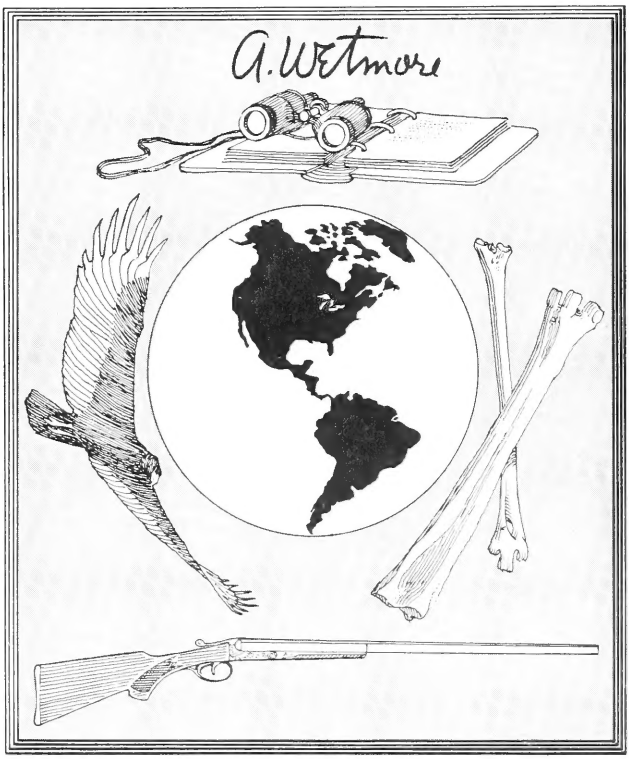


Alexander Wetmore

1946 *Sixth Secretary* 1953

A. Wetmore J-140

[*From the* PROCEEDINGS OF THE ZOOLOGICAL SOCIETY OF LONDON, February 6, 1872.]

On a new Species of Green Woodpecker from Southern Europe.

By HOWARD SAUNDERS, F.Z.S. &c.

When my friends Messrs. Sharpe and Dresser were describing the Green Woodpecker (*Gecinus viridis*) in the 'Birds of Europe,' I lent them a specimen from Granada, Spain, which Mr. Sharpe at once perceived was not true *G. viridis*, But for the time, and in the absence of a series, we were disposed to refer it to *G. vaillantii* (Malherbe, Picid. vol. ii. p. 122, iv. pl. 82). I immediately exerted myself to obtain specimens of this bird from different parts of Spain; and I have now before me a series from four very distinct localities, all, however, south of the Sierra de la Guadarrama, which will probably prove to be in this case, as in several others, the dividing line between the northern and southern resident avifauna*.

These specimens, agreeing amongst themselves, differ so strikingly from both *G. viridis* and *G. vaillantii* that there can be little doubt of their belonging to a new and hitherto undescribed species, which I propose to call

GECINUS SHARPEI, sp. nov.,

after my friend Mr. R. B. Sharpe, to whom the credit of discriminating it is entirely due.

♂. G. viridi *simillimus, sed facie laterali cinerea, fascia mystacali omnino coccinea, et uropygio flavo facile distinguendus.*

♀. *Mari similis, sed gutture magis cinereo: fascia mystacali nigra.*

Obs. A *G. vaillantii* (Malh.) hæc species fascia mystacali maris coccinea et pileo feminino toto coccineo distinguenda est.

This species is principally distinguishable from *G. viridis* by the grey face and by the absence of the black streak over the eye in both sexes. Minor points of difference are the brilliant crimson moustache in the adult male, instead of lake on a black ground as in *G. viridis*, and the deep chrome-yellow on the rump in both

* In confirmation of this I may observe that I have lately examined a Green Woodpecker from the Pyrenees which is true *G. viridis*, as are all the French specimens which have come under my notice.

sexes. In *G. vaillantii* the moustache of the male is black and never red, according to Malherbe (*op. cit.*); and in the female the crimson does not extend beyond the occiput, whereas in the present species it pervades the whole of the crown.

Lord Lilford

with the Author's kind regard

[*From the* Proceedings of the Zoological Society of London, March 5, 1872.]

On the Occurrence of *Falco barbarus* and *Cypselus pallidus* on the Continent of Europe. By Howard Saunders, F.Z.S.

In the excellent account of *Falco barbarus* given by Mr. O. Salvin in 'The Ibis,' 1859, p. 184 *et seq.*, he recommends that a look-out should be kept for it in Spain; and I have now great pleasure in exhibiting an example of this miniature Peregrine obtained near Granada, Spain, in January 1871. It appears to be a bird of the year, and proved to be a female on dissection. As Messrs. Salvin and Brodrick observe in their 'Falconry in the British Isles,' p. 101, "although smaller by nearly one fourth than the true Peregrine, it has the organs of destruction, such as the beak, feet, and talons, fully as large." Indeed in the present specimen the middle toe is *very nearly as long* as that of a magnificent adult female Peregrine, and *rather longer* than that of an adult male, her mate, shot near Seville, and rivalling in size the largest northern specimens. As Mr. Salvin remarks, the small stature, powerful feet and claws, and ruddy under plumage of *Falco barbarus* are its best characteristics.

In 'The Ibis,' 1870, p. 445, Capt. G. E. Shelley described *Cypselus pallidus* as new, from a specimen he had obtained in Egypt, where it would appear to take the place of *Cypselus apus*. He subsequently identified with this species specimens brought by Major Irby from Tangiers; and that gentleman further remarked that he had seen it in Spain. I am not aware that he has hitherto been successful in obtaining specimens in the Peninsula, and have therefore great pleasure in exhibiting a solitary specimen obtained at Granada on the 28th May, 1870, and sent to me along with a number of the common species, from which it may be distinguished by its lighter colour, white throat, and lighter forehead. From the date, it was probably breeding.

Lord Lifford

with the Author's kind regard

On the Introduction of *Anser albatus* of Cassin into the British Avifauna. By Howard Saunders, F.Z.S.

On the 9th November last my attention was called to two Geese in Leadenhall Market; and subsequently I purchased them, one for Mr. R. B. Sharpe, and the other for myself. They had both been recently shot, the blood and slime being still moist in the wounds, bill, and nostrils. The vendor, with whom I have dealt for some years, did not pretend to know any thing about the locality where they were obtained, but referred me to the wholesale dealer from whom he had purchased them. This dealer, Mr. Miller, at once showed me the invoice, specifying so many head of poultry and "two birds" forwarded to him three days previously by a poultry-dealer named Ellen Neill, of the Faythe, Wexford, Ireland. The Faythe is a suburb where the wild-fowl-shooters reside; and as it was certain that the birds had not been frozen, or even sent over in ice, there seemed to be no reason to doubt that they had really been killed in that district. Of course I at once wrote for particulars; but failed to elicit any direct reply. I subsequently gave the necessary details to Sir Victor Brooke, who kindly took a great interest in the matter, and, on the occasion of my reading this paper, has put into my hand a letter just received, and I am thus enabled to quote in its proper place this most valuable corroborative evidence.

"Wexford, March 14th, 1872.

"I have succeeded in tracing the Geese referred to. They were shot by a boy on the lake of Tacumshane, on the south coast of this county, and were the only ones which appeared there; but there was a third one subsequently shot in Wexford Harbour. So far as I have been able to learn, no others like them have been seen here; but I shall try and find out more about this. They had been swimming about on the lake (or lough) for some days before they were shot; and the lake adjoins the sea, from which it is only separated by a narrow ridge of sand, and it would probably be one of the first places birds would make if coming from seaward. I am sorry for the delay in replying to your letters; but it was only to day I was able to do so, as Mrs. Neill is only a poultry-dealer, and not particular in inquiring where the birds she buys come from.

"Yours, &c.,

"(Signed) Sim Little."

The stomachs of these birds contained nothing but a little grit, some of which I have preserved. On dissection they proved to be male and female, and from their plumage are evidently birds of the year. The sternum of each, and the trachea of the female, have been carefully preserved, the trachea of the male having been shattered by shot.

The following is the description taken before the birds were

skinned:—General colour of the upper surface greyish brown; the feathers white at the base, then brownish grey with whitish edge; forehead and sides of face whitish; wing-coverts grey in centre of feather edged with white; quills black; shafts white, shading off into brown towards tips, the secondaries with a narrow whitish border; rump and tail-coverts pure white; tail white, with a tinge of grey round the shaft of the middle feathers; under surface of the body white, slightly tinged with grey on the neck; under wing-coverts and axillaries white; bill nearly black, with a reddish tinge, especially on the lower mandible; tarsi and feet lead-colour, running into yellowish red, especially on the webs close to the toes.

We supposed, at the time, that these were *Anser hyperboreus*, Pallas, of which the occurrence in Europe has already been recorded; but on comparing them with specimens in the British Museum, they appeared to be nearly as much too small for that species as they were too large for *A. rossii*, Baird. Besides the latter is still further distinguished by the caruncles at the base of the bill, which have induced Mr. D. G. Elliot to give it the new generic name of *Exanthemops*. Mr. Elliot having enjoyed the advantage of examining the type specimen of *Anser albatus*, Cassin, which he has figured in his 'Birds of North America,' vol. ii. p. 42, his suggestion that these birds might prove to be young of that species carried with it great weight; and subsequent careful and detailed examination and comparison with specimens kindly lent me by Professor Newton, out of the Hepburn Collection, Cambridge University Museum, have convinced me not only that these two birds are *A. albatus*, but that three of those from the Hepburn Collection also belong to that species, and not to *A. hyperboreus*.

In the original description given by Mr. John Cassin, 'Proc. Acad. Nat. Sc. Phil.' 1856, p. 41, he gives the habitat of *A. albatus* as "Western and Northern America, Oregon, rare on the Atlantic. A single specimen from Oregon is in the collection of the Exploring Expedition in the 'Vincennes' and 'Peacock;' and four specimens, which occurred in pairs, have come under my notice in the market in Philadelphia in the course of twenty years. These five specimens are all that I have seen of this species; and it is very probably of rare occurrence on the coast of the Atlantic. The four specimens alluded to, which are a pair of adults and a pair of young, are now in the collection of the Philadelphia Academy."

It may be remarked as, at least, a coincidence, that the two young referred to above are also *a pair*.

As the difference between *Anser hyperboreus* and *Anser albatus* is, after all, principally that of *size*, I have tabulated the more important measurements of the two species, heading the list with Cassin's dimensions of each, followed by those of the specimens I have examined in the order of age as indicated by the plumage. Cassin's measurements are avowedly taken from males; he states that the female in each species is a trifle smaller; and whenever the sexes have been ascertained, this is fully borne out in the present table.

	Wing.	Tarsus.	Bill, along culmen, from tip to frontal feather.	
	in.	in.	in.	
Anser hyperboreus ♂, Cassin	$18\frac{1}{2}$	$3\frac{1}{2}$	$2\frac{1}{2}$	
,, ,, ♀, coll. H. Saunders ..	17	3*	$2\frac{1}{2}$*	Adult.
,, ,, coll. Hepburn.	17	$3\frac{1}{4}$*	$2\frac{3}{5}$*	,,
Anser albatus ♂, Cassin	$15\frac{3}{4}$	3	2	,,
,, ,, No. 463, Hepburn coll.	15	$2\frac{7}{8}$	2	Prob. spring.
,, ,, No. 1438, ,, ...	$15\frac{1}{2}$	$2\frac{7}{8}$	2	,,
,, ,, No. 1437, ,, ...	$15\frac{3}{4}$	$2\frac{7}{8}$	$2\frac{1}{8}$	,,
,, ,, ♂, coll. Sharpe and Dresser.	$15\frac{1}{2}$	$2\frac{7}{8}$	$2\frac{1}{8}$	November.
,, ,, ♀, coll. H. Saunders	15	$2\frac{7}{8}$	2	,,

These measurements have been taken by Mr. Sharpe and myself with the greatest exactness, at first independently, and afterwards by carefully remeasuring whenever there appeared the minutest discrepancy.

Since Cassin first considered that there was sufficient difference in these dimensions to warrant a specific distinction, evidence strongly comfirming his views has been received from Mr Bernard H. Ross, who, in his paper on the Fauna of the Mackenzie-River District (Nat. Hist. Rev. 1862, p. 286), writes as follows:—"There can be little doubt of the existence of three species of Snow-Geese (exclusive of the Blue Wavey of Hudson's Bay), as the Slave-Lake Indians have a different name for each kind. The first which arrives is the middle-sized species, which I believe to be the *A. albatus*; next comes the smallest sort, the *A. rossii*, and lastly the *A. hyperboreus*, which arrives when the trees are in leaf, and is called the Yellow Wavey by the Indians." It may be objected that savages and uneducated people generally (though the failing is not confined to that class) are great species-makers; to this I would reply that, in the present case, the Indians are clearly right about two out of the three species, and the odds are therefore two to one in favour of their being correct as to the third.

The very fact of these birds having visited the milder climate of the shore washed by the Gulf-stream is an additional evidence of its distinctness as a species. Cassin lays especial stress upon the fact of its habitat being confined to the extreme north-*western* portion of the American continent; and we know that on that coast the winter set in last year so early, and with such unexampled severity, that of the thirty or forty whalers which frequent Behring's Straits, only three managed to escape from the ice; while, on the other hand, I am not aware that the more central and eastern portions have experienced a winter of any unusual rigour.

* Colour red.

[*From the* PROCEEDINGS OF THE ZOOLOGICAL SOCIETY OF LONDON,
March 19, 1872.]

[*From the* PROCEEDINGS OF THE ZOOLOGICAL SOCIETY OF LONDON, May 5, 1874.]

Remarks on the Grey-capped Gulls and on the Species with which they have been confounded. By HOWARD SAUNDERS, F.Z.S.

In anticipation of a Monograph of the *Laridæ*, upon which I have for some time been engaged, I offer a few remarks with the object of clearing up the confusion which exists respecting the Grey-capped Gulls for which Bonaparte formed the subgenus *Cirrhocephalus* (Naumannia, 1854, Heft iv. p. 213).

There are two closely allied species, which during the breeding-season, and, as I believe, throughout a considerable portion of the year, bear a hood of a pale French grey, slightly darker at the margins, round the nape and throat, viz. :—

LARUS PHÆOCEPHALUS, Sw. B. W. Afr. ii. p. 245, pl. 29 (originally written *L. poiocephalus*), a native of West Africa and the interior up to Lake Ngami; and

LARUS CIRRHOCEPHALUS, Vieillot, N. D. xxi. p. 500; Gal. Ois. ii. p. 223, pl. 289; the *Gaviota cenicienta* of Azara, found in Brazil and the States of La Plata.

In their general appearance these Gulls closely resemble each other; and both Blasius and Schlegel have considered them to be

identical—an opinion the value of which is somewhat impaired by the fact of their having confounded one or both of these species with others from which they are most certainly distinct. This has doubtless arisen from the want of a sufficient series in which the localities have been duly recorded; for specimens of the birds in question, and of those with which they have been confounded, are extremely rare in collections; and it is only recently that I have been able to obtain such a series as would justify my speaking with some confidence on the subject.

First, as regards the distinctness of the African and the American forms, I have before me the following specimens:—

Larus phæocephalus.

Senegambia, Swainson's coll., Cambridge Mus. Believed to be the type: ad.

Walvisch Bay (*Andersson*), probably in October. Ad.; full hood.

Lake Ngami (*Chapman*, May 1863). Hood slightly imperfect.

Wing 12·5, tar. 1·8–2, middle toe and nail 1·7, bill 1·4. Colour of legs and bill orange-red.

Larus cirrhocephalus.

Buenos Ayres, ♂ & ♀ ad., several specimens, those killed in April and November having the grey cap equally defined; also immature specimens obtained in April, and in which the grey hood is appearing, although the dark bar to the tail and the brown feathers on the shoulders still remain.

♀. Chorillos, near Lima, lat. 12° 10′ S.; the first recorded instance of its occurrence on the Pacific coast. This was shot by a friend resident at Lima, whom I had asked to collect Gulls &c.

Wing 13–13·5, tar. 2·2–2·4, middle toe and nail 2, bill ~~6·1.~~ Bill legs, and feet lake-red; in a very old male of the brightest crimson.

The same description would apply to either: the hood pale grey with a dark margin; the wings and mantle rather darker than the hood, but much lighter than the *under wing-coverts*, which are of a *deep smoke-grey*; underparts and tail pure white. But it will be observed that there is a considerable difference both in the size and in the coloration of the soft parts of the two species; and this is much more noticeable on handling the different specimens than can be gathered from any mere description. It must be admitted that Swainson in his original description states that the bill and feet of the African bird are "deep crimson;" but, with every allowance for fading, I cannot imagine the colour in those I have examined to have ever been more than "orange-red," very different from the livid red or brilliant lake-colour of the American specimens. Of course I am now alluding to adults only; but, as regards size, a glance at the coarser and stronger feet even in the immature American birds would enable me to distinguish them from the African form. Without, however, insisting too strongly upon the value of these differences, I consider that the two forms are at least

as much entitled to specific distinction as *L. glaucus* and *L. leucopterus*, or *L. marinus* and *L. fuscus*, to say nothing of the species which surround *L. argentatus*. This conclusion is in no way influenced by the fact of the two species being found in different continents; for I am at the present moment unable to separate the Saddle-backed Gulls which, under the titles of *L. dominicanus*, *vetula*, and *antipodum*, with other synonyms, inhabit both the Atlantic and Pacific coasts of South America, the south coast of Africa, New Zealand, and many of the intervening islands. It would seem that these Grey-capped Gulls are representative species on either side of the South Atlantic, in the same way that *L. heermanni* on the west coast of America replaces *L. crassirostris*, Vieill. (*L. melanurus*, Temm.), in the Japan and China seas—not to quote other instances which are not quite so evident.

But the question of the distinctness of these two forms is a mere trifle to the maze of confusion in which both these and two totally different species have been involved, and which I will do my best to unravel. To do this it will be better to take them separately.

L. phœocephalus is identified by Bruch (J. f. O. 1855, p. 290) with *L. ridibundus*; but he could never have seen a true specimen. Finsch and Hartlaub (Vög. Ost.-Afr. p. 825) describe the real bird from Bissao with a grey head, but are probably wrong as regards the specimen with a white head from the Cape of Good Hope, received through Verreaux. Blasius again (J. f. O. 1865, p. 376) may possibly have had a specimen of the Grey-capped Gull in immature plumage before him; but he goes on to confound it with *L. hartlaubi*, Bruch, a species which that author places in his genus *Gavia*, close to *Gelastes*. This latter species has a certain superficial resemblance to the former, and it also has the under wing-coverts of a smoke-grey; but it is altogether a smaller bird than *L. phœocephalus*, the wing being only 11 inches and the tarsus 1·7 in length; besides which, it *never* has a *hood*. It is a coast resident, and breeds near the Cape of Good Hope; it is, in fact, a member of the same group as *L. scopulinus*, Forst., of New Zealand, *L. novæ hollandiæ*, *L. jamesoni*, and perhaps *L. pomare*, into whose specific distinctness it is not my present intention to enter. Another point which distinguishes it from *L. phœocephalus* exists in the seventh primary, which has a broad dusky bar right across it and is altogether darker in the grey-capped bird, whilst in *L. hartlaubi* it is uniform grey, just fringed with smoke-colour on the inner web; the colour of the legs and bill is also deep lake-red. Blasius says (*loc. cit.*) that, as a rule, *L. phœocephalus*, Sw., figures as *L. hartlaubi* in collections; but according to my experience the reverse is the case; and, with one solitary exception in the British Museum, all the specimens which I have examined marked "*L. phœocephalus*" are really *L. hartlaubi*. Layard (B. S. A. p. 368) has also confounded these two species, having obtained both.

When we turn to *L. cirrhocephalus* of South America we find a different element of confusion, owing to the presence there of a species which certainly has a hood, although in this case it is a

brown one, similar to that of our European *L. ridibundus*. Prince Max. v. Wied first noticed its occurrence amongst the grey-capped species (Beit. iv. p. 854), and was inclined to refer it to *L. ridibundus*; but it is undoubtedly *L. glaucodes*, Meyen, Obs. Zool. p. 115—*L. albipennis*, Licht., *Gavia roseiventris*, Gould (I only give the principal synonyms)—a species which ranges from the south of Brazil down to the Falkland Islands, throughout Patagonia, and for some distance up the coast of Chili. This is the species of whose breeding near Buenos Ayres Mr. W. H. Hudson (P. Z. S. 1871, p. 4) has given an interesting account; but although he distinctly calls it (P. Z. S. 1870, p. 802, and 1871, p. 258) the *black*-headed gull, the very name we apply to our *L. ridibundus*, yet he identifies it with *L. cirrhocephalus*, whose head, as I have repeatedly remarked, is of a pale grey, and nothing approaching either to black or brown. Excepting that to a casual observer all Gulls of nearly the same size are much alike, it is difficult to understand how the two species can have been confounded even in immature plumage; for the smoke-colour of the under wing-coverts so noticeable in *L. cirrhocephalus* is entirely absent in *L. glaucodes*, to say nothing of the markings of the primaries, which differ even in very young birds. That *L. glaucodes* itself should have been subdivided is not at all surprising; for it requires a large series to show how the primaries, which in the early stages have merely a patch of white near the apex, gradually become barred with black and white (in which stage the brown head of maturity is assumed) and gradually lose all but a streak of black on the outside of the inner web, so that the principal primaries appear to be entirely white. *L. maculipennis* of Burmeister, however, is *L. cirrhocephalus*.

The sum of my observations is briefly this—that *L. phæocephalus*, Sw., and *L. cirrhocephalus*, V., are fairly separable, that *L. phæocephalus* is totally distinct from *L. hartlaubi*, Bruch, which never has a hood of any colour whatever, and that *L. cirrhocephalus* has been unnecessarily confounded with *L. glaucodes*. My warmest thanks are due to Professor Burmeister, of Buenos Ayres, for promptly furnishing me with sexed and dated specimens of both the South-American species, and to Professor Newton for the loan of Swainson's (supposed) type of *L. phæocephalus* from the Cambridge Museum.

Lord Lilford

with the Author's kind regards

[*From the* ANNALS AND MAGAZINE OF NATURAL HISTORY *for August* 1874.]

ON

SEXUAL VARIATIONS

IN THE

NESTLING-PLUMAGE

OF THE

BOOTED EAGLE (*NISAËTUS PENNATUS*).

BY

HOWARD SAUNDERS, F.Z.S. &c.

The ordinary adult plumage of the Booted Eagle is so well known that it is unnecessary to do more than remark that the upper parts in general are of an umber-brown, whilst the underparts are of a buff or creamy white, sometimes deepening into fawn-colour, and with striations more or less distinct down the shafts of the feathers of the throat, breast, abdomen, and flanks. That this plumage is common to both sexes has been abundantly proved by numerous carefully sexed specimens obtained of late years from various localities between Spain on the west and India on the east. But with regard to the plumage of the immature bird there has existed some difference of opinion, although most naturalists have stated that it has the underparts of a dark colour. Mr. R. Bowdler Sharpe, in his recently published 'Catalogue of the Accipitres in the British Museum,' p. 254, describes the underparts of the young as "entirely dull brown;" but, on the other hand, Dr. Jerdon, in his 'Birds of India,' vol. i. p. 64, has described an immature bird as having a light breast. Herr A. v. Pelzeln, again ('Ibis,' 1868, p. 305), mentions a young bird just able to fly as "underneath brown:" and subsequently Dr. Jerdon ('Ibis,' 1871, p. 246) was inclined to modify his former opinion; but as the specimens there alluded to are the ones I am about to describe, it is needless to recapitulate his views. Mr. Hume, however ('Rough Notes,' p. 184), hazarded the opinion that the dark plumage was the adult stage (!), apparently basing this upon an instance of a *female* in the

brown plumage having been shot from her nest. Previously, however, to the publication of his brochure, MM. Amédée Alléon and Jules Vian ('Rev. et Mag. Zool.' p. 342 *et seq.*) had pointed out that in two instances they had found an adult male mated with a female in immature plumage. If any of these naturalists had thought of leaving the eggs for the time, and revisiting the nests when the young birds were nearly fledged, they would probably have solved the question of the immature plumage of this species.

Of the numerous specimens of both sexes which had come into my possession, many of them shot from the nest, all had exhibited light-coloured underparts, with merely slight variations in the intensity of the striations; until in 1870 my collector at Granada sent to me a pair of Booted Eagles, and the *two nestlings* which they were in the act of feeding when shot from the nest, on the 20th of June, at Soto de Roma, the Duke of Wellington's estate. The male was in the usual adult plumage; but the whole of the underparts of the *female* were of a *deep coffee-brown*, with darker striations down the shafts of the feathers. This was an interesting stage, and one which I had not hitherto possessed; but so far it merely confirmed what MM. Alléon and Vian had already made known as to the *female* breeding in immature livery. But the plumage of the young birds, which were fully feathered except that the outer primaries were still in the quill, was most remarkable. The larger of the two had the whole of the *underparts* of a *dark brown*, of a somewhat deeper hue than those of the female parent, whilst the smaller nestling had the underparts of a *creamy buff*, with the usual striations down the shafts of the feathers covering the breast. It would have been more than human virtue, especially in a Spaniard, if my collector had tried to ascertain the sexes of these nestlings by actual dissection and with the help of a microscope; but from the size there can be no reasonable doubt that the *dark brown nestling* is the *female*, and the *light-breasted nestling* is the *male*.

This variation in the nestlings clears up at once the apparent discrepancies in the descriptions of the young. Dr. Jerdon's young bird was doubtless a male; and the British-Museum bird is a female. In further corroboration of this view, it should be noticed that whilst we have abundant and independent testimony of various females being obtained in this dark plumage, yet there is not on record a single instance of a *carefully sexed male* with dark brown underparts. The male evidently starts from the *nestling* stage with light-coloured underparts, and with a plumage almost identical with

his adult livery; whilst the female does not assume the white breast &c. until after one or, perhaps, several moults. It is generally supposed that most eagles in a wild state assume their adult plumage after the third change; but, from the comparative rarity of specimens in the brown plumage, it is possible that the female *Nisaëtus pennatus* may assume the adult livery at the first moult.

With regard to the male, as I have said, there is little alteration from the nestling-plumage beyond a gradual change to a paler cream-colour on the abdomen and flanks, and a gradual narrowing of the striations. These last, however, are by no means a safe guide to the age of a specimen; for some individuals of the same sex are less streaked than others. The very lightest-coloured male in my series, and lighter also than any breeding female, is pronounced to be a remarkably clean young bird which has never moulted, by Col. Delmé-Radcliffe, who is probably the highest living authority upon raptorial birds.

I am not writing the history of the Booted Eagle, and it is therefore unnecessary to say more upon the subject; but the fact of the plumage of the two sexes being different in the nestling stage, and subsequently becoming the same, is, so far as I am aware, unparalleled in any other raptorial bird; and I have consequently deemed it worthy of being placed on record.

Note.—I am well aware that nestlings of *Archibuteo sancti-johannis* are subject to considerable variation; but it has never been shown that these variations are either sexual or constant.

gatus; and the two species also differ in their markings and coloration.

I have lately remeasured ten specimens of *A. stevensoni* in the Norwich Museum; and although the dimensions of some of them have been already given in 'The Ibis' for 1863, I think it convenient, for the purpose of comparison, here to insert the following particulars :—

	Wing from carpal joint. in.	Tarsus. in.	Middle toe, s. u. in.
Presumed males:			
From Pekin	6·55	1·7	1
From Macao	6·8	1·8	1·05
Ascertained male:			
From Chefoo	6·65	1·8	1·1
Presumed females:			
From China (exact locality unknown)	7·7	1·9	1·2
From Singapore	7·25	2	1·15
Ascertained females:			
From Shanghai	7·7	2·05	1·2
From Java	7·4	2	1·15

The last-named specimen was obtained by the late Dr. Bernstein, who appears, by the ticket which is attached to it, to have recognized it as distinct from *A. virgatus*, of which he also obtained specimens whilst resident in Java.

I have not had an opportunity of examining this species in the dress which it wears on first leaving the nest; but the specimen from Singapore above referred to retains some portions of this plumage, showing that it is characterized by the feathers of the breast exhibiting a long brown mark down the centre of each feather, whilst the sides of the feather are a pure white. As the bird advances in age these longitudinal marks are exchanged throughout the breast, sides, abdomen, and thighs for alternate transverse bars of pure white and dark brown, the white bars being intersected on the upper portion of the breast by dark shaft-marks; these are also apparent on the throat, which, with that exception, is white.

So far as I have observed, the female undergoes no further change; but in the male all these markings, except the nar-

row shaft-marks on the throat and some of the white transverse bars on the abdomen, gradually disappear and leave the entire remainder of the undersurface of a fawn-colour, which, however, is hardly so dark as is represented in pl. ii. of 'The Ibis' for 1863.

The three remaining species of the group are *A. rhodogaster*, *A. sulaensis*, and *A. madagascariensis*. The measurements of the first of these, as given by Mr. Sharpe, appear to have been taken from a male bird; and I may therefore mention that the detailed dimensions of two females are given by Lord Walden at page 110 of the 8th volume of the Zoological Society's 'Transactions.'

In the case of the nearly allied *Accipiter sulaensis*, Mr. Sharpe gives the measurements of the type specimen, a female in the Leyden Museum, which I believe is the only specimen of this Hawk at present existing in any European collection.

The specific name of *madagascariensis*, which has been long used to denote *Scelopizias franciscæ*, has been proved, by Mr. Sharpe's discovery of the type specimen in the British Museum, to be really applicable to the much scarcer Madagascar Hawk which has hitherto been usually known by the name of *Accipiter lantzii*, and which is fully described in Mr. Sharpe's volume under its prior appellation of *madagascariensis*.

[To be continued.]

XLV.—*On the Immature Plumage of* Rhodostethia rosea.

By Howard Saunders, F.L.S., F.Z.S.

When visiting the collection of Laridæ formed by the late Herr Brüch in the Museum of Mayence, I was already aware that amongst its principal attractions were specimens of the rare Cuneate-tailed Gull, *Rhodostethia rosea*, Macgill. Of this interesting species all the examples hitherto examined have been adults, and, with one exception, in summer plumage, as marked by the black collar; my surprise and delight

may therefore be imagined when, on proceeding to the case containing the Laridæ, I saw before me two specimens of this rare bird in *immature plumage*. Not being aware of any account of this interesting stage, and presuming that it will be equally new to most ornithologists, I do not hesitate to give a description of it.

Bill black, feathered to base of nostril, thence to tip ·6 in.; from gape to tip 1·2 in.

Head white; a few dark hairlike feathers round the eye of one specimen, and beneath the eye of the other; black collar slightly developed on the one, distinct in the other, especially on nape.

Breast pure white, with a pink tinge on the lower part and on the abdomen.

Mantle to rump grey, lighter on shoulders.

Wing: length (underneath measurement) 9·4–9·5 inches. Primaries, 1st, 2nd, and 3rd smoke-brown on outer web and shaft, this colour running round the tip and some way up the inner web, the remainder of which is white; on the 4th and 5th the white portion increases, but the shaft continues dark, although successively becoming lighter, till on the 10th it is pure white; in the 6th the dark marking on the webs becomes a brown bar, which gradually decreases until it is nearly lost in the 9th, and totally so in the 10th primary, which is entirely white. These dark tips give a very pretty barred appearance to the wings. Secondaries pearl-grey, passing into white, thus forming a white band. Carpals and upper wing-coverts smoke-brown, faintly tipped with white; lower wing-coverts grey, like the mantle, but tertials smoke-brown.

Tail consisting of twelve feathers, pure white in one specimen; in the other the 3rd and 4th feathers on each side are barred with smoke-brown; the 4th projects beyond them a trifle, the 5th decidedly, whilst the central feathers extend ·75 in. beyond the 5th, making total projection about one inch. Total length of tail 4·5 inch; wings in stuffed specimen reach a trifle beyond tip.

Tarsus 1·15–1·2 in., middle toe 1·2 in., outer toe 1·1 in,

inner toe ·95 in.; hind toe and nail well developed; nails black. Colour of legs and feet (evidently much faded) yellowish clay.

I am inclined to think that these are birds of a trifle more than a year old, just beginning to lose the black collar which they assumed for the first time in the spring of the year in which they were obtained; but considering the utter want of trustworthy data respecting the time occupied in acquiring the successive stages of plumage, this is mere conjecture and given for what it is worth.

The history of these specimens is not very satisfactory. They were purchased some years ago from the Maison Verreaux, and were stated to have come from Kamtchatka. When the late M. Jules Verreaux was staying with me in 1870, I had a good deal of conversation with him about Laridæ and the Brüch collection, and I remember his expatiating upon the beauty, and especially the lovely rose-tint, of two specimens which he had sent to the Mayence Museum; he also persisted that they really did come from Kamtchatka, and that he had had them from a Pole who had been there. It was impossible to contradict him; but for various reasons, upon which I need not enlarge, I was sceptical as to the locality, and continue to be so. It is true that another arctic species (*Xema sabinii*) has been found breeding in both continents; but then its range can be traced from Greenland right across the American continent, and it is quite natural that it should pass into Siberia; whereas the Americans, with all their energy and research, have hitherto failed to acquire a single specimen of *Rhodostethia rosea*, either in their own Alaska possessions, or in those portions of Kamtchatka visited by the United-States-Telegraph Surveying Expedition, which was accompanied by most able naturalists. In fact, what little we do know about this Gull tends to show that its habitat is extremely restricted; but upon this point it is needless to say more, as our Arctic expedition will, we trust, give us some further account of it.

It may be as well to give a revised list of the specimens of this rare Gull existing in collections.

One in the Derby Museum, Liverpool, which may be the type, obtained at Alagnak, 69½° N. lat., Melville Peninsula, 23rd June 1823.

One in the Edinburgh University Museum, marked ♂, o Igloolik, Melville Peninsula, 27th June, 1823.

One in the University Museum, Cambridge, from Green Island, Disco Bay.

Three in the Copenhagen Museum, from Disco Bay.

One from Færöe Islands (Suderöe), in Herr Benzon's collection.

One from Heligoland, Herr Gaetke's collection.

Two in Mayence Museum, Kamtchatka?

One in Sir William Milner's collection, said to have been killed in Yorkshire. This one has no black collar.

Total eleven.

Besides these there is said to be another in Copenhagen, obtained by Hölboll.

XLVI.—*Notes on some new Central-Asiatic Birds.*

By Dr. N. Severtzov.

Picus leptorhynchus, Sev.

This species, though closely allied to *P. major*, which it represents in the evergreen-tree groves of the lower Tian-shan, in the Turkestan gardens, and the saxaul (*Haloxylon ammodendron*) forests of the desert, yet shows a constant difference, which I have verified by an examination of about forty specimens of each species. The comparative diagnoses of the two are as follows:—

Picus leptorhynchus: Bill slender; hinder wing-coverts, on the humero-cubital articulation, white to the smallest upper ones inclusively; secondary quills with but *three* (only *two* uncovered by the larger tectrices) very broad white markings on each web, and a continued *white outside edge*, at least on the tertiary quills, sometimes also on most secondaries; primaries also with broad white markings, and, though the

ground-colour along the shafts of all quills is black, yet this black occupies on the feather less space than the white. Tail-feathers black, only the *two* outermost with larger fulvous markings on the terminal half, the third with a very small fulvous tip only; these light markings are somewhat individually variable in shape, but always lighter fulvous, and occupying less space on the feather than those of *P. major*. The underparts almost pure white, slightly tinged with straw-yellow; the abdominal red reaches to the upper half of the sternum; the 3rd quill shorter than 6th, the 1st quill abortive, about as long as its coverts, longest 4th = 5th > 6th > 3rd > 7th > 2nd > 8th, &c. The white cheeks are separated by a black transverse bar from the white sides of the neck; the scapulars are white, as in *P. major*, to which, except in the above particulars, this bird has a strong resemblance in general colouring and sexual difference, the adult male having also a red bar across the nape, the female none, and the young male a red patch on the crown. The size is generally smaller.

