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THE

BIRDS OF AUSTRALIA.

BY

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CEREOPSIS NOVÆ-HOLLANDIÆ, *Lath.*

Cereopsis Goose.

Cereopsis Novæ-Hollandiæ, Lath. Ind. Orn. Supp., p. lxvi.—Temm. Man., tom. ii. p. cvii.—Ib. Pl. Col., 206.—Benn. in Gard. and Menag. of Zool. Soc., Birds, p. 315.—Jard. and Selb. Ill. Orn., vol. iv. pl. xxxiii.—G. R. Gray, List of Gen. of Birds, 2nd edit., p. 93.—List of Birds in Brit. Mus. Coll., part iii. p. 126.—Less. Man. d'Orn., tom. ii. p. 413.—Ib. Traité d'Orn., p. 627. pl. 109. fig. 2.

New Holland Cereopsis, Lath. Gen. Syn. Supp., vol. ii. p. 325. pl. 138*.—Ib. Gen. Hist., vol. ix. p. 432 pl. clxii.—Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 67. pl. 44.

Cereopsis cinereus, Vieill. Gal. des Ois., tom. ii. pl. 284.—Ib. Nouv. Dict. d'Hist. Nat., tom. v. p. 516.—Ib. Ency. Méth., tom. iii. p. 1045.

Anser griseus, Vieill. 2nde édit. du Nouv. Dict. d'Hist. Nat., tom. xxiii. p. 338.—Ib. Ency. Méth., tom. i. p. 351. pl. 236. fig. 1.

Cereopsis Australis, Swains., Anim. in Menag., p. 219. fig. 32.

Cape Barren Goose of the Colonists.

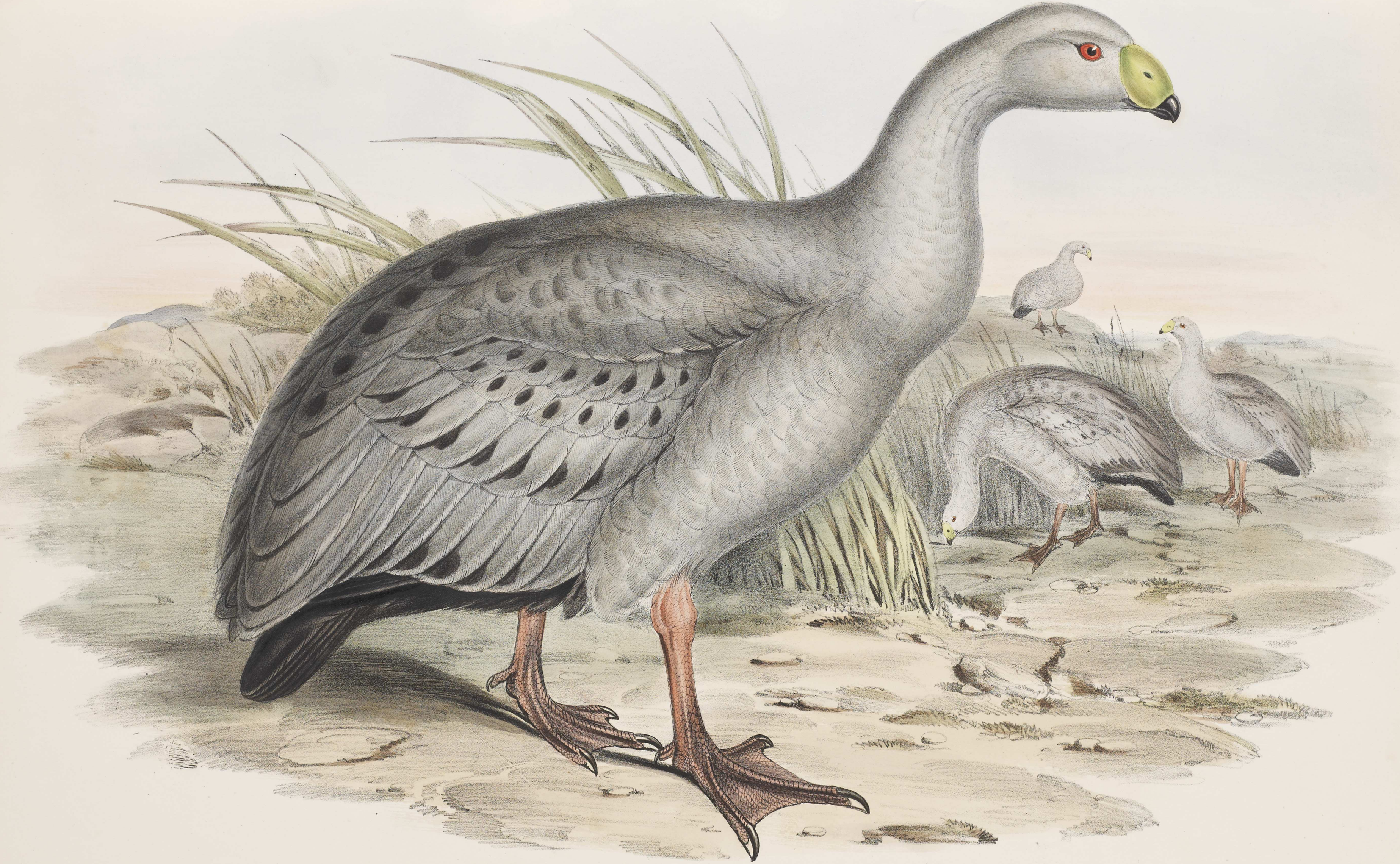
This is one of the Australian birds which particularly attracted the notice of the earlier voyagers to that country, by nearly every one of whom it is mentioned as being very plentiful on all the islands in Bass's Straits, and so tame that it might be easily knocked down with sticks or even captured by hand; during my sojourn in the country I visited most of the localities above-mentioned, and found that so far from its being still numerous, it is almost extirpated; a few, however, still inhabit the smaller islands in Bass's Straits, and I killed a pair on Isabella Island, one of a small group near Flinders' Island, on the 12th of January 1839. I believe that it may be still abundant on some of the unexplored parts of the south coast of Australia, but in the colonised districts, where it has been much molested, it has now become so scarce that it is very rarely seen. It passes the greater portion of its time among the grass, and rarely takes to the water. It appears to be strictly a vegetable feeder, and to subsist principally upon grasses in the neighbourhood of the coast; consequently its flesh is excellent, and all who have tasted it agree in extolling its delicacy and flavour. It bears confinement remarkably well, but is by no means a desirable addition to the farm-yard; for it is so pugnacious, that it not only drives all other birds before it, but readily attacks pigs, dogs, or any other animal that may approach, and often inflicts severe wounds with its hard and sharp bill.

Its voice is a deep, short, hoarse, clanging and disagreeable sound. It readily breeds in confinement. The eggs are creamy white, about three inches and a quarter in length by two inches and a quarter in breadth.

The sexes are precisely alike in plumage.

Crown of the head whitish, the remainder of the plumage brownish grey; the wing-coverts and scapularies with a spot of brownish black near the tip; the feathers of the back margined with pale brownish grey; the apical half of the primaries, the tips of the secondaries, the tail and the under tail-coverts blackish brown; bill black; cere lemon-yellow; irides vermilion; eyelash dark brown; legs reddish orange; toes, webs, claws and a streak up the front of the legs black.

The figure is rather more than half the natural size.



J. Gould and H. C. Richter del. et lith.

CEREOPSIS NOVÆ-HOLLANDIÆ: *Lath.*

Hullmandel & Walton Imp.

ANSERANAS MELANOLEUCA.

Semipalmated Goose.

Anas melanoleuca, Lath. Ind. Orn. Supp., p. lxix.—Cuv. Mém. du Mus. 7e année, xie cahier, p. 345. pl. 19.
Black and White Goose, Lath. Gen. Syn. Supp., vol. ii. p. 344.—Ib. Gen. Hist., vol. x. p. 225.
Anas semipalmata, Lath. Ind. Orn. Supp., p. lxix.—Linn. Trans., vol. iv. p. 103. pl. vi. *trachea*.
Semipalmated Goose, Lath. Gen. Syn. Supp., vol. ii. p. 347. pl. 139.—Penn. Outlines, vol. iv. p. 129.—Lath. Gen. Hist., vol. x. p. 295. pl. clxxviii.
Anseranas melanoleuca, Less. Man. d'Orn., tom. ii. p. 418.—Ib. Traité d'Orn., p. 633.
Choristopus semipalmatus, Eyton, Mon. Anat., p. 79.
Anseranas melanoleuca, List of Birds in Brit. Mus., part iii. p. 125.—G. R. Gray, List of Gen. of Birds, 2nd edit. p. 92.
Newal-gang, Aborigines of New South Wales.

When New South Wales was first colonized, this fine species was very abundant on the Hawkesbury; it is however no longer a denizen of that river, or of any of the streams within the colony; affording another instance that the progress of civilization invariably leads to the gradual extirpation of the more conspicuous of the natural productions of the countries over which it extends its sway; it is still however abundant in such parts of the Port Philip district as are unlocated by the settler, and as we progress northwards gradually becomes more numerous, until we reach the rivers and lagoons which empty themselves into Torres' Straits; here it occurs in such countless multitudes that it forms one of the chief articles of the food of the Aborigines, and was of the utmost value to those intrepid explorers, Dr. Leichardt and party, during their adventurous journey from Moreton Bay to Port Essington, as will be seen in numerous passages in his interesting account of the expedition. So dense are the flocks that occur in the northern parts of the country, that the natives are enabled to procure numbers of them by spearing; and, says Dr. Leichardt, "It seemed that they only spear them when flying, and always crouch down when they see a flight of them approaching; the geese, however, know their enemies so well that they immediately turn upon seeing a native rise and put his spear into the throwing-stick: some of my companions asserted that they had seen them hit their object at the almost incredible distance of two hundred yards."

It is well known that many of the natatorial birds exhibit most singular conformations of the trachea, but in no one species are the convolutions and situation of this organ more remarkable than in the present bird. "The trachea," says Mr. Yarrell, in the fifteenth volume of the 'Linnean Transactions,' p. 383, "is situated on the outside of the left pectoral muscle, under the skin, sufficiently raised under the wing that respiration would not be impeded when the bird rested with its breast on the ground, the parallel tubes being firmly attached both to the muscle and the skin by cellular tissue. The clavicle of the right side of the bird is of the usual character, but that on the left is both shorter and wider, having an aperture about the middle, the sides diverging with a projecting point on the inner side, to which the tube of the trachea is firmly attached, about two inches above the bone of divarication. The trachea lying on the left side of the bird, the lower portion of the tube in its passage to the lungs crosses the left branch of the furcula at a right angle, but becoming attached to this projection of the clavicle, receives from the point described its centrical direction into the body. The whole length of the windpipe is four feet eight inches." In young birds the trachea is not nearly so much convoluted. This curious structure of the trachea has also been noticed and figured by Latham, on the 178th plate of his "General History of Birds," vol. x. p. 295, above-quoted. The specimens from the north are somewhat smaller than those from the south coast, and have the knob on the bill rising higher on the forehead.

Head, neck, wings, centre of the back, tail and thighs glossy greenish black, the remainder of the plumage white; irides blackish brown; bill reddish brown; feet yellow.

The figure is about two-thirds of the natural size.



NETTAPUS COROMANDELIANUS.

Pygmy Goose.

Anas Coromandeliana, Gmel. Syst. Nat., vol. i. p. 522?—Lath. Ind. Orn., vol. ii. p. 875?
Bernicla Coromandeliana, Steph. Cont. of Shaw, Gen. Zool., vol. xii. p. 56?
Coromandel Teal, Lath. Gen. Syn., vol. vi. p. 556; and Gen. Hist., vol. x. p. 374?
Sarcelle de Coromandel, Buff. Pl. Enl., 949, 950; and Hist. Nat. des Ois., tom. ix. p. 274?
Bernicla Girra, Hardw. and Gray, Ind. Zool.?
Anser Girra, Sykes in Proc. of Zool. Soc., Part II. p. 167?
Cheniscus Coromandelianus, Eyton, Mon. of the Anatidæ, p. 89?
Microcygna Coromandeliana, G. R. Gray, 2nd Ed. List of Gen. of Birds, p. 93?
Girra Teal, Lath. Gen. Hist., vol. x. p. 374?

This species is so nearly allied to the *Nettapus Coromandelianus* of Java and India, from which, indeed, it only differs in being of a much larger size, that rather than it should be considered that I am unnecessarily adding to the list of species by characterizing it under another name, I have for the present treated it as identical with that bird; but should future research lead to a different conclusion, I would propose that it should be named *Nettapus albipennis*, a term applicable to both, but which, from the greater length of the primaries, and the consequent increased development of the white mark on those feathers of the Australian bird, will I hope not be deemed an inappropriate appellation.

This elegant little Goose is tolerably abundant on the eastern portions of the Australian continent, inhabiting the estuaries and rivers between the ranges, and the coast from the Hunter to Moreton Bay, and in all probability far to the northward of these localities, though my knowledge of its range will not allow me to say such is the case, as it is one of the few birds of New South Wales which I had no opportunity of observing in a state of nature; I am consequently unable to furnish any account of its habits and economy; neither, I regret to say, can I supply the deficiency from the notes of any other observer.

The sexes are easily distinguished from each other by the greater size of the male, and by the far more brilliant colouring of his markings.

The figures are those of a male and a female of the natural size.

J. Gould and H.C.Richter del et lith.

BERNICLA JUBATA.

Hullmandel & Walton Imp.



NETTAPUS PULCHELLUS, *Gould.*

Beautiful Pygmy Goose.

Nettapus pulchellus, Gould in Proc. of Zool. Soc., November 9, 1841.
Loon-byte, Aborigines of the northern coast of Australia.
Little Goose, Residents at Port Essington.

The acquisition of an entirely new species of *Nettapus*, a generic name applied to these Pygmy Geese by M. Brandt of St. Petersburg, is not one of the least valuable results of the exploration of the northern coast of Australia; independently of its great beauty, the present species is interesting, as uniting most completely, in the character and disposition of some of its markings, the two previously known species, *N. Coromandelianus* and *N. Madagascariensis*, which differ very considerably in these points. Although very goose-like in the form of its head and bill, particularly in the elevation of the upper mandible, its largely webbed feet indicate a strictly aquatic mode of life; and in the notes accompanying the two specimens shot at Port Essington by Mr. Gilbert, he states that he first saw a pair of these beautiful birds on the 16th of January, swimming on a quiet secluded lake, shut in on all sides by very high grass: both of these he succeeded in killing at a shot; he further states that they are rare in the Peninsula, only one specimen having been procured prior to his obtaining these two. It is an extremely shy species, and at the slightest movement of anything near it, dives and remains under water a long time. Having, on dissecting the female, found a nearly developed egg in the ovarium, he was induced to seek for the nest, which he found built up in the long grass about a foot above the water, the bottom of the nest resting on its surface; it was composed of long dried grasses, slightly hollowed for the reception of the eggs: the nest in this instance was destitute of any kind of lining; but one afterwards brought him by the natives was lined with feathers and contained six eggs, which are white, one inch and seven-eighths long by one inch and three-eighths broad.

Since the receipt of Mr. Gilbert's specimens another has been kindly sent to me by Mr. Bynoe, making the fourth that has been obtained; beyond this nothing further is known respecting it.

The male has the head brownish green, indistinctly barred with light brown; beneath the eye an oval spot of white; neck, back and wings deep glossy green; primaries black; outer webs of the secondaries snow-white; feathers of the chest, sides and back of the neck white, with a number of greenish black circles one within the other, so numerous that the white is nearly lost; flanks similarly marked, but in them the circles, bars and pencillings are broader and more apparent; tail black glossed with green; abdomen white; under tail-coverts black; irides dark brown; bill dark greenish grey; legs and feet blackish brown, with a yellowish white nail; under mandible greenish grey, irregularly blotched with a lighter colour.

The female resembles the male, but differs in having the crown, occiput and a stripe down the back of the neck deep brown; in being destitute of the white spot beneath the eye; in having the chin and upper part of the throat white, mottled with small markings of brown; bill French grey, becoming more yellow at the base; lower mandible bluish grey; tarsi fleshy white on the sides, back and front blackish brown; feet dark brown.

The figures are those of a male and a female of the natural size.

NETTAPUS PULCHELLUS, *Gould.*



BERNICLA JUBATA.

Maned Goose.

Anas jubata, Lath. Ind. Orn. Supp., p. lxix.
Hawkesbury Duck, Lath. Gen. Syn. Supp., vol. ii. p. 358. pl. in title-page.—Ib. Gen. Hist., vol. x. p. 357.
Bernicla jubata, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 63.—Eyton's Mon. Anat., p. 87.—List of Birds in Brit. Mus. Coll., part iii. p. 128.
Mar̈-rang-an̈-ner, Aborigines of the lowland districts of Western Australia.
Wood Duck, Colonists of New South Wales and Swan River.

During the period I had the privilege of observing the birds of Australia in a state of nature, no one of the natatorial forms interested me more than the present species; and the result of my observations enables me to state that it seldom, if ever, visits Van Diemen's Land or any of the islands in Bass's Straits; but that on the continent of Australia it is met with at Swan River in South Australia and in New South Wales, consequently its range extends across the country between the 25th and 30th degrees of south latitude. During the early days of the colony of New South Wales, it was very common on the rivers near Sydney, particularly on the Hawkesbury; at the present time it is sometimes seen there, and is still numerous on the Hunter and other rivers towards the interior limits of the colony. In South Australia it is one of the commonest of the water birds, frequenting the brooks of the interior. In the colony of Swan River, although nearly confined to the inland districts, it is not considered a bird of any rarity. No specimen has yet been procured at Port Essington, nor, as far as I am aware, on any part of the north coast. It presents a very pleasing appearance while flying up and down the brooks in flocks of from six to thirty in number, and is equally interesting when perched in small companies on the branches of fallen trees which have found a resting-place in the beds of the rivers and water-holes, or when resting on the topmost branches of the high gum-trees in the midst of the woods. Its flesh is excellent, and not unfrequently forms an acceptable repast for the settled colonist and the weary traveller, who from a love of exploration has ventured far beyond the precincts of civilization. It frequently utters a loud barking note so unlike the voice of any other goose, as at once to excite the attention of any person who may be traversing the parts of the country it inhabits. I found it to be tolerably tame in disposition, which circumstance enabled me to procure numerous examples without difficulty.

It usually breeds in the hollow parts of large trees, those chosen for the purpose being often situated in the bush far away from water.

The food consists of grasses, and aquatic plants, snails and insects.

The sexes vary considerably in size and in the beauty of their plumage, the male far exceeding his mate in both respects.

The male has the head and neck rich brown; the lengthened plumes down the back of the neck black; back, lesser wing-coverts, tertiaries and scapularies brownish grey; the scapularies very broadly margined on their external webs, and very narrowly on their internal webs with deep velvety black; lower part of the back, rump, upper tail-coverts and tail deep black; greater wing-coverts dark grey largely tipped with pure white, the two colours separated by a narrow line of black; spurious wing and primaries very dark brown, the latter deepening into black at their extremities; outer webs of the secondaries or speculum rich glossy green broadly margined with white, their inner webs grey; the last two have their outer webs entirely glossy green and their inner webs grey, with the exception of a narrow margin of white; breast-feathers buffy white, each feather crossed by two irregular bands of brown, the margin between the bands freckled with brown, and a spot of black at each end of the band nearest the tip, giving the whole a mottled appearance; flanks silver-grey, delicately pencilled with fine wavy lines of black; centre of the abdomen and under tail-coverts deep glossy black; bill olive-brown; irides very dark brown; legs and feet dark brown.

The female has the head and neck pale brown, speckled with white on the sides of the face; all the upper surface and wings greyish brown; the scapularies stained with black on their outer webs; lower part of the back black; primaries brown; secondaries and greater coverts tipped with white, the former with a trace of the glossy green so conspicuous in the male, at the base of the outer webs; the markings of the breast are similar to those of the male, but they are larger and paler, and the feathers are destitute of the minute freckles on the margins of the feathers; flanks light brown, crossed with bars of white freckled with brown; centre of the abdomen and under tail-coverts white.

The Plate represents the two sexes of the natural size.



NETTAPUS COROMANDELIANUS.?

J. Gould and H. C. Richter del.t

C. Hullmandel imp.

CYGNUS ATRATUS.

Black Swan.

Black Swan, Philip's Voy., p. 96.—White's Journ., p. 137.—Lath. Gen. Hist., vol. x. p. 224.
Anas atrata, Lath. Ind. Orn., vol. ii. p. 834.
—— *plutonia*, Shaw, Nat. Misc., pl. 108.
Black Swan of Van Diemen, D'Entrecast. Voy., 8vo, vol. i. p. 140. pl. ix.
Shawian or Black Swan, Penn. Outl., vol. iv. p. 130.
Cygnus atratus, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 18.—Eyton, Mon. of the Anat., p. 97.—Less. Man. d'Orn. tom. ii. p. 407.—Vieill. Gal. des Ois., tom. ii. pl. 286.—Less. Traité d'Orn., p. 629.—Benn. in Gard. and Menag. of Zool. Soc., vol. i. Birds, p. 45.
Chenopis atrata, Wagl. in Oken's Isis, 1832. p. 1234.—G. R. Gray, List of Gen. of Birds, 2nd Edit. p. 93.—List of Birds in Brit. Mus. Coll., Part iii. p. 131.
Le Cygne noir, Cuv. Règne Anim., tom. i. p. 529.
Mul-go, Aborigines of New South Wales.
Gŏl-jak, Aborigines of Perth.
Măl-lee, Aborigines northward of Perth.

The first notice on record respecting the existence of the Black Swan occurs in a letter written by Mr. Witsen to Dr. M. Lister about the year 1698, in which he says, "Here is returned a ship, which by our East India Company was sent to the south land called Hollandia Nova;" and adds that Black Swans, Parrots and many Sea Cows were found there. In 1726 two were brought alive to Batavia, having been procured on the west coast of Australia, near Dirk Hartog's Bay. Our celebrated countryman and navigator Cook observed it on several parts of the coast, and from that time to the present it has attracted the attention of every traveller in Australia, and been noticed by most authors who have written upon its natural productions; still, all that has hitherto been placed upon record have been mere notices of its existence, unaccompanied by any information respecting its habits and economy, or the extent of its range; and my account will fall far short of what the historian of so noble a bird ought to be able to give; for our knowledge of it is still very limited, and must necessarily remain so until geographical research has cleared our path, and made us more intimately acquainted with the portions of the country it principally inhabits.

I may state then that the Black Swan has not been found out of Australia, and that it has not yet been seen on the north coast, while on the other hand it is as generally distributed over the whole of the southern portion of that vast continent, the islands in Bass's Straits, and the still more southern country of Van Diemen's Land, wherever there are rivers, estuaries of the sea, lagoons, and pools of water of any extent; in some instances it occurs in such numbers that flocks of many hundreds may be seen together, particularly on those arms of the sea which, after passing the beach-line of the coast, expand into great sheets of shallow water, on which the birds are seldom disturbed either by the force of boisterous winds or the intrusions of the natives. In the white man, however, wherever the country has been brought under his dominion, the Black Swan finds an enemy so deadly, that in many parts where it was formerly numerous it has become almost, if not entirely, extirpated; and this has been particularly the case on some of the large rivers of Van Diemen's Land, such as the Derwent, &c.; but in the salt lagoons and inlets of D'Entrecasteaux' Channel, the little-frequented bays of the southern and western shores of Van Diemen's Land, the entrance to Melbourne Harbour at Port Philip, Spencer's and St. Vincent's Gulfs in South Australia, the Clarence, MacLeay and other rivers northward of the Hunter in New South Wales, the Black Swan is still as numerous as ever, and so will continue until its territories are invaded by civilized man, when as a natural consequence its numbers will immediately diminish. One most destructive mode by which vast numbers are annually destroyed is that of chasing the parent birds in a boat at the time they shed their primary quill-feathers, when being unable to fly they are soon rowed down and captured; this practice, which is much to be regretted, is usually resorted to for the sake of the beautiful down with which the breast of the bird is clothed, but not unfrequently in mere wantonness. I have heard of the boats of a whaler entering an estuary and returning to the ship, nearly filled with Black Swans destroyed in this manner.

In disposition, unless molested, or its precincts intruded upon, it is as tame, gentle and harmless as it is graceful and ornamental in appearance, and as it readily becomes domesticated there are few of the aviaries of Europe which are adorned with its presence. When flying it forms a most conspicuous object, the white of the wings offering a strong contrast to the black colouring of its body and the green herbage bounding the scene in which it is disporting.

The breeding-season commences in October and continues to the middle of January; I procured newly-hatched young clothed in greyish white down at South Port River on the 31st of December, and I took five newly-laid eggs on Flinder's Island in Bass's Straits on the 13th of January. The nest is of a large size, composed of flags and other herbage, and generally placed on an isolated island. The eggs are from five to eight in number, of a pale green, stained all over with buffy brown, four and a half inches long by two inches and three-quarters broad.

The whole of the plumage brownish black, the under surface paler than the upper; the feathers of the back tipped with greyish brown; primaries and secondaries pure white; bill beautiful pinky scarlet, crossed near the tip with a broad band of white; the extremities of both mandibles are also white; irides scarlet; eyelash and lores pinky scarlet; feet black.

The Plate represents the bird about half the natural size.

CYGNUS ATRATUS.



CASARCA TADORNOÏDES, *Eyton.*

Chestnut-coloured Shieldrake.

New Holland Shieldrake, Lath. Gen. Hist., vol. x. p. 306.
Anas Tadornoïdes, Jard. and Selb. Ill. Orn., vol. ii. pl. 62.
Casarca Tadornoïdes, Eyton, Mon. of the Anat., p. 171.
Goo-ră-ga, Aborigines of the lowland districts of Western Australia.
Mountain Duck, Colonists of Swan River.

This fine Shieldrake, although nowhere very plentiful, is universally spread over all such parts of Van Diemen's Land, South and Western Australia, as present localities suitable to its habits. During my residence in Van Diemen's Land I saw several fresh specimens that had been shot on the lakes of the interior of the island, and ascertained that it had formerly resorted to the rivers, heads of the bays, and inlets of the sea near Hobart Town. In South Australia it breeds annually at Gawler, on all the alluvial flats that abound in that district: it is also said to breed in the hollow spouts and boles of the lofty gum-trees.

Mr. Strange informed me that the nest is formed of the down plucked by the bird from its own breast, that he has taken thirteen eggs from a single nest, and that their colour was similar to those of the Teal. It breeds early in the spring, which in Australia is at an opposite period of the year to the spring of the northern hemisphere.

Its food consists of the small fish, crustacea, mollusks, &c. which abound in the flats and swampy places. I have never received this species from New South Wales.

Much information is yet to be obtained respecting the habits, range, etc. of this fine bird.

The sexes may be distinguished by the smaller size of the female, as well as by the whole of her markings being less pure, and by the ring of white or mottled feathers which surround the base of the bill.

Head and upper part of the neck shining dark green; chest, lower part of the neck and upper part of the back pale chestnut or rusty red, between which colour and the green of the upper part of the neck is a ring of pure white; upper and under surface black, finely freckled and waved with pale chestnut; upper and under tail-coverts and tail black, glossed with green; wing-coverts pure white; primaries dull black; secondaries rich glossy green on their outer webs, black on the inner; tertiaries rich chestnut on their outer and grey on their inner webs; irides dark brown; bill black; legs greyish black.

The figures are two-thirds of the natural size.

CASARCA TADORNOÏDES: *Eyton.*

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

TADORNA RADJAH, *Eyton.*

Radjah Shieldrake.

Anas Radjah, Duperrey, Voy. de la Coquille, p. 602.—Atlas to ditto, pl. 49.
Tadorna Radjah, Eyton, Mon. of the Anat., p. 106.
White Duck, Residents at Port Essington.
Co-mĕr-do, Aborigines of Port Essington.

This beautiful Shieldrake is found in numerous flocks on all the lakes and swamps of the northern and eastern portions of Australia; like the other members of the genus, it frequently perches on trees and resorts to the hollow branches and boles for the purpose of breeding, the young being removed to the water by their parents immediately after they are hatched. When the rainy season has set in, and the water of the lakes has become too deep for them to reach the roots of a species of rush upon which they feed, they become much more scattered over the face of the country, and are then to be seen wading through the mangrove bushes and over the soft mud left by the receding tide, the surface of which affords the bird an abundant supply of food, consisting of crabs, mollusks, and other marine animals. The sexes present no visible difference in their colour or markings, nor is there a sufficient difference in size to distinguish the male from the female.

Head, neck, breast, abdomen, flanks, wing-coverts, inner webs and tips of the outer webs of the secondaries white; band across the breast and upper part of the back rich deep chestnut, which colour gradually passes into the deep dull black of the scapularies, tertiaries, back, rump and tail; feathers of the centre of the back finely freckled with chestnut; outer edges of tertiaries rich reddish chestnut; wing-coverts crossed near the tip of each feather with a narrow, irregular line of black; speculum, or base of the outer webs of the secondaries, rich, shining, bronzy green, between which and the white tip is a broad line of dull black; primaries and spurious wing black; lower part of the flanks and under tail-coverts dull black freckled with white; irides yellowish white; bill and legs reddish flesh-colour, with in some specimens a bluish tinge.

The Plate represents a male and female about the natural size.



J. Gould and H.C. Richter del. et lith.

TADORNA RADJAH. *Eyton.*

C. Hullmandel Imp.

ANAS SUPERCILIOSA, *Gmel.*

Australian Wild Duck.

Anas superciliosa, Gmel. Syst. Nat., vol. i. p. 537.—Lath. Ind. Orn., vol. ii. p. 852.—Ib. Gen. Hist., vol. x. p. 327.—Eyton, Mon. Anat., p. 139.—Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 108.—List of Birds in Brit. Mus. Coll., Part III. p. 135.

—— *leucophrys*, Forst. Drawings, No. 77.

Supercilious Duck, Lath. Gen. Syn. Supp., vol. vi. p. 497.

Gwoom-nân-na, Aborigines of the lowland districts of Western Australia.

Black Duck, Colonists of New South Wales and Van Diemen's Land.

He-turrera, Aborigines of New Zealand.

