with black.

Length, 12 inches?

Sterna? antarctica.

Sterna antarctica, *Forst. Desc. Anim. p.* 107. *Wagl. Isis*, 1832, 1223.

Head grey, with a spot before and behind each eye, black; cheeks, throat and abdomen snow white; breast, back and tail cinereous; uropygium white; quills black, with white shafts; bill with the base red and tip black; legs red.

Length, $10\frac{1}{2}$ inches; bill from gape, $1\frac{3}{4}$ inch; wings, tarsi,

"Habitat in insula australi Novæ Zeelandiæ in Æstuario Reginæ Charlottæ." *Forster.*

Hydrochelidon albostriata.

Plate 21.

Top of head, back of neck to the nape, deep black; a line of pure white extending along the margin of the black from the gape to the nape; back, wings, tail and beneath the body, grey; tail-coverts both above and below, and the outer tail-feathers, mostly white; bill and legs red.

Length, $11\frac{1}{4}$ inches; bill from gape, 1 inch 4 lines; wings, $10\frac{1}{4}$ inches; tarsi, 7 lines.

Mr. P. Earl informs me, that this species comes to the vicinity of Waikonaite to breed in the month of December, at other times it is rarely seen. It is known by the name of Tarapiroe by the natives.

Family, Pelecanidæ.

Subfamily, *Pelecaninæ.*

Sula serrator.

Sula australis, *Gould* (*non Steph.*) *Proc. Z. S.* 1840, 177.

Pelecanus serrator, *Banks, Icon. ined.* 30.

Sula cyanops, *Sundev.*?

Snow-white; top and sides of head reddish buff; quills, some of the secondaries and the four middle tail-feathers bronzy black; basal part of the shafts of quills and those of the middle tail-feathers white.

Length, 2 feet $11\frac{1}{2}$ inches; bill from gape, 5 inches; wings, 1 foot 7 inches; tarsi, 2 inches.

Dr. Dieffenbach informs us that this bird is the Tara of the natives of Queen Charlotte's Sound.

Gracalus cirrhatus.

Pelecanus cirrhatus, *Gmel. S. N.* i. 576.

Phalacrocorax imperialis, *King.*

Top and sides of head, back of neck, nape and uropygium shining blue-black; wings and scapulars shining green-black; quills and tail brownish black; beneath the body, an oblong spot on each wing, and some long linear feathers over each eye, white; space round the eyes, throat, and round the base of bill naked, the latter caruneulated; the feathers on the top of the head much lengthened, slender, and most of them are curved forwards.

Length, 2 feet $5\frac{1}{2}$ inches; bill from gape, $3\frac{1}{4}$ inches; wings, 12 inches; tarsi, $2\frac{1}{2}$ inches.

Young. Pelecanus caruneulatus, *Forst. Desc. Anim. p.* 102. *Icon. ined.* 104. *Gmel. Syst. Nat.* i.

This state differs by wanting the crest on the head, the long linear white feathers over each eye, and the oblong spot on each wing.

Gracalus varius.

Pelecanus pica, *Forst. Desc. Anim. p.* 104. *Icon. ined.* 106.

Pied Shag, *Lath. Syn.* vi. 605.

Pelecanus varius, *Gmel. Syst. Nat.* i. 575.

Carbo albiventer, *Less.*

Phalacrocorax hypoleucos, *Gould, Proc. Z. S. Birds of Austr. pl.*

Top of head, back of neck, thighs and lower part of the back, shining greenish black; upper part of the back and wings greyish green, margined with shining greenish black; sides of the head and beneath the body pure white; tail dull black; orbits yellow, and the eyes encircled with blue.

Length, 2 feet 4 inches; bill from gape, $3\frac{1}{2}$ inches; wings, $11\frac{1}{4}$ inches; tarsi, $2\frac{1}{4}$ inches.

Young. Head, neck, back and wings brown; the two last margined with deep brown; uropygium and thighs greenish black; the tail dull black; breast and abdomen white, mottled with pale brown.

Length, 2 feet 9 inches; bill from gape, $3\frac{1}{2}$ inches; wings, $11\frac{1}{2}$ inches; tarsi, $2\frac{1}{4}$ inches.

"Habitat in tota insula australi Novæ Zeelandiæ, victitat piscibus, supra mare secundum littora volitat, inhians prædæ: scopulis arboribusque erectus insidet, urinatur,

nidos in arboribus struit, ova reperimus in nidis mense Aprili; mense Maio pullos circiter 4 vel 5; ova quoque Junio et Octobri ac Novembri et viridi cærulescentia, magnitudine circiter ovorum anatinorum: nidi e virgultis et ramulis arborum." *Forster.*

The Expedition's specimens were shot at the Bay of Islands.

Gracalus chalconotus.

Plate 21.*

Carbo auritus, *Less. Tr. d' Orn. p.* 665 ?

Shining greenish blue; head shining green; upper part of the back and wings bronzy green, with the edges of the feathers of the former shining green, and those of the wing-coverts dark green; breast and beneath the body shining green; quills and tail black, the base of the shafts of the latter white; head crested with a few linear feathers between the eyes; eyelids blue, lower margins deep blue and brilliant; feet white.

Length, 2 feet 4 inches; bill from gape, 3 inches 6 lines; wings, 11¾ inches; tarsi, 2 inches.

Mr. P. Earl obtained his specimen at Otago, South Island; where it was called Mapua.

Gracalus punctatus.

Pelecanus punctatus, *Forst. Desc. Anim. p.* 104. *Icon. ined.* 103.

Spotted Shag, *Lath. Syn.* vi. 602.

Pelecanus punctatus, *Sparrm. Mus. Carls. t.* 10.

Pelecanus nævius, *Gmel. Syst. Nat.* i. 575.

Top of head and the throat sooty black; back of neck, lower part of back green; a streak extending from over the eye along the sides of neck to the breast, white; the upper part of back and wings brownish cinereous, most of the feathers with a spot of black at the tip of each; tail and thighs black, the latter ornamented with a few white lanceolate plumes; breast and abdomen leaden grey; the head and neck crested.

Length, 30 inches; bill from gape, 2½ inches; wings, 10 inches; tarsi, 1 inch 11 lines.

"Habitat in insula australi Novæ Zeelandiæ, in Æstuario Reginæ Charlottæ, urinatur, erectus stat in rupibus mari impendentibus, neque unquam quod sciam arbores frequentat." *Forster.*

"Common in Cook's Strait. They are social birds, and build their nests, many together, on high trees overhanging the rivers and coasts. They lay two white, as large as hen, eggs, and feed especially upon the eels and smaller fishes of the rivers." *Dieffenbach.*

Forster gave, with the figure of this bird, the name of Pa-degga-degga.

Gracalus carboides.

Phalacrocorax carboides, *Gould, Desc. of New Sp. of Austr. Birds, p.* 7. *Proc. Z. S.* 1837, 156.

Top of head, neck, uropygium, tail and beneath the body shining greenish black; back and wings bronzy brown margined with shining greenish black; cheeks, throat and a large spot on the sides, white; head and neck ornamented with small lanceolate white feathers.

Length, 3 feet 5 inches; bill from gape, 4 inches 2 lines; wings, 1 foot 2¾ inches; tarsi, 2¼ inches.

Gracalus melanoleucus.

Phalacrocorax melanoleucus, *Vieill. N. Dict. d' Hist. Nat.* viii. 88. *Gould, B. of Austr.*

Pelecanus dimidiatus, *Cuv.*

Phalacrocorax flavirhynchus, *Gould, Proc. Z. S.* 1837, 157.

Top of head, back of neck, upper part of back, bend of wings and tail, shining black; wings (except some of the coverts) and lower part of back deep grey, margined with pure black, the other parts entirely white.

Length, 1 foot 10 inches; bill from gape, 2 inches 2 lines; wings, 9¼ inches; tarsi, 1 inch 7 lines.

The specimen which was obtained by the Expedition, differs from the Australian specimens by the white spot of the wing-coverts.

Gracalus brevirostris.

Phalacrocorax brevirostris, *Gould, Desc. N. Sp. of Aust. Birds, p.* 8. *Proc. Z. S.* 1837, *p.* 26.

Shining black, slightly tinged with green; wings and scapulars greyish black, margined with pure black; quills brownish black, with pale tips; tail black, a line from the nostrils extending over each eye, cheeks, throat and fore part of neck, white.

Length, 2 feet; bill from gape, 2¼ inches; wings, 9½ inches; tarsi, 1 inch 4 lines.

Two specimens contained in the Museum collection, were obtained by the Expedition whilst in the Bay of Islands.

APPENDIX.

By R. BOWDLER SHARPE, F.L.S., F.Z.S., &c., of the Zoological Department, British Museum.

The preceding portion of the "Zoology" of the Voyage of the "Erebus and Terror" was written many years ago by my lamented predecessor Mr. George Robert Gray, with whom the Ornithology of New Zealand seems always to have been a favourite study. The foregoing catalogue of New Zealand birds was for many years the standard work of reference, and in 1862 the same author applied himself anew to the subject and produced a revised list of the birds of New Zealand, containing many additions and improvements. With the notable exception of Dr. Otto Finsch, no European zoologist has written much on the Avifauna of the Antipodes since that date, for the colony has produced a set of working naturalists inferior to their European brethren in no degree, and to this day the "Transactions" of the New Zealand Institute bear full tokens of the energy which is being shewn in the elucidation of the economy of the fast-expiring feathered inhabitants of that distant region. Dr. Buller has particularly distinguished himself as a critical ornithologist, and, being a native of the colony, he has brought to his aid a vast amount of practical experience of the habits of the birds he describes, while his great work on the Ornithology of New Zealand will always remain a monument of his industry and perseverance. Besides the above-mentioned naturalist, there are Dr. Hector, Dr. Haast, Captain Hutton and Mr. Potts, all of whom have contributed greatly to the advance of ornithological science in New Zealand,—the last-named writer being particularly distinguished for his excellent field observations. In Europe Dr. Finsch has from time to time published valuable articles on New Zealand birds, and has by his "Revision der Vögel Neuseelands" and other papers in the "Journal für Ornithologie" materially contributed to the satisfactory position in which we now find the Ornithology of that country.

In the appendix with which I now supplement Mr. Gray's previous labours I propose to give a complete list of the birds of New Zealand, as far as they are at present determined, with a few critical notes on some of the species, and secondly I shall have to add descriptions of some hitherto unpublished plates which were intended to have accompanied the original issue of the work.

I must acknowledge my indebtedness to Dr. Finsch's paper "Zusätze und Berichtigungen zur Revision der Vögel Neuseelands" (*J. f. O.* 1874, *p.* 107) in compiling a list of the birds of that country as at present known.

Order, ACCIPITRES.

Sub-order, Falcones.

1. Harpa novæ zealandiæ.

Falco novæ zealandiæ, *Gm.*, *Gray*, *antea*, *p.* 1.

Hieracidea novæ zealandiæ, *Finsch*, *J. f. O.* 1872, *p.* 87, *et* 1874, *p.* 175; *Buller*, *B. N. Zeal. p.* 1, *pl.* 1.

This species has been well described and figured by Dr. Buller (*l. c.*), who separates the small form as *Hieracidea brunnea*, and gives distinctive measurements of each. I have, however, shewn in the "Ibis" for 1873, p. 328, that a gradual gradation in the size of wing can be found, and at present further characters must be sought for, before two species of *Harpa* can be distinguished. When recently engaged in studying the "Birds of Prey" I was surprised to find that the New Zealand Falcons are by no means congeneric with the Australian *Hieracideæ*, these latter being short-toed Hawks, allied to the Kestrels, whereas the subject of the present notice is a long-toed bird, a true Falcon, allied to the Peregrines but yet generically distinct. The two Falcons must therefore be known as *Harpa novæ zealandiæ* (Gm.) and *Harpa australis*, if the latter should prove distinguishable, Mr. Gould's name of *Falco brunnea* for the latter having been pre-occupied.

At the same time that I cannot admit the absolute distinctness of *Harpa novæ zealandiæ* and *H. australis*, I am

free to confess that the great difference in size between the two extremes of the series examined by me renders it possible that two races or sub-species exist in New Zealand. This subject, however, must be left to the field naturalists in New Zealand to determine. Dr. Buller (*Tr. N. Z. Inst.* vi., *p.* 113) and Mr. Potts (*l. c. p.* 142) are mistaken in supposing that *Falco australis*, H. and J., is the large form, the "Quail Hawk." It is undoubtedly the small form, their "Sparrow Hawk," and as such the latter will stand as *Harpa australis*. [*Cf. Sharpe, Cat. Birds* I., *p.* 373.]

2. Falco subniger.

Falco subniger, *Gray; Buller, B. N. Zeal., p.* 16.

The evidence of this rare Falcon's capture in New Zealand is by no means satisfactory, and I regard the occurrence of this species as far more improbable than that of the Sea Eagle. All that is known about it is that M. Jules Verreaux assured Mr. Gurney that a New Zealand specimen had passed through his hands. At the same time *F. subniger* is a sufficiently striking bird, and M. Verreaux' knowledge was so excellent that there ought to be no mistaking the species, but I am at present aware of no actual specimen of *F. subniger* from New Zealand in any European collection. The following sentence in Dr. Buller's work, however, deserves consideration: "I may state that the account sent to me by Dr. Haast, of a Hawk observed by him in the Southern Alps, although unfortunately not secured, seems to accord with that given by Captain Sturt of the Australian *Falco subniger*."

3. Circus gouldi.

Circus assimilis, *Gray, antea, p.* 2.

Circus gouldi, *Bp.*; *Finsch, J. f. O.* 1872, *p.* 93; *Buller, B. N. Zeal., p.* 11, *pl.* 2.

Circus approximans, *Peale; Finsch, J. f. O.* 1874. *p.* 176.

The name of *C. assimilis* proposed by Jardine and Selby is really applicable to the large spotted Harrier of Australia, *C. jardinii* of Gould; and the New Zealand bird must therefore be called *C. gouldi*. In his introduction to his great work Dr. Buller is inclined to separate *C. wolfi* of New Caledonia, as a good species and distinct from the present bird. Without having seen the birds themselves, there is nothing in the remarks of Mr. Gurney or Dr. Buller which would convince me that these two Harriers are specifically distinct, and I incline to the view taken by Drs. Finsch and Hartlaub (*Fam. Centralpolyn. p.* 7) that *C. gouldi* is the Marsh Harrier of Australia and Oceania, where it represents the ordinary Marsh Harrier (*C. æruginosus*) of the Palæarctic and Indian regions.

Although Dr. Finsch is most probably correct in styling this species by Peale's name of *approximans*, I wish to examine specimens from the Fiji Islands, as it is not even yet certain that the new Caledonian bird, *C. wolfi*, is absolutely the same.

4. Haliaetus leucogaster.

Ichthyaetus leucogaster, *Buller, B. N. Zeal., p.* 16.

Dr. Buller writes as follows concerning this bird (*l. c.*):—"Mr. Gould has presented me with a beautiful specimen of the white-bellied Sea Eagle, which was said to have been procured in New Zealand. This species has been observed along the whole southern coast of Australia, from Moreton Bay on the east to Swan River on the west, including Tasmania and all the small islands in Bass's Straits; and as it is a powerful flier, there is no physical reason why it should not occur sometimes as a straggler on the New Zealand coast. Mr. Gould has satisfied himself that this specimen was obtained there, although unable to ascertain the precise locality. In corroboration of its presumed occurrence, I may mention that an officer of the 14th Regiment, who was a good sportsman and a tolerable naturalist, assured me that he had actually seen and fired upon a "Sea Eagle" on the rocks near the entrance to Wellington Harbour."

I may add that there would be nothing improbable in the occurrence of this Eagle on the shores of New Zealand, and it is a bird to be looked for. Besides the localities mentioned by Dr. Buller, it is found all over the Malayan Archipelago to the Philippines, and occurs in suitable localities throughout the Malayan Peninsula, Burmah, and India. It has even been said to inhabit South Africa, though at present on dealers' authority, which must be received with a certain amount of suspicion, as the specimens I have seen from the Cape were marked *H. blagrus*, the latter title being founded on the *Blagre* of Levaillant, who said he had found it in the above-named locality. The account of the latter has, however, always been discredited, apparently with reason, though at the same time it must be remembered that the late Mr. Cassin did not hesitate to refer one of Du Chaillu's *Gaboon* specimens to the present bird.

5. Lophoictinia isura.

Milvus isurus, *Buller, B. N. Zeal., p.* 16.

The history of this species in New Zealand, as at present known, is comprised in the following remarks of Mr. Gurney (*Ibis*, 1870, *p.* 536):—"The Norwich Museum possesses a specimen which I obtained from Mr. A. D. Bartlett, who assured me, at the time, that he had received it from New Zealand, and had satisfied himself that it had been killed in that country."

Sub-order, Striges.

6. Spiloglaux novæ zealandiæ.

Athene novæ zealandiæ, *Gm.; Gray, antea, p.* 2; *Finsch, J. f. O.* 1872, *p.* 94, *et* 1874, *p.* 177.

Spiloglaux novæ zealandiæ, *Buller, B. N. Zeal., p.* 17, *pl.* 3.

Figured by Dr. Buller (*l. c.*).

7. Sceloglaux albifacies.

Plate 1.

Athene albifacies, *Gray, antea, p.* 2; *Finsch, J. f. O.* 1872, *p.* 95, *et* 1874, *p.* 177.

Sceloglaux albifacies, *Buller, l. c., p.* 21, *pl.* 3., *f.* 2.

The original edition of the present work contains the first description of this remarkable Owl, though the accompanying plate by Mr. Wolf is now for the first time issued. In the meanwhile Dr. Buller has published a good figure of the species. The name *albifacies* is not very appropriate for this species; only one of the three in the British Museum has a light-coloured aspect, and I suspect that the young birds are darker visaged than the adults to judge from the living examples in the possession of Mr. G. Dawson Rowley, both of which were quite young and had dusky faces when I saw them.

8. Scops novæ zealandiæ.

Scops novæ zealandiæ, *Bp. Consp.* i, *p.* 47.

I feel constrained to include the present bird, although on somewhat negative evidence. Dr. Buller will not admit it into his work, and this unfortunate little Owl has at present no abode in the New Zealand list, notwithstanding its orthodox title. The type is at present in Leiden, and although no one has proved the presence of a *Scops* in New Zealand, the species, as Professor Schlegel remarked to me, seems to agree with no other member of the genus, and may, after all, really come from the country whose name it bears. At the close of his article on the two larger Owls Dr. Buller writes:—"The natives are acquainted with another species, which they describe as being very diminutive in size and strictly arboreal in its habits. This is no doubt the bird indicated by Ellman as *Strix parvissima* (*Zoologist*, 1861). Mr. J. D. Emys informed me that he once captured an Owl 'standing only five inches high,' and that it was perfectly tame and gentle. Mr. Potts records, on hearsay evidence, several instances of the occurrence, in Canterbury, of an Owl 'about the size of a Kingfisher.' This bird may prove to be the same as Bonaparte's *Scops novæ zealandiæ*, as suggested by Dr. Finsch; but, till it has been more accurately determined, it is impossible to give it a place in our list of species."

The following is a description of the type which I made in the Leiden Museum:—

Adult (Type of species).—Upper surface brown, very minutely vermiculated with darker brown, sometimes forming an irregular spot, and varied with a few wavy lines of dull fulvous, rather brighter and more ochraceous on the outer margin of the scapulars, where the alternate bars of dark brown and fulvous are a little more regular; greater wing-coverts mottled with ashy-grey, especially towards the tips; primaries darker brown, externally notched with fulvous, these marks tolerably distinct, except towards the tips, where they are obscured by greyish mottling, the secondaries more ashy-brown mottled profusely with darker brown and with indications of five lighter and more fulvous bars across them; under surface of wing uniform brown with slight ashy mottlings towards the tip, the under wing-coverts almost entirely ochraceous, this shade extending some way along the inner web of the quills, which are also barred with greyish-brown; tail brown, mottled with darker brown, with indications of seven fulvescent bands; crown and hind neck as well as sides of face and ear-tufts darker brown than the back; lores and ear-coverts rufescent; an indistinct superciliary line indicated by fulvous mottling, which also appears on the inner webs of the ear-tufts; round the hind neck a narrow collar produced by fulvous mottling; under surface of body rufous ochre, becoming paler and more fulvous on the abdomen, thighs and under tail-coverts; feathers of lower breast mesially streaked with blackish-brown, a little varied with whitish and mottled with darker brown; the throat and chest blacker, much mottled with irregular wavy lines of this colour, especially on the sides of the breast. Total length 10 inches, culmen 0·85, wing 7·0, tail 3·8, tarsus 1·2, middle toe 0·8, ear-tufts 1·1.

9. Aluco delicatula.

Dr. Finsch is inclined to include this species on the authority of the late Mr. G. R. Gray, but I fancy some mistake has occurred, as I cannot find any mention in print of the latter stating that this Owl is an inhabitant of New Zealand, and the British Museum contains no specimen from that country. Dr. Buller is therefore right, in my opinion, in refusing it a place in his work.

Order, PSITTACI.

Family, Stringopidæ.

10. Stringops habroptilus.

Plate 7.

Stringops habroptilus, *Gray; Buller, B. N. Zeal., p.* 27, *pl.* 4; *Finsch, J. f. O.* 1872, *p.* 96, *et* 1874, *p.* 178.

In the foregoing list of Mr. Gray's this species does not appear, and the description was not published till 1847. The accompanying plate, which is now issued for the first time, was prepared to accompany the original work, but as Dr. Buller has given an excellent illustration of the typical bird (*l. c.*) I have here had Mr. Wolf's original figure modified by Mr. Willis, the artist, to represent the *Stringops greyi* of Mr. G. R. Gray, which has never before been figured. The bird in the back-ground represents the normal coloration, and I am not quite convinced that *S. greyi* is not specifically distinct from *S. habroptilus*. However, Dr. Buller regards it as a variety only, and he will have proved his point if no further specimens turn up.

Family, Psittacidæ.

11. Nestor meridionalis.

Nestor meridionalis, *Gray, antea, p.* 9; *Buller*, l. *c., p.* 40, *pl.* 5, *f.* 1; *Finsch, J. f. O.* 1872, *p.* 98, *et* 1874, *p.* 179.

A full account of the various varieties prevalent in this species is given by Buller. *N. montanus*, Haast, *N. superbus*, Buller, and *N. esslingii*, Souancé, are all considered to belong to this category. A very fine figure of the variety called by Buller *N. superbus* is given in Mr. Dawson Rowley's "Ornithological Miscellany" (pl. 8).

12. Nestor occidentalis.

Described, but not figured, in Dr. Buller's work (*p.* 50.) Dr. Finsch is not yet persuaded that it is a good species.

13. Nestor notabilis.

Nestor notabilis (*Gould*); *Buller, l. c., p.* 52, *pl.* 5, *f.* 2; *Finsch, J. f. O.* 1872, *p.* 101, *et* 1874, *p.* 180.
A good figure is given in the above-mentioned work.

14. Platycercus novæ zealandlæ.

Platycercus novæ zealandiæ (*Sparrm.*); *Gray, antea, p.* 9; *Finsch, J. f. O.* 1872, *p.* 97; *Buller, l. c., p.* 58, *pl.* 6, *f.* 1.

15. Platycercus auriceps.

Platycercus auriceps (*Kuhl**); *Gray, antea, p.* 9; *Finsch, J. f. O.* 1872, *p.* 97; *Buller, l. c., p.* 61, *pl.* 6, *f.* 2.

16. Platycercus alpinus.

Although not admitted by Buller in the body of his work, a notice of this species, which appears to be a perfectly good one, will be found in the Introduction (*p.* xvi). *Cf.* also *Finsch, J. f. O.* 1874, *p.* 178.

Order, PICARIIÆ.

Family, Cuculidæ.

17. Eudynamis taitensis.

Eudynamis taitensis (*Sparrm.*); *Gray, antea, p.* 91; *Finsch, J. f. O.* 1872, *p.* 102; *Buller, l. c., p.* 74, *pl.* 8.

18. Chrysococcyx lucidus.

Chrysococcyx lucidus (*Gm.*); *Gray, antea, p.* 10; *Finsch, J. f. O.* 1872, *p.* 104; *Buller, l. c., p.* 77.

Family, Alcedinidæ.

19. Halcyon vagans.

Plate 1.*

Halcyon vagans (*Less.*); *Gray, antea, p.* 2; *Finsch, J. f. O.* 1872, *p.* 104; *Buller, l. c., p.* 69.
This species is now universally recognised as distinct from the Australian *H. sancta.*

Order, PASSERES.

Family, Meliphagidæ.

20. Prosthemadera novæ zealandiæ.

Prosthemadera novæ zealandiæ (*Gm.*); *Gray, antea, p.* 3; *Finsch, J. f. O.*, 1872, *p.* 106; *Buller, l. c,, p.* 87, *pl.* 9.

21. Pogonornis cincta.

Ptilotis cincta, (*Du Bus.*); *Gray, antea, p.* 4.
Pogonornis cincta, *Buller, l. c., pl.* 10; *Finsch, J. f. O.* 1872, *p.* 107.

22. Anthornis melanura.

Anthornis melanura (*Sparrm.*); *Gray, antea, p.* 4; *Buller, l. c., p.* 91; *Finsch, J. f. O.* 1872, *p.* 107.

23. Anthornis melanocephala.

Plate 2.

Anthornis melanocephala, *Gray, antea, p.* 4; *Buller, l. c., p.* 96; *Finsch, J. f. O.* 1872, *p.* 107.

24. Zosterops lateralis.

Zosterops lateralis (*Lath.*); *Buller, l. c., p.* 80; *Finsch, J. f. O.* 1872, *p.* 108.

Family, Troglodytidæ.

25. Acanthisitta chloris.

Plate 3, f. 2.

Acanthisitta chloris (*Sparrm.*); *Gray, antea, p.* 4; *Finsch, J. f. O.* 1872, *p.* 109; *Buller, l. c., p.* 112.
Dr. Finsch (*J. f. O.* 1874, *p.* 183) points out the possibility of there being a second species of *Acanthisitta*, which will be the *Motacilla citrina* of Gmelin. In case this turns out correct, *Acanthisitta citrina* will have to be added to the New Zealand list.

26. Xenicus longipes.

Plate 3, f. 1.

Acanthisitta longipes, *Gray, antea, p.* 4.
Xenicus longipes, *Buller, l. c., p.* 115, *pl.* 12, *figs.* 1, 2; *Finsch, J. f. O.* 1872, *p.* 189.

27. Xenicus gilviventris.

Xenicus gilviventris, (*Pelz*); *Buller, l. c., p.* 117, *pl.* 12, *figs.* 3, 4; *Finsch, J. f. O.* 1872, *p.* 109.
This new species was discovered by Dr. Haast "in the

* *Trichoglossus aurifrons*, Gray, *antea, p.* 9, is an American bird, and stands as *Bolborhynchus aurifrons.* (*Cf. Finsch, Papag.* ii, *p.* 127.)

Southern Alps, during a topographical survey of the Canterbury Province," according to Dr. Buller, who also described the species as *Xenicus haasti*.

Family, Menuridæ.

28. Mohoua ochrocephala.

Mohoua ochrocephala, (*Gm.*); *Gray, antecà, p.* 5.
Orthonyx ochrocephala, *Buller, l. c., p.* 103, *pl.* 10, *fig.* 2.
Clitonyx ochrocephala, *Finsch, J. f. O.* 1873, *p.* 396, *et* 1874, *p.* 184.

Not only Dr. Finsch in Europe, but that good observer Mr. Potts, in New Zealand, have given their opinion that this bird is not congeneric with *Certhiparus albicillus*, and the former separates it entirely from typical *Orthonyx* of Australia, and proposes to revive Reichenbach's genus *Clitonyx* in place of the less classical *Mohoua* of Lesson. For the present, until the common consent of ornithologists drives ungrammatical names from the natural system, Dr. Finsch will forgive me for resuscitating the latter title. The German naturalists who set the example of suppressing unclassical names still hold their own on the Continent, and the way in which they are being followed by Italian and other ornithologists renders it by no means improbable that ere long a modification of the British Association rules will require to be made in this direction.

Family, Paridæ.

29. Certhiparus albicillus.

Plate 5, f. 2.

Certhiparus albicillus (*Less.*); *Gray, antecà, p.* 6.
Orthonyx albicilla, *Buller, l. c., p.* 100, *pl.* 11, *f.* 1; *Finsch, J. f. O.* 1872, *p.* 110.
Phyllodytes albicilla, *Finsch, J. f. O.* 1873, *p.* 398, *et* 1874 *p.* 171.

Dr. Finsch has written an interesting account of the structure of this bird to shew that it is not an *Orthonyx*, but is really congeneric with *Certhiparus novæ zealandiæ*, and he proposes to change the barbarous generic name of the latter into the more classical one of *Phyllodytes*. I am not purist enough to suppress the old-fashioned name of *Certhiparus*, and Dr. Finsch will have once more to change the genus himself, as *Phyllodytes* was bestowed by Wagler on a genus of *Reptilia* in 1830.

30. Certhiparus novæ zealandiæ.

Plate 5, f. 1.

Certhiparus novæ zealandiæ (*Gm.*); *Gray, antecà, p.* 6; *Finsch, J. f. O.* 1872, *p.* 110; *Buller, l. c., p.* 105.
Phyllodytes novæ zealandiæ, *Finsch, J. f. O.* 1873, *p.* 397, *et* 1874, *p.* 171.

Family, Sylviidæ.

31. Sphenæacus punctatus.

Sphenæacus punctatus (*Q. & G.*), *Gray, antecà, p.* 5; *Finsch, J. f. O* 1872, *p.* 111; *Buller, l. c., p.* 128, *pl.* 13, *f.* 1.

32. Sphenæacus fulvus.

Sphenæacus fulvus, *Gray, Ibis,* 1862, *p.* 221; *Finsch, J. f. O.* 1872, *p.* 111; *Buller, l. c., p.* 130.

33. Sphenæacus rufescens.

Sphenæacus rufescens, *Buller, Ibis,* 1869, *p.* 38; *id. B. N. Zeal. p.* 131, *pl.* 13, *f.* 2; *Finsch, J. f. O.* 1872, *p.* 112, *et* 1874, *p.* 185.

I am glad to see that Dr. Finsch admits this species. The Museum contains a pair collected in the Chatham Islands by Mr. Travers, and there is no question as to its distinctness.

34. Miro longipes.

Petroica longipes (*Garn.*); *Gray, antecà, p.* 7.
Myioscopus longipes, *Finsch, J. f. O.* 1872, *p.* 112, *et* 1874, *p.* 186.
Miro longipes, *Buller, B. N. Z., p.* 118.

35. Miro albifrons.

Plate 6, f. 1.

Petroica albifrons (*Gm.*); *Gray, antecà, p.* 7.
Myioscopus albifrons, *Finsch, J. f. O.* 1872, *p.* 160, *et* 1874, *p.* 187.
Miro albifrons, *Buller, B. N. Z., p.* 122.

36. Gerygone flaviventris.

Plate 4, f. 1.

Gerygone flaviventris, *Gray, antecà, p.* 5; *Buller, l. c., p.* 107; *Finsch, J. f. O.* 1872, *p.* 160, *et* 1874, *p.* 186.

37. Gerygone igata.

Gerygone igata (*Q. & G.*); *Gray, antecà, p.* 5; *Finsch, J. f. O.* 1862, *p.* 162, *et* 1874, *p.* 187; *Buller, B. N. Z. Int. p.* xv.