Males:—length 10–10·7 inches, expanse 15·8–16·4, wing 5·1, tail 4·2, bill 1·2–1·3 long from forehead, and 0·25 high at the forehead. The female is somewhat smaller, and has a shorter bill, only 1·1 long and 0·25 thick at front; general length $9\frac{1}{2}$–10, expanse 15–$15\frac{3}{4}$, wing 4·7, tail 3·7. Old specimens of both sexes, but the females more rarely, have sometimes some slight indications of a narrow light vermilion band across the breast, between the ends of the black neck-bands.

β. Var. *leucoptera*: Resembles the typical *P. leptorhynchus*, but has more white on the wing, especially on the secondary quills, which are sometimes almost completely white, with a sinuated black band, or even a series of black central spots along the shafts, as shown in the following cuts (p. 489).

I have observed many intermediate quill-colourings between figs. 2 and 3, but never between figs. 2 and 1; and therefore the var. *leucoptera* of *P. leptorhynchus* is only a variety, not a species, though it widely differs in wing-colour (but nothing else) from the typical *P. leptorhynchus*.

P. major, it may be remembered, has a stout bill, *four* small white markings on the edge on each web of the secondaries,

With the Author's [illegible]

H. Saunders

Rosse Gull

Dec 1 Feb 11-76.

from the Author.

[*From the* Proceedings of the Zoological Society of London, March 21, 1876.]

On the *Stercorariinæ* or Skua Gulls.

By Howard Saunders, F.L.S. &c.

(Plate XXIV.)

In the following remarks upon the well-marked subfamily of the *Laridæ*, known as the *Lestridinæ*, or, more correctly as regards priority of nomenclature, as the *Stercorariinæ*, I shall pass over as briefly as possible the points which are already known to most ornithologists, and direct my observations to the synonymy and range of the members of the group, with incidental remarks upon their progressive stages of plumage. My principal predecessor in this work is Dr. Elliott Coues, who published in the 'Proceedings of the Academy of Natural Sciences of Philadelphia,' 1863, an elaborate "Review of the Lestridinæ," with the primary object of showing that the true "*Lestris richardsonii*" of Swainson, described in the 'Fauna Boreali-Americana,' p. 433, was a distinct species from the light-breasted form with which most naturalists had united it; but in his recently published 'Birds of the North-West' (Washington, 1874) he retracts this opinion, in accordance with the views derived from more extended experience. He still, however, adheres to his original plan of dividing the family into two subgenera, *Buphagus* of Moehring for *S. catarrhactes* and *S. antarcticus*, and *Stercorarius* for the remaining species; and he continues to employ both the generic and the specific names given by writers previous to the date of the 12th edition of Linnæus's 'Systema Naturæ' (1766), preferring to make the 10th edition the starting-point of his system of nomenclature. Argument on this subject would be futile; there is nothing to prevent any American naturalist from making his own rules; but British ornithologists have a recognized code of laws in the Rules of the British Association for 1842, drawn up and signed by the principal naturalists of that day, and generally adopted up to the present time both here and on the continent. In these it is agreed that the principle of priority ought not to be carried back beyond the 12th edition of Linnæus, a solitary exception being made in favour of those *genera* of Brisson which are *additional* to those of Linnæus's 12th edition. My excuse

for recapitulating these axioms is, that in consequence of them it is necessary to reject several names given by Brünnich in his 'Ornithologia Borealis,' 1764, which antedates our starting-point by two years—a fact of which some ornithologists, who have probably not examined the date of publication, do not seem to be aware. Under these circumstances, it is needless to discuss the subgenus *Buphagus* of Moehring (1752); nor do there appear to be any sufficient structural differences to warrant the generic separation of the Great Skuas from the other species, the Pomatorhine Skua forming such a connecting link between the heavy and the elegant forms as to preclude any consistent separation, unless Reichenbach's genus *Coprotheres* be also accepted for the Pomatorhine. For myself I prefer to retain all the known species of Skua in the same genus, viz. *Stercorarius* of Brisson (1760), the type of which is the species whose rightful name is, in my opinion, *Stercorarius crepidatus* (Gm.), but which I will for the present, to avoid any ambiguity, distinguish by the vernacular name of *Richardson's Skua*. I am, of course, aware that this name was originally applied solely to a dark *form* of a well-known species; but it has since been generally adopted; and as having been applied to no other, its use precludes the possibility of a misunderstanding.

The genera are as follows:—

Larus (part), Linnæus, 1766. *L. catarractes*=Great Skua, *L. parasiticus*=Long-tailed or Buffon's Skua.

Stercorarius, Brisson, 1760. Type "Le stercoraire"=*S. crepidatus* (Richardson's Skua).

Labbus, Rafinesque, 1815; *Predatrix*, Vieillot, Analyse, 1816. Based on "le Labbe," of Buffon, which is *Richardson's Skua*.

Lestris, Illiger, Prod. 1811. "*L. parasiticus, L. crepidatus, L. catharractes.*"

Oceanus, Koch, 1816. "*O. parasiticus, O. crepitatus*" (sic).

Cataractes, Fleming, Phil. Zool. 1822. "*Cataractes vulgaris.*"

Coprotheres, Reichenbach, 1852. *S. pomatorhinus.*

Megalestris, Bonap. 1856. *S. catarrhactes, S. antarcticus.*

The generic name, variously spelt *Cataractes, Cataracta,* or *Catarracta,* the two latter adopted by Retzius and Leach from Brünnich, had been previously applied to a subgenus of the *Uriinæ*; and under the name of *Catarrhactes antiquus*, Prof. Marsh has described some bones found in the Tertiary deposits of N. Carolina (Am. J. Sc. 1870, p. 213). I mention this because these applications of generic names to widely different birds are very confusing, and might lead to the supposition that the fossil remains of a Skua had been discovered. Those who persist in separating the Skuas must therefore adopt *Megalestris* for the large forms, as the small pointed-tailed species are the types of all the other genera. It is certainly unfortunate that the earliest available name *Stercorarius* tends to perpetuate a popular fallacy, although one of universal distribution; but a precisely parallel case occurs in the signification of the word *Caprimulgus*, and other instances might be adduced. Illiger's generic name *Lestris*

(or robber) is undoubtedly far preferable, so far as its meaning goes, and it has been very freely adopted; but the laws of priority compel us to reject it, if we would avoid perpetuating confusion.

I have deemed it advisable on the whole to give the references to those præ-Linnæan authors upon whose descriptions those of writers subsequent to 1766 are based, marking by a line the division between them and the available nomenclature. The synonyms are given in order of date; and I have also inserted those references which appeared to me to have any real value. It is impossible to avoid some errors; but at least I have taken every precaution, and with some few exceptions, where the original works were not accessible, I have personally verified every reference.

STERCORARIUS CATARRHACTES.

Larus fuscus, Briss. Orn. vi. p. 165 (1760).
Catharacta skua, Brünn. Orn. Bor. p. 33 (1764).

Larus catarractes, Linn. Syst. Nat. i. p. 226 (1766), ex Brünn.
Larus caturrhactes, Gmelin, Syst. Nat. i. p. 603 (1788).
Cataracta skua, Retz. F. Suec. p. 161 (1800).
Lestris catharractes, Illiger, Prodromus, p. 273 (1811).
Lestris catarractes (L.), Tem. Man. d'Orn. p. 511 (1815); Faber, Prod. Island. Orn. p. 102 (1822); Macgill. Brit. Birds, v. p. 479 (1852).
Catarracta fusca, Leach, S. Cat. M. & B. Brit. Mus. p. 40 (1816).
Stercorarius catarrhactes, Vieillot, N. Dict. H. Nat. xxxii. p. 154 (1819); Gray, Gen. Birds, iii. p. 653 (1849); Dresser, B. of Eur. pt. xli. (Sept. 1875).
Cataractes vulgaris, Fleming, Hist. Brit. An. p. 137 (1828); Selby, Ill. Brit. Orn. ii. p. 514 (1832).
Lestris cataractes et *Lestris skua*, C. L. Brehm, Vög. Deutsch. p. 715 (1831).
! *Stercorarius pomarinus*, Vieillot, Gal. Ois. p. 220, pl. 288 (1834), fig. excell. (!)
Lestris cataractes, Naum. Vög. Deutsch. x. p. 471, pl. 270 (1840).
Stercorarius cataractes, De Selys-L. Fne. Belg. p. 155 (1842).
Megalestris catarrhactes, Bp. Cat. Parzudaki, p. 11 (1856).
Stercorarius catarractes, Bp. Consp. Av. ii. p. 206 (1857); Laurence, Ann. Lyc. Nat. H. N. York, 1853, p. 7; Baird's B. N. Am. p. 838 (1860); B. Ross, Nat. Hist. Rev. 1862, p. 289; Feilden, 'Zoologist,' 1872, p. 3290.
Buphagus skua, Coues, Proc. Ac. Nat. Sc. Phil. 1863, p. 125, B. of N. W. Am. p. 604 (1874).

There was no particular variation observable in the plumage of sixteen specimens from the Faroe Islands, and in many others sent to me from time to time for examination; the older the bird the wider are the chestnut markings which occupy the centre of the feathers on the upper parts, and the longer and the more yellow

become the filamentous feathers of the neck. The *under wing-coverts* and the *axillaries* are always *sooty*, with, at most, but very few and ill-defined russet markings. I have examined the interesting melanism belonging to Mr. J. H. Gurney, jun., figured by Mr. Dresser in his 'Birds of Europe;' it was obtained in October, and the first primary on each wing has not yet attained its full length. From the crescentic edges to the dorsal feathers, seen on holding it to a side light, from the absence of acuminate feathers on the neck, and from the weak bill (which is much thinner than in Mr. Dresser's plate), I have little doubt of this example being a bird of the year; this impression is confirmed by the satin-like appearance of the primaries and upper parts, which is very different from any thing I have ever observed in birds whose plumage has undergone any wear.

The range of this species is the most restricted of any member of the family which breeds in the northern hemisphere. It has not been observed in Spitzbergen; and its most northern breeding-place within the Arctic circle is at the Lofoten Islands, off the coast of Norway; thence it is found nesting west and southwards to Iceland, the Faroes and the Shetland Islands. It is not recorded from the Baltic, or from the White Sea. Seebohm and Harvie Brown did not observe it in their recent expedition to the mouth of the Petchora; nor did Middendorf find it in N. Siberia, where the other three European species breed. Von Baer's identification of this bird in Novaya Zemlya may well be doubted, as none of the many subsequent explorers have observed it there. Pallas (Z. Ros.-As. ii. p. 309) supposed that this might have been the bird recorded by Steller, as observed in 58° N. lat., on the Pacific coast, feeding on the carcass of a whale; but as it had a "yellowish bill" it was more probably a Fulmar Petrel. It has not been recorded as yet from the Pribilov Islands, the Aleutians, or Alaska; but it probably occurs along that coast, as a single specimen is described by Mr. Lawrence as having been obtained off Monterey, in California. Mr. Bernard Ross found it at the mouth of the Mackenzie river, and about Great Slave Lake, north of which it is very rare; it also appears to range throughout the Hudson's-Bay territory, and is clearly, as far as dimensions go, the "*L. keeask*" of Latham, mixed up with the Pomatorhine Skua, as shown by the description of the particoloured feet; the Esquimaux name of the latter species also happens to be "Keeask," according to Richardson, who does not mention *S. catarrhactes*. There is no authentic record of its occurrence on the Atlantic sea-board of the United States; and in South Greenland it was only twice observed by Holböll. From its breeding-stations it passes southwards in autumn along the western shores of Europe as far as the Straits of Gibraltar and N. Morocco, beyond which there is, as yet, no trace of it. As a mere straggler, of course, it has been found in Germany; and it was recorded by Mr. C. A. Wright as having been obtained at Malta (Ibis, 1864, p. 150); but the specimen has subsequently proved to be *S. pomatorhinus*. Mr. Godman does not enumerate it amongst the birds of

the Azores, Madeira, or the Canaries; but future observations may probably show a somewhat more extended range than I have been able to trace.

As a species it is nowhere abundant, and of late years its numbers in the Faroes and Shetland Islands have so seriously diminished as to render its speedy extermination there extremely probable. Although, like the rest of the family, it is essentially a "robber gull," yet it is by no means entirely parasitic; for it feeds to a great extent upon flesh, and especially upon the Kittiwake gull, of whose feathers and bones all the castings were composed which Capt. Feilden examined at the Färoe Islands, whilst the stomachs of those he shot were full of flesh. This purely maritime Gull is the only one which can be plundered with impunity that is found in any great numbers in the haunts of the Great Skua; for the Herring- and Great Black-backed Gulls would not tamely yield their prey; and it is worthy of note that the winter range of *S. catarrhactes* extends no further south than that of the Kittiwake. We shall see that the heat of the tropics proves no barrier to other northern species which, from their superior swiftness of flight, require less specialized conditions for their existence.

STERCORARIUS ANTARCTICUS.

Lestris catarractes, Quoy and Gaimard, Voy. 'Uranie,' p. 137, Atlas, pl. 38 (1824) (Falkland Islands); Gould, B. of Aust. vii. pl. 21 (1848); Hutton, Ibis, 1872, p. 248 (*Chatham Islands*).

Lestris antarcticus, Lesson, Traité d'Orn. p. 616 (1831); Scl. and Salvin, P. Z. S. 1871, p. 579 (part).

Megalestris antarctica, Gould, P. Z. S. 1859, p. 98.

Lestris antarctica, Sclater, P. Z. S. 1860, p. 390; Abbott, Ibis, 1861, p. 165 (Falkland Islands).

Lestris fuscus, Ellman, Zoologist, 1861, p. 7472.

Buphagus antarcticus, Coues, Proc. Phil. Ac. 1863, p. 127; B. N.W. Am. p. 604 (1874).

Lestris catarrhactes, Hutton, Ibis, 1867, p. 185.

Stercorarius antarcticus (et *madagascarensis*?), Bp. Consp. Av. ii. p. 207 (1857); Von Pelzeln, Novara-Reise, Vögel, p. 150 (1865) (*St. Paul's I.*); Buller, B. New Zealand, p. 267 (1873).

Stercorarius catarractes (*b*), Schlegel, Mus. P.-B. p. 47 (1865); Layard, B. S. Africa, p. 366 (1867); Sharpe, Zool. 'Erebus and Terror,' i. App. p. 32 (1875).

Buphagus skua antarcticus, Coues, in Bull. U.S. N. M. no. 2 p. 9 (1875) (Kerguelen Island)*.

Quite irrespective of the enormous gap which, so far as we know, at present separates the geographical range of *S. catarrhactes* from

* Since writing the present article I have read the very interesting account of the habits of this species as observed at Kerguelen's Island by Dr. Kidder, Naturalist to the American Expedition to observe the Transit of Venus. It would appear that it avoids the water, and preys principally upon other birds; there are also other modifications of the usual habits of birds of this genus, to which space will not allow me to allude.

that of the Antarctic Skua, it seems to me that only the want of a sufficient series of both species for comparison can ever have led to their being united; for undoubtedly the distinctness of many other birds as species is unhesitatingly acknowledged on much slighter grounds. In the examination of a large series I have never met with any northern Skua with the stout deep bill with its well-marked angle at the gonys which invariably characterizes the southern bird; and if mere colour is taken into consideration, the total absence of rufous both on the underparts, the axillaries, and the under wing-coverts serves to distinguish the Antarctic Skua at a glance. But whilst perfectly distinguishable from *S. catarrhactes*, it presents three interesting variations in the course of its range, which I have been enabled to trace by the aid of a fine series in the British Museum. From Campbell's Island in 54° S., 168° E., up to Norfolk Island, in 29° S. (its most northern *known* range), past Kerguelen's Island, the Crozets, and up to the Cape of Good Hope, where Layard observed it in April, the specimens all agree in their remarkable uniformity of sooty-brown plumage, there being few, if any, striations even upon the feathers of the neck, whilst the size of some of the examples is enormous, the primaries measuring 16 and 17 inches from carpal joint to tips of primaries. The Falkland-Island Skuas, locally known as "Cape-Egmont Hens" and "Sea-Hens," are decidedly smaller, and the acuminate feathers of the neck and shoulders are distinctly streaked with yellowish white, although the general sooty appearance is preserved. But in three specimens obtained during the voyage of the 'Erebus' and 'Terror,' on the edge of the pack-ice, the upper parts are somewhat less dusky than in the Falkland-Island birds, and the tips of the feathers of the breast are tinted with yellowish, though the underparts of the feathers retain their sooty hue, whilst the acuminate feathers of the neck form a complete ring of yellow verging upon golden, and, by contrast with the darker colour of the crown, giving somewhat the appearance of a hood. In general dimensions this form is somewhat smaller than the preceding, and the bill is even more short and stout in proportion; but the general characters of resemblance are preserved throughout, the under wing-coverts and axillaries being dark smoke-coloured, whilst the lighter hue of the underparts extends no further than the tips of the feathers, and may be due to climatic influences. In their somewhat bleached appearance and the closer texture of the feathers about the base of the bill, these three birds have the appearance of permanent inhabitants of inhospitable circumpolar regions, whilst the Falkland-Island birds seem to be a connecting link between this and the larger form, whose range is principally within more temperate climates, where the conditions of existence are easier.

It is most probable that Bonaparte's *S. madagascarensis* belongs to this species, as the late Commander Spurling saw what he supposed to be a Great Skua off the Comoro Islands, and this would bring its extreme range up to about 12° S., leaving even then an interval of more than 40° of latitude between it and the most southerly known range of *S. catarrhactes*. Neither has *true S. antarcticus* been

found, so far as I am aware, on the western side of the Straits of Magellan, or on the coasts of Chili or Peru, where its place is taken by a bird which I consider fully entitled to specific rank, and which, strange to say, has all its affinities with the northern Skua, *S. catarrhactes*.

STERCORARIUS CHILENSIS (Plate XXIV.).

Lestris antarcticus, var. *b. chilensis*, Bp. Consp. Av. ii. p. 207 (1857); (Mus. berol. ex Am. Merid. Rostro vix breviore quam in Europæo, potius graciliore quam robustiore).

Lestris antarctica, Scl. & Salvin, Ibis, 1869, p. 284 (Santa Magdalena, Straits of Magellan—*Cunningham*).

S. *supra fuliginoso-nigricans, pileo summo fere concolori; corpore reliquo superiore maculis longitudinalibus rufescentibus versus apicem angustioribus plus minusve dilatatis variegato; collo postico albicante vix rufescente longitudinaliter striato; alis dorso concoloribus, remigum scapis albis, tectricibus alarum minimis dorso concoloribus et in eodem more rufo maculatis: primariis vix albido, secundariis maculis magnis rufescentibus terminatis; supracaudalibus rufo marmoratis et subterminaliter maculatis; cauda nigra, pallidius terminata; loris et plumis subocularibus fuliginosis pileo concoloribus, his rufo lavatis; genis, regione parotica, et corpore subtus toto cinnamomeo-rufis; axillaribus et tectricibus subalaribus castaneo-rufis, his et pectoris lateribus paullo fuliginoso striatis; colli lateribus dorso concoloribus; ala subtus nigricante, primariis basin versus albis; rostro nigro; pedibus nigris. Affinis* S. catarrhacti, *sed rostro graciliore, corpore subtus conspicue cinnamomeo-rufescente, et subalaribus et axillaribus castaneis distinguendus.*

Professor Peters, of Berlin, to whom I wrote on the subject, has courteously informed me that the type specimen in that museum has all the above characteristics. It is a slightly immature bird, and came from Chili.

Through the kindness of Mr. G. Fanshawe, F.Z.S., I have lately become possessed of four specimens of a Skua shot by his nephew, Mr. J. R. Denison, at Mejillones, on the little strip of coast which belongs to Bolivia, in lat. 23° 5′ S., at the end of February or beginning of March. Three of these birds are adults; the fourth is evidently immature, as shown by the brown crescentic tips to the dorsal feathers; and the rufous of the underparts is less strongly marked than in the adults, showing that the ruddy colour increases with age. But even the young bird is ruddier than any *S. catarrhactes* I ever saw. In the museum at Cambridge is a similar immature specimen obtained by Dr. Cunningham, late of H.M.S. 'Nassau,' in the Straits of Magellan, in April; and Mr. Gervase Mathew, R.N., writes to me that he observed this chestnut-breasted bird at Valparaiso in January, and a month later at Coquimbo, when in H.M.S. 'Resolute.' More than this is not known to me at present; and in the absence of any reliable information as to its breeding-haunts it would be rash to indulge in any speculations as to whether they are to the north or to

the south of the Equator. The affinities of this well-defined form are decidedly with *S. catarrhactes*, and not with *S. antarcticus*; it is, indeed, a somewhat slighter bird than the former, and remarkable for its rich cinnamon-coloured underparts, wing-coverts and axillaries. The presence of this species on the shores of the South Pacific may be accounted for by the cool stream of water, about 300 miles wide, and known as Humboldt's current, which runs northwards from the Straits of Magellan, along the coasts of Chili and Peru. This cool band abounds in fish; and in consequence of these altered conditions we find there at least six species of Gull, some of them numerically abundant; whereas on the east coast of America there is a noticeable scarcity of Gulls within the tropics. Where Gulls are found, the stout heavy forms of Skua can pick up a living; their more lightly formed congeners can rob the Terns, and the two long-tailed species are more than a match in flight for the Arctic Tern; but against that family the Great Skuas would have little chance; and hence, probably, their more restricted range. If this species should prove to have its breeding-places in the North Pacific, it is somewhat singular that it should never have been observed north of the Equator, and that the only specimen of a great Skua recorded from the north-west coast, namely at Monterey, California, lat. 44° N., is clearly from the description given, *S. catarrhactes*. If, on the other hand, it should prove to be a denizen of the southern hemisphere, it is still more remarkable that we should find in such close proximity to *S. antarcticus* a form whose affinities are with *S. catarrhactes*. In order of arrangement it should follow the latter species, although in the present case I have taken it last for convenience of treatment.

STERCORARIUS POMATORHINUS.

Stercorarius striatus, Brisson, Orn. vi. p. 152, pl. 13. fig. 2 (juv.), 1760.

Larus keeask (part.), Latham, Ind. Orn. p. 818 (1790).

Larus parasiticus, Meyer & Wolf, Tasch. D. Vög. ii. p. 490, descrip. p. 492 (1810), nec auctorum.

Catarracta parasita, var. *camtschatica*, Pallas, Zoogr. Rosso-As. p. 312 (1811).

Lestris pomarinus, Temm. Man. d'Orn. p. 514 (1815); Audubon, B. Am. vii. p. 186, pl. 451 (1844); Ross, in Parry's 4th Voy. App. p. 196 (1828), fide Newton.

Stercorarius pomarinus, Vieillot, N. Dict. Hist. Nat. xxxii. p. 158 (1819); De Selys-L. F., Belg. p. 155 (1842); Gray, Gen. of B. iii. p. 653 (1849); Coues, Proc. Phil. Ac. 1863, p. 129; B. Ross, Nat. Hist. Rev. 1862, p. 289 (Gt. Slave Lake, very rare); Wright, Ibis, 1864, p. 151 (Malta); Gurney, Andersson's B. of Damara Land, p. 357 (1872).

Cataractes pomarina, Steph. in Shaw's G. Zool. xiii. p. 216 (1826).

Cataractes pomarinus, Selby, Ill. Brit. Orn. ii. p. 517 (1832).

Lestris sphæriuros, Brehm, Vög. Deutsch. p. 718 (1831).

Lestris striatus, Eyton, C. Brit. Birds, p. 51 (1836).

Lestris pomarina, Faber, Prod. Island. Orn. p. 104 (1822); Sw. &

Rich. F. Bor.-Am. p. 429 (1831); Naumann, Vög. Deutsch. x. p. 487, pl. 271 (1840); Temm. Man. d'Orn. p. 495, ed. 1840; Middendorf, Sib. Reise, p. 240, tav. xxiv. fig. 1 (egg) (1853).

Coprotheres pomarinus, Reich. Nat. Syst. Vög. p. v (1852).

Catarracta pomarina (Tem.), Blyth, J. As. S. Bengal, xxviii. p. 406 (1859) (Moulmein).

Lestris pomerinus (Tem.), Newton, P. Z. S. 1861, p. 401, pl. xxix. fig. 3 (egg).

Lestris pomarhinus, Preyer, R. n. Island (1862).

Lestris pomatorhinus, Sclater, Ibis, 1862, p. 297.

Stercorarius pomarhinus, Malmgren, Spitzbergens Fogl. p. 411 (1864).

Stercorarius pomatorhinus, Newton, Ibis, 1865, p. 509; Gillett, Ibis, 1870, p. 307; Coues, in Elliot's Prybilov Is. (1874); Coues, B. of N.W. Am. p. 607 (1874); Eaton, Zoologist, 1874, p. 3812 (Spitzbergen); Newton, B. Greenland, p. 107 (1875).

Lestris pomatorhina, Th. v. Heuglin, Ibis, 1872, p. 65.

The description and figure given by Brisson of his *Stercorarius striatus* clearly show that he had before him an immature specimen of this species, the representation of the strong heavy feet garnished with large claws being highly characteristic. Although Brisson's name cannot be retained, yet, if it had been adopted by any naturalist subsequent to the 12th ed. of Linnæus, it must necessarily have antedated the well-known name given by Temminck; but this change has fortunately been spared us. With regard to Gmelin's name of *crepidatus*, which Dr. Coues was inclined to refer to this species, I trust to be able to show that it can only belong to that which I call for the present Richardson's Skua. Temminck's name is therefore retained, subject to the emendation proposed by Mr. P. L. Sclater (Ibis, 1862, p. 297), where he showed that the classical spelling should be *pomatorhinus*, being derived from πῶμα (operculum) and ῥίν (nasus), a view which has since been generally adopted by ornithologists. There can be no doubt from the description, especially of the tail-feathers, given by Pallas that this is the species called by him *C. parasitica*, var. *camtschatica*.

In plumage this species does not exhibit any remarkable variation, although some immature birds are decidedly less marked with sooty striations on the underparts than others. In the adults the acuminate feathers on the neck assume a beautiful golden tinge; and the dark pectoral band evidently becomes narrower with increasing age until it is totally lost and the bird is pure white from the chin to the abdomen. I have only seen one example of this extreme plumage, in the Rouen Museum, which boasts of nineteen picked specimens of Pomatorhine Skuas, none of which, unfortunately, bears any label indicating either date or locality.

The most northern locality recorded for this species is lat. 82° N., where a specimen was observed by Ross flying past the boats on Parry's fourth voyage. It has been found on the coast of Spitzbergen, and in Novaya Zemlya; and south of these points it ranges throughout the whole of the arctic and subarctic regions. Von Middendorf found it breeding on the "barrens" of the Taimyr and

the Boganida, in Siberia, and was the first to give a figure of the egg; and it is said to breed in societies from Bjornenas, north of Egedesminde, to the northward (Newton, B. of Greenland). There must, however, be many other breeding-places within the arctic circle; for the species is abundant in the north, and is not uncommon on our coasts, principally on the west, in autumn. Passing along the coasts of Western Europe, it occurs as a straggler in the interior of the continent, and visits the Mediterranean as far east as Sicily and Malta; goes down the west coast of Africa, where Capt. Shelley obtained it off Fantee; crosses the equator, and reaches Walwich Bay in lat. 23° S., where Andersson shot two specimens, one of which, a bird of the year, is in my collection. With this proof of its traversing the tropics it is no longer remarkable that it should have been obtained at Moulmein, on the coast of Tenasserim, in lat. 16° 22′ N., by Major Tickell, as recorded by Mr. Blyth; the singular thing was, that the specimen in question should prove to be an adult and not a bird of the year, like all the other visitors to the south which I have examined*. There is a specimen in the plumage of the first year in the collection of Messrs. Salvin and Godman, obtained by Mr. Cockerell off Cape York, the northern extremity of Australia. On the east coast of America it occurs from Labrador as far south as New York and Pennsylvania, beyond which it has not yet been traced. On the west coast there is no positive record beyond two instances on the Prybilov Islands; but Mr. Gervase Mathew's description of a Skua observed by him at Valparaiso and Coquimbo seems to refer to this species, respecting whose winter range we must wait for further details.

STERCORARIUS CREPIDATUS. (Richardson's Skua.)

Stercorarius (*Le Stercoraire*), Brisson, type of genus *Stercorarius*.

Catharacta cepphus, Brünn. Orn. Bor. p. 36 (1764).

Catharacta coprotheres, Brünn. Orn. Bor. p. 36 (1764), dark form.

The Black-toed Gull, Pennant's Brit. Zool. ii. p. 419, tab. 2 (1768).

Larus crepidatus, Banks, Hawkesworth's Voy. ii. p. 15 (1773); Gmelin, Syst. Nat. p. 602 (1788); Latham, Ind. Orn. p. 319 (1790); Meyer & W. Tasch deutsch. Vög. ii. p. 493 (1810); Scoresby, Arctic Reg. i. p. 534 (1820).

"*Larus parasiticus*, Linn." Boddaert, T. des Pl. Enl. no. 991 (nec Linn.).

Lestris crepidatus, Tem. Man. d'Orn. p. 515 (1815).

Stercorarius crepidatus, Vieillot, N. Dict. Hist. Nat. xxxii. p. 155 (1819).

Lestris parasitica, F. Faber, Prodr. Is. Orn. p. 105 (1822); Brehm

* Since writing the above I have had the opportunity of referring to Major Tickell's coloured drawing of this identical specimen, which proves it to be an *immature bird* after all! Mr. Blyth's error in stating it to be an adult was doubtless owing to the want of any specimens for comparison at that time.

& S. Beitr. Vögelk. iii. p. 853 (1822); Naum. Vög. Deutsch. x. p. 506, pl. 272, 273 (1840).

Cataractes parasiticus, Fleming, Brit. An. p. 138 (1828); Selby, Ill. Brit. Zool. ii. p. 520 (1832).

Lestris richardsonii, Swain., Sw. & Rich. F. Bor.-Am. p. 433, pl. 73 (1831); Macgill. Brit. B. v. p. 492 (1852); Audubon, B. Am. vii. 190, pl. 452 (1844); Gould, B. of Eur. v. pl. 441 (1837); Meyer, Ill. Brit. B. vii. p. 177 (1857).

Lestris parasita, Keys. & Bl. Wirb. Eur. p. 240 (1840); Midd. Sib. Reise, p. 241 (1853).

Stercorarius parasiticus, Schaeff. Mus. Orn. p. 62, pl. 37 (1789); De Selys-L. Fn. Belg. p. 155 (1842); G. R. Gray, List B. Br. Mus. iii. p. 167 (1844); Gray, Gen. Birds, iii. p. 653 (1849); Lawr. Baird's B. N. Am. 839 (1858); Blakiston (B. N.W. A.), Ibis, 1863, p. 152; Degl. & G. Orn. Eur. ii. p. 397 (1867); B. Ross, Nat.-Hist. Rev. 1862, p. 289; Coues, Pr. Phil. Ac. 1863, p. 132; Newton, Ibis, 1865, p. 510 (Spitzbergen); Andersson, B. of Damara Land, p. 357 (1872); Gould, B. G. Brit. v. p. 80 (187); Hume, Stray Feathers, p. 268 (1873) (Sindh); Buller, B. New Zealand, p. 268 (1873); Coues, Rep. Prybilov Is. no. 541 (1874); Sharpe, Voy. 'Erebus and Terror,' i. App. p. 32 (1875); Newton, B. Greenland, p. 107, Arct. Man. (1875).

Lestris parasiticus, Bp. Consp. Av. ii. p. 208 (1857).

Lestris parasiticus, var. *coprotheres*, Bp. Consp. Av. ii. p. 209.

Lestris thuliaca, Preyer, Reise n. Island (1862).

Lestris parasitus, Th. v. Heuglin, Ibis, 1872, p. 65.

Lestris spinicaudus, Hardy, Rev. et Mag. Zool. 1854, p. 657.

Stercorarius spinicauda, Layard, B. S. Af. p. 366 (1867).

Stercorarius parasitica, Dall & Bannister, Tr. Chic. Ac. i. p. 303 (1869) (Alaska).

Stercorarius asiaticus, Hume, Stray Feathers, p. 269 (1873) (Sindh).

Lestris boji, schleepii, benickii, Brehm, and *Stercorarius tephras*, Malmgren, are believed to be this, whilst *Lestris brachyrhynchus* and *L. microrhynchus*, Brehm, are ascribed to the next; but it would be a mere waste of time to verify Brehm's supposed species.

Dr. Coues follows those authors who have chosen to divert Linnæus's name of *L. parasiticus* to this species—a supposition utterly negatived by the description in the Syst. Nat. p. 226, which is based upon that in his 'Fauna Suecica,' p. 55, No. 156. Nothing could well be clearer than his statement:—"rectricibus duabus intermediis *longissimis*," which can only apply to the Buffon's or Long-tailed Skua; but, as if to make assurance doubly sure, Linnæus adds "remiges nigræ, *rachi* 1. 2. *nivea*." The natural inference from drawing especial attention to the fact that the *shafts* of the *first* and *second primaries* are *white*, is clearly that those of the *other* primaries are *not* white. Now the particular characteristic by which "Richardson's Skua," may be distinguished at any age beyond that of the nestling, is that the shafts of the other primaries are conspicuously lighter than in those of Buffon's Skua, in which

only those of the first and second primaries are white, those of the third and successive primaries being dark. I am indebted to Mr. R. Collett, of Christiania, for pointing out to me, some years since, this excellent distinction. The *L. parasiticus* of Linnæus is therefore not *S. crepidatus*, but the "Buffon's Skua;" and so is, according to my view, *Catharacta parasiticus* of Brünnich; but it is needless to discuss the latter name, as it is out of date.

Dr. Coues considers that the *Larus crepidatus* of Gmelin is in all probability based upon the young of the Pomatorhine Skua, to which Brisson gave the name of *Stercorarius striatus*. It is true that Gmelin (who translated from Latham) identifies *S. striatus* of Brisson with his *L. crepidatus*; but although *S. striatus* is certainly a young Pomatorhine, it was by no means easily recognizable by the naturalists of that day; and, moreover, Gmelin correctly cites in the first place *Catharacta cepphus*, Brünn., which is certainly this species, and in the third line refers to "Le Labbe ou Stercoraire" of Buffon, whose figure ('Planches Enluminées,' No. 991) is an excellent one, besides giving an accurate description of the tail-feathers ("rectricibus duabus intermediis longoribus"); he also refers it to the "Black-toed Gull" of the 'Brit. Zool.,' which is clearly this species. This would be quite sufficient to impose Gmelin's name of *L. crepidatus* upon "Richardson's Skua;" but the name did not actually originate with Gmelin. On referring to Hawkesworth's 'Voyages' (1773), vol. ii. p. 15 (not vol. i. p. 15, as erroneously cited by Latham, and of course duly copied by Gmelin, without reference), we find in the narrative of Lieut. Cook's voyage in the 'Endeavour' that "on the 8th October 1768 (when a little to the south of the Cape-Verd Islands) Mr. Banks [afterwards Sir Joseph Banks] shot the Black-toed Gull not yet described according to Linnæus's system; he gave it the name of *Larus crepidatus*." The Black-toed Gull is described in Pennant's 'British Zoology,' vol. ii. p. 419 (1768); and plate 2 is an excellent representation of a "Richardson's Skua" of the year, the feet of this species at that age having the upper part of the webs yellowish, and the posterior portion black, giving the bird the appearance of being "shod" or "sandalled," whence Banks's somewhat quaint Latin rendering. I think it probable that the bird was identified from Pennant's description and figure; for in the MS. in the British Museum of Solander, who was also in the 'Endeavour,' there is indirect evidence of that work having been on board; but as Banks gave no description, it is perhaps safest to cite Gmelin as the authority for the name.

It is now well known that there are two very distinct plumages to be found in birds of this species, even in the same breeding-places—an entirely sooty form, and one with light underparts,—and that white-breasted birds pair with whole-coloured birds as well as with those of their respective varieties. If this species is "dimorphic," the offspring of one particoloured and one whole-coloured bird ought to resemble one or other of their parents without reference to sex; my examination of upwards of a hundred specimens from widely different localities and in all stages inclines me to the belief that this is not the case, and that the young of such union will be intermediate,

whilst the offspring of two similar parents will "breed true." This point can only be solved by some ornithologist who will devote his attention to a colony during the breeding-season, observing the produce of all these unions, and, if possible, marking the nestlings before they take wing; perhaps some of our Scotch friends will take the hint.