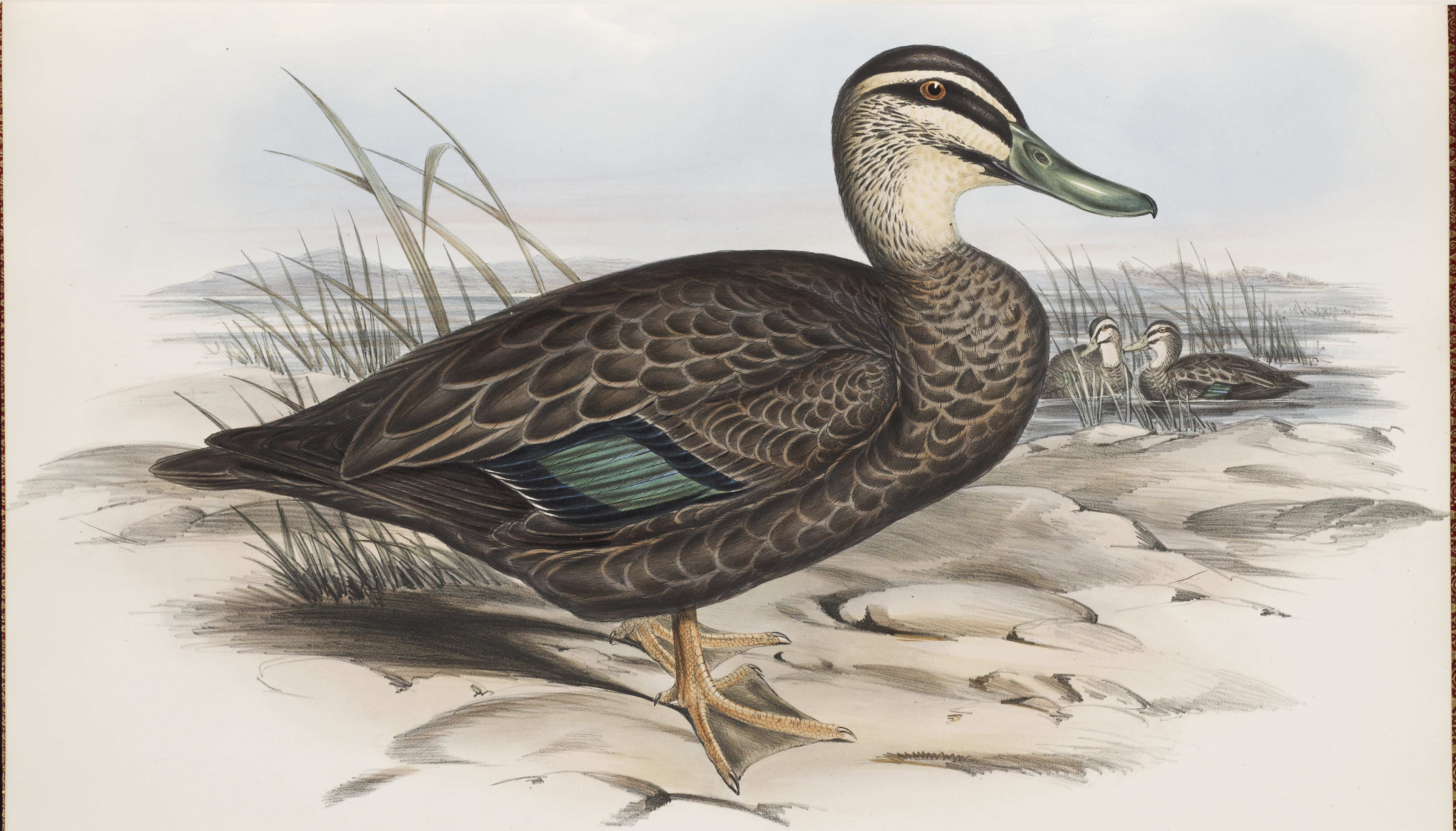
Grey Duck, Colonists of Swan River.

This species may be considered as the Australian representative of the Common Wild Duck (*Anas Boschas*) of Europe. It enjoys a wide range of habitat, all the southern portion of the continent, Van Diemen's Land, and the islands in Bass's Straits being alike favoured with its presence; it also inhabits New Zealand; at least specimens from thence offer so slight a variation that I cannot consider them to be otherwise than identical.

In habits, manners and general economy, the European and Australian species approximate most closely; their flesh is similar in flavour, and the one is as highly esteemed and as much sought after for the table in Australia as the other is in Europe: as regards external appearance, however, no comparison can be made between the two birds; for while the male of the *Anas Boschas* during the greater part of the year is remarkable for the beauty of his plumage, the *Anas superciliosa*, being subject to no periodical change, is always clothed in the sombre-coloured dress represented in the Plate; neither do the sexes offer any difference of colour by which the one may be distinguished from the other. Arms of the sea, rivers with sedgy banks, lagoons and water-holes are its favourite places of resort. I encountered it often and under every variety of circumstance, sometimes in flocks, at others either singly or in pairs, and not unfrequently in company with other species. It abounds on all the rivers of New South Wales and Van Diemen's Land. The tameness or wariness of its disposition depends much upon whether the locality in which it is observed has or has not been frequented by man; in some of the rivers in Recherche Bay in Van Diemen's Land and others in the interior of the continent of Australia, which are rarely visited, it evinced much less shyness than when observed on the waters of the populated districts. It is everywhere either a stationary species or subject to very partial migrations. In the choice of a breeding-place it appears to be influenced by circumstances, sometimes depositing its eggs among long grass and sedges, and not unfrequently resorting to hollow spouts and boles of trees for the same purpose. I possess a fine nest of nine eggs, which was taken in September from the hollow part of a tree at Moore's River in Western Australia; they are of a dark cream-colour, two inches and a quarter long by one inch and five-eighths broad.

Head very dark brown; a narrow line above the eye, a broad stripe from the bill beneath the eye, and the throat buff; sides of the neck striated with buff and dark brown; all the upper surface, wings and tail rich brown, the feathers narrowly margined with buffy brown; tips of the greater wing-coverts velvety black; speculum rich deep glossy green, bounded posteriorly with velvety black; under surface brown, each feather edged with pale brownish white; bill light bluish lead-colour; irides bright hazel; legs yellowish brown with darker webs.

The Plate represents an adult bird of the natural size.



ANAS SUPERCILIOSA: *Gmel:*

J. Gould and H.C. Richter del et lith.

Hullmandel & Walton Imp

ANAS NÆVOSA, *Gould.*

Freckled Duck.

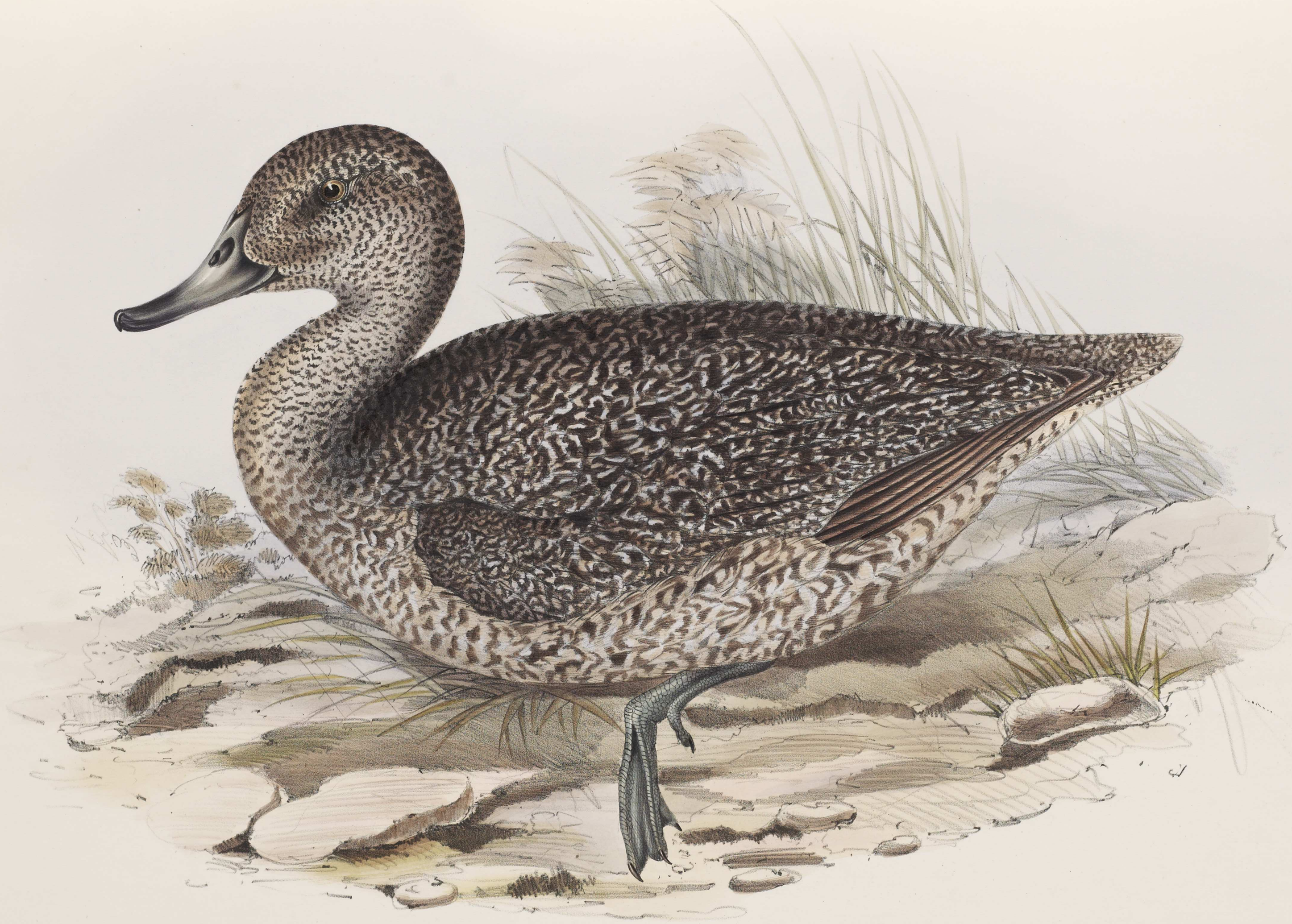
Anas nævosa, Gould in Proc. Zool. Soc., Part VIII. p. 177.
Freckled Duck, Colonists of Western Australia.

Two specimens of this rare Duck are all that have ever come under my notice; of these, one is in the Museum at Sydney, the other in my own collection. The latter was sent me from Swan River, where it was killed by Mr. Gilbert, who states that even there it is a bird of great rarity, and that neither the natives nor the colonists appeared to know anything about it. My specimen is a female; the sex of that in the Museum at Sydney was not ascertained; but in the colour and character of its markings it differs, as far as I can recollect, little or nothing from the one here represented. A further knowledge of this species would be highly interesting: it would be especially desirable to know whether the plumage in which I have figured it is permanent, whether, like most other members of its tribe, the bird undergoes seasonal changes, and also to ascertain if the speculum of the wing is absent in the male as well as in the female: until these points are cleared up, I have placed it in that division of true Ducks forming the restricted genus *Anas*.

The stomach is very muscular, and contained small fish and minute shells.

The whole of the plumage is dark brown, minutely freckled and spotted with irregular oblong marks of white in the direction of the feathers; the under surface the same, but lighter and tinged with buff; wings without a speculum; primaries plain brown; irides light brown; bill greenish grey, becoming much darker at the tip; legs bluish green.

The figure is of the natural size.



ANAS NÆVOSA: *Gould.*

J. & E. Gould del. et lith. *C. Hullmandel Imp.*

ANAS PUNCTATA, *Cuv.*

Chestnut-breasted Duck.

Anas punctata, Cuv.
Mareca castanea, Eyton, Mon. Anat., pl. in p. 119.
——— *punctata*, List of Birds in Brit. Mus. Coll., Part III. p. 134.
Gnwool-ye-nŭg-ger-rang, Aborigines of the lowland districts of Western Australia.
Teal, Colonists of Swan River.

The *Anas punctata* is universally diffused over the southern portion of Australia; it is also equally numerous in some parts of Van Diemen's Land. It is not migratory, but may be met with during every month of the year. In two instances I found its nest and eggs. The situation of one was rather unusual, a hole near the top of a large tree growing on the flats near Aberdeen on the Upper Hunter; this occurred in the month of October, and in the following December I raised a female from her nest among the herbage on Green Island in D'Entrecasteaux' Channel. In both instances the eggs were nine in number.

Like the Wild Duck and Teal of Europe, this bird inhabits rivers, brooks, lagoons and ponds, both inland and near the sea. It is a true grass-feeder, and is one of the best Ducks for the table that is found in the country. When surprised it rises quickly, but is less active than the European Teal; it is, however, a bird of powerful flight. I frequently encountered it in vast flocks while ascending the little-visited rivers of the southern part of Van Diemen's Land, particularly those which empty themselves into the Recherche Bay. In these retired and solitary retreats it is much more tame than in frequented situations, and never failed to fly down the rivers over our heads as we ascended; a measure which, although at the first view it appears to be that of flying into the danger it wished to avoid, was in fact the readiest means of escaping; for had it taken the opposite course, it would have required great exertion to surmount the impenetrable forest of high trees, rising perpendicularly from the water's edge, in which these short and sluggish rivers usually terminate. It is very rare that the male is killed in the nuptial dress, and I am induced to believe that it is not assumed until the bird is two or three years old; after the breeding-season the sexes are alike in plumage, and for at least nine months of the year there is no difference in their outward appearance.

The adult male in the spring of the year has the head and neck of a rich deep changeable bronzy green; the whole of the upper surface rich brown, narrowly margined with light reddish brown; all the under surface chestnut, with a round spot of black near the tip of each feather; greater wing-coverts white; outer webs of the secondaries deep rich velvety black, two or three of the central feathers margined with bronzy reflexions; remainder of the wings brown; tail dark brown; on either side of the vent a patch of white; under tail-coverts black, freckled with tawny and white; bill bluish lead-colour; the nail and the edges of the upper mandible black, and the under mandible crossed near the tip by a band of reddish flesh-colour; irides hazel; feet lead-colour, with the membranes of a somewhat darker hue.

The female, the male in winter, and the young male of the year, have the head and neck minutely striated with brown and buffy white; all the under surface brown, with a blotch of black in the centre of each feather, and the upper surface, wings and tail similarly marked, but less brilliant than in the male.

The Plate represents a male and a female of the natural size.



MARECA PUNCTATA: *Gray.*

J.Gould and H.C.Richter del. et lith. *Hullmandel & Walton, Imp.*

SPATULA RHYNCHOTIS.

Australian Shoveller.

Anas Rhynchotis, Lath. Ind. Orn. Supp. p. lxx.
New Holland Shoveller, Lath. Gen. Syn. Supp., vol. ii. p. 359.—Ib. Gen. Hist., vol. x. p. 313.
Rhynchaspis Rhynchotis, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 123.—Eyton, Mon. of the Anat., p. 133.
———— *maculatus*, Gould in Jard. and Selb. Ill. Orn., vol. iii. pl. 147.
Spatula Rhynchotis, List of Birds in Brit. Mus. Coll., Part iii. p. 140.
Bă̈r-doo-ngoŏ-ba, Aborigines of the lowland districts of Western Australia.
Shovel-nosed Duck of the Colonists.

The present bird affords another instance of that singular law of representation which so frequently occurs in the ornithology of Australia. In size and structure, and particularly in the conformation of the bill, the *Spatula Rhynchotis* closely assimilates to the *Spatula clypeata* of Europe and the *Spatula maculata* of South America. These three species, whose distinctive characters are most plainly developed, doubtless perform in their respective countries similar offices, and are all characterized by a similarity of habits and actions. Although ranging widely from east to west, the habitat of this species, so far as is yet known, is confined to the southern portion of Australia. It is, however, more abundant in Van Diemen's Land and the islands in Bass's Straits. New South Wales, South Australia and Swan River all come within the range of its habitat, but it is much more rare in Western Australia than in any other of the countries I have enumerated. Freshwater rivers, creeks, marshes, lakes and pools both near the coast and in the interior of the country are the situations in which the Australian Shoveller is to be found. I frequently met with it in company with other common ducks of the country, all united in one flock. It feeds on aquatic plants, shelled mollusks and water insects. Its flesh as an article of food is little if at all inferior to that of the Australian Wild Duck (*Anas superciliosa*), consequently it is frequently shot and eaten by the settlers. Like most of its tribe it assumes a richer dress at one season than at another, that of the spring or pairing-time being much the finest, and it is in this dress that I have figured the male; at other times he is so much like the female, which undergoes no change of plumage, as scarcely to be distinguished from her.

I did not succeed in finding the breeding-places of this species, consequently I am unable to give any account of its incubation, nest, or eggs.

The male has the crown of the head and the space surrounding the base of the bill brownish black; on either side of the face between the bill and the eye a broad lunar-shaped line of white, bounded posteriorly by speckles of black; head and neck grey, with greenish reflections; all the under surface very dark chestnut-brown, each feather with a broad crescent-shaped mark of black at the tip, which is very conspicuous on the breast; flanks rich chestnut, each feather crossed by several broad crescentic bands of black; back brownish black, the feathers of the upper part margined with greyish brown; lesser wing-coverts and outer webs of the scapularies blue-grey, the inner webs of the latter black, with a distinct line of white in the direction of and next to the shaft; greater wing-coverts black, largely tipped with white; outer webs of the secondaries rich deep glossy green; primaries very dark brown with lighter shafts; under surface of the wing white; on either side of the vent a patch of white, freckled with black; under tail-coverts black, tinged with shining green; tail dark brown; irides bright yellow; bill dark purplish black, the under mandible clouded with yellow; legs and feet yellow.

The female has the head and neck buff, striated with dark brown, the latter colour predominating on the crown of the head and back of the neck; all the upper surface dark brown, each feather margined with whitish brown; the wings as in the male, but the colours and markings much less brilliant and decided; all the under surface mottled brown and buff.

The Plate represents a male and a female of the natural size.

SPATULA RHYNCHOTIS.

J. Gould del. et lith.

Hullmandel & Walton Imp.



MALACORHYNCHUS MEMBRANACEUS, *Swains.*

Membranaceous Duck.

Anas membranacea, Lath. Ind. Orn. Supp., p. lxix.—Vieill. 2nde Edit. du Nouv. Dict. d'Hist. Nat., tom. v. p. 108.
—Ib. Ency. Méth., Part I. p. 358.
—— *fasciata*, Shaw, Nat. Misc., pl. 697.
New Holland Duck, Lath. Gen. Syn. Supp., vol. ii. p. 359.
Membranaceous Duck, Lath. Gen. Hist., vol. x. p. 331.
Rhynchaspis fasciata, Less. Traité d'Orn., p. 632.
———— *membranacea*, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 124.
Malacorhynchus membranaceus, Swains.—Ib. Class. of Birds, vol. ii. p. 366.—Eyton's Anat., p. 136.—G. R. Gray, List of Gen. of Birds, 2nd Edit., p. 94.—List of Brit. Mus. Coll., Part III. p. 139.
———————— *fasciatus*, Wagl.
Wrongi, Aborigines of New South Wales.
Wym̈-bin, Aborigines of Perth, Western Australia.
Pink-eyed Duck, Colonists of Swan River.

Although this is by no means a common bird in any part of Australia that I have visited, it is very generally distributed over the southern latitudes of that country, and it also occasionally visits Van Diemen's Land; its occurrence however is very irregular, the shortness or duration of the intervals being evidently influenced by some peculiarity of the season. Shallow freshwater lagoons seem to be its favourite places of resort; hence in New South Wales during the rainy season, when the flats and hollows are temporarily filled with water, giving life to myriads of the lower animals upon which this Duck feeds, its presence may almost at all times be looked for, while on the other hand it is seldom to be met with during the opposite periods, or the seasons of drought. As this bird has never yet been seen out of Australia, or even on the northern shores of that country, we may reasonably suppose that toward the interior it finds situations suited to its existence, and where it doubtless breeds; but respecting this portion of its economy no particulars whatever have yet been ascertained. No one of the tribe that I have observed in a state of nature presents a more elegant or graceful appearance than this little Duck, which is generally seen in small companies of from six to twenty in number, swimming over the placid lagoons, and betraying so little fear and shyness on the approach of man, as to present a singular contrast in this respect to the other members of the family. Its peculiarly light plumage renders it very buoyant on the water; its flight is very powerful, and it passes through the air with great quickness, like the Green-necked Duck and Shoveller, with both of which species it is frequently found in company.

The sexes are so perfectly similar in plumage that they are not to be distinguished with certainty; the male, however, is generally the larger of the two.

Sides of the face and chin white; crown greyish brown, becoming paler on the forehead; space round the eye, and a line from either eye uniting at the occiput and passing down the back of the neck brownish black; immediately beneath this line and behind the dark patch surrounding the eye an oblong mark of rose-pink; back and wings brown, very minutely freckled with black; rump dark brown; upper tail-coverts buffy white, with a broad stripe of dark brown across the tip of each; tail dark brown, slightly tipped with white; sides of the head and neck, back of the neck and all the under surface brownish white, crossed by numerous dark brown fasciæ, which are narrow on the sides of the head and neck, broad and distinct on the back of the neck, the breast and flanks, and nearly obliterated on the centre of the abdomen; under tail-coverts deep buff; irides dark reddish brown; bill varies from greenish grey to bluish olive; tip of the lower mandible white; tarsi and toes emerald-green in some specimens and yellow-brown in others; webs dark brown.

The Plate represents the two sexes of the natural size.



MALACORHYNCHUS MEMBRANACEUS: *Swains.*

J.Gould & and H.C.Richter del. et lith.

Hullmandel & Walton Imp.

DENDROCYGNA ARCUATA.

Whistling Duck.

Anas arcuata, Cuv., Horsf. Zool. Research. in Java.
Dendrocygna arcuata, Swains. Class. of Birds, vol. ii. p. 365.—List of Birds in Brit. Mus. Coll., part iii. p. 131.
—Eyton, Mon. of Anat., p. 108.
En-jĕp-ere, Aborigines of Port Essington.
Whistling Duck, of the Colonists.

I possess specimens of this fine Duck from Moreton Bay and from various parts of the north coast, on comparing which with others procured in Java I find that they are somewhat larger, and that they have the throat and fore-part of the neck of a less deeply tinted buff; in other respects they are precisely similar.

During the months of September, October, November and December it assembles in vast flocks on the lakes around the settlement at Port Essington: the lagoons and waters at that season of the year are so shallow, that this and many other species of the Duck tribe are enabled to wade among the herbage and procure an abundant supply of food. Mr. Gilbert states, that on the approach of man or the report of a gun, this and the other species in company with it rise altogether, but that each species separates itself into a distinct flock during the act of rising. While on the water it is quite silent, emitting no kind of noise, but all the time it is on the wing it gives utterance to its peculiar whistle.

The stomach is extremely muscular, and the food consists of small fish and aquatic plants.

Some eggs brought to the settlement by the natives and said to belong to this bird were taken early in March, from nests built in long grass on the small islands adjacent to the harbour at Port Essington; they are of a creamy white, one inch and seven-eighths long by one inch and a half in breadth.

Crown of the head, line down the back of the neck, all the upper surface, wings and tail brownish black, each feather of the back broadly margined with deep buff; wing-coverts deep chestnut; chin white; sides of the head buffy white; breast deep buff, each feather crossed by a short bar of black; abdomen chestnut; line down the centre of the abdomen and vent buff, mottled with black; under tail-coverts white; flank-feathers buffy white, margined on either side with two stripes, the inner one of which is brownish black and the outer chestnut; irides dark brown; bill black; tarsi greenish grey; feet blackish grey.

The figures represent the two sexes, which are nearly alike in plumage, of the natural size.



J. Gould and H. C. Richter del et lith.

DENDROCYGNA ARCUATA.

Hullmandel & Walton Imp.

LEPTOTARSIS EYTONI, *Gould.*

Eyton's Duck.

Leptotarsis Eytoni, Gould MS.—Eyton's Mon. of Anat., p. 111.
Dendrocygna Eytoni, List of Birds in Brit. Mus. Coll., Part iii. p. 132.
Now-ē-rāyen, Aborigines of Port Essington.

A SINGLE specimen of this very curious Duck was presented to me some years since by B. Bynoe, Esq., who procured it on the north coast of Australia. Perceiving at a glance that it differed in structure, particularly in the form of the nail of the bill, in the length and colour of the tarsi, and the diminished extent of the interdigital membrane, from all the previously established genera of the family to which it belongs, I immediately characterized it as the type of a new genus under the appellation given above, at the same time assigning to it the specific name of *Eytoni* as a just tribute of respect to T. C. Eyton, Esq., of Donnerville, a gentleman ardently attached to the science of ornithology, and well-known for his valuable "Monograph of the Anatidæ." Since that period several other examples have come under my notice, two of which were procured in South Australia and presented to the British Museum by C. D. E. Fortnum, Esq., of Adelaide, and others adorn my own collection.

The true habitat of this species appears to be the north-west coast of Australia, where, as Captain Stokes informs me, "it is one of the commonest birds of the country. When on the wing it makes a peculiar whistling sound that can be heard at a great distance, and which changes as it alights into a sort of chatter. The perching on trees is performed in a very clumsy manner, swinging and pitching to and fro. We subsequently often found it on the rivers of the north coast, but not within some miles of their mouths, or near their upper waters, from which it would appear that it inhabits certain reaches of the river only; we never found it in the swamps. The farthest south it was afterwards met with was on the Albert River, in the Gulf of Carpentaria, in lat. 18° S., which gives it a range of six and a half degrees of latitude over the northern part of the continent. Its nest never came under our notice, consequently we are not aware either of the size or colour of the eggs; neither did we see any young birds during the period of our observation, ranging from July to November."

Crown of the head and back of the neck dark sandy brown; sides of the head and neck and the breast fawn-colour; throat and forepart of the neck brownish white; all the upper surface greyish olive-brown; rump and tail brownish black crossed by a band of buff; primaries and secondaries deep sandy red; tertiaries dark brown; across the upper part of the abdomen a broad band of purplish sandy red, each feather crossed by several narrow bands of black; feathers immediately before and beneath the insertion of the wing chestnut-red, crossed by several broad bars of black; flank-feathers buff, broadly and distinctly margined with black; lower part of the abdomen and under tail-coverts buffy white; feet flesh-colour; irides dark orange.

The Plate represents the bird of the natural size.

J. Gould and H.C. Richter del. et lith.

LEPTOTARSIS REYONI. Gould.

Hullmandel & Walton Imp.

NYROCA AUSTRALIS, *Gould.*

White-eyed Duck.

Nyroca Australis, Gould, MSS. Eyton, Mon. of Anat., p. 160.
Er-roŏ-doo, Aborigines of the lowland districts of Western Australia.
Bud-bun-bun-loot, Aborigines of Port Essington.
White-winged Duck of the Colonists.

This bird is frequently seen on the rivers in Van Diemen's Land, where I am certain that it breeds, the eggs in my own collection having been taken on the banks of the Derwent; I also shot many individuals on the Upper Hunter in the autumn of 1839, and from what I could learn from persons resident there, it makes annual visits to such parts of New South Wales when the lagoons are filled with water and food consequently abundant. The flats between Aberdeen and Scone had hundreds of these birds on them in company with the Pink-eyed Teal and Shovellers. I have also a fine example killed by Commander Ince, R.N., near the settlement at Port Essington, where however it is very rare; it is also occasionally met with in Western Australia. In this bird we have another beautiful representative of a species common to Europe and India, the *Nyroca leucophthalmos*, both birds having white eyes and a similar style of plumage; the Australian species differs however from its near ally in having a lighter-coloured plumage, and less of the chestnut hue; it is also a much larger bird. Quiet reaches of rivers where the water runs slowly, bays and inlets of the sea and lagoons, are among its favourite places of resort. As may be supposed, it is a very excellent diver and gains much of its food beneath the surface of the water, readily descending to the bottom in search of mollusca, insects and aquatic plants.

The only outward difference between the sexes consists in the female being rather smaller than the male, and somewhat less bright in colour.

The male has the general plumage chestnut-brown; across the breast a broad band of brownish white; secondaries white at the base, forming a conspicuous mark across the wing, and tipped with bronzy brown; basal portion of the inner webs of the primaries and under tail-coverts white; bill black with a band of blue-grey near the tip; irides white; forepart of the tarsi lead-colour; hind part of the tarsi and the webs blackish brown.

The female is similar, but much paler in colour, and has the centre of the abdomen brownish white, blending into the chestnut in lieu of the broad band crossing the same part in the male.

The front bird in the accompanying Plate represents the bird nearly the size of life.



NYROCA AUSTRALIS: *Eyton.*

J. Gould and W.C. Richter del. et lith.

Hullmandel & Walton Imp.

J. Gould and W.C. Richter del. et lith. *C. Hullmandel Imp.*

ERISMATURA AUSTRALIS.

Blue-billed Duck.

Oxyura Australis, Gould in Proc. of Zool. Soc., Part IV. p. 85; and in Syn. Birds of Australia, Part II.
Erismatura Australis, Eyton, Mon. of Anat., p. 172.
Boŏd-doo, Aborigines of the lowland districts of Western Australia.
Blue-billed Duck of the Colonists.

This bird would appear to be so limited in its habitat, as to be confined to the colony of Western Australia; at least up to this time it has not been discovered in any other part of the country. Mr. Gilbert's notes inform me that it is never seen in the rivers, either those communicating with the sea or those of the interior, and that it is only found on those lakes running parallel to and near the coast that are surrounded with high reeds and tea-trees. Its general habits resemble those of the *Biziura lobata*; like that bird it possesses the power of remaining under water for a great length of time, and if closely hunted flaps along the surface without taking wing. Its voice is a peculiar inward tone, which the natives describe by saying, "it has no voice, but makes a noise with its heart."

It breeds in September and October, constructing a nest very like that of the *Biziura lobata*, and laying from two to nine or ten eggs which are of a large size, and of a uniform bluish white, with a very rough surface; two inches and five-eighths long by two inches broad.

Its food consists of insects, shelled mollusks, fish, &c.

The sexes, as will be seen on reference to the accompanying Plate, differ very considerably in plumage.

The male has the whole of the head, throat and neck black; chest, breast, back and flanks rich chestnut; wings and tail brownish black; rump brownish black freckled with brown; belly and under tail-coverts brownish grey, obscurely marked transversely with dark brown; irides very dark brown; bill light blue; front and inner side of the tarsi and toes french-grey; outside of tarsi and webs blackish grey.

The female is the same size as the male, and has a plumage of uniform blackish brown, transversely marked with indistinct zigzag lines and freckles of chestnut-brown, lighter and more greyish brown on the under surface; tail-feathers black; bill dark olive-green; the under mandible lighter than the upper; irides, legs and feet as in the male, but paler.

The figures are of the natural size.

ERISMATURA AUSTRALIS: *Eyton.*

J. Gould and H.C. Richter del et lith.

C. Hullmandel Imp.

BIZIURA LOBATA.

Musk-Duck.

Anas lobata, Shaw, Nat. Misc., pl. 255.
Lobated Duck, Lath. Gen. Syn. Supp., vol. ii. p. 349.—Ib. Gen. Hist., vol. x. p. 273.
Biziura Novæ-Hollandiæ, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 222.
Hydrobates lobatus, Temm. Pl. Col., 406.—Less. Traité d'Orn., p. 630.
Biziura lobata, Eyton, Mon. of Anat., p. 168.
Anas carunculata, Vieill. 2nde Edit. du Nouv. Dict. d'Hist. Nat., tom. v. p. 109.—Ib. Ency. Méth. Orn., Part I. p. 356.
Go-dă-ra, Aborigines of Western Australia.

This singular species of Duck is widely and very generally distributed over the whole of the southern countries of Australia, including Tasmania and the smaller islands in Bass's Straits. I have specimens in my collection from the extreme western, southern and eastern portions of the continent, which present no differences sufficiently marked to establish a second species. It frequents deep bays and inlets of the sea, the upper part of rivers, lakes and secluded pools. More than a pair are rarely seen at one time; often a solitary individual takes up its abode in some favourite pool, where it lives a life of complete seclusion, depending for its food and for its preservation from danger upon its powers of diving rather than upon those of flying. Although I have many times come suddenly upon this bird I could never force it to take wing, even when I surprised it at one of those small water-holes that are frequently met with in the beds of rivers during droughts, instead of attempting to escape by flight it would immediately dive and remain submerged for a great length of time, merely rising to the surface at long intervals for the purpose of breathing. The chief food of the Musk-Duck is mussels, leeches, and aquatic worms. In Western Australia it is said to leave the rivers in August, and to take up its abode for the purpose of breeding in the numerous lakes which stretch along parallel to the coast; a precaution probably taken for the better protection of the eggs, which would become an easy prey to the natives and colonists, were the task of incubation performed on the banks of the narrow rivers and pools; besides which, the lakes not being subject to the sudden rising of the water which always occurs in the rivers after rain, the birds are thus secured from this among other dangers: the nest, which is placed either on the stump of a low tree, or on the bank about two feet above the level of the water, is formed of dried reeds, and lined with feathers and down plucked by the bird from its own breast; the eggs are of a large size, usually two in number and of a uniform pale olive, three inches long by two broad.