Dr. Buller considers that this species, which was said to have been obtained by the "Astrolabe" in Tasman's Bay, Cooks' Straits, should be struck out of the New Zealand list; but Dr. Finsch thinks that it may yet very possibly be identified, as he says he has seen a specimen of *Gerygone* which agrees better with *G. igata* than with *G. flaviventris*, but, as he justly remarks, a comparison of types will best settle the matter.

During a recent visit to Paris I examined, in company with Dr. Oustalet, the type of this species which still exists in the Jardin des Plantes. The little bird bears the

following label in the handwriting of the original discoverer:—"Nlle Zélande. Baie Tasman. Œil noir, avec un petit cercle blanc, *igata*." The figure in the atlas to the voyage of the "Astrolabe" is certainly very bad indeed. We compared the type with Dr. Buller's figure and with specimens of *G. flaviventris*, and we could not believe that the two species were identical. I take the following observations from my note-book:—"It is very close to *G. flaviventris*, but instead of being grey on the throat, the latter is whitish, washed with yellow, a shade of which is also apparent on the cheeks; sides of the breast washed with brown; abdomen white, the flanks washed with yellow; wing, 1·95; tarsus, 0·75." The tail is imperfect, but on the feathers which remain the white spot is decidedly more correctly described as terminal instead of subterminal. I mention this latter character *a propos* of the following remarks made by Dr. Buller in his great work:—"In some examples the measurements are slightly larger; there is an absence of the yellow tinge on the abdomen, and the white spot on the lateral tail-feathers is terminal." The last-named author does not seem to allow this difference to be specific, but I think that further investigation by the field-observers in New Zealand may prove *Gerygone igata* to be a good species, and I leave the matter in their hands.

38. Gerygone albifrontata.

Plate 4, f. 2.

Gerygone albofrontata, *Gray, antecà, p.* 5; *Buller, l. c., p.* 111; *Finsch, J. f. O.* 1874, *p.* 188.

Gerygone frontata, *Potts, Tr. Z. S.* vi., *p.* 144 (*lapsu*).

39. Gerygone sylvestris.

Gerygone sp., *Potts, Ibis*, 1872, *p.* 326.

Gerygone sylvestris, *Potts, Tr. Z. S.* vi., *p.* 144; *Finsch, J. f. O.* 1874, *p.* 188.

This species was fully described by Mr. Potts (*l. c.*), but Dr. Buller was inclined to refer it to *G. albifrontata*. Mr. Potts, however, dissenting from this view, has named it *G. sylvestris*.

Family, Motacillidæ.

40. Anthus novæ zealandiæ.

Anthus novæ zealandiæ, *Gm.*; *Gray, antecà, p.* 7; *Finsch, J. f. O.* 1872, *p.* 162, *et* 1874, *p.* 189; *Buller, B. N. Z., p.* 132.

Family Turdidæ.

41. Turnagra hectori.

Otagon tanagra, *Schl. N. T. D.* iii., *p.* 190 (1865).

Turnagra hectori, *Buller, Ibis*, 1869, *p.* 39, *et B. N. Z. p.* 135, *pl.* 14, *f.* 1.

Turnagra tanagra, *Gray, Handl. B.* i., *p.* 284.

Keropia tanagra, *Finsch, J. f. O.* 1870, *p.* 320, *et* 1872, *p.* 166, *et* 1874, *p.* 191.

The correct position of these curious birds in the natural system is still a doubtful point. Gray (*antecà, p.* 7) puts *Turnagra* in the *Timalinæ*, Buller in the *Turdidæ*, and Finsch first in the *Glaucopinæ*, and lastly (following Sundevall) in the *Ptilonorhynchidæ*. He proposes in his last excellent essay to strike out the family *Corvidæ* from the New Zealand Avifauna, and to place *Glaucopis* in a separate family, *Glaucopidæ*. At present I think with Dr. Buller that *Turnagra* is a thick-billed form of Thrush, but should it be proved ultimately to belong to the Bower-birds it will form a very interesting link between the Avifauna of New Zealand and Australia, by admitting into the former country one of the most typical representative families of the Australian sub-region.

42. Turnagra crassirostris.

Turnagra crassirostris, (*Gm.*); *Gray, antecà, p.* 7; *Buller, B. N. Z., p.* 138, *pl.* 14, *f.* 2; *Finsch, J. f. O.* 1872, *p.* 166, *et* 1874, *p.* 19.

Dr. Buller remarks that this species, which is confined to the South Island, and is the representative of *T. hectori* of the North Island, is becoming very rare, owing to its destruction by dogs and wild cats, being now almost unknown in places where it was formerly abundant.

Family Hirundinidæ.

43. Hylochelidon nigricans.

Hylochelidon nigricans (*V.*); *Buller, B. N. Zeal., p.* 140.

Hirundo nigricans, *Finsch, J. f. O.* 1872, *p.* 162, *et* 1874, *p.* 171.

This species has been twice obtained in New Zealand according to Dr. Buller, but from the quantity seen on one occasion it doubtless occurs in some numbers, though probably it is not a regular emigrant; it comes from the Australian continent.

Family, Muscicapidæ.

44. Myiomoira toitoi.

Petroica toitoi, (*Less*); *Gray, antecà, p.* 6.

Myiomoira toitoi, *Finsch, J. f. O.* 1872. *p.* 163, *et* 1874, *p.* 189; *Buller, B. N. Zeal. p.* 124.

45. Myiomoira macrocephala.

Petroica macrocephala (*Gm.*); *Gray, antecà, p.* 6.

Myiomoira macrocephala, *Finsch, J. f. O.* 1872, *p.* 163, *et* 1874, *p.* 188; *Buller, B. N. Zeal, p.* 126.

Petroica dieffenbachii, *Gray, antecà, p.* 6, *pl.* 6, *f.* 2.

Dr. Buller has already pointed out that *P. dieffenbachii* of Gray is not distinct from *P. macrocephala*, and in this determination, which seems to me perfectly correct, Dr. Finsch coincides.

46. Myiomoira traversi.

Miro traversi, *Buller, B. N. Z., p.* 123 (*June*, 1872), *et Ibis*, 1874, *p.* 116.

Petroica traversi, *Hutton, Ibis*, 1872, *p.* 245 (*July*).

Myiomoira traversi, *Finsch. J. f. O.* 1874, *p.* 189.

This new species was discovered by Mr. Travers in the Chatham Islands. A specimen is now in the national collection.

47. Rhipidura flabellifera.

Rhipidura flabellifera (*Gm.*); *Gray, antea, p.* 8, *pl.* 6, *f.* 2; *Finsch, J. f. O.* 1872, *p.* 164, *et* 1874, *p.* 190; *Buller, B. N. Z. p.* 143.

48. Rhipidura fuliginosa.

Rhipidura fuliginosa (*Sparrm*); *Finsch, J. f. O.* 1872, *p.* 165, *et* 1874, *p.* 190; *Buller, B. N. Z. p.* 146.

Rhipidura melanura, *Gray, antea, p.* 8.

Family, Laniidæ.

49. Graucalus parvirostris.

Graucalus parvirostris, *Gould; Finsch, J. f. O.* 1874, *p.* 190.

Colluriocincla concinna, *Hutton, Cat. B.. N. Z. p.* 15.

Graucalus melanops, *Buller, B. N. Z., p.* 148.

This bird has twice occurred in New Zealand, and Captain Hutton named it *C. concinna* when it was first observed. Dr. Buller, however, identified it as a *Graucalus*, and referred it to *G. melanops* of Gould. More recently, however, Dr. Finsch has examined one of Capt. Hutton's types, and says that it is *G. parvirostris*. It is probably only an occasional visitant from Australia.

Family, Sturnidæ.

50. Heteralocha acutirostris.

Neomorpha gouldii, *Gray, antea, p.* 3.

Heteralocha acutirostris, *Gould; Buller. l. c., p.* 64, *pl.* 7; *Finsch, J. f. O.* 1872, *p.* 105, *et* 1874, *p.* 192.

In the "Introduction" to his book Dr. Buller gives Mr. Garrod's notice on the structure of this bird, and correctly refers it to the *Sturnidæ* instead of to the *Upupidæ*, as he had done in the body of the work. I believe that the nearest ally of this singular form is *Falculia* of Madagascar.

51. Creadion carunculatus.

Creadion carunculatus (*Gm.*); *Gray, antea, p.* 8; *Finsch, J. f. O.* 1872, *p.* 167, *et* 1874, *p.* 192; *Buller, B. N. Z. p.* 149, *pl.* 15.

This is one of the peculiar New Zealand forms, and although it has been known to science ever since the time of Forster its proper position remains unsettled. Dr. Buller, like most of his predecessors, considers it to be a Starling, but Dr. Finsch, whose views on classification are generally most acute, puts it along with *Glaucopis* in the *Glaucopidæ*. At present, however, I think it is a *Sturnine* form.

Family, Corvidæ.

52. Glaucopis wilsoni.

Glaucopis wilsoni, *Bp.; Finsch, J. f. O.* 1872, *p.* 167, *et* 1874, *p.* 172; *Buller, B. N. Z. p.* 152, *pl.* 16, *f.* 1.

This species was not known to science when Mr. Gray wrote the foregoing Memoir on the "Birds of New Zealand." It replaces the well-known *G. cinerea* in the North Island, being distinguished from that species by its blue wattles and white superciliary line.

53. Glaucopis cinerea.

Callæas cinerea, *Gm.; Gray, antea, p.* 8.

Glaucopis cinerea, *Finsch, J. f. O.* 1872, *p.* 167, *et* 1874, *p.* 191; *Buller, B. N. Z. p.* 155, *pl.* 15, *f.* 2.

This species, to which Dr. Buller has given the excellent distinguishing name of "Orange-wattled Crow," is found only in the South Island.

Order, COLUMBÆ.

Family, Columbidæ.

54. Carpophaga novæ zealandiæ.

Carpophaga novæ zealandiæ (*Gm.*); *Gray, antea, p.* 10 *Finsch, J f. O.* 1872, *p.* 168, *et* 1874, *p.* 192; *Buller, B. N. Z. p.* 157, *pl.* 17.

Order, GALLINÆ.

Family, Perdicidæ.

55. Coturnix novæ zealandiæ.

Plate 8.

Coturnix novæ zealandiæ, *Q. & G.; Gray, antea, p.* 10. *pl.* 8; *Finsch, J. f. O.* 1872, *p.* 168, *et* 1874, *p.* 193; *Buller, B. N. Z., p.* 161, *pl.* 18.

This species is now nearly extinguished in New Zealand, although very common in the memory of the present generation of colonists. Mr. Dawson Rowley exhibited at a late meeting of the Zoological Society a male specimen, obtained in Blue Skin Island, and he is one of the fortunate possessors of this rare bird.

Order, GRALLÆ.

Family, Rallidæ.

The members of the genus *Ocydromus* are in a very confused state, and at present the series in the Museum is too small to allow me to investigate the matter. There would be few birds of which I should more like to see a complete set, but without a critical examination of this it will be

impossible for me to do more than notice the genus cursorily. Dr. Buller, in his "Birds of New Zealand," admits three species, viz.,—1, *O. australis*; 2, *O. carli*; and 3, *O. fuscus*; but more recently Captain Hutton has written a paper on *Ocydromus* and admits six species, as follows:—1, *O. troglodytes* (Gm.); 2, *O. hectori*, Hutt; 3, *O. australis*, Sparrm; 4, *O. fuscus*, Du Bus; 5, *O. finschi*, Hutt.; 6, *O. carli*, Gray. Of all these he gives characters.

Dr. Finsch in his late essay (*J. f. O.* 1874, *p.* 197) admits the six species, which he discusses in his own masterly manner, but he refers the bird figured by Dr. Buller as *O. carli* to the true *O. australis* (Sparrm): he gives synonymy of each.

56. Ocydromus troglodytes.

Ocydromus troglodytes (*Gm.*); *Hutton, Tr. N. Z. Inst.* v., *p.* 110; *Finsch, J. f. O.* 1874, *p.* 197.

Ocydromus australis, *Buller, B. N. Zeal. p.* 170, *pl.* 19, *f.* 1.

"The distinguishing marks of this species are its large size, the general olivaceous tint of its plumage, the middle tail-feathers having generally a black streak down the shaft, and the primary feathers of the wing tapering towards the point.

	Wing.	Tail.	Culmen.	Height of bill at base.	Tarsus.	Middle toe, without claw.
"Male ...	7·8	4·8	2·0	·83	2·5	2·4
Female..	6·7	4·4	1·7	·7	2·1	2·15"

(Hutton, *l. c.*)

57. Ocydromus hectori.

Ocydromus hectori, *Hutton, Tr. N. Z. Inst.* v., *p.* 110; *Finsch. J. f. O.* 1874, *p.* 198.

"In size and style of colouring this bird resembles *O. troglodytes*, but its bill is more robust, its general hue is isabella brown, or fawn-coloured; the primary feathers of the wing are rounded at the tip, and the brown bands on the webs are very narrow, sometimes becoming obsolete. The tail is coloured as in *O. troglodytes*.

	Wing.	Tail.	Culmen.	Height of bill at base.	Tarsus.	Middle toe, without claw.
"Male ...	7·8	4·8	2·3	·93	2·3	2·2

"This species is described from a single specimen only, and more must be obtained before we can feel sure whether it should stand as a separate species, or only as a subspecies of *O. troglodytes*. This specimen was obtained by Mr. Morton, near the Te Anau Lake, in Otago." (Hutton, *l. c.*).

Dr. Finsch (*l. c.*), who has examined the type specimen, believes this to be a well-marked species.

58. Ocydromus australis.

Plate 14.

Ocydromus australis (*Sparrm.*); *Gray, antea, p.* 31; *Finsch, J. f. O.* 1872, *p.* 178, *et* 1874, *p.* 198; *Hutton, Tr. N. Z. Inst.* v., *p.* 111.

"Distinguished from the two former by its smaller size, the rust-red tint of its plumage, the grey colour of the throat and lower part of the breast (especially in the male bird), the more strongly marked pectoral band, and in the primary feathers of the wing tapering towards the point.

	Wing.	Tail.	Culmen.	Height of bill at base.	Tarsus.	Middle toe, without claw.
"Male ...	6·5	4·4	1·7	·69	2·0	2·0
Female..	6·7	4·4	1·8	·68	2·0	2·0

"The middle tail-feathers are generally barred, but this is very variable. Except by the size, this species is not always easy to recognise from *O. troglodytes*, and it is possible that it may prove to be a variety of it." (Hutton, *l. c.*)

Dr. Finsch unites with *O. australis* Dr. Buller's figure of *O. carli*. I have compared the type of the latter species with Sparrman's figure, and it does not agree at all, whereas it is like the bird figured by Dr. Buller, but has not such a distinct breast-band as is represented by him.

59. Ocydromus earli.

Ocydromus earli, *Gray; Hutton, Tr. N. Z. Inst.* v., *p.* 111; *Finsch, J. f. O.* 1874, *p.* 199.

As before mentioned, Dr. Buller's identification of this species has been doubted by Dr. Finsch, but I must wait for a larger series before being able to settle this question.

60. Ocydromus fuscus.

Ocydromus fuscus, *Du Bus; Buller, B. N. Zeal. p.* 174; *Finsch, J. f. O.* 1874, *p.* 199; *Hutton, Tr. N. Z. Inst.*, v., *p.* 111.

Captain Hutton says:—"This species appears to be confined to the south-east of Otago, on the western side of the Alps." It is a well characterized bird and there is no doubt connected with its specific identification at present.

61. Ocydromus finschi.

Ocydromus finschi, *Hutton, Tr. N. Z. Inst.* v., *p.* 111; *Finsch, J. f. O.* 1874, *p.* 199.

"Throat, abdomen, and thighs dark brownish-grey; feathers of the rest of the body brownish-black, with spots of yellowish ferruginous on the outer margins of each web. Under tail-coverts, and feathers of the flanks banded with yellowish ferruginous. Primary feathers of the wing acutely pointed, brownish-black, banded on each web with dull ferruginous; secondaries with yellow ferruginous spots on the margins of each web. Middle tail-feathers brownish-black, the outer ones with spots of yellow ferruginous on the margins of the web. Bill dark brown, getting reddish towards the base of the lower mandible. Legs brownish-red.

	Wing.	Tail.	Culmen.	Height of bill at base.	Tarsus.	Middle toe, without claw.
"Male ...	7·7	5·0	1·9	·8	2·35	2.25
Female..	6·35	4·6	1·7	·64	2·1	2·0"

(Hutton, *l. c.*)

Dr. Finsch has examined the type of this bird, but considers that a larger series will require to be examined, before it can be admitted as a species.

62. Rallus philippensis.

Rallus assimilis, *Gray, antea, p.* 14.

Rallus pectoralis, *Less.; Finsch, J. f. O.* 1872, *p.* 181, *et* 1874, *p.* 200.

Rallus philippensis, *L.*; *Buller, B. N. Z. p.* 176, *pl.* 20, *f.* 1.

I believe Dr. Buller to be quite right in assigning the name *philippensis* to this wide-spread species. (*Cf.* also *Walden, Tr. Z. S.* viii., *p.* 95).

63. Cabalus dieffenbachii.

Plate 15.

Ocydromus dieffenbachii, *Gray, antea, p.* 14, *pl.* 15.

Rallus dieffenbachii (*Gray*); *Finsch, J. f. O.* 1872, *p.* 182, *et* 1874, *p.* 200; *Buller, B. N. Zeal. p.* 179, *pl.* 20, *f.* 2.

Rallus modestus, *Hutton, Ibis,* 1872, *p.* 247; *Finsch, J. f. O.* 1874, *p.* 200.

Cabalus modestus, *Hutton, Tr. N. Z. Inst.* v., *p.* 108.

In his latest article on the "Birds of New Zealand" Dr. Finsch believes in *Rallus modestus* of Hutton being a distinct species from *R. dieffenbachii.* I examined the type of Capt. Hutton's species and thoroughly believe it to be the young of the latter Rail. Perhaps Capt. Hutton is right in referring this Rail to a genus or sub-genus intermediate between *Rallus* and *Ocydromus,* and I have therefore for the present adopted his genus *Cabalus.*

64. Ortygometra affinis.

Ortygometra affinis, *Gray, antea, p.* 14; *Finsch, J. f. O.* 1871, *p.* 182, *et* 1874, *p.* 201; *Buller, B. N. Z., p.* 183, *pl.* 21, *f.* 1.

65. Ortygometra tabuensis.

Ortygometra tabuensis (*Gm.*); *Gray, antea, p.* 14; *Finsch, J. f. O.* 1872, *p.* 183, *et* 1874, *p.* 201; *Buller, B. N. Z. p.* 182, *pl.* 21, *f.* 2.

66. Porphyrio melanonotus.

Porphyrio melanonotus, *Temm.*; *Gray, antea, p.* 14; *Finsch, J. f. O.* 1872, *p.* 183, *et* 1874, *p.* 201; *Buller, B. N. Z. p.* 185.

67. Notornis mantelli.

Notornis mantelli, *Owen*; *Finsch, J. f. O.* 1872, *p.* 184, *et* 1874, *p.* 201; *Buller, B. N. Z. p.* 189, *pl.* 22.

This species is represented by the two typical examples in the British Museum, and no others are yet known to science. Like many New Zealand forms, it is the gigantic representative of a well-known genus of Swamp Hens, and the interest attaching to this bird has been recently enhanced by the discovery that the White Swamp Hen of Norfolk Island has been found to be a true *Notornis,* thus increasing the range of this nearly, if not quite, extinct genus. (*Cf. Pelz, Ibis,* 1874, *p.* 44; *Salvin, l. c., p.* 296, *pl.* 10.)

Family, Charadriidæ.

68. Charadrius fulvus.

Charadrius virginianus, *Gray, anted, p.* 11.

Charadrius fulvus, *Gm.; Finsch, J. f. O.* 1872, *p.* 168, *et* 1874, *p.* 193; *Buller, l. c., p.* 212.

Only found in New Zealand as a straggler and always in winter plumage.

69. Charadrius obscurus.

Plate 9.

Charadrius obscurus, *Gm.*; *Gray, antea, p.* 11; *Finsch, J. f. O.* 1872, *p.* 168, *et* 1874, *p.* 193; *Buller, l. c., p.* 208.

70. Charadrius bicinctus.

Hiaticula bicincta, (*J. & S.*); *Gray, antea, p.* 12.

Charadrius bicinctus, *Finsch, J. f. O.* 1872, *p.* 169, *et* 1874, *p.* 193; *Buller, l. c., p.* 210.

71. Thinornis novæ zealandiæ.

Plates 11, 11.*

Thinornis rossii, *Gray, antea, p.* 12; *Finsch, J. f. O.* 1872, *p.* 169.

Thinornis novæ zealandiæ, (*Gm.*); *Gray, antea, p.* 12; *Finsch, J. f. O.* 1872, *p.* 169, *et* 1874, *p.* 194; *Buller, l. c., p.* 213, *pl.* 23.

This Plover is rare in collections. Dr. Buller after examining the type of Mr. Gray's *Thinornis rossi,* considers it, with good reason, to be the young of *T. novæ zealandiæ.* More recently it has been found on the Chatham Islands.

72. Anarhynchus frontalis.

Anarhynchus frontalis, *Q. & G.*; *Gray, antea, p.* 12; *Finsch, J. f. O.* 1872, *p.* 169, *et* 1874, *p.* 194; *Buller, l. c., p.* 216.

A capital illustration of this "Wry-billed Plover" is given by Mr. Harting (Ibis, 1869, *pl.* viii.)

73. Strepsilas interpres.

Strepsilas interpres, (*L.*); *Finsch, J. f. O.* 1870, *p.* 349,

et 1872, *p.* 170, *et* 1874, *p.* 194; *Buller, l. c., p.* 221.

74. Hæmatopus longirostris.

Hæmatopus longirostris, *V.*; *Gray, antcà, p.* 12; *Finsch, J. f. O.* 1872, *p.* 170, *et* 1874, *p.* 194; *Buller, l. c., p.* 223.

75. Hæmatopus unicolor.

Plate 10.

Hæmatopus unicolor, *Wagl.*; *Gray, antcà, p.* 12; *Finsch, J. f. O.* 1872, *p.* 170; *Buller, l. c., p.* 225.

Family, Scolopacidæ.

76. Limosa novæ zealandiæ.

Limosa lapponica, var. novae zealandiæ, *Gray, antcà, p.* 13.

Limosa uropygialis, *Finsch, J. f. O.* 1872, *p.* 173.

Limosa baueri, *Buller, B. N. Z., p.* 198.

Limosa novæ zealandiæ, *Finsch, J. f. O.* 1874, *p.* 196.

On reconsidering the question of priority of title for this species, I think it is perhaps better to follow Dr. Finsch in adopting that of *Limosa novæ zealandiæ*, in preference to *L. baueri, Natt.*, which was never described.

77. Recurvirostra novæ hollandiæ.

Recurvirostra rubricollis, *Temm*; *Finsch, J. f. O.* 1872, *p.* 173 *et* 1874, *p.* 196.

Recurvirostra novæ hollandiæ, *V.*; *Buller, B. N. Z., p.* 201; *Harting, Ibis,* 1874, *p.* 258.

Dr. Buller has restored Vieillot's title for this species, and in this identification he is followed by Mr. Harting, who has studied the *Limicolæ* more closely than any one living.

78. Himantopus novæ zealandiæ.

Himantopus novæ zealandiæ, *Gould*; *Gray, antcà, p.* 13; *Finsch, J. f. O.* 1872, *p.* 173, *et* 1874, *p.* 196; *Buller, B. N. Z., p.* 204.

79. Himantopus leucocephalus.

Himantopus leucocephalus, *Gould*; *Finsch, J. f. O.* 1872, *p.* 174, *et* 1874, *p.* 196; *Buller, B. N. Z., p.* 203.

This species was not known to Mr. Gray when he wrote his foregoing list of New Zealand birds, nor his subsequent one (*Ibis,* 1862, *p.* 237). Dr. Finsch refers to this species, apparently with excellent reason, the lately described *H. spicatus* of Potts.

80. Tringa canutus.

Tringa canutus, (*L.*); *Finsch, J. f. O.* 1872, *p.* 174, *et* 1874, *p.* 197; *Buller, B. N. Z., p.* 194.

Dr. Buller writes:—"This cosmopolitan species is occasionally obtained in New Zealand, but only in its winter plumage. There are several specimens in the Canterbury and Otago Museums, all of them obtained on the east coast. It has not yet been recorded in the North Island, but there is no reason why it should not occur there also."

81. Tringa acuminata.

Tringa acuminata, *Horsf.*; *Finsch, J. f. O.* 1874, *p.* 197.

The occurrence of this species has been recorded since the completion of Dr. Buller's work. It is a well-known Australian bird.

82. Gallinago aucklandica.

Plate 13.

Gallinago aucklandica, *Gray, antcà, p.* 13; *Finsch, J. f. O.* 1872, *p.* 174, *et* 1874, *p.* 197; *Buller, B. N. Z., p.* 196.

83. Gallinago pusilla.

Gallinago pusilla, *Buller, Ibis,* 1869, *p.* 41; *Finsch, J. f. O.* 1872, *p.* 174.

Dr. Buller, who first described this species, brought a specimen over to England, which he compared with the typical examples of *G. aucklandica* in the British Museum. His results are fully stated in his work (*p.* 197,) and he says:—"I have come to the conclusion that, notwithstanding the great difference in the length of the bill, they are referable to one and the same species,—or at any rate that till further specimens have been obtained, it would be unwise to separate them." Judging however, from the measurements of specimens recently obtained in the Chatham Islands, (*Cf. Finsch, J. f. O.* 1874, *p.* 197), I am inclined to regard *G. pusilla* as a smaller species than *G. aucklandica*, which, from its constantly lesser dimensions, may be well kept distinct.

Family Ardeidæ.

84. Ardea egretta.

Herodias flavirostris, (*Wagl.*); *Gray, antcà, p.* 12.

Ardea egretta, *Gm.; Finsch, J. f. O.* 1872, *p.* 172, *et* 1874, *p.* 194.

Ardea syrmatophora, *Buller, B. N. Z., p.* 226.

Dr. Buller refers the Great White Heron of New Zealand to the Australian species which Mr. Gould separated from the European bird. Dr. Finsch believes that it is *A. egretta*, and speaks so positively on the subject, that I have no option but to follow his identification.

85. Ardea sacra.

Herodias matook, (*V.*) ; *Gray, antea, p.* 13.

Ardea sacra, *Gm.*; *Finsch, J. f. O.* 1872, *p.* 172, *et* 1874, *p.* 195; *Buller, B. N. Z., p.* 228, *pl.* 24, *f.* 1.

This widely distributed bird is found all over New Zealand, and breeds there apparently, as Dr. Buller mentions an egg of the species.

86. Ardea novæ hollandiæ.

Ardea novæ hollandiæ, *Lath.*; *Finsch, J. f. O.* 1872, *p.* 172, *et* 1874, *p.* 195; *Buller, B. N. Z., p.* 231, *pl.* 24, *f.* 2.

"Sparingly distributed over New Zealand." *Buller, (l. c.)*

87. Ardetta maculata.

Ardea pusilla, *V.*; *Finsch, J. f. O.* 1872, *p.* 172, *et* 1874, *p.* 195; *Buller, B. N. Z., p.* 235.

A very good account of this species has recently been published by Dr. Buller (*Tr. N. Z. Inst.*, vol. vi.), with a plate.

88. Botaurus pœciloptilus.

Botaurus melanotus, *Gray, antea, p.* 13.

Ardea pœciloptila, *Wagl.*; *Finsch, J. f. O.* 1872, *p.* 172, *et* 1874, *p.* 195.

Botaurus pœciloptilus, *Buller, B. N. Z., p.* 238.

Found in suitable places all over New Zealand, occurring also in the Chatham Islands.

89. Nycticorax caledonicus.

Nycticorax caledonicus, (*Lath.*) ; *Finsch, J. f. O.* 1872, *p.* 172, *et* 1874, *p.* 195; *Buller, B. N. Z., p.* 233.

A straggler from Australia, it has been found once in the North Island, but several times in the South Island. (*Cf. Buller, l.c.*)

Family, Anatidæ.

Sub-Family, anatinæ.

90. Dendrocygna eytoni.

Dendrocygna eytoni, *Gould; Finsch, J. f. O.* 1872, *p.* 184, *et* 1874, *p.* 201 ; *Buller, B. N. Z., p.* 265.

91. Casarca variegata.

Plate 16.

Casarca variegata, (*Gm.*); *Gray, antea, p.* 15; *Finsch, J. f. O.* 1872, *p.* 184, *et* 1874, *p.* 202; *Buller, B. N. Z., p.* 241, *pl.* 25.

92. Anas superciliosa.

Anas superciliosa, *Gm.*; *Gray, antea, p.* 15; *Finsch, J. f. O.* 1872, *p.* 185, *et* 1874, *p.* 202; *Buller, B. N. Z., p.* 244.

93. Anas chlorotis.

Plate 20.

Anas chlorotis, *Gray, antea, p.* 15; *Finsch, J. f. O.* 1872, *p.* 186, *et* 1874, *p.* 202; *Buller, B. N. Z., p.* 248.

94. Spatula rhynchotis.

Spatula rhynchotis, (*Lath.*); *Gray, antea, p.* 15.

Rhynchaspis variegata, *Gould*; *Finsch, J. f. O.* 1872, *p.* 187.

Spatula variegata, *Buller, B. N. Z., p.* 252, *pl.* 26.

Rhynchaspis rhynchotis, *Finsch, J. f. O.* 1874, *p.* 202.

Dr. Buller only separates this bird from the Australian species under the assurance of Mr. Gould, and he evidently suspects their identity. I agree with Dr. Finsch in considering the two species inseparable.

95. Hymenolæmus malacorhynchus.

Hymenolæmus malacorhynchus, (*Gm.*); *Gray, antea, p.* 15; *Finsch, J. f. O.* 1872, *p.* 187, *et* 1874, *p.* 202; *Buller, B. N. Z., p.* 262, *pl.* 27, *f.* 1.

96. Querquedula gibberifrons.

Anas gracilis, *Buller, Ibis*, 1869, *p.* 41.

Querquedula gibberifrons, (*Müll.*); *Finsch, J. f. O.* 1872, *p.* 188, *et* 1874, *p.* 173; *Buller, B. N. Z., p.* 250.

Sub-Family Fuligulinæ.

97. Nyroca australis.

Nyroca australis, *Gould*; *Finsch, J. f. O.* 1872, *p.* 188, *et* 1874, *p.* 202; *Buller, B. N. Z., p.* 257.

98. Fuligula novæ zealandiæ.

Plate 18.

Fuligula novæ zealandiæ, (*Gm.*); *Gray, antea, p.* 16; *Finsch, J. f. O.* 1872, *p.* 188, *et* 1874, *p.* 203; *Buller, B. N. Z., p.* 259, *pl.* 27, *f.* 2.

99. Nesonetta aucklandica.

Plate 17.

Nesonetta aucklandica, *Gray, antea, p.* 17; *Finsch, J. f. O.* 1872, *p.* 188, *et* 1874, *p.* 203.

Only known from the Auckland Islands and not yet procured in New Zealand.

Family, Mergidæ.

100. Mergus australis.

Mergus australis, *H. & J.*; *Gray, antecà, p.* 16; *Finsch, J. f. O.* 1872, *p.* 188, *et* 1874, *pp.* 173, 203.
Only known from the Auckland Islands.

Family, Laridæ.