That the sooty plumage is not merely a sign of immaturity is shown by the long tail-feathers, and by the burnished tinge of the acuminate ones on the nape.

It is worthy of notice that in Spitzbergen, its most northern breeding-ground, neither Dr. Malmgren nor Professor Newton found a single example of the dark whole-coloured form; all those which Admiral Collinson's and Dr. Rae's Expeditions brought home from the far north are also white-breasted specimens, which looks as if the dark form was a more exclusively southern one.

In the white-breasted birds the striations on the underparts decrease with age until little more than a pectoral band remains; this, again, becomes narrower until in some specimens it entirely disappears and the bird is white from the chin to the abdomen.

This species has the most extended range of any member of the family. Parry found it up to lat. 82° 2′ N.; and it breeds throughout the arctic and subarctic regions, as far south as the islands of the north of Scotland; and Thompson records it as having nested near Achil Island on the west of Ireland. I should not be surprised to learn that there is some beeeding-place along the western shores of France; for both old and also very young birds occur at Málaga early in August. Some go higher up the Mediterranean; but others, principally the young, continue their course along the west coast of Africa, to Walwich Bay and as far as the Cape of Good Hope; and in those waters they pass the months of what is our winter, compelling the Terns and the small Gull (*L. hartlaubii*) to disgorge their prey. From the altered appearance which they present in their progressive stages of plumage at a time when European naturalists have lost sight of them, an individual from the vicinity of St. Helena received the name of *S. spinicauda*. Careful examination of a series of specimens from the Cape of Good Hope, where Mr. E. L. Layard only observed them from December to February, showed that all were in the act of losing and renewing the central tail-feathers and the outer primaries, which are the last to be moulted; and although at the first glance the birds have a somewhat distinct look, yet there can be no doubt whatever of their being our northern species. Most that I have seen are birds of less than a year old, although this immaturity is less noticeable in the dark-plumaged birds than in the lighter ones; in none, however, are the central tail-feathers fully developed, and most are still partially in the quill-sheath. One specimen, evidently obtained just before the northward migration, is absolutely the same as a bird of only two months older from the Färoes. It is to be presumed that *S. crepidatus* goes up the east coast of Africa, as Mr. Allan Hume obtained it (naming it *S. asiaticus*), and observed many along the coast of Sindh, the Gulf of Oman, and between Guader and Bombay.

Returning to the Atlantic, we find it along the North-American coast; and Solander, in his MS., describes, under the names of *L. fuliginosus* and *L. nigricans*, two specimens of this species obtained in the harbour of Rio de Janeiro on December 4, 1768, thus giving it a claim to be included in the list of the Neotropical Laridæ so ably worked out by Messrs. Sclater and Salvin (P. Z. S. 1871, p. 564). South of Rio there is no record of its occurrence on the east coast of America; but I can only refer to this species the example obtained by Mr. Buller at Horowhenua in the Province of Wellington, New Zealand, on April 30, 1864. His general description suits *S. crepidatus*; and he expressly states that the shafts of the primaries are *white*, the characteristic which particularly serves to distinguish it from Buffon's Skua, with which he has identified it. At the time that I examined the specimen in question I was not aware of this distinctive feature: the skin also had been badly preserved; and, to make matters worse, the plumage was so worn and abraded that it is a marvel that the bird was able to fly at all.

On the west coast of America it is only recorded as occurring at the Prybilov Islands and in Alaska; but Mr. Gervase Mathew, R.N., informs me that when at Callao in April 1873, in H.M.S. 'Resolute,' he observed many small Skuas in various states of plumage, and attributed them (correctly no doubt) to this species, which he had often observed previously on the English coast.

STERCORARIUS PARASITICUS. (Long-tailed or Buffon's Skua.)

Le Stercoraire à longue queue, Buffon, Pl. Enlum. 762.
Stercorarius longicaudus, Brisson, vi. p. 155 (1760).
Catharacta parasitica, Brünn. Orn. Bor. p. 37 (1764).

Larus parasiticus, Linn. Syst. Nat. p. 226 (1766), Fauna Suec. 55. no. 156 ("*rectricibus duabus intermediis longissimis.*"); ? Müller, Zool. Dan. Prod. 166 (1774); Phipps, Voy. N. Pole, p. 187 (1774); Gm. Syst. Nat. p. 601 (1788); Scoresby, Arctic Regions, i. p. 534 (1820).

Catharacta parasitica, O. Fab. F. G. p. 103 (1780).

Catarracta parasitica, Retz. F. Suec. p. 160 (1800).

Catarractes parasita, Pallas, Z. Ros.-As. p. 310 (1811).

Lestris parasitica, Illiger, Prod. p. 273 (1811); Sw. & Rich. F. Bor.-Am. p. 430 (1831); Macgill. Brit. B. v. p. 503 (1852).

Lestris parasiticus, Temm. M. d'Orn. p. 512 (ed. 1815), p. 796 (ed. 1820), p. 501 (ed. 1840); Jenyns, Brit. Vert. An. p. 283 (1835); Gould, B. of Eur. v. pl. 442 (1837); Audubon, B. Am. vii. 192, pl. 452 (1844); Meyer, Ill. Brit. Orn. vii. p. 174, pl. 314 (1857).

Stercorarius longicaudus, Vieill. N. Dict. Hist. Nat. xxxii. p. 157 (1819); Newton, Ibis, 1865, p. 511 (Spitzbergen); Degl. & Gerbe, Orn. Eur. ii. p. 399 (1867).

Lestris crepidata, Brehm & S. Beiträge z. Vögelkunde, iii. p. 861 (1822); Naum. Vög. Deutsch. x. p. 534, pl. 274 (1840).

Lestris buffonii, Boie, Meyer & W. Tasch. iii. p. 212 (1822); Middendorff, Sib. Reise, ii. p. 241, taf. xxiv. fig. 2 (1853).

Stercorarius cepphus, Steph. in Shaw's Gen. Zool. xiii. pt. i. p. 211, pl. 23 (fig. nec descrip.) (1826); B. Ross, Nat.-Hist. Rev. 1862, p. 289, Blakiston, Ibis, 1863, p. 152 (Mackenzie River).

Lestris lessoni, Degl. Mém. Ac. R. Lille, p. (1838); Schinz, Eur. F. p. 392 (1840).

Lestris cephus, Keys. & Blas. Wirb. Eur. p. 240 (1840); Bp. Consp. Av. ii. p. 209 (1857).

Stercorarius longicaudatus, De Selys-L. F. Belg. p. 156 (1842); Degl. Orn. Eur. ii. p. 298 (1849); Newton, B. Greenland, p. 107 (1875).

Stercorarius cephus, Gray, Gen. Birds, iii. 1849, p. 653; Schlegel, Mus. P.-B. *Lari*, p. 49 (1863); Gray, Hand-List, iii. p. 110 (1871).

"*Lestris longicaudatus*, Briss.," Thomps. Nat. Hist. Ireland, iii. 399 (1851).

Lestris hardyi, Bonap. Tabl. d. longipen. Compt. Rend. xlii. 1856, p. 770; Consp. Av. ii. p. 210 (1857).

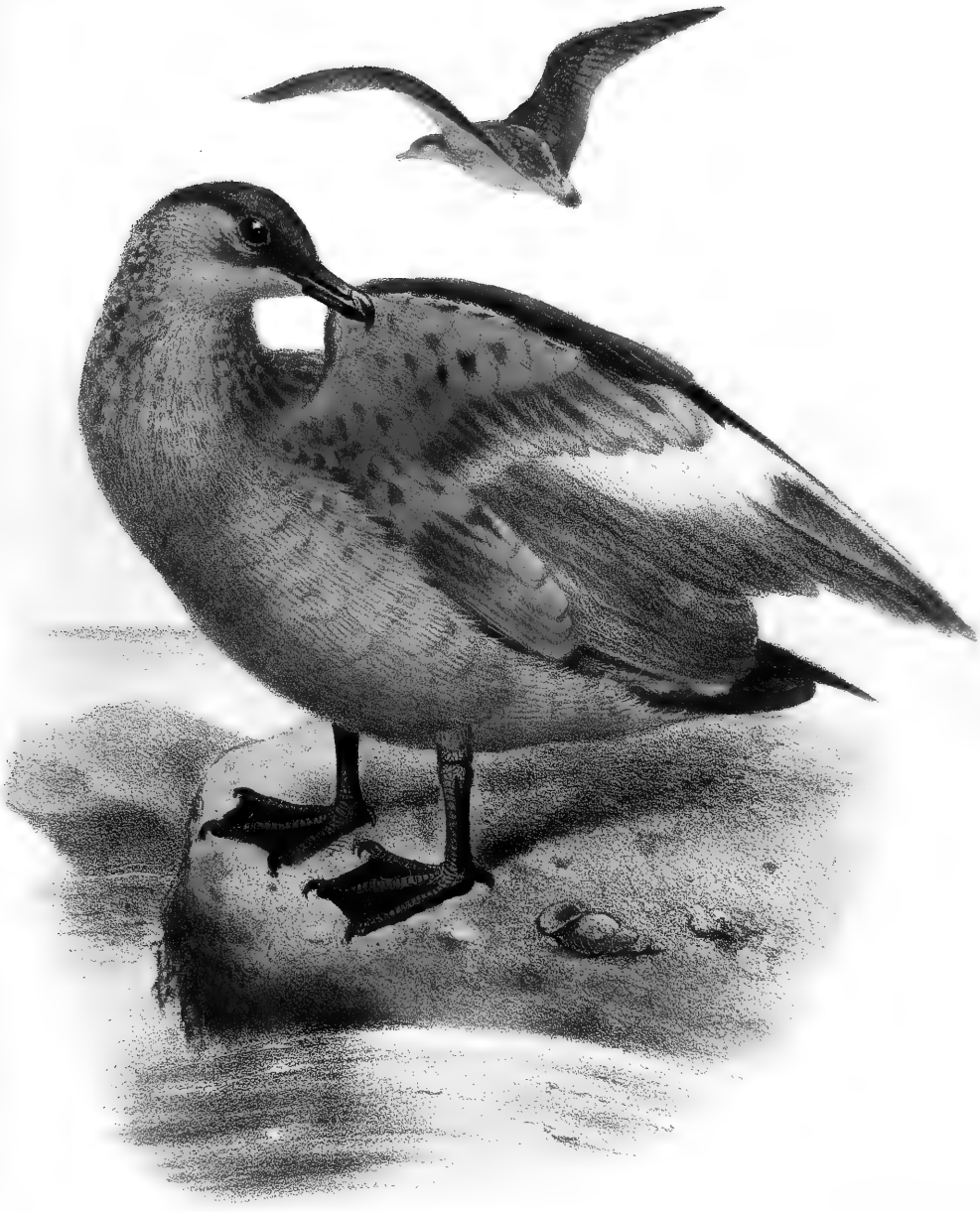
Stercorarius buffoni, Coues, Proc. Phil. Acad. 1863, p. 136; Dall & Bann. Tr. Chic. Ac. i. p. 304 (1869) (Alaska); Coues, Prybilov Isl. (1874); Irby, Orn. Str. Gibraltar, p. 216 (1875).

Lestris longicaudata, T. v. Heuglin, Ibis, 1872, p. 65 (Novaya Zemlya).

In treating of the preceding species I have already shown that Linnæus's description of his *L. parasiticus* can only apply to this species, which may always be distinguished by its very long central tail-feathers and by having, even in immature plumage, the shafts of only the first and second primaries white, those of the others being dusky. In its adult state, the Long-tailed Skua has also the under tail-coverts, abdomen, and flanks of a sooty brown; the tarsi also are yellowish olive, whilst in adult *S. crepidatus* the legs are black. I have seen but few immature specimens, all birds of the year, obtained on their autumnal migration; they are of a nearly uniform sooty colour, with the usual pale edgings to the feathers characteristic of the first plumage. This species is found from Novaya Zemlya to Spitzbergen, and, south of these points, throughout the whole circuit of the arctic regions. Von Middendorff first discovered its breeding-places on the Taimyr and Bogonida, in Siberia; the late John Wolley found it nesting on the Lapland fells; Sir John Richardson obtained nestlings in Melville Peninsula; Mr. Bernard Ross observed it at the mouth of the Mackenzie River; it occurs in the Prybilov Islands; and Dall and Bannister found it in Alaska, the extent of its recorded range on the Pacific coast. By far the rarest of the family as an autumnal visitant, it ranges along our shores and those of Western Europe as far south on the Straits of Gibraltar and Morocco, beyond which there is no trace of it, whilst on the east coast of America it does not seem to go south of lat. 40° N. I have already pointed out that Mr. Buller's supposed example of this species from New Zealand must be referred to *S. crepidatus*. Professor Peters, of Berlin, has kindly informed me that the type specimen in that Museum of *Lestris hardyi*, Bonaparte, has the shafts of all except the first two primaries dusky; and on that ground I presume it to be a young bird of this species.

The specimen in question is *said* to have been obtained "between the Philippines and Sandwich Islands"—a considerable extension to the range of the species so far as it is at present known.

In concluding my remarks on a family whose members are principally Arctic in their habitat, it would be a great omission if I failed to acknowledge my indebtedness to Professor Newton's comprehensive remarks on the Arctic fauna in these 'Proceedings,' in 'The Ibis,' and in the 'Arctic Manual.' The whole available information respecting the *northern* range of the Skuas is given in a condensed form, accompanied by most important references; and to these originals, especially to the paper on the Birds of Spitsbergen in 'The Ibis,' 1865, I would refer those who require more details than I have thought it necessary to give in the present article.



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STERCORARIUS CHILENSIS

from the Author

ON THE

STERNINÆ, OR TERNS,

WITH

DESCRIPTIONS OF THREE NEW SPECIES.

BY

HOWARD SAUNDERS, F.L.S., F.Z.S.

[*From the* PROCEEDINGS OF THE ZOOLOGICAL SOCIETY OF LONDON, June 20, 1876.]

(Plate LXI.)

Having recently had opportunities of examining some interesting types of various real and supposed species of the subfamily *Sterninæ*, I propose to anticipate to a certain extent the monograph of the *Laridæ* upon which I have been for some time engaged, and to give the result of my observations in the following review of the species at present known to me, with general remarks upon their geographical distribution.

The principal writers who have hitherto treated of the *Sterninæ* are:—Prof. Schlegel, in the Mus. d'Hist. Nat. Pays-Bas, *Sternæ*, 1863; Prof. Blasius, in Journ. für Orn. 1866, p. 73; Dr. Elliott Coues, in Proc. Phil. Acad. 1862, and monographically, as regards the North-American species, in his 'Birds of the North West' 1874; and Messrs. Sclater and Salvin (Neotropical Laridæ, P. Z. S. 1871). And from the works of these able authors I have derived much assistance, especially from the last, owing to the care with which the synonymy and the geographical distribution have been worked out. Indeed as regards America I might well have been content to wait until the completion of my monograph; but as there are a good many species in other parts of the globe which have not been so recently noticed, there may be room for a few remarks.

It is almost needless to say that, owing to the general similarity in colour, the *Sterninæ* are a troublesome subfamily to handle, the question of what constitutes specific distinctness being here more than usually perplexing. The individual differences in size of bill, length of wing, &c. are often considerable; added to which there are subtile gradations in the various shades of plumage, which render it impossible to accord specific rank to forms which, when judged by their extremes alone, seem totally distinct. Under these circumstances it is not surprising that a species should sometimes be based upon what may appear at the first glance to be a very slight distinction; for the alternative is to unite under one head some forms which are clearly different; and considering the general tendency that there is towards blending, the systematist must be glad to avail himself of the smallest *permanent* characteristic. The young are often very much alike; and indeed in several cases they are as yet undistinguishable with the limited material at present available; but larger series of authentic specimens will doubtless clear up several points. The coloration of the soft parts presents considerable difficulties, owing to the changes which take place at different ages and seasons, it frequently happening that the bill and legs in quite young birds increase in intensity of colour up to a certain time in autumn, and then become dark, the brighter colour not being resumed until the following spring: this is notably the case with the Common and the Arctic Terns, in which the bills become dark very suddenly between the

first and second weeks in October. At this season, too, the grey tint on the rump and tail-coverts which is also assumed by some species is apt to lead to confusion. Of the difficulties presented by the wearing-away of the grey frosty surface on the primaries, giving an abnormal appearance to their pattern, it is not necessary to say anything beyond drawing attention to their existence.

After careful examination of the representatives of all the genera into which this subfamily has been divided, I am unable to discover any satisfactory reasons for the adoption of more than five, viz. *Sterna*, *Hydrochelidon*, *Nœnia*, *Gygis*, and *Anous*. It is true that in many forms there appears to be considerable departure from what we have been accustomed to consider typical *Sterna*; and this was especially evident to those systematists who treated principally of European or North-American species; but when the various species of the whole world are examined, so many connecting links and gradations will be found to exist, as to reduce the structural distinctions to a minimum, and to preclude the possibility of adopting with any degree of consistency several genera which at first glance seemed valid enough. For example, the Sooty Terns (*S. fuliginosa*, *S. anæstheta*, and *S. lunata*) have had no less than three genera erected for *one* of their number by Wagler alone, viz. *Onychoprion*, *Haliplana*, and *Planetis*, the definitions of which will hardly bear analysis; but even if any one of them were based upon genuine structural characters (which is not the case), there exists a far more important difference between the foot in *S. fuliginosa* and in that of *S. anæstheta*, than there is between *S. fuliginosa* and any typical *Sterna*, such as *S. fluviatilis*. It would strike any one as absurd to separate these two Sooty Terns generically, seeing that their resemblance is so close that for some time even their specific characteristics were by no means well known; yet, unless this is done, it is fully as inconsistent to separate them from true *Sternæ*. It is, however, unnecessary to say more upon this particular subject, as it will be noticed when treating of the species in question. The result of the mania which at one time prevailed for the manufacture of genera may be seen in the fact that whereas the members of the subfamily Sterninæ are about 50 in number, the genera erected for their reception are upwards of 30. It is true that many of these are merely vain repetitions of previously existing genera, the names of which did not happen to suit the fancy of the respective systematists, and that by discarding these synonyms the burden might be endured if the discrepancies of opinion as to the genera in which the various species should be located were not hopelessly irreconcilable, a single species being sometimes assigned to 7 or 8 different genera. Dismissing all but those which are based upon structural characters, independent investigations have led me to adopt substantially the genera accepted by the late G. R. Gray (Gen. Birds iii. p. 658), with the exception of *Phætusa*, which I put back under *Sterna*; whilst *Nœnia*, which he puts with *Anous*, I consider valid; several species also which he assigned to *Hydrochelidon* are now restored to *Sterna*. Of the discarded genera even the best seem to be based upon the size and shape

of the bill—a very variable character in Terns, and one which, when taken alone, does not seem to be of so much value in this family as in many others.

All things considered, the following arrangement of the various species seems to me to be the most natural; but, as is well known to all naturalists who have undertaken a similar task, it is impossible to attain to absolute consistency in locating the various members of a family in an ascending or descending scale; for the aberrant forms which frequently present themselves would destroy the best scheme that ever could be invented.

Genus Hydrochelidon, Boie.

This genus, originally instituted by Boie (Isis 1822, p. 563) for *H. nigra* and *H. leucoptera*, *H. hybrida* being left by him with *Sterna*, was, indeed, principally based upon coloration; but it has since been well defined and generally accepted as including the Marsh-Terns—of which the most characteristic distinctions are the short rounded tail, and the long slender toes connected by deeply incised webs. There is a general resemblance between the species which compose this very natural genus, the members of which agree in their habits, being gregarious at the breeding-season, and making their nests in the midst of marshy places. For convenience of treatment I commence with

Hydrochelidon hybrida (Pall.).

Sterna hybrida, Pall. Zoogr. Rosso-As. ii. p. 338 (1811); Schlegel, Mus. P.-B. *Sternæ*, p. 33 (1863).

Sterna leucopareia, Natterer, in Temm. Man. d'Orn. p. 746 (1820).

Sterna javanica, Horsfield, Trans. Linn. S. xiii. p. 198 (1820) (type examined in E. I. Mus., *H. S.*); Gray & Hardw. Ill. Ind. Zool. i. pl. 70. fig. 1 (1832).

Sterna grisea, Horsfield, Trans. L. S. xiii. p. 199 (1820) (type examined in E. I. Mus., *H. S.*).

Viralva indica et *V. leucopareia*, Steph. in Shaw's Gen. Zool. xiii. p. 171 & 169 (1825).

Sterna delamottei, Vieillot, Faun. Fr. p. 402 (1828).

Pelodes leucopareia, Kaup, Nat. Syst. p. 107 (1829).

Sterna similis, Gray & Hardw. Ill. Ind. Zool. i. pl. 70, fig. 2 (1832) (type examined in E. I. Mus., *H. S.*).

Hydrochelidon fluviatilis, Gould, P. Z. S. 1842, p. 140; Gould, B. Australia, vii. pl. 31 (1848).

Hydrochelidon hybrida, G. R. Gray, Gen. B. iii. p. 660 (1846); Blas. J. f. Orn. 1866, p. 82; Degl. & Gerbe, Orn. Eur. ii. p. 468 (1867); Swinhoe, P. Z. S. 1871, p. 421 (Formosa).

Hydrochelidon delalandii, Bp. Compt. Rend. xlii. (1856), p. 773 (type examined, *H. S.*).

Hydrochelidon indica, Jerdon, B of India, iii. p. 837 (1864).

Hydrochelidon leucopareia, Gould, Handbook to B. Australia, ii. p. 406 (1865).

Sterna innotata, Beavan, Ibis, 1868, p. 404 (imm.).

Pelodes delalandii, Gray, Hand-list, iii. p. 122 (1871).

Pelodes indica et *P. fluviatilis*, Gray, Hand-list, iii. pp. 121, 122 (1871).

Gelochelidon innotata, Gray, Hand-list, iii. p. 119 (1871).

Pelodes hybrida, Gurney, Andersson's B. of Damaraland, p. 362 (1872); Gray, Hand-list, iii. p. 121 (1871).

"*Sterna leucoptera*" (in error), Buckley, Ibis, 1874, p. 391 (Transvaal).

After examining a very large series, I am unable to detect any constant difference between European, Indian, and Australian specimens. Examples in breeding-plumage are absolutely identical; and it is much if a trifling inferiority in size can be remarked in the Indian, and a slightly paler tint in the coloration of the upper parts of Australian examples. The general range of the species may therefore be described as from the extreme west of Europe to the coasts of China and the island of Formosa and throughout the Malayan region down to Australia, principally the Queensland portion. It occurs in South Africa abundantly in winter, and probably breeds there, as Andersson obtained it in full plumage in April. In the British Museum there is a mounted specimen marked as obtained at Barbadoes and presented by Sir Robert Schomburgk, who was for some time Governor of that West-Indian colony; but there does not appear to be any other record of its occurrence so far west, even as a straggler.

Hydrochelidon leucoptera, Meisn. & Schinz.

Sterna fissipes et *S. nævia*, Pallas, Zoogr. Rosso-As. ii. pp. 337–8 (1811), nec Linn.

Sterna leucoptera, Meisner & Schinz, Vög. Schweiz, p. 264 (1815); Temm. Man. d'Orn. p. 483 (1815).

Hydrochelidon leucoptera, Boie, Isis, 1822, p. 563; Buller, B. New Zealand, p. 287 (1873); Dresser, B. of Europe, pt. xlv. (Nov. 1875).

Viralva leucoptera, Steph. in Shaw's Gen. Zool. xiii. p. 170 (1826).

Hydrochelidon leucopterum, Bp. Comp. List, p. 61 (1838).

Hydrochelidon nigra, G. R. Gray, Gen. Birds, iii. p. 660 (nec Linn.) (1849); Blas. J. f. Orn. 1866, p. 82; Swinhoe, Ibis, 1863, p. 97, P. Z. S. 1863, p. 28, P. Z. S. 1871, p. 421 (China); Gurney, Andersson's B. Damara-land, p. 363 (1872); G. R. Gray, Hand-list, iii. p. 121 (1871); Coues, B. N.W. America, p. 709 (1874).

Hydrochelidon subleucoptera, C. L. Brehm, Vogelfang, p. 350 (1855).

Hydrochelidon javanica, Swinhoe, Ibis, 1860, p. 68, 1861, p. 345 (nec Horsfield).

Sterna nigra, Schlegel. M. P.-B. *Sternæ*, p. 31 (1863).

Hydrochelidon niger, Severtzoff, Turk. Jevotnie, p. 70 (1873), fide Dresser.

The description of this species was given by Meisner and Schinz,

and also by Temminck, under date of the same year; the former, however, give a coloured plate, and their claim to the earliest discrimination of its distinctness seems to be generally acknowledged. It is to be regretted that Mr. G. R. Gray and others should subsequently have identified it with *Sterna nigra* of Linnæus, for which there does not appear to have been any reasonable ground; for, as I trust to show when treating of the Black Tern, Linnæus's description can only apply to that species.

By its longer and more slender toes and claws, and deeply incised webs, this species may be distinguished from *H. nigra* at all ages; whilst its generally smaller dimensions serve to separate the young from that of *H. hybrida*. In the immature plumage also the upper tail-coverts are whiter than in *H. nigra*, in which the grey of the back continues over the rump and throughout the tail; but the above white band is somewhat dependent upon the make of the skin, and is not an unfailing guide with such specimens as the one Mr. J. H. Gurney had before him (which is now in my collection) when he identified it as *Sterna fissipes*. On raising the feathers on the rump, however, it will be seen that there is much more white at the base of those of *H. leucoptera* than in those of *H. nigra*; and in properly preserved skins the white band on the rump is clearly defined even in very young birds. The adults in summer can hardly be mistaken even on the wing, the *black* under wing-coverts being very conspicuous, (whereas in *H. nigra* they are *pale grey*); in winter and immature plumage the under wing-coverts are *white*.

A straggler to northern Europe, this Tern becomes abundant in the south and south-east, ranges throughout Siberia and China, and reaches to the Transvaal and Damaraland and to Abyssinia, whence I have several specimens, all in immature plumage; there is, however, little doubt that it breeds there. It has also been obtained in Australia and New Zealand, and is recorded by Dr. E. Coues as having been captured in Wisconsin, U. S., on 5th July 1873, in full breeding-plumage.

HYDROCHELIDON NIGRA (Linn.).

Sterna nigra, Linn. S. N. i. p. 227 (1766), F. S. p. 159; Meyer & Wolf, Tasch. Deutsch. Vög. ii. p. 461 (1810); Temm. M. d'Orn. p. 484 (1815).

Sterna nævia, Linn. S. N. i. p. 228 (1766), ex Brisson (jr.).

Sterna fissipes, Linn. S. N. i. p. 228 (1766); Schlegel, Mus. P.-B. *Sternæ*, p. 29 (1863).

Larus mervlinus, Scop. Ann. i. Hist. Nat. p. 81 (1769).

Sterna surinamensis, Gm. S. N. i. p. 604 (1788).

Sterna plumbea, Wilson, Am. Orn. vii. p. 83, pl. 60 (1813).

Hydrochelidon nigra, Boie, Isis, 1822, p. 563.

Viralva nigra, Steph. in Shaw's Gen. Zool. xiii. p. 167 (1824).

Anous plumbea, Stephens, in Shaw's Gen. Zool. xiii. pt. i. p. 142 (1826); (ex Wilson).

Hydrochelidon fissipes, G. R. Gray, Gen. Birds, iii. p. 660 (1849); Blas. J. f. Orn. 1866, p. 82; Degl. & G. Orn. Eur. ii. p. 465 (1867);

Scl. & Salvin, P. Z. S. 1871, p. 573; Coues, Proc. Phil. Acad. (1862), p. 554; G. R. Gray, Hand-list, iii. p. 121 (1871).

Hydrochelidon plumbea, Lawr. B. N. Am. p. 864 (1858); et al. auct. Am.

Pelodes surinamensis, Gray, Hand-list, iii. p. 122 (1871).

Hydrochelidon lariformis, Coues, B. N.W. Am. p. 704 (1874).

"*Sterna cæsia*, Linn." Gundlach, J. f. Orn. 1875, p. 393, (? error for *S. nævia*).

Sterna nigra of Linnæus (Syst. Nat. p. 227, 1766) is based upon his *Sterna* 159 of the 'Fauna Suecica' ed. 1761, in which he accurately describes the Black Tern, adding that "it is found on the small reedy islands about Upsala." This can only refer to the present species, as the White-winged Black Tern is one of the rarest of stragglers to any part of Sweden. Linnæus also refers to Albin's plate and description, Av. ii. p. 82, pls. 89 & 90, which are unmistakable. There is therefore no warranty whatever for identifying his *S. nigra* with the south-eastern species. I have gone carefully into the question; and any one who is willing to take the trouble of examining the matter for himself will, I have no doubt, share my opinion.

In almost all the adult American specimens which I have examined, about a dozen in number, the black of the underparts is of a deeper and more sooty brown tint than in any European examples out of upwards of a hundred from various localities, the black being as dark as in *H. leucoptera*, an intensity of hue which our form never possesses. In two or three examples, however, all females, the lightest-coloured American birds approach more closely to very dark specimens from Europe; and in the young and winter plumage the two forms are absolutely undistinguishable; so that any specific separation is out of the question. This species is found throughout Europe, Palestine, and N. Africa to the Nile; to S. Africa it appears to go only as a winter and somewhat rare visitant, as I only know of one example, obtained 4th Jan. 1871 at the Cameroons (the birds collected by Mr. Ayres and others being *H. leucoptera* in immature plumage); nor do I know of its occurrence in India. In America it ranges throughout and across the northern continent, visiting the West Indies and Spanish main on the one side, and going as far south as Peru and Chili on the Pacific coast in winter.

Genus Sterna, Linn. (part).

Sterna magnirostris, Licht.

Sterna magnirostris, Licht. Verzeichniss Doubl. p. 81 (1823) (type in Berlin Mus.; examined, *H. S.*); Max. v. Wied, Beit. iv. p. 861 (1833); Tschudi, F. Per. Aves, p. 305 (1846); Schlegel, Mus. P.-Bas, *Sternæ*, p. 12 (1863).

"*Sterna speculifera*, Temm.," Lesson, T. d'Orn. p. 622 (1831); Pucheran, Rev. Zool. 1850, p. 544.

"*Sterna albifrons*, Cuv.," Lesson, Tr. d'Orn. p. 622 (1831) (sp. in Paris Mus. examined, *H. S.*).

Phaëtusa magnirostris, Wagler, Isis, 1832, p. 1224 (type of genus *Phaëtusa*); Scl. & Salvin, P. Z. S. 1871, p. 567; Gray, Hand-list, iii. p. 120 (1871).

Sylochelidon magnirostris, Blasius, J. f. Orn. 1866, p. 82.

This large-billed Tern with a slightly forked tail, but with amply webbed feet, is found far up the great rivers and along the coasts of tropical America from the equator down to about 35° S. Its eggs, which are deposited on the sandbanks, are similar in character to those of *S. anglica*; and taking all its characters into consideration, without relying only on the shape of the bill, it is difficult to allow its generic distinction without admitting a host of other and confusing genera.

STERNA ANGLICA, Mont.

Sterna anglica, Mont. Orn. Dict. Suppl. (1813) (type in Brit. Mus.); Schlegel, Mus. P.-Bas, *Sternæ*, p. 34 (1863); Degl. & Gerbe, Orn. Eur. ii. p. 450 (1867).

Sterna aranea, Wilson, Am. Orn. viii. p. 143, pl. 72. fig. 6 (1814).

Sterna affinis, Horsfield, Trans. Linn. Soc. 1820, xiii. p. 199 (type examined in E. I. Mus., *H. S.*).

Thalasseus anglicus, Boie, Isis, 1822, p. 563.

Viralva anglica, Steph. in Shaw's Gen. Zool. xiii. pt. i. p. 174 (1826).

Gelochelidon balthica, Brehm, H. Vög. Deutsch. p. 772 (1831).

Gelochelidon meridionalis, Brehm. H. Vög. Deutsch. p. 774 (1831) type of genus *Gelochelidon*.

Laropis anglica, Wagler, Isis, 1832, p. 1225 (type of *Laropis*).

Sterna macrotarsa, Gould, P. Z. S. 1837, p. 26.

Gelochelidon anglica, Coues, Proc. Phil. Ac. 1862, p. 536; Jerdon, B. India, iii. p. 836 (1864); Blasius, J. f. Orn. 1866, p. 82; Scl. & Salvin, P. Z. S. 1871, p. 572; Coues, B. N.W. Am. p. 664 (1874).

Gelochelidon macrotarsa, Gould, B. Austr. Suppl. pl. 81 (1869), Handbk. B. Austr. ii. p. 403 (1865); Gray, Hand-list, iii. p. 119 (1871).

Gelochelidon nilotica, Gray, Hand-list, iii. p. 119 (1871).

Gelochelidon aranea, Gray, Hand-list, iii. p. 119 (1871).

In this case also, in spite of its stout bill, the short and somewhat rounded lateral feathers of the tail, and the long hind toe, I do not think we can consistently allow a generic distinction without admitting a number of indifferent genera. In its habits this bird appears to partake rather of the nature of the Sea-, than of the Marsh- or River-Terns, and although the shape of the tail is somewhat rounded as in *Hydrochelidon*, it must be remembered that *S. caspia* has a similar tail, and that both these species have the strong and fully webbed feet of the Sea-Terns. On the whole it would seem advisable to avoid undue multiplication of genera by retaining this species amongst the *Sternæ*.

It is now generally admitted that the American *S. aranea* is identical with the European bird; and I can see no ground for considering Mr. Gould's *Sterna macrotarsa* from Australia to be specifically distinct. The range of the species is therefore from

Western Europe to the China seas, throughout India, Ceylon, and the Malay region down to Australia, and along the east coast of America as far as Patagonia; on the Pacific side it has only been observed in Guatemala (Salvin). It does not appear to have been recorded from South Africa, which is somewhat remarkable.

Mr. G. R. Gray chose to identify this species with Hasselquist's *S. nilotica*; but there is nothing in his description to prove that this was the bird referred to; and in any case the name would not be available, as it antedates the 12th ed. of Linnæus's 'Systema Naturæ.'

STERNA SEENA, Sykes.

Sterna seena, Sykes, P. Z. S. 1832, ii. p. 171. no. 231.

Sterna aurantia, Gray & Hardw. Ill. Ind. Zool. i. pl. 69. fig. 2 (1832).

Sterna brevirostris, Gray & Hardw. Ill. Ind. Zool. i. pl. 69. fig. 1. juv. (1832).

Sterna roseata, Hodgson, Gray's Zool. Misc. p. 86 (1844).

Seena aurantia, Blyth, Cat. Birds Mus. As. S. B. p. 291. no. 1706 (1849) (type of subgenus *Seena*); Jerdon, B. India, iii. p. 838 (1864); Blasius, J. f. Orn. 1866, p. 73.

Although the stout curved bill of this species is somewhat peculiar, this seems to be hardly sufficient to warrant its elevation to the rank of a subgenus. The webs of the toes are of moderate extent and not much excised; the tail is *long* and *forked*, as in typical *Sterna*.

This Tern breeds on the sandbanks of the Indian rivers; and the eggs are in appearance intermediate between those of *S. anglica* and the large-billed River-Tern of South America, *S. magnirostris*. It appears to be confined to the Indian region.

The names *seena* and *aurantia* are contemporaneous; but I adopt the former, because it is properly described; *S. aurantia* is undescribed, and merely based upon a bad plate.

STERNA MELANOGASTRA, Temm.

Sterna melanogaster (sic), Temm. Pl. Col. vol. v. pl. 434 (1838); Gould, B. Asia, pt. xix. pl. (1867).

Sterna javanica, Horsfield, in Zool. Res. (but not in Tr. Linn. Soc. 1820, xiii.); Jerdon, B. India, iii. p. 840 (1864); Irby, Ibis, 1861, p. 247.