The young birds if pursued while on the water mount on the back of their parent, who dives with them to a place of safety.

During the pairing and breeding-season, which is the months of September and October, it emits a strong musky odour, which is often perceptible long before the bird can be seen, and this odour is retained for years afterwards in the skins of specimens killed during that particular season.

Its note is extremely singular, resembling the sound caused by a large drop of water falling into a deep well; or it may be imitated by the sudden opening of the lips.

A most remarkable difference exists in the relative size of the sexes, the bulk and admeasurements of the female being not more than half of those of her mate; the male only possesses the wattle under the throat, the use of which I could not detect.

The male has the crown of the head and the back of the neck brownish black; the remainder of the upper surface, chest and flanks blackish brown, crossed by numerous narrow freckled bars of buffy white; wings and tail blackish brown; throat and under surface dark brown, each feather tipped with pale buffy white; irides dark brown; bill and lobe beneath the chin greenish black; legs and feet dark leaden grey; inside of the tarsi greenish grey.

The female is similar in colour, but has all the markings lighter and less distinct, and is destitute of the lobe beneath the chin.

The Plate represents the male and female, about three-fourths of the natural size.

J. Gould & and H.C. Richter del. et lith.

BIZIURA LOBATA: *Eyton*

C. Hullmandel Imp.

LARUS PACIFICUS, *Lath.*

Pacific Gull.

Larus Pacificus, Lath. Ind. Orn. Supp., p. lxviii.—Vieill. 2nde édit. du Nouv. Dict. d'Hist. Nat., tom. xxi. p. 508.—Ib. Ency. Méth., tom. i. p. 345.—Less. Traité d'Orn., p. 617.—List of Birds in Brit. Mus. Coll., part iii. p. 170.

Pacific Gull, Lath. Gen. Syn. Supp., vol. ii. p. 332.—Ib. Gen. Hist., vol. x. p. 169.

Larus leucomelas, Vieill. 2nde édit. du Nouv. Dict. d'Hist. Nat., tom. xxi. p. 509.—Ib. Ency. Méth., tom. i. p. 346. pl. 234. fig. 4.—Less. Traité d'Orn., p. 617.

—— *frontalis*, Vieill. 2nde édit. du Nouv. Dict. d'Hist. Nat., tom. xxi. p. 505 ?—Ib. Ency. Méth., tom. i. p. 345 ?

—— *Georgii*, King, Survey of the Intertropical Coast of Australia, vol. ii. p. 423.

Nga-ga-la, Aborigines of the lowland districts of Western Australia.

Larger Gull of the Colonists.

The *Larus pacificus*, which differs from every other species I am acquainted with in the deepened form of the bill and in the pearly whiteness of the irides, is abundantly dispersed over all the shores of Van Diemen's Land, the islands in Bass's Straits, and the southern parts of the Australian continent. It ascends high up the larger rivers and arms of the sea, but is never, so far as I am aware, seen in the interior of the country. It is very powerful on the wing, often mounts high in the air, and soars in circles after the manner of the Eagle; in this particular habit, and in its less laborious flight, it differs considerably from its prototype, the *Larus marinus* of Europe, while in most other parts of the economy it as closely assimilates to it. It traverses the line of coast in search of food, which consists of any stranded carrion or floating animal substance, to which living fish, crabs, mollusks, and even small quadrupeds are added whenever opportunities occur.

When fully adult, the sexes can only be distinguished by the smaller size of the female; the young, on the contrary, for at least two years, differ so considerably as to favour the idea of their belonging to a different species; the mottled brown of this state, however, may frequently be seen gradually changing to the colouring of the adult, as may also the hue of the bill and eye, which gradually change with the plumage; the representation of these states in the accompanying Plate will render them more easily understood than the most lengthy description. This fine Gull breeds on most of the low islands round Van Diemen's Land; the eggs, which are generally three in number, being usually placed on the bare ledges of rock, although not unfrequently on the shore of the projecting points of small islands. The eggs are of a clear olive, marked all over with blotches of blackish and umber brown, some of the markings appearing as if beneath the surface of the shell; they are two inches and five-eighths long by one inch and seven-eighths in breadth.

Head, neck, upper part of the back, all the under surface, upper and under tail-coverts white; back and wings dark slaty black, the secondaries largely tipped with white; primaries black, the innermost slightly tipped with white; tail white, the inner web of the outer feather and both webs of the remainder crossed near the tip with a broad band of black; irides pearl-white; legs yellow; claws black; eyelash yellow; bill orange stained with blood-red at the tip, in the midst of which in some specimens are a few blotches of black.

The young have the general plumage brown, with lighter margins to the feathers, giving them a mottled appearance; under tail-coverts nearly white; primaries and tail blackish brown; irides brown; bill yellowish brown, deepening into black at the tip.

The accompanying Plate represents an adult and a young bird, about two-thirds of the natural size.



J. Gould and H.C. Richter del. et lith.

LARUS PACIFICUS: Lath.

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

XEMA JAMESONII.

Jameson's Gull.

Crimson-billed Gull, Lath. Gen. Hist., vol. x. p. 145.
Larus Jamesonii, Wils. Ill. Zool., pl. xxiii.—List of Birds in Brit. Mus. Coll., part iii. p. 171.
—— *scopulinus*, Forst. Drawings, tab. 109, very young.
Silver Gull, List of Birds in Tasmanian Journal, vol. i. p. 58.
Djĕ-je-nup, Aborigines of the lowland districts of Western Australia.
Little Gull, of the Colonists of ditto.

This beautiful species of Gull is abundantly dispersed over the coast of Van Diemen's Land and the southern coasts of Australia generally; it also frequents the rivers and inland lakes wherever they occur of any extent. There is a Gull in Torres' Straits so similar to the bird here represented, that its larger size is the only difference I have been able to detect between them; should future research prove them to be mere local varieties, then the range of this species may be said to extend over the whole of the coasts of Australia. Although never characterized by any dark colouring of the head, it is in every respect a true *Xema*; like the other members of that genus, it frequently congregates in immense flocks, and colonies of many hundreds have been found breeding together, sometimes on the marshes, at other times on the low small islands; a colony of this kind existed on Great Actæon Island in D'Entrecasteaux' Channel when I visited it in 1838.

The flight of this little Gull is light and buoyant in the extreme, it runs over the surface of the ground with lightness and great facility, and it is altogether one of the most beautiful and fairy-like birds I have ever met with.

Its nest is formed of a few rushes and grasses, and it lays four or five eggs, which differ considerably in colour, hardly any two being alike; the ground colour varying from pale greenish to dark brownish olive; in some instances slightly, in others largely blotched and streaked with blackish brown; they also vary in shape, some being shorter and thicker than others.

The two sexes are precisely alike in colour and may be thus described:—

Head, neck, all the under surface, spurious wing, rump and tail white; back and wings delicate grey; primaries white, eccentrically marked with black, largely on their inner and narrowly on their outer webs, and largely tipped with the same hue with a slight fringe of white at the extremity; eyelash, bill, legs and feet deep blood-red; nails black; irides pearl-white.

The figures are of the natural size.

C. Bathurst del. et lith.
J. Arnold and R.C. Bentley del. et lith.

J. Gould and H. C. Richter, del. et lith.

XENA JAMESONII.

Hullmandel & Walton Imp.



LESTRIS CATARRACTES.

Skua Gull.

Larus Catarractes, Lath. Ind. Orn., vol. ii. p. 818.—Linn. Syst. Nat., vol. i. p. 226.—Gmel. Edit., vol. i. p. 603.
Lestris Catarractes, Temm. Man. d'Orn., p. 511.—Id. 2nd Edit., p. 792.
Larus fuscus, Briss. Orn., vol. vi. p. 165.
Catharacta Skua, Brunn., No. 125. Retz. Faun. Suecica, No. 123.
Le Goeland brun, Buff. Hist. Nat. des Ois., tom. viii. p. 408.
Port Egmont Hen, Hawks. Voy., vol. ii. p. 283.—Cook's Voy., vol. i. pp. 44, 272.—Forst. Voy., vol. i. pp. 109, 118, &c.
Skua Gull, of British authors.

Every voyager to and from Australia, whether by the Cape of Good Hope or Cape Horn, will observe that in all the higher latitudes the ship will be frequently visited by solitary examples of this Gull, which may be distinguished from the Albatroses and Petrels by its more flapping and heavier mode of flight, and by the white mark on the wing, which shows conspicuously when seen from beneath; it appears, however, to be attracted to the ship more from curiosity than from aught else, for after passing round it two or three times, it wings its way again over the expansive ocean until lost to sight; it is as often seen in the open ocean a thousand miles from land, as it is near the coast, and as all the other Gulls frequent seas studded with islands on which they can alight at pleasure, I was for a long time surprised how a bird of this family could exist so far from any apparent means of repose, until the difficulty was at last solved by my seeing the bird settle on the masses of sea-weeds which here and there float about in all seas, and on which it rested with as much ease as if standing on a rock. Its predatory habits enable it to get food in abundance by chasing the Albatroses and Petrels and compelling them to disgorge their food, and hence its common name of Great Parasitic Gull or Skua. So little difference is observable between the examples of the Southern Ocean and those found in our own seas, that I have been compelled to consider them to belong to the same species. It was nowhere more abundant than off the coast of Van Diemen's Land, and may be frequently seen in Storm Bay at the mouth of the Derwent; it may also be seen off New Zealand and all similar latitudes round the globe; and that it also visits higher latitudes is evidenced by a note with which I have been favoured by R. McCormick, Esq., Surgeon R.N., wherein he states that it is found as far south as Kerguelen's Land and Campbell Island.

I may mention that all the specimens from the southern hemisphere are rather darker in colour and somewhat larger in size than those from the northern. I observed no difference in the colouring of the sexes, which may be thus described:—

All the upper surface blackish brown, the feathers of the back with whitish shafts and tips; all the under surface chocolate-brown; base and shafts of the primaries white; bill and feet black.

The figure is about three-fourths of the natural size.

J. Gould and H.C. Richter del et lith.

LESTRIS CATARRHACTES.

Hullmandel & Walton Imp.



SYLOCHELIDON STRENUUS, *Gould.*

Powerful Tern.

Sterna (Sylochelidon) strenuus, Gould in Proc. of Zool. Soc., Feb. 24, 1846.

To a casual observer the present bird would appear to be identical with the *Sterna Caspia*; but on comparison it will be found to differ from that species in its larger size and its more richly coloured bill: hence I have been induced to consider it as distinct; and as it is by far the most powerful species of the genus yet discovered, its average weight being one pound and six ounces, the specific term *strenuus* which I have assigned to it may not be deemed inappropriate. The two species form beautiful representatives of each other in the countries they respectively inhabit.

The *Sylochelidon strenuus* frequents every part of the southern shores of the Australian continent, but is perhaps more numerous on the islands in Bass's Straits and Van Diemen's Land than elsewhere. Its favourite breeding-places are the promontories of small islands, spits of land running out from the shores of the mainland, extensive flats at the entrances of large rivers, and all similar situations. I never observed it breeding in company, and seldom met with more than a pair on an island, unless it was one of considerable extent. It lays two eggs on the bare ground, often within a very short distance of the water's edge. No bird watches its eggs with greater assiduity, or defends them with greater courage, and woe betides the unlucky gull or other natural enemy that may wander within the precincts of its breeding-place. I could always discover its eggs by the clamorous cackling screeching note which it constantly utters while flying over the place where they are deposited. The breeding-season comprises the months of August, September and October, during which period the crown of the head is of a deep black, which colour gives place to a spotted appearance at other seasons. Both sexes are subject to precisely the same changes, and so much are they alike, that it is only by the somewhat smaller size of the female that they can be distinguished: the accompanying Plate represents the bird at opposite seasons of the year, and will at once show the nature of the changes I have referred to. The extensive development of the wings gives this fine species immense powers of flight: it plunges into the water with the greatest impetuosity, and brings from beneath the surface fishes of a very considerable size, which are swallowed entire, and in which state I found several in the capacious stomachs of those I dissected.

The eggs are of a stone-colour, marked all over with large and small blotches of umber-brown, a great portion of which appear as if beneath the surface of the shell; they are two inches and five-eighths long by one inch and three-quarters broad.

Forehead, crown and nape deep glossy black; back, wings and tail pale ashy grey, becoming lighter on the tail and deepening into dark grey on the primaries, the shafts of which are white; remainder of the plumage pure white; irides black; bill scarlet, stained with yellow on the sides and tip, and with greenish yellow near the extremity.

The figures are of the natural size.



J. Gould and H.C. Richter del. et lith.

SYLOCHELIDON STRENUUS: *Gould*

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

THALASSEUS PELECANOÏDES.

Torres' Straits' Tern.

Sterna Pelecanoïdes, King's Survey of Intertropical Australia, vol. ii. p. 422.
Pelecanopus Pelecanoïdes, Wagl.—G. R. Gray, List of Gen. of Birds, 2nd Edit. p. 100.—List of Birds in Brit. Mus. Coll., part iii. p. 180.
Caspian Tern, Lath. in Phil. Voy., p. 160. pl. in p. 77?—Lath. Gen. Syn., vol. vi. p. 351. var. B.
Crested Tern, Lath. Gen. Hist., vol. x. p. 101.
Gerra-gerra, Aborigines of New South Wales.
Kal-jĕer-gang, Aborigines of the lowlands of Western Australia.
Yellow-billed Tern, of the Colonists.

The Tern forming the subject of the present Plate I believe to be the bird described by Capt. King as *Sterna Pelecanoïdes*, as it is the only large species of the family inhabiting Torres' Straits. Captain King's description was doubtless taken either from an immature bird or one in the winter plumage. It differs from *Thalasseus poliocercus* in its much larger bill and in being a much stouter bird; it is however most nearly allied. I have received specimens and eggs from Port Essington, and also from Rottnest Island off the western coast of Australia, where Mr. Gilbert found the bird breeding in great numbers on an isolated rock about two hundred yards from the main-land; it also attracted the notice of Mr. John McGillivray while cruising in Torres' Straits, and it is to him that I am indebted for the following information as to its range, &c.:—"This handsome Tern, which supplies the place of the *Thalasseus poliocercus* upon the north-east coast, is generally distributed from Lizard Island to the southward as far northward as Bramble Quay, and is also to be found in Endeavour Straits. It was breeding on Lizard Island in the beginning of May, and on Raine's Island in June, when both eggs and young birds were procured; in the latter locality I found it in three small parties upon a low ridge on one side of the island, depositing its single egg in a slight hollow scooped out of the ground in a bare smooth spot surrounded with herbage. This bird was so much more shy than the Sooty Tern and Noddy, that I was obliged to resort to the gun to procure specimens, as it would not allow me to approach sufficiently near to throw a short stick with effect. The eggs vary considerably in their markings; the ground-colour is generally stone-grey, in some instances thickly speckled and blotched with black; others are marked with irregular waved streaks and minute spots of dark brown; others again with scattered irregular streaks and spots of black; some are thickly blotched, especially at the larger end, with reddish, and others are finely blotched and streaked with dark red on a light pinkish grey ground; they also vary somewhat in size, but they usually average two inches and three-eighths in length by one inch and a half in breadth." I possess one which differs both in size and colouring, being considerably larger and of a rich reddish buff, blotched all over, but particularly at the larger end, with brownish black, and others in which the streaks assume the appearance of Chinese characters.

Mr. Gilbert states that on the rock near Rottnest Island they breed in December, and that the eggs are merely deposited in a slight hollow made by the parents in the soft part of the rock, but were so numerous that it was with difficulty he could move among them without crushing many at every step.

Crown of the head and occipital crest jet-black; forehead, sides, and back of the neck and all the under surface silky white; back, wings and tail dark grey, deepening into black on the edges and tips of the primaries, the shafts of which as well as those of the tail are white; bill pale greenish yellow; irides very dark brown; legs and feet black; soles dirty brownish yellow.

Young birds have the grey of the upper surface much paler, and the black of the head mottled with white.

The Plate represents two birds, one in the winter and the other in the breeding plumage, rather under the natural size.

J. Gould and H.C. Richter del. et lith.



THALASSEUS PELICANOÏDES.

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

THALASSEUS POLIOCERCUS, *Gould.*

Bass's Straits' Tern.

Sterna poliocerca, Gould in Proc. of Zool. Soc., Part V. p. 26; and in Syn. Birds of Australia, Part II.
Sylochelidon poliocerca, List of Birds in Brit. Mus. Coll., part iii. p. 175.

No species of Tern is so abundant in Van Diemen's Land and New South Wales during the months of winter as the present bird, which then inhabits the bays and inlets of the sea, and ascends high up the rivers in flocks of from ten to fifty in number, for the purpose of securing the abundant supply of food afforded by the shoals of fish which there abound; at this season of the year the heads of all are mottled with black and white, a style of plumage which gives place to an intensely jet-black hue in summer, as represented in the accompanying Plate: the only part of Australia from whence I have received specimens in this latter state is the southern coast, where both sexes and the eggs were procured, and sent to me by my late friend J. B. Harvey, Esq., of Port Lincoln.

It is about the size of, or perhaps rather larger than the Kentish Tern of England, and has many habits in common with that species.

The eggs vary considerably in colour, some being of a stone-grey and others of a buffy hue, all more or less marked with brown, the markings in some being large and irregular blotches, in others streaks and spots, in others in the form of Chinese or Hindustanee characters; others again are freckled and blotched all over with brown; and some have the markings so thick at the larger end that they blend into each other and form a broad zone.

Crown of the head and occipital crest jet-black; forehead, back of the neck and all the under surface silky white; back, wings and tail grey; secondaries tipped with white; shafts of the wings and tail white; bill yellow; irides black; legs and feet brownish black.

The figures represent the bird in the summer and winter plumage, of the natural size.



J. Gould and H. C. Richter del. et lith.

THALASSEUS POLIOCERCUS: Gouv.

Hullmandel & Walton imp.

J. Gould and H. C. Richter del. et lith.

C. Hullmandel imp.

THALASSEUS TORRESII, *Gould.*

Torres' Tern.

Thalasseus Torresii, Gould in Proc. of Zool. Soc., Part X. p. 140.
Mair-id-bo, Aborigines of Port Essington.

In the collection formed by Mr. Gilbert at Port Essington were two examples of this new species, respecting which he says, "This bird is numerous on all the sandy points in the harbour as well as all round the coast and the neighbouring islands; and I am informed that it breeds on the sandy islands during the months of April and May:" beyond this I have no information to communicate except that I possess examples killed at Madras in the East Indies, whence I infer that its range extends from thence throughout the islands of the Eastern Archipelago to the northern coasts of Australia. It is intimately allied to the *Thalasseus Pelecanoïdes* and *T. poliocercus*, which it doubtless resembles in its general habits and nidification.

The stomach is membranous and the food consists of fish.

The sexes are alike in plumage; in summer the forepart of the head is black, while in winter it is white.

Forehead, sides of the face and neck, upper part of the back and all the under surface silky white; feathers of the crown and surrounding the eye white, with a minute spot of black in the centre of each; occiput and back of the neck black; back and wings deep grey; tail grey; primaries greyish black, broadly margined on their inner web with white; the shafts white; irides dark brown; bill ochre-yellow; feet blackish grey.

The Plate represents the bird in the summer and winter plumage, of the natural size.



THALASSEUS TORRESII: *Gould.*

J. Gould and H^C. Richter Ad. et lith.

Hullmandel & Walton Imp.

J. Gould and H^C. Richter del. et lith.

C. Hullmandel Imp.

STERNA MELANORHYNCHA, *Gould.*

Black-billed Tern.

Sterna velox, Gould in Proc. of Zool. Soc., Part X. p. 139.

I KILLED several fine examples of this Tern off the coast of Van Diemen's Land and within a few miles of Maria Island; it is perhaps more nearly allied to the *Sterna Dougallii* than to any other species of the group; it differs, however, in its larger size and in the jet-black colouring of its bill: all the specimens I procured had the forehead white, a character of plumage which I consider to be indicative of the winter dress; in all probability this part will be black at the opposite season of the year. Its flight at sea is very powerful, and hence I gave it the name of *velox*, but as that specific term had been previously applied by Dr. Rüppell to a Tern from Africa, I have substituted that of *melanorhyncha*, which I think not inappropriate. I regret that I have no other information to communicate respecting it.

The sexes do not differ from each other in external appearance.

Forehead, lores, sides of the neck, and all the under surface white; space surrounding the eye, occiput, and back of the neck black; all the upper surface, wings and tail delicate grey; outer web of the external quill greyish black; shafts of all the primaries white; irides blackish brown; bill black.

The figures are of the natural size.

STERNA MELANORHYNCHA. *Gould*



STERNA GRACILIS, *Gould.*

Graceful Tern.

Sterna gracilis, Gould in Proc. of Zool. Soc., November 1847.

The graceful and elegant Tern here represented was killed by Mr. Gilbert on the Houtmann's Abrolhos, off the western coast of Australia, where he states it is very numerous, continually moving about from one part of those islands to another, and settling during the heat of the day on the coral ridges in large flocks. He was informed that it breeds there in great numbers during the month of November, but he was unfortunately too late to procure its eggs, which are said to be two in number, and to be deposited on the ground in a slight hollow among the loose coral ridges.

I regret to say that to this meagre account I have nothing to add, as I did not meet with the species myself, neither have I seen or received specimens from any other locality.

Crown of the head and back of the neck rich deep black; all the upper surface, wings and tail silvery grey; sides of the neck and all the under surface white, with a blush of rose-colour on the breast and centre of the abdomen; shafts of the primaries white, their outer webs slaty black, and a narrow stripe of dark slate-colour along the inner web close to the stem; irides brownish red; bill red; feet orange-red; nails black.

The Plate represents the bird of the natural size.

STERNA GRACILIS: *Gould.*

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

STERNA MELANAUCHEN, *Temm.*

Black-naped Tern.

Sterna melanauchen, Temm. Pl. Col., 427.—Less. Traité d'Orn., p. 622.—Ib. Man. d'Orn., tom. ii. p. 382.

Although this species has been figured by M. Temminck in his valuable "Planches Coloriées," it becomes necessary to include a drawing of it in the present work, in consequence of its being a frequent visitor to the northern shores of Australia. M. Lesson states that it is found in the Celebes and on most of the Moluccas; there is therefore but little doubt that its range extends over the whole of the Indian Archipelago. It is about the size of the Common Tern (*Sterna Hirundo*) of Europe, and is one of the most beautiful species of the genus yet discovered; from all the other members of which it is at once distinguished by the snowy whiteness of its crown, and by the deep gorget-shaped black mark at the occiput.

So far as I have been able to ascertain, there appears to be no outward difference in the sexes; I have never seen examples in any other than the adult plumage here represented; but, judging from analogy, we may reasonably infer that this species undergoes changes similar to those of the other members of the family, and consequently that at some seasons of the year the black mark at the occiput is far less brilliant than at others.

I am indebted to the kindness of the Earl of Derby for the loan of the beautiful specimen from which my figure was taken, and which was killed in Torres' Straits, by Mr. McGillivray.

Crown of the head, neck and under surface white, with a faint tinge of rose-colour on the breast; lores and a gorget-shaped mark commencing immediately behind the eye and spreading over the nape black; upper surface, wings and tail delicate silvery grey, with white shafts; outer web of the external primary black; bill black; feet brownish black.

The figures are of the natural size.

C. Hullmandel Imp.

J. Gould and H. C. Richter del. et lith.

STERNA MELANAUCHEN: *Temm:*

J. Gould and H.C. Richter del et lith.

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del et lith. *C. Hullmandel Imp.*

STERNULA NEREIS, *Gould.*

Australian Little Tern.

Sternula Nereis, Gould in Proc. of Zool. Soc., Part X. p. 140.
Little Tern, Colonists of Western Australia.

This delicately coloured and elegant little Tern inhabits many of the low sandy islands in Bass's Straits, whence its range extends along the south coast to Western Australia. I observed several pairs on the small island opposite the settlement on Flinders' Island, where they appeared to be breeding. It would seem however, to be much more numerous on the western coast, for during the breeding-season, which is the month of December, it congregates in immense flocks on Rottnest and Garden Islands. It makes no nest, but lays its two eggs in a depression on the sand or shingle. Like that of other Terns, the food of this species principally consists of the smaller oceanic fishes, which it captures with apparent ease, plunging down into the water from a considerable height with such unerring aim that it rarely misses the object.

The *Sternula Nereis* is a beautiful representative in the southern ocean of the Little Tern of the European seas; the habits, actions and economy of both being precisely alike.

The eggs are two in number, of a pale stone-colour, in some instances marked all over, but more thickly at the larger end, with dark umber-brown; in others very largely blotched with the same colour; they are one inch and three-eighths long by seven-eighths broad.

Crown of the head, back of the neck, circle round and a spot before the eye black; forehead white; back and wings delicate silvery grey; outer web of the external primary dark grey at the base, gradually passing into light grey at the tip; all the under surface, rump and tail pure white; irides black; bill, tongue and feet rich orange-yellow.

The figures are male and female of the natural size.



STERNULA NEREIS: *Gould.*

J. Gould and H. C. Richter del et lith. *C. Hullmandel Imp.*

J. Gould and H. C. Richter del et lith. *C. Hullmandel Imp.*

GYGIS CANDIDA.

White Tern.

Sterna alba, Lath. Ind. Orn., vol. ii. p. 808.—Gmel. Linn. Syst. Nat., vol. i. p. 607.—Sparrm. Mus. Carls., tab. 11.
Sterna candida, Gmel. Linn., vol. i. p. 607.
White Tern, Lath. Gen. Syn., vol. vi. p. 363.—Ib. Supp. p. 266.—Portl. Voy., pl. in p. 312.—Lath. Gen. Hist., vol. x. p. 109.
Gygis candida, Wagl.—G. R. Gray, List of Gen. of Birds, 2nd Edit., p. 100.—List of Birds in Brit. Mus. Coll., part iii. p. 180.

This lovely Tern visits the whole of the south-eastern coast of Australia from Moreton Bay to Cape York, and is also found on Norfolk Island, where it is said to breed.

Mr. Cuming informs me, that on his visiting Elizabeth Island in the South Seas, which is entirely destitute of inhabitants and of fresh water, he found it breeding on a species of *Pandanus*, its single white egg being deposited on the horizontal branches in a depression, which, although slight, was sufficient to retain it in position despite of the high winds and consequent oscillations to which it was subjected. Mr. Cuming adds, that the old birds were flying about in thousands, like swarms of bees, and that he noticed several breeding on the same tree; some of the young birds were hatched and covered with down, and being within reach, he took a few of them in his hand, and after examining replaced them on their dangerous resting-place, from which it appeared they occasionally fell down and were destroyed, as he observed several lying dead on the ground.

This bird is also noticed in the 'Journal of Researches in Geology and Natural History' of C. Darwin, Esq., who, when speaking of Keeling Island, says, "But there is one charming bird; a small and snow-white Tern which smoothly hovers at the distance of an arm's length from your head; its large black eye scanning with quiet curiosity your expression. Little imagination is required to fancy that so light and delicate a body must be tenanted by some wandering fairy spirit."

The sexes do not differ from each other in outward appearance.

The entire plumage is snow-white; bill dark blue at the base, black at the tip; irides black; feet orange.

The figures are of the natural size



GYGIS CANDIDA.

J. Gould and H.C. Richter del et lith.

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del et lith.

C. Hullmandel Imp.

HYDROCHELIDON FLUVIATILIS, *Gould.*

Marsh Tern.

Hydrochelidon fluviatilis, Gould in Proc. of Zool. Soc., Part X. p. 140.

Like the European species of this form, the *Hydrochelidon nigra* and *H. leucopareia*, the present bird is a denizen of inland waters rather than those of the sea-coast, and wherever waters of any extent have been discovered in the interior of Australia, it has been found enlivening the scene. I myself observed it in the reaches of the rivers Mokai and Namoi, and both Sturt and Hume mention it as frequenting those parts of the country visited by them; I have also seen specimens from Swan River, which do not differ from those killed by myself in New South Wales; it is evident therefore that it enjoys a wide range, and it is doubtless spread over every part of the country wherever marshes and lagoons occur. Its chief food consists of aquatic insects of various genera and small fish, which it procures after the usual manner of the Marsh Terns, by hunting with scrutinizing care over the surface of the water.

The breeding-place of this species has not been discovered, but in the particulars of its nidification it doubtless closely resembles its congeners mentioned above, which we know breed among the sedgy herbage, making a nest just above the surface of the water.

Little or no difference is observable in the sexes; they may be thus described:—

Forehead, crown and nape deep black; all the upper surface, wings and tail light grey; sides of the face and the throat white, gradually deepening into grey on the chest, and the grey into black on the abdomen and flanks; under surface of the shoulder and under tail-coverts white; irides black; bill blood-red; feet light blood-red.

The figure is of the natural size.



HYDROCHELIDON FLUVIATILIS: *Gould.*

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

ONYCHOPRION FULIGINOSUS?

Sooty Tern.

Noddy, Damp. Voy., vol. iii. part i. p. 142. pl. in p. 123. fig. 5.—Hawkesb. Voy., vol. iii. p. 652.
Sterna serrata, Forst. Draw., t. 110.
——— *guttata*, Forst.
——— *Oahuensis*, Bloxam.
Onychoprion serratus, Wagl.—G. R. Gray, List of Gen. of Birds, 2nd edit., p. 100.

Although I retain the term *fuliginosus* for this bird, which exhibits some trivial differences from the species so called inhabiting the northern hemisphere, I have reasons for considering it to be distinct, and that, as in many other instances, the two birds are representatives of each other; and I think we are the more bound to consider them to be so, when we find that the incubation of these birds in the two hemispheres takes place at opposite periods; Mr. Gilbert found this bird breeding on the Houtman's Abrolhos, off the western coast of Australia, in the month of December, while M. Audubon found the *fuliginosus* breeding on the Tortugas, in North America, in May.

Mr. Gilbert states, that it "lays a single egg on the bare ground beneath the thick scrub; and that the egg varies considerably in colour. The breeding-season is at its height in December, but a few may be found performing the task of incubation in January. So reluctant is it to leave its egg or young, that it will suffer itself to be taken by hand rather than desert them. For several weeks after the young are able to fly, this bird may be seen in vast flocks soaring at a great height. It is an extremely noisy species, and may be heard on the wing during all hours of the night."

The ground colour of the eggs is a creamy white, in some very pale, in others very rich, blotched all over with irregular-sized markings of chestnut and dark brown, the latter hue appearing as if beneath the surface; the lighter-coloured eggs have these markings much smaller and more thinly dispersed, except at the larger end; they are two inches and an eighth long by one inch and a half in breadth.

Lores, crown of the head and back of the neck deep black; all the upper surface, wings and tail deep sooty black; the apical half, the shaft and the outer web of the lateral tail-feathers white; a V-shaped mark on the forehead and all the under surface of the wings and body white, passing into grey on the lower part of the abdomen and under tail-coverts; irides dark brown; bill black; feet brownish black.