101. Stercorarius catarractes.

Lestris antarcticus (*Less.*); *Gray, anteà, p.* 18.
Lestris catarractes, *Ill.*; *Finsch, J. f. O.* 1872, *p.* 240, *et* 1874, *p.* 203.
Stercorarius antarcticus, *Buller, B. N. Z., p.* 266.
The question of the identity of the northern and southern Great Skuas is one which wants settling by means of a good series.

102. Stercorarius parasiticus.

Lestris longicaudus, (*Briss.*); *Finsch, J. f. O.* 1872, *p.* 241, *et* 1874, *p.* 203.
Stercorarius parasiticus, *Buller, B. N. Z., p.* 268.
Only a single specimen has been obtained in New Zealand, having been shot by Dr. Buller himself on the sea-coast at Horouhemea in the Province of Wellington. Mr. Howard Saunders thinks it may belong to an undescribed species.

103. Larus dominicanus.

Larus dominicanus, *Licht.*; *Gray, antecà, p.* 18; *Finsch, J. f. O.* 1872, *p.* 241, *et* 1874, *p.* 203; *Buller, B. N. Z., p.* 269, *pl.* 28, *f.* 2.

104. Larus novæ hollandiæ.

Larus novæ hollandiæ, *Steph.*; *Gray, anteà, p.* 18; *Finsch, J. f. O.* 1872, *p.* 241, *et* 1874, *p.* 203.
Larus scopulinus, *Forst.*; *Buller, B. N. Z., p.* 273.
An excellent account of this species has been published by Dr. Finsch in the "Journal für Ornothologie," 1872, p. 241.

105. Larus pomare.

Larus pomare, (*Bruch*); *Finsch, J. f. O.* 1872, *p.* 248, *et* 1874, *p.* 204.
Larus bulleri, *Hutt.*; *Buller, B. N. Z., p.* 276, *pl.* 28, *f.* 1.
Dr. Buller, in passing through Mayence, examined the types of Bruch's *Larus pomare*, and considered they were not the same as the New Zealand bird. Dr. Finsch, however, having received a series of *L. bulleri* from New Zealand, sent for the types of *L. pomare*, and declares the identity of the two species. The young of *L. pomare* is, according to the same author, the immature *Larus novæ hollandiæ*.

106. Sterna caspia.

Sterna caspia, *Pall*; *Finsch, J. f. O.* 1872, *p.* 253, *et* 1874, *p.* 173; *Buller, B. N. Z., p.* 279.

107. Sterna frontalis.

Plate 20.*

Sterna frontalis, *Gray, antecà, p.* 19; *Finsch, J. f. O.* 1872, *p.* 253, *et* 1874, *p.* 205; *Buller, B. N. Z., p.* 281.

108. Sterna antarctica.

Plate 21.

Sterna antarctica, *Forst.*; *Gray, antecà, p.* 19; *Finsch, J. f. O.* 1872, *p.* 254, *et* 1874, *p.* 205; *Buller, B. N. Z.*, ½ *p.* 283.
Hydrochelidon albostriata, *Gray, antecà, p.* 19, *pl.* 21.
The species figured as *H. albostriata* in the plate accompanying this book, is the true *Sterna antarctica* of Forster.

109. Sterna nereis.

Sterna nereis, *Gould*; *Finsch, J. f. O.* 1872, *p.* 252, *et* 1874, *p.* 205; *Buller, B. N. Z., p.* 284.

110. Hydrochelidon leucoptera.

Hydrochelidon leucoptera, *Finsch, J. f. O.* 1872, *p.* 254, *et* 1874, *p.* 206; *Buller, B. N. Z., p.* 287.

Family, Procellariidæ.

111. Diomedea exulans.

Diomedea exulans, *Gray, antecà, p.* 18; *Finsch, J. f. O.* 1872, *p.* 254, *et* 1874, *p.* 206; *Buller, B. N. Z., p.* 289.

112. Diomedea melanophrys.

Diomedea melanophrys, *Boie*; *Finsch, J. f. O.* 1872, *p.* 254, *et* 1874, *p.* 206; *Buller, B. N. Z., p.* 292.
Although not mentioned by Mr. Gray in the foregoing list of New Zealand birds nor yet in his second catalogue in the "Ibis" for 1862, this species is the commonest Albatros of New Zealand, five species altogether being now known to occur there.

113. Diomedea chlororhyncha.

Diomedea chlororhyncha, *Gm.*; *Finsch, J. f. O.* 1872, *p.* 254, *et* 1874, *p.* 173; *Buller, B. N. Z., p.* 294.

114. Diomedea culminata.

Diomeda culminata, *Gould*; *Finsch, J. f. O.* 1872, *p.* 254, *et* 1874, *p.* 206; *Buller, B. N. Z., p.* 295.

115. Diomedea fuliginosa.

Diomedea fuliginosa, *Gm.*; *Finsch, J. f. O.* 1872, *p.* 254, *et* 1874, *p.* 206; *Buller, B. N. Z., p.* 296.

116. Ossifraga gigantea.

Procellaria gigantea, *Gm.*; *Gray, antcà, p.* 17; *Finsch, J. f. O.* 1872, *p.* 255, *et* 1874, *p.* 206.
Ossifraga gigantea, *Buller, B. N. Z., p.* 297.

117. Daption capensis.

Daption capensis, (*L.*); *Finsch, J. f. O.* 1872, *p.* 256, *et* 1874, *p.* 208; *Buller, B. N. Z., p.* 299.
A most interesting account of the habits of this species will be found in Captain Hutton's paper entitled "Notes on some of the Birds inhabiting the Southern Ocean," (*Ibis*, 1865, *p.* 276.)

118. Procellaria parkinsoni.

Procellaria parkinsoni, *Gray*; *Finsch, J. f. O.* 1872, *p.* 255, *et* 1874, *p.* 207; *Buller, B. N. Z., p.* 302.

119. Procellaria gouldi.

Procellaria gouldi, *Hutt.*; *Finsch, J. f. O.* 1872, *p.* 255, *et* 1874, *p.* 207; *Buller, B. N. Z., p.* 308.

120. Procellaria fuliginosa.

Procellaria fuliginosa, *Kuhl*; *Finsch, J. f. O.* 1874, *p.* 207; *Buller, B. N. Z., p.* 304, *pl.* 29, *f.* 2.

121. Procellaria cinerea.

Procellaria cinerea, *Gm.*; *Finsch, J. f. O.* 1872, *p.* 254, *et* 1874, *p.* 174; *Buller, B. N. Z., p.* 305.

122. Procellaria lessoni.

Procellaria lessoni, *Garn.*; *Finsch, J. f. O.* 1872, *p.* 255, *et* 1874, *p.* 207; *Buller, B. N. Z., p.* 303, *pl.* 29, *f.* 14.

123. Procellaria glacialoides.

Procellaria glacialoides, *Smith*; *Buller, B. N. Z., p.* 301.
Procellaria smithii, *Schl.*; *Finsch, J. f. O.* 1872, *p.* 255, *et* 1874, *p.* 174.

124. Procellaria mollis.

Procellaria mollis, *Gould*; *Finsch, J. f. O.* 1872, *p.* 255, *et* 1874, *p.* 207.

Included by Dr. Buller as a doubtful New Zealand species, but, as Dr. Finsch points out, specimens were obtained in the Novara Voyage in the New Zealand seas.

125. Procellaria cookii.

Plate 35.

Procellaria cookii, *Gray, antcà, p.* 17; *Finsch, J. f. O.* 1872, *p.* 255, *et* 1874, *p.* 207; *Buller, B. N. Z., p.* 207.

126. Procellaria cærulea.

Procellaria cærulea, *Gm.*; *Finsch, J. f. O.* 1872, *p.* 255, *et* 1874, *p.* 208; *Buller, B. N. Z., p.* 206.

127. Puffinus gavius.

Procellaria gavia, *Forst.*; *Gray, antcà, p.* 18.
Puffinus gavius, *Finsch, J. f. O.* 1872, *p.* 256 *et* 1874, *p.* 208; *Buller, B. N. Z., p.* 316.
Dr. Finsch has given a full account of the synonymy in his latest article, (*l. c.*)

128. Puffinus griseus.

Puffinus major, *Gray, antcà, p.* 17.
Puffinus tristis, (*Forst.*); *Finsch, J. f. O.* 1872, *p.* 256; *Buller, B. N. Z., p.* 317.
Puffinus griseus (*Gm.*); *Finsch, J. f. O.* 1874, *p.* 209.
On this bird also see Dr. Finsch's remarks, (*l. c.*)

129. Puffinus tenuirostris.

Puffinus brevicaudus, *Buller, B. N. Z., p.* 315.
Puffinus tenuirostris, *Temm.*; *Finsch, J. f. O.* 1874, *p.* 210.

130. Pelecanoides urinatrix.

Pelecanoides urinatrix, (*Gm.*); *Gray, antcà, p.* 17; *Buller, B. N. Z., p.* 313.
Halodroma urinatrix, *Finsch, J. f. O.* 1872, *p.* 256, *et* 1874, *p.* 210.

131. Pelecanoides berardi.

Pelecanoides berardi, *Buller, B. N. Z., p.* 314.
Halodroma berardi, *Finsch, J. f. O.* 1874, *p.* 210.

132. Prion vittatus.

Prion vittatus, (*Forst.*); *Gray, antcà, p.* 18; *Finsch, J. f. O.* 1872, *p.* 256, *et* 1874, *p.* 211; *Buller, B. N. Z., p.* 312.
The lately described *Prion australis* of Mr. Potts (*Ibis*, 1873, *p.* 85,) is referred to this species by Dr. Finsch.

133. Prion banksi.

Prion banksi, (*Smith*), *Finsch, J. f. O.* 1872, *p.* 256, *et* 1874, *p.* 211; *Buller, B. N. Z., p.* 311.

134. Prion turtur.

Plate 29.

Prion turtur, (*Kuhl.*); *Finsch, J. f. O.* 1872, *p.* 257, *et* 1874, *p.* 212; *Buller, B. N. Z., p.* 309.

135. Thalassidroma fregata.

Thalassidroma marina, *Lath.*; *Gray, antè, p.* 17.
Thalassidroma fregata, *L.*; *Finsch, J. f. O.* 1872, *p.* 257, *et* 1874, *p.* 212; *Buller, B. N. Z., p.* 321.

136. Thalassidroma melanogastra.

Thalassidroma melanogastra, *Gould*; *Finsch, J. f. O.* 1872, *p.* 257, *et* 1874, *p.* 212; *Buller, B. N. Z., p.* 319.

137. Thalassidroma nereis.

Thalassidroma nereis, *Gould*; *Finsch, J. f. O.* 1872, *p.* 257, *et* 1874, *p.* 213; *Buller, B. N. Z., p.* 322.

Family, Pelecanidæ.

138. Sula serrator.

Sula serrator, *Gray, antè, p.* 19; *Buller, B. N. Z., p.* 323.
Dysporus serrator, *Finsch, J. f. O.* 1872, *p.* 257, *et* 1874, *p.* 213.

139. Phalacrocorax carbo.

Gracalus carboides, *Gould*; *Gray, antè, p.* 20.
Phalacrocorax novæ hollandiæ, *Steph.*; *Buller, B. N. Z., p.* 325.
Graculus carbo, (*L.*); *Finsch, J. f. O.* 1872, *p.* 257, *et* 1874, *p.* 213.
I follow Dr. Finsch in believing that the Cormorant of South Africa and Australia is the same as the ordinary species of Europe. I have compared adult English specimens with others from the southern seas, and could find no difference.

140. Phalacrocorax carunculatus.

Gracalus cirrhatus, *Gray, antè, p.* 19, (*nec. Gm.*).
Phalacrocorax carunculatus, (*Gm.*); *Buller, B. N. Z., p.* 332, *pl.* 30, *f.* 1.
Graculus carunculatus, *Gm.*; *Finsch, J. f. O.* 1872, *p.* 274, *et* 1874, *p.* 213.

141. Phalacrocorax chalconotus.

Plate 21.*

Gracalus chalconotus, *Gray, antè, p.* 20.
Phalacrocorax chalconotus, *Buller, B. N. Z., p.* 334.
Graculus chalconotus, *Finsch, J. f. O.* 1872, *p.* 258, *et* 1874, *p.* 214.
Only one specimen has at present been discovered, viz., the type in the British Museum.

142. Phalacrocorax purpuragula.

Graculus sulcirostris, *Brandt.*; *Finsch, J. f. O.* 1872, *p.* 258, *et* 1874, *p.* 214.
Phalacrocorax sulcirostris, *Buller, B. N. Z. Intr., p.* xv.
Dr. Buller considers this a doubtful New Zealand species, but, as Dr. Finsch points out, Peale collected his Cormorant to which he gave the name of *purpuragula* in Manua Bay and the Bay of Islands. It is not yet quite certain whether this bird of Peale's is synonymous with the true *P. sulcirostris* (*Brandt.*), and I therefore restore for the present Peale's title. (*Cf. Finsch, l.c.*)

143. Phalacrocorax varius.

Gracalus varius, *Gray, antè, p.* 19.
Phalacrocorax varius, *Buller, B. N. Z., p.* 328.
Graculus varius, *Finsch, J. f. O.* 1872, *p.* 258, *et* 1874, *p.* 215.

144. Phalacrocorax punctatus.

Gracalus punctatus, (*Sparrm*); *Gray, antè, p.* 20.
Graculus punctatus, *Finsch, J. f. O.* 1872, *p.* 259, *et* 1874, *p.* 214.
Phalacrocorax punctatus, *Buller, B. N. Z., p.* 335, *pl.* 31.

145. Phalacrocorax featherstoni.

Graculus, *sp. n. Finsch, J. f. O.* 1872, *p.* 274.
Phalacrocorax featherstoni, *Buller, Ibis,* 1873, *p.* 90, *et B. N. Z., p.* 338, *pl.* 32.
Graculus featherstoni, *Finsch, J. f. O.* 1874, *p.* 216.

146. Phalacrocorax brevirostris.

Gracalus brevirostris, (*Gould*); *Gray, antè, p.* 20.
Graculus brevirostris, *Finsch, J. f. O.* 1872, *p.* 259, *et* 1874, *p.* 216.
Phalacrocorax brevirostris, *Buller, B. N. Z., p.* 330, *pl.* 30, *f.* 2.

147. Phalacrocorax finschii, sp. n.

Gracalus melanoleucus, (*V.*); *Gray, antè, p.* 20.
Phalacrocorax melanoleucus, *Buller, B. N. Z., p.* 333.
Graculus melanoleucus, *Finsch, J. f. O.* 1874, *p.* 223.

Mr. G. R. Gray (*l.c.*) notices that the specimen of *P. melanoleucus* procured in New Zealand by the Antartic Expedition, "differs from the Australian specimens by the white spot of the wing-coverts," and Dr. Finsch has gone into the intricate synonymy of the species. Dr. Buller does not seem to have examined the specimen in the Museum, and I therefore hunted it up from the large collection which we possess of Cormorants in skin, and I find that it constitutes a new species, which I name *P. finschii* in honour of Dr. Finsch, whose wonderful acquaintance with New Zealand Ornithology is displayed in all he writes on the subject. It may be described as follows:—

P. similis *P. melanoleuco* sed tectricibus alarum medianis exterioribus albis, speculum vel fasciam alarem formantibus; axillaribus tantum nigris, nec corporis lateribus ut in *P. melanoleucus* nigris, distinguendus.

148. Fregata aquila.

Fregata aquila, (*L.*); *Buller, B. N. Z., p.* 340.

Tachypetes aquilus, *Finsch, J. f. O.* 1872, *p.* 260, *et* 1874, *p.* 216.

149. Fregata minor.

Fregata minor, (*Gm.*); *Buller, B. N. Z., p.* 342.

Tachypetes minor, *Finsch, J. f. O.* 1874, *p.* 216.

Family, Colymbidæ.

150. Podiceps rufipectus.

Plate 19.

Podiceps rufipectus, *Gray, antea, p.* 16, *pl.* 19; *Finsch, J. f. O.* 1872, *p.* 261, *et* 1874, *p.* 217; *Buller, B. N. Z., p.* 350.

151. Podiceps cristatus.

Podiceps cristatus, *L.*; *Finsch, J. f. O.* 1872, *p.* 260, *et* 1874, *p.* 217; *Buller, B. N. Z., p.* 353.

Family, Spheniscidæ.

152. Eudyptes chrysocoma.

Eudyptes pachyrhynchus, *Gray, antea, p.* 17; *Finsch, J. f. O.* 1872, *p.* 261, *et* 1874, *p.* 217.

Eudyptes chrysocome, (*Forst.*); *Coues, Pr. Philad. Acad.*, 1872, *p.* 202.

Eudyptes chrysocomus, *Buller, B. N. Z., p.* 345, *pl.* 33, *f.* 1.

Dr. Finsch thinks that this bird is not the true *Aptenodytes chrysocome* of Forster and he retains Gray's later published title. Dr. Coues, however, unites the two species in his Monograph, (*l.c.*).

153. Eudyptes antipodum.

Plate 27.

Eudyptes antipodes, (*H. & J.*); *Gray, antea, p.* 17; *Finsch, J. f. O.* 1872, *p.* 262, *et* 1874, *p.* 218; *Coues, Pr. Phil. Acad.*, 1872, *p.* 199; *Buller, B. N. Z., p.* 346.

154. Eudyptes vittata.

Eudyptes vittata, *Finsch, Ibis,* 1875, *p.* 112.

This new species has only lately been described by Dr. Finsch, who remarks "*E. vittata*, if indeed a true Eudyptes, is easily distinguished from all other members of the Penguin group by its broad white superciliary streak, which runs from the base of the bill to the back of the head, but which does not consist of elongated feathers." The single specimen at present known was procured at Dunedin, and the description was communicated by Captain F. W. Hutton, one of the most enthusiastic of New Zealand naturalists, and particularly well-known as an authority on the sea-birds of the southern hemisphere.

155. Eudyptes atrata.

Eudyptes atrata, *Hutton, Ibis,* 1875, *p.* 114.

The same paper in which Dr. Finsch describes the foregoing bird, contains a description of this new species by Captain Hutton. Dr. Finsch says:—"This species cannot be confounded with any other, regard being paid to the jet-black coloration of its under surface."

156. Eudyptila minor.

Spheniscus minor, *Gray, antea, p.* 16; *Coues, Pr. Philad. Acad.*, 1872, *p.* 207.

Eudyptila minor, (*Gm.*); *Finsch, J. f. O.* 1872, *p.* 262, *et* 1874, *p.* 218; *Buller, B. N. Z., p.* 347, *pl.* 33, *f.* 2.

157. Eudyptila undina.

Eudyptila undina, (*Gould*); *Buller, B. N. Z., p.* 332.

158. Eudyptila albosignata.

Eudyptila albosignata, *Finsch, P. Z. S.*, 1874, *p.* 207, *et J. f. O.* 1874, *p.* 219.

Dr. Finsch writes of this new species, that it is "easily distinguishable from *E. minor*, Gm. (=*E. undina*, Gould), by the broad white edge which borders the wing anteriorly and posteriorly, and by the white patch on the upper tail-coverts. The bill is stouter and has a much more strongly marked and deeper sulcus."

Family, Apterygidæ.

159. Apteryx australis.

Apteryx australis, *Shaw*; *Gray, antea, p.* 11; *Finsch, J. f. O.* 1872, *p.* 263, *et* 1874, *p.* 220; *Buller, B. N. Z., p.* 364; *Rowley, Orn. Misc., pl.* iv.

A young bird is figured by Mr. Rowley, (*l.c.*).

160. Apteryx mantelli.

Apteryx mantelli, *Bartl.*; *Finsch, J. f. O.* 1872, *p.* 263; *Buller, B. N. Z., p.* 258, *pl.* 34; *Rowley, Orn. Misc., p.* 25.

Dr. Buller separates this species from *A. australis*, and I must say that, when I examined his series, I thought that he had made out his case. Dr. Finsch, Dr. Sclater, and lastly Mr. Dawson Rowley, unite them, so that it is a moot point as to whether it is anything more than a race of the other bird.

161. Apteryx oweni.

Apteryx oweni, *Gould*; *Finsch, J. f. O.* 1872, *p.* 268, *et* 1874, *p.* 220; *Buller, B. N. Z., p.* 368, *pl.* 35; *Rowley, Orn. Misc., pls.* ii, v.

A good plate of this species is given by Dr. Buller, and Mr. Dawson Rowley figures both adults and young.

162. Apteryx haasti.

Apteryx haasti, *Potts*; *Finsch, J. f. O.* 1872, *p.* 271, *et* 1874, *p.* 220; *Buller, B. N. Z., p.* 370; *Rowley, Orn. Misc., pls.* i, iii.

I have examined the specimens of this splendid *Apteryx*, which were exhibited by Mr. George Dawson Rowley at the Zoological Society, and have since been beautifully figured by him in his "Ornithological Miscellany." It speaks volumes for the enterprise of this gentleman that he, at his own expense, has kept a collector in New Zealand, and has not relaxed his energy until he has become the sole possessor in Europe of this little known bird.

In compiling the foregoing review of New Zealand Ornithology, I must disclaim any idea of overlooking such works as Captain Hutton's "Catalogue" of New Zealand Birds, or of Mr. Pott's numerous papers published in the various scientific journals. My first intention was to carry on the synonymy of the various species from the year 1844, when the foregoing portion of the "Voyage" was published, down to the present time. I soon found, however, that this had been most completely done by Dr. Finsch and that to do it effectually I should be obliged to copy direct from him. I have, therefore, only given references to Dr. Buller's large work, as containing the best account of the life-history of these birds, and to Dr. Finsch's best-known papers in the "Journal für Ornithologie" where will be found a complete set of references to all the species down to the commencement of the year 1874. In the most recent of his papers he also gives a list of the doubtful New Zealand birds with remarks on their history.

Before finishing this portion of my subject I think it advisable to give a key to all the species mentioned by Mr. Gray in the original work, the nomenclature of which has been in any way altered since that date, with an indication of their exact titles in the appendix I have now written.

p. 1. Falco novæ zealandiæ.=Harpa novæ zealandiæ, (*Gm.*).
„ 2. Circus assimilis.=C. Gouldi, (*Bp.*).
„ 2. Athene novæ zealandiæ.=Spiloglaux novæ zealandiæ, (*Gm.*).
„ 2. Athene albifacies.=Sceloglaux albifacies, (*Gray*).
„ 3. Halcyon cinnamominus is not a New Zealand bird.
„ 3. Neomorpha gouldi.=Heteralocha acutirostris, (*Gld.*).
„ 4. Acanthisitta longipes.=Xenicus longipes, (*Gm.*).
„ 6. Certhiparus maculicaudus.=C. novæ zealandiæ, (*Gm.*).
„ 6. Petroica dieffenbachii.=Myiomoira macrocephala, (*Gm.*).
„ 6. „ toitoi.=Myiomoira toitoi, (*Less.*).
„ 7. „ albifrons.=Miro albifrons, (*Gm.*).
„ 7. „ australis.=Miro longipes, (*Garn.*).
„ 8. Rhipidura melanura. = Rhipidura fuliginosa, (*Sparrm.*).
„ 8. Callæas cinerea.=Glaucopis cinerea, (*Gm.*).
„ 8. Aplonis zelandicus is not a New Zealand bird.
„ 8. Aplonis obscurus is not a New Zealand bird.
„ 9. Trichoglossus aurifrons is not a New Zealand bird.
p. 11. Charadrius virginianus.=Charadrius fulvus, (*Gm.*).
„ 12. Thinornis rossii. = Thinornis novæ zealandiæ, (*Gm.*).
„ 12. Hiaticula bicincta.=Charadrius bicinctus, (*J. & S.*).
„ 12. Herodias flavirostris.=Ardea egretta, (*Gm.*).
„ 13. Herodias matook.=Ardea sacra, (*Gm.*).
„ 14. Ocydromus dieffenbachii.=Cabalus dieffenbachii.
„ 14. Rallus assimilis.=Rallus philippinensis, (*L.*).
„ 16. Spheniscus minor.=Eudyptula minor, (*Gm.*).
„ 17. Eudyptes pachyrhynchus.=Eudyptes chrysocoma, (*Forst.*).
„ 17. Eudyptes antipodes. = Eudyptes antipodum, (*H. & J.*).
„ 17. Puffinus æquinoctialis. Not known for certain as a New Zealand bird.
„ 17. Puffinus major.=Puffinus griseus, (*Gm.*).
„ 17. Thalassidroma marina. = Thalassidroma fregata, (*L.*).
„ 17. Procellaria gigantea.=Ossifraga gigantea, (*Gm.*).
„ 18. Procellaria gavia.=Puffinus gavius, (*Forst.*).
„ 18. Lestris antarcticus.=Stercorarius catarrhactes, (*Ill.*).
„ 19. Hydrochelidon albostriata.=Sterna antarctica.

p. 19. Gracalus cirrhatus.=Phalacrocorax caruneulatus.
„ 19. Gracalus varius.=Phalacrocorax varius, (*Gray*).
„ 20. Gracalus chalconotus.=Phalacrocorax chalconotus, (*Gray*).
„ 20. Gracalus punctatus. = Phalacrocorax punctatus, (*Sparrm.*).
p. 20. Gracalus carboides.=Phalacrocorax carbo, (*L.*).
„ 20. Gracalus melanoleucus.=Phalacrocorax finschi, *Sharpe*.
„ 20. Gracalus brevirostris.=Phalacrocorax brevirostris, (*Gould*).

The following is a List of the birds, not from New Zealand, but obtained in other parts of the southern ocean by the Antartic Expedition and figured in the present work.

Family, Scolopacidæ.

Gallinago stricklandii.

Plate 23.

Gallinago stricklandii, *Gray, Voy. Ereb. & Terror, Birds, pl.* 23; *id., List Gralla, B. M., p.* 112; *Scl. & Salvin, Ex. Orn., p.* 196; *Gray, Handl. B.* iii, *p.* 55; *Scl. & Salv. Nomencl., p.* 145.

Scolopax meridionalis, *Peale, U. S. Expl. Exp., p.* 229; *Cass. op. cit. ed.* 2, *p.* 310. *pl.* 35, *f.* 1.

Scolopax spectabilis, *Hartl. Naum.* 1853, *p.* 216.

A pair of this fine Snipe was obtained by the Antarctic Expedition at Hermit Island.

Family, Anatidæ.

Cloephaga inornata.

Plate 30.

Anser inornatus, mas., *King, P. Z. S.* 1830, *p.* 15.

Branta inornata, *Gray, Handl. B.* iii, *p.* 77.

Cloephaga inornata, *Scl. & Salv. Nomencl. av. neotr., p.* 128.

The bird figured in the plate is the type of King's *Anser inornatus*, and was received by the Museum from the Zoological Society. It is not referable, as far as I can see, to any of the allied species. Dr. Sclater, (*P. Z. S.*, 1860, *p.* 388,) also writes:—"The bird described as *Anas inornatus, mas*, by Capt. King, which is now in the British Museum, is decidedly different, in my opinion, from both *Chloëphaga poliocephala* and *C. rubidiceps*, most nearly resembling the male of *C. magellanica*, but being much smaller."

Cloephaga rubidiceps.

Plate 24.

Bernicla inornata, *Gray, Voy. Ereb. & Terr. Birds, pl.* 24.

Cloephaga rubidiceps, *Scl. P. Z. S.*, 1860, *p.* 387, *pl.* xxxiii; *Gray, Handl. B.* iii, *p.* 77; *Scl. & Salv. Nomencl. av. neotr, p.* 128.

This species was first discriminated from *C. poliocephala* by Dr. Sclater (*l. c.*), and the differences are duly set forth by him. He appears, however, to have overlooked the plate published (without text) in the present work, and has refigured the species in the "Proceedings." The plate here given is not altogether exact, as the barred flank-feathers extend farther along the sides of the body to the vent. Mr. Wolf's excellent plate, accompanying Dr. Sclater's paper, is more accurate, and on comparing it with the illustrations of *C. poliocephala*, (Zool. Sk. 1st series, pl. xlix) a very good idea of the differences between these two species can be formed.

Two specimens from the Falkland Islands, male and female, were obtained by the Expedition.

Family, Procellariidæ.

Pagodroma nivea.

(Plate 34.)

Procellaria nivea, (*Gm.*); *Gray, Voy. Ereb. & Terr, Birds, pl.* 34; *id. List Gralla &c., B. M., p.* 164; *Coues, Pr. Phil. Acad.*, 1866, *p.* 160.

Fulmarus niveus, *Gray, Handl. B.* iii, *p.* 107.

Several specimens were procured by the expedition, and are duly enumerated in Mr. Gray's list, (*l. c.*).

Priocella antarctica.

(Plate 33.)

Procellaria antarctica, *Gm.*; *Gray, Voy. Ereb. & Terr, pl.* 33; *id. List Gralla &c., B. M., p.* 163.

Thalassoica antarctica, *Reich.*; *Coues, Pr. Philad. Acad.*, 1866, *p.* 31.

Fulmarus antarcticus, *Gray, Handl. B.* iii, *p.* 105.

Dr. Coues has separated this species as a *Thalassoica* apart from the *Fulmarus*, and I follow him as the best authority on this group of birds. But Reichenbach's generic name must give way to *Priocella* of Jacquinot (Voy. Pole Sud, iii, *p.* 148), and this species should be known as *Priocella antarctica*.

Family, Spheniscidæ.

Aptenodytes longirostris.

(Plate 32.)

Aptenodytes pennantii, *Gray, Ann. N. H.*, 1844, *p.* 315; *id. List Gralla &c., B. M., p.* 156; *id. Handl. B.* iii, *p.* 99; *Scl. & Salv. Nomencl., p.* 151; *Hyatt, Pr. Bost. Soc.*, 1871, *p.* 11.

Aptenodytes longirostris, *Coues, Pr. Phil. Acad.*, 1872, *p.* 193.

Dr. Coues in his "Monograph" of the *Spheniscidæ* revives Scopoli's name for this species, and in this I think he is justified, for, laying aside Gmelin's title of *patachonica* which confuses two species, the *Apterodyta longirostris* of Scopoli (Del. Faun. et Flor. Insubr. ii. p. 91), seems to be the next in order of priority. It is founded on "Le Manchot de la Nouvelle Guinée" of Sonnerat, (Voy. N. G. p. 180, pl. 113), and although the figure in this plate is very bad, representing the black on the throat as extending far down to the centre of the breast, the description quite agrees.

A single specimen was brought by the Expedition, supposed to be from Kerguelen Island,

Aptenodytes patachonica.

Plate 31.

Aptenodytes patachonica, *Forst. Comm. Soc. Reg. Götting.* iii, *p.* 137, *pl.* 2, (1781); *Coues, Pr. Phil. Acad.* 1872, *p.* 192.

Aptenodytes forsteri, *Gray, Ann. N. H.*, 1844, *p.* 315; *id. List Gallæ &c., B. M., p.* 156; *id. Handl. B.* iii, *p.* 99.

Several specimens were obtained by the Expedition, as mentioned in Mr. G. R. Gray's List of *Grallæ* and *Anseres*, (*l. c.*).

Pygoscelis tæniata.

(Plate 25.)

Pygoscelis papua, *Wagl.*; *Gray, Voy. Ereb. & Terr., Birds, pl.* 25; *id. List Grallæ*, &c., *p.* 153.

Aptenodytes tæniata. *Peale, U. S. Expl. Exp. Orn., p.* 264, (1848).

Pygoscelis wagleri, *Sclater, P. Z. S.*, 1860, *p.* 392.

Eudyptes papua, *Gray, Handl.* iii, *p.* 98.

Pygoscelis tæniata, *Coues, Pr. Phil. Acad.*, 1872, *p.* 195.