Sterna acuticauda, Gray & Hardw. Ill. Ind. Zool. pl. 70. fig. 3 (1832).

Sterna melanogastra, Schlegel, Mus. P.-B. *Sternæ*, p. 21 (1863); Schl. & Poll. Rech. Madagasc. p. 147 (1868).

Hydrochelidon melanogastra, Bonap.

Sternula melanogastra, Blas. J. f. Orn. 1866, p. 74.

"*Sternula minuta*" et "*Sternula jerdoni*," Beavan, Ibis, 1868, p. 403 (clearly immature birds of this species).

Pelodes javanica, Gray, Hand-l. iii. p. 122 (1871).

Owing to its somewhat excised webs, and perhaps to its super-

ficial resemblance in the dark coloration of the lower parts to *H. hybrida*, this species has been placed by Bonaparte and others in the genus *Hydrochelidon*; but its long, straight bill, and long, pointed tail show that its position is rather with the true *Sternæ*. It is an abundant species on most of the Indian rivers, in Ceylon, Burma, &c.; and in its manner of nesting on sandbanks, and in the character of its eggs, of which I have specimens before me, it differs from the Marsh-Terns.

As this species is constantly cited as "*Sterna javanica*, Horsfield," I may be excused for repeating that I have examined Horsfield's *type* specimen of "*Sterna javanica*" in the Indian Museum, and that it is undoubtedly *Hydrochelidon hybrida* (Pallas). As a straggler *S. melanogastra* has occurred during a tempest at the Island of Réunion.

STERNA ANTARCTICA, Wagler.

Sterna antarctica, Wagler, Isis, 1832, p. 1223 (ex J. R. Forster, MS.); J. R. Forster, Desc. Anim. p. 107 (ed. 1844); Buller, B. New Zealand, p. 283 (1873).

Hydrochelidon albostriata, G. R. Gray, Voy. Erebus & Terror, Birds, p. 19, pl. 21 (1844).

Sternula antarctica, Bonap. C. R. xlii. p. 773 (1856).

Hydrochelidon albistriata, Bonap. C. R. xlii. p. 773 (1856).

Sterna cinerea, Ellman, Zoologist, 1861, p. 7473.

Hydrochelidon hybrida, Finsch, J. f. O. 1867, p. 347.

Pelodes albistriata, Gray, Hand-list, iii. p. 122 (1871).

This species, of a nearly uniform smoke-grey colour, appears to be confined to New Zealand, and principally to the South Island, where it deposits its eggs on the bare ground, making no nest, and having in general the habits of a coast- or estuary-frequenting Tern. The foot is moderately stout, and the webs are but slightly scalloped; the upper mandible, which is slightly curved towards the tip, is quite different from that of *Hydrochelidon*, in which genus there seems to be no good reason for placing it. It is closely allied to the next species—a somewhat specialized form, found only, up to the present time, at Kerguelen Island.

STERNA VIRGATA, Cab.

Sterna virgata, Cabanis, J. f. Orn. 1875, p. 449.

"*Sterna vittata*, Gm.," Coues, in Bull. U.S. Nat. Mus. p. 17, 1875 (nec Gm. nec Von Pelzeln).

There are three specimens of this Tern in the British Museum, all from Kerguelen Island: two are in immature plumage; and one is a fine adult. The bill is rich blood-red, and the feet are red, whereas in *S. antarctica* those parts are yellow, or, at most, orange; the bill, also, in the Kerguelen bird is much straighter than in the New-Zealand form; and the tail is more deeply forked. It is, in fact, a more thoroughly Sea-Tern than its predecessor; in its nesting it is also peculiar, the *single* egg being deposited upon somewhat high and broken ground and on the slope of the hill-side (*Kidder*).

The egg is of the ordinary Tern-like character, with a trifle more olive-green in the ground-colour than is usual in eggs of *S. fluviatilis*, but which is not rare in a series of those of *S. macrura*. Dr. Kidder, Naturalist to the American Expedition to observe the Transit of Venus, describes the birds as very bold, swooping at the head of any one who approaches their breeding-grounds, and actually scaring the Skuas by their impetuous attacks. There can be no doubt that this was the species obtained by the Americans; but Dr. Coues is mistaken in identifying it with *S. vittata*, Gm., of which he can hardly have examined a genuine specimen, or he would never have confounded two such perfectly distinct species.

STERNA VITTATA, Gm.

Sterna vittata, Gm. S. Nat. i. p. 609 (1788) (founded on Latham's Wreathed Tern, from Christmas Island); Pelzeln, Novara-Reise, Vögel, p. 152 (1865) (full description).

Gmelin's description, founded on Latham, fairly suits this species, although I am inclined to doubt the correctness of the locality assigned, viz. Christmas Island, especially as there is no mention in Cook's Voyages of any Tern being found there, except the Sooty Tern, of which there is a full description. However, it has not been applied to any other bird; and in the Ornithology of the 'Voyage of the Novara,' Herr von Pelzeln adopted the name for the present species, obtained at St. Paul's Island, about 700 miles to the north of Kerguelen Island, giving a full description, both in Latin and German; so that the name may fairly be accepted. The British Museum possesses both adult (in breeding-plumage) and immature specimens obtained at St. Paul's Island in January 1853, and also a specimen from Kerguelen Island; there is another, taken on board H.M.S. 'Rattlesnake,' in 38° 22′ S., 0° 25′ W., on 27th February 1847; and I have a specimen, also captured on board ship, near the island of St. Helena, in April, for which I am indebted to my friend Mr. E. Hargitt. In general appearance this Tern much resembles *S. hirundinacea*, Lesson (*S. cassini*, Scl.); but it is decidedly smaller, and more generally washed with grey below; the bill, which is red, is rather weak, and tapers very suddenly from the angle to the tip. In the adult the tail is long, forked, and very white. It is interesting to find a species which apparently has its head quarters at St. Paul's Island, reaching down on the one hand to Kerguelen Island, where it meets with another species closely allied to *S. antarctica* of New Zealand, and then stretching away to the west of our meridian and approaching the limits of the South-American species, with which its affinities are undoubtedly strongest, and thus connecting South America with New Zealand by way of the islands of the South Atlantic Ocean.

STERNA HIRUNDINACEA, Less.

Sterna hirundinacea, Lesson, Tr. d'Orn. p. 621 (1831); Pucheran, Rev. Zool. 1850, p. 539 (Santa Catharina, Brazil; type in Paris Mus. examined, *H. S.*).

Sterna hirundo, Max. v. W. Beitr. iv. p. 865 (1833).

Sterna antarctica, Peale (nec Lesson, nec Wagler, nec Forst.), U.S. Expl. Exp. p. 280 (1848); Ph. & Landbeck, Cat. Av. Chilenas, p. 49.

Sterna meridionalis, Cassin (nec Brehm), U.S. Expl. Exp. p. 385 (1858); Schlegel, Mus. P.-B. *Sternæ*, p. 15 (1863).

Sterna wilsoni, Burm. Syst. Ueb. iii. p. 451.

Sterna cassinii, Sclater, P. Z. S. 1860, p. 391; Abbott, Ibis, 1861, p. 166; v. Pelzeln, Novara-Reise, Vög. p. 153 (1865); Scl. & Salv. P. Z. S. 1871, p. 570; Gray, Hand-l. iii. p. 118 (1871).

"*Sterna meridionalis*, Peale," Blasius, J. f. Orn. 1866, p. 74 (nec Peale).

The range of this species, as defined by Messrs. Sclater and Salvin, is from Rio de Janeiro southwards to the Falkland Islands, and up the west coast of Chili as far north as Valdivia. Since then I have received specimens from Colchagua, in about 35° S. lat.; and it may naturally be looked for even further north. It is the largest and the lightest in colour of the medium-sized Sea-Terns; and the entire bill (which is long and powerful) is bright red in the adult.

It is with regret that I do not adopt Mr. Sclater's name *S. cassinii*; but the examination of the type of *S. hirundinacea* shows that it is undoubtedly this species.

STERNA ALBIGENA, Reich.

Sterna albigena, Licht. Nomenclator, 1854 (descr. nulla); Reich. Schwimmvög. Suppl. xi. pl. xxi. fig. 816.

Hydrochelidon albigena, Bonap. Compt. Rend. 1856, ii. p. 773.

"*Sterna senegalensis*, Sw.," Heugl. Ibis, 1859, p. 351; König-Warth. Ibis, 1860, pp. 125, 432.

Sterna albigena, Heugl. Faun. Roth. Meeres, no. 307, p. 32 (descr.); Schlegel. Mus. P.-B. *Sternæ*, p. 20 (1863); Blasius, Journ. f. Ornith. 1866, p. 75; Finsch & Hartl. Vög. Ost-Afr. iv. p. 834, tab. x. fig. 2 (1870).

Pelodes albigena, Gray, Hand-list, iii. p. 122 (1871).

In order to show the connexion between the three preceding species, it was necessary to pass over the present, which is a local and smoke-coloured form of typical *Sterna*, having no real affinity with *Hydrochelidon*. The tail is long and pointed, the bill narrow and straight; the feet are amply webbed; and it is, in a word, a small, slender, Common Tern, of a general smoky hue, the rump and tail being as dark as the mantle. I cannot understand how Finsch and Hartlaub fail to identify Reichenbach's figure in the 'Schwimmvögel' with this species; for his illustration, though coarse, is decidedly far more recognizable than theirs in the 'Vög. Ost-Afrika's.' It is a very distinct form, which appears to have its head quarters in the Red Sea, south of the tropic of Cancer; and an interesting account of its breeding in the Dahalak archipelago is to be found in 'The Ibis,' 1861, p. 125. The eggs, two in number, are laid in July and August, on the flat coral reef, close to the beach, and resemble those of typical *Sterna*. Whilst writing this, Lord Walden has sent me

two fine specimens, obtained near Bombay, a considerable extension of its range as hitherto known to us. There is no example of this Tern in the British Museum; but the collections at Leyden, Frankfort, Mayence, and Berlin are more fortunate in this respect.

STERNA FLUVIATILIS, Naum.

Sterna hirundo (in part), Linn. Syst. Nat. i. p. 227 (1766), and of most authors.

Larus bicolor, *Larus sterna* et *Larus columbinus*, Scop. Ann. i. Hist. Nat. p. 82, 1769 (nos. 110 & 112 im., 113 juv.).

Sterna fluviatilis, Naum. Isis, 1819, p. 1847–48; Gray, Hand-list, iii. p. 118 (1871); Sharpe & Dresser, B. Europe, pt. xi. (1872).

Sterna senegalensis, Sw. B. W. Af. ii. p. 250 (1837); Schl. Mus. P.-Bas, *Sternæ*, pp. 16 & 17 (1863) (sp. no. 2 examined by *H.S.*).

Sterna wilsoni, Bp. List, p. 61 (1838), et auct. American.; Gray, Hand-list, iii. p. 118 (1871).

Sterna macrodactyla et *macroptera*, Blasius, J. f. Orn. 1866, pp. 75, 76; Gray, Hand-list, iii. p. 118 (1871).

Sterna dougalli, Layard, B. S. Af. p. 369 (1867).

This well-known species is found throughout Temperate Europe, Asia, and America, except on the Pacific coast. In winter it visits the coast of Africa as far south as the Cape of Good Hope, and has occurred as far to the south-east as Ceylon, specimens having been sent to me by Capt. Vincent Legge, R.A. Northwards it goes as far as Pekin (*Swinhoe*); but in Tibet and part of Siberia it is replaced by a form which I consider to be distinct, and for which I propose the name of

STERNA TIBETANA, sp. nov.

S. *similis* S. fluviatili *sed ubique saturatior; supra schistaceo-cinerea; subtus pectore clare vinaceo facile distinguenda.* (From a specimen in Lord Walden's collection.)

Four adult specimens from Tibet and several from Lake Baikal ascribed to *S. longipennis* differ from the latter in having the bill and feet coloured as in *S. fluviatilis*, from which in turn they differ in having the sides of the neck, shoulders, and flanks of a clear grey, which assumes a darker and more vinous tint on the breast and abdomen; the mantle and wings are also much darker. The bill and feet are smaller than in average *S. fluviatilis*, and of an orange-red, the former tipped with horn. It is possibly this species which Mr. Hume mentions as breeding near Yarkand. The examples referred to above are all in breeding-plumage; but I believe *S. fluviatilis* is a rare bird even in Lower India, and only found there during the winter months.

STERNA LONGIPENNIS, Nordm.

Sterna longipennis, Nordm. in Erman's Verz. v. Th. u. Pfl. p. 17 (1835); Middendorff, Reise, Zool. p. 246, tab. 25. fig. 4 (1851); Schlegel, Mus. P.-B. *Sternæ*, p. 23 (1863) (as regards

Middendorff's specimens only, *H. S.*) ; Blas. J. f. Orn. 1866, p. 59 ; Gray, Hand-list, iii. p. 118 (1871).

In its slender shape and grey-tinted underparts this species seems to connect the preceding with *S. macrura* ; the *feet*, however, are *brown* ; and the *bill* is *black* in the breeding-season, and probably at other times. But authentic specimens in immature plumage are still desiderata, although I can refer to no other species a specimen obtained by Mr. Wallace in New Guinea. Lord Walden's collection contains a specimen from Yeso, the most northern of the Japanese islands ; and thence it reaches as far west as Lake Baikal, where, as before observed, *S. tibetana* is also found ; indeed many of the specimens sold by the Paris dealers as *S. longipennis* are really the latter species.

STERNA MACRURA, Naum.

Sterna hirundo (in part), Linn. Syst. Nat. p. 227 (1766), id. F. S. p. 55. no. 158 ; Gray, Hand-list, iii. p. 118 (1871) ; Sharpe & Dresser, B. Europe, xii. (1872).

Sterna macrura, Naum. Isis, 1819, p. 1847 ; Coues, P. Phil. Acad. 1862, p. 549 ; id. B. N.W. Am. p. 685 (1874).

Sterna arctica, Temm. Man. d'Orn. ii. p. 742 (1820).

Sterna brachypus, Swainson, B. W. Afr. ii. p. 152 (1837) ; Gray, Hand-list, iii. p. 118 (1871).

Sterna pikei, Lawr. Ann. Lyc. N. Y. vi. p. 3 (1853) ; id. Baird's B. N. Am. p. 853, pl. 95 (1858) ; Gray, Hand-list, iii. p. 118 (1871).

Sterna paradisea, Brünn., Schlegel, Mus. P.-B. *Sternæ*, p. 15 (1863) ; Blas. J. f. Orn. 1866, p. 74.

"*Sterna senegalensis*, Sw.," Schlegel, Mus. P.-B. *Sternæ*, p. 16 (1863) (no. 1 sp. examined, *H. S.*).

Sterna portlandica, Ridg. Am. Nat. viii. p. 433 (1874) ; Coues, B. N.W. Am. p. 691 (1874). (Other unimportant synonyms are intentionally omitted).

It is true that the mere description of *Sterna hirundo* given by Linnæus suits the Arctic Tern as regards the colour of the bill, which is properly described as "rubrum," and as "coccineum" in the 'Faun. Suec.,' whereas in the Common Tern the red bill is somewhat tipped with horn-colour. In the references to former authors and in the context, especially where he says "habitat ubique ad lacus et stagna," there is, on the other hand, a stronger probability of Linnæus's bird being the Common Tern, a species abundant in Sweden, and which is far more in the habit of frequenting inland waters than the Arctic Tern. Since the time when the two species were discriminated, first by Naumann, and in the following year by Temminck, the names of *S. macrura* and *S. arctica* have been generally adopted for the Arctic Tern, the latter being, perhaps, the more widely recognized, until the late Mr. G. R. Gray, and afterwards Messrs. Sharpe and Dresser, in one of the early Parts of the 'Birds of Europe,' on which they were then jointly engaged, considered it advisable to shift the time-sanctioned name of *S. hirundo*

from the Common to the Arctic Tern. There could be no objection to their discarding *S. hirundo* for the former and adopting *S. fluviatilis*; but these violent transfers must always be productive of confusion even when justifiable; and in this case it seems to me that the original description is so ambiguous that they would have done better to discard *S. hirundo* altogether, and to adopt the first name about which there could be no mistake—a step which, much as I dislike to differ from such high authorities upon nomenclature, I feel compelled to take.

This species is the *S. paradisea* of Brünnich (Orn. Bor. p. 42 (1764)—a pre-Linnæan name, which is not available. I notice it, however, because this name has frequently been employed for the Roseate Tern (*S. dougalli*), a bird with which Brünnich was unacquainted. From the plate and description I always imagined that *S. pikei* was an immature bird of this species, and am glad to have this opinion confirmed by Dr. Elliott Coues, who has lately reexamined the type.

With regard to *S. portlandica*, Mr. W. Brewer's investigations and the latest information from American sources leave little doubt that it is only an immature example of this species.

The Arctic Tern ranges along the coasts of northern Europe, Asia, and America; in winter it visits the African coast, descending as far as Walwich Bay; and I have an example obtained by Wucherer off Bahia, the only instance known of its occurrence so far south on the American side; it is possible, however, that the bird mentioned by Philippi and Landbeck, Cat. Av. Chilenas, 49 (1869), may be this species.

STERNA FORSTERI, Nutt.

Sterna hirundo, Sw. & Rich. F. Bor.-Am. p. 412 (1831), nec auct. (Saskatchewan River).

Sterna forsteri, Nuttall, Man. Orn. ii. p. 274, note (1834); Lawr. B. N. Am. p. 862 (1858); Coues, P. Phil. Acad. 1862, p. 544; Blas. J. f. Orn. 1866, p. 74; Scl. & Salv. P. Z. S. 1871, p. 569; Gray, Hand-list, iii. p. 118 (1871); Coues, B. N.W. Am. p. 676 (1874).

Sterna havelli, Aud. Orn. Biog. v. (1839) p. 122, pl. 409. fig. 1, and of Lawr. &c. (*fide* Coues); Gray, Hand-list, iii. p. 118 (1871).

A rather stouter and larger species than *S. fluviatilis*, this species may always be distinguished by its having the *outer* webs of the long tail-streamers *white*, whereas in the allied species they are dusky. In the 'Birds of the North West' (*l. s. c.*) Dr. Coues gives the differential diagnoses of *S. forsteri*, *fluviatilis*, and *macrura*; and to these I have nothing to add.

In summer this Tern breeds in the interior of British America and in Wisconsin; but at other seasons it is generally distributed throughout the United States, and goes down as far as Guatemala, on both the Pacific and Atlantic side, and even to the latitude of Pernambuco, Brazil, thus nearly impinging upon the northern limits of *S. trudeaui*, a species to which, in *winter* plumage only, it bears a superficial resemblance.

STERNA DOUGALLI, Mont.

Sterna dougalli, Mont. Orn. Dict. Suppl. (1813); Vieillot, N. D. H. N. xxxii. p. 174 (1819), Gal. Ois. ii. p. 225; Steph. in Shaw's Gen. Zool. xiii. pt. i. p. 153 (1825); Scl. & Salv. P. Z. S. 1871, p. 571; Coues, B. N.W. Am. p. 688 (1874).

Sterna paradisea, Keys. & Blas. Wirb. Eur. p. 247. no. 484 (1840) (nec Brünn.); Lawr. B. N. Am. p. 863 (1858); Coues, Proc. Phil. Acad. 1862, p. 551; Gray, Hand-list, iii. p. 119 (1871); Walden, Ibis, 1874, p. 149 (Andaman Is.).

Sterna gracilis, Gould, P. Z. S. 1847, p. 222, B. Australia, vii. pl. 27 (1848), Handbook B. Austr. ii. p. 399 (1865); Gray, Hand-list, iii. p. 119 (1871).

"*Sterna douglasii*, Mont.," Schlegel, Mus. P.-B. *Sternæ*, p. 24 (1863).

"*Sterna douglasi*, Mont.," Blasius, J. f. Orn. 1866, p. 80.

? *Larus polo-candor*, Sparrm. Mus. Carl. ii. fasc. 4, no. 83 (1788). ("Habitat ins. Polo-candor, mari Chinensi.") The plate represents a very young Tern, apparently of this species. Bonaparte says (in his "Notes sur les Larides," in the Rev. et M. de Zool, 1854) that he has *proved* it to be a young *Rissa*! but any thing more unlike a Kittiwake it would be difficult to imagine.

Apart from its light and elegant shape and its proportionally short wings, this species may always be recognized by the white inner margins of the primaries, extending quite round the tips of the feathers as far as the outer webs; the rump and tail-coverts are washed with gray. The coloration of the bill varies considerably with age and seasons; in some specimens it is black almost to the base, whilst in others the red or orange extends far in front of the angle. In American specimens the bill is, perhaps, a trifle stouter than in British examples, which are in this respect identical with birds from Africa and the Indian Islands. In these the red colour gradually encroaches upon the black, until, in two specimens from the Andaman Islands, in Lord Walden's collection, the black at the tip of the bill has almost disappeared, in which state it becomes the *S. gracilis* of Mr. Gould, whose typical specimen in the British Museum is in *every* other respect identical with *S. dougalli* from any part of the world; indeed, in his original description (in P. Z. S. 1847, p. 222) Mr. Gould calls it "a very elegant species, closely allied to *S. dougallii* of the British Islands," although he omits that remark in the 'Birds of Australia.' In view of these gradual changes in the amount of black in the bill, as exemplified by a series of upwards of fifty specimens from various localities, I must consider *S. gracilis* merely a form of *S. dougalli* with more red in its bill than is usual in northern specimens.

I do not find authentic records of the occurrence of this bird beyond 57° N. lat., south of which it ranges in scanty numbers along the British and European coasts, and goes up the Mediterranean at least as far as the Balearic Islands, whence Canon Tristram possesses an adult obtained in May. I have not seen any specimens from the west coast of Africa, all those so marked

from Damaraland being really *S. fluviatilis* in winter dress; but there are specimens in the British Museum from the Cape of Good Hope, and I have several examples from Natal. It is found off Rodriguez, and breeds at the Andaman Islands, where the eggs, sent with the parent birds by Capt. Wimberley, are far handsomer in markings than any American specimens; and quite recently I have received from Capt. Vincent Legge, R.A., a lovely rose-tinted specimen from Ceylon, shot in May, with but little black on the mandibles. Capt. Legge writes that a month later the red in the bills of the birds still on the coast had almost disappeared, showing what a changeable and untrustworthy character the colour of the bill is. From Ceylon this species is found throughout the Malayan islands down to Houtmann's Abrolhos, on the west coast of Australia.

In North America, where it is far more abundant than in Europe, it breeds from Massachusetts to Florida and at the Bermudas; also in Central America, and visits various West-Indian islands. In the British Museum is a skin registered as obtained at Taboga; and, the only place I know of that name being an island off Panama, this is a considerable extension of its range, if the locality can be trusted.

STERNA CANTIACA, Gm.

Sterna cantiaca, Gm. Syst. Nat. i. p. 606 (1788); Schl. Mus. P. B. *Sternæ*, p. 5 (1863); Layard, B. S. Africa, p. 370 (1867); Scl. & Salvin, P. Z. S. 1871, p. 569; Coues, B. N.W. Am. p. 673 (1874).

Sterna africana, Gm. Syst. Nat. i. p. 605 (1788), jr.

Sterna boysii, Lath. Ind. Orn. ii. p. 804 (1790).

Sterna canescens, Meyer & Wolf, Tasch. deutsch. Vög. ii. p. 458 (1810).

Thalasseus cantiacus, Boie, Isis, 1822, p. 563; Blas. J. f. Orn. 1866, p. 81.

Actochelidon cantiacus, Kaup, Sk. Entw. Eur. Thier. p. 31 (1829), type of *Actochelidon*.

Thalasseus canescens et *candicans*, Brehm, Vög. Deutsch. pp. 776, 777 (1831).

Sterna acuflavida, Cabot, Pr. Bost. Soc. ii. p. 257 (1847); Lawr. Birds B. N. Am. p. 860 (1858).

Thalasseus acuflavidus, Coues, Pr. Phil. Ac. 1862, p. 540.

Actochelidon cantiaca, Gray, Hand-list, iii. p. 119 (1871).

It is now generally admitted that the European and American birds are identical. The range of this species may therefore be broadly described as from Northern Europe to the Cape of Good Hope and the Bay of Bengal in winter, and along the Atlantic coast of North America to the West-Indian Islands, Honduras (probably its southern breeding-limit), and Brazil, at least as far as Bahia, whence I have a specimen.

STERNA ELEGANS, Gamb.

Sterna elegans, Gambel, Pr. Phil. Ac. iv. 1848, p. 129 (Mazatlan); Lawr. Birds N. A. p. 860 (1858).

Thalasseus elegans, Gamb. Journ. Phil. Acad. ser. 2, vol. i. p. 228 (1849); Coues, Pr. Phil. Acad. 1862, p. 540; Ibis, 1864, p. 389 (San Salvador); Salvin, Ibis, 1866, p. 198 (Fonseca Bay).

Sterna comata, Phil. & Landb. Wieg. Arch. 1863, pt. 1, p. 126.

Sterna galericulata (part.), Scl. & Salv. P. Z. S. 1871, p. 569; Coues, Key, p. 319 (1872), B. N.W. Am. p. 671 (1874).

A recent examination of Lichtenstein's type of *S. galericulata* has shown it to be identical with the Cayenne Tern, *S. maxima*, Bodd.; so that Gambel's name must be restored. It occurs on the Pacific side of America, from the Gulf of California to the coasts of Peru and Chili; but I consider that the bird found on the Atlantic coast is distinct, although closely allied. Three specimens which I have examined in Mr. Salvin's collection, from the Pacific side, and two others in the British Museum, from Chili or Bolivia, all agree in having a longer foot and tarsus (·2 inch) than the Atlantic bird; but the principal distinction is in the bill; the angle of the lower mandible being well in advance of the front portion of the nostril (·5 inch diagonally) in the Pacific birds, whereas the angle is almost directly under the nostril in the Atlantic form; the colour of the bill also is red or orange in the former and yellow in the latter, even in tolerably fresh specimens, which still preserve the beautiful roseate tint of the underparts. It is perhaps as well to mention that these remarks are founded upon perfectly well-made skins, the tips of the mandibles being in their proper relative positions; otherwise it might be supposed that the under mandible had been unduly drawn back; the difference, however, on comparison, is very striking, as will be seen by the annexed woodcut.

Fig. 1.

Head of *Sterna eurygnatha*.

As the Atlantic bird has not hitherto been distinguished, I propose to call it

STERNA EURYGNATHA, sp. nov.

S. *similis* Sternæ eleganti, *sed rostro flavo et mandibulæ angulo sub narium apertura antica posito distinguenda.*

Similar to *S. elegans*, but a trifle smaller; bill less robust and yellow, (whereas in *S. elegans* it is orange-red,) the angle of the lower mandible almost immediately below the front of the nostril.

Sterna elegans, Leotaud, Ois. Trinidad, p. 542 (1866).

? "*Sterna cayanensis*, Gmel.," v. Pelzeln, Orn. Brasil. p. 323 (1871).

Range, from Santa Catharina, S. Brazil (*Rogers*), to the island of Trinidad, Leotaud's bird being most probably this species.

STERNA MEDIA, Horsfield.

Sterna media, Horsfield, Trans. Linn. Soc. 1820, xiii. p. 198 (type in E. I. Mus., examined, *H. S.*); Finsch & Hartl., Orn. Ost-Afr. iv. p. 830 (1870); Irby, Orn. Str. Gibraltar, p. 209 (1875).

Sterna affinis, Rüpp. (nec Horsf.) Atlas, p. 23. tav. 14 (1826) (Red Sea); Temm. Man. d'Orn. iv. p. 454 (1840) (Sicily); Schlegel, Mus. P.-Bas, *Sternæ*, p. 6 (1863); Degl. & Gerb. Orn. Eur. ii. p. 454 (1867).

Sterna bengalensis, Lesson, Tr. d'Orn. p. 621 (1831); Pucheran, Rev. Zool. 1850, p. 542; Jerdon, B. India, iii. p. 843 (1864).

Thalasseus torresii, Gould, P. Z. S. 1842, p. 140, B. Australia, vii. pl. 25 (1848).

Thalasseus bengalensis, Gould, Handbk. B. Australia, ii. p. 397 (1865).

Thalasseus affinis, Blas. J. f. Orn. 1866, p. 82.

Actochelidon affinis, Gray, Hand-list, iii. p. 119 (1871).

This species may be considered an eastern representative of the preceding; but it is slightly smaller, the mandibular angle more advanced, and can always be distinguished by its *pearl-grey rump and tail*. It ranges from the Straits of Gibraltar, along the Mediterranean, down the Red Sea to Madagascar, and eastwards along the Indian coast and islands, throughout the Malay archipelago, the Aru Islands, down to Torres Straits and Port Essington.

STERNA MAXIMA, Bodd.

Grande Hirondelle de Mer de Cayenne, Buffon, Ois. viii. p. 346.

Sterna maxima, Boddaert, Tabl. des P. Enl. p. 58. no. 988 (1783); Scl. & Salv. P. Z. S. 1871, p. 567 (Neotrop. Larid.).

Sterna cayennensis, Gmelin, Syst. Nat. 1788, i. p. 604; Leot. Ois. de Trinidad p. 535 (1866).

Sterna cayana, Latham, Ind. Orn. p. 804. no. 2 (1790); Steph. in Shaw's Gen. Zool. xiii. p. 155 (1825).

Sterna galericulata, Licht. Verz. Doubl. p. 81 (1823) (type in Berlin Mus., examined, *H. S.*); Pelzeln, Orn. Bras. p. 324 (1871); Schlegel, Mus. P.-B. *Sternæ*, p. 7 (1863).

Sterna erythrorynchos, Wied, Beitr. iv. p. 857 (1833); Tschudi, F. Per., Aves, p. 305 (1846).

Sterna cristata, Swains. B. W. Africa, ii. p. 247, pl. xxx. (1837) (type in Camb. Mus. examined, *H. S.*).

Thalasseus cayanus, Bp. List, 1838, p. 61; Gosse, B. Jamaica, p. 431 (1847).

Sterna regia, Gambel, Proc. Phil. Acad. iv. 1848, p. 228; Lawr. B. N. Am. p. 859 (1858); Coues, Key, p. 319 (1872), B. N.W. Am. p. 669 (1874).

Thalasseus regius, Gamb. J. Phil. Ac. i. 1849, p. 228; Coues, Proc. Phil. Ac. 1862, p. 539.

Phætusa regia, Bp. Compt. Rend. p. 772 (1856).

Thalasseus galericulatus, Blas. J. f. Orn. 1866, p. 82.

Thalasseus cayennensis, Gray, Hand-list, iii. p. 120 (1871); Shelley, Ibis, 1872, p. 293.

Sterna bergii, Irby, Orn. Str. Gib. p. 209 (1875) (coll. Lilford; sp. examined, *H. S.*).

I fully agree with Messrs. Sclater & Salvin that Buffon's plate on which *Sterna maxima* of Boddaert is founded, represents this species. Mr. Salvin and myself have also carefully compared Lichtenstein's type specimen of *S. galericulata* with our respective series of American specimens, and find them identical; I have also compared a good many specimens from the Gold Coast, all in winter plumage, and mostly obtained in the early spring. The specimen in Lord Lilford's collection, which was obtained by the late M. Favier in the Straits of Gibraltar, and was purchased from his successor by Col. Irby, undoubtedly belongs to this species.

Some North-American examples are a trifle more robust in the bill than either Brazilian or African specimens; but there is no constant difference, even in this particular.

On examining Lichtenstein's type of *S. galericulata*, the outer primaries proved to be partially in the sheath, and about two inches shorter than their natural length, explaining the original description of "the tail being 2 inches longer than the wings" which had previously been a great puzzle, there being no Tern of this size known in which the proportions were such. This species has a somewhat wide range, as it is found on the Pacific coast from California to Peru, whilst on the Atlantic sea-board it has once occurred as far north as Massachusetts; it breeds on the coast of Florida, and on some of the cays of the West-Indian Islands, and visits South Brazil. Its occurrence on the African coast has already been noticed; but at present there is no record of its breeding there.

STERNA CASPIA, Pall.

Sterna caspia, Pall. Nov. Comm. Petrop. xiv. p. 582 (1769–70); Pall. Zoog. Rosso-As. p. 332 (1811).

Sterna tschegrava, Lepechin, Nov. Comm. Petrop. xiv. p. 500 (1769–70).

Sterna caspica, Sparrm. Mus. Carl. ii. fasc. 3, no. 72 (1788); Kirk, Ibis, 1864, p. 337 (mouth of Zambesi, breeding).

Sterna megarhynchos, Meyer & W. Tasch. deutsch. Vög. ii. p. 457 (1810).

Thalasseus caspius, Boie, Isis, 1822, p. 563; Coues, Proc. Phil. Acad. 1862, p. 538, and *T. imperator* in text; Gray, Hand-list, iii. p. 120 (1871).

Hydroprogne caspica, Kaup, Sk. Entw. eur. Thier. p. 91 (1829).

Sylochelidon caspia, Brehm, Vög. Deutsch. p. 770 (1831), type of *Sylochelidon*; Blas. J. f. Orn. 1866, p. 82; Gould, Handbk. B. Austr. ii. p. 392 (1865).

Sylochelidon balthica et *S. schillingii*, Brehm, Vögel Deutsch. p. 769, 770 (1831).

Helopus caspius, Wagler, Isis, 1832, p. 1224 (type of *Helopus*).

Thalassites melanotis, Swain. B. W. Af. ii. p. 253 (1837) (type in Camb. Mus. examined, *H. S.*).

Sylochelidon strenuus, Gould, P. Z. S. 1846, p. 21; Gould, B. Austr. vii. pl. 22 (1848).

Sylochelidon melanotis, Bp. Compt. Rend. 1856, p. 772.

Sterna melanotis, Hartl. Orn. West-Afr. p. 254 (1857).

Sterna major, Ellman, Zool. 1861, p. 7472.

This large and well-known Tern is found from Northern Europe to New Zealand, and in America from Labrador, where it breeds, down to New Jersey. Mr. Bernard Ross also found it as far west as Great Slave Lake and the Mackenzie river.

It is now generally conceded that there is but one species.

With regard to the name, Dr. Elliott Coues very justly remarks that it is undesirable to adopt Lepechin's cacophonous name, in place of the well-known one given by Pallas, merely on the score of a priority of 82 pages.

STERNA BERNSTEINI, Schlegel.

Sterna bernsteini, Schlegel, Mus. P.-B. *Sternæ*, p. 9 (1863) (♂, winter E. coast of Halmahera; type in Leyden Mus. examined, *H. S.*).

Thalasseus bernsteini, Blas. J. f. Orn. 1866, p. 81.

This large and very light-coloured species, the mantle being even paler than in *S. cantiaca* or *S. maxima*, is classed by Prof. Schlegel amongst the group which has the white frontlet band in the breeding-plumage. This may be the case; but I can discern no proof of it in the type and only specimen in the Leyden Museum, nor in two others from the Island of Rodriguez in the British Museum, nor in two others from Round Island and Ile de la Baleine, in the collection of Messrs. A. & E. Newton; for all these, the only ones I have ever seen, are equally in winter dress. The bill is yellow; but the black at the apex in the type is probably an individual peculiarity.

This Tern is closely allied to *S. maxima*; and, until we obtain a specimen in full plumage, its place seems to be next to it in order. The dimensions are:—Wing 12·5 to 13 inches; tarsus 1·1; foot, including middle claw, 1·15; bill 1·8.

STERNA BERGII, Licht.

Sterna bergii, Licht. Verzeich. p. 80 (1823), South Africa (type in Berlin M. examined, *H. S.*); Schlegel, Mus. P.-Bas, *Sternæ*, p. 11 (1863); Finsch & Hartl. Vög. Ost-Afr. p. 828 (1870); Shelley, B. of Egypt, p. 298 (1872).

Sterna cristata, Steph. in Shaw's Gen. Zool. xiii. pt. i. p. 146 (1825) (nec Swainson); Swinhoe, Ibis, 1860, p. 68, 1863, p. 30.