The young have the entire plumage of a sooty brown, with a bar of white at the tip of each of the feathers of the back, wings and upper tail-coverts.

The figures represent a male and a female of the natural size.



J. Gould. and H.C. Richter del. et lith.

ONYCHOPRION FULIGINOSUS.

Hullmandel & Walton Imp.

J. Gould. and H.C. Richter del. et lith.

C. Hullmandel Imp.

ONYCHOPRION PANAYA.

Panayan Tern.

Sterna Panaya, Lath. Ind. Orn., vol. ii. p. 808.—Gmel. Edit. Linn. Syst. Nat., vol. i. p. 607.—Linn. Trans., vol. xiii. p. 329.

L'Hirondelle de mer de Panay, Sonn. Voy., p. 125. pl. 84.—Buff. Hist. des Ois., tom. viii. p. 344.

Panayan Tern, Lath. Gen. Syn., vol. vii. p. 363.—Ib. Gen. Hist., vol. x. p. 119.

This bird visits many parts of the coasts of Australia, particularly those of the western side of the continent. It was found on the Houtmann's Abrolhos by Mr. Gilbert, who remarks that it commences breeding in the latter part of November, and that during the period of incubation it differs in its habits from all the other allied species, inasmuch as instead of being gregarious each pair remains solitary, and its single egg is deposited in the fissure of a rock close to the water's edge without any nest or flooring; he further states that it was very seldom seen at Port Essington, but that a great number flew around the ship during his voyage from thence to Singapore. Mr. McGillivray informs me that he first met with it on Solitary Island near Cape York; subsequently it was found on Raine's Islet by Comm. Ince, R.N., and by himself on Bramble Quay in Torres' Straits, where it was breeding in small numbers, and where it deposits its single egg in the holes of the loose friable coral sandstone; and it was here, while turning over some of the shells of dead turtle which had been apparently arranged by the natives who occasionally visit the place, that he was surprised to find beneath them several of this pretty Tern sitting on their egg without any nest. The egg is so similar to that of the Sooty Tern that the description of one will answer for both, but it is considerably smaller in size, the average measurement being one inch nine and a half lines long by one inch three and a half lines broad.

The stomach is membranous, and the food consists principally of fish.

Forehead, line over the eye, chin and throat white; lores, crown of the head and nape black; back, wings and tail light sooty brown, the outer tail-feather being white at the base and on the outer web for two-thirds of its length; edge of the shoulder and under surface of the wing white; under surface white, slightly washed with grey; irides blackish brown; bill black; legs and feet blackish green.

The figures are of the natural size.

Chalkhill del. Law

J. Gould and H.C. Richter del. et lith.



ONYCHOPRION PANAYA.

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith. C. Hullmandel Imp.

ANOÜS STOLIDUS.

Noddy Tern.

Sterna stolida, Lath. Ind. Orn., vol. ii. p. 805.—Linn. Syst. Nat., vol. i. p. 227.—Gmel. Edit., vol. i. p. 605.—Bonn. et Vieill. Ency. Méth. Orn., part i. p. 91. pl. 25. fig. 2.—Bonap. Syn. Birds of United States, p. 356.

Passer stultus, Ray, 154.—Will. 297.

Gaira fusca, Briss. Orn., tom. vi. p. 199. tab. 18. fig. 2.

La Mouette brune, Buff. Pl. Enl., 997.

Noddy, Lath. Gen. Syn., vol. vi. p. 354.—Penn. Arct. Zool., vol. ii. No. 446.—Catesb. Car., vol. i. pl. 88.—Nutt. Man., vol. ii. p. 285.—Aud. Birds of Am., vol. iii. pl. cclxxv.—Ib. Orn. Bio., vol. iii. p. 516.

Noddy Tern, Lath. Gen. Hist., vol. x. p. 104.

Black Noddy (*Anoüs niger*), Steph. Cont. of Shaw's Gen. Zool., vol. xiii. p. 140. pl. 17.

Megalopterus stolidus, Boie.

Le Noddi noir, Cuv. Règn. Anim., tom. i. p. 522.

Anoüs stolidus, G. R. Gray, List of Gen. of Birds, 2nd Edit., p. 100.—List of Birds in Brit. Mus. Coll., part iii. p. 180.

If the present bird be identical with the *Sterna stolida* of the older writers, then the range of the species over the temperate and warmer parts of the ocean must be almost universal; but it will be seen that although the Noddies of the northern and southern hemispheres are very much alike, considerable variation is found to exist in their modes of nidification and the season at which that duty is performed; a difference is also found to exist in the number and colouring of their eggs, those inhabiting the northern hemisphere being said to lay three, and those inhabiting the southern only one. At the same time, rather than unnecessarily multiply the number of specific appellations, I prefer for the present at least to figure the Australian bird under the old name of *stolidus*.

I have much pleasure in transcribing Mr. Audubon's account of the breeding of the true *Anoüs stolidus*, as it is not only interesting in itself, but, when coupled with Mr. Gilbert's observations on the Australian bird, may tend to prove that in this, as in many other instances, birds inhabiting opposite sides of the equator and apparently identical, are really distinct, but having to perform similar offices in the great scheme of creation, are necessarily much alike, and form beautiful representatives of each other.

"The Noddies," says Mr. Audubon, "form regular nests of twigs and dry grass, which they place on the bushes or low trees, but never on the ground. On visiting their island on the 11th of May 1832, I was surprised to see that many of them were repairing and augmenting nests that had remained throughout the winter, while others were employed in constructing new ones, and some were already sitting on their eggs. In a great many instances the repaired nests formed masses nearly two feet in height, and yet all of them had only a slight hollow for the eggs, broken shells of which were found among the entire ones, as if they had been purposely placed there. The birds did not discontinue their labours, although there were nine or ten of us walking among the bushes; and when we had gone a few yards into the thicket, thousands of them flew quite low over us, some at times coming so close as to enable us to catch a few of them with the hand. On one side might be seen a Noddy carrying a stick in its bill, or picking up something to add to its nest; on the other several were seen sitting on their eggs unconscious of danger, while their mates brought them food. The greater part rose on the wing as we advanced, but re-alighted as soon as we had passed. The bushes were rarely taller than ourselves, so that we could easily see the eggs in the nests ..... The Noddy lays three eggs, which average two inches in length by an inch and three-eighths in breadth, and are of a reddish yellow colour, spotted and patched with dull red and faint purple. They afford excellent eating, and our sailors seldom failed to collect bucketsful of them daily during our stay at the Tortugas."

"TheNod dy and an allied species" (*A. melanops*), says Mr. Gilbert, "are the most numerous of all the inhabitants of the Houtmann's Abrolhos, where they breed in prodigious numbers. The present species lays its eggs in November and December, on a nest constructed of sea-weed, about six inches in diameter and varying in height from four to eight inches, but without anything like regularity of form; the top is nearly flat, there being but a very slight hollow to prevent their single egg from rolling off. The nests are so completely plastered with the excrement of the bird, that at first sight they appear to be entirely formed of that material; they are either placed on the ground in a clear open space, or on the tops of the thick scrub, over those of the *Sterna fuliginosa*, the two species incubating together with the most perfect harmony, and the bushes presenting a mottled appearance from the great numbers of both species perched on the top: the male *S. fuliginosa* sitting quite close to the nest of the Noddy, while its mate is beneath performing the arduous duties of incubation. On walking among the nests I was surprised to observe the pertinacity with which the birds kept their post; in fact they would not remove from off the egg or the

young, but would suffer themselves to be trodden upon or taken off with the hand; and so thickly were the nests placed, that it was no easy matter to avoid crushing either eggs or birds at every step. By the middle of January the eggs were nearly ready to hatch, and there would be an overwhelming increase of this species yearly but for the check which nature has provided against it in the presence of a small lizard which is very abundant about their breeding-places, and which finds an easy prey in the young Noddy and the *Sterna fuliginosa*. I am satisfied, that on an average, not more than one out of every twenty birds hatched ever reach maturity, or live long enough to take wing; besides which, great numbers of the old birds are constantly killed: these lizards do not eat the whole bird, but merely extract the brain and vertebral marrow; the remainder is however soon cleared off by the *Dermestes lardarius*, an insect which occurs in amazing numbers, and gave me a great deal of uneasiness and constant trouble to preserve my collection from their repeated attacks. I did not observe the Noddy on any but the South Island. As it finds an abundant supply of food, consisting of small fish, small mollusca, medusæ, cuttle-fish, &c., immediately outside the outer reef, it has no occasion to go far out to sea; I never observed it feeding in the smooth quiet water between the outer reef and the islands."

Considerable variation is found to exist in the markings of the eggs; the greater number are of a cream-colour, thinly sprinkled all over, except at the larger end, where they become more numerous and form an irregular zone, with blotches of chestnut-red and dark brown, the latter colour appearing as if beneath the surface of the shell; but examples occur in which the markings are much more numerous and almost equally distributed over the surface, and others which are nearly pure white; and I possess one specimen in which the markings are so large and dark that it might be readily mistaken for the egg of some other bird. They are two inches in length by one inch and a half in breadth.

The flight of this species is apparently laboured, being performed with a considerable action of the wings; at the same time the bird is capable of sustaining itself for a long time just above the surface of the water, and of frequently making abrupt and rapid turns while engaged in the search of its prey; its soft and dense plumage renders it exceedingly buoyant, and as the largely-developed membrane of the feet would indicate, it swims with great ease.

The sexes are so nearly alike, that by dissection alone can they be distinguished; and the young acquire the plumage of the adult at a very early age.

Upper and under surface chocolate-brown; crown of the head pale grey, gradually blending with the brown of the upper surface; primaries and tail brownish black; immediately before and above the anterior angle of the eye a spot of black; irides brown; bill black; feet dull brownish red; webs dusky; claws black.

The Plate represents a male, a female, a nest and an egg of the natural size.

ANOÜS STOLIDUS.

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

ANOÜS MELANOPS, *Gould.*

Lesser Noddy.

Anoüs ——— ? (Lesser Noddy), Gould in Proc. of Zool. Soc., Part xii. p. 36.
Anoüs melanops, Gould in Proc. of Zool. Soc., Part xiii. p. 104.

This species is very nearly allied to, but quite distinct from, the *Anoüs tenuirostris* (*Sterna tenuirostris*, Temm.), from which it may at once be distinguished by the black marks before and behind the eye, of which no trace is represented in M. Temminck's figure in the "Planches Coloriées"; neither are these conspicuous marks alluded to in his description. All that has been said respecting the Noddy is equally descriptive of this bird. It is as abundant in the Australian seas, and at the breeding-season resorts to similar situations. On the Houtmann's Abrolhos it is even more numerous; like the Noddy, it is truly gregarious, the nests being arranged as closely as possible on the branches of the mangrove, at a height of from four to ten feet above the ground, the sea-weed of which each nest is constructed being merely thrown across the branch, without any regard to form, until it has accumulated to a mass varying from two to four inches in height; in many instances long pieces of sea-weed hang down beneath the branch, giving it the appearance of a much larger structure than the reality; the nests and the branches of the trees are completely whitened with the excrement of the bird, the disagreeable and sickly odour of which is perceptible at a considerable distance. South Island, Houtmann's Abrolhos, appears to be the only one resorted to for the purpose of nidification; for although large mangroves occur on others of the neighbouring islands, it was not observed on any of them. "I have seen many vast flocks of birds," says Mr. Gilbert, "but I confess I was not at all prepared for the surprise I experienced in witnessing the amazing clouds, literally speaking, of these birds when congregating in the evening while they had their young to feed. Their alternate departure and return with food during the day, in the same route, had a most singular appearance. From their breeding-place to the outer reef, beyond the smooth water, the distance is four miles; and over this space the numbers constantly passing were in such close array that they formed one continuous and unbroken line. After the young birds were able to accompany their parents, I observed that they all left the breeding or roosting-place in the morning and did not again return until evening, the first-comers apparently awaiting the arrival of the last before finally roosting for the night. It is when thus assembling that their immense numbers strike you with astonishment. Even those who have witnessed the vast flights of the Passenger Pigeon, so vividly described by Audubon, could hardly avoid expressing surprise at seeing the multitudes of these birds which at sunset move in one dense mass over and around the roosting-place, when the noise of the old birds, the quack and the piping whistle of the young ones, are almost deafening. Like its near ally, it commences the task of incubation in December, and lays but a single egg; while sitting on which, or tending its young, it is very easily caught, as it will suffer itself to be taken off the nest rather than quit it. It forms an excellent article of food, and several hundreds were daily killed during our stay on the island. As this bird resorts to the upper branches alone, it is secure from the attacks of the lizard, so destructive to the Noddy, the animal not being able to climb the branches with sufficient facility to capture it; and this may doubtless be one of the causes why it is more numerous than any of the many other birds inhabiting the islands."

The egg is of a pale stone or cream colour, marked all over with large irregular-shaped blotches of dull chestnut-red and dark brown, the latter appearing as if beneath the surface of the shell; the blotches are thinly dispersed except at the larger end, where they are largest and most numerous; it is one inch and three-quarters long by one inch and five-sixteenths broad.

There is no visible difference in the outward appearance of the sexes.

Crown of the head and back of the neck light ash-colour, passing into deep grey on the mantle and back; immediately before the eyes a large patch, and behind a smaller one, of jet-black; posterior half of the lower and a smaller space on the upper lash snow-white; throat, forepart of the neck and all the under surface deep sooty black; wings and all the under surface of the same colour, but rather browner; bill black; tarsi and toes brownish black.

The figures represent a male and a female of the natural size.



ANOÜS LEUCOCAPILLUS, *Gould.*

White-capped Tern.

Anoüs leucocapillus, Gould in Proc. of Zool. Soc., Part XIII. p. 103.

Examples of this new and beautiful Tern have been presented to me by Lieut. Ince, R.N., by whom they were procured on Raine's Islet, where it was very abundant. It is nearly allied to the *Anoüs tenuirostris* of Western Africa, with which indeed Sir William Jardine considers it to be identical. All that has been said respecting the *Anoüs stolidus* is equally applicable to the present species, their habits, manners and mode of life being very similar.

Crown of the head and nape of the neck white; lores and space surrounding the eye deep black; near the posterior angle of the upper and lower eyelids a small patch of white; breast, all the under surface and the wings deep sooty black; back of the neck, back and tail the same, slightly tinged with ash; bill black; feet brownish black.

The figures are of the size of life.



ANOÜS LEUCOCAPILLUS: *Gould.*

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

ANOÜS CINEREUS, *Gould.*

Grey Noddy.

Anoüs cinereus, Gould in Proc. of Zool. Soc., Part XIII. p. 104.

This species is a native of the seas bordering the eastern and north-eastern coasts of Australia, and is said to breed on Norfolk Island. It is in every respect a true *Anoüs*, and, so far as is known, has many habits in common with those of the other members of the genus.

Head, neck and all the under surface silvery greyish white; round the eye a narrow ring of feathers, the anterior half of which is deep black and the posterior half white; back, wings and tail light grey; secondaries tipped with white; bill black; tarsi and toes brownish black; interdigital membrane yellowish.

The figures are of the natural size.

C. Hullmandel Imp.

J. Gould and H. C. Richter del. et lith.



ANOÜS CINEREUS: *Gould.*

J. Gould and H.C. Richter del et lith.

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del et lith.

C. Hullmandel Imp.

DIOMEDEA EXULANS, *Linn.*

Wandering Albatros.

Diomedea exulans, Linn. Syst. Nat., vol. i. p. 214.—Lath. Ind. Orn., vol. ii. p. 789.—Steph. Cont. of Shaw's Gen. Zool., vol. xiii. p. 259. pl. 30.—Vieill. Gal. des Ois., pl. 295.—Ib. Ency. Méth. Orn., Part III. p. 27.
Plautus albatrus, Klein, Aves, p. 148. no. 13.
Albatrus, Briss. Orn., tom. vi. p. 126.—Buff. Pl. Enl., 237.—Ib. Hist. Nat. des Ois., tom. ix. p. 339.—Cuv. Règne Anim., tom. i. p. 517.
Man-of-War Bird, Albin, vol. iii. p. 34. pl. 81. head.
Wandering Albatros, Edw. Glean., pl. 88.—Penn. Arct. Zool., vol. ii. p. 423.—Lath. Gen. Syn., vol. v. p. 304.—Ib. Gen. Hist., vol. x. p. 48.

It is a very prevalent idea that a lengthened voyage at sea must be attended with much monotony and *ennui*; such however is not the case, as from experience I can testify that the mind may be so far occupied in observing the hundreds of novelties which are constantly presenting themselves to its notice, that a voyage, however extensive, is neither tedious nor uninstructive, and I shall always look back with feelings of pleasure to that in the course of which I made the circuit of the globe. It was then that I first had an opportunity of observing in a state of nature the noble bird I am now about to attempt a slight history of. The *Diomedea exulans* is by far the largest and most powerful species of its tribe, and from its great strength and ferocious disposition, is held in terror by every other bird with which it is surrounded. It is even said that it will fearlessly attack and tear out the eyes of a drowning man, a feat, from what I have observed of it, I can readily imagine it would attempt. It is most abundant between the 30th and 60th degrees of south latitude, and appears to be equally numerous in all parts of the ocean bounded by those degrees, and I feel assured that it is confined to no one part, but is constantly engaged in making a circuit of the globe in that particular zone allotted by nature for its habitation. The open sea is in fact its natural home, and this it never leaves except for the purpose of breeding, when it usually resorts to rocky islands the most difficult of access. To mention particular times and places where I observed this bird would be superfluous, as it was almost daily seen while sailing within the prescribed latitudes; it will not, however, be out of place to mention, that I first hailed its presence during my passage to Australia on the 24th of July 1838, in lat. 30° 38′ south, long. 20° 43′ west, and from that day until my arrival at Van Diemen's Land it was constantly around the ship, but was more abundant off the Cape of Good Hope and the island of St. Paul's than elsewhere.

The powers of flight of the Wandering Albatros are much greater than those of any other bird that has come under my observation. Although during calm or moderate weather it sometimes rests on the surface of the water, it is almost constantly on the wing, and is equally at ease while passing over the glassy surface during the stillest calm, or sweeping with arrow-like swiftness before the most furious gale; and the way in which it just tops the raging billows and sweeps between the gulfy waves has a hundred times called forth my wonder and admiration. Although a vessel running before the wind frequently sails more than 200 miles in the twenty-four hours, and that for days together, still the Albatros has not the slightest difficulty in keeping up with the ship, but also performs circles of many miles in extent, returning again to hunt up the wake of the vessel for any substances thrown overboard.

"It is pleasing," says Mr. Bennett in his 'Wanderings,' "to observe this superb bird sailing in the air in graceful and elegant movements, seemingly excited by some invisible power, for there is scarcely any movement of the wings seen after the first and frequent impulses are given, when the creature elevates itself in the air; rising and falling as if some concealed power guided its various motions, without any muscular exertion of its own, and then descending sweeps the air close to the stern of the ship with an independence of manner as if it were 'monarch of all it survey'd.' It is from the very little muscular exertion used by these birds that they are capable of sustaining such long flights without repose. . . . . When seizing an object floating on the water they gradually descend with expanded or upraised wings, or sometimes alight and float like a duck on the water, while devouring their food; then, elevating themselves, they skim the surface with expanded wings, giving frequent impulses as they run along for some distance, until they again soar in mid-air and recommence their erratic flights. It is interesting to view them during boisterous weather, flying with, and even against, the wind, seeming 'the gayest of the gay' in the midst of howling winds and foaming waves. . . . . I remarked that the Albatros would lower himself even to the water's edge, and elevate himself again without any apparent impulse; nor could I observe any percussion of the wings when the flight was directed against the wind, but then, of course, its progress was tardy. Many, however, have differed with me in considering that the birds never fly 'dead against the wind,' but in that manner which sailors term 'close to the wind,' and thus make progress, aided by, when seemingly flying against, the wind. This bird is evidently aided by its long wings as well as tail in directing its flight; it is never seen to soar to any great height, and is often observed to change its course by turning the wings and body in a lateral direction, and oftentimes when raising itself to bend the last joint of the wings downwards."

Like the other species of the genus, it is nocturnal as well as diurnal, and no bird with which I am acquainted takes so little repose: it appears to be perpetually on the wing, scanning the surface of the ocean for mollusks and medusæ, and the other marine animals that constitute its food. So frequently does the boldness of this species cost it its life, that hundreds are annually killed without, however, its num-

bers being apparently in any degree lessened; it readily seizes a hook baited with fat of any kind, and if a boat be lowered its attention is immediately attracted, and while flying round it is easily shot. Many exaggerated and marvellous accounts having been published respecting the weight and the dimensions of this bird, particularly of the extent from tip to tip of the wings, I paid much attention to the subject, and after killing numerous examples of both sexes and of all ages, I found the average weight of the *Diomedea exulans* to be seventeen pounds, and the extent from tip to tip of the wing ten feet one inch. Dr. McCormick, R.N., however, informs me that he has met with examples weighing as much as twenty pounds, the extent of whose outstretched wings measured twelve feet. The known breeding-places of the *Diomedea exulans* are the islands of Tristan d'Acunha, Auckland and Campbell; that it also breeds on the Mewstone, Eddystone, and the adjacent rocks to the southward of Van Diemen's Land, I have but little doubt, as some of the finest adult specimens I procured were shot within a few miles of those barren and inaccessible rocks; but as I have not had an opportunity of observing the nidification of this bird, I avail myself of Mr. Augustus Earle's "Narrative of a nine months' residence on the island of Tristan d'Acunha," wherein he says,—

"Yesterday, May the 28th, being a fine morning, accompanied by two of the men, I determined to ascend the mountain. As several parties had before gone up, they had formed a kind of path; at least we endeavoured to trace the same way, but it required a great deal of nerve to attempt it: the sides of the mountain are nearly perpendicular; but after ascending about 200 feet, it is there entirely covered with wood, which renders the footing much more safe; but in order to get to the wood, the road is so dangerous that it made me almost tremble to think of it; slippery grey rocks and many of them unfortunately loose, so that when we took hold they separated from the mass, and fell with a horrid rumbling noise; here and there were a few patches of grass, the only thing we could depend upon to assist us in climbing, which must be done with extreme caution, for the least slip or false step would dash one to atoms on the rocks below. By constantly looking upwards and continuing to haul ourselves up, by catching firm hold of the grass, after an hour's painful toil we gained the summit, where we found ourselves on an extended plain of several miles' expanse, which terminates in the peak, composed of dark grey lava, bare and frightful to behold. We proceeded towards it, the plain gradually rising, but the walk was most fatiguing over strong rank grass and fern several feet high. A deathlike stillness prevailed in these high regions, and, to my ear, our voices had a strange unnatural echo, and I fancied our forms appeared gigantic, whilst the air was piercing cold. The prospect was altogether sublime and filled the mind with awe: the huge Albatros here appeared to dread no interloper or enemy, for their young were on the ground completely uncovered, and the old ones were stalking around them. They lay but one egg, on the ground, where they make a kind of nest by scraping the earth around it; the young is entirely white and covered with a woolly down, which is very beautiful. As we approached they snapped their beaks with a very quick motion, making a great noise; this and the throwing up of the contents of the stomach are the only means of offence and defence they seem to possess. I again visited the mountain about five months afterwards, when I found the young Albatroses still sitting on their nests, and they had never moved away from them."

To this interesting account I beg to append the following notes, kindly furnished me by Dr. McCormick, Surgeon of H.M.S. Erebus during the late expedition to the South pole:—

"The *Diomedea exulans* breeds in Auckland and Campbell Islands, in the months of November and December. The grass-covered declivities of the hills, above the thickets of wood, are the spots selected by the Albatros for constructing its nest; which consists of a mound of earth, intermingled with withered grass and leaves matted together, 18 inches in height, 6 feet in circumference at the base, and 27 inches in diameter at the top, in which only *one* egg is usually deposited; for after an examination of more than a hundred nests, I met with *two* eggs in the *same* nest in one solitary instance only. The eggs I had an opportunity of weighing varied in weight from 14½ to 19 oz., thirty specimens giving an average weight of 17 oz.; colour white. The Albatros during the period of incubation is frequently found asleep, with its head under its wing: its beautiful white head and neck, appearing above the grass, betray its situation at a considerable distance off. On the approach of an intruder it resolutely defends its egg, refusing to quit the nest until forced off, when it slowly waddles away in an awkward manner to a short distance, without attempting to take wing. Its greatest enemy is a fierce species of *Lestris*, always on the watch for the Albatros quitting its nest, when this rapacious pirate instantly pounces down and devours the egg. So well is the poor bird aware of the propensity of its foe, that it snaps the mandibles of its beak violently together whenever it observes the Lestris flying overhead."

I am indebted to Dr. McCormick for a fine egg of this species, which is four inches and three-quarters long by three and a quarter broad, of a pure white and of the ordinary shape; another, presented by this gentleman to the Royal College of Surgeons, is much longer and nearly equal in size at both ends.

Mr. Earle states that the young are a year old before they can fly, but on this point I fear he must be mistaken; for although a long period must elapse before their lengthened wings are sufficiently developed to sustain their heavy bodies during their lengthened flights, still it is natural to suppose that the young would leave the nest before the recurrence of the breeding-season; and we know that such is the case, from the circumstance of young birds and newly laid eggs not having been found at the same time on the islands visited by the officers of the late expedition under Captain Ross.

The Wandering Albatros varies much in colour at different ages: very old birds are entirely white, with the exception of the pinions, which are black; and they are to be met with in every stage, from pure white, white freckled and barred with dark brown, to dark chocolate-brown approaching to black, the latter colouring being always accompanied by a white face, which in some specimens is washed with buff; beneath the true feathers they are abundantly supplied with a fine white down; the bill is delicate pinky white inclining to yellow at the tip; irides very dark brown; eyelash bare, fleshy and of a pale green; legs, feet and webs pinky white.

The young are at first clothed in a pure white down, which gives place to the dark brown colouring mentioned above.

The figures represent a bird of the middle age, and a bird supposed to be two years of age, about half the natural size.

DIOMEDEA EXULANS: *Linn.*

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

DIOMEDEA BRACHYURA, *Temm.*

Short-tailed Albatros.

Diomedea brachyura, Temm.—Less. Traité d'Orn., p. 609.

This is the only species of Albatros, with which I am acquainted, that flies to the northward of the equator, and it is figured in the present work more for the purpose of including every species of the genus yet known, than for its being strictly speaking an Australian bird; still the chances are that it does frequently visit the northern coasts of that country, since it is abundantly dispersed over the North Pacific and Indian Oceans; its great stronghold, however, is the China Seas. It is a very fine species, and only exceeded in size by the *Diomedea exulans*, to which it bears a considerable resemblance, but from which it may be distinguished by the shortness of its tail and by the truncated form of the base of the bill.

Its habits, manners and food doubtless resemble those of the other members of the genus.

The adults of both sexes have the general plumage white, washed with buff on the head and neck; the edge and centre of the wing white, the remainder and the tips of the tail dark brown; bill pinky flesh-colour; irides brown; legs and feet bluish white; eyelash greenish white.

The young differ in being of a uniform chocolate-brown.

The Plate represents the adult and young bird rather more than the natural size.

DIOMEDEA BRACHYURA: Temm.



DIOMEDEA CAUTA, *Gould.*

Cautious Albatros.

Diomedea cauta, Gould in Proc. of Zool. Soc., Part VIII. p. 177.

I FIRST observed this noble species of Albatros off the south coast of Van Diemen's Land, and during my stay in Recherche Bay, at the southern entrance of D'Entrecasteaux's Channel, where I was wind-bound for nearly a fortnight, I had frequent opportunities of observing it. Unlike other Albatroses, I found this a most difficult bird to procure, for, as its name implies, it would seldom approach a ship or boat sufficiently near for a successful shot: I succeeded, however, in shooting several examples while they were flying round the Bay in which we had taken shelter. It is not usual for Albatroses to approach the land or enter a secluded bay like that of Recherche, and I attribute this deviation from the ordinary habits to the temptation presented to the bird by the vast quantities of fat and other remains of Whales floating about, the locality in question being one of the principal whaling stations on the coast of Van Diemen's Land; I have no doubt likewise that they were breeding on the Mewstone and other isolated rocks in the neighbourhood, as the plumage of some of the specimens I procured indicated that they had lately been engaged in the task of incubation.

It is a large and powerful bird, the male being scarcely a third less in size than the *D. exulans*; it is also rapid and vigorous on the wing, and takes immense sweeps over the surface of the ocean. It will be interesting to learn the extent of the range of this species: no one of our voyagers, from Cook to the commanders of expeditions of the present time, have brought a skin, or so far as I am aware have mentioned it. With the exception of those I killed myself off the southern coast of Van Diemen's Land, a solitary head is all that I have observed in any collection; this head, which is in the possession of Sir William Jardine, was said to have been procured at the Cape of Good Hope, but I believe this was by no means certain.

When fully adult the sexes differ but little in colour; the female may, however, at all times be distinguished by her diminutive size, and the young by the bill being clouded with dark grey.

The beautiful grey on the sides of the mandibles, the delicate pale yellow of the culmen, and the yellow mark at the base of the lower mandible will at all times distinguish this bird from the other members of the genus.

The stomachs of those I obtained in Recherche Bay contained blubber, the remains of large fish, and barnacles.

Crown of the head, back of the neck, throat, all the under surface, rump and upper tail-coverts pure white; lores and line over the eye greyish black, gradually passing into the delicate pearl-grey which extends over the face; back, wings and tail greyish brown; irides dark vinous orange; bill light vinous grey, or bluish horn-colour, except on the culmen, where it is more yellow, particularly at the base; the upper mandible surrounded at the base by a narrow belt of black, which also extends on each side the culmen to the nostrils; base of the lower mandible surrounded by a belt of rich orange, which extends to the corners of the mouth; feet bluish white; irides brown.

The figures in the Plate are somewhat less than two-thirds of the natural size.


cm 1 2 3 4 5

DIOMEDEA CULMINATA, *Gould.*

Culminated Albatros.

Diomedea culminata, Gould in Ann. and Mag. of Nat. Hist., vol. xiii. p. 361.

This species appears to be more plentiful in the Australian seas than elsewhere; numbers came under my notice during a voyage from Launceston to Adelaide, particularly off Capes Jervis and Northumberland; I frequently encountered it between Sydney and the northern extremity of New Zealand, and it also occurs in the same latitude of the Indian Ocean as abundantly as any of its congeners. It is a powerful bird, and is directly intermediate between *Diomedea chlororhynchos* and *D. cauta*. The specific differences of the three species are so apparent, that I had no difficulty whatever in distinguishing them while on the wing. In *chlororhynchos* the bill is more compressed laterally, the culmen is round, and the yellow colouring terminates in an obtuse point midway between the nostrils and the base; while in *culminata* the culmen is broad and flat, and has its greyish yellow colouring continued of the same breadth to the base; the feet of the latter are also fully a third larger than those of the former.

The habits, mode of life, and the kind of food partaken of by the *D. culminata*, are so precisely similar to those of its congeners, that a separate description would be a mere repetition of what has already been said respecting the preceding species.

Back, wings and tail dark greyish black, the latter with white shafts; head and neck white, washed with greyish black; round the eye a mark of greyish black, interrupted by a streak of white immediately below the lower part of the lid; rump, upper tail-coverts and all the under surface pure white; bill black; the culmen horn-colour; and the edge of the basal three-fourths of the edge of the under mandible orange.