Two specimens procured at Kerguelen Island.

Pygoscelis adeliæ.

Plate 28.

Eudyptes adeliæ, (*H. & J.*); *Gray, Voy. Ereb. & Terr., pl.* 28; *id. Handl. B.* iii, *p.* 99.

Pygoscelis brevirostris, *Gray, List Grallæ, &c., p.* 154.

Pygoscelis adeliæ, *Hyatt, Pr. Bost. Soc. Nat. Hist.* 1871, *p.* 14; *Coues, Pr. Phil. Acad.*, 1872, *p.* 196.

Several specimens procured by the Expedition and enumerated in Mr. G. R. Gray's List of *Grallæ* and *Anseres.*

Pygoscelis antarctica.

(Plate 26.)

Eudyptes antarctica, (*Forst.*); *Gray, Voy. Ereb. & Terr.*, Birds, *pl.* 26; *id. Handl. B.* iii, *p.* 98.

Pygoscelis antarctica, *Gray, List. Grallæ &c., B. M., p.* 154; *Hyatt, Pr. Bost. Soc. Nat. Hist.* 1871, *p.* 14; *Coues, Pr. Phil. Acad.*, 1872, *p.* 199.

Two specimens procured by the Expedition.

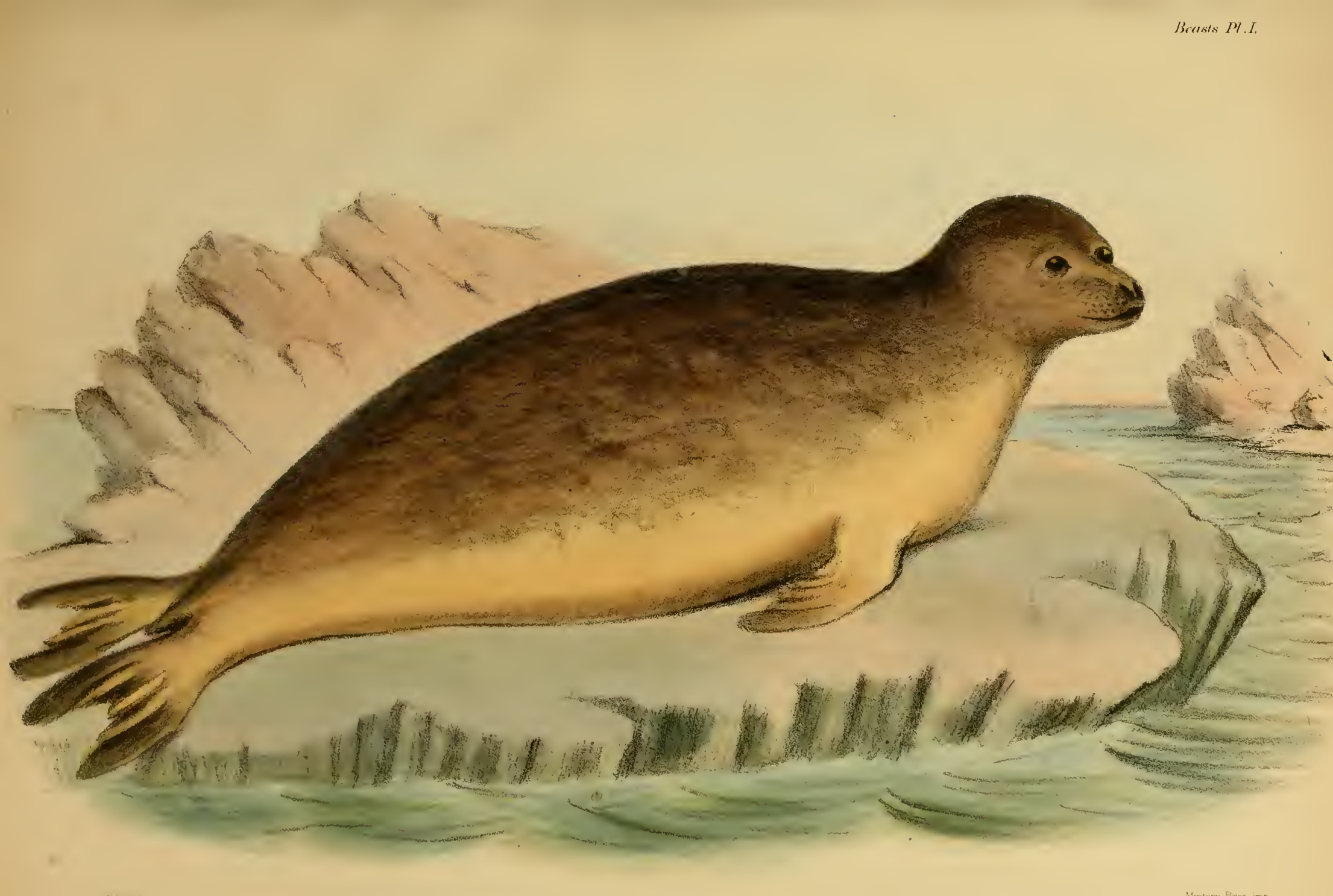
Finally it may not be out of place to give a list of the plates which accompany the now completed edition of the Ornithological portion of the Voyage of the "Erebus and Terror."

A. Plates originally issued.

1.* Halcyon vagans.
2. Anthornis melanocephala.
3. Fig. 1. Acanthisitta longipes.=Xenicus longipes.
„ 2. „ chloris. ♀
4. Fig. 1. Gerygone flaviventris.
„ 2. „ albifrontata.
5. Fig. 1. Certhiparus novæ zealandiæ.
„ 2. „ albicillus.
6. Fig. 1. Petroica dieffenbachii.
„ 2. „ albifrons.
8. Coturnix novæ zealandiæ.
9. Charadrius obscurus.
10. Hæmatopus unicolor.
11. Thinornis rossii.=Th. novæ zealandiæ, junr.
11*. „ novæ zealandiæ.
13. Gallinago aucklandica.
14. Ocydromus australis.
15. Rallus dieffenbachii.=Cabalus dieffenbachii.
16. Casarca variegata.
17. Nesonetta aucklandica.
18. Fuligula novæ zealandiæ.
19. Podiceps rufipectus.
20. Anas chlorotis.
XXI.* Graculus chalconotus.=Phalacrocorax chalconotus.
21. Hydrochelidon albostriata.=Sterna antarctica.
23. Scolopax stricklandi (not mentioned in text).
24. Bernicla inornata.=Chloephaga rubidiceps, (*Scl*). (not mentioned in text).
25. Pygoscelis papua.=Pygoscelis tæniata, (*Peale*). (not mentioned in text).
26. Eudyptes antarctica.=Pygoscelis antarctica, (*Forst.*).
28. „ adeliæ.=Pygoscelis adeliæ, (*H. & J.*). (not mentioned in text).
33. Procellaria antarctica.=Priocella antarctica, (*Gm.*). (not mentioned in text).
34. „ nivea.=Pagodroma nivea, (*Gm.*). (not mentioned in text).
35. „ cookii.

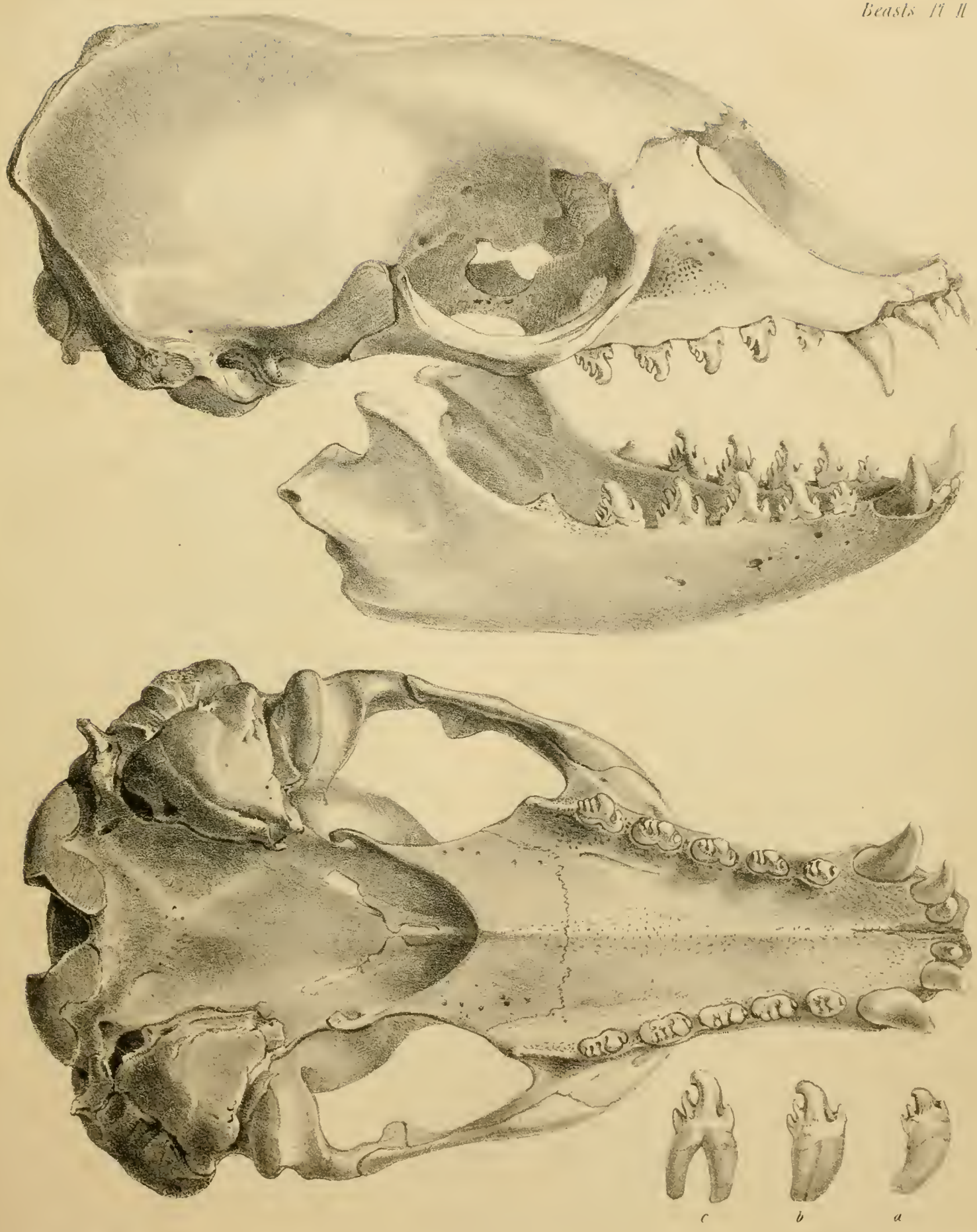
B. Plates now issued.

1. Athene albifacies.=Sceloglaux albifacies.
7. Strigops habroptilus.=Stringops habroptilus.
20.* Sterna frontalis.
27. Eudyptes antipodes.=Eudyptes antipodum.
29. Prion turtur.
30. Bernicla inornata.=Chloephaga inornata.
31. Aptenodytes forsteri.=Aptenodytes patachonica.
32. „ pennantii.=Aptenodytes longirostis.



Mintern Bros. imp

CRAB EATER SEAL.
Lobodon Carcinophaga



B.W.Hawkins ad. & lithog.

Day & Haghe, lith. to the Queen.

CRAB-EATER SEAL.

Lobodon Carcinophaga

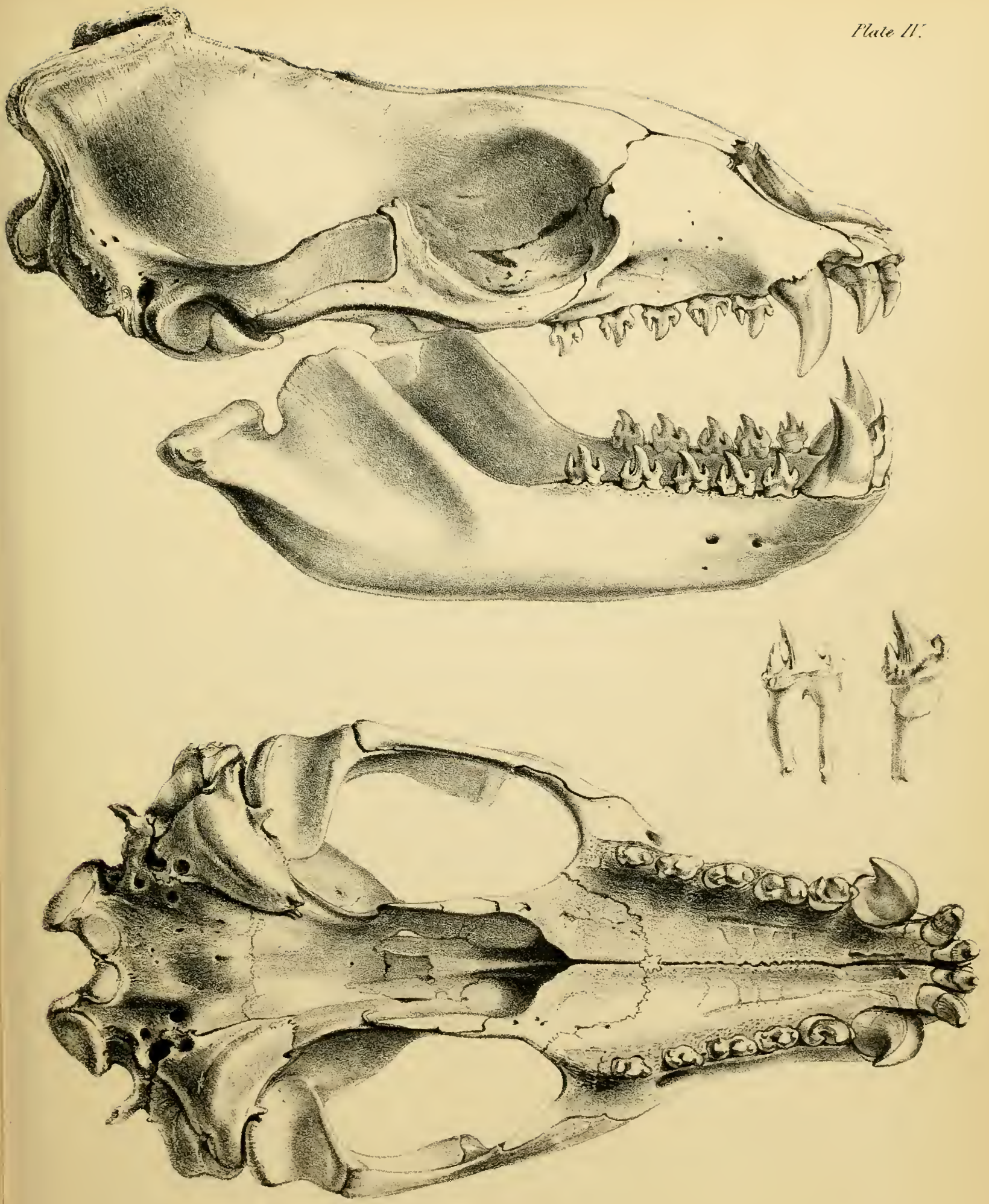
Drawn from Nature & on Stone by Waterhouse Hawkins

SEA-LEOPARD.

Stenorhynchus Leptonyx.

pre lith Linn imp.

Day & Haghe Lith^rs to the Queen



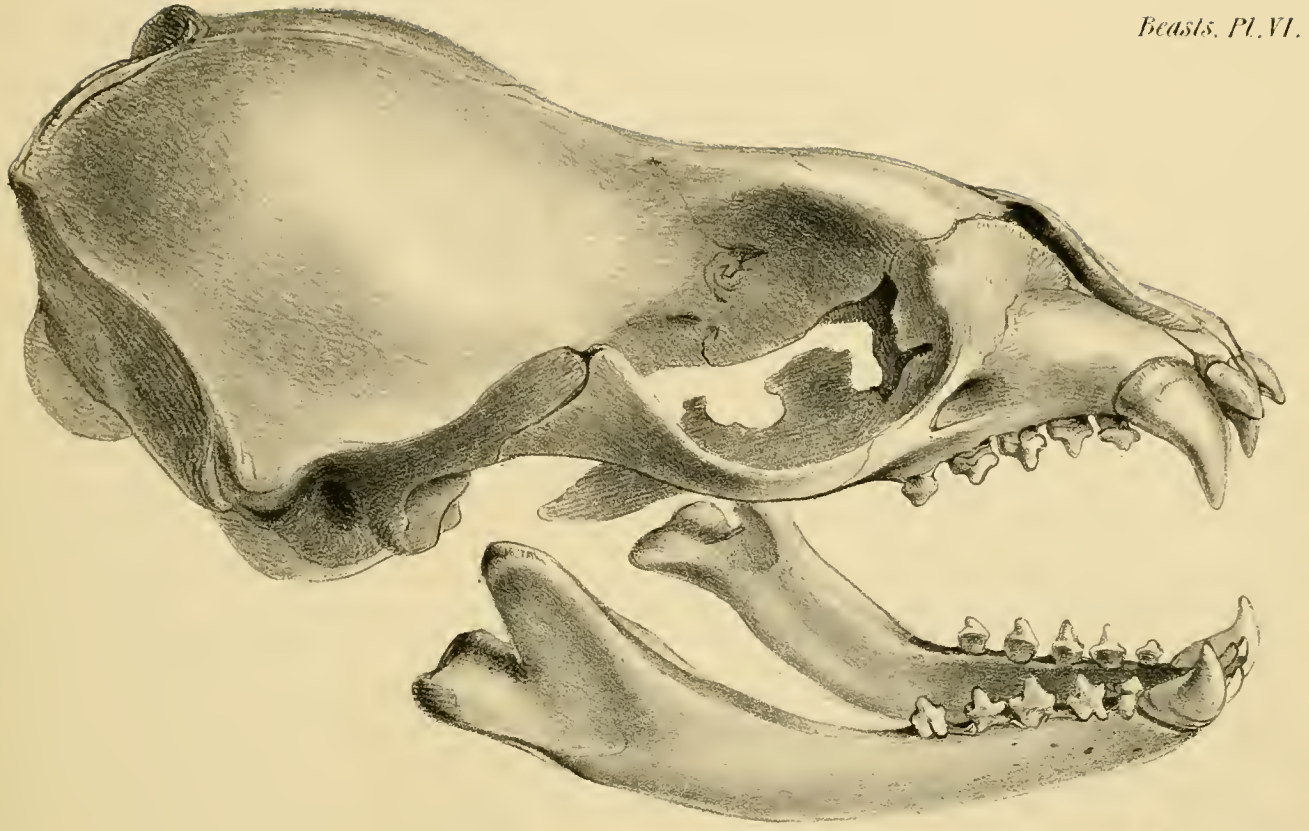
pub. by Longman &c.

LEOPARD
Strenuthgnathus leptonyx

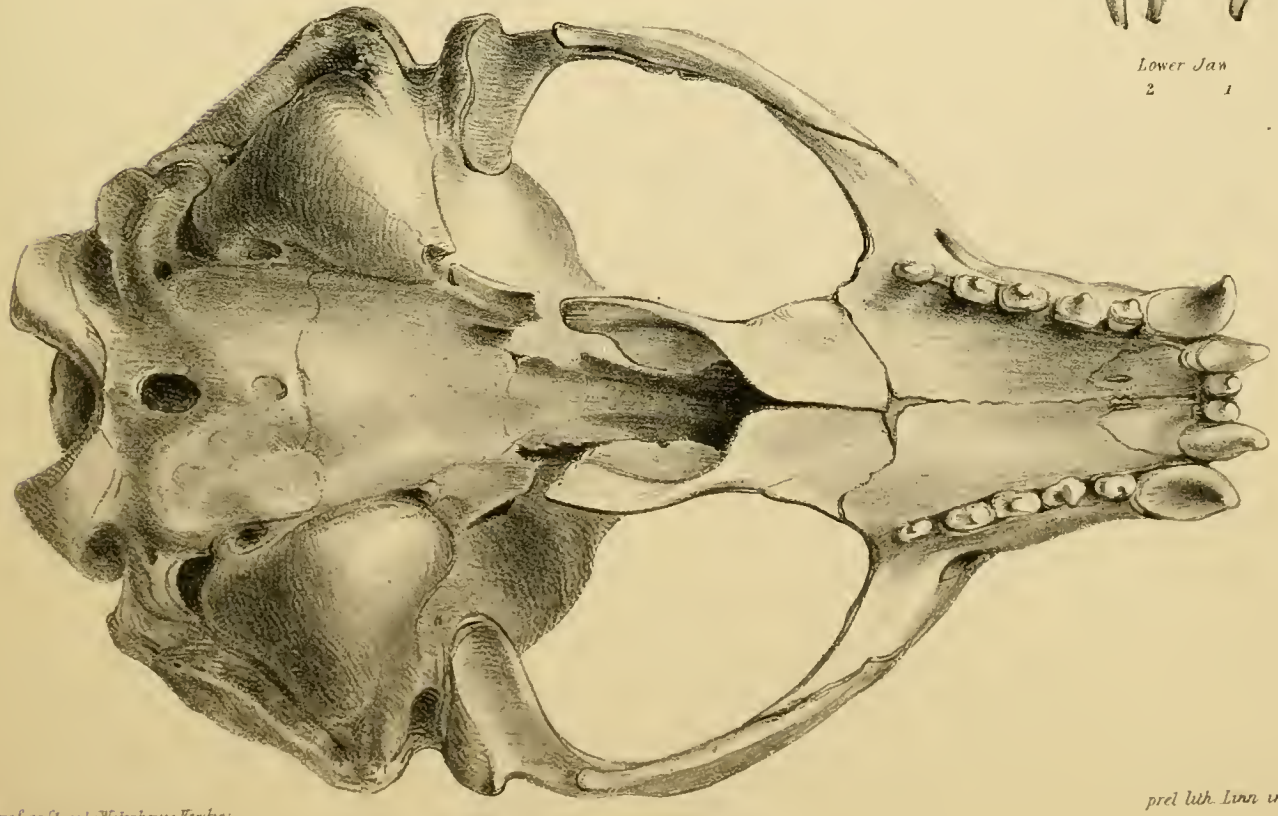
FALSE SEA-LEOPARD

Leptonyx Weddelli

Day & Haghe Lith^rs to the Queen



Lower Jaw
2 1

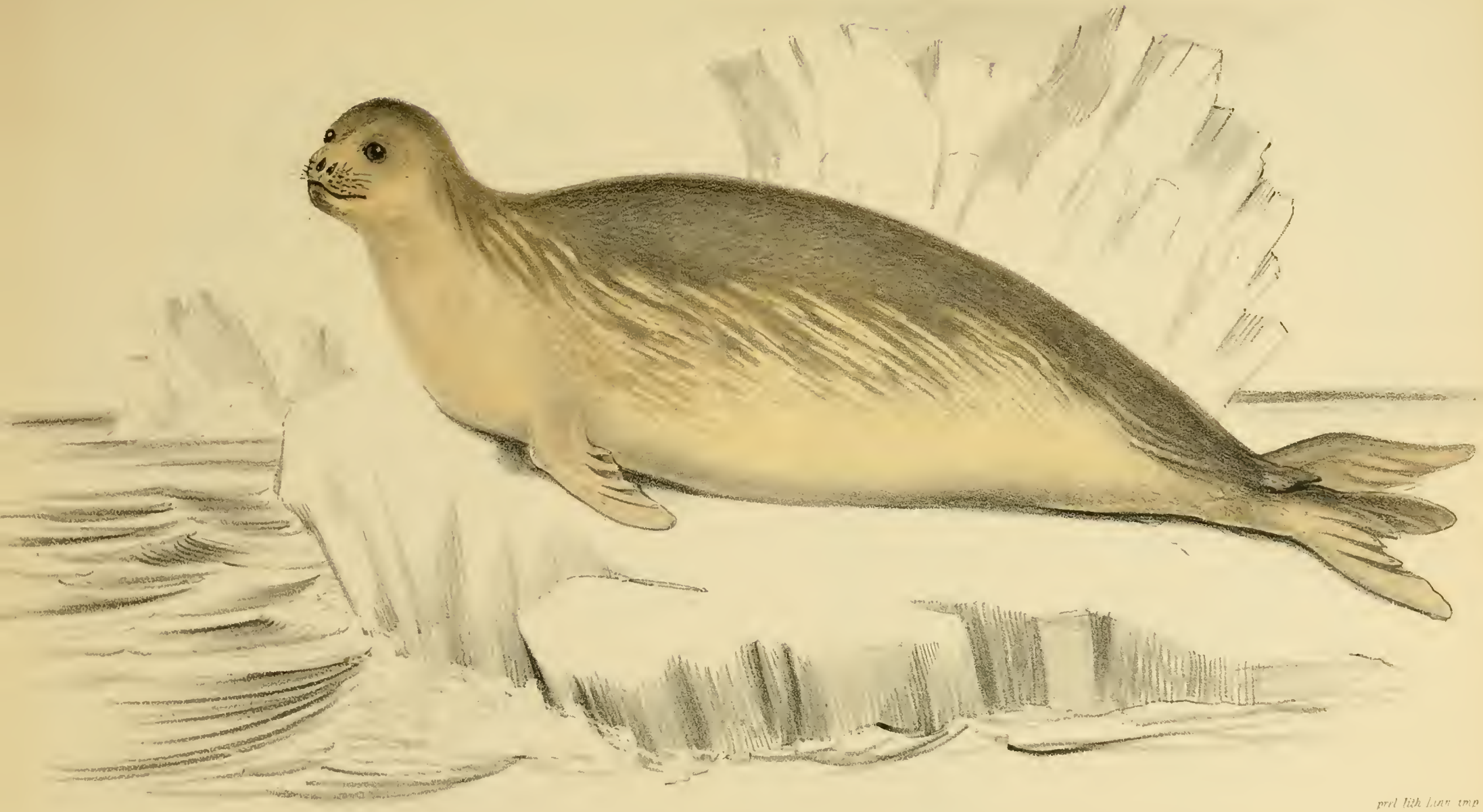


Drawn from Nature & on Stone by Waterhouse Hawkins

prel. lith. Linn. imp.

FALSE SEA LEOPARD
Leptonyx Weddellii.

Day & Haghe Lith.rs to the Queen.



pred lith Lane imp

Drawn from Nature & on Stone by Waterhouse Hawkins

ROSS'S LARGE EYED SEAL

Ommatophoca Rossii

Day & Haghe, lith.rs to the Queen

Drawn from Nature & on Stone by Waterhouse Hawkins

prel. lith. Linn. imp.

ROSS'S SEAL.
Omatophoca Rossii.

SEA ELEPHANT (Female.)
Morunca Leonina.

Drawn from Nature and on Stone by Waterhouse Hawkins

prel. lith. Linn. imp.

Drawn from Nature and on Stone by Waterhouse Hawkins

SEA ELEPHANT (Female.)
Morunga Elephantina

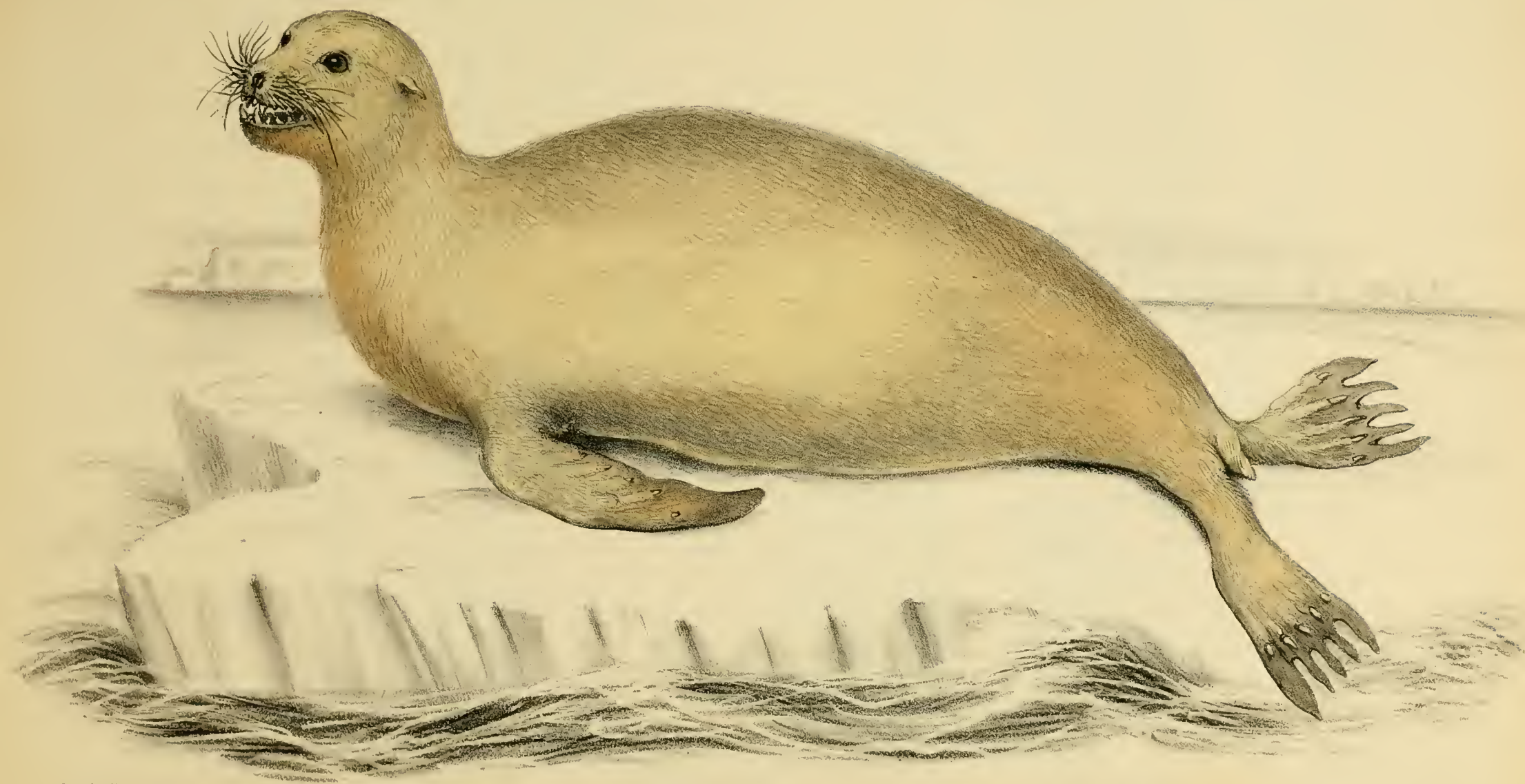
prel. Wh. Linn. soc.

prel. lith. Linn. imp.

SEA ELEPHANT.

Morunga Elephantina.

Female.