Sterna velox, Rüpp. Atlas, p. 21, t. 13 (1826), Red Sea (type at Frankfort examined, *H. S.*); Thomson, Nat. Hist. Ireland, iii. p. 226 (1847), "between Dublin and Howth, end of Dec. 1846, in full breeding-plumage" (!); Swinhoe, Ibis, 1860, p. 429, 1861, p. 345, 1866, p. 134; Kirk, Ibis, 1864, p. 339 (breeding at mouth of Zambesi).

Sterna pelecanoides, King, Surv. Int. Austr. ii. p. 422 (1826).

Sterna longirostris, Lesson, Traité d'Orn. p. 621 (1831); Pucheran, Rev. Zool. 1850, p. 635; Boie, Isis, 1844, p. 181.

Pelecanopus pelecanoides, Wagler, Isis, 1832, pp. 277 & 1225, type of *Pelecanopus*.

Thalasseus pelecanoides, Gould, B. Austr. vii. pl. 23 (1848); Gray, Gen. Birds, iii. p. 658; Swinhoe, P. Z. S. 1871, p. 422.

Thalasseus poliocercus, Gould, B. Austr. vii. pl. 24 (1848), Handbk. B. Austr. ii. p. 396 (1865).

Sterna rectirostris, Peale, Zool. U.S. Expl. Exped. p. 281 (1848).

Sylochelidon polyocerca, G. R. Gray, List of *Anseres*, Brit. Mus. p. 175.

Sterna novæ-hollandiæ (Mus. Paris.), Pucheran, Rev. Zool. 1850, p. 545 (type in Paris Mus. examined, *H. S.*)

Pelecanopus velox, *P. bergii*, et *P. poliocercus*, Bonap. Compt. Rend. xlii. p. 772 (1856).

Sterna poliocerca, Schlegel, M. P.-Bas, *Sternæ*, p. 12 (1863); G. R. Gray, Ibis, 1862, p. 249.

Thalasseus cristatus, Swinhoe, P. Z. S. 1863, p. 329; Jerdon, B. of India, iii. p. 842 (1864); Gould, Handbk. B. Austr. ii. p. 394 (1865).

Thalasseus bergii, Blas. J. f. Orn. 1866, p. 81.

"*Phætusa astrolabæ*, Bp." in Paris Mus. from Tonga-tabu, Voy. of Quoy & Gaimard. Another specimen so marked = *S. frontalis*—*H. S.*

The distinguishing character of this large Sea-Tern is the white band of feathers across the base of the bill. In the adult plumage, and even in winter plumage, there is no other species of its size in which the mantle and tail are of so dark a grey; but it must be admitted that between extreme individuals from different localities there is a considerable difference in intensity of coloration. In a series, however, they blend so gradually as to make it impossible to draw a line; whilst with regard to the smaller race, which has received the name of *S. poliocerca*, there are similar imperceptible gradations in size. The types, of *S. bergii* from the Cape of Good Hope and of *S. velox* from the Red Sea, are identical in size and colour, and are not perceptibly lighter in colour than "*S. pelecanoides*;" but in Madagascar specimens, and also in some from Damara-land, the mantle is of a lighter shade. Locality does not assist in separating them; for it is clear that the light- and the dark-backed birds cross each other's line at Madagascar.

From the Cape of Good Hope and from the Red Sea (with the exception of Madagascar), throughout the Indian Seas, Ceylon, the Malay archipelago, the China seas, down to Australia and the Fiji

group, we find a uniformly dark mantle and tail; but at Ceylon we begin to meet with a race which differs in no respect but that of size, and this by imperceptible gradations. I must therefore follow Messrs. Finsch & Hartlaub, and unite these three varieties under one head. Before coming to this conclusion, I have examined about 70 specimens, and must especially acknowledge the great assistance I have received from the fine series of sexed and dated specimens sent to me from Ceylon by Capt. V. Legge, R.A. It is at Ceylon that the two races seem to unite, large and small examples occurring throughout the year in the same locality and flocks; and the difference thus becomes reduced to one of mere individual peculiarity. A series of measurements show that in length of wing (14 inches) and general dimensions, some Australian specimens are fully equal to the largest African ones; Polynesian examples are somewhat smaller, and there is less of a brown tinge in the colour of the back. This Tern appears to range as far as the Sandwich Islands; but I have not seen specimens.

The description given by Thompson, in the 'Birds of Ireland,' of the bird killed between Howth and Dublin undoubtedly applies to this species; but it is to be regretted that he did not see it *in the flesh*, as the fact of the specimen having the black head and white frontlet band (the mark of the *fullest breeding-plumage*) at the end of *December*, is somewhat remarkable. I learn from Mr. A. G. More, of the Dublin Museum, that this specimen is no longer in existence, having been burned with the rest of Mr. Walter's collection many years ago.

STERNA FRONTALIS, Gray.

? *Sterna striata*, Gm. Syst. Nat. i. p. 609 (1788): *Striated Tern*, Lath. Syn. iii. 2, p. 358, pl. 98—New Zealand (from a drawing by Sir J. Banks), jr.

Sterna velox, Gould (nec Rüpp.), P. Z. S. 1842, p. 140.

Sterna frontalis, Gray, Voy. Erebus & Terror, p. 19 (1844); Hand-list, iii. p. 118 (1871); Buller, B. New Zealand, p. 281 (1873).

Sterna albifrons, Peale, U.S. Expl. Exp. Birds, p. 279 (1848).

Sterna melanorhyncha, Gould, B. Australia, vii. pl. 26 (1848)—Van Diemen's Land; id. Handbk. B. Australia, ii. p. 398 (1865); v. Pelzeln, Orn. Novara-Reise, p. 154 (1865); Gray, Hand-list, iii. p. 118 (1871).

Sterna atripes, Ellman, Zoologist, 1861, p. 7473.

Sterna longipennis, Finsch (nec Naum.), J. f. Orn. 1867, p. 339.

"*Phætusa astrolabæ*, Bp.," specimen in the Paris Mus. from Tongatabu, Quoy & Gaimard's Voy., is a young bird; but another bird from same locality and similarly named=*S. bergii*!—*H. S.*

After comparing an immature specimen of this species with Latham's plate of the Striated Tern from New Zealand, I have no doubt in my own mind that this was the bird he figured; but it must be admitted that the drawing and description would almost equally suit the young of the Sandwich Tern; and *S. striata*, Gm., has in con-

sequence been generally referred to that species. On the other hand there can be no possible doubt as to the identity of Gray's description, accompanied as it is by a plate of the *adult* bird. I think, therefore, that it is desirable to retain the name of *S. frontalis*, in preference to making a change which might be considered arbitrary, and would certainly be productive of temporary confusion.

In the white border to the inner webs of the primaries this Tern resembles *S. dougalli*, as remarked by Mr. Gould; it is, however, larger than that species, although not equal in size to *S. cantiaca*; and the white frontal band and black bill will always serve to distinguish it.

It appears to be a true Sea-Tern, breeding, according to Mr. Buller, in large colonies, and depositing its single egg on the bare rock, close to high-water mark. I have not seen specimens of the eggs; but, from the description, they seem to approach those of *S. cantiaca* in their general character.

Under the name of *S. melanorhyncha*, Mr. Gould records the occurrence on the coast of Tasmania of a Tern which appears to be identical with this species; but with that exception it does not seem to leave the shores of New Zealand.

STERNA TRUDEAUII, Audubon.

Sterna trudeauii, Aud. Orn. Biog. v. p. 125; id. B. Am. vii. p. 105 (1844); Lawr. B. N. Am. p. 861 (1860); Schl. Mus. P.-B. *Sternæ*, p. 29 (1863); Gray, Hand-list, iii. p. 118 (1871); Scl. & Salv. P. Z. S. 1871, p. 570 (Neotrop. Lar.); Landb. An. Univ. Chile, 1872, p. 515; Coues, B. N.W. Am. p. 675 (1874).

Phætusa trudeauii, Blasius, J. f. Orn. 1866, p. 73.

Sterna frobeenii, Ph. & Landb. Wieg. Arch. 1863, p. 125; Cat. Av. Chil. p. 49 (fide Scl. & Salv.); Landbeck, An. Univ. Chile, 1872, p. 515; Gray, Hand-list, iii. p. 118 (1871).

This well-marked species is similar in size, shape of bill, and general plumage to *S. forsteri* in winter dress; but, unlike the majority of Terns, it *never has the crest black*, the crown being pure white, with only a transocular line on each side of the head; the mantle, wings, and tail are light grey; the rump white, and the feet yellow. It occurs along the coast of South Brazil and the Argentine provinces, and also on that of Chili; but of its breeding-places and eggs nothing is yet known; indeed, until lately, even skins were extremely rare in collections.

Messrs. Sclater & Salvin and Dr. E. Coues are doubtful as to the type of this species having been really obtained on the coast of New Jersey—a doubt in which I share; but there is now no means of disproving Audubon's statement. With regard to *S. frobeeni*, which Messrs. Sclater and Salvin identified with this species, Mr. L. Landbeck, in the 'Anales de la Universidad de Chile,' maintains their distinctness, and gives an elaborate comparative description of each, the result of which is, to my mind, to show more clearly than ever that his *S. frobeeni* is merely the present bird in immature plumage.

STERNA MELANAUCHEN, Temm.

Sterna melanauchen, Temm. Pl. Col. v. pl. 427 (1838?); Gould, B. Austr. vii. pl. 28 (1848); Schlegel, Mus. P.-B. *Sternæ*, p. 28 (1863); Finsch & Hartl. B. Central Polyn. p. 224 (1867).

Onychoprion melanauchen, Blyth, Cat. Birds Mus. As. Soc. p. 293 (1849); Jerdon, B. India, iii. p. 844; Swinhoe, Ibis, 1867, p. 230; id. P. Z. S. 1871, p. 422 (Amoy); Walden, Ibis, 1874, p. 149.

Sternula melanauchen, Bp. Compt. Rend. xli.; Blasius, J. f. Orn. 1866, p. 74; Gray, Hand-list, iii. p. 121 (1871).

Sterna marginata, Blyth (*fide* Jerdon), juv.

Gygis, sp? et *Gygis decorata*, Hartlaub, Ibis, 1864, p. 232; Godeffroy's Cat. i. (1864) p. 5.

In this species the feet are strong and fully webbed; but I see no reason for separating it from true *Sterna*. It ranges from the Andaman and Nicobar Islands, throughout the Malay archipelago, and up the China coast to Amoy, down to the northern coasts of Australia, New Caledonia, and as far as the Fiji group. The eggs, specimens of which I owe to the kindness of Capt. Wimberley stationed at the Andaman Islands, are two in number, and are of a clay-white ground-colour, minutely spotted with brown of various shades; in some varieties the ground-colour is nearly pure white.

We now come to a group for which, making *S. minuta* his type, Boie proposed the genus *Sternula*—one which I regret to be unable to adopt, owing to the absence of any structural distinctions; for in some respects it is a very convenient subdivision, and the name explains itself.

There are four forms of small Tern with white forehead and black lores, the distinguishing features of which have frequently been overlooked, and various species thereby confounded. It is difficult to give the exact range of each; for the young are not always to be recognized with facility. But the characters of the adults may be briefly enumerated.

STERNA MINUTA, Linn.

Sterna minuta, Linn. Syst. Nat. i. p. 228 (1766), et auct.

Sternula minuta, Boie, Isis, 1822, p. 564, type of *Sternula*.

Other synonyms are unimportant and need not be given here.

This Tern, which has *dark* shafts to the outer primaries, and the rump and tail *white*, ranges throughout temperate Europe to India, occurs in winter on coast of West Africa as far as the Cape of Good Hope, whence there is a specimen in the British Museum.

STERNA ANTILLARUM, Less.

Sterna antillarum, Lesson, Desc. Mamm. et Ois. p. 256 (1848); Coues, Proc. Phil. Acad. 1862, p. 552; Scl. & Salv. P. Z. S. 1871, p. 571.

Sterna argentea, Nutt. Man. ii. p. 280 (1834); Léotaud, Ois. Trinidad, p. 545; Wied, Beit. iv. p. 871 (1833); Burm. Syst. Uebers. iii. 542; Pelz. Orn. Bras. p. 325.

Sterna frenata, Gamb. Proc. Phil. Ac. 1848, p. 128.

Sterna superciliaris, Cab. J. f. Orn. v. 232; Coues, Key, p. 332 (1872).

Sterna superciliaris, var. *antillarum*, Coues, B. N.W. Am. p. 692 (1874).

Similar to the above, and has also *dark* shafts to primaries; but *the rump and tail-coverts are pearl-grey* like the mantle, and there is but little black at tip of bill.

Ranges throughout temperate America, on both coasts, and down to the Antilles, Trinidad, lat. 10° N.

STERNA SUPERCILIARIS, Vieill.

Sterna superciliaris, Vieillot, N. D. xxxii. p. 126 (1819), based on the *Hati ceja blanca* of Azara; Scl. & Salv. P.Z.S. 1871, p. 571; Coues, B. N.W. Am. p. 692 (1874), in part.

Back, rump, and tail slightly darker than in the above; bill stouter and entirely yellow; the legs and feet also are of an olivaceous colour in my Amazon specimens, very different from the bright yellow of those parts in the two foregoing *.

Is found on all the large South-American rivers from the Parana upwards, is plentiful on the Amazons and the Ucayali, and I found it abundant on the river Huallaga still further west.

STERNA SINENSIS, Gm.

Sterna sinensis, Gm. Syst. Nat. i. p. 608 (1788), based on the Chinese Tern of Latham.

Sterna minuta, Horsf. Trans. Linn. Soc. 1820, xiii. p. 198.

Sternula sinensis, Swinhoe, Ibis, 1863, p. 430; id. P.Z.S. 1863, p. 329.

Sternula minuta, Swinhoe, P.Z.S. 1871, p. 422 (Formosa and China).

Sternula placens, Gould, Ann. Nat. Hist. viii. p. 192 (1871); id. B. New Guinea, pt. iii. pl. 7 (May 1876).

Like *S. minuta*, but *shafts* of outer primaries *white*; as a rule also the bird is a trifle larger and stouter, and has a longer development of lateral tail-feathers than *S. minuta*.

Ranges from Ceylon, where it breeds, to the China seas, to Queensland, and down the Australian coast; how far I cannot say, as I have no specimens from there with trustworthy localities. From Ceylon Capt. Vincent Legge, R.A., has sent me a fine series, with the eggs, which are, as might naturally be expected, like those of *S. minuta*. He also sent me a nestling with the outer quill-feathers only partially developed; and on comparing it with a

* Dr. Coues (B. of N.W. Am. p. 694) distinguishes *S. antillarum* from *S. minuta* by its grey rump and smaller bill with little black at the tip; but he goes on to argue that because it has sometimes no black at all on the bill, as is the case with *S. superciliaris*, which has, in its turn, a bill as stout or stouter than *S. minuta*, therefore *S. superciliaris* and *S. antillarum* are to be united. I fail to see how he can consistently do this without putting *all* the small Terns under one head; for the stout bill, especially so from the angle to the tip, and the abrupt prolongation of the outer tail-feathers in *S. superciliaris*, to say nothing of coloration, suffice to distinguish it from any other member of the group.

S. minuta of the same age, the difference in the colour of the shafts of the primaries was very apparent. There is often a grey tint on the rump and tail-coverts of winter-killed and immature specimens.

STERNA SUMATRANA, Raffl.

Sterna sumatrana, Raffles, Trans. Linn. Soc. xiii. (1822) p. 329.
Sterna pusilla, S. Müller (*fide* Gray)—Timor and Java.

Bill smaller and more slender than even in *S. antillarum*, but with much black between the angle and tip; tail-coverts and tail *grey as in the back*; shafts of primaries *black*.

Captain V. Legge has sent me a nearly adult specimen of this Tern from Ceylon; and the fact of two such different forms as this and the preceding being met with there is somewhat remarkable; a similar specimen is in my collection, from the coast of Fantee. Lord Walden has a specimen from Zoulla, Red Sea, obtained by Mr. W. Jesse; and that is all I know about this small dark form of the group, which is even darker than *S. antillarum* on the rump and tail, and has also a good deal more black on the bill. I have adopted Raffles's name for it, because the description and locality seem to fit it fairly; and, in default of a larger series, I do not wish to incur the odium of making species upon slight grounds.

STERNA NEREIS (Gould).

Sternula nereis, Gould, P. Z. S. 1842, p. 140, B. Australia, vii. pl. 29 (1848)—Bass's Straits and West Australia.
Sterna parva, Ellman, Zoologist, 1861, p. 7473.
Sterna nereis, Pelzeln, Verh. zool.-bot. Gesellsch. Wien, xxii. p. 318 (1867); Buller, B. New Zeal. p. 285 (1873).
Sterna minuta, Finsch, J. f. Orn. 1867, pp. 337, 347.
Sterna alba, Potts, Trans. N.Z. Inst. 1870, p. 106.

This species, which appears to be confined to Australia and New Zealand, may be distinguished from the other small Terns by its somewhat larger size, the paler grey of the mantle and especially of the primaries, and by its having *no black lores*, but only a dark *spot* in front of the eye. In the young the distinction is not so easy; but the primaries are always lighter than in *S. minuta* or *S. sinensis*.

STERNA EXILIS, Tsch.

Sterna exilis, Tschudi, F. Per., Aves, p. 306 (1846); Sclater, P. Z. S. 1867, pp. 336 & 344; Scl. & Salv. P. Z. S. 1871, p. 572.
Sterna lorata, Ph. & Landb. Wieg. Arch. 1863, pt. i. p. 124.
Sternula loricata (!), Gray, Hand-list, iii. p. 121 (1871).

The general smoke-grey of the under as well as the upper parts, and the large amount of black on the bill, will always serve to distinguish this species, of which I have only seen two specimens—one in Messrs. Salvin and Godman's collection, and one in the British Museum. Both these are from the coast of Peru and Chili; but of its breeding-places we know nothing at present.

STERNA BALÆNARUM (Strickl.).

Sternula balænarum, Strickl. Contr. Orn. 1852, p. 160; Gurney, Andersson's B. Damar. p. 363 (1872).

In this species there is no white frontlet, the black feathers coming down to the base of the bill, which is slender and black, except at the gape; the tail is grey like the mantle; and the tarsi and feet are the smallest of those of the group. The shafts of the primaries are *white*.

Walwich Bay to the Cape of Good Hope is its range, so far as is known.

STERNA ALEUTICA, Baird.

Sterna aleutica, Baird, Tr. Chicago Acad. 1869, 321, pl. 31. fig. 1 (Alaska); Dall & Bann. ib. p. 307; Coues, Key to N.-Am. B. p. 322 (1872), B. of N.W. Am. p. 696 (1874); Gray, Hand-list, iii. p. 118 (1871).

After a careful examination of Pallas's description of *Sterna camtschatica*, I fully agree with Dr. E. Coues that Dr. O. Finsch has no sufficient reason for identifying it with this species (Abh. nat. Ver. Bremen, iii. p. 85). It is needless to repeat here the excellent descriptions given by the above American authors, the last of whom informs us that since the acquisition of the type three more specimens have been obtained. With its head-markings similar to those of the Sooty Tern (*Sterna fuliginosa*), from which, again, it differs in having a *white rump and tail*, it certainly presents a most interesting link in coloration between the Sooty and the typical Terns, groups which I cannot separate generically for want of well-defined structural differences. Indeed Dr. Coues seems inclined to give up *Haliplana* as a genus; and as the only distinction appears to be in the coloration, it is not easy to see how it can be retained according to the modern definition of a genus. The type was obtained at Kadiak, Alaska, in June, with the egg; so that it was in full breeding-plumage; but of the immature stages we have as yet no description.

STERNA ANÆSTHETA (Scop.).

Sterna anæthetus (sic), Scop. Del. Faun. et Flor. Ins. i. p. 92. no. 72 (1786), ex Sonn. Voy. p. 125, pl. 84.

Sterna panayensis, Gm. S. N. ii. p. 607 (1788).

Sterna oahuensis, Bloxham, Voy. 'Blonde,' p. 251 (1826).

Haliplana panayensis, Wagler, Isis, 1832, p. 1224; Salvin, Ibis, 1864, p. 381, 1866, p. 199; Blas. J. f. Orn. 1866, p. 80.

"*Sterna antarctica*, Cuv.," Lesson, T. d'Orn. p. 621 (1831); Pucheran, Rev. Zool. 1850, p. 541. (Admitted to be *S. panayensis*.)

Onychoprion panaya, Gould, B. Austr. vii. pl. 33 (1848).

Sterna infuscata, Heugl. Ibis, 1859, p. 351; id. F. Roth. Meeres, p. 32.

Sterna panaya, Heugl. F. Roth. Meeres, p. 31; Finsch & Hartl. Vög. Ost-Afr. p. 833 (1870).

Onychoprion panayensis, Scl. & Salv. P. Z. S. 1871, p. 572.

Haliplana discolor, Coues, Ibis, 1864, p. 392; Elliot, B. N. Am. ii. pl. 57 (1869).

? *Hydrochelidon somalensis*, Heugl. Orn. N.O.-Afr. p. 1458, p. ccvii (1873).

Haliplana anosthætus, Gray, Hand-list, iii. p. 122 (1871).

Sterna melanoptera, Swainson, B. W. Afr. ii. p. 249 (1837) (type in Camb. Mus. examined, *H. S.*).

This species, originally described from the Philippine Islands, is somewhat smaller than *S. fuliginosa*; the colour of the mantle is also less intensely dark. But the principal distinction is found in the feet, in which the webbing, instead of coming down to the claws between the outer and middle toe as in *S. fuliginosa*, only descends to the last joint, showing a more important structural difference between two such closely allied species than there is between *Onychoprion* and typical *Sterna*—an additional reason for discarding the former genus and its synonyms. The drawings show the shape of the feet in both species.

Fig. 2.

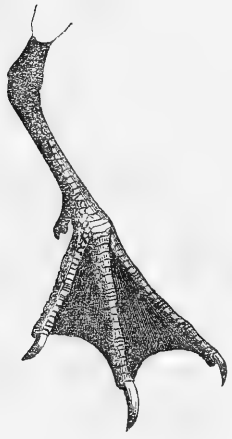


Fig. 2. Foot of *Sterna fuliginosa*.

Fig. 3.

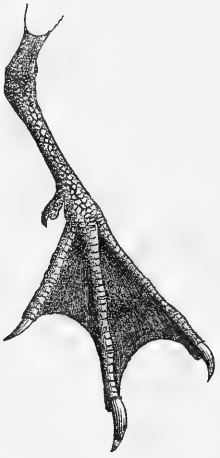


Fig. 3. Foot of *Sterna anæstheta*.

In the young of the present species the *underparts* are *light-coloured* on emerging from the downy stage, whereas in *S. fuliginosa* they remain dark for some time.

Its range appears to be nearly identical with that of *S. fuliginosa*, and is noticed under that head.

STERNA LUNATA, Peale.

Sterna lunata, Peale, U.S. Expl. Exp., Birds, p. 277 (1848); Cassin, U.S. Expl. Exp., Birds, p. 382 (1858); Schlegel, Mus. P.-

B. *Sternæ*, p. 27 (1863); Finsch & Hartl. F. Centralpolyn. p. 231, pl. xiii. fig. 3 (1867).

Haliplana lunata, Blas. J. f. Orn. 1866, p. 80; Gray, Hand-list, iii. p. 122 (1871).

This species is rather larger than the preceding; but the webs of the toes are similarly incised; the general colour is much greyer. Its range appears to be somewhat restricted, extending from the Moluccas to the Phenix and the Paumatu groups of the Polynesian Islands. There are no specimens in the British Museum; but I have examined those at Leyden, and find it a well marked species.

STERNA FULIGINOSA, Gm.

Sterna fuliginosa, Gm. Syst. Nat. i. p. 605 (1788); Aud. B. N. Am. vii. p. 90, pl. 432 (1840); Temm. & Schl. Fauna Japonica, p. 133, pl. 89 (1842); Lawr. B. N. Am. p. 861 (1858); Cassin, Orn. U.S. Expl. Exp. p. 386 (1858); Finsch & Hartl. Orn. Centralpolyn. p. 225 (1867), Vög. Ost-Afr. p. 831 (1870); Harting, Brit. Birds, p. 169 (1872).

Onychoprion fuliginosus, Wagler, Isis, 1832, p. 277 (type of genus *Onychoprion*, based on *S. serrata* of J. R. Forster's MS. Descr. An. p. 276, ed. Licht. 1844); Gould, B. Australia, vii. pl. 32 (1848); Sclater, P. Z. S. 1856, p. 144 (I. Ascension); Scl. & Salv. P. Z. S. 1871, p. 573.

Planetis guttatus, Wagler, Isis, 1832, p. 1222 (type of genus *Planetis*, based on *S. guttata* of J. R. Forster's MS. Desc. An. p. 211, ed. Licht. 1844).

Haliplana fuliginosa, Wagl. Isis, 1832, p. 1224 (type of genus *Haliplana*); Bp. Compt. Rend. 1856, p. 772; Coues, Pr. Phil. Acad. 1862, p. 556; id. B. N. W. Am. p. 698 (1874); Gray, Hand-list, ii. p. 122 (1871).

Sterna infuscata, Licht. Verz. Doubl. p. 81 (1823) (type in Berlin Mus. examined, *H. S.*).

Anous l'herminieri, Lesson, Desc. Mamm. et Ois. p. 255 (1847).

Sterna gouldii, Reichenbach, Schwimmvög. Supp. xii. fig. 829.

Sterna luctuosa, Phil. & Landb. Wiegm. Arch. p. 126 (1866).

Thalassipora infuscata, Gray, Hand-list, iii. p. 122 (1871).

"*Haliplana fuliginosa*, var. *crissalis*, Baird," Lawr. (Grayson) Proc. Bost. N.H. S. 1871, p. 285.

It will be observed that Wagler has based no less than three genera upon this single species—the first, *Onychoprion*, depending upon a supposed serration of the claw, evidently due to natural causes in the specimen he had before him, while the other two genera are based upon the slightest of structural differences. I confess I cannot see any good reason for erecting it into a genus, especially in view of the connecting-link formed by the preceding species.

Both this species and *S. anæstheta* range throughout the whole of the warmer portions of the world, there being no perceptible difference between individuals from the most widely separated localities. It is said that at Ascension Island the Sooty Terns, or

"Wideawakes," come every eight months to breed; if true, this is somewhat remarkable. The foot of this species is webbed to the extremity of the toes, as shown in the drawing (p. 665). The young are *dark* on the *underparts*.

Genus NÆNIA, Boie.

NÆNIA INCA (Lesson).

Sterna inca, Lesson, Voy. 'Coquille,' ii. p. 731. no. 145, atlas pl. 47 (1826).

Anous inca, Gray, Gen. Birds, iii. p. 661 (1849); Blas. J. f. Orn. 1866, p. 83.

Nœnia inca, Boie, Isis, 1849, p. 189 (type of genus *Nœnia*); Bp. Compt. Rend. xlii. p. 773 (1856); Scl. and Salv. P. Z. S. 1871, p. 567 (Neotrop. Laridæ); Gray, Hand-list, iii. p. 123 (1871).

Larosterna inca, Blyth, Cat. Mus. As. S. p. 293 (1849), type of *Larosterna*.

Inca mystacalis, Jard. Contrib. Orn. 1850, p. 32; Cassin, U.S. Expl. Exp. p. 391 (1858).

Anous inca, Gray, Gen. Birds, iii. p. 661 (1849)

Inca mysticalis, Jardine, Contr. Orn. 1850, p. 32; Cassin, U.S. Expl. Exped. p. 391 (1858)—Callao.

This well-marked form seems fairly entitled to generic distinction, the white drooping plumes beneath the eye, and the wattled gape being found in no other species: the hallux is also connected with the foot by a rudimentary web; the tail, however, is forked as in typical *Sternæ*, removing it from any close relationship to *Anous* where some have placed it. It appears to be a rock-breeding species confined to the coasts of Peru and Chili.

Genus GYGIS, Wagler.

GYGIS CANDIDA (Gm.).

? *Sterna alba*, Sparr. Mus. Carls. ii. fasc. i. No. 11 (1786); Gm. Syst. Nat. i. 2, p. 607 (1788); J. R. Forster, Descr. An. p. 179, ed. Licht. (1844).

Sterna candida, Gm. Syst. Nat. i. 2, p. 607 (1788).

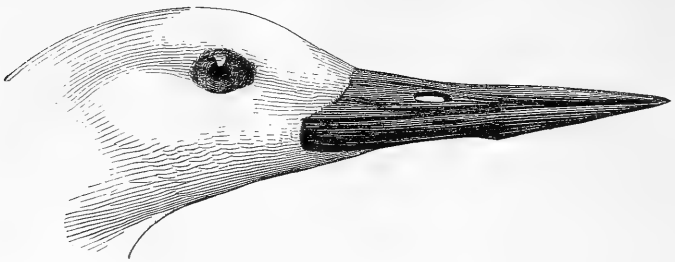
Gygis candida, Wagler, Isis, 1832, p. 1223, ex J. R. Forster, MS. (type of *Gygis*); Gray, Gen. Birds, iii. p. 660 (1849); Gould, B. Australia, vii. pl. 30 (1848).

Gygis alba (Sparr.), Cassin, U.S. Expl. Exp. p. 389 (1858); Blasius, J. f. Orn. 1866, p. 73; Finsch & Hartl. Faun. Centralpolynes. p. 232 (1867); Gray, Hand-list, iii. p. 122 (1871).

This beautiful and peculiar species is characterized by long slender toes with very deeply incised webs, and a graduated tail, approaching in shape that of the next genus, *Anous*. The shape of the bill is also peculiar, being broad at the base, and slightly tapering upwards in front of the mandibular angle. To this form have belonged all the examples which I have examined, or the descriptions of which I have compared, from Madagascar and throughout Polynesia until we reach the

Marquesas. From that group, apparently the outpost of the species, I have examined three specimens, which differ so remarkably from

Fig. 4.



Head of *Gygis candida*.

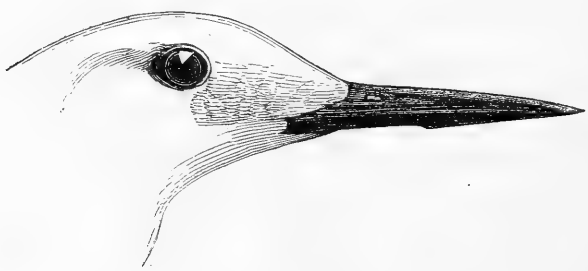
all others that I cannot consider them mere varieties, and propose for them the name of

GYGIS MICRORHYNCHA, sp. nov.

Alba: *similis* G. candidæ, *sed minor, rostro multo minore tenuiore, rectricum scapis albis nec nigris, distinguenda.*

In length of wing it is nearly an inch shorter than *G. candida*; the tail-feathers are more rounded, and the 3rd is the longest, whereas the 2nd is the longest in the larger species: the shafts of the first three primaries are merely clay-coloured, and the rest are pure white, whereas in *G. candida* they are all nearly black; and barely a trace of colour is to be observed on those of the tail. The bill is

Fig. 5.



Head of *Gygis microrhyncha*.

slender at the base, and quite different in shape from that of *G. candida* (as shown in the accompanying drawings).

Sparrman's figure and description are both very bad; but Gmelin's, based upon Latham, distinctly points out the characteristics of the larger and black-shafted species; so I have adopted his name for it. On the other hand I cannot identify Sparrman's bird

with the smaller species, of which, moreover, I have never seen a specimen except from the Marquesas; and I have therefore been compelled to give a name to it. The larger species is also found at the Marquesas.

The nesting of *Gygis* is peculiar, the single egg of clay-white mottled with brown being placed on the cavity of the branch of a tree, or in a fork of two branches, and on the points of the coral reefs—anywhere, in fact, where it will lie. In these habits *Gygis* shows another affinity with *Anous*, of which it seems to be a highly specialized offshoot.

"*Sterna nivea*" of F. D. Bennett (Whaling Voy. i. p. 370, 1840), from the Caroline Islands, might be either of these species; and I can find no description of "*Gygis napoleonis*," Bp.

Genus Anous, Leach.

Anous stolidus, Linn.

Sterna stolida, Linn. Syst. Nat. i. p. 227 (1766); id. Amœn. Acad. iv. p. 240; Gmelin, S. N. i. 2, p. 605 (1788).

Sterna fuscata, Linn. Syst. Nat. i. p. 228 (1766), ex Brisson, vi. p. 220, t. 20. fig. 1; Gmel. S. N. p. 605 (1788), juv.

Sterna pileata, Scop. Del. Faun. et Flor. Insubr. i. p. 92. no. 73, ex Sonn. Voy. p. 125, pl. 85 (1786).

Sterna senex, Leach, in Tuckey's Exped. to the Congo, App. p. 408 (1818), obtained by Cranch.

Anous niger, Steph. in Shaw's Gen. Zool. xiii. i. p. 140, pl. 17 (1825)—type of *Anous*, Leach (adult).

Anous fuscatus, Steph. in Shaw's Gen. Zool. xiii. i. p. 140 (1825), juv.

Anous spadicea, Steph. in Shaw's Gen. Zool. xiii. i. p. 143 (1825), juv.

Megalopterus stolidus, Boie, Isis, 1826, p. 980.

Sterna unicolor, Nordm. in Erm. Verz. v. Thier. & Pfl. p. 17 (1835).

Anous stolidus, Gray, List Gen. Birds, p. 100 (1841); Blyth, Cat. B. A. S. Bengal, p. 293; Gould, B. Australia, vii. pl. 33 (1848); Cassin, U.S. Expl. Exp. p. 391 (1858); Finsch & Hartl. Faun. Centralpolyn. p. 234 (1867), Vög. Ost-Afrika's, p. 835 (1870); Scl. & Salv. P. Z. S. 1871, p. 566 (Neotrop. Laridæ); Coues, B. N.W. Am. p. 710 (1874).

Anous rousseaui, Hartl. Beitr. Orn. Madagasc. p. 86 (1860).

This well-known species, a straggler to the British seas, ranges from the Gulf-coast of North America to the shores of Australia, throughout Polynesia, and occurs, in fact, in all tropical waters. There appears to be no constant difference between individuals from the most distant localities; and this similarity applies to its habits and breeding, its single egg being deposited on a nest of sea-weed placed on mangrove bushes, in the fork of a tree, or even on the bare rock.

In the British Museum there is a specimen from Dalrymple Rock, Chatham Island, one of the Galapagos group, which is of a uniform sooty brown. It is evidently an immature bird; and I am therefore

unwilling to give it specific rank; but it would be somewhat remarkable if subsequent research should show that the Galapagos Islands possess a fuliginous Noddy in addition to their *Larus fuliginosus* and other peculiar forms of bird-life.

ANOUS TENUIROSTRIS (Temm.). (Plate LXI. fig. 1.)

Sterna tenuirostris, Temm. Pl. Col. 202 (1838).

Megalopterus tenuirostris (Temm.), Boie, Isis, (1826), p. 980, type of genus *Megalopterus*.

Anous melanops, Gould, P. Z. S. xiii. p. 103 (1845); id. B. Australia, vii. pl. 34 (1848); Gray, Hand-list, iii. p. 123 (1871).

Under this name two species appear to have been confounded. Temminck figures a bird with a light head and neck and *pale grey lores*. But the bird which is far more abundant in collections under this title is the species which has the *lores deep black*, figured in Gray's 'Genera of Birds' under the name of *A. melanogenys*. Temminck's type came from Senegal; and the only specimens like it which I have been able to examine as yet are two in the British Museum from the island of Rodriguez (from one of which the figure is taken), and one in Lord Walden's collection from Mauritius. In the absence of any detailed description it is impossible to say to which species the "*S. tenuirostris*" of various writers, from the Red Sea, belongs. Beyond the above localities it occurs at Houtmann's Abrolhos, on the west coast of Australia, whence Mr. Gould described and figured it under the name of *Anous melanops*. Mr. Gould's bird, however, appears to me to be identical with Temminck's, in spite of the stress laid upon the supposed absence of a black spot by the eye in Temminck's figure, which spot is conspicuously present in the plate of *A. melanops*. It seems to be a somewhat rare species, at least in collections. Besides the different coloration of the feathers between the base of the bill and the eye, it appears to be a somewhat smaller bird than *A. melanogenys*, the wing being nearly an inch shorter; the bill also, in the specimen I have seen, is relatively shorter between the angle and the tip; but a much larger series must be examined before attaching much importance to that peculiarity.