In the youthful state the head and neck are dark grey, and the bill is of an almost uniform brownish black, with only an indication of the lighter colour of the culmen.

The figure is about two-thirds of the natural size.



DIOMEDEA CULMINATA: *Gould*

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

DIOMEDEA CHLORORHYNCHOS, *Lath.*

Yellow-billed Albatros.

Diomedea chlororhynchos, Lath. Ind. Orn., vol. ii. p. 790.—Gmel. Edit. Lin. Syst. Nat., vol. i. p. 568.—Linn. Trans., vol. xii. p. 490.—Temm. Pl. Col. 468.—Less. Traité d'Orn., p. 609.

Yellow-nosed Albatros, Lath. Gen. Syn., vol. v. p. 309. pl. xcix.—Ib. Gen. Hist., vol. x. p. 52. pl. clxix.—Steph. Cont. of Shaw's Gen. Zool., vol. xiii. p. 262.

Diomedea chrysostoma, Forst. Drawings, and Lichtenstein's Edit. of Forster's MSS., p. 24.

Woŏl-woŏl, Aborigines of the lowland districts of Western Australia.

This species came under my observation for the first time on the 24th of July 1838, in Lat. 30° 38′ S. and Long. 20° 43′ W.; from which period until we reached New South Wales scarcely a day passed without the ship being visited by it; upon some occasions it appeared in considerable numbers, many of which were apparently birds of one year old, or at most two years of age, which may be easily distinguished from the adults, especially while flying, by the darker colouring of their wings, back and tail, and by the culmen of the bill being less distinctly marked with yellow.

I have seen this species fairly dive after its prey; not merely immerse itself for an instant, but having perceived an object near the surface, plunge down after it, and, after swimming under water for two or three yards, bring it up.

The Yellow-billed Albatros is plentiful off the Cape of Good Hope, and in all the intermediate seas between that point and Van Diemen's Land; I also observed it off Capes Howe and Northumberland on the southern coast of Australia, and Mr. Gilbert states that he saw it flying about Rottnest Island on the western coast.

In its flight and general economy it greatly resembles the *D. melanophrys*, with which it is often in company.

Spot before and line above the eye washed with grey; head, neck, all the under surface, rump, upper tail-coverts and under surface of the wing snow-white; back and wings brownish black; tail brownish slate-colour, with white shafts; culmen from near the base to the point bright orange-yellow; remainder of the bill black; irides greyish brown; feet bluish white.

The Plate represents an adult male and female about two-thirds of the natural size.



DIOMEDEA CHLORORHYNCHOS: *Lath:*

J. Gould and H. C. Richter del et lith.

C. Hullmandel Imp.

J. Gould and H. C. Richter del et lith.

C. Hullmandel Imp.

DIOMEDEA MELANOPHRYS, *Temm.*

Black-eyebrowed Albatros.

Diomedea melanophrys, Temm. Pl. Col. 456.—Less. Traité d'Orn., p. 609.

The *Diomedea melanophrys* may be regarded as the most common species of Albatros inhabiting the southern ocean, and from its gregarious habits and very familiar disposition, it is known to every voyager who has rounded either of the Capes. I have never myself been at sea many days between the 35th and 55th degrees of south latitude without recognising it, and it appeared to me to be equally numerous in the Atlantic as in the Pacific. On my passage out to Australia, numerous individuals followed our vessel for hundreds of miles as we proceeded eastward, and I have no doubt that in the course of their peregrination they frequently make the circuit of the globe; a not unnatural conclusion, when we reflect upon the great powers of flight given to all the members of the present genus, and that their natural food is as abundant at one part as at another. It was nowhere more numerous than off the southern coast of Van Diemen's Land, where a large company followed our vessel for many days and continued to hover around us until we entered Storm Bay, but on our approaching the land, they suddenly disappeared, betaking themselves again to the open ocean. Of all the species with which I am acquainted, this is the most fearless of man, and it often approaches many yards nearer the vessel than any other; I have even observed it approach so near that the tips of its pinions were not more than two arms' length from the taffrail. It is very easily captured with a hook and line, and as this operation gives not the least pain to the bird, the point of the hook merely taking hold in the horny and insensible tip of the bill, I frequently amused myself in capturing it in this way, and after detaining it sufficiently long to afford me an opportunity for investigating any particular point respecting which I wished to satisfy myself, setting it at liberty again. I also caught numerous examples, marked and gave them their liberty, in order to ascertain whether the individuals which were flying round the ship at nightfall, were the same that were similarly engaged at daylight in the morning after a night's run of 120 miles, and which in nearly every instance proved to be the case. When brought upon deck, from which it cannot take wing, it readily becomes tame, and allows itself to be handled almost immediately; still, I believe that no member of this group can be fairly domesticated in consequence of the difficulty of procuring a supply of, or substitute for, its natural food. In heavy, black and lowery weather, the snowy white plumage of this bird offers a striking and pleasing contrast to the murky clouds above and behind them, almost leading one to imagine he is witnessing the descent and evolutions of those fantastic little beings the fairies.

No difference whatever is observable in the plumage of the sexes, neither is there any visible variation in this respect between youth and maturity; a never-failing mark, however, exists by which these latter may be distinguished: the young bird has the bill dark brown, while in the adult that organ is of a bright buffy yellow; and individuals in the same flight may frequently be seen in which the bill varies from dark horn-brown to the most delicate yellow.

I did not discover the breeding-place of this species, but I doubt not that it resorts for this purpose to situations similar to those selected by the *Diomedea exulans*.

Head, back of the neck, all the under surface and the upper tail-coverts pure white; before, above and behind the eye a streak of blackish grey; wings dark brown; centre of the back slaty black, into which the white of the back of the neck gradually passes; tail dark grey, with white shafts; bill buffy yellow, with a narrow line of black round the base; legs and toes yellowish white, the interdigital membrane and the joints washed with pale blue; irides very light brown, freckled with a darker tint.

The figures represent a middle-aged and a young bird rather more than two-thirds of the natural size.

DIOMEDEA MELANOPHRYS: *Temm.*



DIOMEDEA FULIGINOSA, *Gmel.*

Sooty Albatros.

Diomedea fuliginosa, Gmel. Edit. of Linn. Syst. Nat., vol. i. p. 568.—Temm. Pl. Col. 469.—Lath. Ind. Orn., vol. ii. p. 791.—List of Birds in Brit. Mus. Coll., part iii. p. 166.

——— *palpebrata*, Forst. Drawings, No. 102.

——— *antarctica*, Banks's Drawings, No. 26.

——— *fusca*, Aud. Birds of Amer., vol. iv. pl. ccccvii.—Ib. Orn. Bio., vol. v. p. 116.—Ib. Syn. Birds of N. Amer., p. 335.

Black Albatros, Linn. Trans., vol. xii. p. 489.

Sooty Albatros, Lath. Gen. Syn., vol. v. p. 309.—Forst. Voy., vol. i. p. 91.—Lath. Gen. Hist., vol. x. p. 54.

The *Diomedea fuliginosa* is one of the commonest species of the genus, and is universally distributed over all the temperate latitudes to the southward of the equator. On referring to my notes I find that it first came under my notice on the 23rd of July 1838, in lat. 31° 10′ S., long. 34° W., when three examples were seen flying round the ship, which they continued to do until we doubled the Cape and entered the South Indian Ocean, on the 14th of August. It was never very numerous; some days passed over without more than a single individual having made its appearance, and the greatest number that I saw at any one time was six or eight; it was constantly seen between the island of St. Paul's and New South Wales, as well as at the entrance of Bass's Straits, between Van Diemen's Land and Cape Howe. On my voyage homeward it was noticed on the 6th of May in lat. 40° S., long. 154° W.; in the Pacific near Cape Horn on the 20th of May in lat. 50° S., long. 90° W., and more abundantly in the Atlantic on the 12th of June in lat. 41° S., long. 34½° W.

In its actions and mode of flight this bird differs very considerably from all the other species of Albatros, its aërial evolutions being far more easy, its flight much higher and its stoops more rapid; it is, moreover, the only species that passes directly over the ship, which it frequently does in blowing weather, often poising itself for several seconds over the mast-head, as if inquisitively viewing the scene below; it is at this moment it offers so inviting a mark for the gunner, that it often forfeits its life, and if shot when a little to windward of the vessel, it is almost certain to fall on board. The cuneated form of the tail, which is peculiar to this species, together with its slight and small legs and more delicate structure, clearly indicate that it is the most aërial species of the genus.

Latham states that it breeds on "the island of Tristan d'Acunha, is gregarious, many of them building their nests close to each other; in the area of half an acre were reckoned upwards of a hundred. The nest is of mud, raised five or six inches, and slightly depressed at the top; when the young birds are more than half-grown, they are covered with a whitish down; they stand on their respective hillocks like statues, till approached close, when they make a strange clattering with their beaks, and if touched, squirt a deluge of fœtid oily fluid from the nostrils."

The whole of the plumage deep sooty grey, darkest on the face, wings and tail; shafts of the primaries and tail-feathers white; eyes very dark greyish brown, surrounded, except anteriorly, by a beautiful mark of white; bill jet-black, with a longitudinal line of white along the under mandible, this white portion not being horny like the rest of the bill, but composed of fleshy cartilage, which becomes nearly black soon after death; feet white, slightly tinged with fleshy purple.

The figure represents a male about two-thirds of the natural size.



J. Gould and H. C. Richter del et lith.

DIOMEDEA FULIGINOSA, Cmel.

Hullmandel & Walton Imp.

J. Gould and H. C. Richter del et lith.

C. Hullmandel Imp.

PROCELLARIA GIGANTEA, *Gmel.*

Giant Petrel.

Procellaria gigantea, Gmel. Edit. of Linn. Syst. Nat., vol. i. p. 563.—Lath. Ind. Orn., vol. ii. p. 820.—List of Birds in Brit. Mus. Coll., part iii. p. 162.—Less. Traité d'Orn., p. 611.

Mother Cary's Goose, Cook's Voy., vol. ii. p. 205.

Giant Petrel, Lath. Gen. Syn., vol. vi. p. 396. pl. 100.—Penn. Arct. Zool., vol. ii. Supp., p. 71.—Cook's Last Voy., vol. ii. pp. 229 & 258.—Lath. Gen. Hist., vol. x. p. 170. pl. clxxvi.

As is the case with several other species of the *Procellaridæ*, this, the largest member of the family, is universally distributed over all the temperate and high southern latitudes: and that it frequently performs the circuit of the globe may, I think, be fairly inferred from the circumstance of an albino variety having followed the vessel for three weeks while we were running down our longitude between the Cape of Good Hope and Van Diemen's Land, the ship often making nearly two hundred miles during the twenty-four hours; it must not, however, be understood that the bird was merely following the vessel's speed, nor deemed incredible when I state that during the twenty-four hours it must have performed the enormous distance of nearly two thousand miles, since it was only at intervals of perhaps half an hour that it was seen, hunting up the wake of the vessel for the distance of a mile to secure any offal, &c. that had been thrown overboard, the interim being employed in scanning the ocean in immense circles of at least twenty miles, at a speed of eighty or a hundred miles an hour.

Its flight is not so easy, graceful and buoyant as that of the Albatros, but is of a more laboured and flapping character; the bird is also of a more shy disposition, and never approaches so near the vessel as the other members of the family; while flying, its white bill shows very conspicuously.

On visiting Recherche Bay in D'Entrecasteaux' Channel, Van Diemen's Land, I found thousands of this species sitting together on the water and feeding on the blubber and other refuse of the whaling station. I did not observe the bird between Sydney and New Zealand, but on arriving in lat. 50° S., long. 90° W., nearly off Cape Horn, a solitary wanderer flew about the ship; and in lat. 41° S., long 34° W., a few were still seen in pairs. Captain Cook found it very abundant on Christmas Island, Kerguelen's Land, in December, when it was so tame that his sailors knocked it down with sticks.

The adults have the entire plumage of a dark chocolate-brown; bill light horn-colour, the tip tinged with vinous; irides dark blackish brown; legs blackish brown.

The young of the year, besides being much lighter in colour, have the eye of a silvery white interspersed with markings resembling network.

The Plate represents the bird about two-thirds of the natural size.

J. Gould and H.C. Richter del. et lith.

PROCELLARIA GIGANTEA; *Gmel.*

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

PROCELLARIA CONSPICILLATA, *Gould.*

Spectacled Petrel.

Procellaria conspicillata, Gould in Ann. and Mag. of Nat. Hist., vol. xiii. p. 362.

I HAVE always been of opinion that the bird here figured is not strictly referable to the *Procellaria æquinoctialis* of Linnæus; at the same time it must be admitted that it is most nearly allied to that species; the subject is fraught with the more difficulty from the circumstance of the white markings on the face not being always of the same form in different individuals; and from the gular region being white in some instances, while in others it is black. In size the two species are very similar, but all the specimens of the present bird that I have seen have a much shorter and more robust bill than the true *æquinoctialis*, which moreover never has the white mark around the eye, the throat only being white.

The *Procellaria conspicillata* flies both in the Atlantic and Pacific, but is most plentiful between the twenty-fifth and fiftieth degrees of south latitude. I observed it to be very abundant about the islands of St. Paul's and Amsterdam, and from thence to Van Diemen's Land; I also noticed it in considerable numbers off the Falkland Islands in the Atlantic and in the neighbourhood of Tristan d'Acunha.

As might be supposed, it is a bird possessing great powers of flight, and, like the other members of the genus, feeds upon mollusca, the remains of dead cetacea, &c.

The sexes are so similar in markings that they are scarcely distinguishable.

The entire plumage sooty black, with the exception of the chin, sides of the face, and a broad band which crosses the forepart of the crown, passes down before and beneath, and curves upward behind the eye, which is white; nostrils and sides of the mandibles yellowish horn-colour; culmen, tips of both mandibles, and a groove running along the lower mandible black; feet black; irides dark brown.

The figures are about two-thirds of the natural size.



J. Gould and H.C. Richter del. et lith.

PROCELLARIA CONSPICILLATA. *Gould.*

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

PROCELLARIA HASITATA, *Kuhl.*

Great Grey Petrel.

Procellaria hasitata, Kuhl, Forst. Drawings, No. 92.—Gould in Ann. and Mag. of Nat. Hist., vol. xiii. p. 364.

This species, which is very similar to the *Puffinus cinereus*, enjoys so wide a range of habitat that it may be said to be universally diffused between the 30th and 55th degrees of S. latitude. I first observed it in lat. 38° 41′ S., long. 36° 30′ W., on the 16th of August 1838; during the next five days not more than a single specimen was seen at one time; on the 21st it was very numerous, and the day being nearly calm I had a boat lowered, and succeeded in killing several in lat. 39° 23′ S., long. 54° W. Its powers of flight are very great, and in its passage over the ocean it often mounts higher in the air than most other members of the group, and descends again with the utmost eagerness to seize any fat substance thrown overboard. Its actions and flight differ slightly from those of the other Petrels, and more closely resemble those of the Albatroses.

I subsequently observed this bird in lat. 41° 12′ S., long. 115° W., and obtained specimens on my passage from Hobart Town to Sydney.

On my voyage homeward it appeared in considerable numbers during some strong heavy gales which occurred on the 6th of May 1840 in lat. 40° S., long. 154° W., and it was very abundant in the South Atlantic on the 12th of June in lat. 41° S., long. 34½° W.

Little or no difference is observable in the sexes, but the female is rather smaller than the male.

Crown of the head, ear-coverts, nape and upper surface, tips of the tail-feathers, tips of the under tail-coverts and the primaries dark brownish grey; throat, chest and under surface white; irides dark brown; culmen and nostrils black; tip of the upper mandible blackish horn-colour; tomia whitish horn-colour; lower part of the under mandible blackish horn-colour; feet white, tinged with blue, the outer toe brownish black.

The Plate represents a male of the natural size.



PROCELLARIA HASITATA: *Kuhl.*

J. Gould and R. C. Richter del. et lith.

Hullmandel & Walton, Imp.

J. Gould and R. C. Richter del. et lith.

C. Hullmandel Imp.

PROCELLARIA GLACIALOÏDES, *Smith.*

Silvery-grey Petrel.

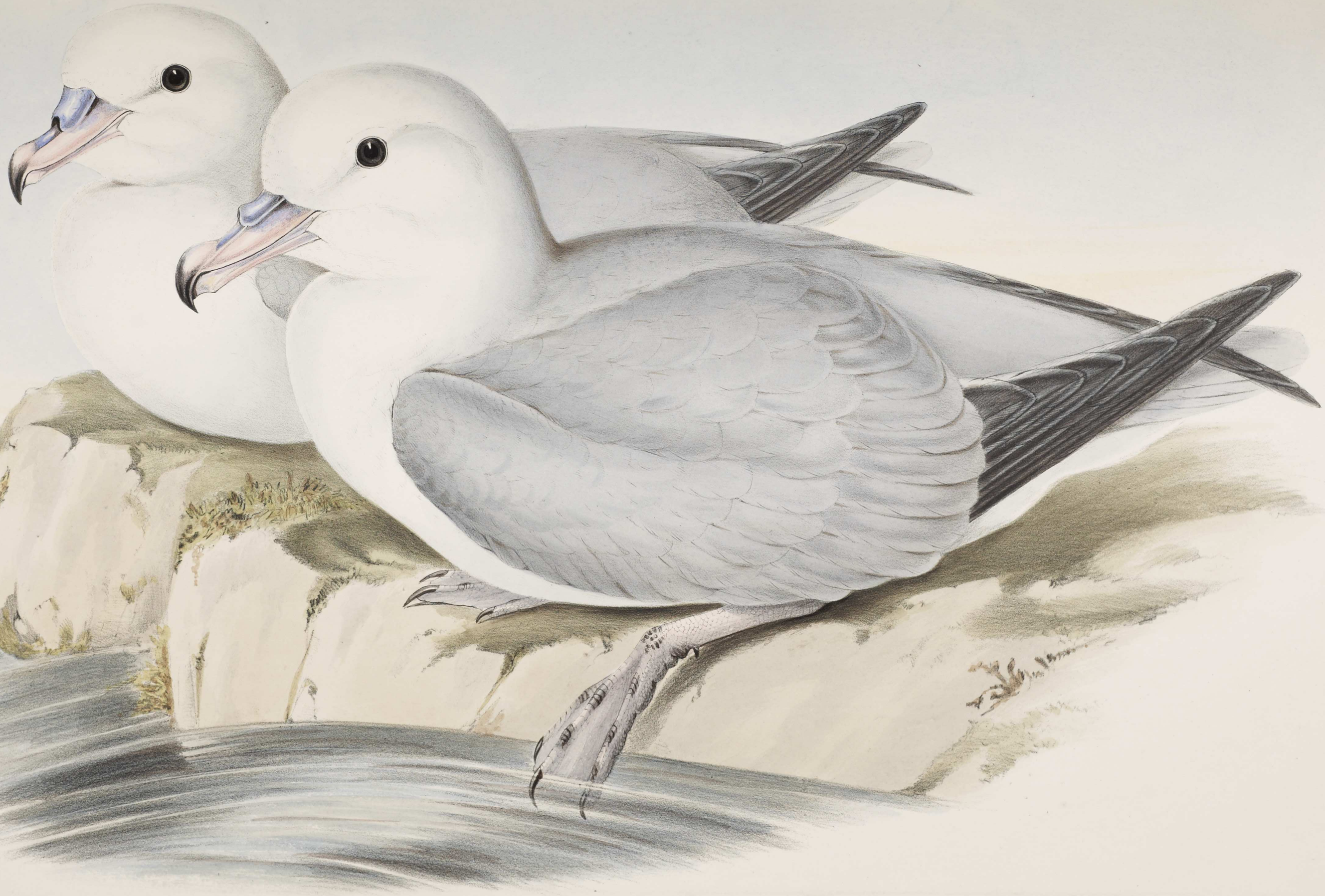
Procellaria Glacialoïdes, Smith, Zool. of South Africa, Aves, pl. 51.—Forst. Drawings, No. 91.—List of Birds in Brit. Mus. Coll., part iii. p. 162.

During my voyages to and from Australia I saw numerous examples of this bird, both in the Atlantic and Pacific. I first met with it off the Cape of Good Hope, and it was frequently seen from thence across the South Indian Ocean to New South Wales; I subsequently observed it between Sydney and Cape Horn; it was numerous off the Falkland islands, and I possess specimens killed on the shores of New Zealand. One of the finest specimens I possess was captured by me with a hook and line, and thus afforded Mrs. Gould an opportunity of making the accompanying beautiful drawing from life. It was a species which particularly interested me while at sea, as much for its familiar habits as for its peculiar actions and mode of flight: with the exception of the Cape Petrel (*Daption Capensis*), no species was more readily taken with a baited hook. In its structure it is also most closely allied to that species; like that bird it has very broad primaries, giving an appearance of great breadth to the end of the wing, has the same number of feathers (14) in the tail, and the nostrils placed in a single tube.

Dr. Smith, who was the first to discriminate the characters which distinguish this species, remarks that, "In many respects it has a strong resemblance to the *Procellaria glacialis* of authors; the length of the bill, however, is not only greater, but the thickness is also different, being inferior to that of *P. glacialis*, and neither are ever otherwise in any individual of the Cape species . . . . It often hunts for its food in the neighbourhood of the South African coasts, and even frequently enters the bays, apparently for the same purpose. It flies higher above the surface of the water than the smaller species, rests more frequently, and seems well-disposed to feed upon dead animal matter, when such can be procured."

All the upper surface and tail delicate silvery grey; outer webs, shafts, a line along the inner webs, and the tips of the primaries and the outer webs of the secondaries slaty black; face and all the under surface pure silky white; irides brownish black; nostrils, culmen, and a portion of the base of the upper mandible bluish lead-colour; tips of both mandibles fleshy horn-colour, deepening into black at their points; remainder of the bill pinky flesh-colour; legs and feet grey, washed with pink on the tarsi and blotched with slaty black on the joints.

The figures represent the two sexes of the natural size.



J. Gould and H.C. Richter del. et lith.

PROCELLARIA GLACIALOÏDES: *Smith.*

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

PROCELLARIA LESSONII, *Garn.*

White-headed Petrel.

Procellaria Lessonii, Garn. Ann. des Sci. Nat., tom. vii. t. 4.—Less. Traité d'Orn., p. 611.—List of Birds in Brit. Mus. Coll., part iii. p. 163.
——— *leucocephala*, Forst. Drawings, No. 98.—Gould in Ann. and Mag. of Nat. Hist., vol. xiii. p. 363.
——— *vagabunda*, Sol. MSS.

Many watchful hours have I spent on the decks of the vessels which conveyed me to and from Australia for the purpose of obtaining specimens and a knowledge of the habits of the various oceanic birds which are constantly to be seen, and my views and wishes were in most instances aided by the Captains with whom I sailed, but by none more willingly than by Captain McKellar of the "Parsee." Often and often was the ship surrounded by several species of the great family *Procellaridæ*, while engaged in watching the movements of which a bright speck would appear on the distant horizon, and gradually approaching nearer and nearer at length assumed the form of the White-headed Petrel, whose wing-powers are so extraordinary as far to excel those of any of its congeners; at one moment rising high in the air, at the next sweeping comet-like through the flocks flying around; never however approaching the ship sufficiently near for a successful shot, and it was equally wary in avoiding the boat with which I was frequently favoured for the purpose of securing examples of other species; but to make use of a familiar adage, "the most knowing are taken in at last:" one beautiful morning, the 20th of February 1839, during my passage from Hobart Town to Sydney in the "Potentate," Captain Gilchrist, when the sea was perfectly calm and of a glossy smoothness, this wanderer of the ocean came in sight and approached within three hundred yards of the vessel; anxious to attract him still closer so as to bring him within range, I thought of the following stratagem:—a corked bottle attached to a long line was thrown overboard and allowed to drift to the distance of sixty yards, and kept there until the bird favoured us with another visit, which, as he continued flying round in immense circles, he was likely to do every half-hour; at length his keen eye caught sight of the neck of the bottle, to which a bobbing motion was communicated by sudden jerks of the string, and down he came to examine more closely what it was that had arrested his attention; during a momentary pause the trigger was pulled, the boat lowered, and the bird was soon in my possession.

On referring to my notes, I find that I first met with this species in lat. 39° 33′ S., long. 52° 2′ E. I also observed it off the coasts of Van Diemen's Land, and on my return to England I frequently saw it between Sydney and New Zealand; it was again seen in lat. 40° S., long. 154° W., and a few were seen in the South Atlantic, lat. 41° S., long. 34½° W.

The wings of the White-headed Petrel are longer and more arched than those of any other species of its size and weight, and it is consequently one of the boldest and most powerful fliers of the *Procellaridæ*. During flight the dark colouring of the wing shows very conspicuously, and presents the form of a W as seen in some other species: as is the case with most birds of powerful flight, its legs are thin and delicate.

Forehead, face, all the under surface and tail white; hinder part of the head, back of the neck and upper tail-coverts grey; back greyish brown; wings blackish brown; round and before the eye a mark of black; bill and irides black; tarsi and half the toes and webs flesh-white; the tips of the toes and webs black.

The figure is of the natural size.



J. Gould and H.C. Richter del et lith:

PROCELLARIA LESSONI: *Garn:*

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del et lith.

C. Hullmandel Imp.

PROCELLARIA MOLLIS, *Gould.*

Soft-plumaged Petrel.

Procellaria mollis, Gould in Ann. and Mag. of Nat. Hist., vol. xiii. p. 363.

Between the 20th and 50th degrees of south latitude this species flies in the greatest abundance, but I observed it to be more numerous in the Atlantic than in the Pacific; and it probably, like the other wandering members of this genus, makes a circuit of the globe: although I have not seen it within sight of the shores of Australia, it doubtless occasionally visits them, for I observed it to be plentiful off the eastern end of the islands of St. Paul and Amsterdam. It is a species which will ever live in my memory, from its being the first large Petrel I saw after crossing the line, and from a somewhat curious incident that then occurred. The weather being too boisterous to admit of a boat being lowered, I endeavoured to capture the bird with a hook and line, and the ordinary sea-hooks being too large for the purpose, I was in the act of selecting a hook from my stock of salmon-flies, when a sudden gust of wind blew my hooks, and a piece of parchment ten inches long by six inches wide on which they were lying, overboard into the sea, and I was obliged to give up the attempt for that day; on the next I succeeded in capturing the bird with a hook baited with fat, and the reader may judge of my surprise when on opening the stomach I there found the piece of parchment, so completely uninjured that it was dried and again resorted to its original use.

Its powers of flight are considerable and the action of its wings is very rapid.

The food appears to be precisely the same as that of the other Petrels, and consists of mollusks, the fat of dead cetacea, small fish, &c.

The sexes are precisely similar in colour, but the young differ from the adult in having all the under surface dark grey and the throat speckled with grey.

Crown of the head and all the upper surface slate-grey, the feathers of the forehead margined with white; wings dark brown; before and beneath the eye a mark of brownish black; face, throat and all the under surface pure white, interrupted by the slate-grey of the upper surface advancing upon the sides of the chest and forming a faint band across the breast; centre tail-feathers dark grey; outer feathers greyish white, freckled with dark grey; bill black; tarsi, base of the toes and basal half of the interdigital membrane pale fleshy white, the remainder black.

The figures are of the natural size.

Ellis Rowland Imp.

J. Gould and H. C. Richter del. et lith.



PROCELLARIA MOLLIS: *Gould.*

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

PROCELLARIA COOKII, *G. R. Gray.*

Cook's Petrel.

Procellaria Cookii, G. R. Gray in Dieffenbach's Trav. in New Zealand, vol. ii. p. 199.—List of Birds in Brit. Mus. Coll., Part III. p. 165.
——— *velox*, Sol. MSS. Banks's Icon. inedit. t. 16?
——— *leucoptera*, Gould in Proc. of Zool. Soc., Part XII. p. 57; Ann. and Mag. of Nat. Hist., vol. xiii. p. 364.

I have been informed that this species breeds in abundance on one of the small islands near the mouth of the harbour of Port Stephen, in New South Wales, where my specimens were procured. I frequently saw it during my passage from Sydney to Cape Horn, but it was most numerous between the coast of Australia and the northern part of New Zealand. For a true Petrel it is one of the most elegantly formed species of the genus, and is rendered conspicuously different from the rest of its congeners by its white abdomen and under wing-coverts, which show very conspicuously when the bird is on the wing, particularly when seen from beneath, as it frequently may be when the breeze is fresh or a gale rising; it seldom, however, even then mounts higher than the vane of the vessel.

From the number of species figured in the present work, it will be seen that the Australian seas abound with Petrels, the investigation of the various species of which, their habits and economy, as well as their places of abode, will serve to occupy the attention of ornithologists for years to come. It could scarcely be expected that a single voyage to Australia could add much to our knowledge of the subject; my readers must therefore be contented in this instance with little more than an illustration. That, like the other members of the genus, it subsists upon small fishes, medusæ, and others of the lower marine animals, there can be no doubt.

The sexes do not differ in external appearance.

Crown of the head, all the upper surface and wings dark slaty black; tail slate-grey; greater wing-coverts slightly fringed with white; face, throat, all the under surface, the base of the inner webs of the primaries and secondaries, and a line along the inner edge of the shoulder pure white; bill black; tarsus and basal half of the interdigital membrane fleshy white; remainder of the toes and interdigital membrane black.

The Plate represents a male and a female of the size of life.

PROCELLARIA COOKII: G.R. Gray.

J. Gould and H.C. Richter del et lith.

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del et lith.

C. Hullmandel Imp.

PROCELLARIA CŒRULEA, *Gmel.*

Blue Petrel.

Procellaria cærulea, Gmel. Edit. of Linn. Syst. Nat., tom. i. p. 560.—Lath. Ind. Orn., vol. ii. p. 827.—Gould in Ann. and Mag. of Nat. Hist., vol. xiii. p. 364.—List of Birds in Brit. Mus. Coll., part iii. p. 165.
Blue Petrel, Lath. Gen. Syn., vol. vi. p. 415.—Forst. Voy., vol. i. p. 91.—Lath. Gen. Hist., vol. x. p. 196.
Another Blue Petrel, Cook's Voy., vol. i. p. 32.
Procellaria similis, Forst. Draw., No. 86.
———— *Forsteri*, Smith, Zool. of S. Africa, Birds, pl. 54.—Licht. Edit. of Forst. MSS., p. 59.

This bird may be distinguished from every other of the smaller Petrels by the conspicuous white tips of the centre tail-feathers. It is a very powerful flier, and I observed it in every part of the ocean I traversed between the 40th and 55th degrees of south latitude, both in the Atlantic and Pacific.

As much confusion exists respecting this species, I may state that it is the *Procellaria similis* of Forster's Drawings, No. 86, and of Lichtenstein's Edition of Forster's MSS. p. 59; the *Procellaria cærulea* of Gmelin, Latham and Kuhl; and the *P. Forsteri* of Smith, but not of Latham.

This, the least of the true Petrels, is generally seen in company with the fairy-like *Prion Turtur*, from which when on the wing it can scarcely be distinguished, unless it passes sufficiently near for the observer to note the more square form, and the white tips of the tail, which as well as the silvery ends of the secondaries and scapularies show very conspicuously. On my voyage to Australia I first observed it in lat. 39° 23′ S., long. 54° E.; as we proceeded it gradually increased in numbers, and was very plentiful off the coast of Van Diemen's Land; I also met with it in my voyages from Hobart Town to South Australia and Sydney; and on my return to England in the beginning of May 1840, I observed it to be very abundant off the north-east coast of New Zealand; tolerably numerous on the 20th of May near Cape Horn, lat. 50° S., long. 90° W.; plentiful midway between Tristan d'Acunha and the coast of America; and in the Atlantic Ocean on the 12th of June, lat. 41° S., long. 34½° W., a few were still hovering round the ship.

