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CONTRIBUTIONS

TO THE

NATURAL HISTORY

OF

KERGUELEN ISLAND,

MADE IN CONNECTION WITH THE AMERICAN TRANSIT-OF-VENUS EXPEDITION, 1874-75.

BY

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I.

ORNITHOLOGY.

EDITED BY DR. ELLIOTT COUES, U. S. A.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1875.

ADVERTISEMENT.

This work is the second of a series of papers intended to illustrate the collections of Natural History and Ethnology belonging to the United States and constituting the National Museum, of which the Smithsonian Institution was placed in charge by the act of Congress of August 10, 1846.

It has been prepared at the request of the Institution, and printed by authority of the honorable Secretary of the Interior.

JOSEPH HENRY,

Secretary Smithsonian Institution.

SMITHSONIAN INSTITUTION,

Washington, November, 1875.

PREFACE.

The writer of the following notes has no pretension to the title of "naturalist", and deprecates criticism of any technical errors that may be found in his descriptions of the species.

He wishes to acknowledge the kind courtesy of Dr. Elliott Coues, U. S. A., who has undertaken to edit these notes, and has encouraged him to offer them for publication.

J. H. K.

Brooklyn, N. Y., *July* 1, 1875.

INTRODUCTORY.

The various parties which had been organized for observing the transit of Venus in the southern hemisphere, five in all, were dispatched from New York on the 8th of June, 1874, in the United States ship Swatara (3d rate).

After short stoppages at Bahia and Cape Town, and an unsuccessful attempt to land a party on one of the Crozet Islands, the party to which the writer was attached was landed at the upper (northern) end of Royal Sound, a deep indentation in the southern part of Kerguelen Island, otherwise known as "Desolation Island." The landing was begun on September 10, and on the 13th the Swatara sailed again on her easterly course, having put up a sufficiently commodious living hut before her departure.

The party landed consisted of Commander Ryan and Lieut. Commander Train, astronomers, and Dr. Kidder, surgeon, all of the Navy; and Messrs. Holmes, Dryer, and Stanley, photographers. Besides these, there were a cook and carpenter belonging to the party, and three boys, stowaways from Cape Town, afterward turned over to the British man-of-war.

The preparation and registration of specimens was at first carried on in a small tent, to the great detriment both of the specimens and of the health of the collector, owing to the extraordinary dampness of the climate. Toward the end of October, a hut about ten feet square was erected, and a small stove set up, after which no more specimens were lost through insufficient drying.

Kerguelen's Island is a region of almost constant precipitation; only twenty-seven days out of four months being recorded as without snow or rain, and a still smaller number of nights. The thermometer ranged not far from the freezing-point; the daily average being a little below it in September and October, and a little above it in November and December. Whalers say that in midwinter there is no marked increase in the severity of the weather. The lowest thermometer recorded was 18° F., and the highest 64°. The island is also deservedly notorious for the violence of the gales, which almost constantly prevail, and which

often arise with a suddenness that makes it very dangerous to go about in small boats.

These climatic conditions have their natural effect upon the flora and fauna of the island; there being neither tree nor shrub—no plant, indeed, taller than the Kerguelen cabbage, while the very few species of phænogamous plants which do survive are such only as can thrive exposed to sudden and violent alternations of dryness and moisture and to fierce gales of wind. As a natural consequence of these facts, there are no land-birds or mammals, strictly speaking, indigenous to Kerguelen's Island, and but a single shore-bird (*Chionis minor*).

The island is of considerable size, about 90 miles long by 50 in width, and is composed, as to its southern part at least, wholly of volcanic rock, showing no signs of stratification. The northern portion contains stratified rocks, deposits of coal of little value, and very ancient remains of silicified wood, indicating the former existence of considerable trees, and the submergence and subsequent upheaval of the land upon which they grew. The whalers say that a large glacier runs across the island, in a generally east and west direction, at about its center. In the interior, the land is mountainous; peaks with sharp volcanic outlines alternating with table-topped hills. Mount Ross, the highest peak (about 5,000 feet), is always snow-covered and quite inaccessible. Near the sea, in December, the snow-line was found on Mount Crozier at about 2,600 feet above the sea-level.

No flying insects were observed excepting minute gnats, and a Tineid* moth (which was perhaps imported), nor were the remains of any ever found in the stomach of any bird. *Chionis* and a teal were the only partial vegetable-feeders observed; all the other birds feeding exclusively on flesh, fish, or marine invertebrates.

Toward the middle of October, an English party, to observe the transit, established itself about fourteen miles to the southward and westward of the American station, including a naturalist, the Rev. A. E. Eaton, already known to science by his botanical collections in Spitzbergen. Accompanying this party were two men-of-war, which remained by them during their stay. On the other side, at about the same distance to the northwest, was a German party, landed from the N. G. frigate Gazelle, and to which Drs. Naumann and Huesker were attached as naturalists. The Gazelle was engaged in a scientific cruise throughout the southern

* Possibly the same as described by Rev. A. E. Eaton as *Embryonopsis Halticella* sp. nov., *Entomological Magazine, Aug.* 1875.

waters; being fitted for deep-sea dredging and general natural history work. A large room was set apart, on the starboard side of the gun-deck, for the use of the naturalists—a very unusual concession to science on a man-of-war.

On the 9th of December, the day of the transit, and fully three months before the Swatara could reasonably be looked for back again, the Monongahela arrived most unexpectedly, having been ordered to take the party off. Fortunately for the natural-history work, the astronomers detained the ship until January 11; but it is greatly to be regretted that the original programme was not carried out, and that the months of January and February were lost in so interesting a locality. Both the English and German parties remained at their stations, intending not to leave until about the middle of February. The Monongahela proceeded to Cape Town, arriving February 5, and the collections were sent thence by sailing-bark to New York.

According to Dr. Coues' determinations, the collection contains twenty-one species of six families—*Procellariidæ* eleven, *Spheniscidæ* four, *Laridæ* three, *Phalacrocoracidæ*, *Anatidæ*, *Chionididæ*, each, one.

BIRDS OF KERGUELEN ISLAND.

CHIONIS MINOR, *Hartl.*

LESSER SHEATH-BILL.—"WHITE PADDY" *of whalers.*

Chionis minor, HARTLAUB, Rev. Zool. 1842, pl. 2, f. 2.
GRAY & MITCH., Gen. of B. iii, 1849, pl. 136.
SCHLEGEL, Handl. Dierk. pl. 5; De Dier. fig. p. 232.

List of specimens, with measurements.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Wing.	Tail.	Bill.	Head.	Tarsus.	Middle toe.	Longest claw.	Remarks.
		1874.											
68956	27	Oct. 12	♂	15.50	30.50	9.00	.....	1.50	1.35	2.00	1.85	0.50	Skin.
68957	31	Oct. 16	♀	14.00	29.00	8.50	.....	1.35	1.65	1.85	1.60	0.45	Do.
68955	32	Oct. 16	♂	15.00	31.00	9.50	.....	1.50	1.60	1.80	1.60	.....	Skin with sternum.
.....	33	Oct. 18	♂, ♂	.....	.....	.....	.....	.....	.....	.....	.....	.....	Disemboweled and in alcohol.
68958	67	Nov. 14	♂	15.75	32.00	9.35	.....	1.50	1.75	1.75	1.60	0.40	Skin.
.....	127	Dec. 5	♂ (?)	15.00	30.00	9.00	4.65	1.45	.....	1.65	1.55	0.50	Alcohol.
.....	146	Dec. 11	♂ (?)	14.50	29.00	8.50	.....	.....	.....	1.75	1.50	0.50	Do.
.....	203	Dec. 29	♂ (?)	16.50	30.50	9.00	4.85	1.50	.....	1.85	1.75	0.50	Alcohol and carbolic acid.
.....	204	Dec. 29	♀ (?)	15.25	29.15	8.85	4.50	1.35	1.65	1.75	1.65	0.50	Do.
.....	205	Dec. 29	♂ (?)	15.50	29.85	8.85	4.75	1.35	1.65	1.75	1.55	0.45	Do.
.....	206	Dec. 29	♀ (?)	15.75	28.85	8.50	4.75	1.35	1.75	1.75	1.65	0.50	Do.
		1875.											
.....	232	Jan. 4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Sternum of No. 32.

Bill black and conical. On its upper surface a hood-shaped horny sheath, turned upward at its extremity, and not at all "erectile" so far as my observation extends (see Cuvier, An. King., *Chionis necrophaga*). This sheath measures from 0.45 to 0.85 in different individuals, being rather larger in the male than in the female. The nostrils are separate and of large aperture.

Eyelids pale-pink, whence the *Chionis* is often called by the sealers the "sore-eyed pigeon". A black caruncle extends from the base of the sheath upward to the front of the eye, both in males and females; more prominent in the former, and especially after the birds have paired.

Iris purplish-black.

Body entirely pure white. A scaly, black, blunt spine projects from the carpal joint of the wing (in the male) 0.35 to 0.40. In the female, this spur is represented only by a small knob, which is flesh-colored.

The plumage is very soft and light. Underlying the white plumage is a dense coat of slaty-blue down, similar to that usually found on sea-birds.

Tarsus and *foot* dull white, with a flesh-tint; scaly and stout. Toes 4; not palmate; fourth toe placed above and on the inner side of the tarsus.

Tail, spreading widely in flight, nearly square.

Testes slate-colored, and of small size so late as November 14.

Intestines contained fragments of sea-weed and beaks of cephalopods. The small intestine of No. 67 (original number) measured 29 inches and the large 19 = 48 in all. There is a distinct crop and muscular gizzard; also, a marked dilatation of the small intestine beyond the pylorus, as if the latter divided the stomach into two portions, one muscular and the other membranous. Gizzard internally rugose.

Eggs pointed, about as large as those of a guinea-fowl, and marked with brown streaks. Three were found in the only nest of which I have reliable information, and these were marked in different shades (*auct.* Rev. Mr. Eaton, naturalist to English transit-party).

The *Chionis* was one of the first birds observed after landing at Kerguelen Island. On the way up from the Swatara's first anchorage to the final station selected, one of these birds alighted on the boat hoisted at the stern of the ship, and remained there for a considerable time, showing no fear of the persons standing upon the poop, and seemingly much interested in their movements. One of the first specimens taken was captured by hand, by Mr. Russell, of the New Zealand party; he having enticed the bird near to him by means of a dead one, killed with a stone.

They were quite common in particular parts of the island, near the American station, especially in the neighborhood of the "rookeries" of the cormorant (*Graculus carunculatus*) and of the rock-hopper penguins (*Eudyptes chrysolopha*), and upon rocks at and near high-water mark. In these localities, I have often observed them for hours at a time; their remarkable fearlessness and curiosity rendering it easy to get near them. On the 15th of October, for example, seeing a considerable number on the rocks at some distance away, I walked and climbed slowly toward them. They would scarcely get out of my way, seeming greatly interested in my movements; and when I sat on a stone, keeping perfectly still, the whole party, twelve in all, came up to examine the intruder. They walked all around me, coming almost within reach; others flying up from more distant rocks to join them, and finally stopped, almost in a semicircle, for a good stare. I watched them at these close quarters

for an hour or more, and saw no sign of any power of erecting the horny sheath, attributed to them by Cuvier. They run with great rapidity upon the rocks, avoiding the little pools left by the tide, and seem disinclined to flight. When flying, they have a peculiar note, strongly suggestive of the "chat" of the common blackbird. The call at rest is a short rattling croak. I could not see that they ate or sought for any other food than a soft green sea-weed, which they stripped up with their bills, shaking the water out with a rapid flirting motion. I have, however, found in their stomachs the beaks of cephalopods, together with vegetable matter; and some that we afterward partially domesticated ate greedily of fresh meat. One that was kept for some time on the Monongahela showed a strong *penchant* for eggs, breaking the shells with its beak as if the operation were no novelty to it. On no occasion, however, did I observe any sign of the carrion-feeding propensity which has given a name to the Australian species (*C. necrophaga*, Vieill.). On the evening of December 14, after skinning a sea-elephant, I went down at dusk to watch some other birds feeding on its carcass, already beginning to putrefy. A *Chionis* flew by, alighted near at hand, and, after a short time, moved on without going up to the carcass, although the latter was nearly covered with sea-birds.

On the occasion first mentioned, after watching the birds for a time, I shot four specimens, not without compunction on account of killing such trustful acquaintances. When I walked off to get a sufficient distance away for a shot, the whole troop started to follow me, making little runs and stopping, as if filled with curiosity. I shot all four without moving from the spot, reloading for each, the birds not all flying out of range even after the gun had been fired. On subsequent occasions, various members of the party captured specimens by hand; all that was necessary to attract them within reach being to remain perfectly still. After one had been caught, it served as a lure for others. When taken home alive, they still showed no fear, but, when let loose in the house, took food readily, and, oddly enough, fought fiercely among themselves, using only their bills, however, and not the wing-spurs. None of us ever saw them fighting in the open air. When confined in a coop, they cluck and peck at the wood-work so like domestic fowls that I once arose in the night to shut the kitchen-door, supposing that the chickens, of which we had several, had come into the house. Although seemingly absolutely without fear, the specimens that we tried to domesticate bore confinement very illy, constantly beating themselves, during the day, against the

bars of their cage. When let loose, they would often stay for several days near the house, feeding as peaceably among the chickens as tame pigeons. One, whose wing had been clipped, remained about the house for some weeks, but finally wandered off, and was probably killed by a *Lestris*, since I found its carcass, partly devoured, about a mile from the house.

Opinions differed as to their edibleness; the Germans considering them the best bird on the island, while the whalers said that they would "do very well when very short of fresh meat". We did not experiment upon them at all, the flesh being dark and apparently tough.

The *Chionis* is one of the latest, if not the very latest, of the Kerguelen birds in pairing and nesting. They were observed to have begun to pair December 11; but no egg was found until January 10, the day of our departure, when the Rev. Mr. Eaton found several nests. To his courtesy I am indebted for my only specimen, unfortunately not accompanied by any description of the nest, except a message that it was found near the sea. From Captain Fuller, of the whaling-schooner Roswell King, however, I learn that the Sheath-bill is famous for its skill in concealing its nest, never going near its eggs while any one is in sight. He states that they build in the crevices formed by rocks that have fallen upon or against one another, and that the nests are constructed of dried grass. There were three eggs in the nest from which my specimen came, marked in different shades of color. I am quite positive that, up to January 5, none of the *Chionis* living near our station had begun to lay, since I kept them under the closest possible observation, being particularly anxious to get their eggs. The eggs are of unusually large size in proportion to that of the bird.

QUERQUEDULA EATONI, *Sharpe.*

Eaton's Teal.

Querquedula eatoni, Sharpe, Ibis, July, 1875, p. 328 (quoted from advance sheets).