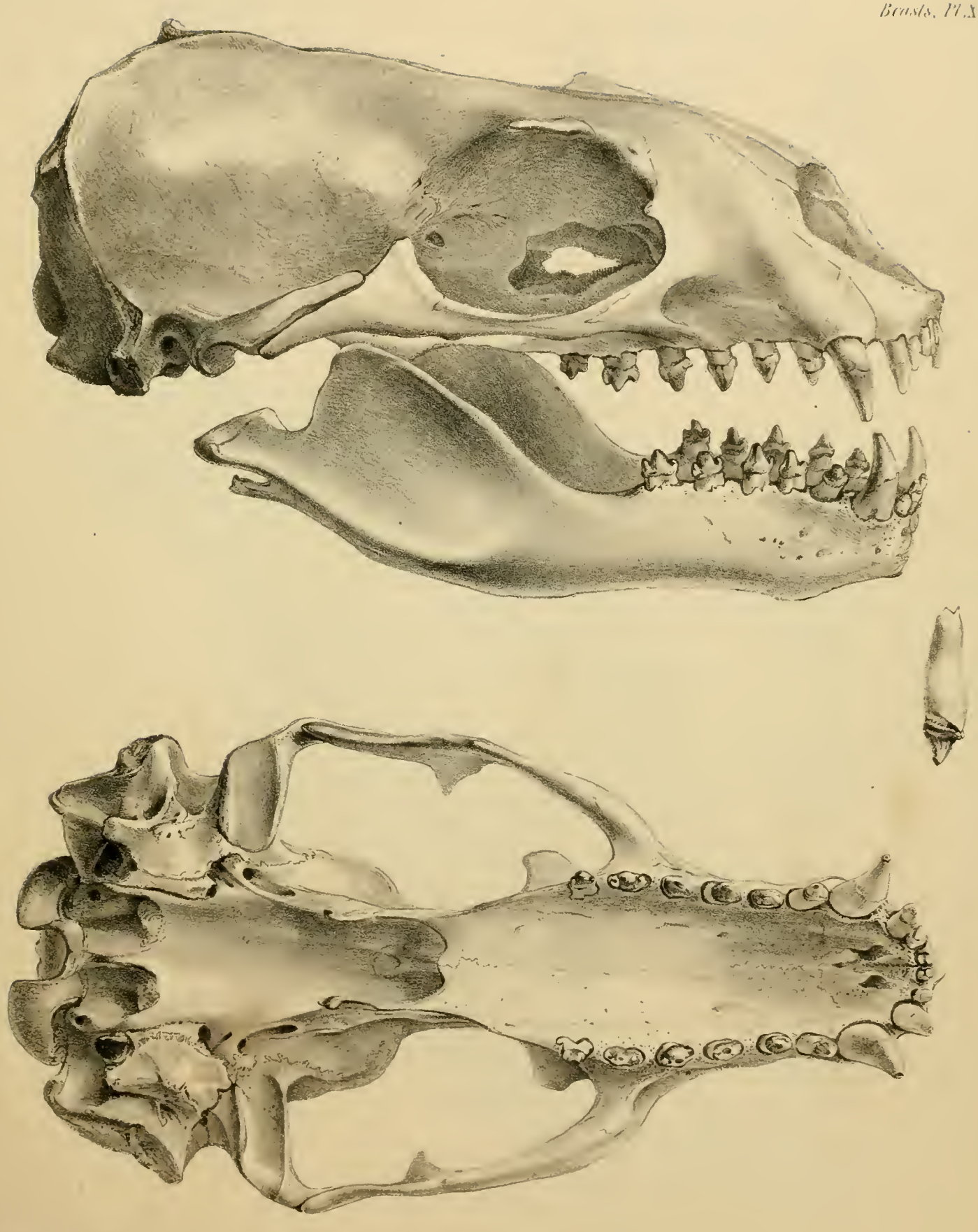
Drawn from Nature, and on Stone by Waterhouse Hawkins

pref lith Linn imp

HOOKER'S SEA BEAR.

Arctocephalus Hookeri.

Day & Haghe lith. to the Queen



Drawn from Nature & on Stone by B. Waterhouse Hawkins

HOOKERS SEA BEAR.

Arctocephalus Hookeri.

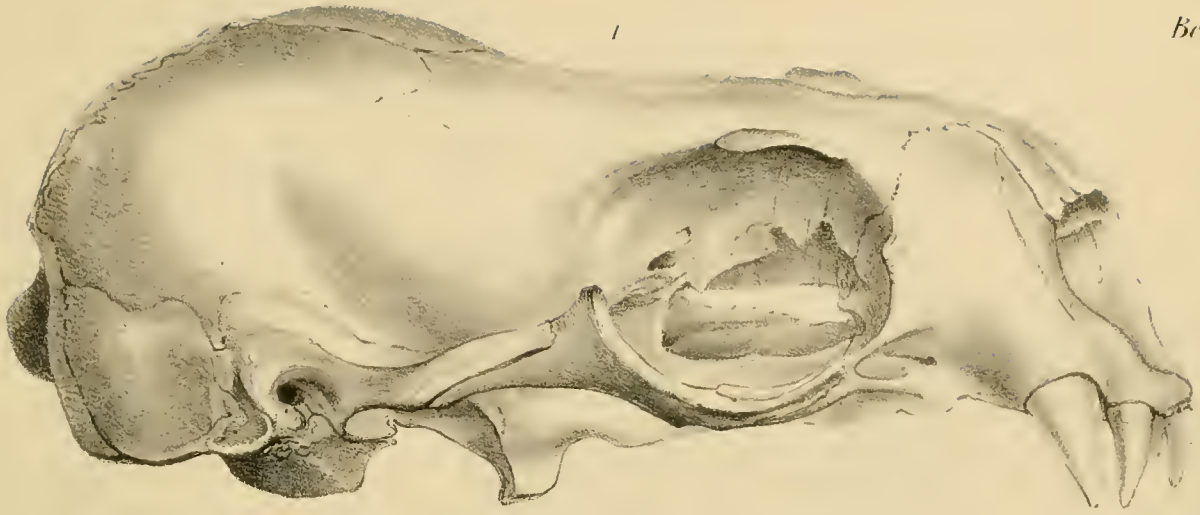
Day & Haghe lith.rs to the Queen

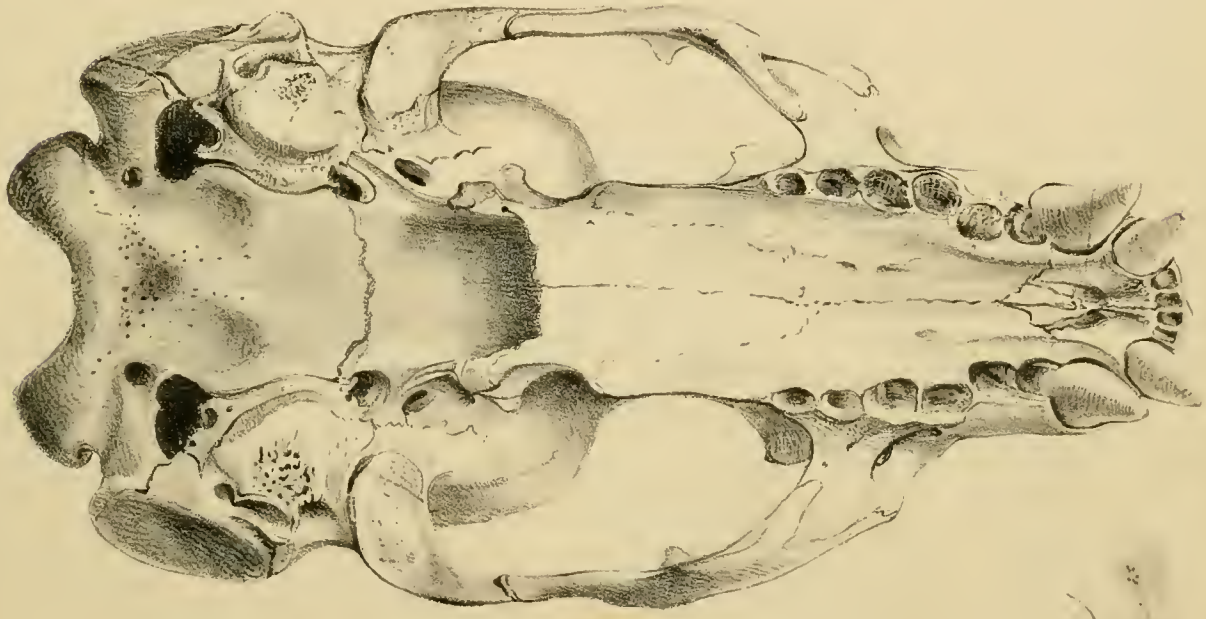
Drawn from Nature and on Stone by Waterhouse Hawkins

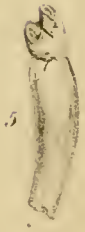
Print lith. Lowe imp.

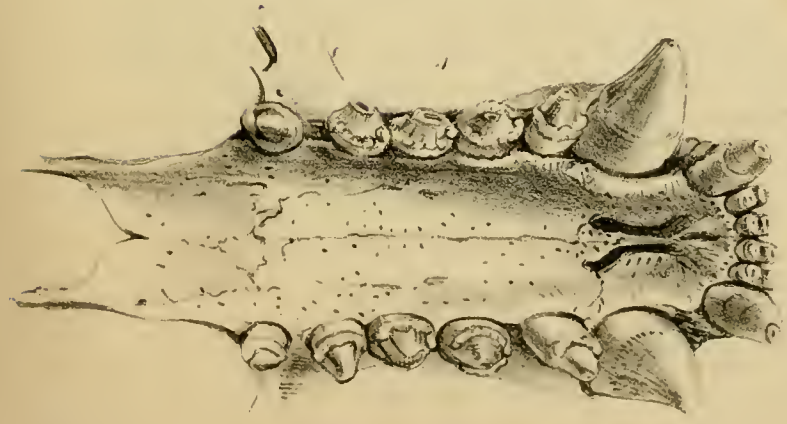
AUSTRALIAN SEA BEAR

Arctocephalus lobatus.









Drawn from Nature & on Stone by Waterhouse Hawkins

1. 2. OTARIA JUBATA, Young. — 3. 5 ARCTOCEPHALUS LOBATUS.

Published with Permission of the Queen

RED BELLIED MARMOSET.

Jacchus rufiventer.

1 SCOTOPHILUS GOULDII 2 SCOTOPHILUS MELANOPUS

from Nature and ... Hollingsworth Hamilton

pub by ... map

SCOTOPHILUS PUMILUS ... SCOTOPHILUS GRAYII

Printed by J Waterhouse Lith

J&E Lith London

1 NYCTOPHILUS GEOFFROYII 2 NYCTOPHILUS MAJOR

1 MYSTACINA TUBERCULATA 2 MOLOSSUS NORFOLCENSIS.

Drawn from Nature and on Stone by J. Wolf & Joseph Dawkins

Drawn from Nature and on Stone by F. Waterhouse Hawkins.

Printed by Reeve Brothers.

MUS [illegible] ALBIPES. [illegible] LEPUS [illegible] APICALIS.

Drawn on Stone by E. Warren, from [illegible]

Printed by Reeve Brothers

1. PALLETS ALBIPES & 2. PALLETS RICHARDSONII

From Nature and on Stone by E Waterhouse Hawkins

Printed by Reeve, Brooks

HAPALOTIS LONGICAUDATA & HAPALOTIS MELANURA

W Wing del et lith

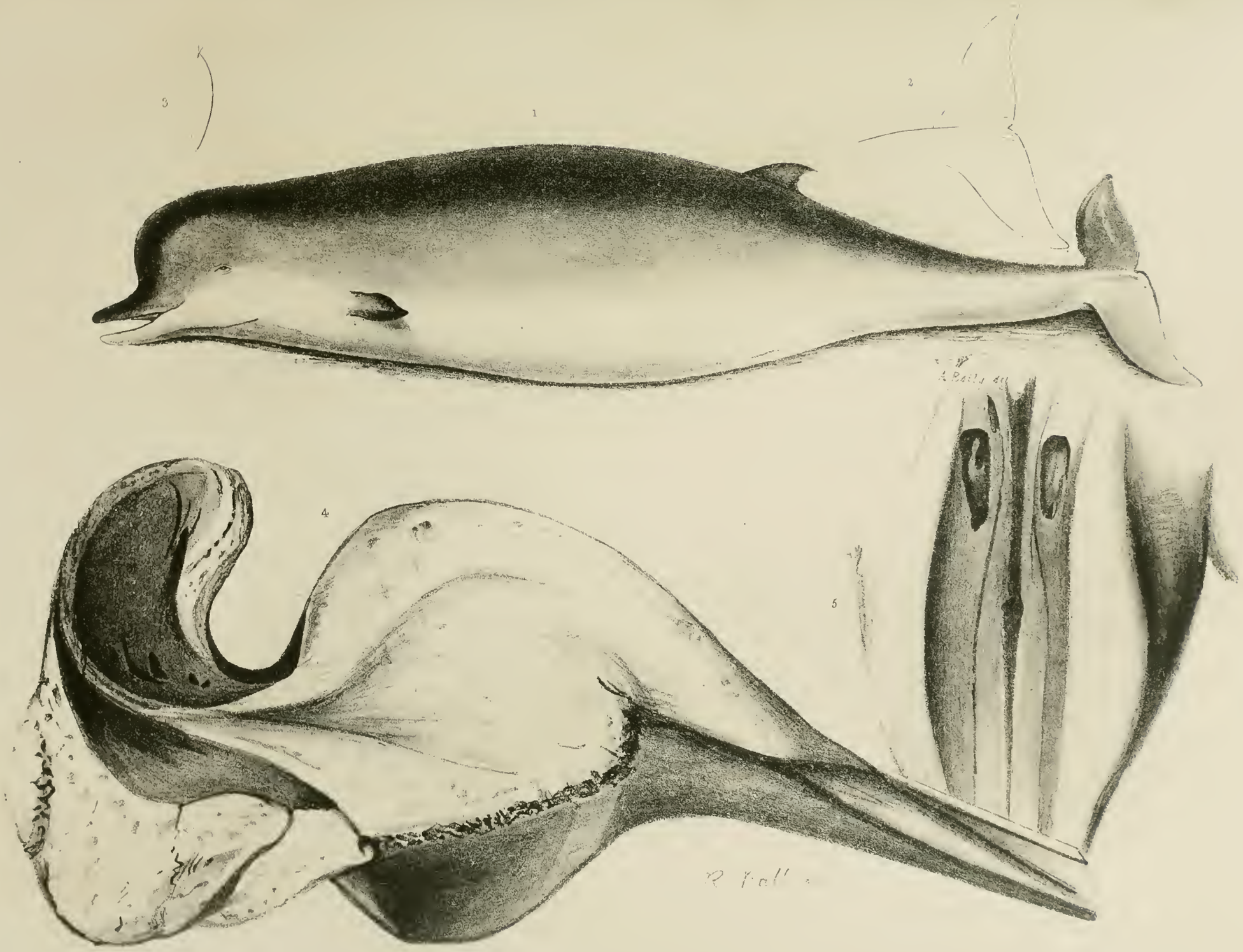
1 BALÆNA MARGINATA
2 JAPONICA ? N W C.
3 CAPENSIS
4 BALÆNA MYSTICETUS
5 BALÆNOPTERA MINOR
6 ANTIQUORUM

Hullmandel & Walton Lithographers

1/6

1/6

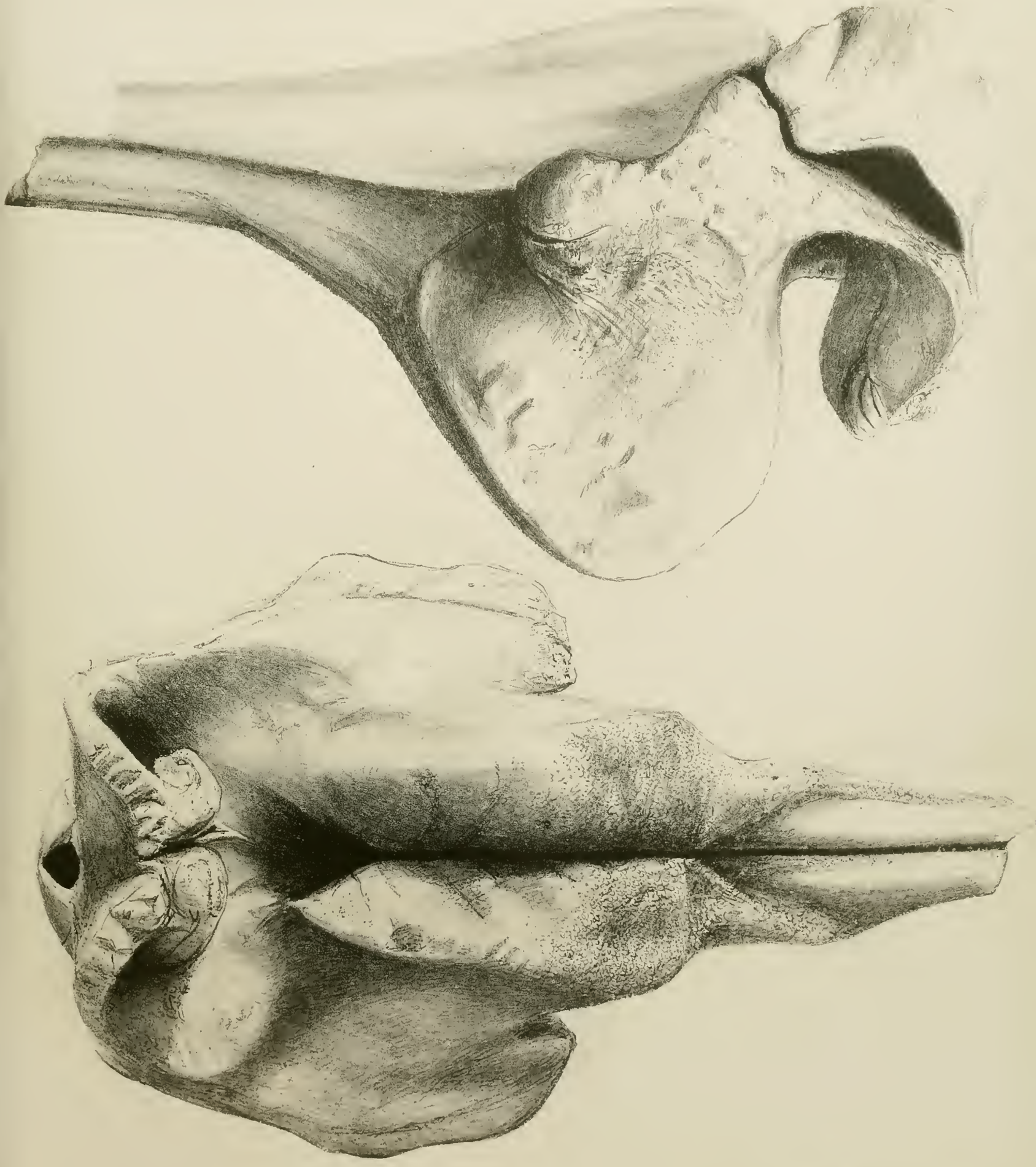
Hullmandel & Walton Lithographers



T. Wing lith

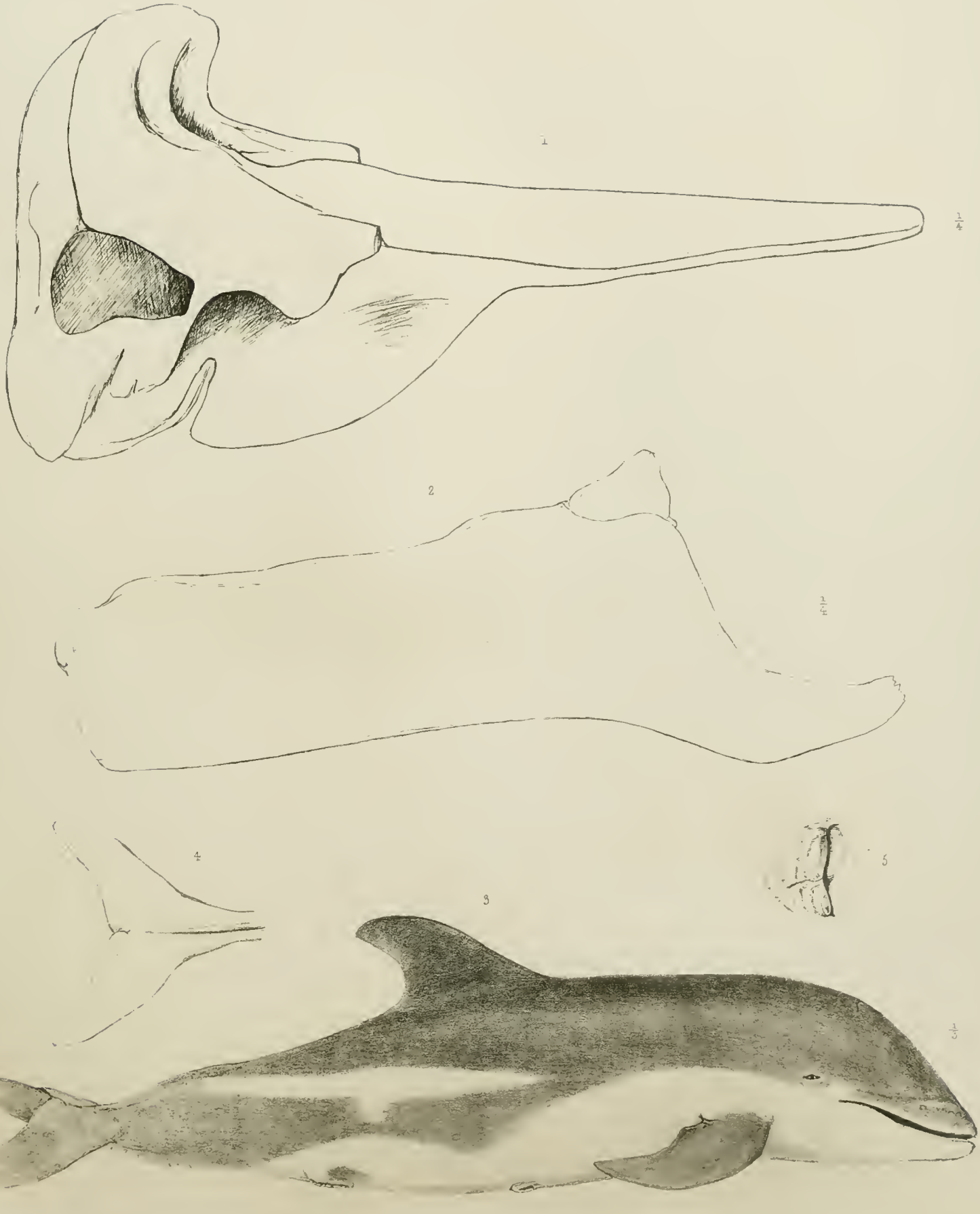
Hullmandel & Walton Lithographers

HYPEROODON ROSTRATUM



W. Walton, Lithographer.

1 2. DELPHINUS CANADENSIS. 3 4. ZIPHIUS SOWERBIENSIS.



Dinsandel & Walton Lithographers

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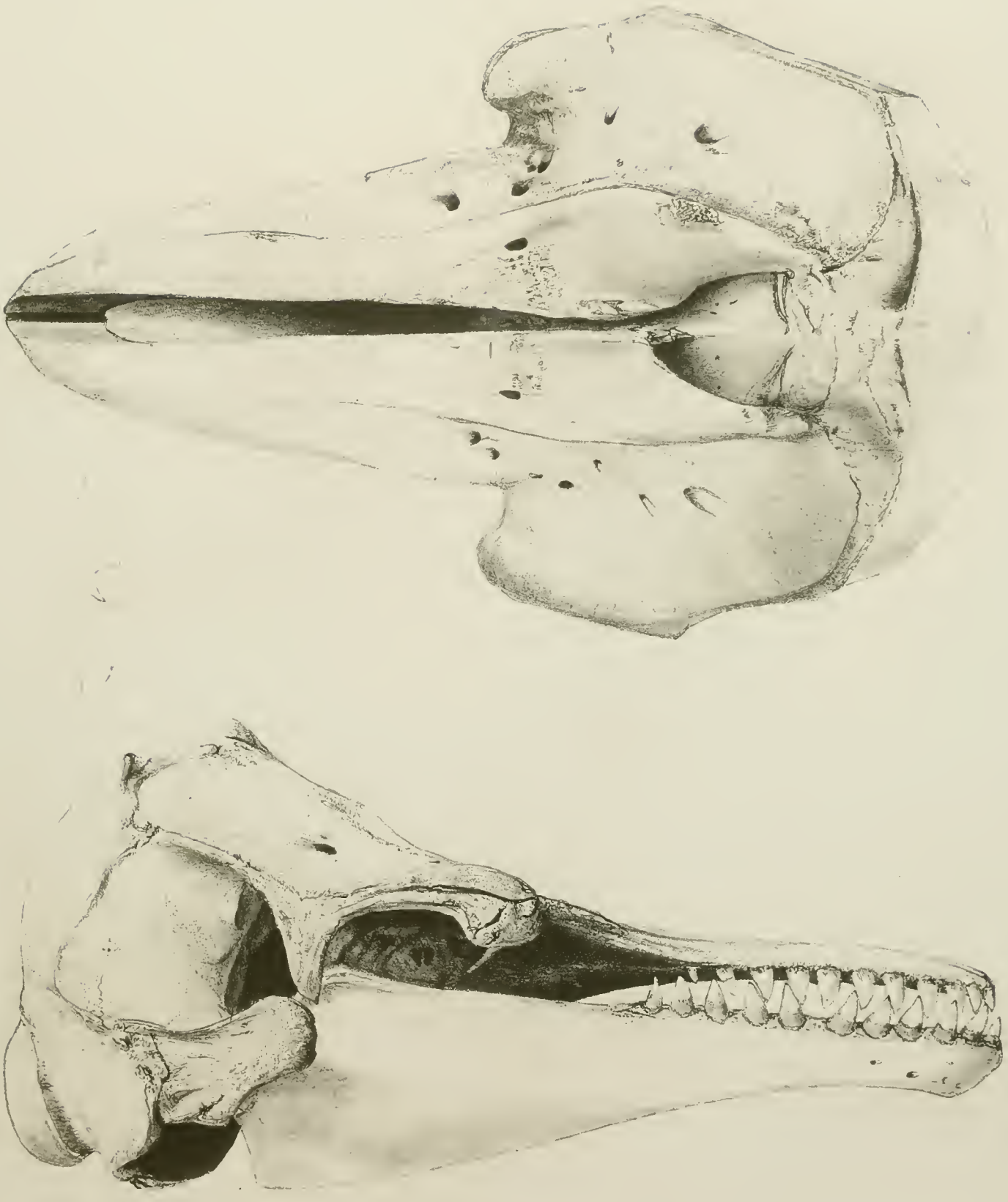
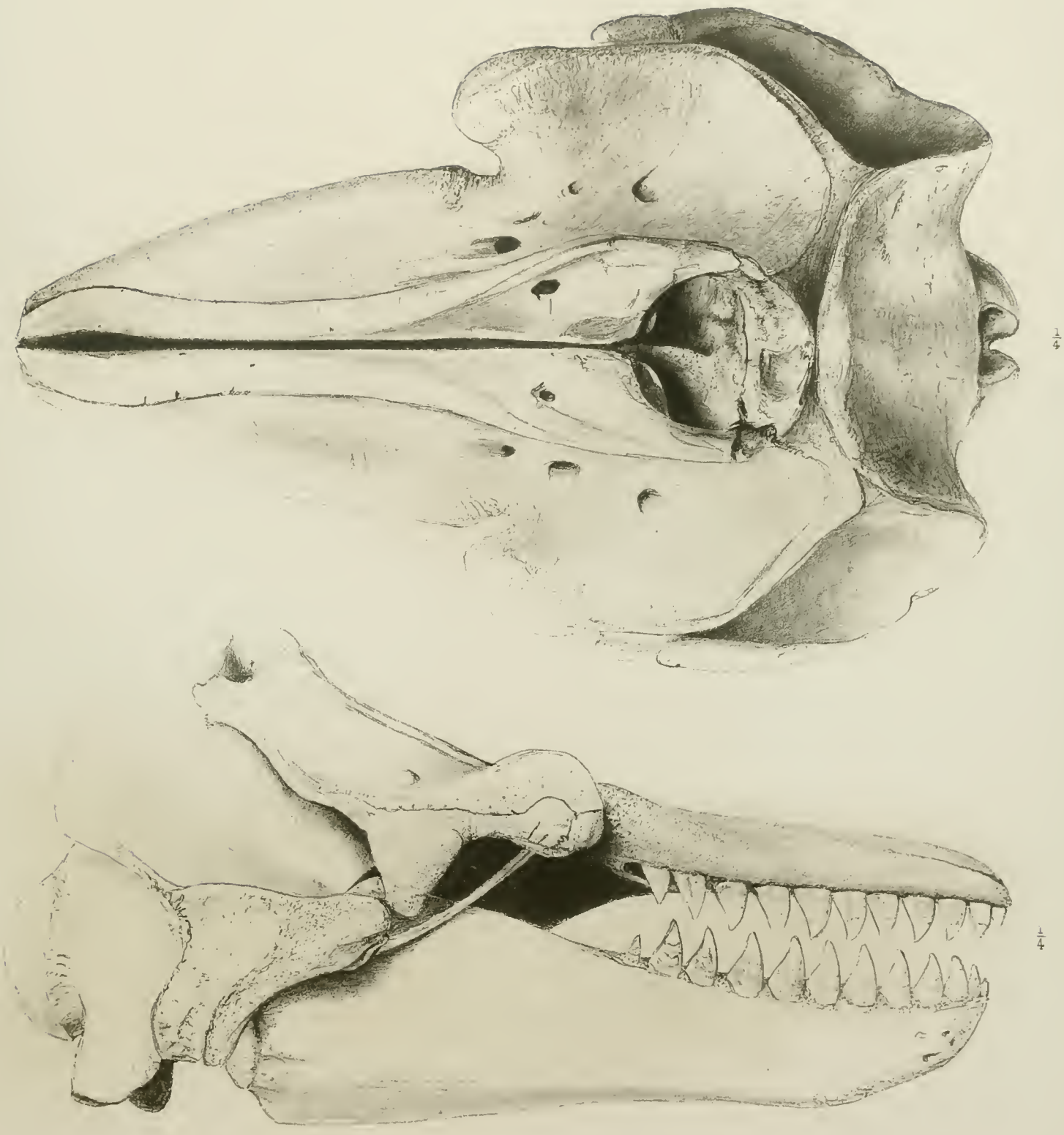