ANOUS MELANOGENYS, Gray. (Plate LXI. fig. 2.)

Anous melanogenys, G. R. Gray, Gen. Birds, iii. p. 661, pl. 182 (1849); id. Hand-list, iii. p. 123 (1871).

Anous tenuirostris, Scl. & Salv. Neotrop. Lar., P. Z. S. 1871, p. 566.

Respecting this black-faced species (see Plate LXI. fig. 2, taken from a specimen in my own collection) I can only repeat that it is generally found usurping the name of *Anous tenuirostris* in collections. It is apparently a widely distributed form, occurring on the coasts of Central America, Africa, Australia, and throughout Polynesia.

ANOUS LEUCOCAPILLUS, Gould. (Plate LXI. fig. 3.)

Anous leucocapillus, Gould, P. Z. S. pt. xiii. (1845) p. 103; id. B. Aust. vii. pl. 35 (1848); Cassin, U.S. Expl. Exp. p. 393 (1858);

Finsch & Hartl. F. Centralpolynesiens, p. 237 (1867); Gray, Hand-list, iii. p. 123 (1871).

Sterna leucocapilla, Schlegel, M. Pays-Bas, *Sternæ*, p. 37 (1863).

This form is apparently less widely diffused than some of its congeners. Mr. Gould's specimens were obtained at Raines Islet, Australia, where it is said to be very abundant. There is a specimen in the British Museum, from Bristow Island, south coast of New Guinea (from which the figure Plate LXI. fig. 3, is taken); and the United-States Exploring Expedition found it breeding at Paumotu Island, where its single egg was deposited upon the bare ground instead of in a nest. There is no grey about the head or cheeks, but, with the exception of the white crown, the whole plumage is of a sooty *brown*-black; the foot is perhaps a trifle more slender in *A. tenuirostris* or *A. melanogenys*; but it is difficult to judge from dried skins.

ANOUS CÆRULEUS (Bennett).

Sterna cærulea, F. D. Bennett, Narr. Whaling-Voy. round Globe, ii. App. p. 248 (1840)—Christmas Island and other coral formations of the Pacific.

"*Sterne cendré*," Neboux, Rev. Zool. Oct. 1840, p. 291.

Sterna teretirostris, Lafresnaye, Rev. Zool. 1849, p. 242.

Procelsterna tereticollis, Lafresnaye, Rev. Zool. 1842, pl. 29 (type of *Procelsterna*).

Stolida cinerea, Néboux, Voy. Vénus, Atlas, pl. 9 (1846).

Anous cinereus, Gould, P. Z. S. 1845, p. 104; id. B. Australia, vii. pl. 46 (1848)—Norfolk I. and N.E. coast, Australia; Prévost & Des Murs, Voy. Vénus, v. p. 276 (1855); Finsch & Hartlaub, F. Centralpolynesiens, p. 239 (1867).

Anous parvulus, Gould, P. Z. S. xiii. (1845) p. 104; Cassin, U.S. Expl. Exp., Birds, p. 393 (1858)—Paumotu group.

Pelecanopus pelecanoides !, G. R. Gray, List of Birds in Brit. Mus. pt. iii. p. 180 (*fide* Gould, *ut suprà*).

Megalopterus plumbeus, Peale, U.S. Expl. Exp. p. 285 (1848).

Procelsterna albivitta, Bp. Compt. Rend. 1856, p. 773; Gould, Hand-b. B. Austr. ii. p. 420 (1865); Gray, Hand-list, iii. p. 123 (1871).

Sterna cinerea, Schlegel, M. P.-B. *Sternæ*, p. 38 (1863).

Procelsterna cinerea, Gray, Hand-list, iii. p. 123 (1871).

I have much pleasure in restoring to this well-defined species the name originally given to it by Mr. F. Debell Bennett, whose specimen from Christmas Island is described by Mr. Gould in P. Z. S. xiii. (1845) p. 104, under the name of *Anous parvulus*, in ignorance, no doubt, of the fact that Mr. Bennett had already given it a name accompanied by an excellent description. It may always be recognized by its pale grey head, neck, and underparts, and somewhat darker upper parts, the colour becoming deeper on the tail; the primaries are the darkest part; and the secondaries are broadly tipped with white, forming a distinct band. Neboux's figure is too dark; and, in spite of the yellow-coloured webs to the feet peculiar

to this species, I was for some time in doubt, until I observed depicted in his plate a characteristic which distinguishes this species from all other members of the group, viz. that the *second tail-feather is distinctly the longest* on each side, whereas in other Noddies the *third* is the longest, the fourth being often but a trifle shorter. In this arrangement of the tail-feathers *Anous cæruleus* comes next to *Gygis*, and indeed is only placed here for convenience of treatment. In its range it is probably the most restricted of the family, being only found on the N.E. coast of Australia and throughout the coral formations of the Pacific as far as Christmas Island, a little to the north of the Equator. It was found breeding at Honden Island, in the Paumotu group, on August 21st, depositing a single egg in the concavities of the coral rock (*Peale* and *Cassin*); and we are told that it does not wander far from coral islands.

It is unnecessary in this paper to take notice of mere names, given by Bonaparte and others, to which no description is attached; but there are two supposed species which were unknown to Messrs. Sclater and Salvin when writing the "List of Neotropical Laridæ," and upon which the subsequent five years have thrown no light. In hope of clearing up the subject, I give the names and a brief description:—

Sterna atrofusciata, described by Philippi and Landbeck in 'Wiegmann's Archiv,' 1863, pt. i. p. 202, is an immature example of a small species, the wing being 9 inches long, the bill 1 inch long, black, red at the gape, the tarsus 7 lines, dull red, the mantle and wings dark ash-grey, and the underparts and rump white. This description does not apply to any known species; and it may prove to be a good one. The solitary specimen was shot at Llico, Colchagua, Chili, in December 1861, near the outlet of the great salt lake of Vichuquen.

S. acutirostris, Tsch. F. Peru. Aves, p. 305 (1846), is described as 10 inches long, bill nearly 2 inches, wing 6·6, tars. ·75; pure white below, pale grey above; bill black, with a red band in the middle, and tip horn-colour. It is found in the lakes of the Cordilleras, where *Larus serranus* breeds. A Tern with a bill nearly a third as long as the wing is certainly remarkable; but as, in describing *S. exilis*, Tschudi states that the *total* length is 7 inches, and the wing *alone* 7 inches 3 lines (!), his measurements are somewhat incomprehensible, and it is advisable to wait further information.

In concluding this revision I wish to acknowledge the assistance that I have at all times received in the Zoological Department of the British Museum, the Leyden Museum, from Prof. Peters of Berlin, M. Bouvier of Paris, and also from many friends who have placed their collections at my disposal. My thanks are especially due to Mr. Osbert Salvin, whose fine series of American Sterninæ has always been available, and whose practical experience has, at times, been of great assistance in intricate questions of synonymy and doubtful nomenclature.

Fig. 1.

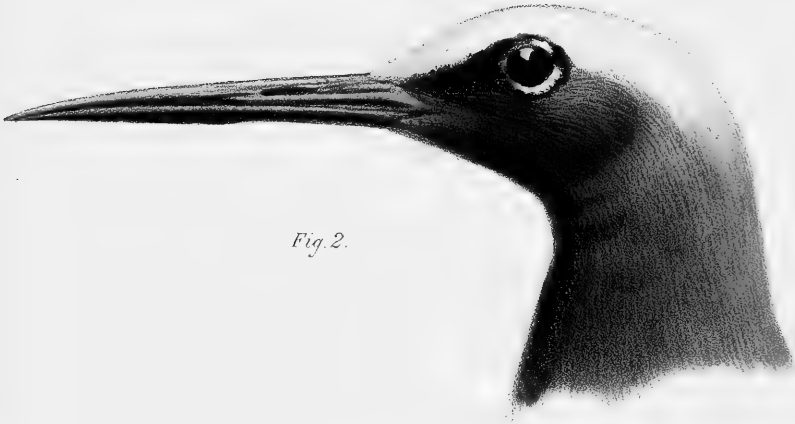


Fig. 2.

Fig. 3.

J.Smit del. et lith.

M & N Hanhart imp

Fig. 1 ANOUS TENUIROSTRIS
2 „ MELANOGENYS.
3 „ LEUCOCAPILLUS

from Lord Lilford
from the Author

[*From the* Proceedings of the Zoological Society of London, February 5, 1878.]

ON THE

LARINÆ OR GULLS.

BY

HOWARD SAUNDERS, F.L.S., F.Z.S.

A revision of the *Larinæ* is a more difficult task than that of the *Sterninæ*, the members of the present subfamily being subject to far greater variations in plumage on their passage from youth to age than is customary with the Terns. The latter, although offering differences in individual size and graduation of tint which are often extremely puzzling, may be said to have only two, or at most three, stages of plumage, viz. the immature, the winter-, and the adult

breeding-state, in the last of which the majority assume a black head or crest; but with the Gulls these conditions are more complex. Even in those species which are destitute of hood at all seasons there is a seemingly endless variation in the pattern of the primaries, the general tendency being to an increase in the lighter and a diminution in the darker portions of the webs with the advancing age of the individual—a rule which also holds good with many of those species the adults of which bear a hood in the breeding-season, whilst, on the other hand, there are others which exhibit the apparent anomaly of having a hood in the immature stage, and losing it in the adult plumage. The individual variations in size are even greater than in the Terns; and the range of the Gulls being, as a rule, less extensive, there are to be found several remarkable isolated and specialized forms, side by side with others, which are little more than climatic varieties of a general type. These circumstances have led to the establishment of a multiplicity of genera and of species, many of them exceedingly ill defined; and it was not until I had examined a considerable series of specimens here, and had visited the Museums of Paris, Leiden, Mainz, Berlin, and Copenhagen, for the purpose of identifying the types with the descriptions, that I could hope to clear up some of the more obscure questions.

The literature of this group has been rendered especially intricate through the perverted ingenuity of two systematists who have undertaken its revision. Boie and Brehm are not guiltless in the matter of genera- and species-making; but their labours were chiefly confined to sorting the European Gulls backwards and forwards into fanciful groups, and to splitting up each species into three or four, which can, for the most part, be easily referred back to their origin. But when Bonaparte and Bruch undertook the revision of the *Larinæ* of the whole world, they speedily enveloped the question in a perfect fog of synonymy, their only object being, apparently, to make as many genera and species as possible. Even distinct genera were erected for one and the same species in different plumages; the most closely allied forms were placed far apart, and widely divergent ones were united; whilst it seemed to be accepted as an axiom that a different geographical habitat was sufficient to constitute a species. Revision followed revision; and to the work of the declining days of both these authors we owe at least half of the synonymy which encumbers these pages. It was their intention to perform a similar office for the Terns; but death cut their plans short, and to this is owing the comparative simplicity of the synonymy of the *Sterninæ*.

The result of their labours appears in Bonaparte's last completed list (for that in the 'Conspectus Avium' was never finished), in the 'Comptes Rendus,' xlii. p. 770 (1856), in which he makes 68 "undoubted" species and 22 genera of *Larinæ* alone, besides 5 more species which he considered doubtful—with justice, as regards four of them, two being his own, one Bruch's, and one Wagler's, whilst the fifth, *Larus fuliginosus*, is an excellent species with which he was evidently unacquainted. To this succeeded the

reaction of common sense in the shape of one of Professor Schlegel's admirable Catalogues raisonnés of the Mus. d'Hist. Nat. des Pays-Bas, a monographical review which, in the words of Prof. Blasius, "is destined to be the foundation of all true Gull-knowledge for those whose ideas of what really constitutes a species are not sacrificed to an arbitrary whim or a geographical sport." The remarks which I have thus translated are to be found in a critical review of great merit in the J. f. Orn. (1865, p. 369, and 1866, p. 73). In this Blasius reduces Bonaparte's species to 35—a diminution which to some degree falls into the other extreme, partly owing to the fact that the author was then unacquainted with several perfectly good species, of which series have since become available, and also to his having united some closely allied forms which, in my opinion, are more conveniently treated by giving them specific rank.

As regards the North-American *Larinæ*, Dr. Elliott Coues has contributed two important reviews (Proc. Ac. Nat. Sc. Philad. 1862, p. 291, and 'Birds of the North-west' (1874); and these, coupled with the excellent Revised List of the Neotropical *Laridæ* by Messrs. Sclater and Salvin (P. Z. S. 1871, p. 564), make us better acquainted with the American species than with those of any other great division of the globe. But although there are probably no undiscovered forms, there still remain many details to be learned respecting the haunts, nidification, and various plumages of the American *Larinæ*, especially those of the Pacific-coast islands; and, indeed, there are two from the Galapagos Islands so rare that the one, *L. fuliginosus*, is only to be found in three or four collections, whilst of the other, *Xema furcatum*, only two examples are known to exist, the one in the Paris, the other in the British Museum.

With regard to several of the Old-World species there are also some important gaps to be filled up; but with one solitary exception, viz. *Rhodostethia rosea*, the least-known species and the most interesting forms are those which are found on the shores and islands of the Pacific, on both the Asiatic and American sides. These will be noticed under their respective heads; and I will now pass on to consider the genera and subgenera amongst which the species have been divided. Most of these have been based upon colour, geographical distribution, or upon the mere caprice of the systematist—upon any thing in short *except* those structural differences which afford a valid reason for their employment; but as many of these genera are either used erroneously or in a perverted sense by those who have not studied the question, I will give a full synopsis of them with remarks. Those genera which appear worthy of retention are printed in small capitals.

Genera.

Larus, Linn. Syst. Nat. i. p. 224 (1766).
For all Gulls.

Xema, Leach; J. Ross, App. ii., Ross's Voy. p. 57 (1819).
The generic characters are given as defined *by Leach*; these

are afterwards stated more fully by Stephens in Shaw's Gen. Zool. xiii. p. 176 (1825). Type and sole representative then known, *X. sabinii*. Principal characteristic, the *forked tail*.

Xema, Boie, Isis, 1822, p. 563.

For the European *hooded* Gulls; but

Xema, Boie, Isis, 1844, p. 192,

Includes all those Gulls, either with or without hoods, which he has not otherwise located under *Gavia* or *Larus*.

(N. B. *Gavia*, Moehring, 1752, Gen. Av. is prior to the 12th ed. Linn., and need not be considered; and *Gavia*, Brisson, is undefined.)

Gavia, Boie, Isis, 1822, p. 563.

No description, but is applied to two such structurally different species as *L. eburneus* and *L. tridactylus*.

Gavia, Boie, Isis, 1826, p. 980,

Is limited to *L. eburneus* only.

Gavia, Boie, Isis, 1844, p. 191,

Contains the two former and *L. audouini*.

Gavia, Kaup, Nat. Syst. Eur. Thierw. pp. 99, 196 (1829).

For *L. ridibundus* and "*L. capistratus*."

Gavia, Macgill. Man. Brit. Ornith. p. 239 (1842).

For *all* the *hooded* Gulls, including *Xema sabinii*.

Gavia, Bruch, J. f. Orn. 1853, p. 106.

For the small grey-mantled Gulls *without* hoods.

Rissa, Leach, Stephens in Shaw's Gen. Zool. xiii. pt. i. p. 180 (1825).

Type, *R. brunnichii*=*L. tridactylus*. Character—hind toe absent or rudimentary.

Cheimonea, Kaup, Nat. Syst. Eur. Thierw. pp. 84, 196 (1829).

Type, *R. tridactyla*.

Pagophila, Kaup, *op. cit.* pp. 69, 186 (1829).

Type, *Larus eburneus*.

Leucus, misprint *Lencus*, Kaup, *op. cit.* pp. 86, 196 (1829).

For *L. marinus*, *glaucus*, and *fuscus*; but

"*Leucus*, ex Kaup," Bp. Consp. Av. ii. p. 215 (1857),

Omits the black-mantled species and includes the larger grey-backed Gulls.

Hydrocolœus, Kaup, *op. cit.* pp. 113, 196 (1829).

For *L. minutus* and "*L. plumbiceps*," "Gulls with black heads and white eye-streak."

Ichthyaëtus, Kaup, *op. cit.* pp. 102, 196 (1829).

Type and sole representative, *L. ichthyaëtus*.

Laroides, Brehm, Vög. Deutschl. p. 738 (1831).

Includes most of the European hoodless Gulls.

Chroicocephalus, Eyton, Brit. Birds, p. 53 (1836).

Based upon the coloured hood, small size, and more naked tibia. The latter characteristic only holds good with regard to a limited number of hooded Gulls, and is by no means confined to them; whilst none of the other peculiarities adduced seem to be sufficient for generic distinction.

The spelling of this word has been altered to

Kroicocephalus, Jameson, Journ. Asiatic. Soc. viii. p. 243 (1839),

Chroiocephalus, Reichenbach, Nat. Syst. Vög. p. v.,

Chrœcocephalus, Strickl. Ann. Nat. Hist. p. 40 (1841),

and to

Chroocephalus, Scl. & Salv. P. Z. S. 1871, p. 576 (note)[1].

Rossia, Bonap. Comp. List B. Eur. & N. Am. p. 62 (1838).

For *L. roseus*. No description of generic character; and the name had already been employed otherwise by Owen.

Rhodostethia, Macgill. Man. Brit. Orn. pt. ii. p. 252 (1842).

Type, *L. roseus*. Generic character described.

Cetosparactes, Macgill. Man. Brit. Orn. pt. ii. p. 251 (1842).

Type, *Pagophila eburnea*. Generic character described. Name altered to

Catosparactes, Gray, Gen. Birds, iii. p. 655, note (1845).

"*Plautus*, Klein," Reichenbach, Nat. Syst. Vög. Longip. p. 5 (1852).

(*N. B.* Klein's Hist. Av. Prodromus, pp. 146–148 (1750), is out of date; and his *Plautus* includes Auks, Gulls, and Petrels.)

Glaucus, Bruch, J. f. Orn. 1853, p. 101.

For the large and medium-sized *grey-mantled* species.

"*Gabianus*, Bp.," Bruch, J. f. Orn. 1853, p. 100 (description); Bonap. Naumannia, 1854, pp. 211, 215; Consp. Av. ii. p. 212 (1857) Type, *L. pacificus*.

[1] Whilst these sheets are passing through the press, Mr. H. T. Wharton ('Zoologist,' March 1878, p. 105) has pointed out the existence of an adjective, χροϊκὸς, meaning coloured; so that Eyton's error (if any) appears to have been merely the omission of the marks of diæresis over the second vowel.—H. S.

Gavina, Bp. Naum. 1854, p. 212.

For *L. canus* and allies, and *L. audouini*; but in

Gavina, Bp. Consp. Av. ii. p. 222 (1857),

the type and sole representative is *L. audouini*.

Dominicanus, Bruch, J. f. Orn. 1853, p. 100; id. *op. cit.* 1855, p. 280.

For the large dark-mantled Gulls, including the author's idea of what *L. cachinnans* of Pallas should be.

"*Leucophæus*, Bp.," Bruch, J. f. Orn. 1853, p. 108 (description).

Type and sole representative, *L. scoresbii*; but

Leucophæus, Bonap. Naumannia, 1854, p. 211,

also includes *L. heermanni*; and in

Leucophæus, Bp. Consp. Av. ii. p. 231 (1857),

are substituted for the latter *L. fuliginosus* and *L. belcheri*.

"*Blasipus*, Bp.," Bruch, J. f. Orn. 1853, p. 108 (description).

Type and sole representative, *L. modestus*, Tsch.; but

Blasipus, Bonap. Naumannia, 1854, p. 211,

also includes *L. crassirostris*, Vieill., and, in the Consp. Av., further includes *L. heermanni*.

"*Adelarus*, Bp.," Bruch, J. f. Orn. 1853, p. 106, "*Edelmöwen*."

For those species which have both a dark mantle and a hood.

Gelastes, Bonap. Naumannia, 1854, p. 212 (descr. nulla).

For *L. gelastes* and the small *unhooded* southern Gulls.

Atricilla, Bonap. Naumannia, 1854, p. 212.

For *L. atricilla* and the three other pretended species evolved from it.

Creagrus, Bonap. Naumannia, 1854, p. 213 (descript. nulla); Bruch, J. f. Orn. 1855, p. 292 (descr.).

Type, *L. furcatus*.

Gavia, Br. { Subgen. *Melagavia*, *Gavia*, *Cirrhocephala* } Bonap. Naumannia, 1854, pp. 212, 213.

For certain hooded Gulls.

Cirrhocephalus, Bruch,

For a species which had a grey hood!

Bruchigavia, Bp. Consp. Av. ii. p. 228.

A genus playfully made, because Bruch's *Gaviæ* were not the

same as the author's *Gaviæ*! Its only claim to remembrance is its adoption by Mr. W. L. Buller as a genus for a New-Zealand species.

Procellarus et *Epitelarus*, Bonap. Naumannia, 1854, pp. 211, 213.

Genus defined. Type and sole representative, *P. neglectus*, which is an immature *L. scoresbii*. This species the author had already located in the genus *Leucophæus*.

Clupeilarus, Bonap. Consp. Av. ii. p. 220 (1857).

For *L. fuscus*, *cachinnans*, and *verreauxii*. This genus has not even the merit of consistency; for it contains such different species as above, whilst it omits *L. dominicanus* (of which *L. verreauxi* is only the African form) and *L. marinus*.

Of the rejected genera one of the best is *Gabianus*, Bp., of which the sole representative, *L. pacificus*, has a remarkably deep, strong bill. But it differs in no other structural point from other typical species of *Larus*, whilst even in the form of the bill it is at times closely approached by old males of *L. dominicanus*; so that I think its adoption would be inexpedient. *Leucophæus*, Bp., has been confused between the author and Bruch until it includes species which Bonaparte himself has almost simultaneously located in two other genera; and I can see no structural difference sufficiently marked to make it desirable to employ either it or *Blasipus*, which, according to Bonaparte's latest view, includes two species differing considerably in the form of the bill. *Adelarus*, Bp., appears to be the result of an attempt to Latinize the compound word "Edelmöwen," and should rank with his *Bruchigavia* and kindred genera.

The arrangement of the species of *Larus* is matter of considerable difficulty. The plan adopted by Schlegel of dividing the Gulls into *Lari marini*, for unhooded species, and *Lari cucullati*, for those which at one time or another bear a hood, will not stand the test of later experience,—almost all of those which have a hood in their immature stage being emphatically *Sea*-gulls, as are also a few of those which have a hood in the breeding-season; whilst at least two of the unhooded species are partial to inland waters, and present, in consequence, the slight modifications of form shown by many of the hooded marsh-breeding Gulls. Under these circumstances any ascending or descending arrangement must necessarily be artificial; but I have endeavoured to group the species in the most natural manner which seemed to me to be practicable.

It may be as well to observe that by an "adult" bird I mean one which has lost the mottlings, barred tail, and other signs of immaturity; but an "old" bird is often subject to important alterations in the coloration or "pattern" of the webs of the primaries, although the general plumage may undergo no material change. The distinction between the age (in years) of the individual and the age (in months) of the primary and other feathers should also be held in

mind, to prevent confusion, although I have endeavoured to avoid any ambiguity on this point.

Genus Pagophila.

The short stout bill, coarse rough feet with serrated membranes, much excised webs, and strong curved claws appear to entitle this species to generic separation. The hallux is connected on the inside of the foot by a serrated membrane with the inner toe, a peculiarity which I do not recollect seeing noticed elsewhere. The name has been in use for nearly half a century, and is of general acceptance.

1. Pagophila eburnea (Phipps).

Larus eburneus, Phipps, Voy. N. Pole, App. p. 187 (1774); Gm. Syst. Nat. i. p. 596 (1788); Scoresby, Arct. Voy. i. p. 535 (1820) (Spitzbergen); Schl. Mus. P.-Bas, *Lari*, p. 6 (1863).

Larus candidus, Müller, Prodromus, p. viii. (1776); O. Fabr. Faun. Grœn. p. 103 (1780).

Larus niveus, Bodd. T. des Pl. Enl. p. 58, no. 994 (1783) (nec Pallas).

Larus albus, Schäff. Mus. Orn. p. 65, tab. 42 (1789).

Gavia eburneus, Boie, Isis, 1822, p. 563; Brehm, Vög. Deutsch. p. 765 (1831).

Pagophila eburnea, Kaup, Nat. Syst. eur. Th. pp. 69, 196 (1829); Gray, Gen. Birds, iii. p. 655 (1849); Newton, Ibis, 1865, p. 507 (Spitzbergen, breeding); P. Wright, Ibis, 1866, p. 217 (Polynia Island, breeding); Dresser, B. of Eur. pts. lix. lx. May 1877.

Gavia nivea, Brehm, Vög. Deutsch. p. 766 (1831).

Cetosparactes eburneus, Macgill. Man. Brit. Orn. pt. ii. p. 252 (1842); Brit. Birds, vol. v.

Larus brachytarsus, Holb. Fn. Grœnl. p. 52 (1846).

Pagophila eburneus, Bruch, J. f. Orn. 1853, p. 106.

Pagophila brachytarsa, Bruch, J. f. Orn. 1853, p. 106; Lawr. B. N. Am. p. 856 (1858); *vide* Reinht. Ibis, 1861, p. 18.

Pagophila nivea, Bp. Compt. Rend. xlii. p. 771 (1856); Consp. Av. ii. p. 230 (1857).

Larus (*Pagophila*) *eburnea*, Coues, B. N.W. Am. p. 648 (1874).

Hab. Arctic regions, from Novaya Zemlya to Baffin's Bay, and the eastern portion of Arctic America, but not as yet found in the North Pacific. Straggles down the western coast of Europe and Eastern America in winter. I can see no reason for considering Holböll's *L. brachytarsus* to be a distinct species.

Genus Rissa.

The principal characteristic assigned to this genus by Leach is the rudimentary character, or absence, of the hind toe. As this is not always constant, and as certain rare individuals from the North Pacific out of many hundreds, are occasionally to be found with a visible hind claw, and even with a nail, it has been urged by some systematists that it is not a valid genus. The

strongest evidence against it is that brought by Dr. Coues in his 'Birds of the North-West,' p. 646, where he says that whereas "a part of the Kittiwakes from the North Pacific are not distinguishable *in any way* from the North-Atlantic bird, others have the hind toe as perfectly formed and proportionately as large as in any species of *Larus*! And there is a gradation between them." He goes on to cite an extreme example from Plover Bay, with a hallux, including the nail ·2 in., with a perfect claw. Whilst writing this paper I have received, through the kindness of the authorities of the Smithsonian Institution at Washington, a similar extreme form with a hallux and nail ·2 in., the claw being well formed and curved, although the whole is certainly but small for the size of the bird, as may be seen by a comparison with a species of about the same size, *L. canus*, in which the hallux and nail measure ·5 in. Mr. O. Salvin has also lent me two specimens, both, as well as my own, from Alaska, in the one of which the nail is somewhat less developed, whilst in the other it is absent, as in the Atlantic bird. It is probable that this extreme form is both rare and local; at least I have never been able to find any but these two examples amongst the many Kittiwakes, Pacific and others, which I have examined. However, there it is; and if the genus *Rissa* depended solely upon the absence of the hind toe, it would have to be given up. There are, however, other structural characteristics, which, when united, seem to me to have weight. The *tarsus* is *remarkably short*, being only 1·2 against 1·9 in. in length of middle toe and claw, proportions unknown in any other group of Gulls; the shape of the curved bill is also peculiar; the *tail* is visibly although not deeply, *forked*; whilst these structural differences are supplemented by such minor characteristics as the peculiar livery of the immature bird, totally unlike that of the adult, or of the young of any other species, and by its exclusively crag-nesting habits. Bearing all these points in mind, I think that, although it is no longer absolutely correct to say that the genus *Rissa* depends upon the absence of the hallux, yet it is advisable to retain it as, on the whole, a valid natural division, sanctioned, moreover, by general use during upwards of half a century.

2. Rissa tridactyla (Linn.).

Larus rissa, Linn. Syst. Nat. i. p. 224 (1766); Phipps, Voy. N. Pole, App. p. 187 (1774); Leach, Syst. Cat. Brit. Mus. p. 40 (1816); Scoresby, Arct. Voy. i. p. 534 (1820).

Larus tridactylus, Linn. Syst. Nat. i. p. 224 (1766); O. Fabr. F. Grœnl. p. 98 (1780); Gm. Syst. Nat. i. p. 595 (1788); Schl. M. P.-Bas, *Lari*, p. 31 (1863); Godman, Ibis, 1872, p. 222 (Canaries).

Larus albus, P. L. S. Müller, Natursystem, p. 108 (1776) (based on Buffon's Mouette cendrée tachetée).

"*Larus cinerarius*, Linn." O. Fabr. F. Grœnl. p. 101 (1780), nec Linn. (winter-plumage, from description).

Larus riga (mispr.), Gm. Syst. Nat. i. p. 594 (1788).

Larus nævius, Schäff. Mus. Orn. p. 64 (1789).

Larus torquatus et *Larus gavia*, Pallas, Zoogr. Rosso-As. ii. pp. 328, 329 (1811).

Gavia tridactylus, Boie, Isis, 1822, p. 563.

Rissa brunnichii, Stephens, ex Leach, in Shaw's Gen. Zool. xiii. pt. i. p. 181, pl. 21 (1825), type of genus *Rissa*.

Cheimonea tridactylus, Kaup, Nat. Syst. eur. Th. pp. 84, 196 (1829), type of genus *Cheimonea*.

Laroides tridactylus, Brehm, Vög. Deutschl. p. 754 (1831).

Laroides rissa, id., *op. cit.* p. 755 (1831).

Laroides minor, id., *op. cit.* p. 756 (1831).

Rissa cinerea, Eyton, Cat. Brit. B. p. 52 (1836).

Rissa tridactyla, Macgill. Man. Brit. B. ii. p. 249 (1842); Hist. Brit. B. v. p. 515; Gray, Gen. Birds, iii. p. 655 (1849); Bruch, J. f. Orn. p. 103 (1853); Bp. Consp. Av. ii. p. 225 (1857).

"*Rissa brachyrhynchus* (Gould)," Bruch, J. f. Orn. 1853, p. 103, nec Gould.

Rissa borealis et *gregaria*, Brehm, Naum. 1855, p. 294.

"*Rissa niveus* (Pall.)," Bruch, J. f. Orn. 1855, p. 285, nec Pallas.

Rissa kotzebui, Bp. Consp. Av. ii. p. 226 (1857).

Larus (*Rissa*) *tridactylus*, Coues, B. N.W. Am. p. 644 (1874).

Larus tridactylus, var. *kotzebui* (Bp.), ibid. p. 646 (1874).

Hab. Arctic region, and along the sea-coasts of the subarctic region, down to about 40° N. lat., breeding perhaps even in the Canaries (*Godman*); in winter it is abundant about the Azores, Canaries, and opposite coast of Africa. In America it is found on both Atlantic and Pacific coasts, but does not seem to extend far down the latter, nor to Japan or China even in winter.

In treating of the genus, I have already noticed that examples are occasionally found about Alaska and the Aleutian Islands with a minute but tolerably developed hind toe, and, at times, with a visible nail, a variation which is rare and *not always equal in extent, even on both feet of the same individual.* I have therefore treated var. *kotzebui* as a synonym, there being no other difference between this and the ordinary Kittiwake, and a gradation between them existing.

3. Rissa brevirostris, Brandt.

Larus brachyrhynchus, Gould, P. Z. S. 1843, p. 106; Zool. Voy. of "Sulphur," p. 50, pl. 34 (1844), nec Richardson (1831).

"*Rissa nivea* (Pall.)," Gray, Gen. Birds, iii. p. 655 (1849), nec Pallas; Lawr. B. N. Am. p. 855; Elliot, B. N. Am. pl. 54.

"*Rissa brevirostris*, Brandt," Bruch, J. f. Orn. 1853, p. 103; id. 1855, p. 285; Dall and Bann. Tr. Chic. Ac. i. 1869, p. 305.

"*Gavina citrirostris*, Schimper," Bruch, J. f. Orn. 1855, p. 284 (Kamtschatka).

Rissa brachyrhyncha, Bp. Consp. Av. ii. p. 226 (1857); Coues, P. Ac. N. Sc. Philad. 1862, p. 306.

Larus warnecki, Coinde, Rev. et M. Zool. 1860, p. 401 (Aleutian Islands).

Larus brevirostris, Coues, Key Am. B. p. 315 (1872); Elliot's Prybilov Is. Birds, no. 553.

Larus (*Rissa*) *brevirostris*, Brandt; Coues, B. N.W. Am. p. 646 (1874).

Hab. The North Pacific, between Alaska and Kamtschatka, where it is very abundant, breeding in thousands on the Prybilov Islands.

This is a very distinct species, and may at once be recognized by its very short stout bill, *orange-red legs and feet*, and dark mantle; the ground-colour of the primaries is also dark grey. I am indebted to the liberality of the authorities of the Smithsonian Institution for a fine specimen of this species, which is as yet rare in collections.

A variation in the hind toe and nail, similar to that in *R. tridactyla*, although in a smaller degree, is observable in this species. My own specimen has no claw on the right hind toe, and only a minute black speck on the left; of two others, from Alaska (e Mus. Salvin & Godman), the one has no hind nail whatever, whilst the other has small black nails, unequal in size, on both hind toes.

Genus Larus.

4. Larus glaucus, Fabr.

Larus glaucus, O. Fabricius, Faun. Grœnl. p. 100 (1780, ex Brünn.); Gm. Syst. Nat. i. p. 600 (1788); Scoresby, Arct. Voy. i. p. 535 (1820); Middendorff, Sib. Reise, ii. p. 241 (1853); Newton, Ibis, 1865, p. 509; Schlegel, Mus. P.-Bas, *Lari*, p. 4 (1863); Coues, B. N.W. Am. p. 620 (1874); Swinhoe, Ibis, 1874, p. 165 (Japan); Seebohm & H. Brown, Ibis, 1876, p. 453 (Lower Petchora); Dresser, B. of Europe, pts. lix., lx. (1877).

"*Larus giganteus*, Temm," Benicke, Ann. Wetterau. Gesellsch. iii. p. 140 (1814).

Larus leuceretes, Schleep, N. Ann. Wetterau. G. i. p. 314 (1819).

Larus consul, Boie, Wiedemann's Zool. Mag. p. 126.

Larus islandicus, Edmonst. Mem. Wern. Soc. iv. (1822) p. 185 (nec Edmonst. *op. cit.* p. 506=*L. leucopterus*).

Larus glacialis, Macgill. Mem. Wern. Soc. v. pl. i. p. 270 (1824).

Leucus glaucus, Kaup, Natürl. Syst. p. 86 (1829).

"*Larus glacialis*, Benicke," Brehm, Vög. Deutschl. p. 732 (1831).

Larus hutchinsii, Richards. F. Bor.-Am. ii. p. 419, note (1831); Cassin, P. Philad. Ac. 1862, p. 290; Coues, ibid. p. 294; Elliot, B. N. Am. ii. pl. 53; Dall. & Bann. Tr. Chic. Ac. p. 304 (1869).

Plautus glaucus, Reich. Nat. Syst. Av. Longip. p. 5 (1852); Ic. Av. pl 47. fig. 316–318, pl. 50. fig. 2640.

Glaucus consul (Boie), Bruch, J. f. Orn. 1855, p. 101.

Laroides glaucus, Bruch, J. f. Orn. 1855, p. 281.

Hab. Arctic regions; seldom breeding much to the south of the arctic circle. In winter it goes southwards, and has been known to straggle as far as the Mediterranean, to Long Island on the Atlantic coast of America, also on to the coasts of Japan, whence I have seen specimens obtained at Hakodadi by Capt. Blakiston.