I was entirely at a loss for a name for this teal; but, just as these sheets were going to press, I received, through the courtesy of Mr. Salvin, advance proof-sheets of the "Ibis", in which it is described as new. Mr. Sharpe's description is reproduced in the accompanying foot-note.*

* "♂. suprà brunneus, plumis plurimis griseo marginatis, rufescenti-fulvo maculatis aut fasciatis: scapularibus nigricantioribus: pileo paullo rufescentiore plumis nigro medialiter striatis; facie laterali et gutture albicantibus, minutè nigro striolatis, mento fulvescenti-albo: corpore reliquo subtùs albicante, brunneo marmorato, plumis plerisque pectoralibus versùs basin griseo-brunneis aut medialiter brunneo striatis: hypochondriis brunneis, albido terminatis et rufescenti-fulvo transfasciatis: subcaudalibus rufescenti-fulvis, nigro adumbratis, longioribus nigricantibus fulvo terminatis; tectricibus alarum

A rather small duck, the sexes of which differ but little (chiefly in the vividness of the alar speculum). Head and neck minutely speckled with blackish-brown and light-brown or brownish-white—the top of the head darkest, the sides of the head, the neck, and especially throat lightest. Upper parts brownish-black; all the feathers broadly skirted with rusty-brown and pale-gray. Under parts dull whitish, mottled throughout with brown, more uniform and of a richer shade on the breast, in larger pattern on the sides and crissum. Axillars white, with dark-brown cross-bars; lining of wings dark-brown, with paler or white edgings of the feathers. Wing-coverts plain grayish-brown, or, in the ♀, with narrow rusty-brown edgings; the greater row of coverts tipped with orange-brown, paler or whitish in the ♀. Speculum iridescent green, with purplish and violet reflections, immediately bordered with black, this in turn margined with white on the ends of the secondary quills. In the ♀, the green speculum is dull, and tinged with brown. Primaries fuscous-brown; tail-feathers the same, with pale edges, and irregular oblique rusty-brown markings, like broken V-shaped bars. The tail-feathers are all lanceolate-acuminate, and the tail as a whole is acute.—C.

List of specimens, with measurements.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Wing.	Tail.	Bill.	Head.	Tarsus.	Longest toe.	Middle claw.	Remarks.
		1874.											
68974	34	Oct. 18	♀	15.60	27.00	8.50	4.50	1.35	1.85	1.35	1.50	0.25	Skin; stomach contained isopods.
68973	68	Nov. 15	♂	17.25	29.50	9.10	5.50	1.50	2.00	1.50	1.60	0.25	Skin; stomach contained gravel and isopods.
68975	207	Dec. 29	♂	19.05	29.75	9.10	5.25	1.50	1.85	1.35	1.50	0.35	Skin; stomach contained gravel only.

Bill lamellate, greenish-gray at sides, black at tip and above, covered with skin, and finely toothed within. Tongue fleshy, toothed on posterior half of dorsal surface.

Nostrils oval.

Iris purplish-black.

Head and *neck* brown, finely mottled with white, lighter over throat. In some males, the mottling varies, being finer and lighter, with green reflections at sides of head.

Plumage generally dark-brown or black, tipped with white and mottled with paler shades of brown. Secondaries and tertiaries of wings edged with a narrow white band. Above this, in the male, is a band

superioribus cinerascenti-brunneis, majoribus pallidè badio terminatis, fasciam alarem formantibus; remigibus cinerascenti-brunneis, secundariis extùs purpureo bronzinis albido terminatis, speculum alarem bronzinum vix sub certâ luce olivascente nitentem exhibentibus: secundario proximo nigricante vel aspectu externo viride nitente, medialiter cinerascente strigato, albo apicato: secundariis interioribus nigricantibus extùs pallidè brunnescentibus albo limbatis: rectricibus mediis nigricantibus, reliquis brunneis albo marginatis, nonnullis rufescenti-fulvo notatis: tectricibus subalaribus brunneis, inferioribus intimis et axillaribus albis brunneo maculatis, tectricibus majoribus cinerascenti-

one inch wide of lustrous changeable green, then a band of orange-brown one-fourth inch wide.

Tarsus and *foot* ocher-yellow to dirty pale-green.

Claws black; posterior nail very short and much elevated; the other three covered by skin beneath to their extremities.

Tail pointed.

Stomach is muscular and generally contains gravel.

These birds, which became the principal dependence of our party in the way of fresh provisions, are very abundant on the island, but generally shy and difficult of approach. They were to be found inland, where I have seen them as high as 2,500 feet above the sea-level, and on the sea-shore when the tide was falling. They feed upon the roots of the *Azorella selago*, grass-seeds, earth-worms, and larvæ, and the small crustaceans which swarm along the sea-shore. They are strong in flight, rising readily from both land and water, and run upon the land like grouse or quails, with little of the clumsiness or waddling gait of other ducks.

It is probable that they begin to pair about November 10, since I observed pairs already formed, and the birds chasing one another in the air, etc., on November 14. They frequent the banks of brooks and the higher land during the breeding-season, and begin to lay about November 15, building a rather deep nest on the ground, generally near the water, under a tussock, and well concealed by grass, deep, hemispherical, and lined with feathers from the breast of the female. There are four or five pale olive-green eggs, about three-fourths the size of a hen's egg. Upon leaving the nest, the female covers her eggs with feathers, disposing the neighboring grass with considerable art so as to conceal

bus alæ inferiori concoloribus; rostro plumbeo, culmine nigro: pedibus cinerascentibus, membranis interdigitalibus nigris. Long. tot. 15.5, alæ 8.5, caudæ 4.8, tarsi 1.2.

"♀. mari similis sed speculo alari absente, secundariis albo terminatis: caudâ brunneâ, rufescenti-fulvo fasciatim marmoratâ.

"*Hab.* in insulâ Kerguelensi.

"This plain-coloured Teal is allied to *Q. gibberifrons* and *Q. creccoides*. From the former it is at once to be distinguished by the fawn-coloured bar on the wing and the bronzy speculum, the wing-bar being broadly white, and the speculum black in *Q. gibberifrons*.

"*Q. creccoides* resembles *Q. eatoni* in having the fawn-coloured wing-bar; but then the speculum is black, and the greater part of the bill is yellow.

"*Q. eatoni* also has the axillaries whitish barred with brown, whereas they are quite *white* in the allied species, and, moreover, it has remains of rufous-buff bars on most of the feathers of the upper surface, the back being uniform in the other species. Altogether the species seems very well pronounced. Besides the three examples brought by Mr. Eaton, I have found in the [British] Museum three Kerguelen Island skins, collected during the voyage of the 'Erebus' and 'Terror.'"

them, and if caught in the act of sitting, or near her nest, will often counterfeit lameness until the intruder has been enticed to a safe distance. If the drake be shot during the pairing-season, the female will remain near the body; when the female falls, on the contrary, the drake generally flies merrily away. The note of the female is a plaintive whistle; that of the drake a sonorous "quack", usually repeated three times.

These birds do not migrate at all from Kerguelen Island, nor is there any other member of the family *Anatidæ* there represented. They are very palatable, and, since we never shot more at a time than were actually needed, served us for the table during the whole time of our stay.

GRACULUS CARUNCULATUS (*Gm.*).

CARUNCLED CORMORANT.—"SHAG."

Pelecanus caruculatus, GMELIN, Syst. Nat. i, 1788, p. 576, No. 25 (based on the Caruncled Shag, LATH., Syn. iii, 2, p. 603, No. 19).

Pelecanus cirrhatus, GMELIN, Syst. Nat. i, 1788, p. 576, No. 28 (based on the Tufted Shag, LATH., Syn. iii, 2, p. 606, No. 22).

I have no hesitation in identifying this species as above, although the single adult specimen collected does not show the white transalar fascia spoken of by authors. Schlegel, moreover, quotes it from the present locality. The caruncles, which are conspicuous features of the adult breeding bird, constitute two prominent yellow masses symmetrically disposed on the naked forehead at each side of the base of the upper mandible. The head and neck are lustrous, deep steel-blue, with purplish and violet reflections, contrasting notably with the rich dark-green back, the color of which is uniform, the feathers having no differently-colored edges. The entire under parts, from the bill, on a line along each side of the neck, are pure white.—C.

List of specimens, with measurements.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Wing.	Tail.	Bill.	Head.	Tarsus.	Longest toe.	Middle claw.	Remarks.
		1874.											
68976	20	Sept. 25	♀	23.50	40.00	10.00	5.50	1.75	3.50	2.00	3.35	0.35	Skin.
.....	118	Dec. 4	....	5.00	4.00	.....	.....	.....	.....	.....	.....	.....	Young; alcohol.
.....	191	Dec. 24	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.
.....	192	Dec. 24	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.
.....	193	Dec. 24	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.

Bill black; upper mandible sharply hooked; lower straight. Nostrils 2, extending nearly to point of bill. Caruncles at base of bill brilliant yellow. Eyelid cobalt-blue.

Iris yellow.

Head and *body* brilliant changeable steel-blue, with violet tints along back of head and neck. Back and upper surfaces of wings and tail lustrous dark-green. Throat from the bill and all under parts, pure white. During the breeding-season, the bird carries an erectile crest of about a dozen small plumes upon the top of the head.

Tarsus and *foot* yellow.

The foregoing description is taken from a female in breeding-plumage.

Eggs two or three in number, pale-green.

Young perfectly naked for some time after hatching, black, and showing no sign of plumage. Bill black. Feet clumsy and misshapen; bones still cartilaginous, pale, and transparent. Abdomen very protuberant. December 24, a young bird had begun to show a hairy sort of plumage along the margins of the wings and about the rump.

Only a single adult skin of this cormorant was preserved and brought home, a female in nuptial plumage. There is no better reason, I am afraid, for this omission than the fact that the birds were exceedingly plentiful and the preparation of the skins a very tedious job, so that it was put off from day to day for rarer specimens, until, in the hurry of an unexpectedly early departure, it was omitted altogether. From memory, I can only say that the young birds were of much more sober plumage than the females, destitute of the crest and brilliant blue eyelid, and generally rather smaller. All had white breasts and bellies; but there were many minor variations in plumage, which I suppose to indicate differences in age.

They do not differ materially in habits from other species of cormorant, diving and swimming well, feeding entirely on fish, and often congregating for hours upon a projecting rock or headland, where, in pairing-time, they enact various absurd performances, billing and curveting about one another in a very ridiculous manner. The note is a hoarse croak, which never varies, so far as I have observed. They seem to be on particularly good terms with the *Chionis*, and are often joined by gulls when sunning themselves.

They build upon shelves, for the most part in the precipitous faces of cliffs overlooking the water; the base of the nest being raised sometimes as much as two feet, and composed of mingled mud and excrement. Upon this pedestal is constructed a rather artistic nest of long blades of grass. Apparently, they continue to use the old nests year after year, adding a new layer each season, and thus building the nest

up. The first eggs were found November 5; there being sometimes two and sometimes three in a nest. They were procured at first by the kind assistance of Mr. Stanley, and a length of rope which tied us together, one end being knotted around the waist of each. One would then remain above and hold on, while the other clambered a little way down the face of the cliff and secured the eggs. After a time, however, I discovered a lot of nests, near a rookery of "rock-hopper" penguins, accessible from below, where, on December 4, the young birds were first observed. Eggs green, with white chalky incrustation.

The young are most ridiculous-looking objects, being pot-bellied, naked, and perfectly black, and seem to be less advanced in development at the time of hatching than most birds, the bones of the tarsus and foot being not yet ossified. Small fish were generally lying by the nests. The old birds were very solicitous about their young, hissing and stretching out their necks, and refusing to leave their nests until pushed off. Yet, when I took one of the young away from the nest and placed it close by on the rock, the mother seemed neither to recognize its constant chirping nor to be aware that one of her brood was missing. Certainly she paid no attention to it. The odor in the neighborhood of the nesting-places was most offensive.

The young birds are infested with a tick of prodigious size, specimens of which have been preserved.

BUPHAGUS SKUA ANTARCTICUS, (*Less.*) *Coues.*

Southern Skua.—"Sea-Hen."

Lestris catarractes, Quoy & Gaimard, Voy. Uran. Ois. pl. 38.
Stercorarius catarractes, p., Schlegel, Mus. Pays-Bas, fasc. iv, 1863, *Lari,* p. 45.
Lestris antarcticus, Lesson, Traité d'Ornith. 1831, p. 616.
Gould, B. Aust. vii, pl. 21.
Sclater, Proc. Zool. Soc. 1860, p. 390.
Abbott, Ibis, 1861, p. 165.
Sclater & Salvin, Ibis, 1869, 284.
Sclater & Salvin, Proc. Zool. Soc. 1871, 579.
Philippi & Landbeck, Cat. Av. Chili, p. 47.
Hutton, Birds New Zeal. 1871, p. 39.
Stercorarius antarcticus, Bonaparte, Consp. Av. ii, 1856, p. 207.
Pelzeln, Orn. Novara Reise, p. 150.
Buphagus antarcticus, Coues, Proc. Acad. Nat. Sci. Phila. 1863, p. 127.
Buphagus skua b. *antarcticus,* Coues, Birds Northwest, 1874, p. 605.

—C.

List of specimens, with measurements.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Wing.	Tail.	Bill.	Head.	Tarsus.	Middle toe.	Longest claw.	Remarks.
		1874.											
68960	26	Oct. 4	♀	.....	54.00	.....	.....	2.50	4.00	3.00	.....	.....	Skin (from Mr. Stanley).
68959	42	Oct. 27	♂	24.00	54.00	16.00	7.25	2.25	3.15	3.00	2.85	0.65	Skin.
.....	139	Dec. 10	...	25.50	58.50	17.25	7.35	2.35	3.25	2.65	3.00	0.75	Alcohol, with eggs.
68961	188	Dec. 24	♀	23.75	54.00	15.50	6.35	2.35	3.15	2.85	2.65	0.75	Skin with eggs.
	262	Dec. 19	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	Specimen injected with carbolic acid.

Bill black.

Iris very dark steel-blue.

Body generally dark-brown, mottled with black; basal parts of primaries showing as a broad white band beneath the wings during flight. Back sparingly mottled with dirty white. A single white feather often found near and below carpal joint of wing, among the coverts. Second primary longest. Considerable differences in general tint were observed, even in the same pair, some being very much paler than others. Stomach muscular; contents not identified, except in one case, when bits of egg-shell were found.

Tarsus and *foot* greenish slaty-black, scutellated. Claws black, long, and strongly hooked.