W. Wing del et lith.

ORCA INTERMEDIA



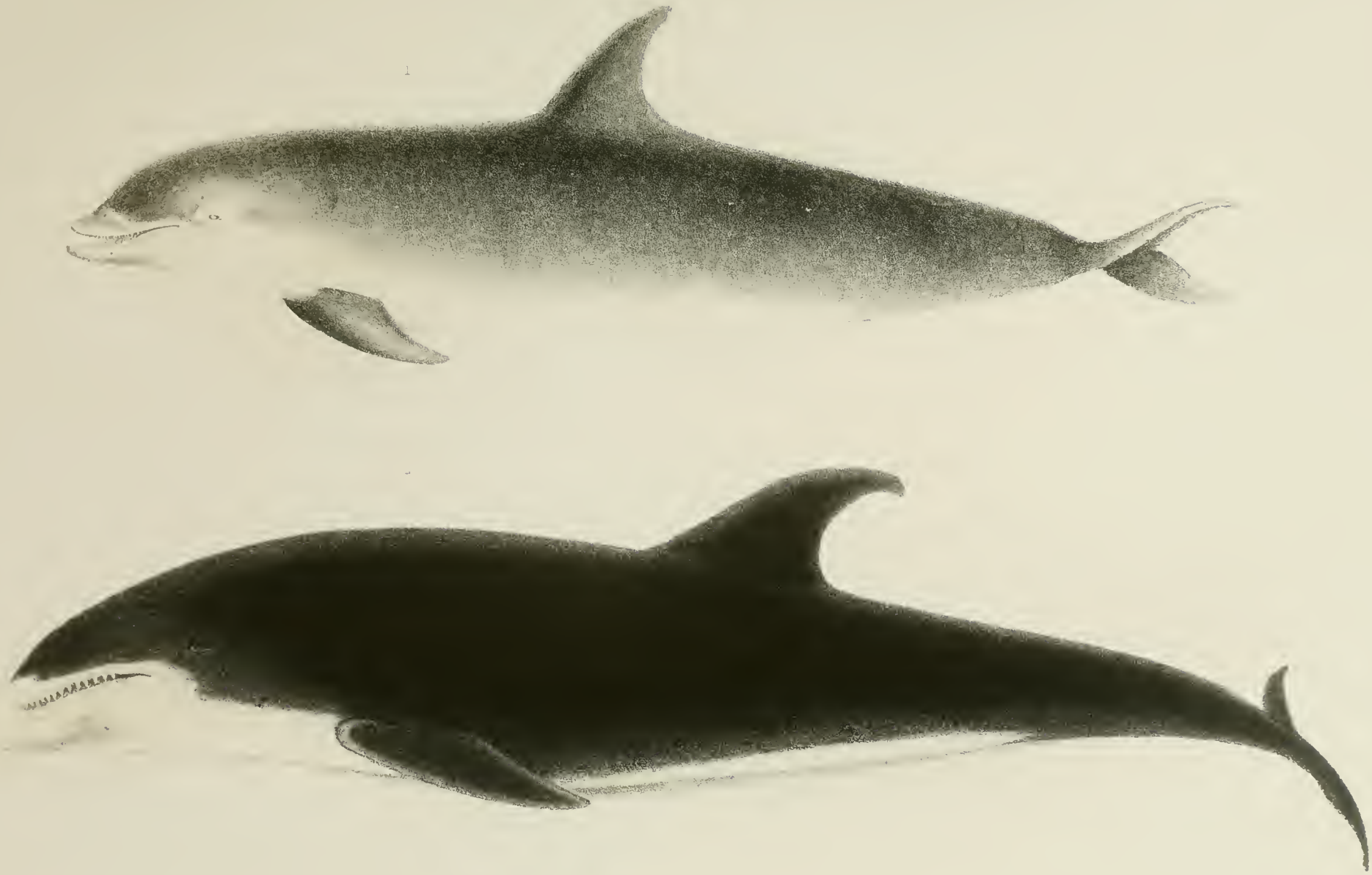
¼

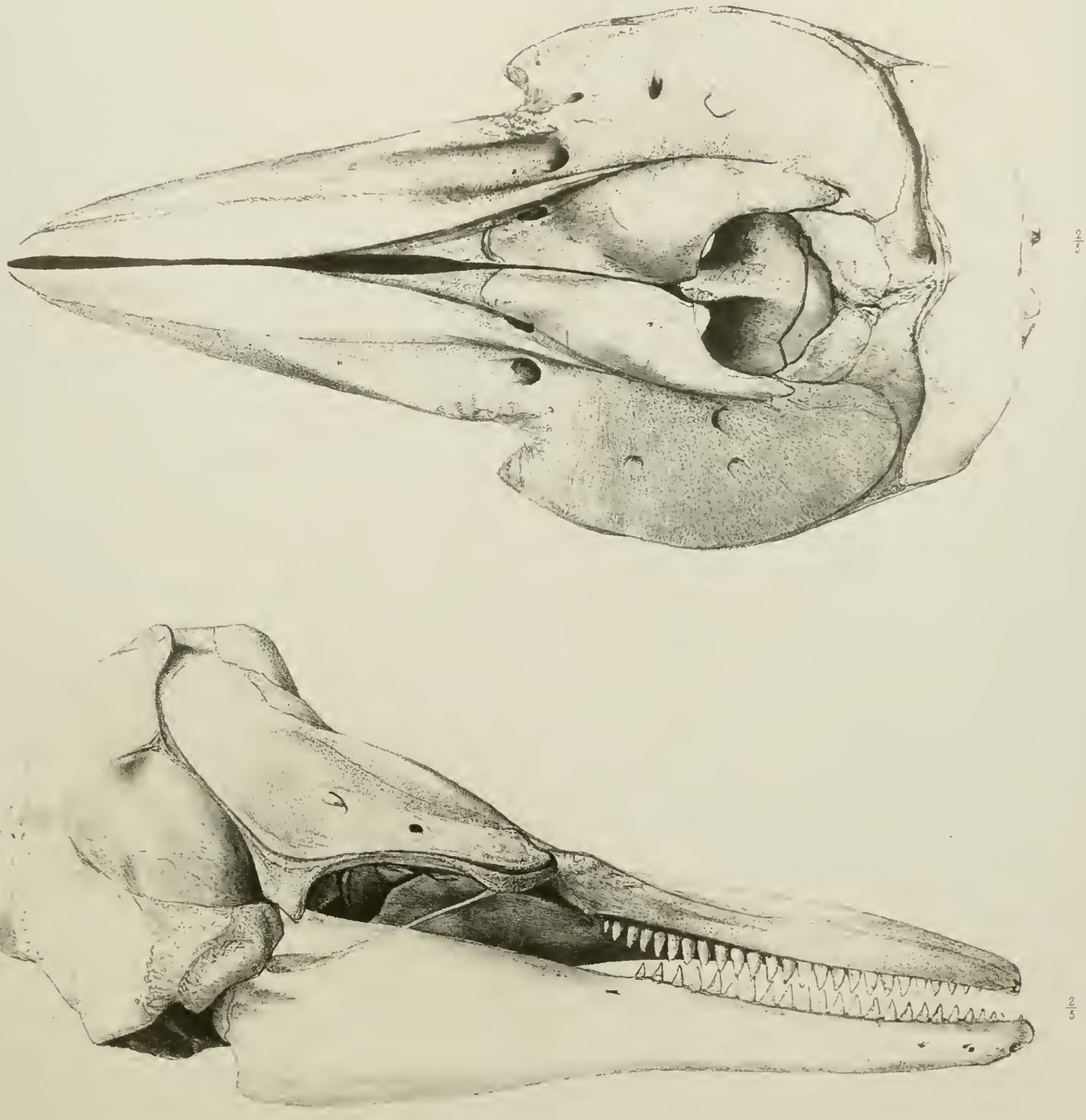
¼

W. Mac le r.

F. Bessin & Yeager Lithog. Phila.

ORCA GLADIOLUS

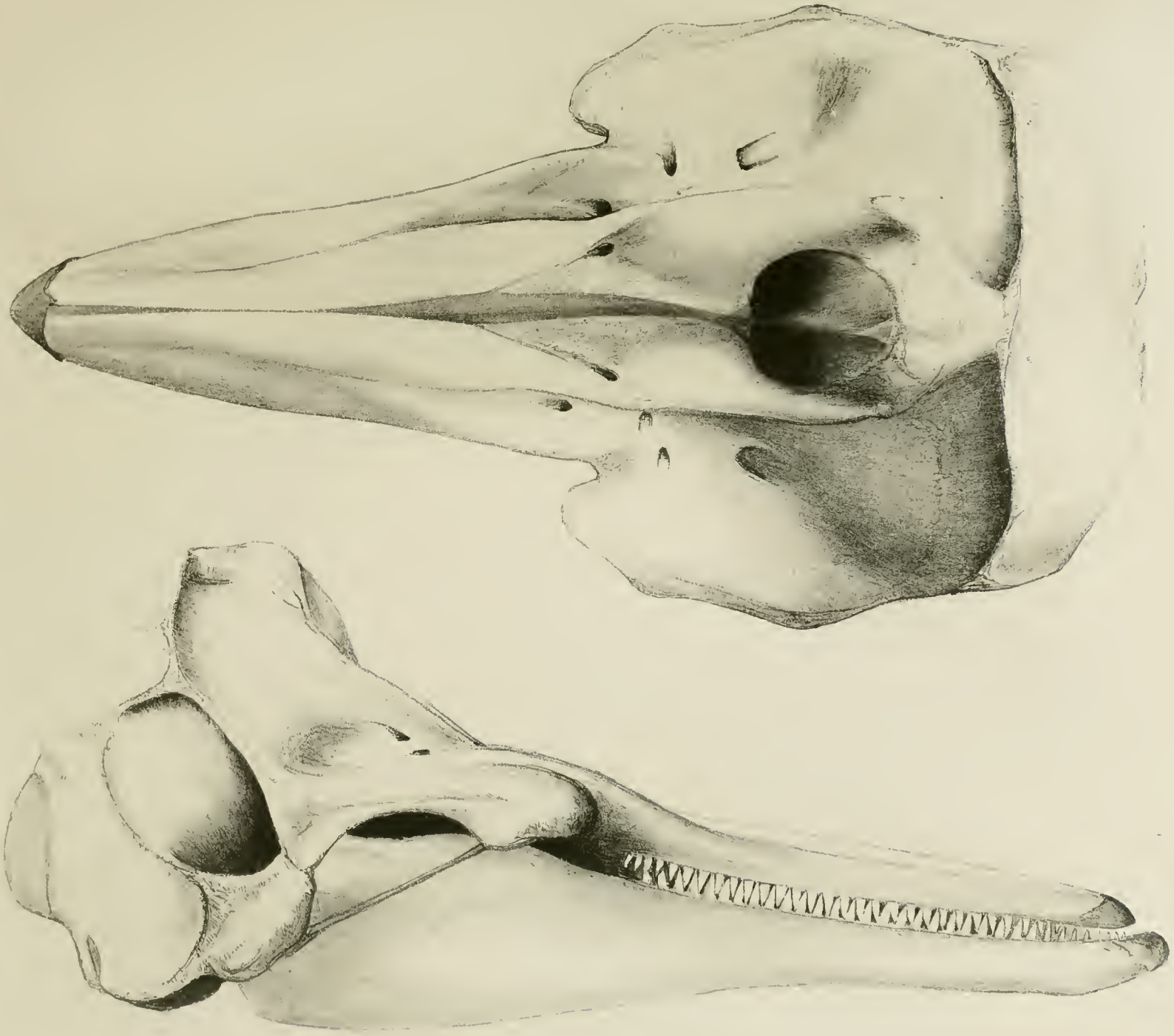




W. Wagner del. et lith

Ballmandel & Walton Lithographers

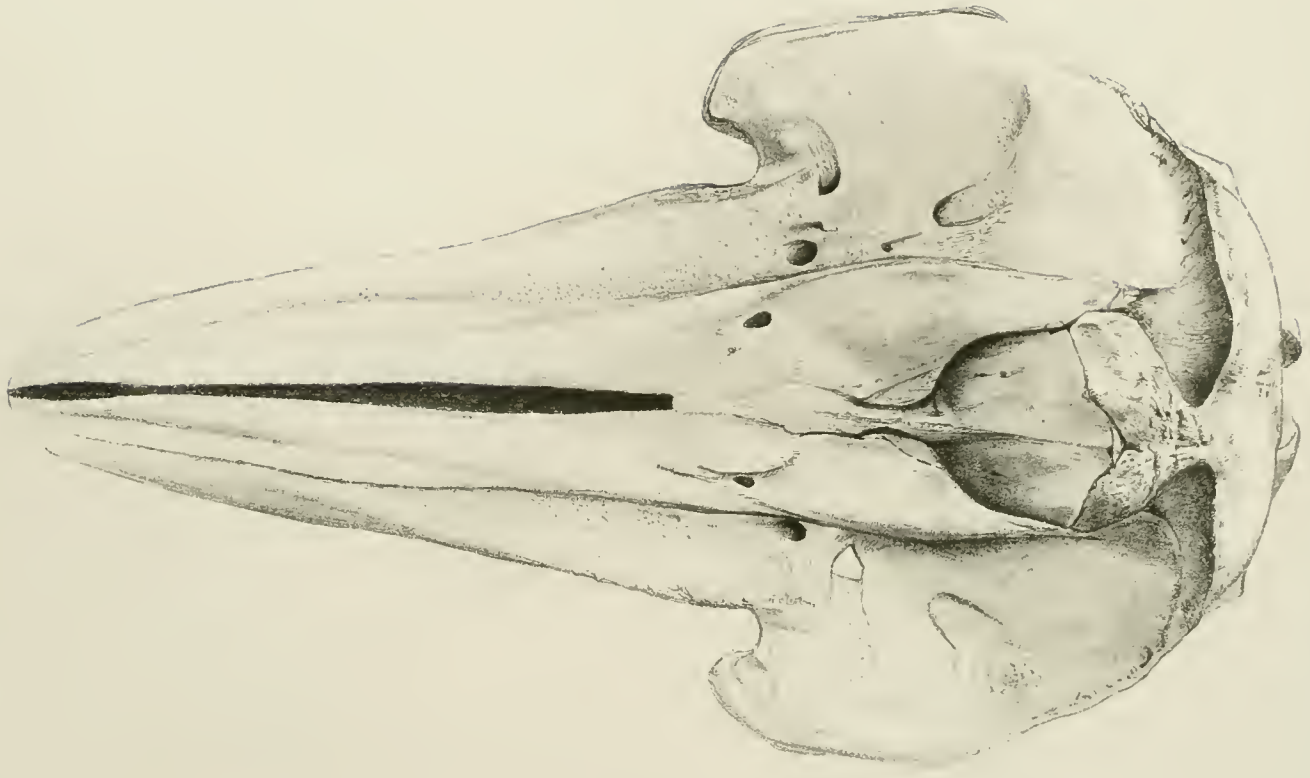
WHITE LIPPED BOTTLE NOSE LAGENORHYNCHUS ALBIROSTRIS

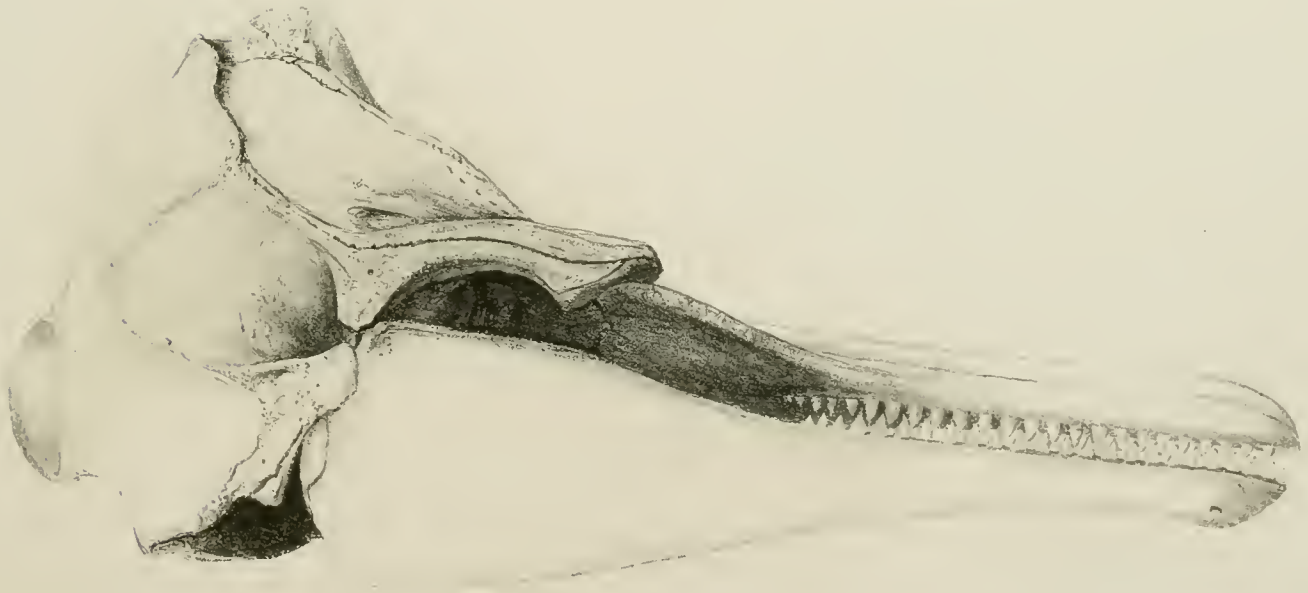


W. Wing, del. et lith.

Hullmandel & Walton Lithographers

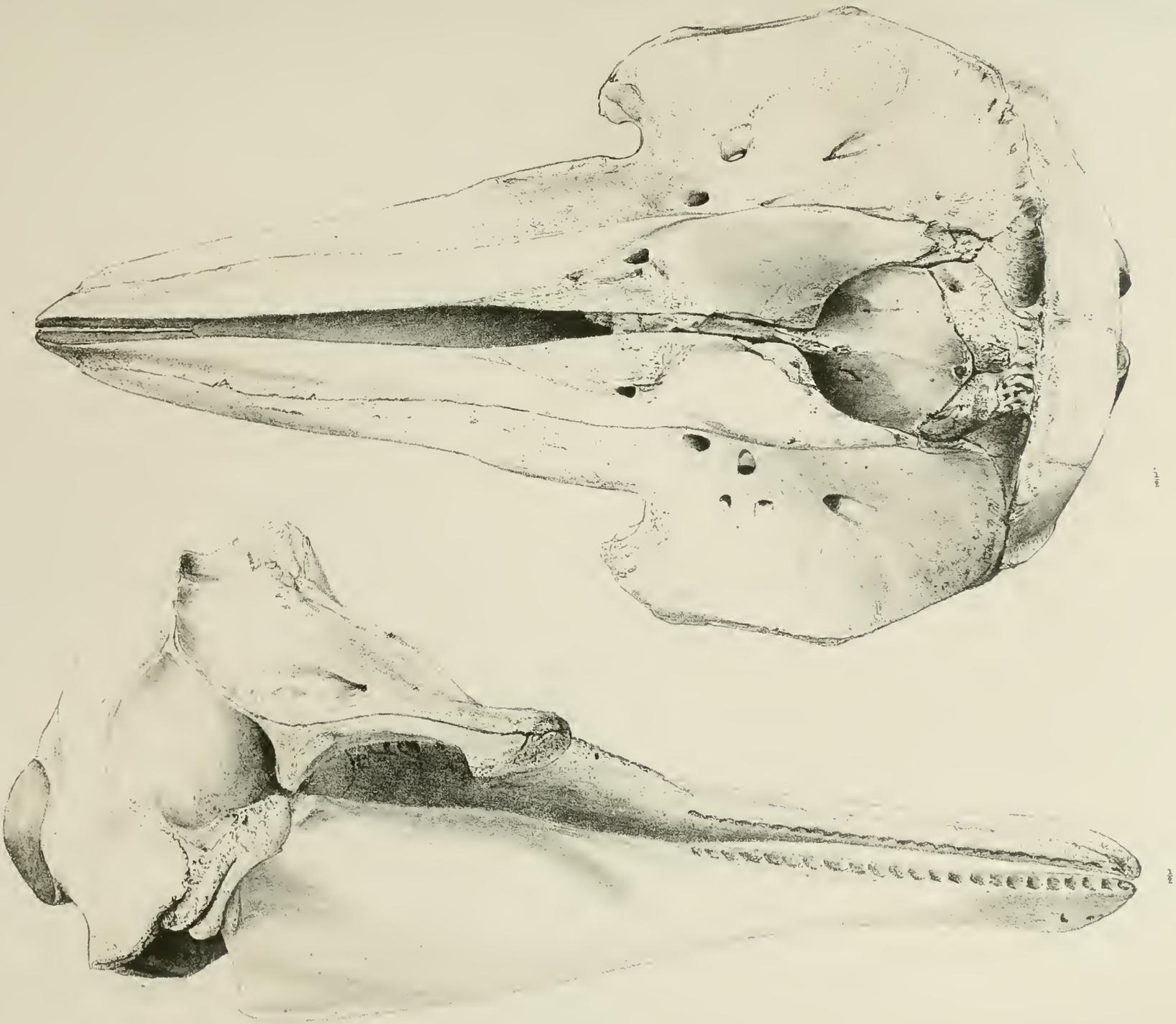
LAGENORHYNCHUS LEUCOPLEURUS





W Wuttg. del. et lith.

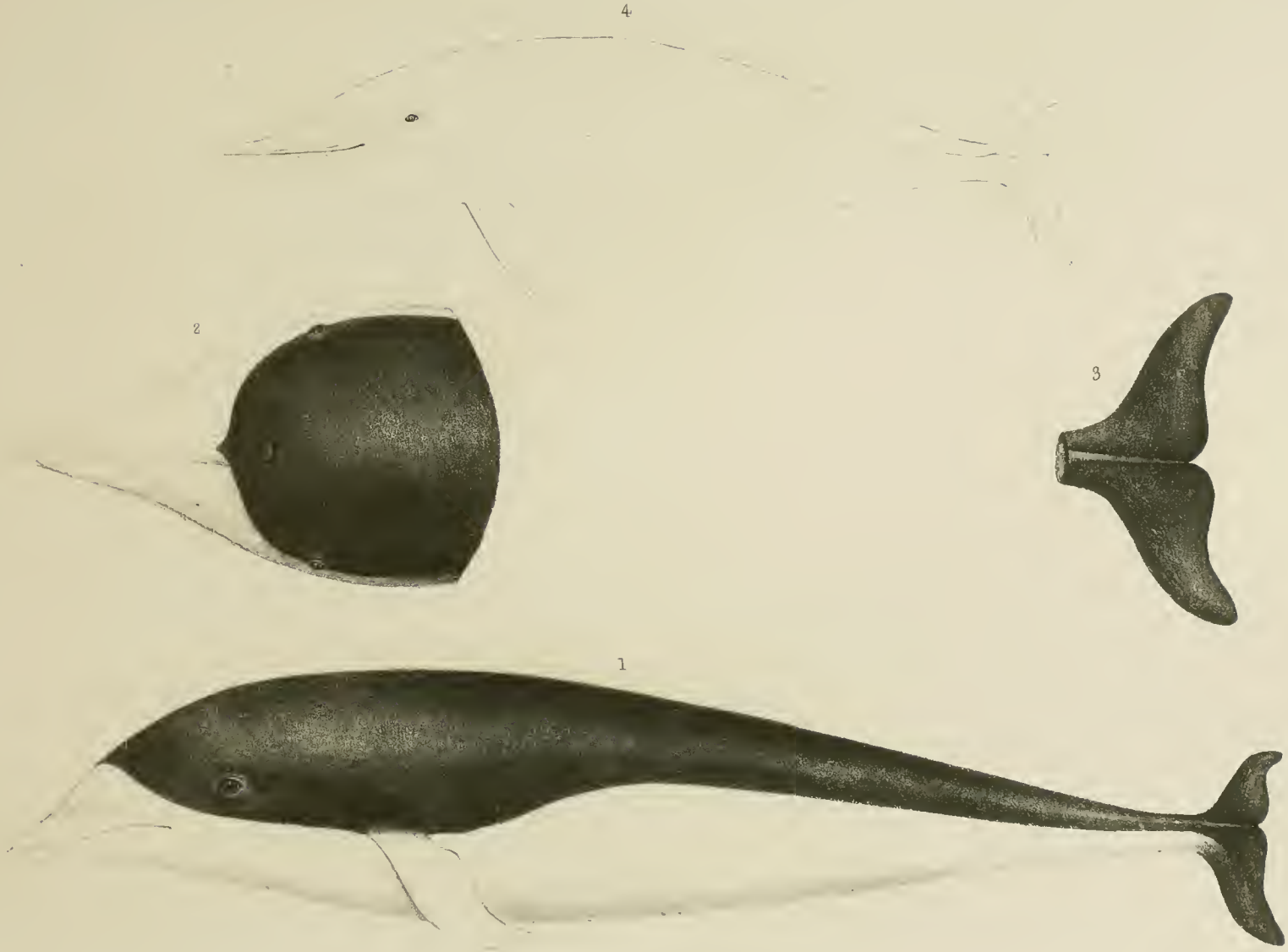
Lemercier del. & Graveur. Lithographie



W Wing del et lith

Hullmandel & Walton Lithographers

LAGENORHYNCHUS ASIA



Hullmandel & Walton. Lithographers

DELPHINAPTERUS PERONII

DELPHINUS OBSCURUS

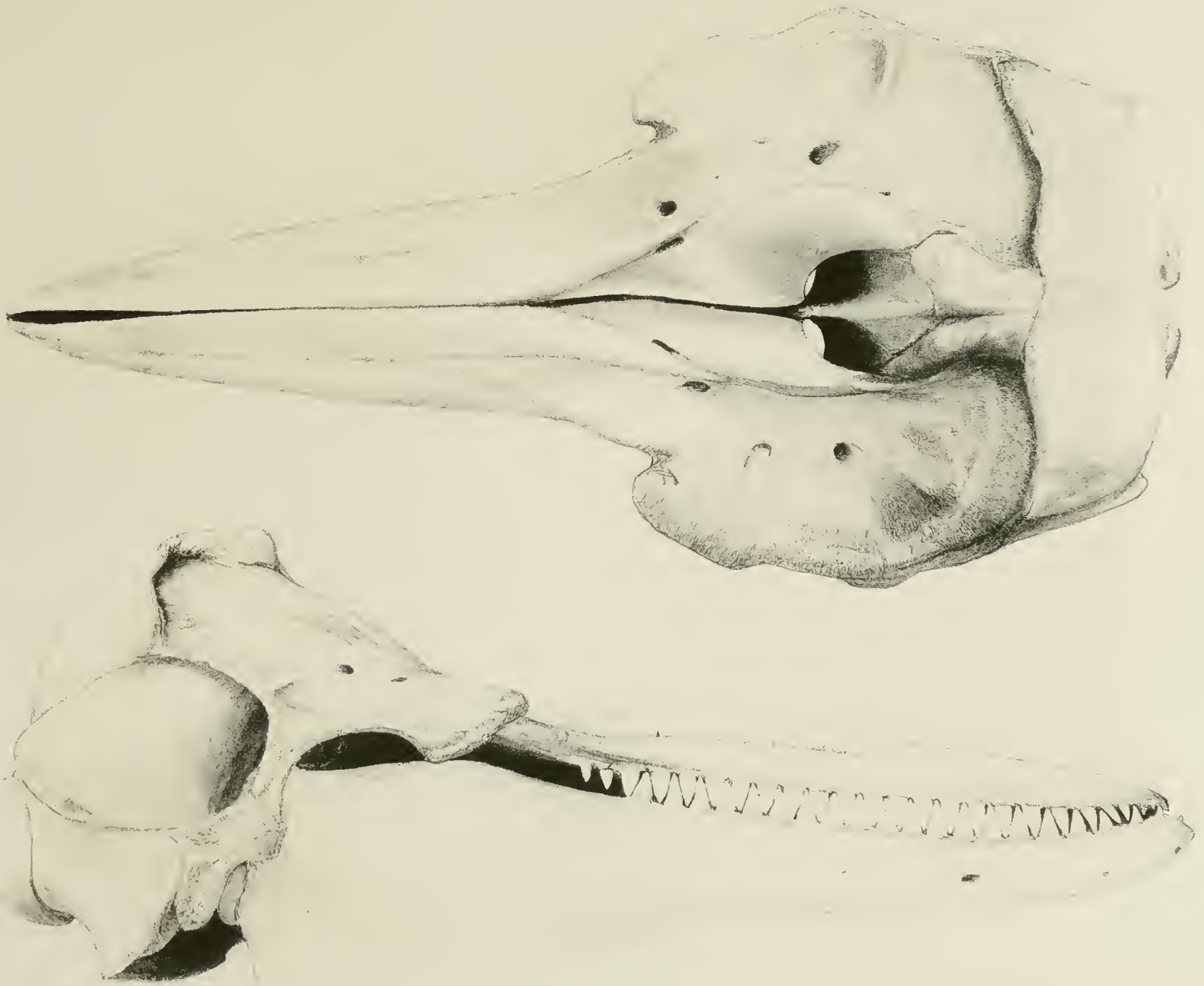
2/5

2/5

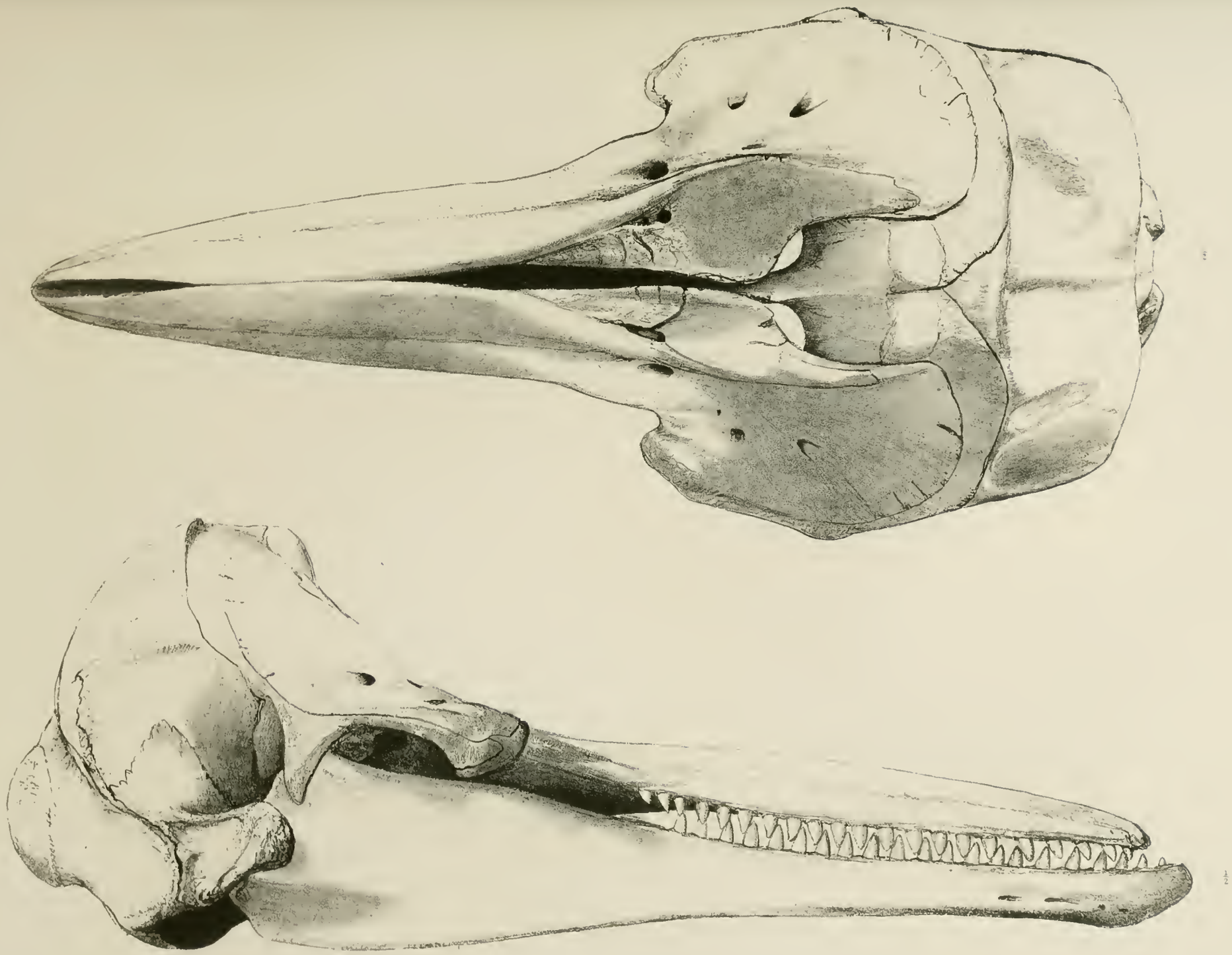
W. Kuhnert del. et lith.

Hullmandel & Walton Imp.