The sexes are precisely alike, and may be thus described:—

Forehead, lores, cheeks, throat, centre of the chest, and all the under surface white; narrow space beneath the eye, shoulders, and the outer webs of the first primaries deep brownish black; back of the neck, sides of the chest, back, rump, wings and tail grey; the secondaries, scapularies and six middle tail-feathers tipped with white; the two outer tail-feathers almost wholly white, and the shafts of all black; bill dull blackish brown, with a stripe of blue-grey along the lower part of the under mandible; tarsi and toes delicate blue; interdigital membrane flesh-white traversed by red veins.

The figures represent the two sexes of the natural size.

PROCELLARIA CERULEA: Gmel.



DAPTION CAPENSIS.

Cape Petrel.

Procellaria Capensis, Lath. Ind. Orn., vol. ii. p. 822.—Linn. Syst. Nat., vol. i. p. 213.—Gmel. edit. of Linn. Syst. Nat., vol. i. p. 565.—List of Birds in Brit. Mus. Coll., part iii. p. 164.—Forst. Drawings, No. 96.

Procellaria nævia, Briss. Orn., tom. vi. p. 146.—Ib. 8vo, tom. ii. p. 400.

Le Petrel tacheté, ou le Damier, Buff. Hist. des Ois., tom. ix. p. 304. pl. 21.—Ib. Pl. Enl., 964.—Forst. Voy., vol. i. p. 489.

White- and Black-spotted Petrel, Edw. Glean., pl. 90.

Pintado Petrel, Lath. Gen. Syn., vol. vi. p. 401.—Damp. Voy., vol. iii. pl. in p. 96. fig. 1.—Lath. Gen. Hist., vol. x. p. 178.

Daption Capensis, Steph. Cont. of Shaw's Gen. Zool., vol. xiii. p. 241. pl. 28.—G. R. Gray, List of Gen. of Birds, 2nd edit., p. 98.

Cape Pigeon and *Cape Petrel* of Voyagers.

This species of Petrel is well known to every person who has voyaged to the Southern hemisphere; for it is equally common in the Atlantic and Pacific, and is nowhere more numerous than off the south coast of Van Diemen's Land; it may, in fact, be said to inhabit the temperate latitudes of all the seas above-mentioned; and to be without exception the most familiar species of Petrel the voyager meets with. From the circumstance of individuals which have been caught, marked, and again set at liberty, having been found to follow vessels for hundreds of miles for the sake of the offal thrown overboard, no doubt exists in my mind, that it constantly circumnavigates the globe. It is frequently seen close to the vessel, and if fed with any oily substance, it may during a calm be attracted to within three yards of the ship's side. It is at no time difficult to capture it with a hook, so that when other resources of amusement for the passengers fail, the capturing of this bird frequently affords them occupation for hours together, and often serves to wile away the time and break the monotony of a lengthened voyage. It is said to breed on Tristan d'Acunha and all similar islands; I did not myself fall in with any of its breeding-places, neither could I ascertain if it breeds on the Mewstone and other rocky islands off the south coast of Van Diemen's Land, in the neighbourhood of which we parted with a numerous flock, many of which had I believe followed us from the Cape of Good Hope. During my passage from Hobart Town to Sydney and from Sydney to Cape Horn, on my return to England, it was a constant attendant on the ship. The following notes were made during my passages out and home, and are worth transcribing, as they record some of the latitudes and longitudes in which the bird was seen, and the date of the observations:—

"July 27, 1838, lat. 26° 54′ S., long. 31° 25′ W.—Saw the first Cape Petrel, and from this date until we doubled the Cape of Good Hope it paid daily visits to the ship, sometimes in considerable numbers, at others only two or three appeared. Lieut. Blackett, R.N., informs me that it will follow ships from Cape Horn to Rio de Janeiro, and our Captain (McKellar) states, that he has known it to do so from the Cape of Good Hope to St. Helena. It is the Martin among the Petrels, being extremely tame, passing immediately under the stern and settling down close to the sides of the ship, if fat of any kind or other oily substance be thrown overboard. Swims lightly, but rarely exercises its natatorial powers except to procure food, in pursuit of which it occasionally dives for a moment or two. It flies both by night and by day, and nothing can be more graceful than its motions while on the wing, when the neck is drawn back, the legs, large as they are, are entirely hidden among the feathers of the under tail-coverts, and the tail expanded to its fullest extent. It is easily taken with a line and hook baited with any kind of fat, and when captured may be placed on the deck without risk of its escaping, as it cannot rise from a flat surface. Like the other Petrels, it ejects, when irritated, an oily fluid from its nostrils. It is the provider or rather the discoverer of food for the Albatroses, which masters of the seas may often be seen pouncing down among a flock of these fairy-like birds and dispersing them on all sides. Its note is a feeble squeaking cry. Its weight varies from fourteen to eighteen ounces: there is no difference in the weight of the sexes, neither is there any visible variation in their colouring, nor do they appear to be subject to any seasonal change.

"August 18.—Off the island of St. Paul's. Cape Petrels very plentiful.

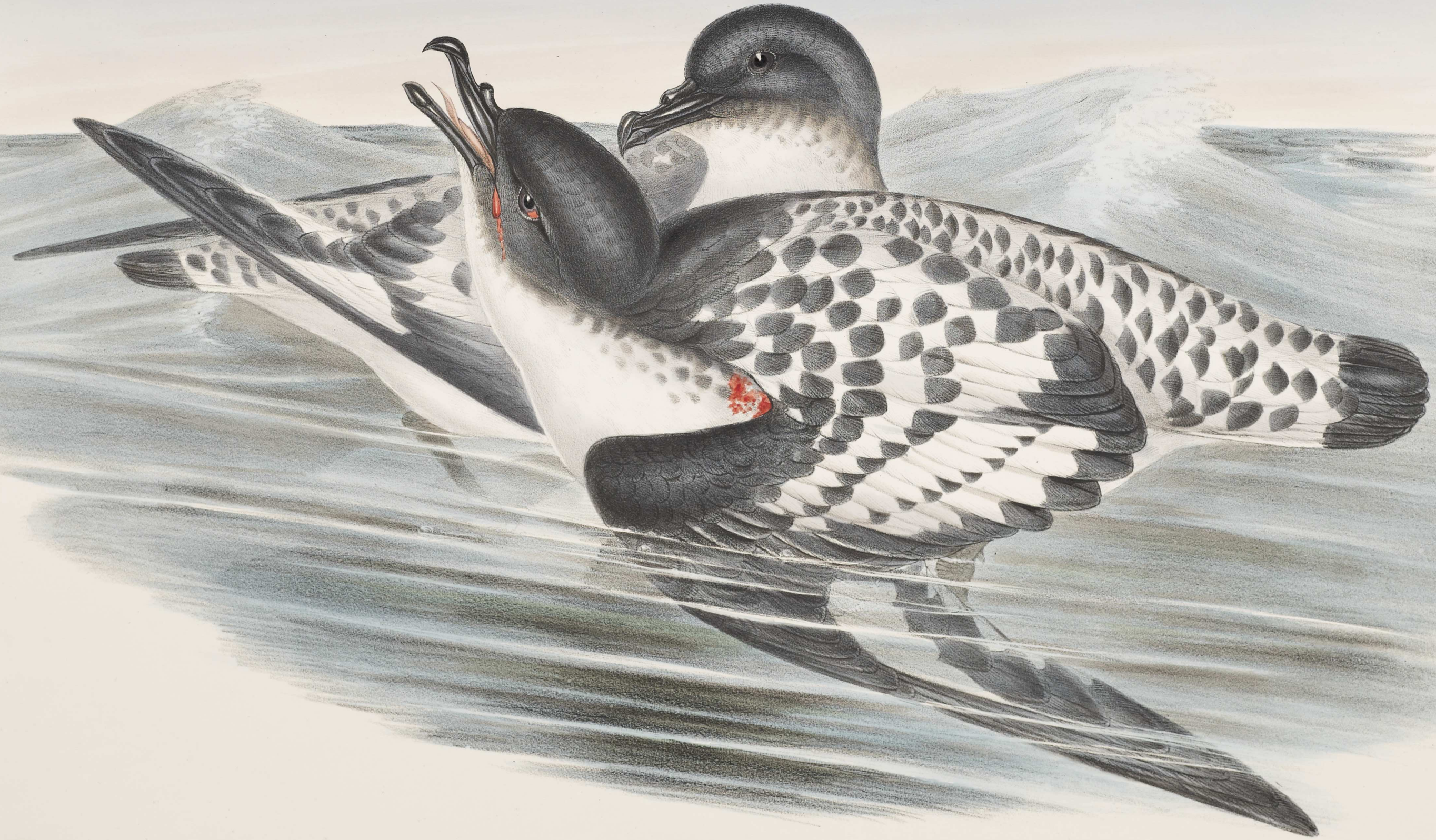
"September 8.—Off King George's Sound. Cape Petrels still very numerous.

"May 6, 1840, lat. 40° S., long. 154° W.—Two Cape Petrels hovering round the ship, the first of the species seen since leaving Sydney.

"May 20.—Off Cape Horn, lat. 50° S., long. 90° W. Cape Petrels very abundant."

Head, chin, back and sides of the neck, upper part of the back, lesser wing-coverts, edge of the under surface of the wing, and the primaries sooty brown; wing-coverts, back, and upper tail-coverts white, each feather tipped with sooty brown; basal half of the tail white, apical half sooty brown; under surface white; the under tail-coverts tipped with sooty brown; beneath the eye a small streak of white; bill blackish brown; irides and feet very dark brown.

The figures are of the natural size, and represent a wounded bird with its mate swimming by its side, as it is apt to do under such circumstances.



J. Gould and H.C. Richter del et lith.

DAPTION CAPENSIS.

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del et lith.

C. Hullmandel Imp.

PRION TURTUR.

Dove-like Prion.

Procellaria Turtur, Banks's Drawings, No. 15.
Prion Turtur, Gould in Ann. and Mag. of Nat. Hist., vol. xiii. p. 366.

So much confusion exists among the species of this genus of Petrels, that a very minute examination has been required to identify those described by the older writers, and it has been with no little attention and care on the part of the late M. Natterer and myself, that we came to the conclusion that the bird forming the subject of the present memoir is that for which the name of *Turtur* should be retained. Of the four species inhabiting the southern seas, the present is the most delicate in colour, as well as the most slender and elegant in form; its bill is much less dilated at the base, and has the laminæ much less developed than those of the *P. Banksii*, to which it is nearly allied, and with which it is sometimes seen in company. I find by my notes that I killed four specimens off Cape Howe on the 16th of April, during my passage from Van Diemen's Land to Sydney; and that it traverses the whole surface of the Atlantic and Pacific Oceans, between the 30th and 50th degrees of south latitude, I have but little doubt, having seen and even killed specimens nearly every day while sailing within those prescribed limits. Sometimes it appeared in countless multitudes, but more often thinly dispersed over the surface of the ocean. During calms it flits over the glassy waters with a noiseless and easy flight, often performing small circles, and fluttering butterfly-like over any oily substance thrown overboard, and which it sips off the surface without settling; occasionally, however, it rests its buoyant and fairy little body on the waters, where it reposes at perfect ease, until hunger again impels it to take wing in search of food. A more vigorous and active action of the wing being necessary to sustain it during the raging of the gale, it then moves with zigzag turns of lightning-like swiftness, ascending the billows, topping their surgy summits, and descending into the gulf between, where a momentary shelter enables it to gain fresh vigour, and seize from the slanting surface any floating mollusks that may present themselves, and which, from the disturbed state of the sea, are then thrown up in greater abundance than at other times.

The plumage of all the members of this genus is dense, thick, and extremely light; hence their bodies are much smaller than they appear to be. The average weight of several examples of this species was five ounces. Although the present bird and *Prion Banksii* were seen in company as before stated, the differences between the two were very observable; the extreme delicacy of colouring, and the smaller size of the *P. Turtur* strongly contrasting with the more bluff and darker-coloured head of the *P. Banksii*; when the wings were expanded, the black mark, similar to the letter W, was equally conspicuous in both.

All the upper surface delicate blue-grey; the edge of the shoulder, the scapularies, outer margins of the external primaries and the tips of the middle tail-feathers black; small spot before the eye and a stripe beneath black; lores, line over, beneath and behind the eye and all the under surface white, stained with blue on the flanks and under tail-coverts; bill light blue, deepening into black on the sides of the nostrils and at the tip, and with a black line along the side of the under mandible; irides very dark brown; feet beautiful light blue.

The figure is of the natural size.

PRION TURTUR.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

PRION VITTATUS, *Cuv.*

Broad-billed Prion.

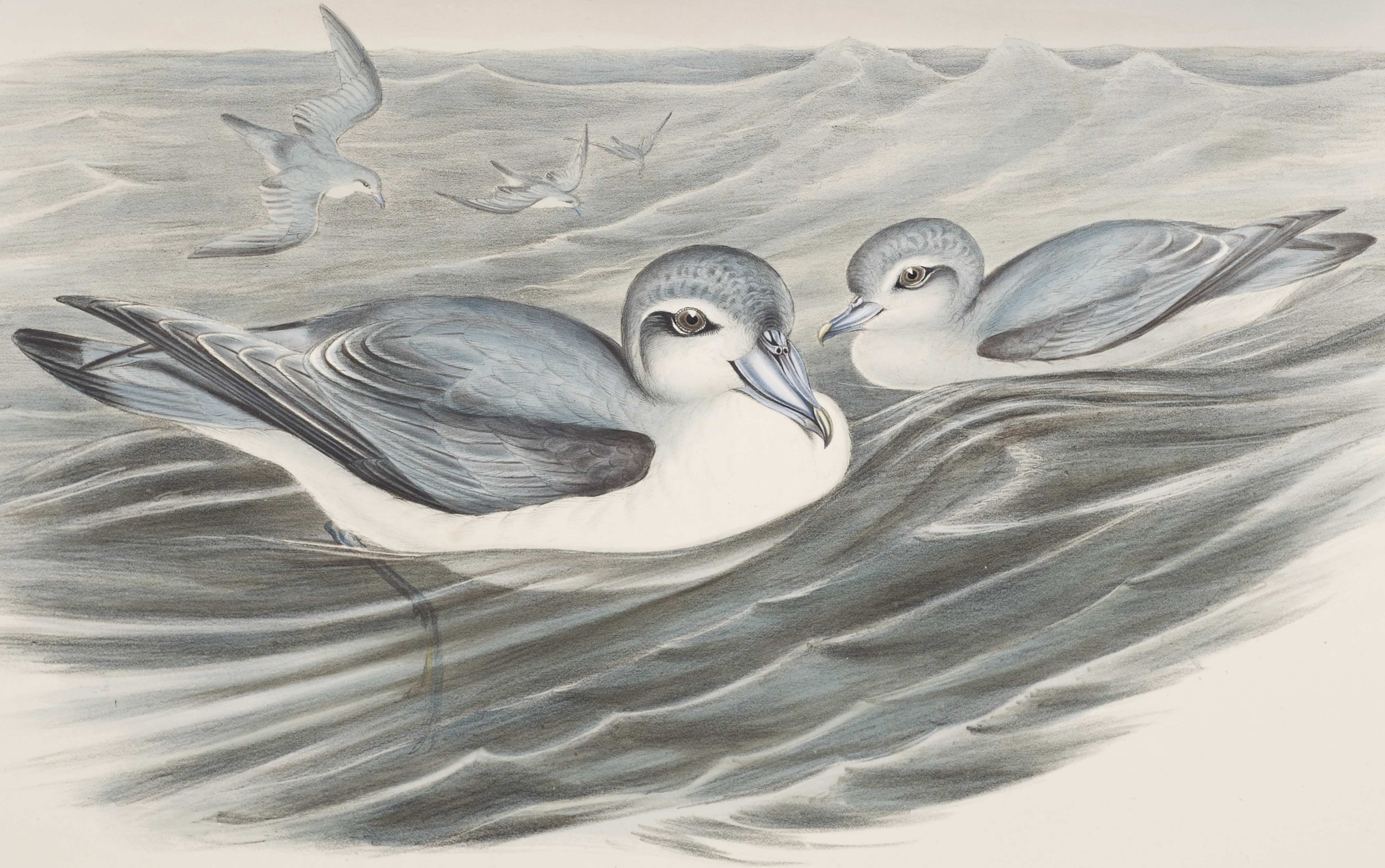
Pachyptila vittata, Ill. Prod., p. 275.—Temm. Pl. Col., 528.
Procellaria vittata, Forst. Draw., No. 86.—Licht. Edit. of Forst. MSS., p. 21.—Gmel. Edit. Linn., vol. i. p. 560.
Procellaria Forsteri, Lath. Ind. Orn., vol. ii. p. 827.
Prion vittatus, Lacep. and Cuv.—G. R. Gray, List of Gen. of Birds, 2nd Edit., p. 99.—Gould in Annals and Mag. of Nat. Hist., vol. xiii. p. 366.
Broad-billed Petrel, Lath. Gen. Syn., vol. vi. p. 414.—Ib. Gen. Hist., vol. x. p. 195.
Pachyptila Forsteri, Swains. Class. of Birds, vol. ii. p. 374.—Less. Traité d'Orn., p. 613.

This, the largest species of *Prion* yet discovered, is very plentiful in the South Indian Ocean. I observed it on my outward passage to Van Diemen's Land, near the islands of Amsterdam and St. Paul's. I have never encountered it in the South Atlantic, although in all probability, like most of the other Petrels, it makes in the course of its peregrinations a circuit of the globe. The seas washing the coasts of Van Diemen's Land, New Zealand and the Auckland Islands, are the localities whence most of the specimens in our museums have been obtained.

It subsists entirely on mollusks and other marine animals which abound in the southern seas. The laminæ of the bill are very conspicuous, and doubtless form some important function in the economy of the bird, but what particular purpose this appendage to the bill is intended to perform has not yet been ascertained. Its powers of flight and mode of life are very similar to those of the *Prion Turtur* and *P. Banksii*, as detailed in the description of those species. I believe that the sexes present little or no difference in size or plumage, but I have not had an opportunity of satisfactorily determining this point; had any existed, however, it is not likely that it would have escaped the notice of those ornithologists who have from time to time examined the members of this group.

All the upper surface delicate blue-grey; the edge of the shoulder, the scapularies, outer primaries and tips of the middle tail-feathers black; space surrounding the eye and the ear-coverts black; lores, line over the eye, and all the under surface white, stained with blue on the flanks and under tail-coverts; bill light blue, deepening into black on the sides of the nostrils and at the tip, and with a black line along the side of the under mandible; irides very dark brown; feet beautiful light blue.

The foremost figure in the Plate is about the natural size; the one in the distance is of course on a reduced scale.



PRION VITTATUS: *Gray.*

J. Gould and H.C. Richter del et lith.

C. Hullmandel Imp.

J. Gould and H.C. Richter del et lith.

C. Hullmandel Imp.

PUFFINUS BREVICAUDUS, *Brandt.*

Short-tailed Petrel.

Puffinus brevicaudus, Brandt, MSS.—List of Birds in Brit. Mus. Coll., part iii. p. 159.—Gould in Ann. and Mag. of Nat. Hist., vol. xiii. p. 365.

This bird is an inhabitant of all the Australian seas, particularly those surrounding Van Diemen's Land and the islands in Bass's Straits, to some of which, but especially to Green Island, it resorts during the summer in countless numbers for the purpose of breeding and rearing its young; thither also resort the sealers, the natives, and even the settlers, in order to procure the eggs and young birds, which are salted and extensively used as an article of food; the feathers are also collected for the purposes of commerce. I visited this island in January 1839, when, although the season was far-advanced, both eggs and young were still so numerous as to excite feelings of astonishment. I had previously heard much of this great nursery of Petrels, and might lengthen this paper by my own observations; but as I find that an excellent account of the bird and its habits has been published by Mr. Davies, in the second volume of the 'Tasmanian Journal,' I prefer transcribing his words:—

"About the commencement of September these birds congregate in immense flocks, and shortly afterwards proceed at sunset to the different isles upon which they have established their rookeries. Here they remain during the night for the space of about ten days, forming their burrows and preparing for the ensuing laying-season. They then leave, and continue at sea for about five weeks.

"About the 20th of November at sunset a few come in to lay, and gradually increase in numbers until the night of the 24th. Still there are comparatively few, and a person would find some difficulty in collecting two dozen eggs on the morning of that day.

"It is not in my power to describe the scene that presents itself at Green Island on the night of the 24th of November. A few minutes before sunset flocks are seen making for the island from every quarter, and that with a rapidity hardly conceivable; when they congregate together, so dense is the cloud, that night is ushered in full ten minutes before the usual time. The birds continue flitting about the island for nearly an hour and then settle upon it. The whole island is burrowed; and when I state that there are not sufficient burrows for one-fourth of the birds to lay in, the scene of noise and confusion that ensues may be imagined—I will not attempt to describe it. On the morning of the 25th the male birds take their departure, returning again in the evening, and so they continue to do until the end of the season . . . . Every burrow on the island contains, according to its size, from one to three or four birds, and as many eggs; *one* is the general rule. At least three-fourths of the birds lay under the bushes, and the eggs are so numerous, that great care must be taken to avoid treading upon them. The natives from Flinders generally live for some days on Green Island at this time of the year for the purpose of collecting the eggs, and again in March or April for curing the young birds . . . . Besides Green Island, the principal rookeries of these birds are situated between Flinders' Island and Cape Barren, and most of the smaller islands in Furneaux's group. The eggs and cured birds form a great portion of the food of sealers, and, together with the feathers, constitute the principal articles of their traffic. The mode by which the feathers are obtained has been described to me as follows:—

"The birds cannot rise from the ground, but must first go into the water; in effecting which, they make numerous tracks to the beach similar to those of a kangaroo; these are stopped before morning, with the exception of one leading over a shelving bank, at the bottom of which is dug a pit in the sand; the birds, finding all avenues closed but this, follow each other in such numbers, that, as they fall into the pit, they are immediately smothered by those succeeding them. It takes the feathers of forty birds to weigh a pound; consequently sixteen hundred must be sacrificed to make a feather-bed of forty pounds weight. Notwithstanding the enormous annual destruction of these birds, I did not, during the five years that I was in the habit of visiting the Straits, perceive any sensible diminution in their number. The young birds leave the rookeries about the latter end of April, and form one scattered flock in Bass's Straits. I have actually sailed through them from Flinders' Island to the heads of the Tamar, a distance of eighty miles. They shortly afterwards separate into dense flocks, and finally leave the coast. The old birds are very oily, but the young are literally one mass of fat, which has a tallowy appearance, and hence I presume the name of Mutton Bird." To this I may add that the young birds are very good when fresh, and the old birds after being skinned and preserved in lime are excellent eating.

The egg is very large for the size of the bird, being two inches and three-quarters long by one inch and seven-eighths broad, and is of a snow-white. The white or albumen forms a very large proportion of its contents; and it is remarkable that a small part of both the yolk and the white remains soft and watery, however long the egg may be boiled.

The food of the old birds consists of shrimps, small crustaceans and mollusks, which they principally procure from among the large beds of kelp along the coast. The young are fed with grass, sea-weed, &c.

The flight of this and the other species of *Puffinus* differs considerably from that of the *Procellariæ* in being straighter and performed close above the surface of the water; it is moreover so exceedingly rapid, that Mr. Davies states it cannot be fairly estimated at less than sixty miles an hour.

The sexes are so much alike that they can only be distinguished by dissection.

The whole of the plumage sooty brown, the under surface much paler than the upper; bill blackish brown, tinged with olive; the under mandible with a longitudinal mark of vinous grey; irides brownish black; outer side of the tarsi and outer toe brownish black; inner side of the tarsi and two inner toes vinous grey; webs yellowish flesh-colour, becoming blackish brown towards the extremity.

The figure is of the natural size.



PUFFINUS BREVICAUDUS. *Gr. Jd.*

J. Gould and H. C. Richter del. et lith.

Hullmandel & Walton Imp.

J. Gould and H. C. Richter del. et lith.

C. Hullmandel Imp.

PUFFINUS CARNEIPES, *Gould.*

Fleshy-footed Petrel.

Puffinus carneipes, Gould in Proc. of Zool. Soc., Part XII. p. 57.—Ib. in Ann. and Mag. of Nat. Hist., vol. xiii. p. 365.

This species of Petrel flies over the seas bordering the southern and western coasts of Australia, and resorts among other places to the small islands off Cape Leeuwin for the purpose of breeding; it was here that the specimens and eggs contained in my collection were procured. It differs from the *Puffinus brevicaudus* in the greater length and in the more square form of its tail, and in the light or fleshy colouring of its bill and legs.

There is no difference in the colouring of the sexes, which may be thus described:—

The whole of the plumage chocolate-black; bill fleshy white, the culmen and tips of the mandibles brown; legs, feet and interdigital membranes yellowish flesh-colour.

The figure is of the natural size.



J. Gould and H. C. Richter del et lith.

PUFFINUS CARNEIPES: *Gould.*

Hullmandel & Walton Imp.

J. Gould and H. C. Richter del et lith.

C. Hullmandel Imp.

PUFFINUS SPHENURUS, *Gould.*

Wedge-tailed Petrel.

Puffinus sphenurus, Gould in Ann. and Mag. of Nat. Hist., vol. xiii. p. 366.

This species was procured by Mr. Gilbert on the Houtmann's Abrolhos, off the western coast of Australia; he also observed it on all the neighbouring sandy islands, but on none was it more abundant than on West Wallaby Island, which appears to be one of its chief breeding-places, and where it burrows to a considerable distance before depositing its single egg. As I did not observe this species in any of my voyages near the south-eastern coast of Australia, I conclude that it does not visit the seas washing those shores.

Its single white egg two inches and three-quarters long by one and three-quarters wide.

All the upper surface dark chocolate-brown, which gradually deepens into black on the primaries and tail; feathers of the scapularies, which are very broad in form, washed with lighter brown at their tips; face and throat dark brownish grey, the remainder of the under surface greyish brown; bill reddish fleshy brown, darker on the culmen and tip; legs and feet yellowish flesh-colour.

The figures are of the natural size, the hinder representing a somewhat immature bird.



PUFFINUS SPHENURUS; *Gould.*

J. Gould and H.C. Richter del. et lith. *Hullmandel & Walton Imp.*

J. Gould and H.C. Richter del. et lith. *C. Hullmandel Imp.*

PUFFINUS ASSIMILIS, *Gould.*

Allied Petrel.

Puffinus assimilis, Gould in Proc. of Zool. Soc., Part V. p. 156.—Ib. in Ann. and Mag. of Nat. Hist., vol. xiii. p. 366.
——— *Australis*, Eyton.

All the specimens of this species that I have seen were procured on Norfolk Island, where it is said to breed; consequently the seas washing the eastern shores of Australia may be considered its native habitat; it is evidently the representative of the *Puffinus obscurus* of Europe, which it so much resembles, and to which it is so nearly allied, that *assimilis* appeared to me to be the most appropriate specific appellation I could apply to it. On my homeward voyage I saw numerous examples flying off the north-eastern end of New Zealand, and this I regret to say is all the information I have to communicate respecting it.

Crown of the head, all the upper surface, wings and tail sooty black; sides of the face, throat and all the under surface white; bill dark horn-colour; tarsi and toes greenish yellow; webs yellowish orange.

The figure is of the natural size.



PUFFINUS ASSIMILIS: *Gould*

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

PUFFINURIA URINATRIX.

Diving Petrel.

Procellaria Urinatrix, Lath. Ind. Orn., vol. ii. p. 827.—Gmel. Edit. Linn. Syst. Nat., vol. i. p. 560.
Haladroma Urinatrix, Ill. Prodromus, p. 274.—Temm. Man. d'Orn., Part I. p. cix.—Swains. Class. of Birds, vol. ii. p. 373.—Temm. Pl. Col., 517.
Diving Petrel, Lath. Gen. Syn., vol. vi. p. 413.—Forst. Voy., vol. i. pp. 189, 483, 503.—Lath. Gen. Hist., vol. x. p. 194.
Procellaria tridactyla, Forst. Drawings, No. 88.—Lichtenstein's Edit. of Forst. MSS., p. 149.
Diving Halodrome (*Halodroma urinatrix*), Steph. Cont. of Shaw's Gen. Zool., vol. xiii. p. 257.
Puffinuria Garnotii, Less. Zool. de la Voy. de Coq., pl. 46.—Ib. Traité d'Orn., p. 615.
Pelecanoïdes, Lacép.
Pelecanoïdes Urinatrix, Cuv.—G. R. Gray, Gen. of Birds, 2nd Edit., p. 98.
Tee-tee, Aborigines of New Zealand.

I observed that this curious little bird was very abundant in Storm Bay, and off many parts of the coast of Van Diemen's Land; I have also seen specimens from New Zealand and Cape Horn which were identical with those I procured in the localities above-mentioned. As might be supposed from its structure, the habits and economy of the Diving Petrel are totally different from those of all the other members of the family, with the exception of course of the one or two other species belonging to the same genus. It possesses none of those great powers of flight common to the rest of the family, but has this loss amply compensated for by its powers of diving, which are so great that it is even said to fly under water. It thus gives chase to shrimps and other small crustaceans, fry of fish, &c., upon which it feeds; and in turn finds a destroying enemy in the Barracoota, a ravenous fish so called by the colonists, and which is very common in the seas off the southern parts of Australia. Its flight is a curious fluttering motion, performed so close to the surface that it rarely rises high enough to top the waves, but upon being met by them makes progress by a direct course through instead of over them. Latham states that it inhabits "Queen Charlotte's Sound, and other parts adjacent to New Zealand in vast flocks; fluttering on the surface of the water or sitting upon it, and dives well; rising often at considerable distances, with amazing agility. It croaks like a frog and sometimes makes a noise like the cackling of a hen."

In external appearance the Diving Petrel so much resembles the Little Auk of the northern seas, that at the first glance it might be readily mistaken for that species; their resemblance, however, is merely that of analogy or representation and not of affinity, for they are by no means nearly allied, but merely represent each other in the respective families to which they belong. I observed this or a nearly allied species about 20 degrees to the eastward of New Zealand, taking mollusks from the surface of the ocean, now and then dashing under water, rising again, skimming close to the surface and then flying off in a straight line with a quick fluttering motion of the wings.

It appears to differ considerably in colour, some having the under surface washed with dark grey, while in others, and by far the greater number, that part of the plumage is white.

Head, all the upper surface, wings and tail shining black; ear-coverts, sides of the neck and flanks dark grey; all the under surface white; irides very dark greyish brown; base of the cutting edge of the upper mandible and a line along the lower edge of the under mandible blue grey; tarsi and toes beautiful light blue; webs transparent bluish white, tinged with brown; naked pouch hanging from the chin nearly black, and being very thin lies in folds like a bat's wing.

The figures are of the natural size, the white-breasted being the adult plumage and the other that of immaturity.



PUFFINURIA URINATRIX.

J. Gould and H. C. Richter del et lith.

C. Hullmandel Imp.

J. Gould and H. C. Richter del et lith.

C. Hullmandel Imp.

THALASSIDROMA MARINA, *Less.*

White-faced Storm-Petrel.