There being no land-birds on Kerguelen Island besides *Chionis*, the office and most of the habits of a buzzard-hawk have been assumed by this great skua. It was at first taken for a hawk by all of us; its manner of flight, watchfulness of the ground over which it flew, and habit of perching on spots commanding a wide view all suggesting this impression. It was, indeed, difficult to believe the evidence of my own senses when I found a web-footed bird avoiding the water and preying solely, so far as my observation extended, upon other birds. When any of the party went out shooting, he was pretty sure to be followed by one or two "sea-hens", as the sealers call them, and had often to be very prompt to secure his game before it should be carried off in his very presence. Mr. Train tells me that he had one day to stand, while reloading, with his foot upon a teal which he had shot, a skua swooping down constantly after it if he stepped away even for a couple of yards. On another occasion (October 21), the same gentleman had crippled a teal, which was carried off, still living and not badly hurt, before his

eyes, so that he had to shoot the skua to secure his game. November 21, in order to settle the question whether they attack and kill their own game when it is unhurt, Mr. Stanley and I dug up, by the aid of the dog, a well-grown and nearly-fledged young bird (supposed to be of *Majaqueus æquinoctialis*), as large as an ordinary domestic fowl. A pair of skuas being near at hand, watching our proceedings, I threw the young bird up into the air, so that it flew some distance and alighted perhaps two hundred yards away from us. One of the skuas immediately flew up to it, and killed it by repeated blows upon the head with its beak; the other remaining at some distance, on guard, as I at first thought, but, as afterward appeared, afraid of its mate; for, while we stood watching the first skua eating its capture (nearly as large as itself), the other approached by degrees, uttering short, plaintive chirps, but not daring to share in the meal. When, after a few minutes, we drove them off, the abdomen of the petrel had been torn open, and its entrails partly devoured. I could not see that its claws were used in tearing its prey; it seeming rather to depend upon the strength of its beak. On another occasion (December 18), a fully-grown *Majaqueus*, sitting, which had been dug up and probably slightly bruised by the dog, alighted in the sea after a short flight, and was at once fiercely attacked by a skua. The petrel showed extreme fear, uttering piercing shrill cries, and turning over to fight at each swoop, but finally took wing again and escaped.

I saw this skua on one occasion feeding amicably with the gulls astern of the ship when at anchor (December 28); and, on January 18 one was seen flying about the Monongahela for a few minutes, she being then about three hundred miles from the nearest land. As a general rule, its habits are terrestrial, and on the few occasions when, probably after poor success in hunting, I have seen it alight in the water, it has held its wings up perpendicularly, like a butterfly, as if afraid of wetting them. At the pairing-season, this trick of holding up the wings becomes quite a prominent characteristic. Two will alight upon a knoll, quite near together, holding their wings perpendicularly in the air, and set up a vociferous cackling. The note is loud, harsh, and hoarse, suggestive of the cry of the gull.

I have never seen *Buphagus* pursue gulls to make them disgorge their food. On the contrary, both gulls and terns combine to drive them away as soon as they come into their neighborhood, particularly while nesting. I even on one occasion saw a single gull driving a skua away from the neighborhood of its nest. On the 15th of October, I shot and wing-

tipped one of these birds so that it fell into the water. It seemed unusually alarmed, looking up into the air, crying out hoarsely with a note unlike its usual call, and swimming very slowly for a web-footed bird. The great number of gulls which collected at once and began to attack it explained its fright, and it seemed to suffer so greatly that I fired into it again after a few minutes, and spoiled my specimen. It is noteworthy that, whereas other sea-birds when wounded invariably swim out to sea, this one endeavored to gain the land, plainly looking in that direction for safety, although I stood upon the shore, directly in its way.

Eggs were first found November 17, two in number, marked by irregular chocolate-colored blotches upon an olive-drab ground, and measuring 2.75–3.00 by 1.50 inches. The nest is a shallow cavity in the long grass (*Festuca*), lined sparingly with grass-stems, and always in a dry spot. The old birds make it very lively for the egg-hunter, attacking him on opposite sides with great vigor and determination, and keeping up an outcry that is really appalling. They are very skillful in leading one astray from the locality of their nests, never going near it when any one is in sight, so that it was a good while before I found the second nest, although I had spent more time in this quest than in pursuit of any other single object while on the island. Seeing a skua fly by the house one day (December 7), apparently going somewhere in a great hurry, I therefore snatched up a revolver (no gun being at hand) and followed him. He was going to join the female on her nest, as I suspected, and when I approached both attacked me as usual. I succeeded in killing the male, but emptied the revolver at the female without success, and was kept standing for certainly twenty minutes, pelting the enraged bird with stones as she swooped down at my head, with the two eggs in plain sight, but not daring to pick them up. A lucky throw finally disabled her, and I secured the eggs, which were very much paler than those gathered theretofore, and quite fresh. I suppose that this pair had been so often disturbed by our near neighborhood that they were later than usual in laying.

It would seem that these birds pair once for all, since a single couple holds possession of each meadow-district, allowing no intruders; and since two were almost always seen together during our stay. An odd bird, whose mate had probably been shot, and which had a ragged wing from some stray charge of small shot, used to circulate around from district to district, being always attacked by both male and female as soon as seen. On the 20th December, however, I saw seven near

together in one meadow. On the same day, I found a single egg in a nest which I had robbed December 3. I did not succeed in finding the young, but heard of a pair being seen on December 26.

I cannot say how far the habits of "*Lestris catarrhactes*," the northern representative of this bird, agree with what has been related of *Buphagus*. The latter certainly seems to me a remarkable instance of modification of habit, and even of form, resulting from the peculiar circumstances in which it is placed. As among marsupials, where that type prevails, we find representatives of almost every tribe of mammals, so here there is a sea-bird occupying the place of a tribe as far removed from it structurally as the Tasmanian devil is from the fox. I should think it even probable that the introduction of a few pairs of hawks, could they accommodate themselves to the conditions of the island, would relegate this skua very shortly to its proper place as a fish-feeder, and to the habits of its northern congeners.

A very interesting incident, although not directly related to its natural history, occurred in connection with one of these birds on December 17. On that day I scored one on the back of the head with a revolver-bullet so as to open the brain-cavity. It turned back-summersaults for twenty minutes without cessation, until I killed it, in fact. No matter what position it was put in, it immediately stretched out its legs and wings, and pushed itself over backward. Placed in the water, it endeavored to execute the same manœuvre, and was near working itself out of reach from the shore. The specimen was injected with carbolic acid and preserved. The corresponding effect, that resulting from a wound of the cerebrum only, was at another time illustrated in a gull (see *Larus*), and both incidents recalled strikingly Dr. Weir Mitchell's interesting experiments, performed some ten years ago upon pigeons.

LARUS DOMINICANUS, *Vieill.*

Southern Black-Backed Gull.

Larus dominicanus, "Vieillot".—Lichtenstein, Verz. Doubl. Mus. Berol. No. 846.
Blasius, J. f. O. 1865 (pub. 1866), p. 378.
Larus azaræ, "Lesson, ex Azara 409".
Dominicanus azaræ, Bonaparte, Consp. Av. ii, 1856, p. 214.
Dominicanus vociferus, Bruch, J. f. O. 1853, p. 100; 1855, p. 281.
Dominicanus pelagicus, Bruch, J. f. O. 1853, p. 100, pl. 2, f. 3; 1855, p. 280.
Bonaparte, Consp. Av. ii, 1856, p. 214.
Larus vetula, "Baillon".
Dominicanus vetula, Bruch, J. f. O. 1853, p. 100, pl. 2, f. 4; 1855, p. 281.
Bonaparte, Consp. Av. ii, 1856, p. 214.
Dominicanus fritzei, Bruch, J. f. O. 1855, p. 280 (*L. fuscus*, Fritze).
Bonaparte, Consp. Av. ii, 1856, p. 214.

Larus antipodum, GRAY.
Dominicanus antipodum, BRUCH, J. f. O. 1853, p. 100, pl. 2, f. 8; 1855, p. 281.
BONAPARTE, Consp. Av. ii, 1856, p. 214.
Clupeilarus antipodum, BONAPARTE.
Larus verreauxi, BONAPARTE, Rev. Zool. 1854, p. 7; Naum. 1854, p. 211.
Dominicanus verreauxi, BRUCH, J. f. O. 1855, p. 281.
Clupeilarus verreauxi, BONAPARTE, Consp. Av. ii, 1856, p. 221.
Larus capensis, "SMITH, MSS." (*Gray.*)
Larus fuscus, "FRITZE". (*Gray.*)
Larus littoralis, "FORSTER". (*Gray.*)
Larus antarcticus, "ELLMAN". (*Gray.*)

The bird from Kerguelen's Land appears to be the particular style of southern black-backed gull to which the term *antipodum* has been applied. The bill is very heavy—as Bonaparte says, "rostro crassissimo fere gabianum simulante". But I have no faith whatever in the specific distinctions which Bonaparte, Bruch, and others have sought to establish among these forms, and do not hesitate to bring them all under one head, following Schlegel and Blasius.—C.

List of specimens, with measurements.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Wing.	Tail.	Bill.	Head.	Tarsus.	Middle toe.	Longest claw.	Remarks.
		1874.											
68965	25	Sept. 29	♀	23.00	49.00	15.25	7.00	1.85	2.85	2.75	2.00	0.40	Skin; adult.
68964	58	Nov. 7	...	22.75	50.05	15.00	8.00	1.75	.....	2.40	2.15	0.40	Skin; young; failed to identify sex.
68966	83	Nov. 18	♀	22.50	51.50	16.00	7.80	1.50	2.40	2.25	2.20	0.40	Skin; adult.
68967	84	Nov. 21	♀	22.40	49.25	15.10	6.50	1.60	2.50	2.25	2.00	0.35	Skin; young.
	103	Nov. 26	♂	23.75	54.50	16.00	6.60	1.65	2.60	2.60	2.25	0.30	Skin; adult.
68968	156	Dec. 14	♀	22.00	53.00	15.00	6.75	1.60	2.80	2.50	2.10	0.30	Skin; young.
		1875.											
.....	219	Jan. 2	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	Young; alcohol.
.....	220	Jan. 2	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.
.....	221	Jan. 2	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.

Bill, adult, saffron-yellow; a red spot at the eminentia symphysis. Young (No. 58) black, with a white spot over nostrils; line of symphysis of lower mandible white; (84) pale-pellow, irregularly streaked with black, *black* spot on pyramidal portion of lower mandible; (156) yellow, streaked with black, *no* spot on lower mandible. The measurements are of the "chord of the culmen." From the gape, the bill measures from 2.25 to 2.70 inches.

Iris, adult, mustard-yellow. Young (Nos. 58 and 156) brown-gray; (84) bright-yellow.

Head, adult, white; eyelid coral to deep orange-red. Young, head and neck brown, more or less mottled with white; eyelid (No. 84) gamboge.

Body, adult, back and wings slaty-black, excepting a band of white, about one inch, at ends of primaries and secondaries; primaries with the usual *pictura;* neck, breast, belly, tail, and under parts of wings

pure white. Young generally brown, mottled with black and white. Tail of No. 58 shows a black band at tip, while that of No. 156 is tipped very narrowly with white. The intermediate specimens have the white tips of primaries in various approximations to adult plumage.

Tarsus and *foot*, adult, yellow, with a greenish tint posteriorly. Young pale-gray (156), yellowish-gray (84), or ash-colored (58), the scutellated line being darker than the rest.

Claw black.

Stomach muscular, containing remains of shell-fish.

Young (unfledged) reddish-brown, mottled with black.

Eggs three in number, olive-green, mottled with black or very dark-brown.

These very handsome gulls were seen first in Table Bay in July, and afterward near the Crozet Islands. They are readily recognized by the broad, white, fringe-like band along the free edge of the wings. At Kerguelen they were very plentiful, breeding upon the island. So late as November 18, I note that the ovaries were not greatly enlarged, but that "the birds show a good deal more excitement than usual of late, circling high in air, making a great outcry, and frequently leaving their feeding-grounds to fly inland in considerable numbers". Two nests were found December 21, containing each three olive-green eggs, plentifully marked with black blotches. The nests were built up of grass and sea-weed, and were very wet within, situated just beneath the edge of herbage that fringes the shingle-beaches. All of the eggs contained feathered embryos. I had been looking for them upon the higher land, where the birds had for some time had a habit of alighting in considerable numbers, and hence had overlooked them at the time of first laying. We generally avoided the rough shingle in walking along the shore.

Excepting some signs of excitement already noted, and a tendency to congregate in considerable numbers high in the air, noticed early in November, there was never any very obvious sign that the gulls were pairing; no selection of mates or diminution of sociability. They nest also upon low land, at some distance from the sea. In such a spot, I found several young birds on January 2.

They have several different notes or cries: one, which is uttered when the bird is swimming, at some distance from the others, has been mistaken more than once for a human call of distress; another, uttered when many are together, is like the cry of the laughing-gull. There is a sort of "creak", uttered when the bird is swinging itself lazily along in the air, and a series of short calls, like the mewing of a kitten,

that I have only heard when near their nests. It was this last call, given by gulls high overhead, that directed me to the nesting-place where the young were found, January 2.

The plumage is very variable, according to age, as usual with gulls, seeming to indicate several different species. None of these birds examined which were not in full plumage showed any enlargement of the genital organs. One specimen was seen flying which had almost acquired the adult plumage, excepting only that the head, neck, and under parts were sparingly mottled with gray. The fringe of white at the ends of the primaries and secondaries was quite distinct.

On the 14th December, while watching the various birds which had gathered about the carcass of a sea-elephant upon the beach, I observed that gulls do not, in feeding from the surface of the water, use their feet and claws as instruments of prehension. They dip the bill down, seizing their prey by its aid only, even when at some little distance beneath the surface, and, at the same time, strike the water sharply with their expanded feet, thus getting an upward impulse, which maintains their flight. Two little white-rumped petrels (*T. Wilsonii*), seen on that day for the first time in broad sunshine, performed the same manœuvre in a much more dexterous and obvious manner than the gulls.

At this same time, I shot a specimen in unusually dark plumage with No. 7 shot, and at very long range. The bird seemed stupefied, but there was no external mark of injury except one shot-hole behind and above the right eye. When secured, it struggled violently, neither wings nor legs being in the least injured; but, left to itself, it showed no fear of, or wish to avoid me, stared about stupidly for a few moments, and presently put its head under its wing. I wanted to secure the better-marked specimen already mentioned, which was flying near with the rest of the flock, and, intending to take advantage of the sympathy which gulls always show for a wounded companion, set my capture on a little knoll, and retired to some distance. It put its head under its wing as before, and, although exposed to a fresh breeze which was blowing, seemed to have no difficulty in maintaining its balance. Not succeeding in drawing the specimen I wanted within range, I finished my bird after a little with a charge of small shot (No. 9), and preserved the specimen (No. 156). I omitted to mention that, when thrown up into the air, it seemed to have full power of flight, but to lack the inclination. I suppose that in this case the centers of reflex action remained intact, while such intellect as the bird possessed was paralyzed by a shot in the cerebrum.

STERNA VITTATA, Gm.

Wreathed Tern, LATHAM, Gen. Syn. iii, pt. ii, p. 359, No. 11.
Sterna vittata, GMELIN, Syst. Nat. i, 1788, p. 609.
LATHAM, Ind. Orn. ii, 1790, p. 807, No. 12.
GRAY, Gen. B. iii, 1849, p. 659.
BONAPARTE, Comptes Rend. xlii, 1856, p. 772.
PELZELN, Orn. Novara Reise, 1865, p. 152 (very full account).
Sterna albistriata, GRAY, Voy. Erebus and Terror, pl. 21.
Hydrochelidon (*Pelodes*) *albistriata*, GRAY, Handlist, iii, p. 122, No. 11078.