L. hutchinsii I consider to be an immature *L. glaucus* in the stage where the mottled brown of immature plumage has passed away, and the pearl-grey mantle has not yet begun to show. This stage lasts but a short time, which will account for the fact that this supposed species has so rarely been obtained; but I have always observed in young specimens in captivity that at this stage they are nearly, and sometimes quite, white. A fine example in this state, obtained off Japan by Capt. St. John, H.M.S. 'Sylvia,' is in the Marquis of Tweeddale's collection. Mr. Collett obtained one in Norway in September 1871; and several have been recorded from America.

The feet and legs in adults of this Gull are *bright flesh-pink*, and not lemon-yellow as depicted by an extraordinary freak of the colourist in Mr. Dresser's 'Birds of Europe.'

5. Larus leucopterus, Faber.

Larus argentatus, E. Sabine, Tr. Linn. Soc. xii. p. 546 (nec auctt.).

Larus leucopterus, Faber, Prod. Isl. Orn. p. 91 (1822); Sw. & Rich. F. Bor.-Am. ii. p. 418 (1831); Schl. Mus. P.-Bas, *Lari*, p. 5 (1863); Dall. & Bann. Tr. Chic. Ac. i. 1869, p. 304 (Alaska and Lower Yukon); Coues, B. N.W. Am. p. 622 (1874); Dresser, B. of Europe, pt. xlix (1876).

"*Larus glaucoides*, Temm." Meyer, Taschenb. iii. p. 197 (1822); Boie, Isis, 1822, p. 562.

Larus glaucoides, Temm. Pl. Col. 77^e^ livr. Introd. *Larus* (1828).

Larus islandicus, Edmonst. Mem. Wern. Soc. iv. p. 506 (1823) (nec Edmonst. *op. cit.* p. 185).

Larus arcticus, Macgill. Mem. Werner. Soc. v. no. xiii. p. 268 (1824) (large specimen).

Larus minor, Brehm, Vög. Deutschl. p. 736 (1831).

Laroides glaucoides, Brehm, *op. cit.* p. 744.

Laroides leucopterus, Brehm, *op. cit.* p. 745; Bruch, J. f. Orn. 1855, p. 281.

Laroides subleucopterus, Brehm, *op. cit.* p. 746.

Glaucus leucopterus, Bruch, J. f. Orn. 1853, p. 101.

Glaucus glacialis, Bruch, *op. cit.* p. 101.

Larus chalcopterus, Licht. Nomencl. Av. Mus. Berol. p. 99 (1854), sine descr. (type examined, H. S.).

? *Laroides chalcopterus* (Licht.), Bruch, J. f. Orn. 1855, p. 22.

Laroides glacialis, Bruch, *op. cit.* 1855, p. 282.

Leucus chalcopterus, Bp. Consp. Av. ii. p. 216 (1857).

Leucus arcticus, Bp. *op. cit.* p. 216.

Leucus leucopterus, Bp. *op. cit.* p. 217.

Hab. Even more thoroughly arctic, during the breeding-season, than *L. glaucus*; straggling southward in winter as far as the coast of France. It is not even authenticated as breeding in Iceland or Spitzbergen; but it does so within the arctic circle from Greenland to Behring's Straits. It also breeds in Alaska; and I have examined a specimen which was obtained in Japan by Capt. Blakiston.

6. Larus glaucescens, Licht.

Glaucus glaucescens (Licht.), Bruch, J. f. Orn. 1853, p. 101 (type examined, H. S.).

"*Glaucus glaucopterus*, Kittlitz," Bruch, J. f. Orn. 1853, p. 101.

Larus glaucopterus, Licht. Nomencl. Av. Mus. Berol. p. 99, sine descr. (1854), Behring's Straits, Chamisso (type examined, H. S.).

Laroides glaucescens, Bruch, J. f. Orn. 1855, p. 281.

Leucus glaucescens, Bp. Compt. Rend. xlii. (1856) p. 770; Consp. Av. ii. p. 216 (1857).

Larus glaucescens, Licht.; Lawr. B. N. Am. p. 842 (1858); Coues, Proc. Philad. Ac. 1862, p. 295; id. B. N.W. Am. p. 622; Swinhoe, Ibis, 1874, p. 165 (Japan).

Larus chalcopterus, Lawr. B. of N. Am. p. 843, 1860; Coues, Proc. Philad. Ac. 1862, p. 295 (nec Licht.).

Hab. Pacific coast of North America up to Behring's Straits, and, on the Asiatic side, Kamtschatka, and as far south as Hakodadi, Japan, whence I have seen a specimen obtained by Capt. Blakiston.

This apparent link between the large Gulls with white primaries and those with barred primaries may be roughly described as a Herring-Gull with the black portion of the primary-pattern nearly washed out. It is quite unmistakable. The changes of plumage in its progress to maturity show, however, that its relationship to *L. glaucus* is closer than to *L. argentatus*.

7. Larus argentatus, Gm.

Larus fuscus, Penn. Brit. Zool. ii. p. 131 (1768), nec Linn.; Mont. Orn. Dict. i. (1802).

Larus argentatus, Gm. Syst. Nat. i. p. 600 (1788), ex Brünn.; Schl. M. P.-Bas, *Lari*, p. 16 (includes allies); Gundlach, J. f. Orn. 1857, p. 236 (Cuba); B. du Bocage, Jorn. Soc. Lisb. 1868, pp. 149, 330 (Angola); Hartlaub, Syst. Orn. W.-Afrik. p. 251 (1857), Senegal; Dresser, B. of Europe, pt. xxii. (Oct. 1873); Coues, B. N.W. Am. p. 625, 1874.

Larus marinus, var. *β*, Latham, Ind. Orn. ii. p. p. 814 (1790).

Larus glaucus, Retzius, F. Suec. i. p. 156 (1800), nec Brünn.; Meyer & W. Taschenb. ii. p. 471 (1810).

Larus cinereus, Leach, Syst. Cat. Brit. Mus. p. 40. (1816).

Larus argentatoides, Brehm, Beitr. Vögelkunde, iii. pp. 791, 799 (1822).

Larus argenteus, Macgill. Mem. Wern. Soc. v. p. 264 (1824).

"*Larus argentatoides* (Bonap.)," Sw. & Richards. F. Bor.-Am. Birds, p. 417 (1831), nec Brehm, nec Bonap.

Laroides major, argentatus, argenteus, argentatoides, et *argentaceus*, Brehm, Vög. Deutschl. pp. 738–743 (1831).

Glaucus argentatus, Bruch, J. f. Orn. 1853, p. 101.

Glaucus argentatoides, Bruch, *op. cit.* p. 101.

Larus marinus, Gundl. J. F. Orn. 1857, p. 236; Lembeye, Aves, de Cuba, p. 122 (1850), *cf.* Gundl. J. f. Orn. 1871, p. 291.

Larus smithsonianus, Coues, Pr. Ac. N. Sc. Philad. 1862, p. 296 (North America).

In this species the amount of white on the primaries increases with the age of the individual. Mr. Dresser (B. of Europe, xxii. *L. argentatus*, p. 3) describes an adult male from the Orkneys in summer, in my collection, as having "the outermost primary almost entirely blackish, white towards the tip, and crossed by a subapical black band; the next two grey at the base, black towards the tip, being finally terminated by a large white spot." This is correct, so far as any breeding bird with unspotted pearl-grey mantle may be termed *adult*; but the example in question is far from being an *old* bird. Bearing in mind that the *extreme* white tip diminishes by abrasion with the age of the *feather*, the following are the patterns of the outer primaries with the increasing age of the bird:—On the outer primary the white spot, or "mirror," absorbs the black bar till the latter wholly disappears, leaving the primary pure white from the tip to more than two inches upwards; whilst from above, a grey "wedge" along the inner web gradually eats into the black portion, reducing the width of the black along the inner web to only two inches. In the second primary a white "mirror" appears, which also increases with the age of the bird; but in this feather, so far as I have yet seen, it does not wholly absorb the black bar and unite with the white tip; what it does, however, is to eat round the black above it, so as to cut off the black from the inner web, and thus unites with the grey wedge, which has been gradually increasing its dimensions downwards. It is needless to give a minute description of the remaining primaries; it will suffice to say that, as a rule, the encroachment of the light portions upon the dark ones increases with the age of the bird, and there may easily be stages of further progression with which I am not yet acquainted. This grey "wedge" on the upper portions of the primaries should be borne in mind, as it is an important distinction between some closely allied species. These observations equally apply to the Yellow-legged Herring-Gull (*L. cachinnans*) and to the American bird which Dr. Coues formerly distinguished as *L. smithsonianus*. Dr. Coues, although he has given it up as a species, even now maintains (B. of N.W. Am. p. 628) that if a subapical spot (or "mirror") is present on the second primary of the American bird, it is small; but in two examples before me, of the correctness of whose locality I am well assured, the one from Grand Manan, in June, has it well developed, whilst in another, from Long Island, the mirror extends right across the feather, and on the inner web has nearly eaten through the black and effected a junction with the grey wedge above. Indeed only one European bird in my collection has the mirror still more developed. The average of American *may* possibly be a little larger than the average Old-World specimens; but I have not examined a sufficient series of the former to speak with the same confidence upon this point that Dr. Coues does; at any rate that difference is admittedly unworthy of specific distinction. The *mantle* in the true adult *L. argentatus* is, as every one knows, *pearl-grey*, the *legs and feet* being *flesh-coloured*; and the *ring outside the eye is of a pale yellow*. Taking

these as the characteristics to distinguish it from its congeners, its range may be defined as the north-west of Europe from the Varanger Fiord, the Baltic, the western coasts down to North Africa, the Azores (where it breeds), Madeira, and the Canaries (*Godman*). To Greenland it is a very rare straggler; but it was obtained at Winter Islands, near Melville Peninsula, occurs in Hudson's-Bay territory as far as the Mackenzie River, and probably reaches right across to the Pacific coast, where it certainly occurs, a specimen from Kodiak, collected by Wosnesensky, in the St.-Petersburg Museum, being, as Mr. Seebohm informs me, much lighter in the mantle than *L. cachinnans*; and several specimens from the west coast of Mexico are in my collection. Dall and Bannister also record what seems to be this species from Alaska and from the Upper Yukon. There can be no doubt that examples from northern latitudes have a somewhat lighter mantle than those from more temperate regions, although the transition is very gradual; and this light form has received the name of *L. argentatoides*. From Labrador this species ranges down the coast and along the great rivers and inland lakes as far as Texas; it also visits Cuba and Bermudas. Prof. Barboza du Bocage, in his "List of Birds in the Lisbon Museum" (J. f. Orn. 1876, p. 291), cites an example obtained on the Angola coast, and another at Porto Alexandre, Benguela, more than 15° *south* of the equator, and in the latitude of the island of St. Helena. This is indeed an extension of its range, provided there is no error in the identification of the specimens.

8. Larus cachinnans, Pall.

Larus cachinnans, Pallas, Zoogr. Ross.-As. ii. p. 318 (1811).

Larus argentatus, Bp. Iconogr. F. Ital. Uccelli, Introd. (1832–41); Middend. Sib. Reise ii. p. 242 (part.), (1853); Schlegel, Mus. Pays-Bas, *Lari*, p. 17 (part.), 1863; Blasius, J. f. Orn. 1865, p. 380 (part.); Hume, Yarkand Exp. Zool. p. 299 (1873), Kashmir; id. Stray Feath. i. p. 270 (1873), Scinde.

Larus cachinnans, Pall.; v. der Mühle, Orn. Griechenl. p. 143 (1842).

Glaucus leucophæus, (Licht.) Bruch, J. f. Orn. 1853, p. 101 (Red Sea).

Glaucus michahellesii, Bruch, *tom. cit.* p. 101.

"*Glaucus borealis*, Brandt," Bruch, *tom. cit.* p. 101.

Laroides michahellesii, Bruch, *op. cit.* 1855, p. 282.

Laroides cachinnans, (Pall.), Bruch, *tom. cit.* p. 282.

"*Laroides borealis*, (Brandt)" Bruch, *tom. cit.* p. 282.

Larus epargyrus, Licht. Nomencl. Av. Mus. Berol. p. 99 (1854), sine descr. (type examined, H. S.).

Larus leucophæus, Licht. Nomencl. Av. Mus. Berol. p. 99 (1854), descr. nulla (type examined, H. S.); Salvadori, Cat. Uce. Sard. p. 129 (1864); Finsch & Hartl. Vög. Ost-Afrik. p. 818 (1870); Dresser, B. of Europe, pt. xxii. (Oct. 1873).

Laroides leucophæus, Bp. Naumannia, 1854, p. 212; id. Consp. ii. p. 219 (1857).

Larus fuscescens, Sclater, P. Z. S. 1867, p. 315, et Rev. List of Vert. (1872), p. 316.

? *Larus fuscescens*, Licht.; Bruch, J. f. Orn. 1853, p. 100, (part.). One of the two specimens so labelled in the Berlin Museum is of this species; the other is a *L. fuscus*.

After much consideration and the examination of a very large series of specimens from various localities, I have come to the conclusion that this form, or species, is sufficiently distinct to be treated apart from *L. argentatus*. The distinguishing characteristics of *L. cachinnans* are the *darker* mantle, *yellow* legs and feet, and the *deep orange-red* ring round the outside of the eye. These colours are naturally much more apparent in life than in dried skins; but the colour of the mantle is enough to enable any one with an ordinary perception of shades to separate the two birds at a glance. In the *pattern* of the primaries, and in the individual variations in size both are alike. With regard to the name which I have adopted, it seems to me that there cannot be the slightest doubt as to the species Pallas meant by his *Larus cachinnans* from the Caspian and the Steppes: he describes it fully; and, to avoid any ambiguity as to the shade of colour of the mantle, he uses precisely the same term that he does for the mantle of *L. ichthyaëtus*, which exactly suits this species, whilst it is too dark for *L. argentatus*, and too light for *L. affinis*. Yet more, my friend Mr. Seebohm, on his return from Siberia, examined the *Larinæ* in the St.-Petersburg Museum; and, thanks to him, I am able to state from absolute comparison that *L. cachinnans*, and *L. leucophæus* of the Mediterranean are the same, Pallas's name having the priority.

It appears, indeed, to be a form which, whether from living in a more brilliant atmosphere, or from frequenting inland seas as distinct from great oceans, or from other causes with which we are not acquainted, has acquired a greater intensity of coloration than its congener; but it is not altogether easy to indicate its precise range. The most northern example that I have examined is from Havre, an adult male, the oldest, to judge by the primaries, of any grey-backed gull in my collection; so that it appears to straggle up the French coast. It is not, however, till the Mediterranean is reached that *L. cachinnans* replaces *L. argentatus*; thence it ranges throughout that inland sea, breeding on its shores and islands; goes up the Black Sea, across the steppes and the low-lying marshy and salt-lake districts of Russia from the mouths of the Volga and the shores of the Caspian, as far as Vologda, across the Ural river and the Kirgish steppes, to the Irtich and as far as Lake Baikal. The above seems to be, roughly, its breeding-range; for Meves's description of the "*L. cachinnans*" obtained at Cholmogory on the Dwina applies better to the next species: it was so dark in the mantle that he at first took it to be *L. fuscus*. The species found in Kashmir by the Yarkand expedition was probably *L. cachinnans*. It goes down the Red Sea, and in winter visits the Persian Gulf, and the Mekran coast as far as Kurrachee. It is also found along the coasts of China and Japan in winter, and is the species recorded by Swinhoe under the

names of *L. cachinnans* and *L. occidentalis*; but his birds are most decidedly not the true *L. occidentalis* of Audubon, which has never as yet been obtained anywhere on the Asiatic shores. All Asiatic birds show very distinctly the grey wedge in the outer primaries, which *L. occidentalis* never does: besides, their mantles are not nearly dark enough for that species. I possess, or have examined, a large series of specimens from almost all the localities I have indicated, and have taken very little from descriptions; indeed it is necessary to rely in this matter on one's own observations, as the confusion respecting this group is inconceivable to any one who has not studied the question. In Japanese and Chinese specimens, all obtained in winter, my collection is especially rich, owing to the efforts of Capt. St. John, of H.M.S. 'Sylvia,' and Lieut. Stanley Muggeridge, of H.M.S. 'Kestrel;' Professor Taczanowski has sent me specimens from Lake Baikal, and Mr. W. Muloch and Mr. Blanford examples from Kurrachee and the Mekran coast, whilst as regards Russia and the Mediterranean Mr. Seebohm's and other collections have been available. I may observe that I think it quite possible that in individuals from more northern localities the feet may not be so distinctly *yellow* as in examples breeding in the Mediterranean, believing, as I do, that certain atmospheric conditions exercise a considerable effect upon coloration.

9. Larus affinis, Reinh.

Larus affinis, Reinhardt, Vidensk. Meddel. 1853, p. 78, et Ibis, 1861, p. 17 (type examined, H. S.); Seebohm and H. Brown, Ibis, 1876, p. 452.

Larus argentatus (partim), Midd. Sib. Reise, ii. p. 242. (The description of the bird from Sea of Okhotsk clearly applies to this species.)

Larus cachinnans, Licht. Nomencl. Av. Mus. Berol. p. 99, nec Pallas (specimens examined, H. S.).

Larus fuscus, Jerdon, B. of India, ii. p. 830 (1864).

Larus cachinnans, Meves, Öfv. k. Vetensk. Ak. Förh. 1871, p. 786 (Cholmogory); Heugl. Orn. N.O.-Afr. Bd. 2. Abth. ii. p. 1392 (nec Pallas).

Larus, sp.? No. 39, Heuglin (nec Pallas), Ibis, 1872, p. 65 (Novaya Zemlia and Waigats): description can only apply to this species.

Larus occidentalis, Hume, Stray Feath. 1873, p. 273 (nec Audub.).

Larus heuglini, Bree, B. Eur. 2nd ed. v. p. 58 (1876).

Professor J. Reinhardt, of Copenhagen, was the first to discriminate and to confer a name upon an individual of this species which had straggled to Greenland; but for a knowledge of its habitat and distribution we are indebted to Messrs. Seebohm and Harvie Brown, who found it breeding upon the Petchora, where, however, it only comes about 11th May, and retires southward on the approach of winter. The series of specimens brought home by these energetic naturalists threw a light upon many points which had hitherto been obscure, and showed the real position of numerous specimens from

the Red Sea and the Beloochistan coast, which had formerly been a great trouble, most of them being in immature plumage, and not suiting either *L. cachinnans* or *L. fuscus*.

Mr. Hume's description of the pattern of the primaries of the birds found in winter about Kurrachee (Stray Feathers, 1873, p. 273) shows clearly that his *L. occidentalis* is this species, and by no means the true American bird, the occurrence of which, as I have said before, has never yet been authenticated on the coasts of Asia.

Heuglin's dark-mantled bird from Novaya Zemlia is clearly *L. affinis*; and Middendorff's description of a variety of *L. argentatus* found round the southern shores of the Sea of Okhotsk also applies to this species.

It may appear strange at first sight that this species should have been first described from Greenland; but that is merely due to the unusually careful attention which the fauna of that country has received from Dr. Reinhardt, whose watchful eyes not even a straggler could escape. I have examined the type, and am satisfied that it is of this species. It connects with *L. fuscus* rather closely (although quite distinct) in the length of its foot as compared with that of the tarsus, it having a proportionally smaller foot than either *L. argentatus*, *L. cachinnans*, or *L. occidentalis*, but larger than *L. fuscus*. From the last it may also be distinguished by its larger size and the distinct "pattern" of the outer primaries, the grey wedge being quite marked in this species, whilst it is absent in the outer feather of *L. fuscus*. The mirror on the second primary is moreover only to be found in very old birds (not one of thirteen breeding-birds obtained on the Petchora had it); whilst in old *L. fuscus* this mirror is always present. The present species is in fact a Herring-Gull which passes the whole of the year in a brilliant atmosphere; and I cannot help thinking that to this, and to other conditions of existence with which we are as yet unacquainted, its intensity of coloration is mainly attributable.

10. Larus occidentalis, Audubon.

Larus occidentalis, Aud. Orn. Biogr. v. p. 320 (1839); Lawr. B. of N. Am. p. 845 (1858); Elliot, B. N. Am. ii. pl. lii.; Coues, P. Ac. N. S. Philad. 1862, p. 296; Schl. M. P.-Bas, *Lari*, p. 15 (1863).

Glaucus occidentalis, Bruch, J. f. Orn. 1853, p. 101.

Laroides occidentalis, id. *op. cit.* 1855, p. 282; Bp. Consp. Av. ii. p. 219 (1857).

Larus argentatus, var. *occidentalis*, Coues, Key N. Am. Birds, p. 312 (1872); id. B. of N.W. Am. p. 633 (1874).

Larus fuscus?, Saund. P. Z. S. 1875, p. 158 (Lower California).

Hab. Pacific coast of North America down to Magdalena Bay, Lower California.

It seems to me that this is a very recognizable form, and fully deserving of consideration as a species. Its nearest ally is, on the whole, *L. affinis*; but in the wing-pattern the grey wedge is absent in

the two outer primaries; and their ground-colour is rather darker than in most examples of *L. fuscus*. In the colour of the mantle many specimens are quite as dark as *L. fuscus*, especially those from Southern California, one of which I should have referred to that species but for its long coarse foot; for at that time I had only northern specimens of *L. occidentalis* available, and these are considerably lighter on the mantle and in general tint. Since then I have had the opportunity of inspecting more examples and of knowing the species better; and it seems to me that its *large deep bill* will generally, and its *large coarse foot, longer than the tarsus*, will always, suffice to separate it from *L. fuscus*, which has a delicate foot, much shorter than the tarsus. As a rule *L. occidentalis* is a stouter bird; but some males of *L. fuscus* from the south of Europe run very long in the wing and as large in the bill, whilst on the other hand the Magdalena-Bay *L. occidentalis* is a female, and has an unusually slender bill. In one example I have found a tiny subapical spot on the second primary on one side, but not on the other; so that it is probably a mark of extreme age; but in fully adult *L. fuscus* this is common. Although I have laid stress upon the characters which distinguish this Gull from *L. fuscus*, yet it is rather more closely related to the Herring-Gull group, as shown by its generally larger size, stout bill, and large feet, which are flesh-coloured in this species, although, as in many other cases, they are sometimes rather yellow when dried.

11. Larus fuscus, Linn.

Larus fuscus, Linn. Syst. Nat. i. p. 225 (1766); Scop. Ann. i. Hist. Nat. p. 80 (1769); Gmel. Syst. Nat. i. p. 599 (1788); Lath. Ind. Orn. p. 815 (1790); Temm. Man. d'Orn. p. 496 (1815); Schl. M. Pays-Bas, *Lari*, p. 15 (1863); Finsch & Hartl. Vög. Ost-Afr. p. 820 (1870); Sharpe and Dresser, B. of Europe, pt. xvi. (February 1873).

Larus flavipes, Meyer, Tasch. Vög. Deutschl. ii. p. 469, pl. front. (1810).

Larus cinereus, Leach, Syst. Cat. Mamm. &c., Brit. Mus. p. 401 (1816).

"*Larus argentatus*, Mont." Bewick, Brit. B. Supp. p. 39 (1821).

Leucus fuscus, Kaup, Natürl. Syst. pp. 86 and 196 (1829).

Laroides melanotos, *harengorum* et *fuscus*, Brehm, Vög. Deutschl. pp. 747–749 (1831).

Dominicanus fuscescens (Licht.) partim, Bruch, J. f. Orn. 1853, p. 100. Lichtenstein's example from Arabia is this species; the other bearing this name is *L. cachinnans* (specimens examined, H. S.).

Dominicanus fuscus (Linn.), Bruch, J. f. Orn. 1853, p. 100; id. *op. cit.* 1855, p. 281, including his *L. fuscescens* of 1853.

Clupeilarus fuscus, Bonap. Consp. Av. ii. p. 220 (1857).

"*Larus medius*, Hempr. & Ehr." in Mus. Berol. "Gumfudde." An immature specimen of this species, H. S.

Hab. The north of Europe, the Faroes, the Baltic, Russia as far east as Archangel, the British Islands, the French coast, and the

Canaries (probably its south-west breeding-limit, although it is known to go as far south as Senegal, whence I have examined specimens obtained in May). It visits the Portuguese and Spanish coasts, goes up the Mediterranean to the Black Sea, ascends the Nile to Nubia, and is found throughout the Nile country, whilst on the Red Sea, as far as Aden, it is stated to be sedentary (*Finsch & Hartlaub*). Jerdon's solitary immature specimen procured at Jaulna, in the Deccan, was probably *L. affinis*, the length of the wing (18 to 19 inches) being greater than that of any *L. fuscus* I ever saw, $17\frac{1}{4}$ inches being the very extreme for an old and fresh-moulted bird; and, indeed, Mr. Dresser gives only 15·7! Mr. Dresser states that Dybowski found it in Dauria; but Prof. Taczanowski, in his "Faune de la Sibérie Orientale" (Bull. Soc. Zool. de France, i.) does not mention it amongst that traveller's collection; and with regard to the quotation by the above author of Mr. Swinhoe's authority for its occurrence on the coast of China, a reference to the revised "List of the Birds of China," P. Z. S. 1871, p. 421. no. 656, shows that the species referred to ('Ibis,' 1860, p. 68) as *L. fuscus* was really *L. crassirostris*, Vieill. (*L. melanurus*, Temm.), thus considerably circumscribing the eastern range attributed to it. As regards America, Dr. Coues considers that there is no good evidence of its occurrence on the coasts of the United States.

The distinguishing characteristics of the adult of this species are its dark slate-coloured mantle, chrome-yellow legs and feet, and the shortness of the foot as compared with the tarsus. The outer primaries are very dark, and may be termed black, with a subapical patch or mirror on the first; and in *old* birds there is a *small* mirror on the second primary; but even in these there is *no sign* of the *grey wedge* on the *upper part* of the *inner web* of the *outermost*, scarcely so on the second, and but rarely even on the third—a marked difference from the *L. argentatus* group. In *L. fuscus* the inner web merely fades into a lighter shade towards the edge; and this dark ground of the primaries, and the absence of distinct "pattern," coupled with its average smaller size, and especially the smaller foot, will generally be sufficient to distinguish it from either *L. affinis* or *L. occidentalis*. But for the large coarse foot, I should have assigned a specimen of *L. occidentalis*, from Magdalena Bay, California, to this species; for at the time I had never seen so dark a form of the American bird. In shade of mantle there is much variation, some being in this respect quite as light as *L. affinis*, whilst the blackest are Egyptian specimens, in which the yellow feet are also brightest, probably due to climatic influences. These very dark birds when old have certainly a white subapical spot on the second primary, although Blasius imagined that this was confined to northern and lighter-mantled birds. The examples which run closest to *L. affinis* are some from Malaga and Tangiers, two of which I have with the subapical spot on the second primary, showing considerable age; but even with these the difference between them and *L. affinis* is very marked, *L. affinis* having the grey wedge so much more defined. The adults, therefore, are quite distinguishable; but some years ago,

before Messrs. Seebohm and Harvie Brown's explorations on the Petchora had made me acquainted with a series of *L. affinis*, I was much puzzled by Mr. W. Blanford's immature birds from the Baluchistan coast, obtained in December 1871 to January 1872, and I led him into the error of ascribing them to *L. fuscus*. By my note-book of specimens examined I find that I was in much doubt even at that time, owing to their size and the relative dimensions of the feet and tarsi; but according to my lights I could then ascribe them to nothing else. I now consider them to have been *L. affinis*.

12. Larus californicus, Lawr.

? *Larus niveus*, Pall. Zoogr. Rosso-As. ii. p. 320, pl. 86 (1811), (Kamtschatka), nec Bodd. T. Pl. Enl. 994 (1783).

? *Laroides americanus*, Brehm, Vög. Deutschl. p. 743 (1831).

Larus californicus, Lawr. Ann. Lyc. New York, vi. 1854, p. 79; id. Birds N. Am. p. 846 (1858); Coues, Pr. Ac. N. S. Phil. 1862, p. 300; id. B. of N.W. Am. p. 634 (1874).

Laroides californicus, Bp. Consp. Av. ii. p. 220 (1857).

Larus delawarensis, var. *californicus*, Coues, Key N.-Am. B. p. 313 (1872).

Hab. Pacific coast of North America from Vancouver's Island to Lower California, and the interior as far as the vicinity of Great Slave Lake; also Japan coast, whence I have examined an adult specimen in the Marquis of Tweeddale's collection, obtained by Capt. St. John, H.M.S. 'Sylvia,' off Kali, Japan, in January 1872.

The name *L. niveus*, Pallas, is not available, having been previously employed by Boddaert for *Pagophila eburnea*; but I have long been of opinion that the bird described by Pallas under that name was really this species—a conviction strengthened by the sight of an undoubted example from Japan, proving that it does cross the North Pacific. It has generally been supposed to apply to a larger race of *L. canus*; but Pallas knew *L. canus* perfectly well, and he describes his *L. niveus* as a somewhat *scarce* visitor to the northern and Kamtschatkan seas, and not in the habit of going far up the rivers, also as "magnitudo corvi coracis." Now the largest *L. canus* could hardly be described as of the size of a Raven; and, except in the wing, which is proportionally long in that Gull, the other measurements are too large for it; but they exactly suit *L. californicus*, and Pallas's figure is a perfect portrait of a specimen recently sent to me through the kindness of the authorities of the Smithsonian Institution. Perhaps these remarks may assist in laying the ghost of that *Larus niveus* which for nearly a century has been haunting the lists of systematists.

Dr. Coues inserts with a ? *L. argentatoides*, Bonap. Synopsis, Ann. Lyc. Nat. Hist. New York, p. 360 (1828), as the earliest name for this species, whilst disavowing any desire to supersede Lawrence's title; but as the name had already been applied by Brehm in 1822 for *L. argentatus*, it could not be used for this species, even if correct. But Bonaparte says of his species:—"Common near New York and

Philadelphia; we have also shot it on the southern coasts of England." Now I am not aware of this species having been found within 2000 miles of New York; and the description and measurement (20 inches in length) suit *L. delawarensis*, the length of which Dr. Coues gives as 19·75 inches, better than any other. Dr. Coues goes on to identify *L. argentatoides* of Richardson with Bonaparte's species: but this cannot be; for Richardson's birds were from 23 to 25 inches in length, with a mantle of the same shade as the Iceland Gull—both too large and too light for *L. californicus*. Richardson got his bird at Melville Peninsula, and speaks of it as found at Hudson's Bay. Dr. Coues says the Smithsonian Institution possesses specimens "from localities not far distant from those of Richardson;" but it seems to me that Great Slave Lake is a very considerable distance from Melville Peninsula, although nearer to it than to New York. Dr. Coues gives the length of *L. californicus* as 20 inches; and as Richardson's 23 to 25 inches do not suit him, he quite gratuitously suggests that Richardson drew up his measurements from the largest specimens; whilst as for the colour of the legs, which are described as "flesh-coloured," whereas in *L. californicus* they are olivaceous, his assumption is that Richardson described them from dried skins! There can be very little doubt that Richardson's birds were examples of *L. argentatus*; for his measurements and descriptions suit that species better than any other.

I am glad to see that Dr. Coues, in his 'Birds of North-West America,' has reconsidered his previous hasty determination that this species was merely a large variety of *L. delawarensis*. To judge from the examples I have examined, *L. californicus*, although certainly the connecting-link between the *L. argentatus* and the *L. canus* group, is perfectly distinct from either. In the pattern of the primaries it rather goes with *L. argentatus*, in the colour of the soft parts with *L. delawarensis*; in the colour of the mantle it is much darker than either, though not so dark as *L. occidentalis*.

13. Larus delawarensis, Ord.

Larus delawarensis, Ord, Guthrie's Geogr., 2nd Am. ed., ii. p. 319 (1815) *fide* Lawr. B. N. Am. p. 846 (1858); Coues, B. of North-West Am. p. 636 (1874); Wheeler, Rep. Exp. and Surv. W. of 100th Mer. p. 485 (1876); Reid, Zoologist, 1877, p. 489 (Bermudas).

Larus canus, Bp. Specchio Comp. p. 69 (1827), nec auctt.

? "*Larus argentatoides*, Brehm," Bp. Synopsis, p. 360 (1828), nec Brehm.

Larus zonorhynchus, Richardson, F. Bor.-Am. ii. p. 421 (1831); Audubon, B. Am. viii. p. 35, pl. 446 (1839); Schlegel, Mus. P.-Bas, *Lari*, vi. p. 22 (1863); Blasius, J. f. Orn. 1865, p. 380; Bp. Consp. Av. ii. p. 224 (1857); Gundlach, J. f. Orn. 1857, p. 236 (Cuba).

Glaucus zonorhynchus (Rich.), Bruch, J. f. Orn. 1853, p. 102.

"*Glaucus occidentalis* (Audub.)," Bruch, J. f. Orn. 1853, p. 101, taf. ii. fig. 20, nec Audubon.

Gavina zonorhynchus (Richards.), Bp. Naum. 1854, p. 212; Bruch, J. f. Orn. 1855, p. 282.

Gavina bruchi, Bp. Naumann. 1854, p. 212; Bruch, J. f. Orn. 1855, p. 283.

"*Laroides occidentalis* (Audub.)," Bruch, J. f. Orn. 1855, p. 282, nec Audubon

Larus zonorhynchus, var. *mexicanus* et var. *bruchi*, Bp. Consp. Av. ii. p. 224 (1857).

Hab. Interior and coasts of North America from the Saskatchewan and Labrador to Great Salt Lake (breeding), and in winter to the middle and southern States, Cuba, and the Bermudas. An immature bird in my collection obtained by Mr. H. Whitely at Hakodadi, Japan, 14th December, 1864, seems from its size and stout barred bill to belong to this species.

The adult is easily distinguished from *L. canus* by its larger size, stout, double-zoned bill, and lighter mantle; it is smaller than *L. californicus*, its wing-pattern is different, and the mantle is much lighter.

14. LARUS CANUS, Linn.

Larus canus, Linn. Syst. Nat. i. p. 224 (1766); Gm. Syst. Nat. i. p. 596 (1788); Schl. Mus. P.-Bas. *Lari*, p. 23 (1863); Sharpe & Dresser, B. of Eur. pt. xvii. (1873); David & Oust. Ois. de la Chine, p. 517 (1877).

Larus cinereus, Scop. Ann. i. Hist. Nat. p. 80 (1769).

Larus hybernus, Gm. Syst. Nat. i. p. 596 (1788).

Larus procellosus, Bechst. Orn. Tasch. p. 373 (1802).

Larus cyanorhynchus, Meyer, Tasch. Vög. Deutschl. ii. p. 480 (1810).

Laroides procellosus et *L. canescens*, Brehm, Vög. Deutschl. pp. 750–753 (1831).

Larus canus, var. *major*, Middendorff, Sib. Reise, ii. p. 243 (1853).

Larus heinei, Homeyer, Naumannia, 1853, p. 129.

Glaucus canus, Bruch, J. f. Orn. 1853, p. 102.

"*Glaucus lacrymosus* (Licht.)," Bruch, J. f. Orn. 1853, p. 102, nec Licht.

Gavina kamtschatchensis, Bp. Naumannia, 1854, p. 212.

Gavina heinei, Bruch, J. f. Orn. 1855, p. 283.

Gavina canus, id. *op. cit.* p. 284.

? *Rissa nivea*, Bp. Cat. Parzudaki, p. 11 (1855).

"*Larus niveus*, Pall," Bp. Consp. Av. ii. p. 224 (1857); Swinhoe, P. Z. S. 1871, p. 420; David & Oust. Ois. de la Chine, p. 518, 1877, nec Pallas.

Larus delawarensis, Coues, Pr. Ac. N. Sc. Phil. 1861, p. 246.

Larus canus major, Schl. Mus. P.-Bas, *Lari*, p. 26 (1863).

"*Larus suckleyi*, Lawr." Schl. M. P.-Bas, *Lari*, p. 27 (1863), nec Lawr. (Japan).

Larus audouini, Tristram, Ibis, 1868, p. 330, nec Payr.

Hab. Throughout the Palæarctic region, but very rare in Iceland; once in Labrador.

A specimen bearing the label of the Labrador Expedition of Dr. E. Coues and Mr. J. W. Dodge in 1860, obtained at Henley Harbour on the 21st August, and marked *L. delawarensis*, came into my hands indirectly from Mr. Krider, of Philadelphia. I have very little doubt as to its being really *L. canus*; but the American naturalists will have an opportunity of disputing or confirming my view, as I have sent it to the Smithsonian Institution.