Procellaria marina, Lath. Ind. Orn., vol. ii. p. 826.—Vieill. 2nde Edit. du Nouv. Dict. d'Hist. Nat., tom. xxv. p. 419.
—Gal. des Ois., tom. ii. pl. 292.
Frigate Petrel, Lath. Gen. Syn., vol. vi. p. 410.—Ib. Gen. Hist., vol. x. p. 189.
Thalassidroma marina, Less. Traité d'Orn., p. 612.

This fine species of *Thalassidroma* was originally described by Latham, in the second volume of his "Index Ornithologicus," from one of Sir Joseph Banks's drawings. It enjoys a wide range over the southern ocean, the specimen figured by Vieillot in his "Galérie des Oiseaux" having been procured at New Zealand, while numerous individuals in my own collection were procured in Australia. Mr. Gilbert discovered it breeding on some of the small islands lying off Cape Leewin in December, where he procured numbers of its eggs, as well as many examples of the adult birds; he also met with it on a small island about three miles south of East Wallaby Island in January, by which time the young birds were almost ready to leave their holes. The specimens procured on this island are peculiarly interesting, as showing how completely the true feathers are assumed before the downy covering is thrown off.

The egg of this species is pure white, one inch and a half long by one inch and an eighth broad: whether one or two are laid at a time is uncertain, but I believe only one.

Forehead, face, line over the eye and all the under surface pure white; crown and nape, a broad patch beneath the eye and the ear-coverts slate-colour; sides of the chest, back of the neck and upper part of the back dark grey, gradually passing into the dark brown of the back and wings; upper tail-coverts light grey; primaries and tail black; irides dark reddish brown; legs and feet black; webs yellow.

The plumage of the immature birds being carefully represented in the drawing, a minute description is unnecessary.

The figures represent a male, a female, and a young bird of the natural size.

THALASSIDROMA MARINA: *Less.*

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

THALASSIDROMA MELANOGASTER, *Gould.*

Black-bellied Storm Petrel.

Thalassidroma melanogaster, Gould in Ann. and Mag. of Nat. Hist., vol. xiii. p. 367.

My acquaintance with this species commenced about the 12th of August 1839, when off Cape Lagullas on my voyage to Australia, and from that date it was almost daily observed during our transit across the South Indian Ocean until we arrived at Van Diemen's Land on the 19th of September; its numbers gradually increasing from the neighbourhood of the islands of St. Paul's and Amsterdam to the termination of the voyage. I again encountered it in March 1840, on my passage home, and that in great abundance, between the eastern coast of Australia and New Zealand. Specimens were also procured off the Lagullas Bank by His Excellency Governor Grey on his outward voyage to Australia, and are now deposited in the British Museum.

It is a very fine species, and when viewed from the ship is at once distinguished from all the other Petrels by the broad black mark which passes down the centre of the abdomen, and offers a strong contrast to the snowy whiteness of the flanks.

It is a bird of powerful flight, and pats the surface of the rising waves more frequently than any other species that came under my notice, or perhaps the great length of its legs rendered this action more conspicuous; its habits and general economy are of course very similar to those of the other members of the genus.

All the plumage deep sooty black with the exception of the upper tail-coverts and flanks, which are snow-white; bill, legs and feet black.

The figures in the accompanying Plate represent the birds of the natural size, breasting one of those tempestuous seas which so frequently occur in high southern latitudes.



THALASSIDROMA MELANOGASTER: *Gould*

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

THALASSIDROMA LEUCOGASTER, *Gould.*

White-bellied Storm Petrel.

Thalassidroma leucogaster, Gould in Ann. and Mag. of Nat. Hist., vol. xiii. p. 367.

This bird is about the same size as the *Thalassidroma melanogaster*, but possesses two characters by which it may at all times be distinguished from it: these are, the total absence of black down the centre of the abdomen, and the shortness of its toes. I encountered it very generally over the South Indian Ocean, where I have reason to believe that it ranges over all the temperate latitudes between the Cape of Good Hope and Cape Horn, and it is not unlikely that it may inhabit similar latitudes in the South Atlantic. It was also noticed by His Excellency Governor Grey, who procured and transmitted specimens to the British Museum. I killed specimens of a nearly allied species within the tropics of the South Atlantic, which differed in being of a larger size and in having a patch of greyish white on the throat; these differences will doubtless prove it to be a distinct species, and I mention this in order that the two birds might not be confounded by subsequent voyagers or writers on the subject. I have presented a specimen of the larger species, killed by myself at the Equator, to the British Museum, where it is always accessible for comparison and other scientific purposes.

Like the *T. melanogaster*, the White-bellied Storm Petrel is a fine and powerful species, fluttering over the glassy surface of the ocean during calms with an easy butterfly-like motion of the wings, and buffeting and breasting with equal vigour the crests of the loftiest waves of the storm; at one moment descending into their deep troughs, and at the next rising with the utmost alertness to their highest points, apparently from an impulse communicated as much by striking the surface of the water with its webbed feet as by the action of the wings. Like the other members of the genus, it feeds on mollusca, the spawn of fish, and any kind of fatty matter that may be floating on the surface of the ocean.

Head and neck deep sooty black; back greyish black, each feather margined with white; wings and tail black; chest, all the under surface and the upper tail-coverts white; bill and feet jet-black.

Some slight variation appears to exist in the extent of the sooty colouring of the neck; in some specimens it merely descends to the base of the throat, while in others it spreads over the chest, but never down the centre of the abdomen.

The figures represent the birds of the natural size fluttering over the surface of the waves in a calm.



J.Gould and H.C.Richter del et lith.

THALASSIDROMA LEUCOGASTER: *Gould.*

Hullmandel & Walton Imp.

J.Gould and H.C.Richter del et lith.

C.Hullmandel Imp.

THALASSIDROMA NEREIS, *Gould.*

Grey-backed Storm-Petrel.

Thalassidroma Nereis, Gould in Proc. of Zool. Soc., Part VIII. p. 178.

During a calm which occurred on my passage from Hobart Town to Sydney in May 1839, I obtained four examples of this new species of Petrel, and I subsequently observed it flying about in considerable numbers near the eastern entrance of Bass's Straits; I also met with it on my passage home in April 1840, between New South Wales and the northernmost point of New Zealand; further than this I have little to communicate respecting it.

The *Thalassidroma Nereis* is a species readily distinguishable from its congeners by the total absence of any white mark on the rump, the want of which first drew my attention and induced me to suspect it, as it subsequently proved to be, a different species from any I had before seen; my readers will therefore easily imagine with what pleasure I descended the ship's side and sallied forth in a little 'dingy' to procure specimens as they came fluttering around me. This is not the only instance in which science has been benefited through the kindness of the captains I have sailed with allowing me the use of a boat whenever the weather permitted such a favour to be granted me without retarding the progress of the ship. Through the liberality of the owner of the 'Parsee', Robert Gordon, Esq., and the ready assistance of the late Captain McKellar who commanded that vessel, nearly thirty species of oceanic birds were obtained in this way during my voyage to Australia; whence some idea may be formed of the numbers of birds encountered in the open sea, and of the employment the naturalist may find during a voyage round the globe.

In the habits and mode of flight of this species I could observe no difference whatever from those of the other Storm-Petrels; and as a matter of course, its food is also similar; any oily substance, together with mollusks, being equally partaken of by all the members of the genus.

The sexes are alike in plumage, and are not materially different in size.

In conclusion I may state, that I did not observe this species in any other parts of the ocean than those mentioned above; at the same time it is not improbable that it may possess a much wider range.

Head, neck and chest sooty grey; lower part of the wing-coverts, back, rump and upper tail-coverts grey, each feather very slightly margined with white; wings greyish black; tail grey, broadly tipped with black; under surface pure white; irides, bill and feet black.

The Plate represents a male and a female of the natural size.



THALASSIDROMA NEREIS: *Gould.*

J. Gould and H.C. Richter del. et lith. *Hullmandel & Walton Imp.*

J. Gould and H.C. Richter del. et lith. *C. Hullmandel Imp.*

THALASSIDROMA WILSONII, *Bonap.*

Wilson's Storm Petrel.

Procellaria Wilsonii, Bonap. in Journ. of Nat. Sci. of Philad., vol. iii. p. 231. pl. ix.—Ord's Reprint of Wils. Am. Orn., p. 94.—Steph. Cont. of Shaw's Gen. Zool., vol. xiii. p. 224.—Zool. Journ. vol. i. p. 425.
Thalassidroma Wilsonii, Bonap. Synopsis of the Birds of the United States, p. 367.—Jard. Edit. of Wilson's Am. Orn., vol. ii. p. 381. pl. lx. fig. 6.—Audubon, Birds of Am., pl. cclxx. fig. 1.—Ib. Orn. Bio., vol. iii. p. 486.
Procellaria pelagica, Wils. Am. Orn., vol. vii. p. 90. pl. lx. fig. 6.
Wilson's Stormy Petrel, Nuttall, Manual, vol. ii. p. 322.
Oceanites Wilsonii, Keys. et Bl.—G. R. Gray, List of Gen. of Birds, 2nd Edit. p. 99.
Thalassidroma Oceanica, Kuhl, Monog., tab. 10. fig. 1.—List of Birds in Brit. Mus. Coll., Part iii. p. 161.

I possess a specimen of this bird which was sent me by his Excellency Governor Grey, who killed it in the South Atlantic. It is also one of the most abundant species of the genus inhabiting the Australian seas: I observed it in great numbers within sight of the shores of Van Diemen's Land, and shot and preserved several specimens during my passage from Sydney to Hobart Town in April 1839; I also encountered it in the following year in the seas between Sydney and New Zealand, while on my passage towards Cape Horn. On carefully comparing these with others from the North Atlantic no specific difference was observable, but the former were a trifle larger than the latter.

On my voyage to Australia I encountered the *Thalassidroma Wilsonii* within a day's sail of the Land's End, and continued to observe it from the deck of the vessel from thence across the Bay of Biscay to Madeira, its numbers gradually lessening as we approached the tropics, within which it was never seen. May we not therefore infer that in the same zone of both hemispheres this species finds a natural asylum, if the slight difference in size I have mentioned be not of sufficient importance to warrant their being considered as distinct? Certainly I am not aware of any other species of Petrel being found on both sides of the equator.

It is exceedingly active when flying, its wings being kept fully expanded; it also makes considerable use of its feet, patting and leaping over the surface of the water, with its wings extended upwards and its head inclined downwards, to gather any food that may present itself. Its usual diet consists of mollusca, small fish, crustacea, and any kind of greasy substance that may be floating on the water.

The sexes are so precisely similar that they can only be distinguished by dissection.

The head, neck, back, wings and breast sooty black, the wing-coverts passing into pale brown at the extremity; primaries and tail black; upper and lateral portions of the under tail-coverts white; irides dark brown; bill and feet black; webs yellow for three parts of their length from the base.

The figures are somewhat smaller than the natural size.

THALASSIDROMA WILSONI. *Bonap.*

J. Gould. and H. C. Richter del. et lith.

Hullmandel & Walton Imp.

J. Gould and H. C. Richter del. et lith.

C. Hullmandel Imp.

PHALACROCORAX CARBOÏDES, *Gould.*

Australian Cormorant.

Phalacrocorax Carboïdes, Gould in Proc. of Zool. Soc., Part V. p. 156 ; and in Syn. Birds of Australia, Part IV.—List of Birds in Brit. Mus. Coll., Part III. p. 184.
Black Shag, Colonists of Western Australia.

This is the largest species of Cormorant yet discovered in Australia, and even exceeds in size its prototype and near ally in Europe, the *Phalacrocorax Carbo*. Although enjoying a wide range over the southern part of the country, it is nowhere so abundant as in Van Diemen's Land. In this island it not only inhabits all the bays and inlets of the sea, but it also ascends the large rivers even to the lakes in the middle of the island, on several of which it breeds. In Western Australia it is tolerably abundant at King George's Sound; it also ascends the Swan, and is sometimes observed far up the Murray. In South Australia and New South Wales it frequents similar localities, and I killed several while perched on the high gum-trees on various parts of the Hunter. It is, however, so shy and wary that it is very difficult to get within shot of it: when flying it frequently mounts upwards in circles until nearly out of sight.

Its habits, manners, and mode of life are so precisely similar to those of the Common Cormorant of Europe that a description of them would be superfluous. Its chief food as a matter of course consists of fish.

It lays two bluish white eggs, about two inches and a half long by one inch and three-quarters broad, on a nest composed of sea-weed and other marine vegetables placed on the ledge of a rock.

This fine bird weighs from six to seven pounds.

In summer the adult male has the throat and sides of the face buffy white; crown of the head, lengthened plumes at the occiput, neck, all the under surface, rump and tail deep glossy blackish green; feathers of the back, wings, and upper part of the flanks chocolate, broadly margined with deep glossy blackish green; neck ornamented with numerous fine white feathers; a patch of white feathers is also situated on the outer side of each thigh; irides green; bare skin round the eye and under the throat rich yellow; feet jet-black; culmen and tips of both mandibles horn-colour; remainder of the bill fleshy white.

In winter the plumage is precisely similar, with this exception, that the white feathers on the neck have entirely disappeared, leaving that part of the same hue as the under surface.

The period of immaturity is characterized by the upper surface being paler than in the adult, and in the under surface being nearly white.

The Plate represents a male and a female about two-thirds of the natural size.



PHALACROCORAX CARBOÏDES: *Gould.*

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

PHALACROCORAX SULCIROSTRIS.

Groove-billed Cormorant.

Carbo sulcirostris, Brandt, Bull. Acad. Imp. Petersb.
Phalacrocorax sulcirostris, List of Birds in Brit. Mus. Col., part iii. p. 185.

The *Phalacrocorax sulcirostris* is found in most of the southern parts of the continent of Australia, and appears to affect the rivers and lagoons of the interior rather than the sea-coast; at least such was the result of my own observations; I found it nowhere more abundant than on the rivers Mokai, Peel and Namoi. Its habits did not appear to differ from those of the other members of the family; it was usually seen perched on the branches of the *Eucalypti* overhanging the water, and on the spars and snags of the fallen trees which protruded above its surface generally in small companies of from five to twenty in number.

Its food consists of fish, frogs, newts, &c.

There is no visible difference in the colour of the sexes.

The general plumage dark glossy greenish black; the feathers of the back and wings grey, margined with greenish black; over the eye and dispersed over the sides of the neck numerous minute narrow white feathers, which are probably only assumed during the breeding-season; irides deep grass-green; orbits and gular pouch brownish black, the pouch strongly tinged with blue; feet black.

The Plate represents the two sexes of the natural size.



J. Gould and H.C. Richter del. et lith.

PHALACROCORAX SALCIROSTRIS: *Brandt*

Ballmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

Ballmandel Imp.

PHALACROCORAX HYPOLEUCUS.

Pied Cormorant.

Phalacrocorax pica, Forster's Drawings in Brit. Mus.
Pelecanus varius, Lath. Ind. Orn., vol. ii. p. 890.—Gmel. Linn., vol. i. p. 576.
Pied Shag, Lath. Gen. Syn., vol. vi. p. 605.—Cook's Voy., vol. i. p. 151.—Lath. Gen. Hist., vol. x. p. 428.
Carbo hypoleucus, Brandt, Bull. de l'Acad. de St. Pet.
Mä-dee, Aborigines of the lowland districts of Western Australia.
Black and White Shag, Colonists of Western Australia.

I FIRST observed this fine Cormorant in Nepean Bay, Kangaroo Island, where it was very abundant, and I have since ascertained that no species of the genus inhabiting Australia possesses a wider range, for it is almost universally dispersed along the whole line of the southern coast from Swan River on the west to Moreton Bay on the east; I have also received specimens from New Zealand, which present no perceptible differences.

The Pied Cormorant may be regarded as a gregarious species, many hundreds being sometimes seen in company, particularly in those bays and inlets of the sea whose shores are flat and sandy, and where the tide brings in an abundant supply of fish, upon which the bird almost solely subsists, and in the capture of which it exhibits the same dexterity as the other members of the genus. Its large size and the contrast of its pied plumage render it a most conspicuous bird when seen on the surface of the water, but at no time does it form so prominent an object in the scene as when observed reposing on the sand-banks and low ledges of rock, after having satiated itself with fish, whence it seldom moves until compelled by hunger so to do.

I possess specimens of the eggs which are two inches and a half long and of a pale bluish white, and which were brought from the Three Sisters' Island, about twenty miles southward of Swan River; I obtained no other particulars respecting its nidification, but Latham states in his "General History" that it breeds in trees.

The sexes are precisely alike in plumage, and also in the brilliant markings of the lores and orbits; the young of the first autumn differ in having all the upper surface brown, each feather having lighter edges; the sides of the neck and upper part of the breast are also mottled with brown and white.

Crown of the head, back of the neck, lower part of the back, upper tail-coverts, flanks and thighs deep glossy steel-blue; all the upper surface and wings deep dull green, each feather with a very narrow margin of velvety black; primaries and tail deep greenish black; sides of the face and all the under surface pure white; irides pale sea-green; bare space in front of the eye bright orange; eyelash and naked skin beneath the eye rich indigo-blue; throat and cheeks light bluish ash; bill dark horn-colour, becoming lighter at the tip; legs and feet black.

The Plate represents a male about two-thirds of the natural size.

PHALACROCORAX HYPOLEUCUS.

J. Gould and H.C. Richter del et lith.

C. Hullmandel Imp.

J. Gould and H.C. Richter del et lith.

C. Hullmandel Imp.

PHALACROCORAX LEUCOGASTER, *Gould.*

White-breasted Cormorant.

Phalacrocorax leucogaster, Gould in Proc. of Zool. Soc., Part V. p. 156; and in Syn. Birds of Australia, Part IV.

This species is very abundant in all the bays and inlets of the sea surrounding Van Diemen's Land; it ascends the rivers almost to their source, and the large lakes of the interior of the same island are seldom without its presence. It breeds in most of the islands in Bass's Straits, where it constructs a round nest of sea-weed on the ledges of the low rocks, and lays two bluish white eggs. It becomes far less numerous as we proceed northward, but still it inhabits all the localities suitable to it throughout the whole of the coast of South Australia. I have also seen it on the Hunter as well as in Spencer's and St. Vincent's Gulfs.

In a state of nature it is a showy and attractive bird, the decided contrast of the colouring of its plumage rendering it a conspicuous object at a considerable distance, more particularly when it is reposing in flocks on the craggy summits of the low black rocks forming the margins of the rivers, or when perched side by side on the bare branches of the trees overhanging the water. As a matter of course, the whole economy of this species is precisely similar to that of the Cormorants generally.

Its food consists of fish and other marine animals.

The sexes are so nearly alike in their plumage that it is impossible to distinguish them without the aid of dissection; the spring or nuptial dress, that in which the bird is figured, is characterized by long white feathers springing from the sides of the neck, which feathers are entirely wanting at other seasons. The young of the year has the plumage of the upper surface tinged with brown, and the white of the neck clouded and mottled with the same colour.

Forehead, crown of the head, back of the neck and rump greenish black; back and wing-coverts deep green, each feather narrowly margined with black; primaries and secondaries black; throat, front and sides of the neck, and all the under surface white; bill and feet black; naked skin at the base of the bill and round the eye purple; irides green.

The Plate represents a male and a female about two-thirds of the natural size.



PHALACROCORAX LEUCOGASTER; *Gould.*

J. Gould and H. C. Richter del. et lith.

C. Hullmandel Imp.

PHALACROCORAX MELANOLEUCUS, *Vieill.*

Pied Cormorant.

Phalacrocorax melanoleucus, Vieill.
G$\overset{u}{o}$-go-go, Aborigines of the lowland districts of Western Australia.
Little Shag, Colonists of Swan River.

This is the least of the Cormorants inhabiting Australia, over every part of which country it is dispersed, wherever a locality suitable for its existence occurs: my own observation would tend to show, that however universal its range is found to be, it is nowhere very abundant. It evinces a greater preference for deep armlets of the sea, inland rivers and lagoons, than for the rocky shores of the coast. Both in Van Diemen's Land and New South Wales, and also in South Australia, I observed it far inland, wherever there was sufficient water to afford it a supply of food, a solitary individual, or at most a single pair, being all that was to be seen in any one district; here it may be seen perched erect on its favourite snag of some fallen tree resting on the bed of the river, or on the leafless branch of a *Eucalyptus* bordering the stream. The shyness of its disposition renders it very difficult of approach, particularly if its natural timidity has been increased by the discharge of a gun in the immediate neighbourhood of its haunts. Its food consists of fish and insects. I once observed several individuals on a new-formed lagoon, occasioned by the abundance of rain that had fallen a few days before, busily employed in feeding upon the insects and their larvæ, which the united agency of the warmth and moisture had brought into life; from the muddy state of the water, they had so soiled their silvery neck and breast during the feast as to be scarcely recognisable. This was in the spring when the feathers are prolonged, and form the dress commonly put on about the pairing time and worn throughout the early part of the summer.

At Port Essington this species is said to construct its nest and rear its young in the tea-trees (*Melaleucæ*) bordering the rivers near the coast, seven or eight pairs associating for the purpose in a single tree; at this time they are exceedingly pugnacious. The eggs are said to be six in number.

The sexes are precisely alike in colouring, and I suspect that the young assume the white plumage of the under surface from the period of their leaving the nest, as I have never met with a specimen in which that part was of any other colour.

Crown of the head, a broad line down the back of the neck, back, rump and flanks deep shining steel bluish black; wing-coverts and scapularies greyish black, each feather margined with deep black; primaries and tail black; sides of the face, throat and all the under surface pure white; irides greyish white; bill yellow, except the culmen, which is dark horn-colour; orbits dull reddish brown; throat yellow; legs and feet black.

The figures are those of the two sexes of the natural size.



PHALACROCORAX MELANOLEUCUS.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

PHALACROCORAX PUNCTATUS.

Spotted Cormorant.

Pelecanus punctatus, Sparm. Mus. Carls., vol. i. t. 10.—Lath. Ind. Orn., vol. ii. p. 889.—Gmel. Linn., vol. i. p. 574.
——— *nævius*, Gmel. Linn., vol. i. p. 575.
Crested Shag, Cook's last Voy., vol. i. p. 151.
Spotted Shag, Lath. Gen. Syn., vol. vi. p. 602, pl. civ.—Ib. Gen. Hist., vol. x. p. 427, pl. clxxxii.
Phalacrocorax punctatus, Gould, Birds of Australia, Part I., cancelled.
Pa-degga-degga, Aborigines of New Zealand.

This beautiful species of Cormorant is a native of New Zealand; but although numbers of Europeans have now for many years visited those islands, it is still so extremely rare that I have never been able to discover more than two specimens among the various collections I have had opportunities of examining: of these, one is in the British Museum, and the other forms a part of the collection of the United Service Museum, to the Council of which Institution my best thanks are due, not only for the loan of this interesting species, but also for the very handsome manner in which the treasures of their Museum have been rendered available to me for scientific purposes. The latter specimen was presented to the United Service Museum by Capt. G. R. Lambert, R.N., of H.M.S. Alligator, who procured it in New Zealand, where it is said to be abundant, particularly in Queen Charlotte's Sound.

It builds among rocks, and not unfrequently on trees when growing near the water.

Vertical and occipital crest, crown of the head, and throat sooty black; back of the neck, lower part of the back, and rump glossy green; a white stripe commencing above the eye passes down each side of the neck to the flanks; lower part of the neck, chest, and abdomen beautiful leaden grey; under tail-coverts and tail black; mantle, scapularies, and wings brownish ash, all the feathers except the secondaries and primaries having a small spot of black at their tip; from the throat, sides and back of the neck, and thighs, arise numerous plume-like white feathers of a soft loose texture; those on the sides and back of the neck are very numerous, but on the other parts they are few and thinly scattered.

The figure is of the natural size.



PHALACROCORAX PUNCTATUS.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

ATTAGEN ARIEL, *Gould.*

Small Frigate Bird.

Attagen Ariel, Gould in Gray and Mitchell's Genera of Birds.

This species of *Attagen*, which may be distinguished from all the other members of the genus by its smaller size, is rather abundantly dispersed over the seas washing the shores of the tropical parts of the Australian continent, particularly those of Torres' Straits. Commander Ince, R.N., who during the late surveying voyage of H.M.S. Fly, was for some time stationed on Raine's Islet, superintending the erection of a Beacon, informs me that on his landing on this small island, which is situate in lat. 12° S., at about seventy miles from the north-eastern coast of the Australian continent, and surrounded by a part of the great barrier reef, he "found this bird breeding in colonies at its S.W. corner; the nest being composed of a few small sticks collected from the shrubs and herbaceous plants which alone clothe the island, and placed either on the ground or on the plants, a few inches above it. The eggs, which are generally one, but occasionally two in number, are larger than those of the Booby and Gannet, are of a purer white, not so chalky in appearance, and nearly of the same shape at either end. Upon one occasion I killed the old birds from a nest that contained a young one; on visiting the spot I found the young bird removed to another nest, the proprietors of which were feeding it as if it had been their own: I am sure of this fact, because there was no other nest near it containing two young birds. Some of the eggs were quite fresh, while others had been so far sat upon that we could not blow them; and many of the young birds must have been hatched some two or three weeks. We regarded these birds as the Falcons of the sea, for we repeatedly saw them compel the Terns, Boobys and Gannets to disgorge their prey, and then adroitly catch it before it fell to the ground or water. We never saw them settle on the water, but constantly soaring round and round, apparently on the watch for what the smaller birds were bringing home. I have found in their pouch young turtles, fish, cuttle-fish and small crabs."

The male has the entire plumage brownish black, the feathers of the head glossed with green, and the lengthened plumes of the back with purple and green reflexions; orbits and gular pouch deep red; bill bluish horn-colour; irides black; feet dark reddish brown.

The female is similar to the male, but browner; is destitute of the coloured plumes on the back; has some of the wing-coverts and tertiaries edged with light brown, forming a mark along the wing; a collar at the back of the neck, the breast and upper part of the flanks white, washed with rufous.

A nestling bird in my collection is clothed in white down, except on the back and scapularies, where the dark brown coloured and perfect feathers have just been assumed.

The Plate represents the two sexes about two-thirds of their natural size.



ATAGEN ARIEL: *Gould.*

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

PHAËTON PHŒNICURUS, *Gmel.*

Red-tailed Tropic Bird.

Phaëton phœnicurus, Gmel. Edit. of Linn. Syst. Nat., vol. i. p. 583.—Lath. Ind. Orn., vol. ii. p. 894.—Leach, Nat. Misc., pl. 177.—List of Birds in Brit. Mus. Coll., part iii. p. 182.—Swains. Class. of Birds, vol. ii. p. 372.—Vieill. Gal. des Ois., pl. 279.—Less. Traité d'Orn., p. 625.—Atlas, pl. 114. fig. 1.

Paille-en-queue à brins rouges, Buff. Hist. des Ois., tom. viii. p. 357.

——————— *de l'Isle de France*, Buff. Pl. Enl., 979.

Red-tailed Tropic Bird, Lath. Gen. Syn., vol. vi. p. 619. pl. 105.—Ib. Gen. Hist., vol. x. p. 447. pl. clxxxiii.

Phaëton erubescens, Banks's Drawings, No. 31.

New Holland Tropic Bird, Lath. Gen. Hist., vol. x. p. 448.

This bird is very generally dispersed over the temperate and warmer latitudes of the Indian Ocean and the South Seas, where it often hovers round the ship and occasionally alights on the rigging. During the months of August and September it retires to various islands for the purpose of breeding; among other places selected for the performance of this duty are Norfolk Island off the east coast of Australia, and Raine's Islet in Torres' Straits, from both of which localities I possess specimens of the bird and its eggs. As I had no opportunity of observing it myself, I am induced to avail myself of the information communicated to me respecting it by Mr. John McGillivray.

"This Tropic bird," says Mr. McGillivray, "was found by us on Raine's Islet, where, during the month of June, about a dozen were procured. Upon one occasion three were observed performing sweeping flights over and about the island, and soon afterwards one of them alighted; keeping my eye upon the spot, I ran up and found a male bird in a hole under the low shelving margin of the island bordering the beach, and succeeded in capturing it after a short scuffle, during which it snapped at me with its beak and uttered a loud, harsh, and oft-repeated croak. It makes no nest, but deposits its two eggs on the bare floor of the hole, and both sexes assist in the task of incubation. It usually returns from sea about noon, soaring high in the air and wheeling round in circles before alighting. The eggs are blotched and speckled with brownish red on a pale reddish grey ground, and are two inches and three-eighths long by one inch four-eighths and a half broad.

"The contents of the stomach consisted of the beaks of cuttle-fish.

"The only outward sexual difference that I could detect consists in the more decided roseate blush upon the plumage of the male, especially on the back; but this varies slightly in intensity in different individuals of the same sex, and fades considerably in a preserved skin."

Latham states that it is found in great numbers on the island of Mauritius, that it is very common at Palmerston, Turtle and Harvey's Islands in the South Seas, and that in all these places its eggs are deposited on the ground under the trees.

The adults have a broad crescent of black before each eye, the upper part of which extends over and behind that organ; centre of the tertiaries and flank feathers deep black; the whole of the remainder of the plumage silky white, with a rich roseate tinge especially on the back; shafts of the primaries black from the base to within an inch of their apex; shafts of the lateral tail-feathers black to within half an inch of the tip; two centre tail-feathers white at the base and rich deep red for the remainder of their length, which extends to eighteen inches, their shafts black; irides black; bill vermilion, with a black streak running through the nostrils, and a narrow line of faint blue at the base of both mandibles; tarsi and the base of the toes and webs faint blue, remainder of the toes and webs black.

The young birds for the first year are very different from the adults, being of a silky white without the roseate blush, with the whole of the upper surface broadly barred with black, and with the black of the shafts of the primaries expanded into a spatulate form at the tips of the feathers.

The figures represent an adult and a young bird about two-thirds of their natural size.



J. Gould and H.C Richter del et lith.

PHÆTON PHŒNICURUS: *Gmel:*

Hullmandel & Walton Imp.

J. Gould and H.C Richter del et lith.

C. Hullmandel Imp.

PELECANUS CONSPICILLATUS, *Temm.*

Australian Pelican.

Pelecanus conspicillatus, Temm. Pl. Col., 276.—List of Birds in Brit. Mus. Coll., part iii. p. 189.
Ne-rim-ba, Aborigines in the neighbourhood of Perth.
Boo-dee-lung, Aborigines near the Murray.

Of the members of the genus *Pelecanus* the present may be regarded as one of the very finest species; in size it fully equals its European prototypes the *P. Onocrotalus* and *P. crispus*, and although devoid of crest-plumes, this ornament is fully compensated for by the varied markings of the face and mandibles; no one species of Pelican would be more ornamental to the aviary, and it is very surprising that living examples should not long ere this have been introduced into Europe. It is so abundant in all the rivers and inlets of the sea, both in Van Diemen's Land and on the continent of Australia, that it is one of the very commonest of the large birds of those countries. I possess specimens shot by myself on Green Island in D'Entrecasteaux' Channel, and I also met with it in abundance in South Port River: owing to the advance of colonization it is now scarce in the Derwent and Tamar, but it still breeds on the small group called Stanner's Bay Islands, lying off the south-western end of Flinders' Island in Bass's Straits. In Australia it is very common on the Hunter as well as in Spencer's and St. Vincent's Gulfs, and on all the waters of the interior, such as the Mokai, Namoi, &c., and on all lakes of sufficient magnitude to afford it a supply of food, consisting principally of fish. So numerous is it on these inland waters, that Captain Sturt states that the channel of a river from seventy to eighty yards broad was literally covered with Pelicans; and that they were in such numbers upon the Darling as to be quite dazzling to the eye.