The fine series of this Tern collected by Dr. Kidder agrees minutely with specimens from New Zealand in the Smithsonian, identified with *albistriata* of Gray by myself some time since. It is a true *Sterna*, with a close general resemblance to *S. arctica* or *macrura* of authors; with very long and deeply-forked tail, white or nearly so; the whole body pearl-gray, not apparently paler below than above, but fading into pure white along the sides of the black cap, giving the appearance of a white stripe on each side of the head; bill and feet coral-red.

But there appears to be an earlier name for this species, in the *S. vittata* of Gmelin, based on the "Wreathed Tern" of Latham, from Christmas Island. The descriptions of both these authors apply perfectly well to the specimens in hand; and these are evidently the same as that described in detail by Pelzeln, *l. c.*, who figures the egg (pl. vi, fig. 14). Pelzeln quotes the species from Kerguelen (Mus. Brit.), St. Paul Island (Exp. Novara), New Zealand (Mus. Vindob.), and Cape of Good Hope. Gray does not give *vittata* in the "Handlist"—a circumstance tending to confirm my conviction that his *albistriata* is the same bird. Besides the two names above quoted, there are some others of partial pertinence, or supposed applicability to this Tern, which may be regarded as the antarctic representative of *S. macrura*, as the *Buphagus* of this region is of the true *B. skua*, or *Larus dominicanus* of *L. marinus*.—C.

List of specimens, with measurements.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Wing.	Tail.	Bill.	Head.	Tarsus.	Foot.	Longest claw.	Remarks.
		1874.											
68947	18	Sept. 24	♂	.....	.....	.....	.....	.....	.....	.....	.....	.....	Skin.
68948	19	Sept. 24	♀	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.
68944	38	Oct., 21	♀	11.15	29.00	10.25	4.15	1.35	1.50	0.75	0.75	0.25	Do.
68945	64	Nov. 10	♀	13.00	28.50	9.75	5.75	0.90	1.60	0.80	0.80	0.25	Skin with egg.
68946	65	Nov. 10	♂	13.00	28.00	10.00	5.50	1.15	1.60	0.75	0.75	0.25	Skin.
.....	116	Dec. 3	...	5.50	7.00	.....	.....	.....	.....	.....	.....	.....	Young; alcohol.
.....	149	Dec. 11	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.
.....	150	Dec. 11	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.
.....	151	Dec. 11	♀	12.50	28.50	10.00	5.35	1.45	1.65	0.85	0.75	0.30	Alcohol.
.....	194	Dec. 24	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	Young; alcohol.
.....	196	Dec. 24	♀	13.25	28.25	9.75	5.75	1.55	1.25	0.75	0.75	0.30	Skin.
68943	197	Dec. 24	♂	13.00	28.00	10.10	5.40	1.50	1.50	0.65	0.75	0.25	Do.
.....	198	Dec. 24	...	13.80	28.40	10.25	5.75	1.60	1.60	0.75	0.75	0.25	Alcohol.
		1875.											
.....	218	Jan. 2	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	Young.

Bill coral-red.

Iris very dark-blue.

Head black-capped; a line of white feathers along lower margin of upper mandible extending backward one-half inch; a white streak

from the eye backward, as wide as the eye itself, fading into pearl-gray; throat and cheeks pearl-gray.

Body generally pearl-gray; rump white.

Tail paler on its upper surface than the rest of the body, forked, the left fork usually the longer [?].

Tarsus and *foot* coral-red.

Claws brown or black; sometimes black with brown tip.

Stomach always contained isopod crustaceans, rolled up into balls.

Young, when first fledged, is yellow-brown, spotted irregularly with black; its bill, toes, and tarsus dirty-orange, blackening toward tips. Later, the colors grow darker, feet and tarsi becoming orange-red. The young is as large as a chick, and as unlike the adult as possible.

Egg is single; of a brownish-green, blotched irregularly with black; pointed at small end; and measures 1.78 by 1.22 inches.

This pretty and fearless little tern was, perhaps, the most familiar object on the island; several of them being always to be seen during daylight winnowing the air over the masses of kelp (*Macrocystis pyrifera*) which covered the waters of the bay by the station. They dive readily from a considerable height in the air, rarely missing their mark, a good-sized isopod crustacean, which seemed to constitute their sole diet. During the pairing-season (October), they remind one forcibly of the common sparrow; curveting around one another, with wings half-spread, and constantly chattering. They are very bold, showing scarcely any fear of man, and excited much the same kindly regard in all of us as the robin and such familiar birds do at home.

They nest on rather high and broken ground, usually under the lee of a tuft of grass, and with little or no preparation. Sometimes a few dried stalks are laid together in the bottom of a barely perceptible cavity; oftener a tuft of dead azorella-leaves, found ready to hand, serves their turn. An egg was first found November 7, very early in the laying-season, owing to the excessive solicitude of the old bird, which flew at me as I passed with amazing ferocity, snapping her bill, screaming, and making a curious sound, very like the "gritting" of teeth. Had she kept quiet, I should not have observed the egg at all. On November 10 I note that many pairs had selected nesting-places, but had not yet begun to lay. A young bird was first found December 4, so like the ground in color that I was near stepping on it. It is very large and heavy, and unlike the adult. On December 11, I got two young birds, and shot the old one belonging, as I supposed, to one of them. I must,

however, have confounded two different individuals when following it with my eye, since the nest over which the one I shot was hovering proved to contain an unhatched egg. Its mate flew up pretty soon from the sea, alighted by the dead body, and seemed to try to arouse it, poking at it with its bill. Failing in this, he presently crept on to the egg himself, assuming his mate's place and function. It is by no means uncommon to find a male petrel or albatross sitting, but I was not before aware that the practice was followed by terns.

The nests are built not far from the sea, usually upon the slope of a hillside, where drainage is good, and generally there are a good many near together. Upon the approach of man, dog, or skua, a warning scream is sounded, and the whole colony at once fly up and make common cause against the intruder. The skua is actually afraid of them, and it is a steady-nerved man who will not dodge the vicious swoops made from time to time at his head. So near do they come on these occasions that most of my specimens were knocked down with stones while flying.

DIOMEDEA EXULANS, *Linn.*

The Albatross.

Diomedea exulans, Linnæus, Syst. Nat. i, 1766, p. 214, and of authors.
Diomedea spadicea, Gmelin, Syst. Nat. i, 1788, p. 568.
Diomedea albatrus, Pallas, Zoog. Rosso-As. ii, 1811, p. —
Forster, Descr. Anim., ed. Licht. 1844, p. 27.
Diomedea adusta, Tschudi, J. f. O. 1856, p. 157. —C.

List of specimens, with measurements.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Wing.	Tail.	Bill.	Head.	Tarsus.	Middle toe.	Longest claw.	Remarks.
68949	181	1874. Dec. 18	♂	50.50	130.00	29.00	10.00	6.50	4.75	4.85	6.70	1.00	
68950	251	1875. Jan. 2	♀	46.85	123.00	26.50	9.00	6.50	.....	5.00	6.50	1.00	Young of year(?).

Bill white. Young of year pinkish-white.

Iris very dark-blue to purple.

Body generally white in adult; some of wing primaries, secondaries, and tertiaries being black, with fine, wavy, dark lines across parts of wing-coverts and back. The amount of black marking is variable, but appears to diminish with every moult. The young of the year are

quite black, or very dark-brown, excepting the under parts of wings, throat, and cheeks, which are white, more or less mottled with black.

Tail very short in proportion to the size of the body.

Tarsus and *foot* white, with pale-blue tint, scutellated.

Claws white. No rudiment of hind toe.

Stomach membranous, filled with an oily fluid.

Eggs single, white.

None of these birds had shown themselves in the neighborhood of our camp until December 17, when Mr. Train captured and brought in the specimen No. 181, which he had carried more than two miles. It was found near an old nest, seemingly about to rebuild it, but no egg was found until December 30. On the 2d of January, the steam-launch of the Monongahela carried me several miles down the beach to the low strip which connects Prince of Wales Foreland with the mainland. Here I saw very many albatrosses nesting upon hillocks, built up some two feet, or more, from the ground. The nests are composed mostly of grass, and, being of different heights, seemed to have been used again, and added to, year after year. I counted twenty-three birds in sight at one time, each perched upon its nest. Being conspicuous by the whiteness of their plumage, and rarely very near together, they rather remind one of the whitewashed cairns set up by surveyors. Driven from the nests, and compelled to walk, they look not unlike overgrown geese. The distribution of their weight compels them to stretch out their necks horizontally, and to walk with a widely-swaying gait. Two approached each other as I was watching them, and went through with some very odd manœuvres. One raised its head and spread out its wings as if to embrace the other, which remained with wings folded. Both then clattered their bills, and touched them together, first on one side and then on the other. This manœuvre was repeated several times. *Phœbetria fuliginosa* has the same trick of touching bills with its mate and clattering the mandibles about pairing-time; but I have never seen them approach one another with outspread wings. All of the nesting albatrosses that I saw, without exception, showed a slight pinkish discoloration of the neck, as if a blood-stain had been washed out, usually on the left side, and extending downward from the region of the ear.

They are dull birds, making but little attempt to defend their eggs beyond loudly clattering their bills. The sound thus produced is louder than would be expected, owing to the resonance of the considerable cavity included by the mandibles. It is very like the sound of a tin

pan beaten with a stick. I knocked several off with my heavy overcoat twisted up like a rope, and secured their eggs before they recovered sufficiently to approach the nests. They climbed on to the empty nests again, however, and sat as contentedly, to all appearance, as before. I believe that they do not lay a second time. Certainly, the nest robbed December 30 was still empty January 2, although occupied by the old bird; and the whalers, who are very fond of the eggs, assert that they never find a second one in a nest that has been once robbed.

I have read somewhere that albatrosses and penguins nest together, but cannot see how it is possible. The king-penguin is the only one nesting in low land (as I am told), but none were found in this neighborhood. The eggs would be frequently immersed in water, unless raised on similar pedestals to those which the albatrosses build. (See *Aptenodytes*.)

The specimen No. 251, which is almost entirely black, was captured at sea, January 19, in latitude 39° 28′ S., and longitude 64° 33′ E., along with several others more or less marked with black. It is believed to be a young bird of the preceding year.

PHŒBETRIA FULIGINOSA, (*Gm.*) *Reich.*

SOOTY ALBATROSS.—"PEE-ARR" *of sealers.*

Diomedea fuliginosa, GMELIN, Syst. Nat. i, 1788, p. 568, and of authors generally.
Diomedea (*Phœbetria*) *fuliginosa*, BONAPARTE, Consp. Av. ii, 1856, p. 186.
Phœbetria fuliginosa, COUES, Proc. Acad. Nat. Sci. Phila. 1866, p. 186.
Diomedea spadicea, LESSON, Man. ii, 1828, p. 391.
Diomedea antarctica, "BANKS, ic. ined. 26".
Diomedea palpebrata, FORSTER, "ic. ined. 102"; Descr. Anim., ed. Licht., 1844. p. —.
Diomedea fusca, AUDUBON, Orn. Biog. v, 1839, p. 116, pl. 407; Syn. 1839, p. 335; B. Am. vii, 1844, p. 200, pl. 454. —C.

List of specimens, with measurements.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Wing.	Tail.	Bill.	Head.	Tarsus.	Middle toe.	Longest claw.	Remarks.
		1874.											
68952	37	Oct. 30	♂	37.00	80.00	22.00	13.35	4.25	4.25	3.30	4.50	0.60	Only head, foot, and sternum preserved.
68951	53	Nov. 2	♂	37.00	84.00	22.00	13.00	4.15	4.00	3.00	4.75	0.75	Skin with egg.
68953	54	Nov. 2	♀	34.00	78.00	20.00	13.00	4.15	3.75	3.25	4.05	0.75	Do.
.....	85, 86	Nov. 21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Embryo with egg.

Bill black, with a pale streak, similar in form to that of *Diomedea*, but much smaller, more compressed, with different outline of feathers at base.

Head mouse-colored, paler on the top and back than elsewhere.

Iris purple-gray. Eyelid covered with very small white feathers in a line one-eighth inch wide, above and behind eye. There are no other white feathers on the bird.

Body generally mouse-colored, darker on wing-coverts and back.

Tail pointed while the bird is flying, often fan-shaped while bird is at rest, the central feathers being the longest.

Tarsus and *foot* pale flesh-colored. Tibia naked 1.50 inches.

Claws horn-white. Very small rudimentary hind toe.

Stomach membranous; contained beaks of cephalopods and green fibrous masses supposed to be vegetable.

Two specimens of the sooty albatross were brought into the camp on October 16, having been captured at the entrance of a shallow cave in the face of a rock some distance inland. They were kept about the huts for some days, showing no disposition to leave. One was hurt by the dog, however, so that it died, when the other quite unexpectedly walked to the edge of a rock, spread its wings, and flew off. The dead bird was much mutilated, so that I have preserved only its head, foot, and sternum, with the measurements. The flesh was unusually pale and soft, as if the bird were young of the year.

October 24, two of the dusky albatrosses had made a nest upon a shelf formed by a considerable tuft of cabbage and azorella, at the entrance of a small cavity in the perpendicular face of a lofty rock, near the top of a hill some two miles away. Here the birds could be both seen and heard. Their scream is very loud, and not unlike one of the calls of a cat. At a distance, it has often been mistaken for the hail of a man. The name "pee-arr" has been given as descriptive of this call, which is, I believe, peculiar to the breeding-season. Another pair was seen same day circling around the same hill-top. No eggs. November 2, secured one egg and both birds. The nest is a conical mound, seven or eight inches high, hollowed into a cup at the top, and lined rudely with grass. The male was sitting when captured; the female standing on another old nest, not far away, but higher up the face of the rock. There was no evidence of an intention to rebuild the old nest. Both birds, but particularly the male, showed fight when approached, clattering their large bills with an odd noise, and biting viciously when they got a chance. The male is perceptibly the larger bird of the two. The oviduct of the female was distended, and no other egg seemed to be on its way from the ovary, making it probable that she had just laid the

single large egg found; but, of course, the evidence is not absolute that *these* two birds had paired, although found so near together.

Although I have often observed the dusky albatross sailing along very close to the surface of the water, or circling around rocky hill-tops, I have never seen it feed, except in captivity. Then both birds ate freely of fresh meat. The peculiar call (which can be heard for a very long distance) is most often given by the setting bird, and answered by its mate flying near by. The egg is single, white, and very long in proportion to its thickness.

November 12, I found another bird on a nest, in a locality similar to that already described. It stared stupidly at me, clattering its beak, and turning its head from side to side, but making no effort to escape. There was no egg. The narrow line of white feathers above and behind the eyes gives these birds a singular and striking appearance—a sort of wide-eyed, amazed air, that distinguishes them markedly from other birds. The white feathers are very minute, but quite perfect.