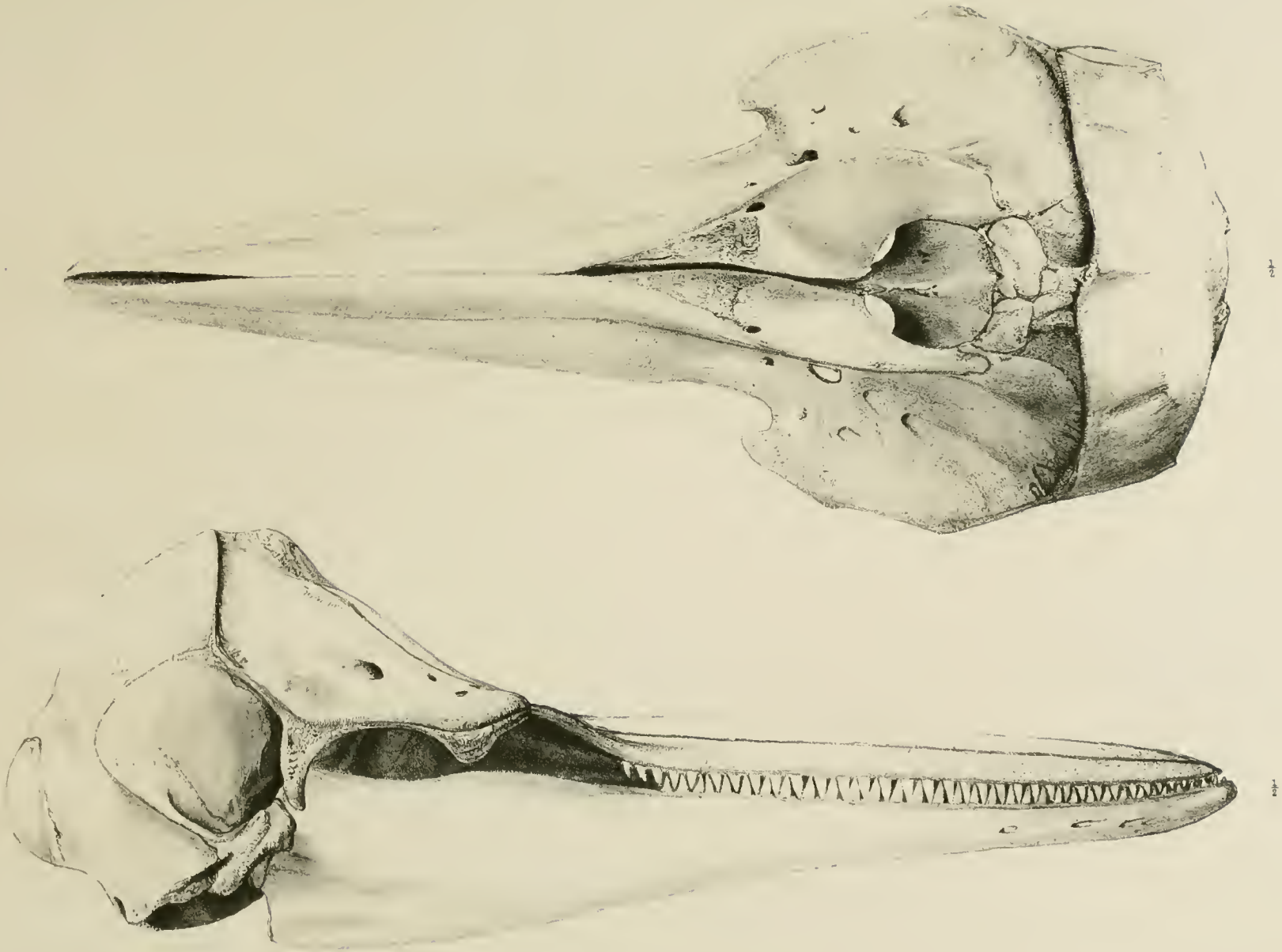
DELPHINUS EURYNOME



DELPHINUS METI



Hullmandel & Walton Lithographers



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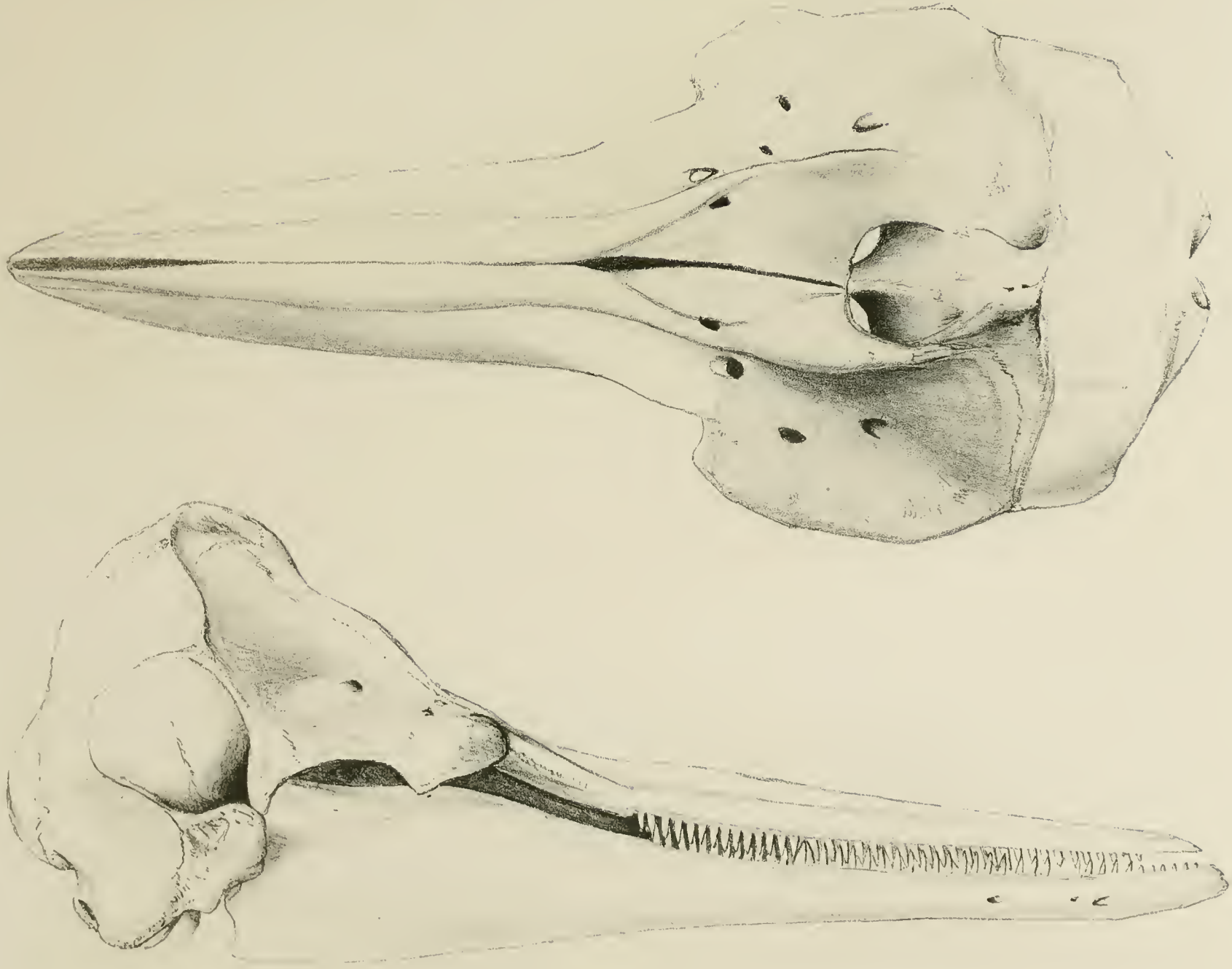
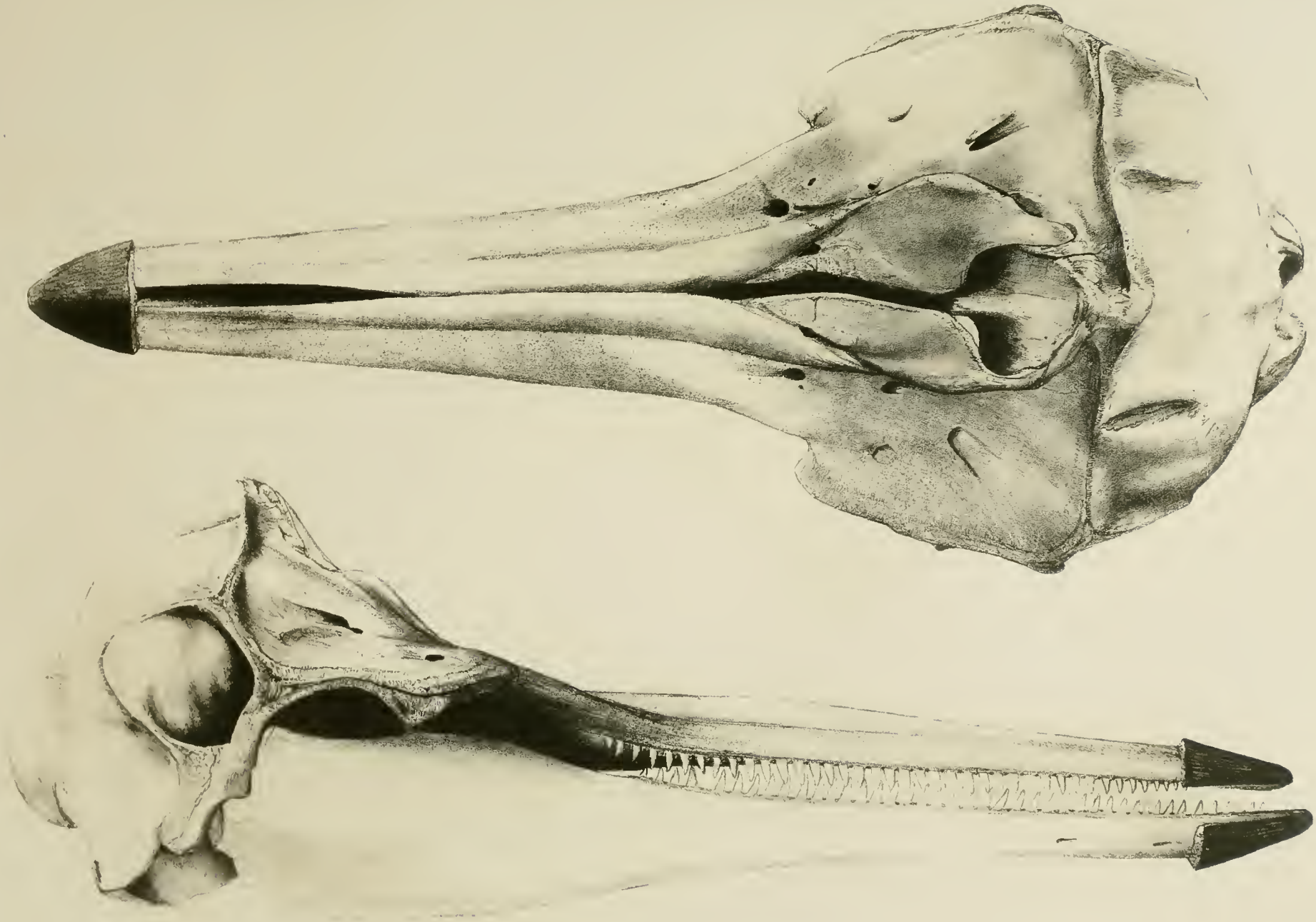
½

Wing del et lith

Hullmandel & Walton Lithographers

DELPHINUS DORIS





N. Wing del. et lith.

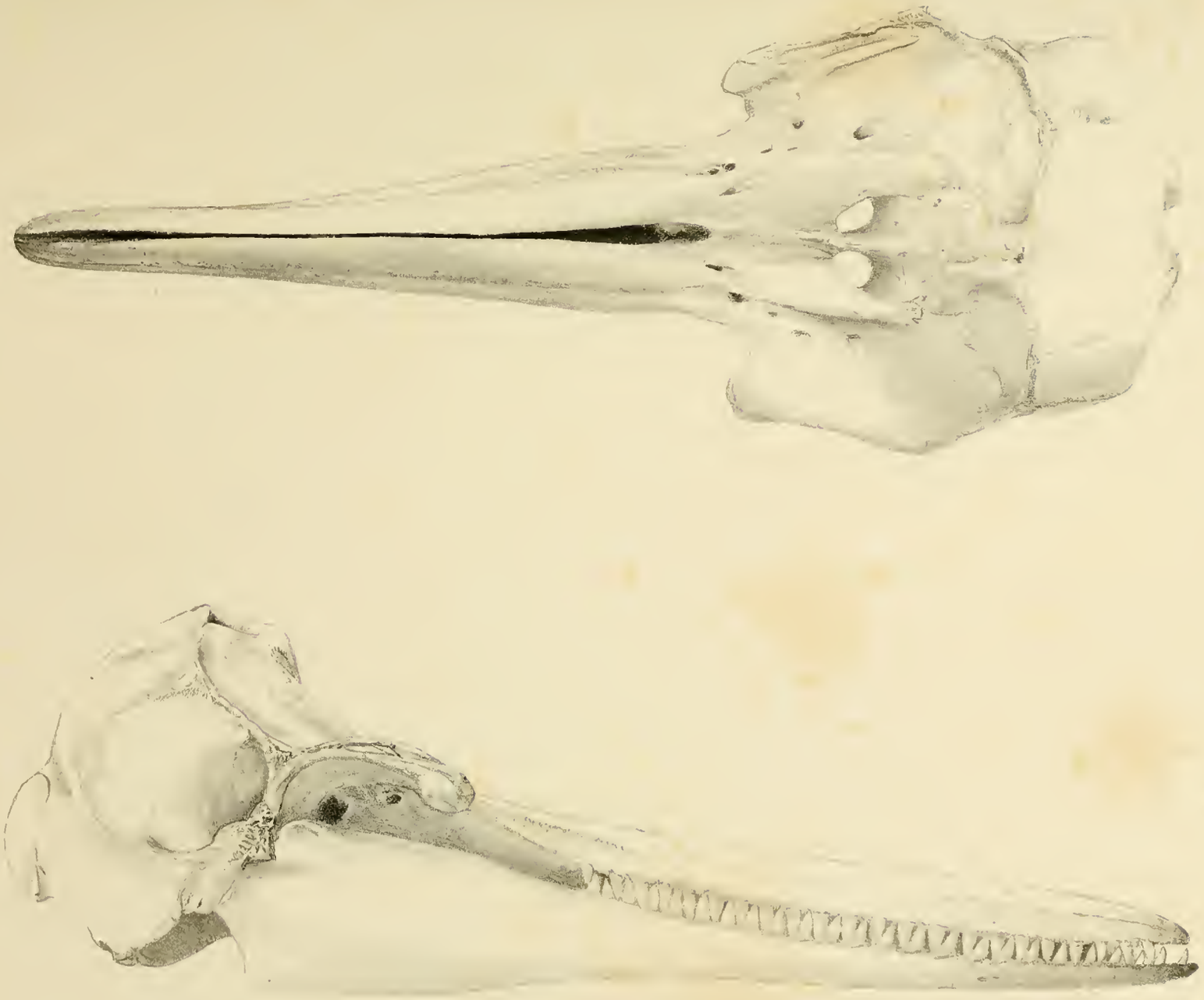
Hullmandel & Walton Lithographers

PHOCAENA EUPHROSYNE

Wing del et lith

Hullmandel & Walton Lithographers

1 STENO FUSCUS Fœtus & Tongue 2 DELPHINUS VULGARIS? Fœtus & Tongue 3 LAGENORHYNCHUS LEUCOPLEURUS Tongue



W. Wing, del. et lith.

Hullmandel & Walton, lithographers.

STENO COMPRESSUS

3/5

3/5

W Wing del et lith

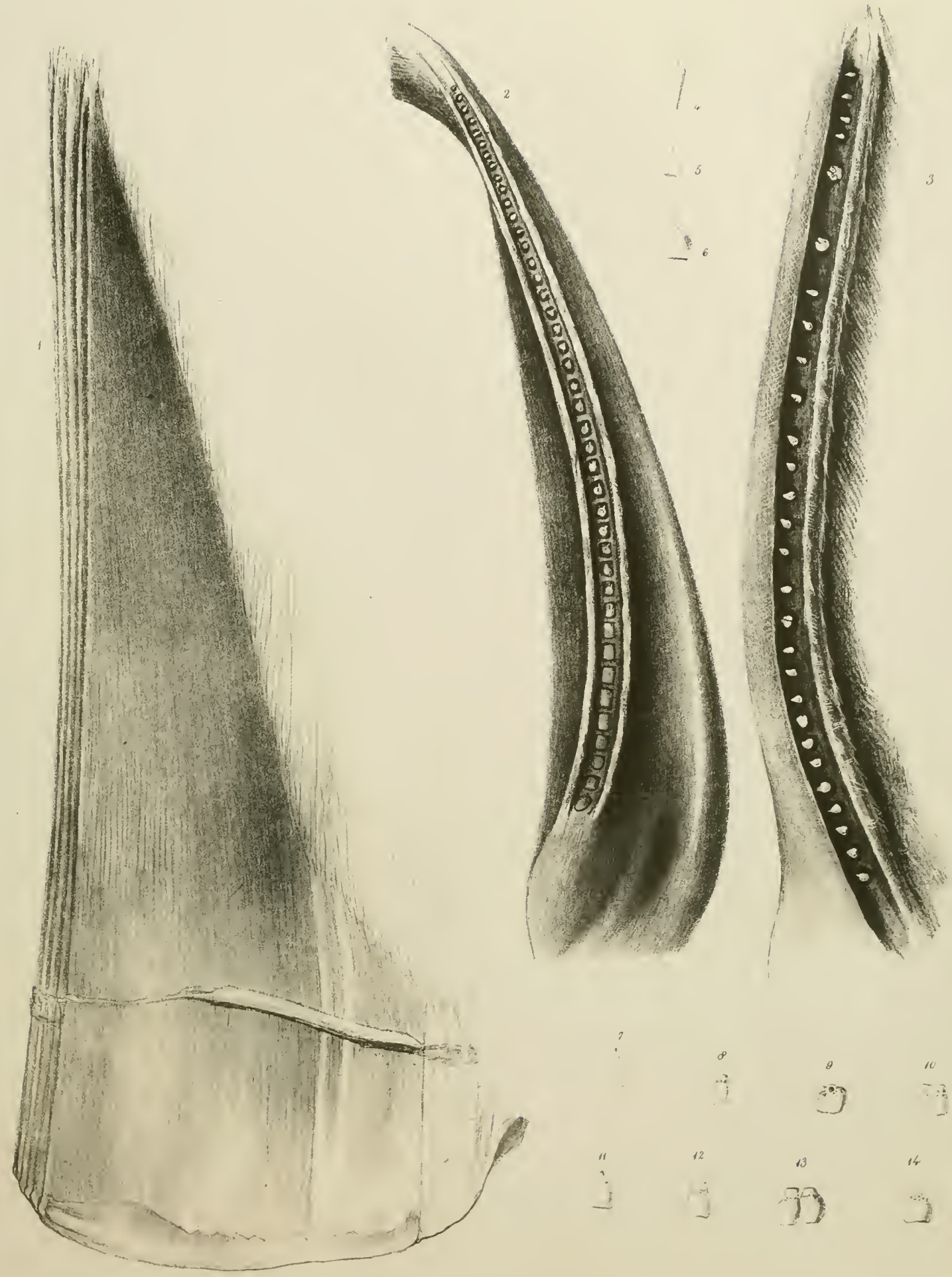
Hullmandel & Walton Lithographers

STENO ATTENUATUS

W Wing del et lith

Hullmandel & Walton Lith. Printers

PONTOPORIA BLAINVILLII 3. BELUGA CATODON Tongue &c. natural size



W. Wing del. et lith.

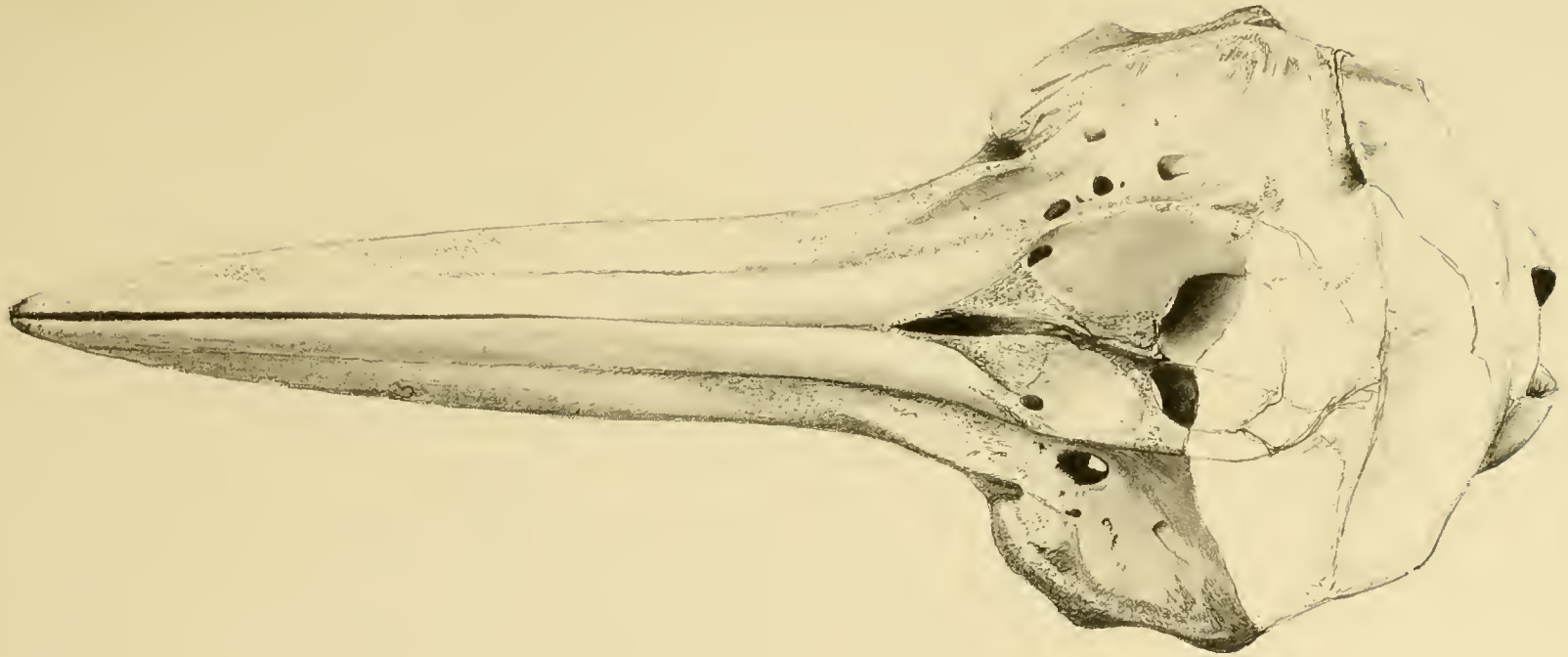
Bullmans & Walton Lithographers

1. BALEEN M[illegible] B[illegible]S Greenland
2_14. Jaws and Teeth [illegible]ta. Megapteron Boops
From. Eschricht Danske Vidensk. Selsk. XI t. 1 - 2 b

$\frac{1}{2}$

Hullmandel & Walton Lithographers

DELPHINUS EUPHROSYNE.



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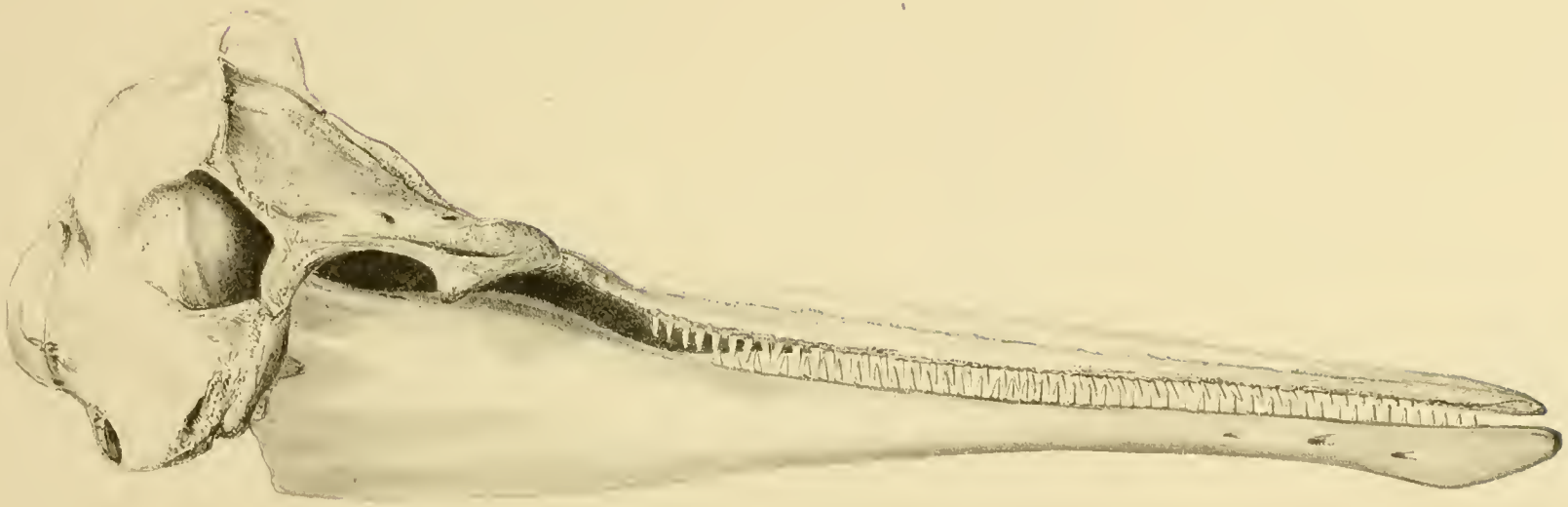
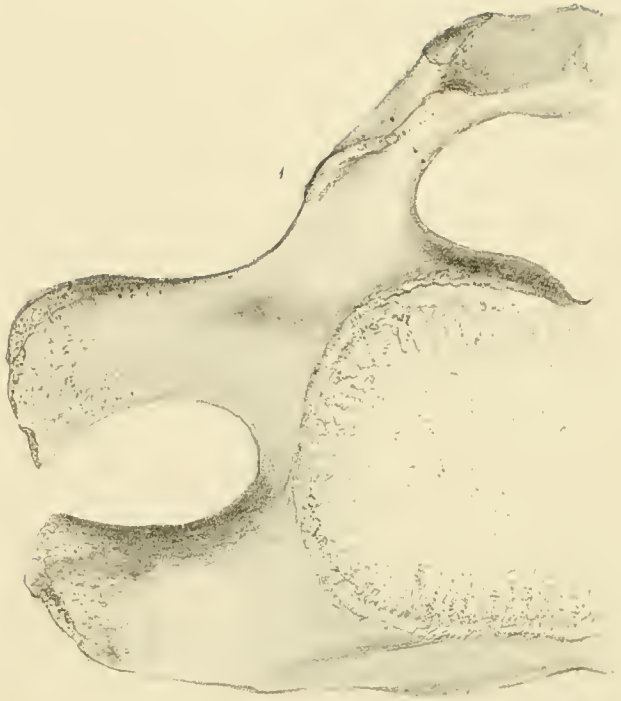
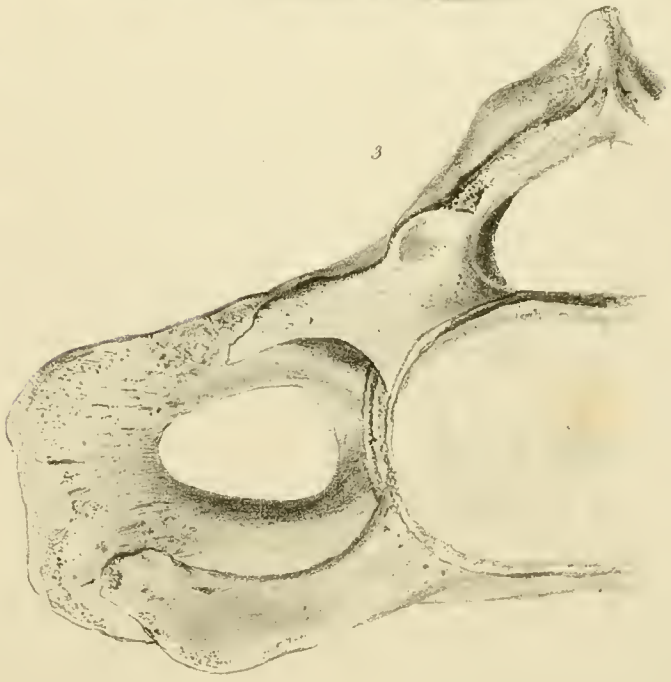