The nest is a large structure of sticks and grassy herbage, placed just above high-water mark; the eggs are generally two in number, of a dirty yellowish white, three inches and three-quarters long by two inches and three-eighths broad.

The entire plumage white, with the exception of the scapularies, a line along the edge of the shoulder, the lower row of the greater wing-coverts, the primaries, secondaries, a few of the upper tail-coverts and the tail, which are black; on the breast a pale wash of sulphur-yellow; gular pouch and mandibles yellowish white, the latter stained with blue, which gradually increases in depth to the tip; apical half of the cutting edges of the mandibles yellow, gradually increasing in depth to the tip; nail of both mandibles greenish yellow; irides dark brown; eyelash indigo-blue; orbits pale sulphur-yellow, bounded by a narrow ring of pale indigo-blue; legs and upper part of the tarsi yellowish white; feet, webs and lower part of the tarsi pale bluish grey, the two colours blending with each other at the middle of the tarsi; nails dull yellowish white.

The figure rather more than one-fourth of the natural size.

PELECANUS CONSPICILLATUS. Temm.



PLOTUS NOVÆ-HOLLANDIÆ, *Gould.*

New Holland Darter.

Plotus Novæ-Hollandiæ, Gould in Proc. of Zool. Soc., Part XV. p. 34.

The habitat of this singular bird, so far as we yet know, is confined to the colonies of South Australia and New South Wales, where it is thinly but generally dispersed in all situations favourable to its habits; such as the upper parts of armlets of the sea, the rivers of the interior, extensive water-holes and deep lagoons. Shy and secluded in its habits, it usually takes up its abode in localities little frequented by man; seeks its prey in the water, dives with the greatest ease to the bottom of the deepest pools, and is as active in this element as can well be imagined. It ordinarily swims with a considerable portion of the body above the surface, but upon being disturbed immediately sinks it below the water, leaving the head and neck only to be seen, and which, from their form and the motion communicated to them by the action of swimming, presents a close resemblance to those of a snake. Its food consists of fish, aquatic insects, newts, frogs, &c. After feeding it perches on a snag of some fallen tree in the water, or on the naked branch of a tree in the forest nigh to its haunts, often on one of the greatest height, where it sits motionless for hours together: while thus perched it is much more easily approached and shot than on the water, where it is wary in the extreme.

Much variation exists in the colouring of the sexes; the female being, I believe, at all times distinguished by her buffy white breast and neck, which parts in the male are black. Young birds for the first and probably for the second year are the same colour as the female.

The male has an arrow-head-shaped mark of white on the throat; a broad stripe of the same colour commences at the base of the mandibles, extends for about four inches down the sides of the neck, and terminates in a point; head, neck, and all the upper surface of the body greenish black, stained with brown, and with deep rusty red on the centre of the under side of the throat; under surface deep glossy greenish black; wings and tail shining black; all the coverts with a broad stripe of dull white occupying nearly the whole of the outer and a part of the inner web, and terminating in a point; scapularies lanceolate in form, with a similar shaped mark of white down the centre, and with black shafts, the scapular nearest the body being nearly as large as the secondaries, and with the outer web crimped and the inner web with a broad stripe of dull white close to the stem; the secondaries nearest the body with a similar white stripe close to the stem on the outer web; centre tail-feathers strongly, and the lateral ones slightly crimped; orbits naked, fleshy, protuberant and of a yellowish olive, mottled over with brown specks; next to the pupil of the eye is a narrow ring of dull orange-buff, to this succeeds another ring of marbled buff and brown, and to this an outer circle of orange-buff; naked skin at the base of the lower mandible wrinkled and yellow; upper mandible olive, under mandible dull yellow, both becoming brighter towards the base; feet yellowish flesh-colour, becoming brown on the upper part of the outer toes.

The female has the crown of the head, back of the neck and upper part of the back blackish brown, each feather margined with greyish white; throat and all the under surface buffy white; the remainder of the plumage like the male, but with the white marks on the wing-coverts larger and more conspicuous; irides ornamented with a beautiful lacework of brown, the interstices being buff; orbits, naked skin at the base of the bill, and throat orange-yellow; feet pale yellow.

The Plate represents the two sexes about two-thirds of the natural size.



J. Gould and H.C. Richter del. et lith.

PLOTUS NOVÆ-HOLLANDIÆ: *Gould.*

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

SULA AUSTRALIS, *Gould.*

Australian Gannet.

Sula Australis, Gould in Proc. of Zool. Soc., Part VIII. p. 177.

It will be clear to every ornithologist that the present species and the *Sula Bassana* of Europe are representatives of each other, and that they are destined by nature to perform similar offices, and to inhabit corresponding zones of latitude in opposite hemispheres. Their habits, actions and economy are, in fact, so precisely alike, that an account of one species is equally applicable to the other.

I found the *Sula Australis* generally dispersed over the seas washing the shores of Van Diemen's Land, but most numerous on the south side of the island. The Mewstone, the South Cape, the rock at the mouth of D'Entrecasteaux' Channel, and the low Actæon Islands were tenanted by hundreds during the period of my visit in 1839, and it was also seen, but in less numbers, along the entire coast of South Australia. Much as has been said respecting the natural stupidity of other species of the genus *Sula*,—Boobies as they are called,—the present appeared to be the Booby "*par excellence*," as evidenced by the manner in which I captured the specimens in my collection. Observing about fifty fine adult birds reposing on the flat top of a low rock on one of the Actæons, I directed my boatmen to row cautiously that I might endeavour to get a shot at them; I was soon not only within range, but too near to use my large duck gun, loaded as it was with cartridge and large shot; I determined therefore to take them on the wing as they flew from their resting-place; judge of my surprise when I found that neither the near approach of the boat nor our speaking to each other startled them in the least. Taking one of the men with me I stepped on shore and approached the motley assembly, which was still sitting in close array on the rock, and which did at length exhibit some degree of surprise and uneasiness at the intrusion, but even then was so little disturbed that we succeeded in capturing five fine birds with the hand before the remainder had shuffled off to the ledge of the rock and taken wing. Had this occurred at a breeding-place it would not have excited my astonishment, for I was aware that the *Sula Bassana* would allow itself to be so taken at that period; but I did not expect that the present species would admit of being so captured while merely at rest: much of this apparent stupidity may doubtless be attributed to the nature of the bird, but much was in all probability attributable to the fact that their haunts on these islands had rarely been intruded upon: boats the natives do not possess, and the visits of civilized man must have been few and far between.

Its food consists of fish of various kinds, which it procures by plunging vertically upon them as they swim near the surface of the water.

The sexes when adult are precisely alike in plumage; the young on the contrary, as is the case with the European bird, differ greatly from their parents; at first they are entirely dark grey, which gives place to a beautifully mottled appearance, the head, neck and under surface having put on a white colouring with blotches or traces of the dark grey still remaining, and the feathers of the upper surface having a triangular spot of white at the tip of each; this style of plumage is gradually exchanged for the following, which is characteristic of the adult.

Crown of the head and back of the neck beautiful buff; the remainder of the plumage white, with the exception of the primaries, secondaries and four centre tail-feathers, which are fuliginous brown with white shafts; irides olive-white; bill brownish horn-colour, slightly tinged with blue; space round the eye leaden blue; bare skin at the base of the beak and down the centre of the throat nearly black; front of the tarsi and toes sickly greenish yellow; webs brown.

The figures represent an adult and a young bird about two-thirds of the natural size.

J.Gould and H.C.Richter del et lith.

Hullmandel & Walton Imp.

STLA AUSTRALIS: *Gould*



SULA PERSONATA, *Gould.*

Masked Gannet.

Sula personata, Gould in Proc. of Zool. Soc., February 24, 1846.

In the course of the present work I have had frequent occasion to mention in terms of praise the great assistance rendered to myself and to the cause of Ornithological science by the officers of H.M.S. Beagle, under the command of my friend Captain Stokes; and I have now the pleasure of placing on record the services also rendered to me by the officers of H.M.S. Fly, under the command of Captain Blackwood, to whose investigations, while engaged in surveying Torres' Straits, but more particularly to those of Lieut. J. M. R. Ince, we are indebted for our knowledge of the fine Gannet here represented, as well as for several other interesting species.

The Masked Gannet was found breeding in considerable numbers on Raines Island: the egg, which is rather lengthened in form, is two inches and five-eighths long by one inch and three-quarters broad, and of a dirty white, stained or clouded all over with reddish brown.

I did not succeed in procuring examples of this bird during my own researches in Australia, but I believe that it once came under my observation on my voyage from Hobart Town to Sydney, when on approaching Sydney Heads my attention was attracted by the darkly coloured face of a Gannet, showing very conspicuously as the bird flew round the ship, but unfortunately at too great a distance for a successful shot.

The whole of the plumage of both sexes is pure white, with the exception of the greater wing-coverts, primaries, secondaries, tertiaries, the tips of the two central and the whole of the lateral tail-feathers, which are of a rich chocolate-brown; irides yellow; naked skin of the face and chin in specimen dull bluish black; legs greenish blue.

The Plate represents a male about one-third less than the natural size.



SULA PERSONATA: *Gould.*

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

SULA FUSCA, *Briss.*

Brown Gannet.

Sula fusca, Briss. Orn., tom. vi. p. 499. tab. 43. fig. 1.—Id. 8vo, tom. ii. p. 491.—Vieill. Gal. des Ois., tom. ii. pl. 277.—Bonap. Syn. Birds of Am., p. 408.—Nutt. Man., vol. ii. p. 500.—Aud. Birds of Am. vol. iii. pl. 207 ; Orn. Bio., vol. iii. p. 63 ; Syn. Birds of Am., p. 310.—Bonap. List of Eur. and Am. Birds, p. 60.

Brown Booby, Lath. Gen. Syn., vol. vi. p. 613.—Ib. Gen. Hist., vol. x. p. 441.

Sula Brasiliensis, Spix, Av. Sp. Nov., tom. ii. tab. cvii. p. 84.

Sula fiber, List of Birds in Brit. Mus. Coll., part iii. p. 183.

Pelecanus fiber, Linn. Syst. Nat., vol. i. p. 218.—Gmel. Edit. Linn. Syst. Nat., vol. i. p. 579.—Lath. Ind. Orn., vol. ii. p. 893.—Catesby's Car., vol. i. pl. 87. p. 87.—Bonn. et Vieill. Ency. Méth. Orn., part i. p. 48. pl. 16. fig. 2.

——— *Sula*, Linn. Syst. Nat. vol. i. p. 218.

——— *plotus*, Forst. Icon. Ined. 108 ?

Mâr-ga, Aborigines of Port Essington.

Booby, of the Colonists.

The Gannet figured in the accompanying Plate, which may perhaps be identical with the *Pelecanus fiber* of Linnæus, is abundantly dispersed round the northern shores of the Australian continent ; I have specimens killed within the harbour at Port Essington, and from Raines Island in Torres' Straits, where it breeds in considerable numbers.

The plumage of the two sexes is so precisely similar that it is utterly impossible to distinguish them by external observation ; it is true that the colouring of the feet, face and other soft parts is not always alike, but this difference I believe to be the result of age, rather than of a difference in sex ; and if this opinion be correct, the bright yellow-coloured feet are indicative of the bird being fully adult, and the olive-brown of its being immature.

In its habits, manners, mode of life, and in the nature of its food, this species resembles the other members of the genus.

Head, neck, breast, all the upper surface, wings and tail dark chocolate-brown ; under surface pure white, separated from the brown of the breast by a sharply defined line ; irides very pale yellow ; bill and orbits primrose-yellow, blotched before and beneath the eye with bluish ; eyelash light ash-grey ; legs and feet pale yellow.

The figures represent adult birds rather less than the natural size.



J. Gould and H.C. Richter del. et lith.

SULA FUSCA: *Briss.*

Hullmandel & Walton Imp.

J. Gould and H.C. Richter del. et lith.

C. Hullmandel Imp.

SULA PISCATŌR, *Linn.*

Red-legged Gannet.

Sula piscator, Linn. Syst. Nat., vol. i. p. 217.—Gmel. Syst. Nat., vol. i. p. 578.—Lath. Ind. Orn., vol. ii. p. 501.
—— *candida*, Steph. Cont. of Shaw's Gen. Zool., vol. xiii. p. 103.—Briss. Orn., tom. vi. p. 501.
Lesser Gannet, Lath. Gen. Syn., vol. vi. p. 611.—Ib. Gen. Hist., vol. x. p. 437.
Sula erythrorhyncha, Less. Traité d'Orn., p. 601.
—— *rubripes*, Gould in Proc. of Zool. Soc., Part V. p. 156; and in Syn. Birds of Australia, Part IV.

Since the year 1837, when I published the description of a Gannet in the "Proceedings of the Zoological Society," under the name of *rubripes*, from the only specimen that had then come under my observation, I have had opportunities of examining many other examples, and indeed I now possess many specimens in various stages of plumage, both from Australia and China as well as from the intermediate countries, which, independently of proving the great extent of range enjoyed by this species, have convinced me to an almost certainty, that the various specific names of *candida*, *erythrorhyncha* and *rubripes* are merely synonyms of the bird described by Linnæus under the name of *Pelecanus piscator*. The specimen from which Lesson took the description of his *erythrorhyncha* was doubtless a mounted one or a dried skin, for immediately after death the beautiful and delicate green colouring of the bill and face changes to red; in like manner the feet change from the brightest crimson to dull orange-red, whence the term of *rubripes* was suggested to me as an appropriate appellation: this term I would gladly retain, did not the law of priority demand that it should be otherwise.

The Red-legged Gannet is very abundant along the northern shores of the Australian continent; it breeds in great numbers on Raine's Islet, from which locality my collection is enriched with several fine specimens; for these my thanks are due to Lieut. J. M. R. Ince, R.N., who, independently of his duties as superintendent of the erection of the beacon on that island, found amusement and occupation for his leisure moments in studying its interesting zoology. While acknowledging my obligations to Lieut. Ince, I am bound to add that I am no less indebted to Mr. John McGillivray for the following notes as well as for a carefully executed diagram of the bill and face, by means of which I have been enabled to colour the soft parts correctly; points so necessary to be observed, that I trust all future collectors will not fail to note them.

"With the exception," says Mr. McGillivray, "of one bird which perched on the rigging, and was caught while at sea in the neighbourhood of the Keeling Islands, we found this species only on Raine's Islet, a vegetated sand-bank in the line of the Great Barrier Reef. When we landed there on the 29th of May, it appeared to me that the breeding-season was then over, but I was fortunate enough to find a solitary bird sitting upon its nest, which contained a single egg. The nest consisted of a few roots of a creeper common on the island, forming a platform eighteen inches in diameter laid upon a tuft of herbage. A few days after this, the Gannets having been much molested, entirely deserted the island during the day, returning at night in a body of several hundreds, to roost on the ground and low bushes near the centre of the island."

Specimens in every stage of plumage were procured, from the uniform dull brown of the first year to the pure white of the adult; and Mr. McGillivray observed that the colouring of the bill and soft parts also varies with the age of the individual; in the first stage the bill is of a delicate bluish pink, the pink tint predominating at the base of the upper mandible, the bare patch about the eye of a dull leaden hue, and the pouch flesh-coloured; in the second the colouring of these parts is similar but somewhat brighter, and this gradually gives place to the colouring shown in the foremost figure of the Plate.

In habits, manners and general economy it doubtless closely resembles the other members of the group, and procures its fishy food in a similar manner, by plunging down upon them as they swim near the surface of the water.

The adults have the entire plumage buffy white, with the exception of the wings and tail; the former of which are blackish brown, washed with grey, and the latter pale greyish brown, passing into grey, with white shafts; irides grey; legs and feet vermilion.

The Plate represents an old and a young bird rather less than the natural size.

J. Gould and H.C. Richter del. et lith.

SULA PISCATOR: *Linn.*

Hullmandel & Walton Imp.



PODICEPS AUSTRALIS, *Gould.*

Australian Tippet Grebe.

Podiceps Australis, Gould in Proc. of Zool. Soc., August 13, 1844.
Kă-lee, Aborigines of the lowland districts of Western Australia.
Diver, of the Colonists.

This beautiful species of Grebe, which differs but little from the *Podiceps cristatus* of Europe, inhabits the inland waters of Van Diemen's Land, and the whole of the southern portions of the continent of Australia, wherever localities present themselves favourable to its existence. It gives a decided preference to those broad mere-like sheets of water, whose depth is not too great for the growth of rushes and other aquatic plants, among which it constructs its floating nest and rears its progeny. It not only dives extremely well, but stems the billows with amazing power. I have frequently observed it on the upper part of the Derwent, swimming against wind and tide in a manner that truly surprised me.

In describing this bird as distinct from the *Podiceps cristatus*, I admit that I am making a species on very slender grounds; it will be seen, however, that the Australian bird is rather larger in size, and has the frill fuller and of a blacker colour than the European species. My own opinion is, that birds may be quite as nearly alike as these and yet have had a distinct origin, and consequently be distinct species, and I am guided in this opinion by the great law of representation, which I see carried out so beautifully in opposite parts of the world, and even on the opposite portions of the same continent.

The beautiful frill which adorns the neck of the *P. Australis* is acquired in the spring, and being worn during the breeding-season is again cast off, the face then becoming of a greyish white, or similar in colour to the other part of the neck.

The sexes are at all times alike in plumage; both have the frill of the neck to an equal extent, but the female is generally the smallest in size.

Crown of the head and occipital tufts black; frill black at the outer edge and rich chestnut in the centre, gradually passing into buffy white on the face; upper surface and wings dark brown; scapularies and secondaries pure white; all the under surface silvery white, stained with brown and chestnut on the flanks; irides red; bill dark horn-colour; upper surface of the tarsi and toes dark olive-green, under surface pale yellow.

The Plate represents an adult male of the natural size in the breeding plumage.

PODICEPS AUSTRALIS. Gould.



PODICEPS GULARIS, *Gould.*

Black-throated Grebe.

Podiceps gularis, Gould in Proc. of Zool. Soc., Part IV. p. 145.
Ung-bŭr-r-wa, Aborigines of Port Essington.

This Grebe is very generally dispersed over the whole of the southern portion of Australia, where it inhabits the mouths of the larger rivers as well as the lagoons of the interior, its numbers being much augmented during those seasons of rain which too unfrequently occur in those portions of Australia in which our possessions have been chosen. Immature birds, either of this or a nearly allied species, have been sent me from Port Essington; future research alone will enable us to say how far to the north the range of this species may extend. It clearly resembles the *Podiceps minor* of Europe, which however it exceeds in size, and may moreover always be distinguished from it by the colouring of the throat and sides of the face being constant.

The nest is a floating mass of weeds piled up in a rounded form, the top being just level with the surface of the water; the eggs are four or five in number, of a dirty yellowish white.

The food consists of small fish, mollusca, and insects of various kinds.

The sexes, as will be seen by the Plate, differ but little either in size or colour.

Crown of the head and nape of the neck deep blackish brown tinged with olive; throat and sides of the face black; a mark of deep chestnut rises behind each eye and runs down the side of the neck; upper surface deep blackish brown; secondary wing-coverts tipped with white, forming a bar across the wing; lower part of the neck, chest and under surface silvery grey merging into deep brown on the flanks; bill greenish grey, with a light ash-coloured spot at the extreme tip of the upper mandible; sides of the upper mandible from the tip to near the nostrils, and the tip of the lower mandible bluish grey; base of both mandibles yellowish grey; gape primrose-yellow; irides lemon-yellow; inner side of the tarsi yellowish grey, passing into greenish grey on the outer side and feet.

In winter the markings of the head and neck disappear, and are replaced by a uniform tint of brown like the remainder of the upper surface.

The Plate represents the two sexes, in their summer garb, of the natural size.

PODICEPS GULARIS: *Gould.*

J. Gould and H.C. Richter del. et lith. *C. Hullmandel Imp.*

J. Gould and H.C. Richter del. et lith. *C. Hullmandel Imp.*

PODICEPS POLIOCEPHALUS, *Jard. and Selb.*

Hoary-headed Grebe.

Podiceps poliocephalus, Jard. and Selb. Ill. Orn., vol. i. pl. 13.
Podiceps Nestor, Gould in Proc. of Zool. Soc., Part IV. p. 145; and in Syn. Birds of Australia, Part I.
Wy-oŏ-da, Aborigines of the lowland districts of Western Australia.
Dab-chick, Colonists of Swan River.

This species of Grebe is very abundantly dispersed over the inland waters of Van Diemen's Land, and is particularly common on the upper part of the river Derwent, where it may be seen during the winter season in flocks or mobs of from ten to thirty together, which separate into pairs on the approach of summer; I have also received it from Swan River, and observed it personally in the lagoons of New South Wales; its distribution therefore over all the southern portion of Australia may be said to be general. Like the *Podiceps gularis*, it constructs a flat nest of aquatic plants, which may be seen floating on the central portions of the lagoons, not unfrequently within a few yards of the land. The eggs are of a dirty white colour, and four or five in number.

Its powers of diving, notwithstanding its bushy head, are quite equal to those of the other members of the genus, and its food and general economy are as a matter of course strictly similar.

The lengthened hair-like plumes which ornament the face are doubtless merely assumed during the breeding-season, for I have frequently observed specimens in which this character was wholly absent, and not unfrequently others in which it was only partially developed; ignorance of these changes was the cause of my applying the name of *Nestor* to this species, which had previously received the very appropriate appellation of *poliocephalus*: this error will, however, I feel assured, be readily excused by all those who compare the bird with the plate in the "Ornithological Illustrations," where it is represented in a state of change, and I now take this opportunity of restoring the first name, and placing my own in the rank of a synonym.

The sexes are both adorned with the plumes on the head, and are moreover so nearly alike both in size and in colour that dissection is necessary to distinguish them.

In the breeding-season the head is black, with the forehead and sides of the face beset with long fine hair-like white plumes; all the upper surface and wings brown; base of the primaries and the whole of the secondaries white; under surface silvery grey, tinged with brown on the flanks; bill olive-black with the tip white; irides blackish olive with a very fine circle of yellow near the pupil, and the olive beautifully marked with a darker tint resembling lace-work; lores reddish flesh-colour; feet olive, tinged with yellow on the inner side.

After the breeding-season is over the head becomes brown, the white plumes disappear, and the throat becomes buff.

The Plate represents the two sexes of the natural size.

PODICEPS POLIOCEPHALUS: *Jard. & Selb.*

J. Gould and H.C. Richter del. et lith. *C. Hullmandel Imp.*

J. Gould and H.C. Richter del. et lith. *C. Hullmandel Imp.*

EUDYPTES CHRYSOCOME.

Crested Penguin.

Aptenodytes chrysocome, Lath. Ind. Orn., vol. ii. p. 878.—Gmel. Edit. of Linn. Nat. Hist., vol. i. p. 555.—Turton's Edit., vol. i. p. 339.—Forst. Comm. Gœtting., tom. iii. p. 135.—Ib. Icon. inedit., t. 80.
Spheniscus, Temm. Man. d'Orn. 2nd edit., tom. i. p. cxiii.
Pinguinaria cristata, Nat. Misc., pl. 437.
Manchot huppé, Buff. Pl. Enl., 984.
——— *Sauteur*, Buff. Hist. des Ois., tom. ix. p. 409.
Crested Pinguin, Lath. Gen. Syn., vol. vi. p. 561.—Cook's last Voy., vol. i. p. 82 ?—Staunt. China, vol. i. p. 222.—Lath. Gen. Hist. vol. x. p. 385.
Eudyptes chrysolopha, Brandt.
——— *demersus*, List of Birds in Brit. Mus., part iii. p. 155.

For a fine example of this singular Penguin I am indebted to my friend Ronald C. Gunn, Esq., of Launceston, Van Diemen's Land, who informed me that it had been washed on shore on the northern coast of that island after a heavy gale. It is less plentiful in that part of the world than in many others, for although it is occasionally found on the shores of Van Diemen's Land and the south coast of Australia, its great strongholds are the islands of Amsterdam, St. Paul's, and Tristan d'Acunha. As I had no opportunity of seeing the bird in a state of nature, I cannot perhaps do better than transcribe the account given by Latham, who states that "it is called Hopping Penguin and Jumping Jack, from its habit of leaping quite out of the water on meeting with the least obstacle, which indeed it does frequently without any apparent cause, seeming chiefly to make progress by that means; it is somewhat more lively than the other species of the genus, but still is so stupid as to admit of being knocked down with a stick, when on land, and is frequently so regardless as to suffer itself to be taken with the hand. Forster mentions that it is difficult to kill, and when provoked ran at the sailors in flocks, pecked their legs and spoiled their clothes; when enraged, the crest is erected in a beautiful manner. The female is said to lay one or two white eggs on the bare earth in a burrow, which it forms by throwing up the dirt with its feet. They are generally deposited in October, but occasionally as late as December and January. It is found in vast abundance on the island of Amsterdam, where it may often be seen basking and standing erect on the rocks, in company with the seals. It is also to be found in countless multitudes on the island of Tristan d'Acunha, concealed among the long grass and in the bottoms of those ravines opening on the sea-shore, and uttering a moaning noise which can be heard at a great distance."

Head, neck, back and sides black; over each eye a stripe of pale yellow feathers, which are lengthened into a crest behind; wings black externally, their posterior edge and under surface white; breast and under surface silvery white; bill reddish brown; feet greyish white.

The female is said to differ in having the yellow feathers over the eye shorter, or not prolonged into a crest.

The figures are nearly the size of life.

EUDYPTES CHRYSOCOME.



SPHENISCUS MINOR, *Temm.*

Little Penguin.

Aptenodytes minor, Forst. Comm. Gœtt., tom. iii. p. 147.—Licht. Edit. of Forst. MSS., p. 101.—Lath. Ind. Orn., vol. ii. p. 881.—Gmel. Edit. of Linn. Syst. Nat., vol. i. p. 558.
Little Penguin, Lath. Gen. Syn., vol. vi. p. 572. pl. 103.—Ib. Gen. Hist., vol. x. p. 387. pl. clxxx.
Spheniscus minor, Temm. Man. d'Orn., tom. i. p. cxiii.—Less. Traité d'Orn., p. 644.
Aptenodyta minor, Vieill. Ency. Méth. Orn., part i. p. 68. pl. 17. fig. 1.
Korôra, Aborigines of New Zealand.

This species is very abundant all round Van Diemen's Land, in Bass's Straits, and on the south coast of Australia generally, where it frequents those parts of the sea that are favourable to its habits and mode of life, and where the depth of the water is not too great to prevent its diving to the bottom. It is also often seen in the deep bays and harbours, and some distance up the great rivers, but never I believe in fresh water; seas abounding in small islands whose sides are not too precipitous for it to ascend for the purpose of breeding, being the localities most frequently resorted to. It is so numerous on nearly all the low islands in Bass's Straits, from September to January, that any reasonable number of the birds and their eggs may be procured without the slightest difficulty.

From the weight of the body and the density of the plumage, this bird swims very deep in the water, the head, neck and upper part of the back only being above the surface. Its powers of progression in the deep are truly astonishing; it bounds through this element like the porpoise, and uses its short fin-like wings as well as its feet to assist it in its progress; its swimming powers are in fact so great, that it stems the waves of the most turbulent seas with the utmost facility, and during the severest gale descends to the bottom, where, among beautiful beds of coral and forests of sea-weed, it paddles about in search of crustaceans, small fish and marine vegetables, all of which kinds of food were found in the stomachs of those I dissected.

A considerable portion of the year is occupied in the process of breeding and rearing the young, in consequence of its being necessary that their progeny should acquire sufficient vigour to resist the raging of that element on which they are destined to dwell, and which I believe they never again leave until by the impulse of nature they in their turn seek the land for the purpose of reproduction. Notwithstanding this care for the preservation of the young, heavy gales of wind destroy them in great numbers, hundreds being occasionally found dead on the beach after a storm; and when the sudden transition from the quiet of their breeding-place to the turbulence of the ocean, and the great activity and muscular exertion then required are taken into consideration, an occurrence of this kind will not appear at all surprising.

Some of the islands in Bass's Straits, where the Penguins are numerous, are completely intersected by paths and avenues, and so much care is expended by the birds in the formation of these little walks that every stick and stone is removed, and in some instances even the herbage, by which the surface is rendered so neat and smooth as to appear more like the work of the human hand than the labour of one of the lower animals. The islands generally chosen for this purpose are also resorted to by the "Mutton Bird" (*Puffinus brevicaudus*), both species appearing to breed in perfect harmony.

From what I personally observed while residing on the breeding-islands of this bird, the task of incubation would seem to be mutually performed by both sexes, each regularly relieving the other during the night.

The eggs are either deposited in a depression of the surface of the ground, or in a slanting hole of moderate depth; they are two in number, and of a small size compared with the dimensions and weight of the bird; they are white, two inches and a half long and two inches broad.

From their incapacity for running and their total inability to fly, the parent birds are very easily captured, and when taken with the hand offer no other resistance than a smart peck with the bill. The young, until they are nearly as large as the adult, are covered with a thick coating of long down, which is suddenly thrown off and replaced by short stiff feathers, which become perfectly developed before the bird ventures upon the sea.

The note is hoarse and discordant, almost as loud and somewhat resembling the barking of a dog.

There is no external difference observable in the sexes, which may be thus described:—

The feathers of the upper surface light blue, with a fine black line down the centre of each; the whole of the under surface silvery white; eyes flat; irides pale buffy white, with a net-work of dark brown round the outer margin, and with a fine ring of the same colour near the pupil, giving the appearance of a double iris; bill horn-colour, deepening into slaty black on the culmen and tip; feet yellowish white; nails black.

The Plate represents two adult and two young birds of the natural size.

C.Hullmandel Imp.
J.Gould and H.C.Richter del. et lith.
SPHENISCUS MINOR.

SPHENISCUS MINOR.



SPHENISCUS UNDINA, *Gould.*

Fairy Penguin.

Aptenodytes Undina, Gould in Proc. of Zool. Soc., Part XII. p. 57.

This is undoubtedly the smallest Penguin yet discovered, for it is considerably less in size than the *S. minor*, from which it also differs in its comparatively smaller wing, and in the deeper blue colouring of the upper surface of the body: by many persons it might be regarded as the young of *S. minor*, but I invariably found the young of that species, while still partially clothed in the downy dress of immaturity, to exceed considerably in size all the examples of this new species, even when adorned in the adult livery and possessing the hard bill of maturity; there can be no question therefore of the two birds being distinct.

For the first example that came under my notice I am indebted to the kindness of Ronald C. Gunn, Esq., of Van Diemen's Land, who informed me that it was one of some hundreds that had been thrown ashore dead at Circular Head, during one of those severe gales that occasionally occur in Bass's Straits; subsequent to this the bird came under my own observation, and I obtained another example on Waterhouse Island, where it was breeding.

Its habits, manners, mode of life and food are precisely similar to those of *S. minor*.

The whole of the upper surface, flanks and upper side of the wings glossy light blue, with a narrow stripe of black down the centre of each feather, the black mark being broadest and most conspicuous on the back; all the under surface of the body, the under side and the inner margin of the upper side of the wings, and the inner webs of the tail-feathers silky white; bill reddish brown beneath, black above; feet yellowish white.

The Plate represents a male and a female of the natural size.



SPHENISCUS UNDINA: *Gould.*

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

BIRDS OF AUSTRALIA

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