The nest found November 12 was shortly after abandoned by the sitting bird, apparently because it had been disturbed. Another bird was found sitting on an egg on November 22, high in the rocks, and some four miles inland. Neither of these specimens was preserved. Nos. 85 and 86 are the embryo, and the egg from which it was taken, found November 21, kindly given me by Mr. Stanley, who captured the adult at the same time.

OSSIFRAGA GIGANTEA, (*Gm.*) *Reich.*

QUEBRANTEHUESOS.—BONE-BREAKER.—"NELLY."

Procellaria gigantea, GMELIN, Syst. Nat. i, 1788, p. 563.
Ossifraga gigantea, REICHENBACH, Syst. Av. pl. 20, f. 332.
BONAPARTE, Consp. Av. ii, 1855, p. 186.
COUES, Proc. Acad. Nat. Sci. Phila. 1866, p. 32.
Procellaria ossifraga, FORSTER, Descr. An., ed. Licht. 1844, p. 343.

—C.

List of specimens, with measurements.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Wing.	Tail.	Bill.	Head.	Tarsus.	Middle toe.	Longest claw.	Remarks.
		1874.											
.....	....	Oct. 5	♀	33.00	76.00	19.75	7.00	4.00	4.50	3.50	4.85	0.85	Not preserved.
68954	155	Dec. 14	♂	35.00	78.00	20.00	8.25	4.35	4.40	3.50	5.05	0.85	Skin.
		1875.											
.....	215	Jan. 2	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Young; alcohol.
.....	216	Jan. 2	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.
.....	217	Jan. 2	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.

Bill pearl-gray, with a flesh-tint, to pale bone-yellow.

Iris dark.

Head dirty-brown, lighter than the rest of the body, with white spot of variable extent on the chin.

Body generally very dark-brown, the under parts being lighter than the upper. Feathers on belly and under side of wings tipped with reddish-brown. Testicles very small December 14 in No. 155. Stomach membranous.

Tail fan-shaped.

Tarsus and *foot* dirty-black, brownish-gray in young. Tibia naked for 2.35 inches.

Claws streaked-black and yellowish-white. Distinct hind claw.

The "Nellies", as the whalers call them, were first seen in the bay by our station on October 3, after which date they became quite common. One was shot October 5 while flying over, but the specimen was not preserved. It was a female, and apparently a young bird, the flesh being unusually soft and pale. The sealers told me that they nested near by, and began to lay late in December. I found the young birds, however, on January 2, in the hollows between clumps of *Azorella*, almost fledged, and quite as large and heavy as the adults. They are exceedingly filthy birds, ejecting the contents of their stomachs for two or three feet from their bodies, and seeming to have a limitless supply to draw upon. Among the vomited matters I noticed many penguin-feathers. No old birds were to be seen at the time. Several young were found near together, and three were secured as specimens. In the same neighborhood was a young bird of an earlier brood, fully fledged, but not yet able to fly. Unless, therefore, there is more than one brood in a season, these petrels must be among the earliest to lay, instead of one of the latest, as we had been told.

I found the adult birds, in considerable numbers, feeding on the carcass of the sea-elephant, December 14. With their huge whitish beaks, lighter-colored heads (then covered with clotted blood), and disordered dun plumage, they reminded me strongly of vultures. Like vultures, also, they had so crammed themselves that they were unable to rise from the ground, although it was sufficiently rocky and irregular for them to do so with ease under ordinary circumstances. They waddled and stumbled to the sea, swam away, and did not rise into the air until half an hour or more of digestion, and perhaps of vomiting, had made it possible. I shot two on this occasion; but one succeeded in getting into

the water with a broken wing. The individual secured vomited copiously, as soon as wounded, an immense mass of undigested blood, fat, and intestines. The preparation and preservation of its skin was anything but a pleasant job, and, indeed, they are the filthiest birds by far found on the island. I have never heard any sound from the Nelly, nor did I find any eggs. I never saw them attack other living birds, but have found them several times eating carrion.

MAJAQUEUS ÆQUINOCTIALIS, (*Linn.*) *Reich.*

"STINKER" *of whalers.*

Procellaria æquinoctialis, LINNÆUS, Syst. Nat. i, 1766, p. 213.
GMELIN, Syst. Nat. i, 1788, p. 564.
LATHAM, Ind. Orn. ii, 1790, 821.
And of authors generally.
Procellaria æquinoxialis, VIEILLOT, Nouv. Dict. d'Hist. Nat. xxv, 1817, p. 422.
Priofinus æquinoctialis, "HOMBR. *et* JACQ."
Majaqueus æquinoctialis, REICHENBACH, Syst. Av. pl. 20, f. 340, 341.
BONAPARTE, Consp. Av. ii, 1856, p. 200.
COUES, Proc. Acad. Nat. Sci. Phila. 1864, p. 118.
Puffinus capitis bonæ-spei, BRISSON, Orn. vi, 1760, p. 137.
Procellaria nigra, FORSTER, Descr. An., ed. Licht. 1844, p. 26.

List of specimens, with measurements.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Wing.	Tail.	Bill.	Head.	Tarsus.	Middle toe.	Longest claw.	Remarks.
		1874.											
.....	29	Oct. 14	♂	20.00	54.00	15.00	.....	2.90	2.50	2.50	3.25	0.65	Skin.
.....	69	Nov. 15	♂	21.00	52.00	15.34	6.00	2.35	2.75	2.75	3.00	0.55	Do.
.....	177	Dec. 16	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Alcohol; not measured.
.....	178	Dec. 16	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.
.....	179	Dec. 16	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.

Bill worn (apparently) to greenish-white, remaining black in sutures Upper mandible strongly hooked; lower much less so. Nostrils tubular, distinct, and inclosed in a separate horny sheath. Upper mandible composed of four pieces; lower, of three. No cere.

Iris black.

Head black, excepting a white spot around base of lower mandible, and for one inch below and behind it.

Body generally black; a small tuft of white feathers on abdomen.

Tail, middle feathers longest.

Tarsus and *foot* greenish-black and scutellated.

Claws black. Distinct hind claw.

Stomach internally rugose and partially muscular; contained the remains of crustaceans and beaks of cephalopods.

A single specimen of these birds (No. 29) was dug up by the dog on October 12 from a very deep burrow under a clump of *Azorella*, but none others were seen until November 15, when they suddenly appeared in the day-time in considerable numbers. On December 16, I dug up specimens with eggs, and frequently thereafter. They nest in very deep burrows, with almost always a little pool of water at their entrance, and keep up an incessant squealing while the dog is digging for them, very like the sound of the water-whistle toys, or "whistling coffee-pots", sold on the street-corners. The note is, in other words, very shrill, and constantly trilling. They fight the dog more bravely than any other petrels, generally coming out of the burrow hanging to his ear, and keeping him off very successfully on the open ground. It was one of these birds that has been elsewhere spoken of as being attacked by a skua while in the water.

The name "stinker" is fully warranted by the rank odor emitted by the bird, and is given on the authority of the whalers on the schooner Emma Jane. Captain Fuller, however, of the schooner Roswell King, a very careful observer, tells me that the stinker is a much larger bird, and that it nests on the ridges of the high hills, not in burrows, and very late in the season. If so, I have never seen it.

On December 18, while out in a boat, at some distance from the station, I saw very many black petrels, both swimming and flying, which strongly resembled these birds in every respect, except that they had not the white throat-spot described above.

An embryo (No. 185) has been preserved in alcohol.

Egg is single, white.

One of the first birds dug out by the dogs after our arrival, on September 15, was a large petrel, covered everywhere by long, gray, hairy down, and found quite near the station. They were found often afterward, and were much hunted by the dogs as food. From their squealing when captured, the structure of their bills, the depth of the burrows in which they were found, the black plumage of those subsequently taken, and their offensive odor, I supposed them to be the young of *Majaqueus*, but was assured by the whalers that they were "Mutton-birds", and of quite a different species. A curious circumstance with regard to them is the fact that I never succeeded in getting any positive clew to the old birds to which they belonged. At different times, I set snares in front of the burrows, and sprinkled light dry earth within its entrance,

but never captured any birds; nor did I ever find any tracks upon the earth. It certainly seemed as if the old birds had finally abandoned them. It must be remembered, also, that one of these young birds was found as early as September 15, and that I found Majaqueus *with egg* on December 16. The "Mutton-birds" had certainly not begun to fly before December. The two specimens preserved were captured on November 10; the wings of No. 62 being then in full feather, but the body still partially covered with down.

No. 62, 16 by 38.75 by 12; bill, tarsus, and foot black; iris dark-blue. No. 66, 13.50 by 32 by 8; bill, tarsus, and foot black; iris dark-blue; younger than 62. [Not seen by me—probably some *Puffinus*.—E. C.]

ÆSTRELATA LESSONI, (*Garn.*) *Cass.*

White-headed Petrel.

? *Procellaria alba*, Gmelin, Syst. Nat. i, 1788, p. 565.
Vieillot, Nouv. Dict. d'Hist. Nat. xxvii, 1817, p. 420.
? *Daption album*, Shaw, Gen. Zool. xiii, 1825, p. 246,
? *Procellaria variegata*, "Bonnaterre". (*Bp. & Gray.*)
Procellaria lessoni, Garnot, Ann. Sc. Nat. vii, 1826, p. 54, f. 4.
Lesson, Traité d'Ornith. 1831, p. 611.
Gould, B. Aust. vii, pl. 49.
Reichenbach, Syst. Av. pl. 24, f. 2605; pl. 20, f. 339.
Æstrelata lessoni, Cassin, Proc. Acad. Nat. Sci. Phila. 1862, p. 327.
Coues, Proc. Acad. Nat. Sci. Phila. 1866, p. 142.
Rhantistes lessoni, Bonaparte, Compt. Rend. xlii, 1856, p. 768.
Procellaria leucocephala, Forst., Descr. An., ed. Licht. 1844, p. 206.
Gould, Ann. Mag. N. H. xiii, 1844, p. 363.
Æstrelata leucocephala, Bonaparte, Consp. Av. ii, 1856, p. 189.
Procellaria vagabunda, "Solander". (*Gray & Bp.*)

This is a large, stout species, with a strong bill, and, in adult plumage, very handsome. What is more important, in some respects, it is likewise one of the better-marked species of this difficult and thoroughly-involved group. I have reason to believe that its characters, relationships, and synonymy are worked out in my monograph above cited with fidelity and consequent reliability. Passing over some early names, of probable but unproved application to this species, it seems that *lessoni* of Garnot is the prior tenable name, though some authors give preference to *leucocephala* of Forster. When this name was first proposed I have no means of knowing, but I trace no published record of it back of 1844. This species has been figured by several authors, and is, or should be, now well known. In lieu of further remarks, I beg to refer to the paper already mentioned.—C.

Measurements of a specimen.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Wing.	Tail.	Bill.	Head.	Tarsus.	Middle toe.	Longest claw.	Remarks.
68969	211	1874. Dec. 29	♀	18.15	43.00	12.15	5.85	1.50	2.50	1.85	2.20	0.50	Skin.

Bill black, very stout and strongly hooked.

Iris very dark-brown.

Head pearl-gray; black shading around eyes; throat white.

Body, back gray; dark-brown to black over wings; breast and belly white; tail pearl-gray.

Tarsus and *foot* flesh-pink; black along upper surfaces of digits and on the web near the claw.

Claws black.

A bird was brought to me on September 19, which I then pronounced to be a fulmar, but which I now believe to have been an individual of this species. Unfortunately, being much occupied with other work, and supposing these to be common, I disregarded it and did not preserve the specimen. It never afterward came under my personal notice. Mr. Eaton, naturalist of the English party, visited us on December 9, and then told me that he had found a specimen, and, on December 29, the specimen preserved was brought home alive by one of the men, having been dug out of a very deep burrow by the dog, at a considerable distance inland, and well up among the hills. He found no egg. I saw them following the ship on January 18, about seven hundred miles north of Kerguelen.

ŒSTRELATA KIDDERI, *Coues.*

Kidder's Petrel.

Procellaria grisea, Kuhl, Mon. Proc. Beit. Zool. 1820, p. 144, No. 15, fig. 9. *Not of Latham.*

Schlegel, Mus. Pays-Bas, 1863, p. 9. Exclusive of syn. "*solandri* Gould".

Æstrelata grisea, Coues, Proc. Acad. Nat. Sci. Phila. 1866, p. 148.

"*Procellaria lugens*, Forst., icon. 21", according to Kuhl.

"*Æstrelata inexpectata*, Forst.", Bonap., Consp. Av. ii, 1856, p. 189, but not of Forster.

"*Procellaria unicolor*, Gould". (*Fide Gray.*)

The single specimen of this bird brought home by Dr. Kidder is of special interest and importance. It is of a species I never saw before, but one of which, with a degree of sagacity which proves equally unexpected and gratifying, I introduced a compiled account in my monograph, judging it to be, from the published descriptions, different from any one with which I was then acquainted.

The characters of this bird agree exactly with the accounts given both by Kuhl and Schlegel, *ll. cc.*, of a bird they call *Procellaria grisea;* and there is no reasonable question that all three of us have the same species in view. But there is little if any probability that it is the same as *P. grisea* of Latham, which is described as having the bill two inches long, &c. (see what is said Proc. Acad. Phila. p. 148, foot-note, and p. 149, text). In my monograph, I permitted "*grisea* Kuhl" to stand, as the names fell in different so-called genera; but the groups are so closely allied, and birds of this genus are so commonly called "*Procellaria*", that it will tend to prevent future misunderstanding to apply to this species a new name. And, in so doing, I take pleasure in recognizing, to this slight extent, the excellent service which the author of this paper has rendered in extending, and especially in increasing the precision of, our knowledge of southern oceanic birds.

For the characters of this species, and further discussion of some technical questions concerned, I would refer to the monograph already cited. The bird is a typical *Æstrelata*, of the group of smaller species that cluster around *mollis* of Gould and *cookii* of Gray ("genus" *Cookilaria* Bp.). It has every appearance of being a young bird, in dark whole-colored plumage, like others of this group when immature; but finding it breeding, with the egg, settles the question of its maturity. The whole plumage is dark-gray, nearly uniform, but sootier on the back and wings than on the under parts, with a peculiar glaucous shade throughout. The bill is very short, hardly over an inch long, and extremely *thin*, though deep and strongly hooked. Other proportions are indicated by Dr. Kidder's measurements below.—C.

Measurements of a specimen.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Wing.	Tail.	Bill.	Head.	Tarsus.	Foot.	Claw.	Remarks.
68970	39	1874. Oct. 21	♂	14.00	34.50	10.15	4.05	1.10	2.05	1.45	1.50	0.35	Skin with egg.

Bill black.

Skin thickly covered with fat within.