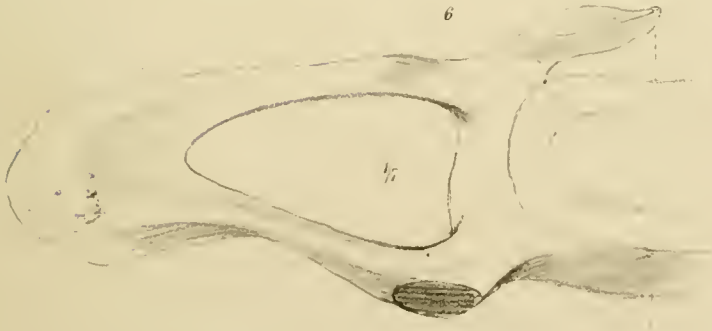
Hullmandel & Walton Lithographers

DELPHINUS ALOPE





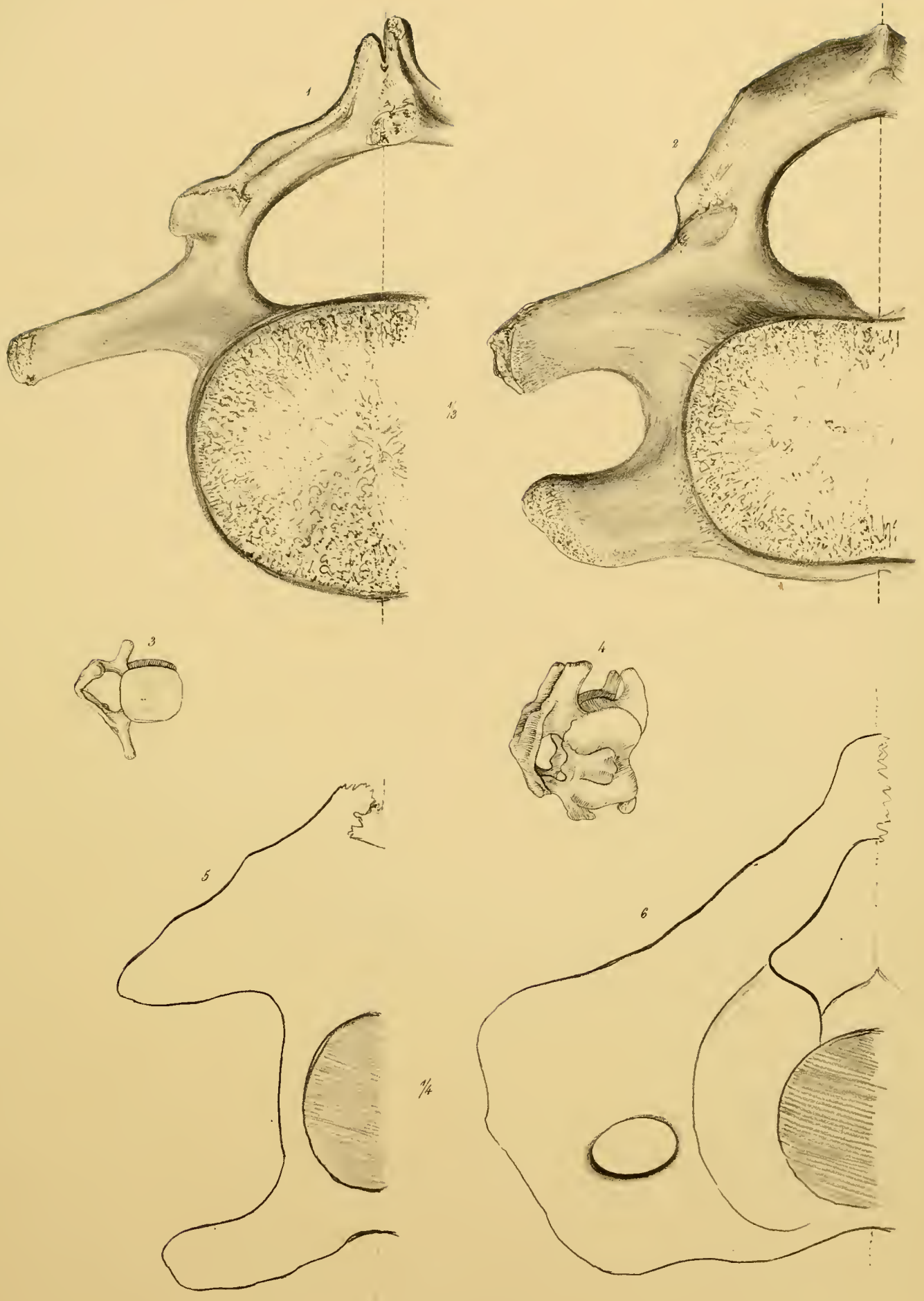
Waring del et lith



B W Hawkins del

Hullmandel & Walton Lithographers

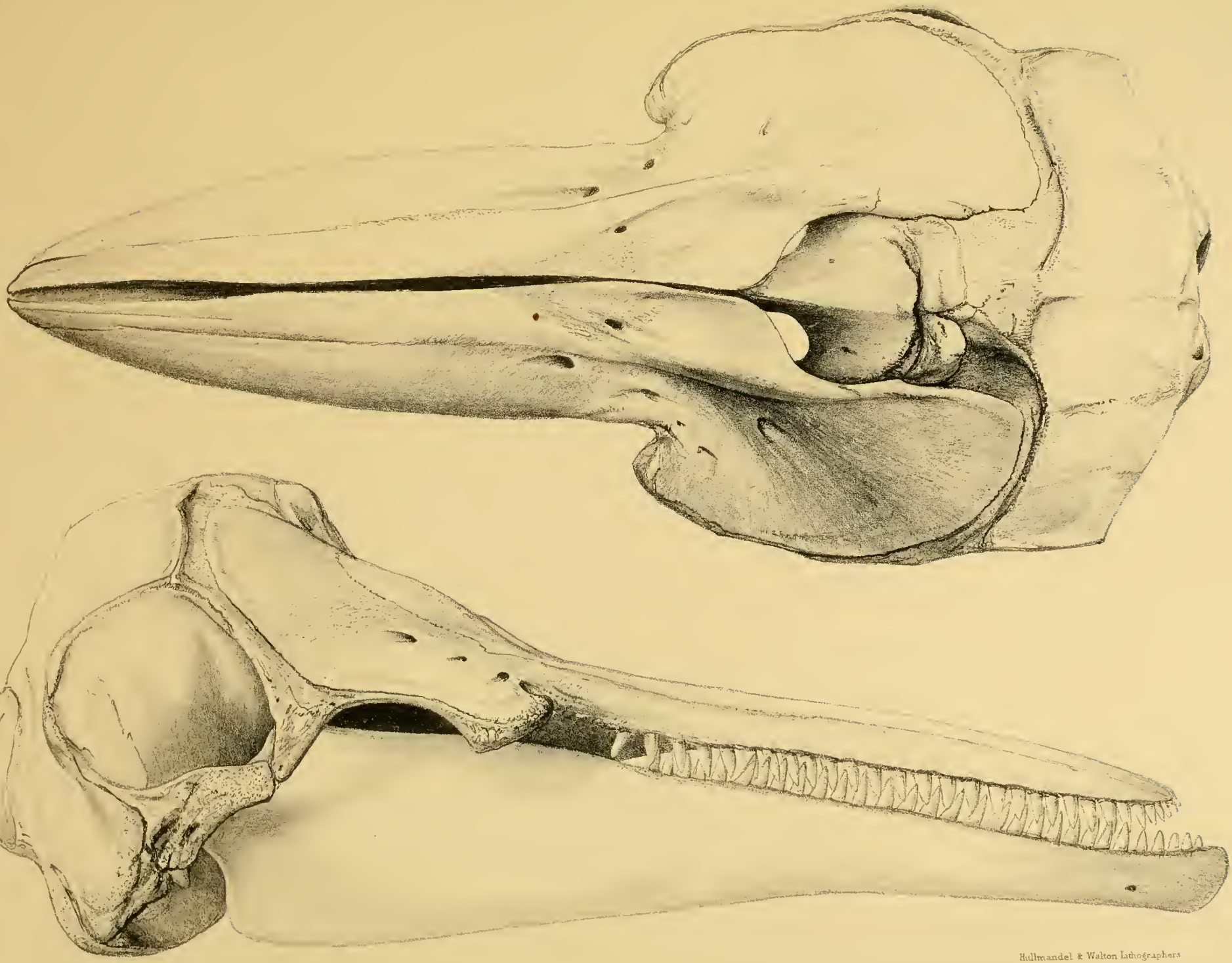
1 2 & 6 CERVICAL VERTEBRA OF BALÆNOPTERA (PERQUALUS) BOOPS.
3 4. ..... BALÆNOPTERA ROSTRATA.
5 6 ..... BALÆNOPTERA PHYSALUS ANTIQUARUM



W Wing del et lith

Hullmandel & Walton Lithographers

1. 2. MEGAPTERA LONGIMANA
3. 4 POESKOP (from Cuvier)
5. 6. BALÆNOPTERA (RORQUALUS) SIBBALDII *n.s.*



Tab. 34

W. Wing del et lith

Hullmandel & Walton Lithographers

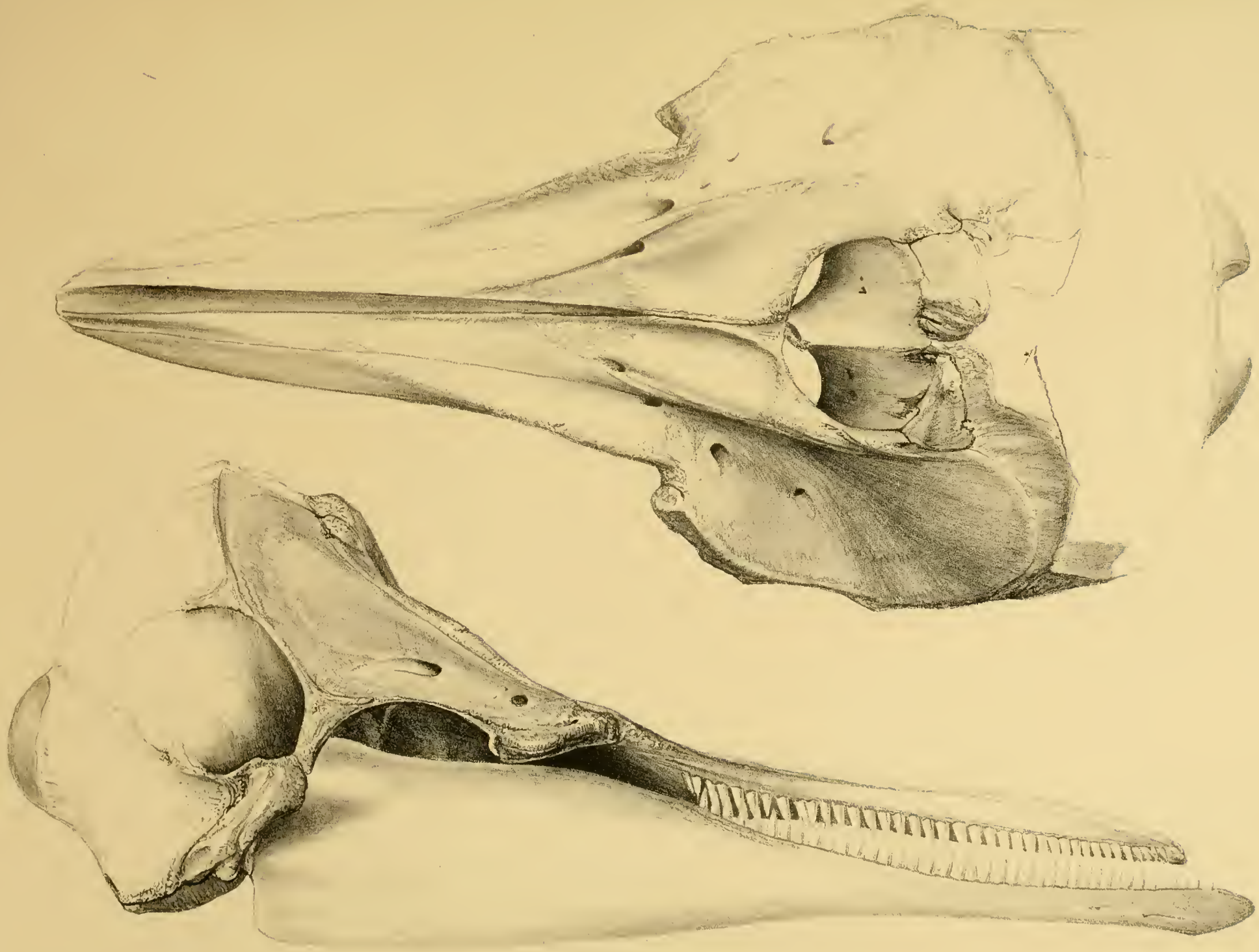
DELPHINUS EUTROPIA

W Wing del et lith

Hullmandel & Walton Lith-graphers

Pl. 25

LAGENORHYNCHUS ACUTUS



Tab. 86.

W. Wing del et lith

Hullmandel & Walton, lithographers

LAGENORHYNCHUS THICOLEA

Tab. 37

W Wing del et lith

Hullmandel & Walton Lithographers

LIPHIUS SOWERBIENSIS

Mus. Oxford

Wolf del et lith

Printed by Hullmandel & Walton

ATHENE ALBIFACIES G R Gray

HALCYON VAGANS

Hullmandel's Patent Lithm.

1 ACANTHISITTA LONGIPES (from Forster)
2 ——————— CHLORIS ♀

1

2

Hullmandel & Walton Imp.

1. GERYGONE FLAVIVENTRIS *Gould* 2. G. ALBIFRONTATA *Gould*

2

1

C.Hullmandel's Patent Lithotint

1 PETROICA DIEFFENBACHII *G.R. Gray* 2 P. ALBIFRONS *Forst.*

Printed by Hullmandel & Walton

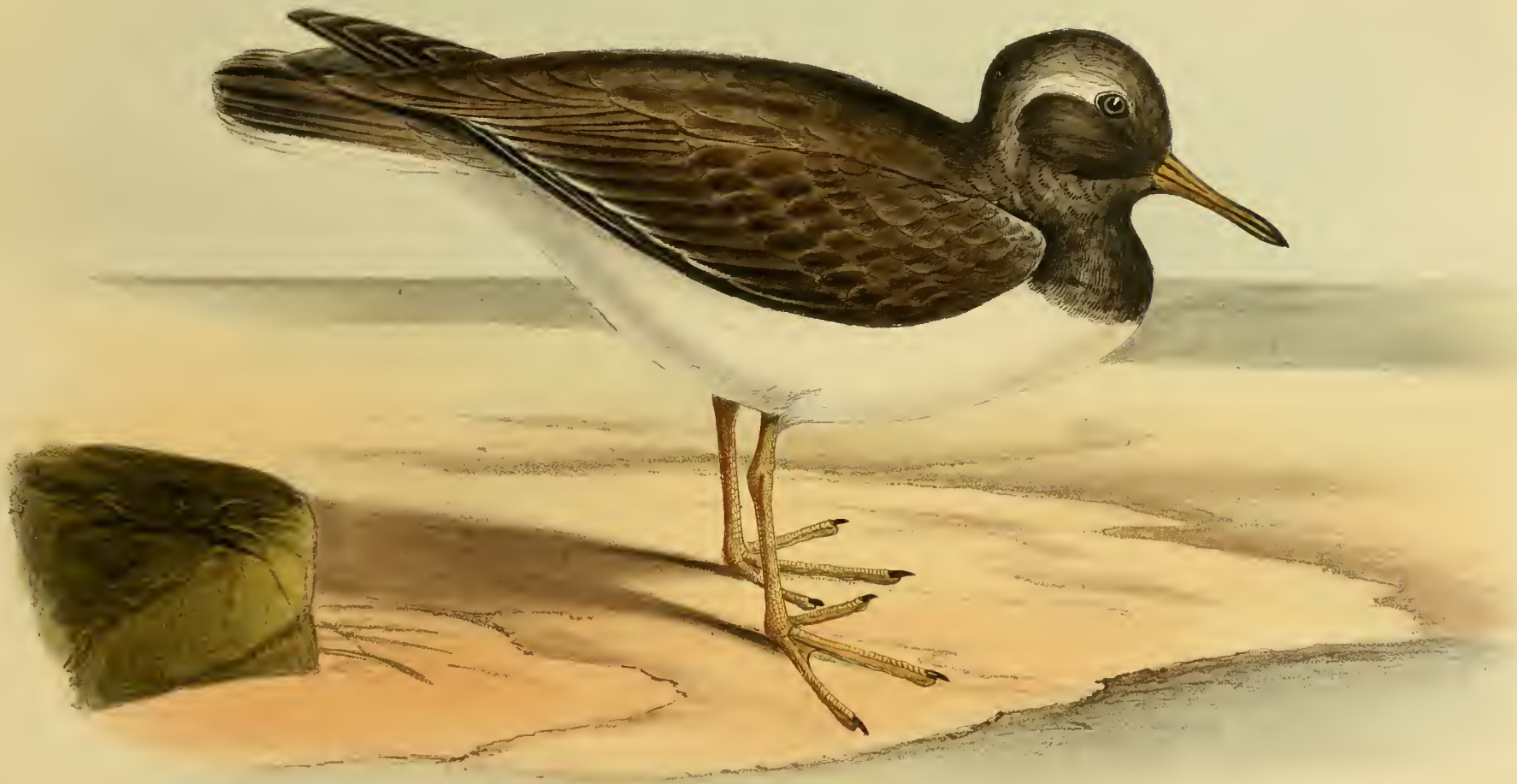
STRIGOPS HABROPTILUS G.R.Gray

C.Hullmandel's Patent Lithotint

COTURNIX NOVÆ ZEALANDIÆ

J. Hullmandel's Patent Lithotint

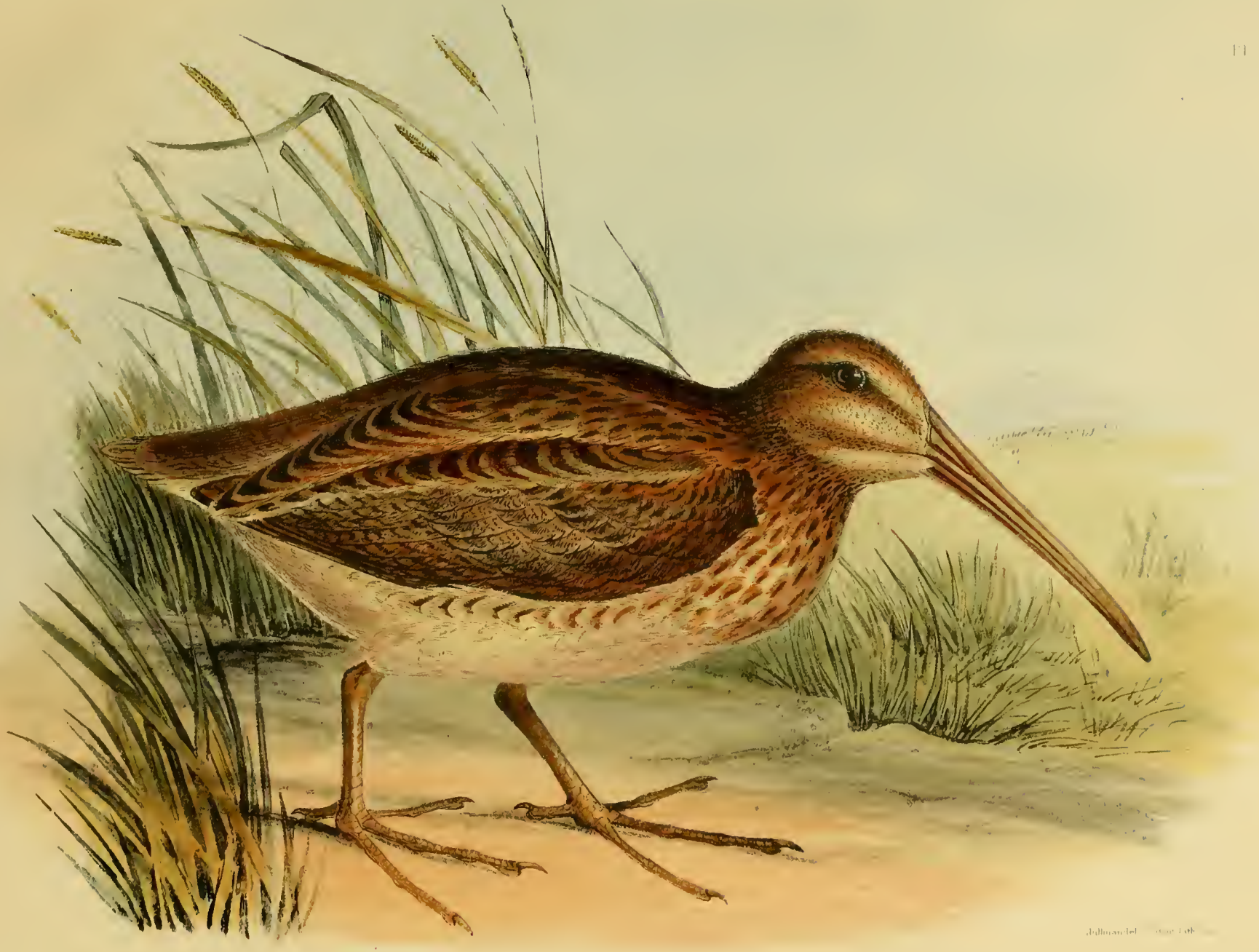
HÆMATOPUS UNICOLOR *Wagl*



C Hullmandel's Patent Lithount

THINORNIS ROSSII. *G R Gray*

THINORNIS NOVÆ ZEELANDIÆ

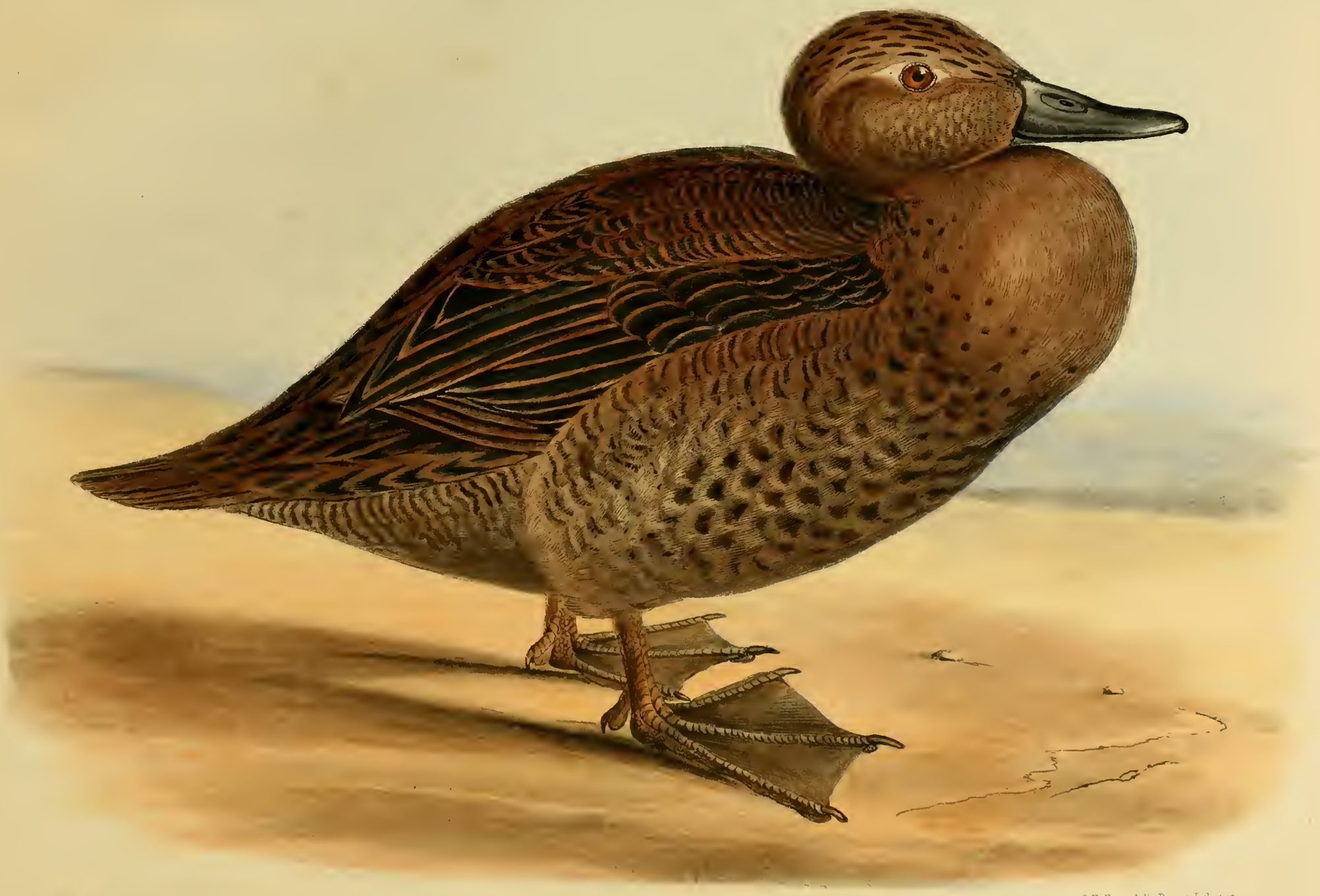


GALLINAGO AUCKLANDICA *G. R. Gray*

RALLUS DIEFFENBACHII

C. Hullmandel & Parent Lithogrs.

CASARCA VARIEGATA Gm.



NESONETTA AUCKLANDICA

PODICEPS RUFOPECTUS *G R Gray*

Printed by Hullmandel & Walton

Hullmandel Paris imprimt

GRACULUS CHALCONOTUS. *G R Gray*

C. Hullmandel's Patent Lithotint

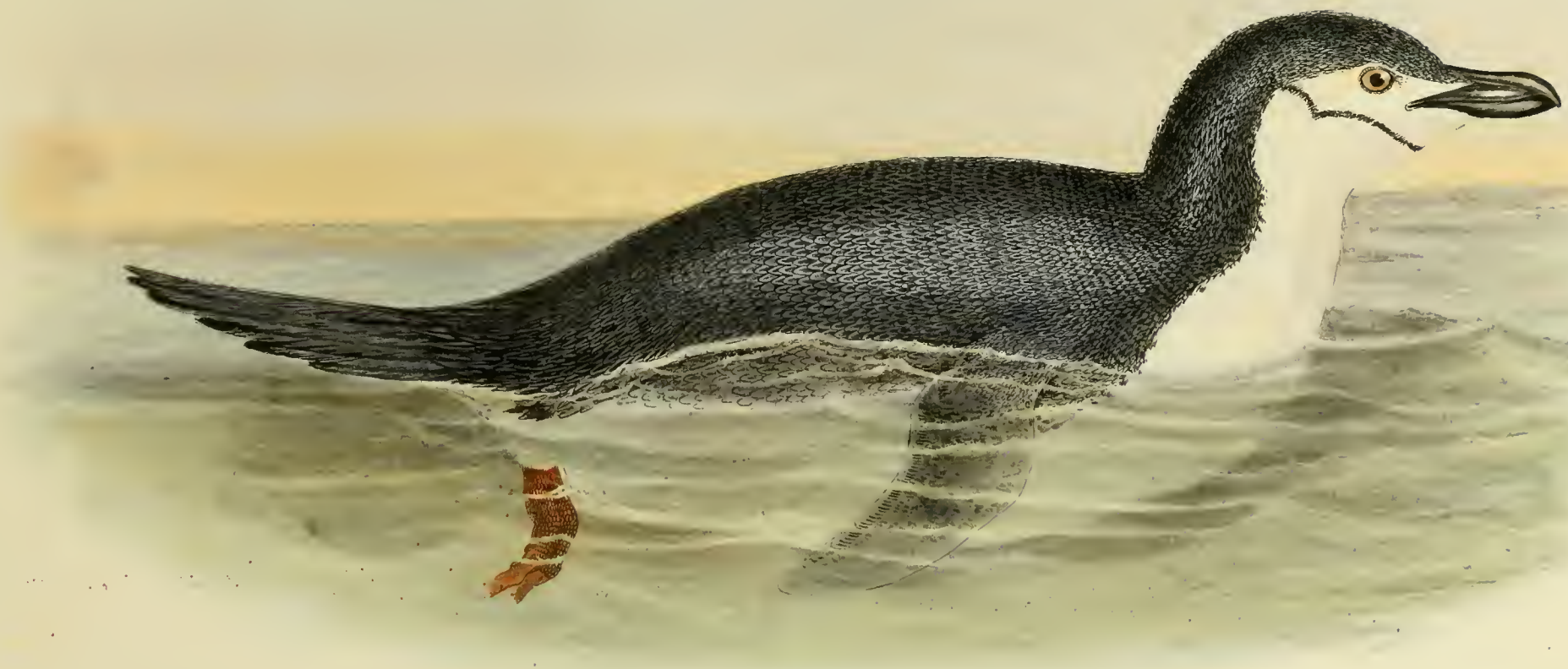
HYDROCHELIDON ALBOSTRIATA. *G. R. Gray.*

J. Hunnemann del. & Patent Lithotint

C. Hullmandel's Patent Lithotint.

C.Hullmandel's Patent Lithotint

PYGOSCELIS PAPUA *(Forst.) Wagl*



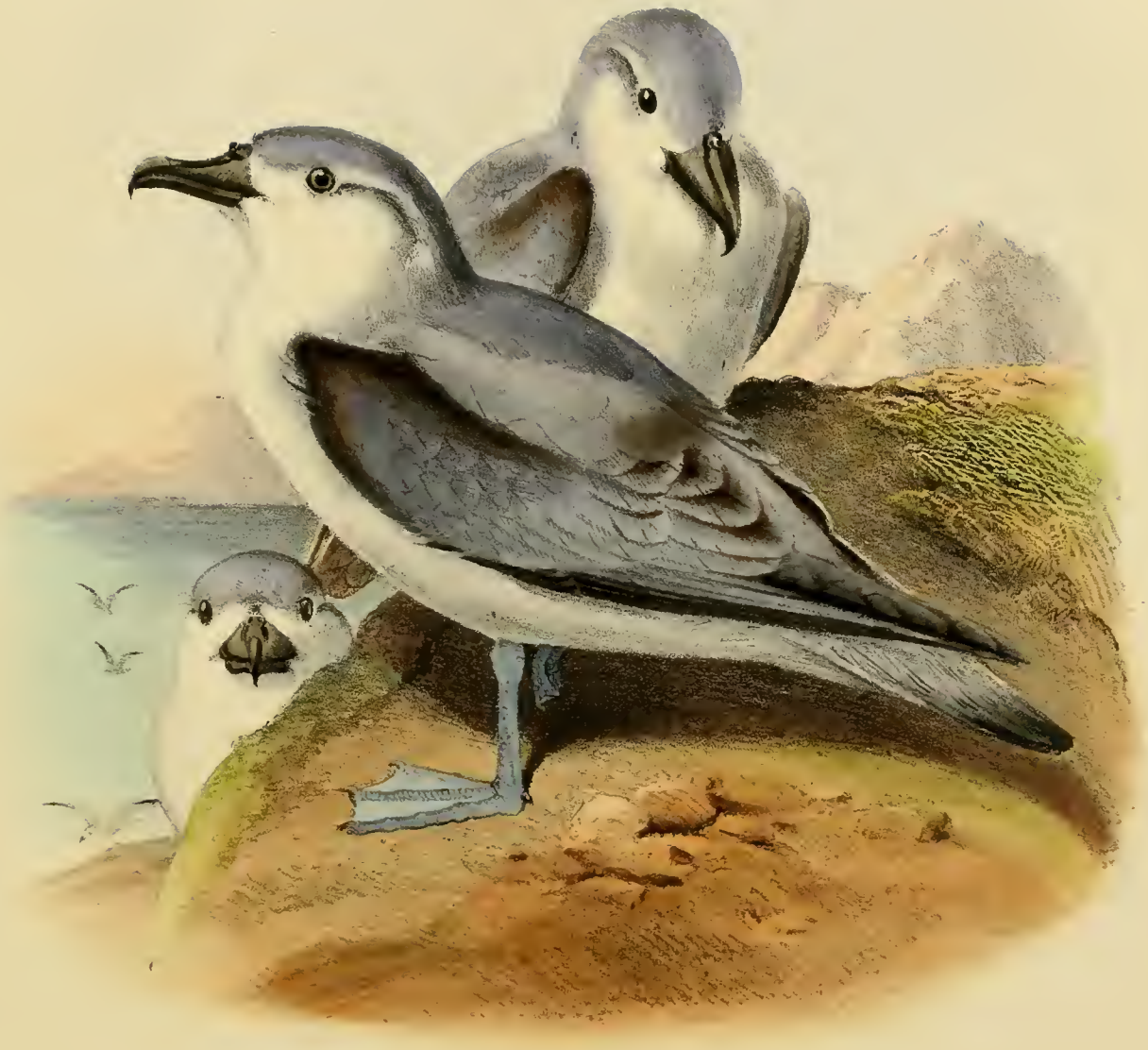
C. Hullmandel's Patent Lithount

EUDYPTES ANTARCTICA *Forst*

APTENODYTES ANTIPODES. (Homb. & J.)

C Hullmandel's Patent Lithotint

EUDYPTES ADELIÆ *(Homb. & Jacq.)*



Printed by Hullmandel & Walton

PRION TURTUR Sol Mss

Printed by Hullmandel & Walton

BERNICLA INORNATA Vigors

Printed by Hullmandel & Walton

Wolf del. et lith.

APTENODYTES FORSTERI G R Gray

Wolf del et lith

Printed by Hullmandel & Walton

APTENODYTES PENNANTII G R Gray

PROCELLARIA ANTARCTICA.

Hullmandel's Patent Lithotint

PROCELLARIA NIVEA

C Hullmandel's Patent Lithotint

PROCELLARIA COOKII *G R Gray*