Plumage nearly uniformly sooty-gray, with a slightly bluish cast.

Tail, middle feathers longest.

Tarsus and *foot* dusky.

Claws black.

Egg single, white, 2.00 by 1.50 inches.

These birds were found October 11, with eggs, in rather deep burrows, each one of which contained a little pool of fresh water, close by where the egg was deposited. They squealed shrilly when captured, with a note very like that of *Majaqueus*. The only specimen preserved was taken, with an egg, October 21. A young bird, taken December 13, and much resembling the young "mutton-bird" (see *Majaqueus*), but far less advanced than the latter at that date, I believe to belong to this species, although the evidence is not positive. It made no sound when taken from the burrow (specimen No. 160).

These birds were common in burrows near our station early in October, and were neglected for others more difficult of access, under the supposition that they would always be at hand. After October 21, however, I never saw another adult specimen, and Mr. Eaton informed me in December that he had not yet found it at all. Doubtless, more diligent collecting and observation of the birds while they were still comparatively plentiful would have cleared up the doubt which seems still to exist as to their specific position among *Æstrelatæ*. Their neglect is

only another instance of the tendency, which so often causes mortification and chagrin to the collector, to postpone those objects which are familiar and common for others mistakenly supposed to be rare and urgent. As Dr. Hooker has so feelingly said, "These are, however, questions which propose themselves to us in the closet only, when the prospect of solving them is gone by; and when they but add to the thousand regrets over lost opportunities, the remembrance of which weighs so heavily on the mind of every naturalist that the brightest prospects of discovery in the fair future can never obliterate them."—*Flora Antarctica*, vol. ii, p. 465.

Perhaps the disappearance of these birds about the end of October may be explained on the supposition that they are really rare in the locality under consideration; but that we had, in selecting a station, stumbled upon one of their nesting-places, and actually dug up nearly or quite the entire community.

OCEANITES OCEANICA, (*Kuhl*) *Coues.*

Wilson's Stormy Petrel.

Procellaria pelagica, Wilson, Amer. Ornith. vi, 1808, p. 90, pl. 60, fig. 6, nec auct.
Procellaria oceanica, Kuhl, Beit. zur Kennt. Proc. 1820, p. 136, pl. 10, f. 1.
Bonaparte, Journ. Phila. Acad. iii, 1824, p. 233.
Thalassidroma oceanica, Gray, G. of B. iii, 1849, p. —.
Oceanites oceanica, Coues, Proc. Acad. Nat. Sci. Phila. 1864, p. 82.
Procellaria wilsoni, Bonaparte, Journ. Acad. Nat. Sci. Phila. iii, 1824, p. 231, pl. 8, f. 3, 3ª, and pl. 9, lower fig.
Thalassidroma wilsoni of many authors.
Oceanites wilsoni, Keys. & Blas., Wirb. Europ. ii, 1840, p. 238.
Bonaparte, Consp. Av. ii, 1856, p. 199.

I have looked at a great many "Wilson's Petrels" from various parts of the world without having been able to see any difference between them. In any event, the bird here presented is the original "*oceanica*" of Banks, Kuhl, &c.—it is the other one, *wilsoni* Bp., 1824, which is to be cut away from this one, if any division is attempted. Bonaparte has the thing hind part before in his Conspectus.—C.

List of specimens, with measurements.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Wing.	Tail.	Bill.	Head.	Tarsus.	Middle toe.	Longest claw.	Remarks.
		1874.											
68933	209	Dec. 30	♂	6.15	14.00	5.35	2.50	0.55	0.85	1.30	0.85	0.25	Skin.
68932	210	Dec. 30	♀	6.50	14.50	5.60	2.60	0.60	0.95	1.35	1.00	0.25	Do.

Bill black.
Iris black.

Head, *body*, *tail*, and *tarsus* blackish, excepting a white band one-half inch wide across rump.

Toes black, the webs with a yellow spot.

These birds are crepuscular near the shore, like *Procellaria nereis*, and much more common near our station after their first appearance on December 8. I had previously seen them at sea east of the Cape of Good Hope; and, on December 14, I saw them out by day feeding on the oily matters floating away from the carcass of a sea-elephant. They frequent rocky parts of the hillsides, and flit about very like swallows in pursuit of insects. There seemed to be no flying insects on the island, however, other than very minute gnats. The two specimens preserved were shot on the evening of December 29, among the rocks near the top of the hill on which we were encamped. I never succeeded in finding the egg, but learn from Rev. Mr. Eaton, who found one on Thumb Mountain, some fifteen miles from our station, that it is single, white, and that the nest was made under a large rock not far from the beach. He found the egg on December 8. I have no doubt from what I have observed of its habits that it nests among and under rocks habitually, and usually at a considerable elevation above the sea.

PROCELLARIA NEREIS, (*Gould*) *Bp.*

The Sea-Nymph.

Thalassidroma nereis, Gould, Proc. Zool. Soc. Lond. 1840, p. 178; Ann. Mag. N. H. xiii, p. 367; B. Aust. vii, pl. 64.

Procellaria nereis, Bonaparte, Consp. Av. ii, 1856, p. 196.
Coues, Proc. Acad. Nat. Sci. Phila. 1864, p. 81.

A large series of this pretty little petrel was collected, the first and only ones I have seen, excepting Gould's types, from Bass's Straits, now in Mus. Acad. Phila., from which the account given in my monograph was drawn up. It is a small and particularly elegant species, quite different from any other known to me; the bluish color recalls birds of the *Prion* group. It comes very near *P. pelagica* proper in form, belonging to the same short-legged group, as distinguished from *Oceanites* and *Fregetta*, though the legs are longer than in *P. pelagica*.—C.

List of specimens, with measurements.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Wing.	Tail.	Bill.	Head.	Tarsus.	Middle toe.	Longest claw.	Remarks.
		1874.											
68936	44	Oct. 29	♀	6.50	12.75	4.75	3.25	0.50	1.00	1.25	0.85	0.25	Skin; pair.
68937	45	Oct. 29	♀	6.50	13.00	4.75	3.25	0.50	1.00	1.25	0.85	0.25	
68935	46	Oct. 31	♂	6.50	12.50	4.75	3.25	0.50	1.00	1.25	0.85	0.25	Skin.
68938	47	Oct. 31	♂	6.50	13.00	4.85	3.25	0.50	1.00	1.25	0.85	0.25	Do.
68940	157	Dec. 15	♂	6.75	12.75	4.50	2.50	0.50	0.85	1.25	0.90	0.25	Skin with egg.
68941	158	Dec. 15	♂	6.55	13.00	4.80	2.85	0.55	1.00	1.25	0.80	0.25	Do.
68934	159	Dec. 15	♂	6.75	13.00	4.75	2.65	0.55	1.00	1.25	0.85	0.25	Skin.

Bill black; nostrils in separate tube, above base of upper mandible. *Iris* black.

Head, *body*, and *tail* generally bluish-ashy, except lower part of breast and belly, which are white. Tail very dark at tip, and fan-shaped in flight.

Tarsus, *foot*, and *claws* black. Tibia naked 0.50 inch.

Egg single, white, sometimes speckled with reddish at the large end; very large in proportion to the size of the bird.

The first specimens were taken on the 28th and 29th of October, being dug out by the dogs from small burrows under clumps of *Azorella*. A pair captured on the latter date were found under a tussock not two yards above high-water mark, on the beach, under a high cliff. No eggs were found at that date. Eggs were first found, December 12, under the overhanging margins of clumps of grass and "Kerguelen tea" (*Acæna ascendens*), in a bit of swampy lowland near the sea. Strange to say, I have only found the male with the egg. In this locality, there were no burrows; the overhanging herbage seeming to afford sufficient protection to the nests.

This petrel is strictly crepuscular in habit when near its breeding-place; none having been seen by daylight except when disturbed from the nest. I believe its note to be a sort of chirping whistle, not unlike the creaking of a block, but did not succeed in settling this point definitely. No eggs were hatched before our departure from the island. The birds are, at this season, perfect balls of nearly fluid fat.

PSEUDOPRION DESOLATUS, (*Gm.*) *Gray*.

"Whale-Bird."

Procellaria désolata, Gmelin, Syst. Nat. i, 1788, p. 562.
Latham, Ind. Orn. ii, 1790, p. 825. But probably not of authors generally.
Daption desolatum, Shaw, Gen. Zool. xiii, 1825, p. 244.
Æstrelata desolata, Coues, Proc. Acad. Nat. Sci. Phila. 1866, p. 155, in part, with exclusion of much of the synonymy.
Prion (*Pseudoprion*) *desolata*, Gray, Handlist, iii, 1871, p. 108, No. 10923.
Pseudoprion banksii, Coues, Proc. Acad. Nat. Sci. Phila. 1866, p. 166; but whether of the authors there cited?

The single prepared specimen in the collection agrees with the characters I give of *P. banksii*, so that I so identify it with little hesitation. I never identified the *Procellaria desolata* of Gmelin in the least to my satisfaction, having allowed myself to suppose that it was an *Œstrelata*, being unconsciously biased by the fact that it had been very generally so considered by writers. In attentively re-examining Gmelin's diagnosis, with reference to the specimen in hand, I find, to my surprise, that it agrees in essential points with the bird brought in by Dr. Kidder, and I am forced to the conclusion that Gray is right in referring it to my section *Pseudoprion*. It will be observed

that in my monograph I did not identify Gmelin's name, merely quoting his description, and adding to it a description of Schlegel's from the same specimen that Kuhl handled; both these authors having considered it the same as Gmelin's bird. It would appear, however, that such is not the case, especially as we have Kamtschatka assigned as a locality.

The bird here treated is *Pseudoprion banksii* of my paper, but whether the *banksii* of authors I am now uncertain. It is also, I have now no doubt, the original *P. desolata* of Gmelin, as correctly allocated by Gray, and, consequently, in part the *Æstrelata desolata* of my paper, but is apparently not the *desolata* of late authors.

The expressions used by Gmelin in reference to the dark band running clear across the body and wings, and the dark tip to the tail, point to a *Prion*, not to one of the *Œstrelatæ*.—C.

List of specimens, with measurements.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Wing.	Tail.	Bill.	Head.	Tarsus.	Foot.	Middle claw.	Remarks.
		1874.											
68926	100	Nov. 24	♂	10.50	23.35	7.25	3.85	1.15	1.60	1.25	1.25	0.25	Skin.
.....	137	Dec. 10	...	11.25	24.00	7.15	4.00	1.15	1.50	1.25	1.25	0.25	Alcohol.
.....	138	Dec. 10	...	11.30	24.10	7.50	4.00	1.25	1.60	1.25	1.25	0.25	Do.
.....	170	Dec. 16	...	10.75	24.25	7.75	4.00	1.15	1.50	1.30	1.25	0.35	Do
.....	171	Dec. 16	...	10.75	24.15	7.25	3.75	1.20	1.60	1.35	1.50	0.25	Do.

Bill lavender-blue, widened at base; upper mandible sharply hooked.

Nostrils similar to those of *Halobæna cærulea*, but more distinctly separated.

Iris invisible during life, bluish-gray.

Head blue-gray above; white line above eye; blue line from posterior angle of eye to join the tint at the back of the head; throat and region around base of bill white.

Body generally paler than that of *Halobæna cærulea*, but marked by a dark band running from wrist-joint along radial portion of wing to and across rump. This band becomes very distinct, when the bird is flying, as a V-shaped marking.

Tarsus and *foot* lilac-blue; claw black at tip, lilac or white at base; middle claw turns sharply outward.

Tail marked by a black band of one-half inch at the tip.

This bird was at first confounded by me with *Halobæna cærulea*, which, in life, it greatly resembles. It was much less common at our station than *Halobæna*, none being observed until November 24; is smaller, much more pugnacious, and distinguished, on superficial examination, by the *dark* band at the tips of the tail-feathers; *Halobæna* showing a white band in the same part. The beak, tarsus, and foot also are lavender-blue in *Pseudoprion*, but black in *Halobæna*.

Pseudoprion burrows near the sea-shore, in lowland, under stones, or

in stony ground. The burrow is similar to that of *Halobæna*, and the birds begin to lay at about the same time. Both species being nocturnal in their habits, it was difficult to detect any differences between them in note or habits; I did not, at least, succeed in doing so.

I first saw this bird at sea, on the way out, about a hundred miles southeast of Tristan d'Acunha (South Atlantic Ocean), in July. The V-marking already described is very prominent when the birds are thus seen; and their irregularity of flight, using first one wing and then the other, with their tendency to fly in flocks, and disregard of the waste from the ship's galley—traits not common to other petrels—lead to their often being mistaken for shore-birds, or, at least, for that class of birds which are seldom seen far from land. I did not succeed in absolutely identifying any eggs.

HALOBÆNA CÆRULEA, (*Gm.*) *Bp.*

"WHALE-BIRD."

Procellaria cærulea, GMELIN, Syst. Nat. i, 1788, p. 560, and of authors generally.
Pachyptila cærulea, Illiger, Prod. 1811, p. 275.
Halobæna cærulea, BONAPARTE, Consp. Av. ii, 1856, p. 193.
COUES, Proc. Acad. Nat. Sci. Phila. 1866, f. 163.
Procellaria similis, FORSTER, "ic. ined. 86"; Descr. Anim., ed. Licht. 1844, p. 59.
Procellaria forsteri, SMITH, Ill. S. Afr. B., pl. 54.

Readily recognized at a glance by the short, square, sharply white-tipped tail.

There is no difficulty whatever with the specific names of this species; though I suspect that an expert in the intricacies of nomenclature, on diligently applying himself to the case, would discover that a different and probably a new generic name would here be admissible, if not actually required. (*Zaprium, n.*)

This strongly-specialized bird appears to be rather rare in collections. Before examining Dr. Kidder's specimens, the first received at the Smithsonian, I had only seen it in the Philadelphia Academy.—C.

List of specimens, with measurements.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Wing.	Tail.	Bill.	Head.	Tarsus.	Longest toe.	Middle claw.	Remarks.
		1874.											
68924	1	Sept. 16	♀	12.50	.....	.....	.....	1.50	.....	.....	.....	.....	Skin.
68922	41	Oct. 24	♀	10.75	26.25	8.25	4.60	1.15	1.60	1.35	1.35	0.25	Skin (very pale coloring).
68923	43	Oct. 29	♀	10.75	26.25	7.75	4.50	1.20	1.50	1.35	1.40	0.30	Skin with egg.
68925	63	Nov. 13	♀	12.00	25.25	8.25	4.75	1.05	1.50	1.35	1.35	0.30	Do.
.....	152	Dec. 11	Em	bryo ..	.....	.....	.....	.....	.....	.....	.....	.....	Alcohol, in shell.
.....	153	Dec. 11	Yo	ung ..	.. ....	.....	.....	.....	.....	.....	.....	.....	Alcohol, 1 week old.
.....	141	Dec. 11	....	11.00	25.85	8.50	4.50	1.20	1.60	1.35	1.50	0.25	Alcohol.
.....	142	Dec. 11	Yo	ung...	.....	.....	.....	.....	.....	.....	.....	.....	Do.
.....	143	Dec. 11	Yo	ung...	.....	.....	.....	.....	.....	.....	.....	.....	Do.
.....	144	Dec. 11	Yo	ung...	.....	.....	.....	.....	.....	.....	.....	.....	Do.
.....	145	Dec. 11	....	11.25	27.35	8.00	4.00	1.25	1.75	1.50	1.50	0.30	Do.
.....	145*a*	Dec. 11	Yo	ung..	.....	.....	.....	.....	.....	.....	.....	.....	Alcohol; young of 145.

Bill black; upper mandible sharply hooked, lower much flattened at its base.

Nostrils tubular, divided by a septum, looking upward and placed far back on the bill.

Iris very dark-brown or black; not visible during life.

Head slaty-blue on top and at back, shading into paler slate-color at the sides. Throat and parts around insertion of bill white, the slate-tint nearly meeting, from each side, under the throat.

Breast, belly, and under parts of wings and tail white; upper surface slaty-blue, shading into very dark tint; mottled with brown along primaries, secondaries, and tertiaries. Narrow white band, of one-half inch, at extremity of tail. The dark tint above mentioned runs from the carpal joint of either wing downward to the rump, making, when the bird is flying, a V-shaped marking, not so distinct, however, in this species as in *Pseudoprion.*

Tarsus and *foot* black and scutellated (excepting No. 41, a very pale specimen, taken with the egg, in which they were noted as pearl-gray).

Claws black, the middle claw being turned sharply outward.

Upon first landing (September 13), the hill-sides, apparently quite deserted during the day, became at night perfectly alive with these birds and a species of *Pelecanoides* (*P. urinatrix*, Gm.), flying irregularly about the rocks and hummocks of *Azorella*, and filling the air with their call. The note much resembles the cooing of pigeons, consisting of three short notes repeated in rapid succession and followed by two long ones, thus: "kŭk-kŭk-kŭk—cōō-cōō." They seemed rarely to fly over the water, but to confine themselves to the neighborhood of their burrows, sometimes alighting and again taking wing—very much as if there were legions of bats inhabiting the hill. I never succeeded in satisfying myself as to the object of this constant flight during the night, although I spent much time in watching them, since, so far as my observation extended, there were no night-flying insects whatever upon the island, nor did the structure of the stomachs of these birds seem fitted to an insect diet.

The burrows are excavated beneath the mounds of an umbelliferous plant, which abounds on the Kerguelen hill-side (*Azorella selago*, Hook. fil.), growing in dense masses of often several feet in diameter. The holes usually run straight inward for a foot or more, then turn sharply to the right or left, parallel with the hill-side, thence downward, often doubling once or twice upon themselves and communicating with other

entrances. At the bottom is an enlarged cavity, lined with fine root-fibers, twigs, ferns, or leaves of the "Kerguelen tea" (*Acæna affinis*, Hook. fil.), and quite dry. Here the single egg is to be found, always quite covered with dry powdered earth or the leaves above mentioned. The diameter of the burrows at their entrance is about that of a man's wrist. Limpet and mussel shells were often found near by. Upon our first arrival, two birds, male and female, were usually found in each burrow during the day. After they began to lay, however, but a single one was to be found with the egg, usually, but not always, the female.

When set free in the day-time, the mode of flight was irregular, as if the light were confusing to the bird. They always alighted in the water after flying a mile or so. The noise of their calling was incessant during the night, coming quite as often from the burrows as from the air, but became much less frequent after the middle of November, from which I infer that the call is connected with the season of pairing.

The egg is white, single, and measures 1.90–2.00 by 1.45–1.55 inches. They had probably begun to pair by the time of our arrival (September 13), and the first egg was found October 23, although doubtless they begin to lay earlier. A young bird, covered with slate-colored down, was found November 12, and frequently thereafter.

The traveler who should visit Kerguelen Island only during the day, returning to his ship every night, might easily fail to observe the presence of these birds at all, since, in the neighborhood of their burrows, they are exclusively nocturnal in their habits, being perhaps the very latest to appear after night-fall. They are, however, often seen at sea during the day, many hundreds of miles from land.

PELECANOIDES URINATRIX, (*Gm.*) *Lacép.*

"DIVER" *and* "———" *of the whalers.*

Procellaria urinatrix, GMELIN, Syst. Nat. i, 1788, p. 560.
Pelecanoides urinatrix, "LACÉP.", GRAY, G. of B. iii, 1849, p. 646.
COUES, Proc. Acad. Nat. Sci. Phila. 1866, p. 190.
Halodroma urinatrix, ILLIGER, Prod. 1811, p. 274.
BONAPARTE, Consp. Av. ii, 1856, p. 206.
SCHLEGEL, M. P.-B. 1863, p. 37.
Puffinuria urinatrix, GOULD, B. Aust. vii, pl. 60.
Puffinuria garnoti, LESSON, Voy. Coquille, 1826, pl. 46; Man. Orn. ii, 1828, p. 394; Tr. Orn. 1831, p. 730.
Pelecanoides garnoti, GRAY, G. of B. iii, 1849, p. 646.
Halodroma garnoti, SCHLEGEL, M. P.-B. 1863, p. 37.
Procellaria tridactyla, FORST., Descr. An., ed. Licht. 1844, p. —.

As very strongly intimated in my paper, satisfactory diagnosis of the three currently-reported species of this genus is wanting. Nor is my faith in their distinctness increased

on finding that these specimens, which from the locality undoubtedly represent the original *P. urinatrix*, are fully up to the dimensions of the supposed larger *garnoti*, from the west coast of South America. Observed variation in the color of the feet, which is one point that has been relied upon, lessens the probability of distinctness, especially as the ascribed coloration does not coincide in every case with the dimensions. The size and proportions of the examples examined, as carefully measured in the flesh by Dr. Kidder, warrant me in adducing the *garnoti* of Lesson as a synonym of *urinatrix;* to which I still refrain, however, from adding the *berardi* of Quoy and Gaimard.—C.

List of specimens, with measurements.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Wing.	Tail.	Bill.	Head.	Tarsus.	Middle toe.	Longest claw.	Remarks.
		1874.											
68929	2	Sept. 19	♂	8.50	14.00	.....	.....	0.85	.....	.....	.....	.....	Skin.
68930	3	Sept. 19	♂	9.00	14.00	.....	.....	0.75	.....	.....	.....	.....	Do.
.....	4	Sept. 19	♀	8.50	14.25	.....	.....	0.75	.....	.....	.....	.....	Do.
68931	59	Nov. 9	♀	7.00	13.00	4.85	2.25	0.75	1.60	1.05	1.05	0.30	Skin; ovaries much enlarged; 2 ovules nearly ripe.
68927	60	Nov. 9	♂	7.15	13.00	4.95	2.40	0.75	1.50	1.00	1.20	0.25	Skin; testicles enormous, as large as sugared almonds.
68928	101	Nov. 24	♂	7.60	16.00	4.75	1.95	0.75	1.50	1.05	1.00	0.25	Do.
.....	140	Dec. 10	...	8.00	16.35	4.75	2.05	0.80	1.50	1.00	1.05	0.25	Alcohol.
.....	148	Dec. 11	...	8.25	15.75	4.85	2.10	0.85	.....	1.10	1.05	.....	Do.
.....	172	Dec. 23	...	8.00	16.00	5.00	1.75	.....	1.35	1.00	1.10	0.20	Do.
.....	173	Dec. 23	...	8.00	16.00	4.85	1.75	0.75	1.35	1.05	1.10	0.25	Do.
.....	174	Dec. 23	...	8.00	16.25	5.00	1.85	0.75	1.35	1.00	1.10	0.25	Do.
.....	175	Dec. 23	...	8.00	16.00	4.75	1.80	0.75	1.35	1.05	1.05	0.25	Do.

Bill generally black; lavender-blue at quadrate basal portion of lower mandible. Upper mandible hooked; both much compressed and flattened; square at base. Nostrils placed far back, opening upward by a heart-shaped aperture, divided by a longitudinal partition, as if the upper half of a tubular inclosure had been cut off, parallel to its long axis.

Iris ash-colored; not visible during life, when only the black pupil appears.

Head blue-black above; throat white.

Body, upper parts blue-black; throat, breast, belly, and under part of tail white. Under down yarn-blue. Skin of belly naked. Plumage very fine and close. The body is remarkably large and heavy in proportion to the length of the wing; the latter being concave, similar to that of the quail. First and second primaries equal in length.

Tarsus and *foot* are placed very far back, nearly in the axis of the body; lavender-blue; not scutellated; no rudiment of hind toe.

Claws black; middle claw turned outward.

Tail very short, black above, white below.

When the Swatara was endeavoring to land a party at Possession Island, the largest of the Crozet group, early in September, I noticed frequently a very small diver, which took wing immediately on arising to the surface of the water, and after a short flight dived beneath it without first alighting. I suppose this to have been the bird now under consideration, although, as will be seen, I failed to verify the fact absolutely. On the first landing of our party at Kerguelen Island, this bird was one of the two most commonly heard at night, and seen fluttering about the hillside. Its note is somewhat similar to the mew of a cat, with a marked rising inflection of sound. It cannot rise from level ground in flight, but, once in the air, flies strongly and rapidly, with a rapidly fluttering motion of the wings, very like the flight of the common English sparrow. It burrows in the same localities as *Halobæna*, digging less deeply and making fewer turns in its burrow, and seems to remain therein during the day, being exclusively nocturnal in its habits when near its nest. Lays one egg, as large as a pigeon's, white, and not sharply pointed; first found by me December 10. I did not succeed in finding any young up to January 10, the date of our departure.

I heard much from the whalers and others of the great diving powers of these birds, which their structure certainly seems to indicate, without being able to confirm the fact by personal observation. On the night of November 23, while I was watching by the sea-shore the actions of the birds flitting across the path of the moon's light upon the water, with the purpose of settling this point, one flew close by my ear, with a great whirring of wings, from the sea and into the bank behind me. It could not rise again on the wing, and I captured it, with some difficulty, owing to the darkness, as it was making its way back to the water. I tied a long, light string to one of its legs, carried it out some yards on a plank-walk leading to the tide-gauge, and threw it into the sea. It swam well, and could rise from the water in flight, spattering for a long way with its wings, like a duck; but made no attempt whatever to dive, although much frightened and restrained from flight by the string. The experiment was repeated several times with no better success. (Specimen preserved, No. 101.) The stomachs of all the specimens examined were found to be empty, and I have no clew therefore from the nature of their food.

There seems to be no reasonable doubt of the diving powers of *Pelecanoides*, however, or that it habitually seeks its food in that way, not-

withstanding its failure to exhibit in my presence when absolute identification was possible.

NOTE 1.—The Cape Pigeon (*Daption capensis*) and Yellow-billed Albatross (*Diomedea culminata*?) have also been seen now and then near the shore, but were not found breeding by our party. The former appeared on the evening of December 8, near our camp; and I saw it again January 2, flying to sea from inland, near Prince of Wales Foreland. The latter was common along the coast, and occasionally seen in Royal Sound.

NOTE 2.—Alcoholic specimens of an undetermined *Puffinus* are in the collection, but have not been examined by Dr. Coues.

APTENODYTES LONGIROSTRIS, *Scop.*

KING PENGUIN.

Patagonian Penguin, PENNANT, Phil. Trans. lviii, 1768, p. 91, pl. 5, in part.
Aptenodytes patachonica, GMELIN, Syst. Nat. i, 1788, p. 556, in part.
LATHAM, Ind. Orn. ii, 1790, p. 878, in part.
Pinguinaria patagonica, SHAW, Nat. Misc. xi, 1797, pl. 409 (nec Forst.).
Aptenodytes longirostris, SCOPOLI, Sonn. Voy. p. 180, pl. 113.
COUES, Proc. Acad. Nat. Sci. Phila. 1872, p. 193, pl. 5, figs. 5–8 (osteology).
Aptenodytes pennantii, GRAY, Ann. Nat. Hist. 1844, 315, and of most subsequent authors.
Spheniscus pennantii, SCHLEGEL, M. P.-B. Urin. 1866, 3; De Dier. p. 268, fig. —.
Aptenodytes rex, BP., apud *Gray*.

—C.

List of specimens, with measurements.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Wing.	Tail.	Bill.	Head.	Tarsus.	Middle toe.	Longest claw.	Remarks.
.....	104	1874. Nov. 26	♂	36.00	31.50	12.50	.....	2.75	.....	1.65	3.15	1.15	Skin; lost.
.....	230	1875. Jan. 4	♂	45.50	35.00	.....	.....	.....	.....	.....	.....	.....	Skin.
.....	231	Jan. 4	♀	39.50	32.50	.....	.....	.....	.....	.....	.....	.....	Do.

The "wing"-measurement is the length of entire flipper.

Bill pointed and narrow; upper mandible black; nostrils opening in slits which extend nearly its whole length. Lower mandible black anteriorly, flesh-colored over posterior half, as if covered with mucous membrane.

Iris bright-brown.

Head black. Yellow collar from front of throat upward to behind eye, narrow at side of neck; pyriform above. Throat black.

Body generally black; breast and belly white. Feathers small, pointed, and spike-shaped.

Tarsus and *foot* black. Tarsus very short. Foot three-toed, webbed, and very stout, resembling the foot of a plantigrade animal. Large callosity under heel, upon which and the point of the tail the bird balances itself in standing, the toes not touching the ground.

Claws black.

Tail a bunch of bristles, compressed from side to side.

Tibiæ are very long, and the skin covered internally by a very thick layer of fat. The superficial muscles have numerous and broad attachments to the skin internally.

The first specimens of this penguin found near our station were met with on the beach on November 26, having apparently just come out of the water. There was but a single pair, both of which were secured, one being brought home alive. The other fought so fiercely that I had to kill him to get him home. Captain Fuller, of one of the sealing-schooners, informed me that skins taken at that time would be worthless, as the birds were beginning to moult. I skinned but one of the birds, therefore, and endeavored to keep the other alive, tying it up on the beach with a good long line to its leg. It had received a pretty severe blow on the head while being captured, which may account for a good deal of dullness during the first week or so, and for a strong aversion to the water which it showed at first. After a time, it brightened up, and would spend a large part of every day at the end of its line, splashing in the water. It finally entangled itself in the sea-weed near the bottom, and was drowned during the night (December 16). It slept bolt upright, balanced on its heels, swaying back and forth as it breathed, and snoring heavily. The neck is very extensible, so much so that the bird can stand at least a foot taller when excited than when at rest. It will frequently remain for twelve hours standing in the same place, and seems to me to be in every way a stupider bird than either *Pygoscelis* or *Eudyptes*. When thrown down, it raises itself by aid of its beak, pressing the point against a stone.

December 29, two more were captured on the beach at the other side of the point upon which we had settled. Mr. Holmes and I brought them alive across the top of the hill, and found it a very laborious undertaking. I tried to drive my bird; but a very short journey on an up-grade entirely exhausted his breath. After two or three attempts, he turned about, having made up his mind to fight it out to the last rather than

try any further. These penguins are much less active on land than other species.

One was found on the coast, several miles away, on January 2, but I saw no eggs or nests. Captain Fuller, of the schooner Roswell King, informs me that they do breed upon the eastern side of the island, on the lowland, but that they build no nests whatever, carrying the egg about in a pouch between the legs, and only laying it down for the purpose of changing it from male to female. I have questioned Captain Fuller again upon this subject since my return from the expedition, and he asserts that he has verified the fact repeatedly from personal observation. The pouch, if there is one, can be no more than a fold of the skin, since none was noticed in skinning or measuring the specimens. The same story has been told of other penguins (see *Pygoscelis*). I can only say that I have always found Captain Fuller's statements in other matters to be reliable, and look upon him as an unusually careful observer, but can add no evidence of my own in this case.

PYGOSCELIS TÆNIATA, (*Peale*) *Coues.*

"JOHNNY" *of sealers and whalers.*

Aptenodytes papua, FORSTER, Comm. Soc. Reg. Gött. iii, 1781, p. 140, pl. 3. (Nomen ineptum.)
BONNATERRE, Ency. Méth. i, 1782, p. 67, pl. 17, f. 3.
GMELIN, Syst. Nat. i, 1788, p. 556.
LATHAM, Ind. Orn. ii, 1790, p. 879.
VIEILLOT, Gal. Ois. pl. 299.
GRAY, Voy. Erebus and Terror, pl. 25.
Eudyptes papua, CASSIN, Orn. U. S. Expl. Exped. 1858, p. 264.
GOULD, Proc. Zool. Soc. 1839, p. 98.
Spheniscus papua, SCHLEGEL, Mus. Pays-Bas, iii, 1866, p. 5.
Pygoscelis papua, HYATT, Proc. Bost. Soc. N. H. 1871, p. —.
Aptenodytes tæniata, PEALE, U. S. Expl. Exped. 1848, p. 264.
Pygoscelis tæniata, COUES, Proc. Acad. Nat. Sci. Phila. 1872, p. 195.
Pygoscelis wagleri, SCLATER, P. Z. S. 1860, p. 392.

List of specimens, with measurements.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Wing.	Tail	Bill.	Head.	Tarsus.	Middle toe.	Longest claw.	Remarks.
		1874.											
.....	208	Dec. 30	♀	30.50	21.50	10.00	5.60	2.85	3.50	1.00	2.60	1.05	Skin; packed in salt.
		1875.											
.....	224	Jan. 4	...	29.50	22.25	9.25	6.50	3.25	.....	1.25	2.35	1.00	Skin; sex not recorded; packed in salt.
.....	225	Jan. 4	...	29.50	24.00	10.00	6.85	3.15	4.10	1.25	2.35	0.85	

Bill, lower mandible and lower margin of upper mandible brilliant-orange; upper portion and tip of upper mandible black.

Nostrils opening by slits at sides of bill, 1.25 inches from its tip. Bill, as a whole, long, narrow, and pointed.

Head black, excepting an irregularly dumb-bell-shaped white band from eye to eye; the narrowest part of the marking being at the back and top of the head.

Iris rich-brown. Pupil lozenge-shaped when contracted.

Body, belly, breast, and underside of flippers white, the remainder of the body being black. The scales on the flippers are more evidently rudimentary feathers than in other penguins, the lowermost row being tipped with white. The feathers generally are small, pointed, and without distinct blade, similar to "pin-feathers".

Tail compressed from side to side, formed of very stiff quills, and disposed like the canvas of a tent, the ridge looking upward.

Tarsus and *foot* orange-colored, scutellated.

Claws black. Distinct rudimentary hind toe.

On the arrival of the Swatara at Kerguelen, these birds had already begun to lay, and we had their eggs for breakfast on the morning of September 10, finding them quite free from any fishy flavor, and, although rather insipid, a very acceptable change from sea-diet. The fact that when cooked the albuminous portion only partially coagulates renders them less inviting in appearance than other eggs; and, probably on this account, the custom is to serve only the yelks. Two or three of the birds were captured by the boat's crew which went on shore after the eggs, and brought back to the ship, where they created a good deal of amusement. When walking away from the spectator, swaying from side to side, with flippers hanging well away from the body, they bear a ridiculous resemblance to small children just beginning to walk who have put on overcoats much too long for them. A rookery was found about two miles from our station, which I visited September 16, finding many eggs. It is established upon the seaward extremity of a high rocky ridge, running nearly parallel with the trend of the shore, and abutting upon the sea in lofty bluffs. At the foot of this ridge is a little rocky cove, where the penguins land, and beyond the coast becomes precipitous, the rocks rising perpendicularly some hundred or more feet. Up the very steep inland slope of this hill, thickly overgrown with the "Kerguelen cabbage"* and "tea",† the penguins have to climb, after

* *Pringlea antiscorbutica.* † *Acæna affinis.*

crossing a considerable upland meadow. Numerous very distinct paths have been worn by successive generations of penguins, until the defiles cut in the sod near the sea are, in some cases, as much as four feet in depth. The track to a penguin-rookery and their landing-place are always marked by a remarkably luxuriant growth of a plant with long feathery fronds, belonging to the order *Compositæ*.* The tracks followed the course of a small stream in this instance, and ascended pretty sharp acclivities, steep enough to try one's wind in following them up, until a level plateau was reached on top of the hill. The eggs (which were here never more than one to a nest) were laid either in hollows between the mounds of *Azorella* which covered the plateau, or in little bare spots scratched on their tops. I did not succeed in verifying the statement, constantly re-affirmed by whalers and sealers, that the female takes up her egg again into the oviduct, when disturbed, and carries it off; but I have seen a female, disturbed from the nest, drop her egg again at some yards' distance when waddling off. I should suppose it more probable that she carried it between the thighs (tibiæ), the structure of which makes such a proceeding quite possible. This particular rookery had been long known to the sealers, who make their rendezvous some ten miles distant, at Three Island Harbor, and who had already robbed the nests when we arrived; consequently, the birds had constantly been driven higher up the hill and farther inland, until, at the time of our coming, they were found nesting fully half a mile from their landing-place, and at an elevation of about three hundred feet. The eggs resemble in size and shape those of a duck, being, as a rule, rather larger. The brood from which my specimens were collected must have been at least the ninth or tenth laying since the season commenced. At other and more distant rookeries, subsequently visited, where the birds had not been so often disturbed, they were found to lay nearer the coast, and, as a rule, two young were found to each old bird. Singularly enough, one of these was always well-grown, apparently from one to two months old, while the other had just been hatched or was still in the egg. It must, consequently, be the practice of these birds to rear two broods in a season, keeping both in the nest at the same time. No other birds lay among or near them; and it seems quite impossible that the albatross should do so in any locality, as has been made evident in describing the nest of that bird.

Perhaps one hundred and fifty individuals were to be seen at a time

* *Leptinella plumosa.*

at the rookery near us, standing gravely together for hours and doing nothing, as is their custom; but a small proportion being nesting females. Probably half as many more, in companies of twenty or so, were laboriously toiling up the steep paths from the sea. So long and difficult a journey seems strange enough, undertaken by birds so slow of locomotion as penguins. But members of this species at least are by no means slow in getting over the ground, and, although they do not unfrequently fall upon their bellies, they are prompt in picking themselves up again, and seem to look upon such falls as a natural part of their progress. They do not at all find it necessary to drag themselves up a gentle slope on their bellies by the aid of flipper and beak, as has been stated.

No living thing that I ever saw expresses so graphically a state of *hurry* as a penguin when trying to escape. Its neck is stretched out, flippers whirring like the sails of a wind-mill, and body wagging from side to side, as its short legs make stumbling and frantic efforts to get over the ground. There is such an expression of anxiety written all over the bird; it picks itself up from every fall and stumbles again with such an air of having an armful of bundles, that it escapes capture quite as often by the laughter of the pursuer as by its own really considerable speed.

On the 3d of December, near the landing-cove already mentioned, about the time of hatching, I observed a school of these penguins progressing by leaps clear of the water; one following another in so rapid succession that two or three were always in the air, and with a motion so like that of a school of porpoises, that I at first took them for those marine mammals. In the water, indeed, all awkwardness at once disappears; their speed in swimming being almost incredible, and surpassing, of course, that of the fish upon which they feed.

December 4, I found one young penguin just hatched and three more still in the eggs, which they had broken with their beaks. As already stated, however, this rookery was very much behind time, and I know of a young penguin having been captured as early as October 12. The young were covered with soft, hairy, pearl-gray down. Head black above and behind; bill flesh-colored; feet black on the soles and flesh-colored above. (Original numbers 119, 120, 121, and 122.)

EUDYPTES CHRYSOLOPHA? *Brandt.*

Rock-Hopper.

? Eudyptes chrysolopha, Brandt, Bull. Acad. St. Pétersb. ii, 324.
Schlegel, M. P.-B. Urin., p. 7.
Coues, Proc. Acad. Nat. Sci. Phila. 1872, p. 204.

The specimens collected by Dr. Kidder seem to agree better with *chrysolopha* than with *chrysocome*, in the lighter and more bluish shade of the upper parts, weaker bill and general elongation of the coronal feathers; although the yellow plumes on each side of the head are neither so long nor so brightly colored as in the Philadelphia Academy's specimen, upon which my actual knowledge of *chrysolopha* rests. I am still of opinion that difficulty will be found in establishing the supposed species upon a satisfactory basis.—C.

List of specimens, with measurements.

Smithsonian Institution number.	Original number.	Date.	Sex.	Length.	Extent.	Flipper.	Tail.	Bill.	Head.	Tarsus.	Middle toe.	Longest claw.	Remarks.
		1874.											
.....	50	Nov. 1	♂	22.00	16.00	3.50	5.00	2.00	3.00	1.15	2.00	.....	Skin; afterward lost.
.....	51	Nov. 1	♂	23.00	18.00	3.75	.....	.....	.....	.....	.....	.....	Do.
.....	186	Dec. 23	♀	23.85	15.50	*6.50	6.00	2.00	2.75	0.85	2.15	0.75	Skin; preserved in salt.
.....	202	Dec. 27	♀	23.00	16.00	*6.50	5.25	1.75	2.85	1.00	2.60	0.75	Do.
		1875.											
.....	223	Jan. 4	♀	23.00	16.00	*6.50	5.25	1.75	2.80	1.00	2.65	0.75	Do.
.....	226	Jan. 4	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	Skin; not measured.
.....	227	Jan. 4	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.
.....	228	Jan. 4	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.
.....	229	Jan. 4	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.

* Whole length of flipper.

Bill conical, orange. Nostrils not apparent.

Iris deep-pink.

Head black; crested by a broad horizontal layer of feathers, directed backward, and radiating from insertion. The marginal plumes, lying just above each eye, are mustard-yellow, those in the center being black. Tongue strong and pointed, furnished with five longitudinal rows of teeth, the palate being supplied with four.

Body, throat and belly white; nape and back blackish; the dividing line between the colors running through the insertion of the flippers.

Tail spike-shaped, flattened from side to side.

Tarsus short and stout; "skin" white. Foot same color; three toes palmate; hallux rudimentary, black on plantar surface.

Eggs two, white; one generally larger than the other.

These brave little penguins had established a large rookery not more than two miles from our station, where I found them nesting on the 7th of December. They had begun to appear along the coast early in November; two of them having been captured and skinned on the 1st of that month. Probably, they begin to lay about the first of December. The rookery above mentioned was established among the loose rocks, from the crevices of which a coarse grass (*Festuca*) grew abundantly, just where the *débris* from the precipice above makes a sort of steep "lean-to" against its side, and sloping sharply into the sea. The nests are rather more distinct than those of *Pygoscelis*, and most of them were lined with dried grass. Each contained two white eggs, of which one was usually larger than the other; and both birds were, as a rule, by each nest. Whether one hunts to feed the other or not, I cannot say. A small flock came in from sea while I was present, announcing their arrival by a single shrill whistle, frequently repeated, and answered from the shore. They were wonderfully courageous, erecting their sulphur-colored plumes, and trembling all over with excitement on my approach, while they kept up a strident cackling that was almost deafening. Although knocked off their nests and down over the steep rocks for often twelve or fifteen feet, they would pick themselves up and scramble back again with unabated courage, threatening, and even biting sharply, to the very last. I suppose that the thick layer of fat beneath the skin, particularly abundant in this species at this time, serves as a protection against the hard knocks which they frequently get in falling from the rocks; no ordinary fall seeming to have the least effect upon them. They seem to dread far more the attacks of their neighbors, which harry them from almost every crevice as soon as they leave their own proper nest. The whaler's epithet "rock-hopper" is in this case particularly well applied, since they are the most agile of all penguins, skipping from rock to rock, climbing very steep inclined surfaces, and getting over the ground with great speed. It is worthy of notice that these penguins always *hop*, using both feet at a time like a sparrow, and never walk, as do other genera. Cormorants and *Chionis* were their nearest and most friendly neighbors, particularly the latter. As soon as one is knocked off its nest, its mate immediately covers the egg, showing the same anxiety and courage. No eggs had been hatched so late as January 4, the date of my last visit to the rookery.

The apparent widening of the cheeks, caused by the erectile plumes and the position of the feathers below them, with the plumes themselves,

looking not unlike "whiskers" on a front view, have given rise to the name "sea-cats", occasionally applied to these birds.

On January 19, being then at sea, in latitude 39° 28′ south, longitude 64° 33′ east, and fully six hundred miles from the nearest land, a small penguin, supposed then to be one of this species in poor plumage, was observed following the ship. It seemed to mistake the ship (Monongahela) for an island, and swam around it nearly all day, trying to find a landing-place, the wind being light, and the ship going from two and a half to three knots through the water. We had thus an excellent opportunity to observe from above the penguin's manner and great facility in swimming. It always dives when intending to swim with speed, and uses its flippers with great effect, looking precisely like a fish—a small shark, perhaps. It had not the slightest difficulty in keeping up with us.

EUDYPTES DIADEMATUS, *Gould.*

"MACCARONI."

Eudyptes diadematus, GOULD, Proc. Zool. Soc. 1860, p. 419.
SCHLEGEL, Urin. M. P.-B., ix livr. 1866, p. 8.
COUES, Proc. Acad. Nat. Sci. Phila. 1872, p. 206.

A fragment of skin, from a characteristic spot (top of the head), enables me to identify the species as an inhabitant of Kerguelen's Land.—C.

These penguins nest upon Kerguelen Island, as I am informed, but not upon that part selected by our party as an observing-station; nor have I any other specimens than a *scalp*, brought me as a present from Heard's Island by one of the elephant-sealers. It appears, however, that they do not differ materially in habits from *E. chrysolopha*, choosing the same localities for nesting, and progressing by the same hopping gait.

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