Few species differ so much in individual size as *L. canus*; and I cannot admit the specific validity of the large race found throughout Northern Russia and Siberia. Off Japan all sizes are found; and the colour of the mantle is also very variable, being lightest in Scotch breeding-birds. It appears to be a species which attains its greatest development in the north and east, and deteriorates in size as it ranges south and west. I have already pointed out that I consider *L. niveus* of Pallas to be really the earliest name of *L. californicus*, Lawr.

15. Larus brachyrhynchus, Rich.

Larus canus, Richardson, F. Bor.-Am. ii. p. 420 (1831), nec Linn. nec auctt. (adult).

Larus brachyrhynchus, Rich. F. Bor.-Am. ii. p. 421 (1831), juv. (nec Gould, P. Z. S. 1843), type described, Great Bear Lake, May 23rd, 1826; Coues, P. Ac. N. S. Philad. 1862, p. 302; Elliot, B. N. Am. ii. pl. 53; Dall & Bann. Tr. Ch. Ac. 1869, p. 305.

Larus suckleyi, Lawr. Ann. Lyc. New York, 1854, p. 264; id. B. N. Am. p. 847 (1858); Schl. M. P.-Bas, *Lari*, p. 27 (1863).

Rissa septentrionalis, Lawr. Ann. Lyc. New York, 1854, p. 266; id. B. N. Am. p. 854 (1858).

Larus canus, var. *brachyrhynchus*, Coues, Key N. Am. B. p. 313 (1872); id. B. N. W. Am. p. 638 (1874).

Hab. North-Pacific coast of America, from Sitka downwards, and the interior to Great Bear Lake.

I can refer to no other species the specimens obtained by the late Mr. Hepburn at San Mateo, California, and one very old and fresh-moulted bird in the Copenhagen Museum from Sitka. They are certainly not *L. delawarensis*; and they are smaller than any *L. canus* in my collection except one, a quite abnormally small female from Orkney. The bill is slender and weak; and the foot with the middle toe and nail is nearly as long as the tarsus, which in *L. canus* is considerably longer. The bill is olive-green to mandible, in front of which it is yellow, the former colour being much more predominant than in old *L. canus*. There is much more grey from the base of the primaries downwards than in *L. canus*; and on the third primary the wedge descends to the level of the tip of the fifth primary, whilst there is a broad subapical mirror on the third primary, which, again, is seldom, if ever, the case in *L. canus*; also the ends of the primaries are much more broadly tipped with white.

So far, I think, I am in accord with Dr. Coues, who has had the advantage of examining Richardson's type, which, however, is a young bird; but as regards the adult, of which he has seen far more

examples than I have, there is a slight discrepancy to be explained. He says that the colour of the mantle of *L. brachyrhynchus* is rather *lighter* than in *L. canus*; my specimens are certainly rather *darker* than the darkest *L. canus*. Perhaps this is a slip of the pen, or an inversion of his reference; otherwise I cannot understand it. I retain this species as it has already been described, because the specimens before me have a general appearance so different from *L. canus* that they are distinguishable at a glance, although it is rather difficult to define the differences on paper; but I expect that a larger series will throw light upon the subject. Schlegel's bird from Japan assigned to this species seems to me to be merely a large *L. canus*.

16. LARUS AUDOUINI, Payr.

? *Larus quadricolor*, Scop. Ann. i. Hist. Nat. p. 81. no. 109 (1769).

Larus audouini, Payraudeau, Ann. Sc. Nat. viii. p. 462 (1826); Temm. Pl. Col. livr. 81, pl. 480 (1826); Gould, B. Europe, v. pl. 438 (1837); Schl. M. P.-Bas, *Lari*, p. 22 (1863); Degl. & Gerbe, Orn. Europ. ii. p. 420 (1867); Lilford, Ibis, 1875, p. 31.

Larus payraudei, Vieill. Faun. Franç. Ois. p. 396 (1828), fide Deg. & Gerbe, *loc. cit.*

Gavia audouinii (Payr.), Boie, Isis, 1844, p. 191.

Glaucus audouini (Payr.), Bruch, J. f. Orn. 1853, p. 102.

Gavina audouini (Payr.), Bp. Naum. 1854, p. 212; Consp. Av. ii. p. 222 (1857).

Laroides audouini (Payr.), Bruch, J. f. Orn. 1855, p. 282; Brehm, Naum. 1855, p. 294.

Hab. Mediterranean, especially about Corsica and Sardinia, and the neighbouring coasts of Italy, the Balearic Islands, and North Africa. Mr. Gould quotes Natterer (*in litt.*) as having shot three specimens outside the Straits of Gibraltar, between that place and Tarifa. Lord Lilford found it breeding on the island of Toro, off Sardinia. Canon Tristram's reputed *L. audouini* from Palestine are all *L. canus*.

This Gull is one of the most unmistakable species, owing to its length of wing, dark primaries, lead-coloured or black legs, and, when adult, its cherry-red double-zoned bill. From the description given by Scopoli of his *L. quadricolor* it is probable that it is this species; but in the absence of certainty it is undesirable to use that name.

17. LARUS MARINUS, Linn.

Larus marinus, Linn. Syst. Nat. i. p. 225 (1766); O. Fabr. Faun. Grœnl. p. 102 (1780); Meyer, Tasch. Vög. Deutschl. pl. ii. p. 465; Temm. Man. d'Orn. p. 490 (1815); Macgill. M. Wern. Soc. vol. v. p. 255 (1824); Schlegel, M. Pays-Bas, *Lari*, p. 10 (1863); Sharpe and Dresser, B. of Eur. pt. xv. (1872); Coues, B. of North-West (America), p. 624 (1874); Swinhoe, Ibis, 1874, p. 165 (Japan); Reid, Zoologist, 1877, p. 489 (Bermudas).

Larus nævius, Linn. Syst. Nat. p. 225 (1766).

Larus maculatus, Bodd. Tab. Pl. Enl. p. 16 (1783).

Larus maximus, Leach, Syst. Cat. Brit. Mus. p. 40 (1816); Brehm, Vög. Deutschl. p. 728 (1831).

Leucus marinus, Kaup, Natürl. Syst. pp. 86, 196 (1829).

Larus mülleri, Brehm, op. cit. p. 729 (1831).

Larus fabricii, id. op. cit. p. 730 (1831).

Dominicanus marinus, Bruch, J. f. Orn. 1853, p. 100; id. ib. 1855, p. 280.

Larus albus, P. L. S. Müller, Natursystem, p. 108 (1776), has generally been quoted by copyists as a synonym of this species; but investigation shows that it is based upon Buffon's "Mouette cendrée tachetée" (vol. vii. p. 424; Pl. Enl. 387), which represents a young *Rissa tridactyla*.

Hab. Northern and temperate Europe and Iceland (breeding); visiting the Mediterranean in winter, as far as Greece; the Canaries, and probably the Azores. In Northern Greenland Prof. Reinhardt assures me that it is very rare; it breeds in Labrador, occurs on the great lakes of North America, and visits Florida in winter. Lembeye's specimen, recorded from Cuba, turned out to be *L. argentatus* (vide J. f. Orn. 1871, p. 290); but it has occurred at the Bermudas (*Reid*). No record from the American side of the Pacific; but I have examined undoubted specimens from Japan collected by Capt. Blakiston. This is a very great extension of its previously known range.

18. Larus dominicanus, Licht.

Larus dominicanus, Licht. Verz. Doubl. p. 82 (1823); Darwin, Zool. "Beagle," Birds, p. 142 (1841); Cassin, Orn. U.S. Expl. Exp. p. 377 (1858), Callao?; Schlegel, M. P.-Bas, *Lari*, p. 12 (1863); Layard, B. S. Africa, p. 367 (1867); Durnford, Ibis, 1877, p. 45 (Chuput, Patagonia); id. tom. cit. p. 201 (prov. B. Ayres).

Larus littoreus, Forster, Descr. Anim. p. 46 (1844), Cape of Good Hope.

Larus antipodus, Gray, Cat. *Anseres* Brit. Mus. p. 169 (1844), New Zealand.

Dominicanus antipodus, Bruch, J. f. Orn. 1853, p. 100.

"*Dominicanus pelagicus* Anglor.," Bruch, J. f. Orn. 1853, p. 100 (India and Oceania); id. op. cit. 1855, p. 280; Bp. Consp. Av. ii. p. 214 (1857).

Dominicanus vetula, Bruch, J. f. Orn. 1853, p. 100, 1855, p. 281 (Cape Good Hope); Bp. Consp. Av. ii. 214 (1857).

"*Dominicanus vociferus* Anglor.," Bruch, J. f. Orn. 1853, p. 100, 1855, p. 281 (South America).

Dominicanus antipodum, Bruch, J. f. Orn. 1855, p. 281; Bp. Consp. Av. ii. p. 214 (1857).

Dominicanus fritzei, Bruch, J. f. Orn. 1855, p. 281 (Straits of Sunda, near Java?) (type in Wiesbaden Mus. examined, H. S.); Bp. Consp. Av. ii. p. 214 (1857).

Larus vociferus, Burm. Syst. Uebers. Th. Bras. p. 448 (1856); id. La Plata-Reise, ii. p. 518 (1861).

Clupeilarus antipodum, Bp. Compt. Rend. xlii. p. 770 (1856).
Larus verreauxii, Bp. Rev. et Mag. Zool. vii. 1855, p. 16.
Dominicanus verreauxii, Bp.; Bruch, J. f. Orn. 1855, p. 281(Chili).
Dominicanus azaræ (Less.), Bp. Consp. Av. ii. p. 214 (1857).
Lestris antarcticus (!), Ellman, Zool. 1861, p. 7472.
Lestris fuscus, id. Zool. 1861, p. 7472.
Larus vetula, Gurney, Andersson's B. Damara Land, p. 357 (1872); Shelley, Ibis, 1875, p. 86 (Natal).

Hab. New Zealand, Kerguelen Island, and the other islands between it and Cape of Good Hope, African coast to 22° S. lat., the opposite coast of South America, the Falkland Islands, Patagonia, the coast of Chili, and the island of Juan Fernandez. I am sceptical as to the locality assigned to *L. fritzei*, whilst equally unable to accept Bonaparte's version of Sunda being a mistake for Sund[Lund?] in Sweden!

In a large series of specimens from the above localities I can detect no specific differences, individuals from the same localities often varying quite as much in the dimensions of the bill as do those from widely remote places. The absence or presence of the white mirror near the tip of the first primary is of no specific value whatever, being entirely dependent upon the age of the individual; it does not appear till after the bird has assumed the full black mantle, and increases in size with age.

The deep *brown*-black of the mantle, as distinct from the *slate*-black of *L. fuscus*, and its strong bill and larger size, will distinguish *L. dominicanus* from that species; it is smaller than *L. marinus*, has a different pattern of primaries, and has *olivaceous-coloured* legs and feet.

Messrs. Sclater and Salvin state (P. Z. S. 1871, p. 576) that the examples then living in the Society's gardens had *flesh-coloured* legs and feet; but this is either a slip of the pen, or else they must have been looking at a *L. marinus*, the only "Black-back" which when adult has those parts of that colour.

19. Larus pacificus, Latham.

Larus pacificus, Latham, Suppl. Ind. Orn. p. 68 (1801); Gould, B. of Austral. vol. vii. pl. 19; Schlegel, M. P.-Bas, *Lari*, p. 7 (1863).
Larus frontalis, Vieillot, in Nouv. Dict. H. Nat. 2nd ed. t. xxi. p. 505 (1818), im. ad. (Tasmania).
Larus leucomelas, Vieillot, N. Dict. H. Nat. 2nd ed. t. xxi. p. 509 (1818), adult (Tasmania).
Larus bathyrinchus (sic), Macgill. Mem. Wern. Soc. v. (1823–4), p. 253.
Larus georgii, King, Surv. Intertrop. Australia, ii. p. 423 (1826) (King George's Sound, S.W. Australia).
Gabianus pacificus (Lath.), Bruch, J. f. Orn. 1853, p. 100, et 1855, p. 280; Bonap. J. f. Orn. 1854, p. 211; Rev. et Mag. Zool. 1855, p. 13; Consp. Av. ii. p. 212 (1857).

Gabianus bathyrhynchus, Bruch, J. f. Orn. 1855, p. 280; Bp. Consp. Av. ii. p. 212 (1857).

Gabianus georgii (King), Bp. Consp. Av. ii. p. 213 (1857).

Hab. South-west portions of Australia, Bass's Straits, and Tasmania; not included by Mr. Buller in his 'Birds of New Zealand,' but there are three specimens labelled from that locality in the British Museum, obtained by the Antarctic Expedition.

Mr. Gould's plate hardly gives a correct idea of the dimensions and great depth of bill in this fine species, which may easily be distinguished by this feature in all stages. In the adult the tail is crossed by a black band; and this peculiarity in the plumage, coupled with the stout bill, seems to place this species midway between the typical Gulls and those of the next group. The value of *Gabianus* as a genus for this species has been already discussed.

20. Larus belcheri, Vigors.

Larus belcheri, Vigors, Zool. Journ. iv. p. 358 (1829); id. Zool. Beecher's Voy. "Blossom," p. 39; Schlegel, M. P.-Bas, *Lari*, p. 9 (1863), excl. syns.; Scl. & Salv. P. Z. S. 1871, p. 575.

Adelarus belcheri, Bruch, J. f. Orn. 1853, p. 107; id. 1855, p. 279; Bp. Naum. p. 212 (1854).

Leucophæus belcheri, Bp. Consp. Av. ii. p. 232 (1857).

"*Larus fuliginosus*, Gould," Cassin, U.S. Expl. Exp. Orn. p. 378 (1858), nec Gould (Cape Horn to Callao).

Larus frobeenii, Phil. & Land. Wiegm. Archiv, 1861, p. 292.

Larus frobeni, iid. Cat. Aves Chil. An. Univ. Chil. tom. xxxi. p. 288.

Hab. West coast of S. America, from Callao southwards to Chili, the western portions of the Straits of Magellan, and down to Cape Horn.

I have the fully adult bird with pure white head and underparts from Chorillos, near Callao, Peru; but I observed the immature birds with dark hoods in far greater numbers. Although several of these Pacific Gulls have a hood in the immature stage, which is lost in the adult, in none of them is the change so remarkable as in this species. I confess that I cannot see any adequate reason for giving it generic rank; but Bonaparte thought differently, for he made it the type of his genus *Procellarus*, being quite unaware that it was absolutely the same *species* as the bird which he had already located in the genera *Leucophæus* and *Adelarus*!

Dr. Coues, in a general notice of American Gulls, under the head of *L. heermanni* (B. of N.W. p. 642), says that *L. belcheri* is "not a white-headed Gull at all," though he afterwards says that he should not be surprised if, in the adult state, it lost its hood. In this last surmise he is quite right; the adult *L. belcheri* is a perfectly white-headed Gull, at the first glance being like a stout *L. fuscus* with a black band on its tail.

21. Larus heermanni, Cassin.

Larus heermanni, Cassin, Proc. Ac. Nat. Sc. Philad. vi. p. 187

(1852); id. B. Californ. p. 28, pl. 5; Scl. & Salv. P. Z. S. 1871, p. 574; iid. Nomencl. Av. Neotrop. p. 148.

Adelarus heermanni, Bruch, J. f. Orn. 1853, p. 107, et 1855, p. 279.

Leucophæus heermanni, Bp. Naumannia, 1854, p. 211.

Blasipus heermanni, Bp. Consp. Av. ii. p. 211 (1857).

Larus (*Blasipus*) *heermanni*, Coues, B. N.W. Am. p. 641 (1874).

Hab. Pacific coast, from Vancouver's Island and California (breeding), down to Panama in winter.

The nearest ally of this species is perhaps *L. crassirostris* of the opposite Asiatic coast and islands; but its red bill and the lead-coloured neck and underparts will always serve to distinguish the adult; in *L. crassirostris* the neck and underparts are white.

22. LARUS CRASSIROSTRIS, Vieill.

Larus crassirostris, Vieill. N. Dict. H. Nat. 2nd ed. p. 508 (1819), ex Krusenstern (Nagasaki, Japan); Schlegel, M. P.-Bas, *Lari*, p. 8 (1863); Swinh. P. Z. S. 1871, p. 421; David & Oust. Ois. de la Chine, p. 518 (1877).

Larus melanurus, Temm. Pl. Col. 77^{me} liv. pl. 459 (1828); Temm. & Schl. Faun. Japon. Aves, p. 132, pl. 88 (1850); Taczan. Bull. Soc. Zool. France, i. p. 264 (1876).

Adelarus melanurus, Bruch, J. f. Orn. 1853, p. 107, et 1855, p. 279.

Blasipus crassirostris, Bp. Naumannia, 1854, p. 211; id. Consp. Av. ii. p. 212 (1857).

Larus fuscus, Swinhoe, Ibis, 1860, p. 68 (nec Linn.).

Hab. Coasts of Japan and China, and large lakes and rivers of latter; breeding in colonies, generally on islands.

I have already pointed out roughly the distinctions between this species and *L. heermanni*; superficially the present bird is not unlike the adult of *L. belcheri*; but the mantle is much lighter, and the tail is white with a black bar, whereas in *L. belcheri* the greater portion of the tail is black.

23. LARUS MODESTUS, Tsch.

Larus modestus, Tschudi, Wiegm. Arch. 1843, pt. i. p. 389; id. Fauna Peruana, Aves, p. 306 (1845–6), pl. 35; Scl. & Salv. P. Z. S. 1871, p. 573; id. Nomencl. Av. Neotrop. p. 148 (1873).

Larus bridgesi, Fraser, P. Z. S. 1845, p. 16; id. Zool. Typ. t. 69 (1849), type in Brit. Mus.

Blasipus bridgesi (Fraser), Bruch, J. f. Orn. 1853, p. 108, et 1855, p. 280; Bp. Rev. Zool. 1855, p. 21; Consp. Av. ii. p. 212.

"*Blasipus polios* (Natt.)," Bp. Rev. Zool. 1855, p. 21; Consp. Av. ii. p. 212 (1857).

Leucophaius modestus, G. R. Gray, Hand-l. Birds, iii. p. 116 (1871).

Hab. Pacific coast of South America, from Callao to Valparaiso, and probably further south.

This species, which in its immature plumage bears an indication

of a dusky hood, has been confused with *L. fuliginosus* of the Galapagos Islands; but its much slenderer bill, tarsi, and feet will at once distinguish it from the latter, even in youth; whilst in the adult the clear grey of the underparts and the white blending into grey of the forehead and head, distinguish it from any other known species of Gull. Mr. Fraser's plate above cited gives a very fair idea of the adult; but *very old* birds are much lighter about the upper parts than his example.

24. Larus fuliginosus, Gould.

Larus fuliginosus, Gould, Zool. "Beagle," iii. p. 141 (1841); Scl. & Salv. P. Z. S. 1871, p. 573; Salvin, Trans. Zool. S. ix. p. 505, pl. lxxxvii.

Leucophæus fuliginosus et *Adelarus neptunus*, Bp. Rev. Zool. 1855, p. 20; et Consp. Av. ii. p. 232 (1857).

Procellarus heermanni! (part.), G. R. Gray, Hand-l. Birds, iii. p. 116 (1871).

Hab. Galapagos Islands.

This stoutly built and well-marked species appears to be restricted to the Galapagos group. Mr. Salvin's illustration above cited will probably prevent further confusion between this bird and *L. modestus*; but it is most extraordinary that the late Mr. G. R. Gray should have confounded it with *L. heermanni*, when he had the type of the present species before him. Specimens are exceedingly rare in collections; and of the eggs and nestlings no examples are known.

Although this species differs from the preceding ones in having a hood in its adult plumage, yet its other affinities seem to indicate that its proper place is here and not with the ordinary hooded Gulls.

25. Larus scoresbii, Trail.

Larus scoresbii, Trail, Mem. Wern. Soc. iv. p. 514 (1823), (New South Shetland Islands); Pelzeln, Orn. Novara Exp. p. 151; Abbott, Ibis, 1861, p. 165 (Falkland Islands).

Larus hæmatorhynchus, Vigors, in lett. King's Zool. Journ. iv p. 103 (1828–9); Jard. & Selby, Ill. Orn. ii. pl. 106; Gould, Zool. "Beagle," Birds, p. 142.

Leucophæus hæmatorhynchus, Bruch, J. f. Orn. 1853, p. 108, et 1855, p. 287; Bp. Naum. 1854, p. 211.

Procellarus neglectus, sive *Epitelarus neglectus*, Bp. Naumann. 1854, pp. 211, 213; id. Rev. et Mag. Zool. p. 13 (1855); id. Consp. Av. ii. p. 211 (1857), type and sole representative of *Procellarus*.

Leucophæus scoresbii, Bp. Consp. Av. ii. p. 231 (1857); Blasius, J. f. Orn. 1865, p. 378; Scl. & Salv. P. Z. S. 1871, p. 579; iid. Nomencl. Av. Neotrop. p. 148.

Larus scoresbyi, Schl. M. P.-Bas, *Lari*, p. 33 (1863).

Hab. Patagonia, east coast, south of about 45° S. lat., down to New South Shetland Islands, in about 63° S.; the Falkland Islands, the Straits of Magellan, and up the coast of Chili as far as Chiloe.

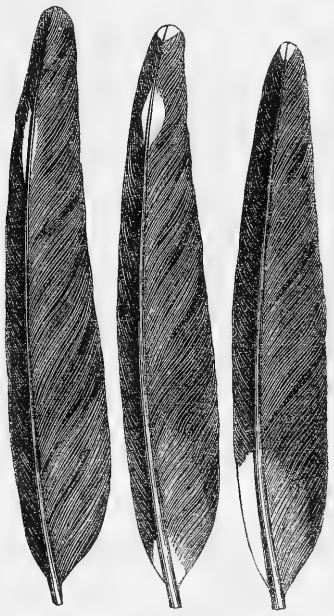
In spite of the somewhat peculiar shape of the bill in this species I hardly think it desirable to place it on that account in a distinct genus, especially as Bonaparte's genus *Leucophæus* also includes such dissimilar species as the present and *L. heermanni* of North America. His *Procellarus* is founded on a young bird of the same species! *Larus scoresbii*, however, is a very well-marked species, from its short, stout, crimson bill, and coarse legs and feet, the webs of the latter being a good deal incised. In the immature stage this bird has a sooty hood; but in the adult the upper parts are grey.

26. Larus novæ-hollandiæ, Steph. (Fig. 1.)

Larus novæ-hollandiæ, Stephens, Shaw's Gen. Zool. xiii. pt. i. p. 196 (1826), ex Latham.

Larus scopulinus, var. *major*, Forst. Descr. Anim. p. 106 (1844).

Fig. 1.



1. 2. 3.

Three outer primaries of *L. novæ-hollandiæ*, jr. (from the type of *Gavia pomarre*, Bruch, of 1853, not of 1855).

Larus jamesonii, Wilson, Ill. Zool. pl. xxiii. (1831).

Xema jamesonii, Gould, Birds of Australia, vol. vii. pl. xx (1848).

Gavia jamesonii, Wils. Bruch, J. f. Orn. 1853, p. 102; 1855, p. 285.

Gavia andersonii, Bruch, J. f. Orn. 1853, p. 102, et 1855, p. 285 (type examined, H. S.).

Gavia pomarre, Bruch, J. f. Orn. 1853, p. 103, not *Gavia pomare* of 1855, p. 285, which is *L. bulleri* (type in Mainz Mus. examined, H. S.), Society Islands.

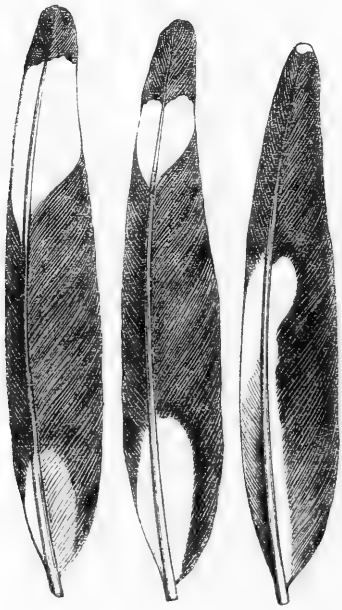
Gelastes gouldi, Bp. Naumann. 1854, p. 216.

Gelastes corallinus, Bp. Naumann. 1854, pp. 212, 216 (type in Paris M. examined, H. S.).

Gelastes andersonii, Bp. tom. cit. p. 212.

Gavia gouldii, Bp. Bruch, J. f. Orn. 1855, p. 285.

Fig. 2.



1. 2. 3.

Three outer primaries of *L. novæ-hollandiæ*, ad. (from the type of *Gavia andersonii*, Bruch).

Bruchigavia gouldi, Bp. Consp. Av. ii. p. 228 (1857).

Bruchigavia pomare, Bp. tom. cit. p. 229.

Bruchigavia jamesonii, Bp. tom. cit. p. 228 (1857); Gould, Handb. B. Austral. ii. p. 387 (1865).

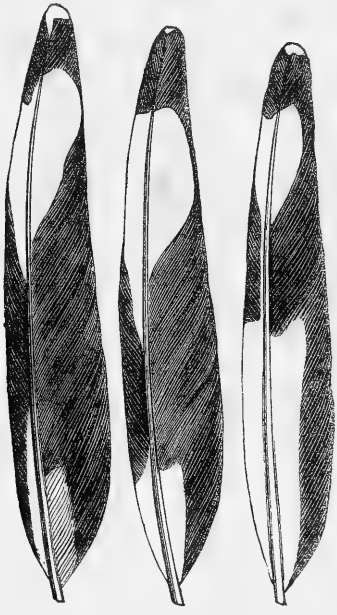
Bruchigavia corallinus, Bp. op. cit. p. 228 (1857).

Larus scopulinus major, Schlegel, M. P.-Bas, *Lari*, p. 29 (1863).

Hab. Australia from Raine Island, Torres Straits, to Bass's Straits, and Tasmania; also New Caledonia, and perhaps the Society Islands.

Although very close to *L. scopulinus* of New Zealand, I think this species may fairly be distinguished by its larger size throughout, and by the greater amount of white mirror in the pattern of the three outer primaries. In old birds of *L. novæ-hollandiæ* there is always a mirror on the *third* primary as well as on the first and second; in a large series of *L. scopulinus* I have never found this. The amount of white is also greater in the Australian bird, and the shape of the mirror is different, as is shown in the accompanying figures. *L. corallinus* of Bonaparte has been supposed to be *L. maculipennis*, Licht., on the strength of the assertion in the Conspect. Av. that the type was obtained in Brazil by Castelnau. I have examined the type, which bears no indication of locality, nor do I for a moment

Fig. 3.



1. 2. 3.

Three outer primaries of *L. novæ-hollandiæ*, old.

believe that it ever was killed in Brazil; it is, however, of this species, and a large-billed example.

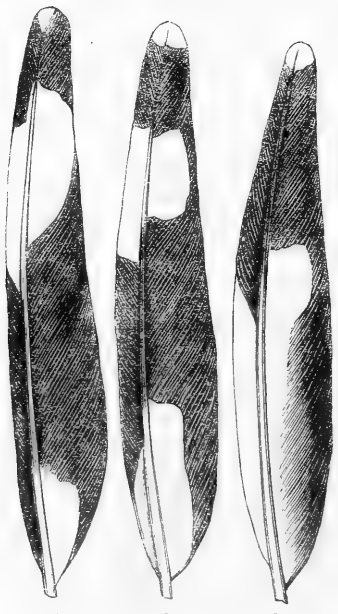
To make matters plainer, I have had figures prepared of the three outer primaries in three different specimens of this species. In fig. 1 (p. 185) is given the pattern in a young bird, taken from a drawing by Dr. O. Finsch of the type of *Gavia pomarre* of Bruch, 1853 (but *not* his *G. pomare* of 1855, which latter =*L. bulleri*), in the Mainz Museum. Fig. 2 (p. 186) represents the primaries of Bruch's *G. andersonii*, from the same source. Fig. 3 (p. 187)

shows the pattern of an *old L. novæ-hollandiæ*, obtained in Tasmania by Capt. V. Legge, R.A., and, if compared with fig. 4 (p. 188), will show the difference between this species and *old L. scopulinus*.

27. Larus scopulinus, Forst. (Fig. 4.)

Larus scopulinus, Forster, Descr. Anim. p. 106 (1844), New Zealand; Schlegel, M. P.-Bas, *Lari*, p. 28 (1863); Finsch, J. f. Orn. 1870, p. 360; Buller, B. of N. Zeal. p. 273 (1873).

Fig. 4.



Three first primaries of *L. scopulinus*, old.

Larus novæ-hollandiæ, Gray, Voy. Ereb. & Terr. Birds, p. 18 (1844), New Zealand (nec Stephens).

Lestris scopulinus, Ellman, Zoologist, 1861, p. 7472.

Hab. New Zealand.

Under the head of the preceding species I have pointed out the differences which seem to me to separate this form from *L. novæ-hollandiæ*; but the drawing (p. 188) of the first primaries of an old bird will show the principal point of distinction better than any description.

28. Larus hartlaubi (Bruch). (Fig. 5.)

Gavia hartlaubi, Bruch, J. f. Orn. 1853, 102, et 1855, p. 268, Cape G. Hope (type examined, H. S.).

"*Larus poiocephalus*, Sw.," Layard, B. S. Africa, p. 368 (1867), nec Sw.

Larus hartlaubi, Saunders, P. Z. S. 1874, p. 293.

Hab. Southern coast of Africa, especially about Table Bay, Cape of Good Hope, where Mr. Layard obtained many specimens and also eggs, some of which he presented to me.

For a long time this species was supposed to be the winter or hoodless dress of the grey-capped *L. phæocephalus*, Sw.; but, as I have already pointed out (P. Z. S. 1874, p. 293), the present species

Fig. 5.

1. 2. 3.

Three first primaries of *L. hartlaubi*, ad.

never has a hood at all. It is quite distinct from its close allies *L. scopulinus* and *L. novæ-hollandiæ*, and may be recognized by its smaller size, proportionally longer and slenderer bill, which is of a rich crimson, and by the more sooty colour of the under wing-coverts, especially along the carpal joint. There is a small elongated mirror on the first and second primaries; but the remaining portions of those feathers are black almost to the roots. The drawing (fig. 5) shows the pattern of the primaries.

29. Larus bulleri, Hutton. (Figs. 6 & 7.)

Gavia pomare, Bruch, J. f. Orn. 1855, p. 285 (not of 1853, which = *L. novæ-hollandiæ*).

Bruchigavia melanorhynchus, Buller, Ibis 1869, p. 43 (nec *L. melanorhynchus*, Temm.).

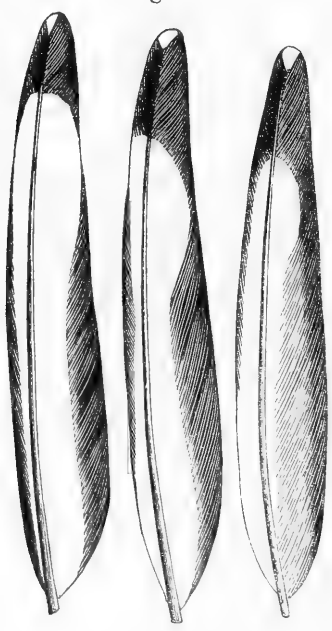
Larus (*Bruchigavia*) *melanorhynchus*, Finsch, Ibis, 1869, p. 381; Travers, Trans. N.Z. Inst. 1871, p. 209.

Larus bulleri, Hutton, Cat. Birds New Zeal. 1871, p. 41; Potts, Ibis, 1872, p. 38; Buller, B. New Zeal. p. 276, et fig.

Hab. This species appears to be restricted to New Zealand, and perhaps to the South Island.

I have examined the type of Bruch's *L. pomare* of 1855; and it is undoubtedly of this species; but the type of his *L. pomarre* of 1853

Fig. 6.



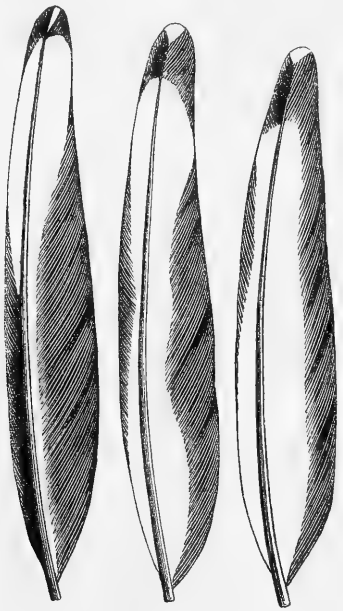
1. 2. 3.

Three outer primaries of *L. bulleri*, old, from the type.

is as certainly *L. novæ-hollandiæ*; and it is to the latter that Mr. Buller alludes as having been examined by him previous to the publication of his 'Birds of New Zealand.' The third specimen entitled *L. pomare* in the Mainz collection is a young *L. ridibundus*! Bruch's name, therefore, cannot be employed, having been previously applied to another species; and this species must stand as *Larus bulleri*,

Hutton. It is very distinct from *L. scopulinus*, and appears to frequent inland lakes and river-beds in preference to the sea-shore. The drawings (pp. 190, 191) showing the distinctive markings of the three outer primaries will be better than any description.

Fig. 7.



1. 2. 3

Three outer primaries of *L. bulleri*, nearly ad., from the type of *Gavia pomare*, Bruch, of 1855.

During my recent visit to Bremen I went into the question of this and the three preceding species with Dr. Finsch, who had previously studied the subject and had made numerous and careful drawings of the primaries of Bruch's types of *L. pomare* in the Mainz Museum, and of many other specimens. These drawings he most generously placed at my disposal; and, thanks to his liberality, I am enabled to figure the primaries of two of Bruch's types, bearing the same name, but belonging to two totally distinct species.

30. Larus gelastes, Licht. (Fig. 8.)

Larus gelastes, Licht. in Thienem. Fortpflanz. Vög. Eur. pt. v. p. 22 (1838), type in Berlin Mus.; Keys. & Blas. Syst. Verzeichn. Europ. Säug. p. 95 (1840); Degl. Orn. Europ. ii. p. 318 (1849); Bree, B. Eur. 2nd ed. v. p. 72 (1876); Blanford, East Persia, ii. p. 291 (Makran coast).

"*Larus leucocephalus*, Boissonneau," fide Keys. & Blas. op. cit. p. 22.

Larus genei, De Brème, Rev. Zool. ii. (1839) p. 321.

Larus tenuirostris, Temm. Man. d'Orn. 2nd ed. pt. iv. p. 478, pl. (1840); Crespon, Faune Mérid. ii. p. 126 (1844).

Xema lambruschinii, Bp. Icon. Faun. Ital. i. Ucc. p. 135, pl. (livr. xxvii. 1840).

Xema gelastes (Licht.), Boie, Isis 1844, p. 192.

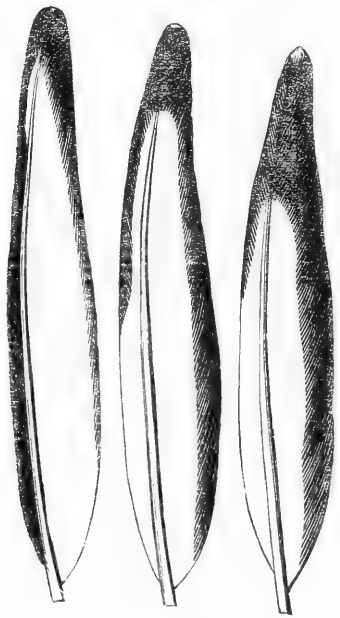
Xema genei (De Brème), id. loc. cit.

Gavia gelastes, Bruch, J. f. Orn. 1853, p. 102, et 1855, p. 286.

Larus columbinus, Golowatschow, Bull. Soc. Imp. Nat. Mosc. 1854, t. i. p. 435.

"*Gelastes rubriventris* (Vieill.)," Bp. Naum. 1854, p. 216.

Fig. 8.



1. 2. 3.

Three outer primaries of *L. gelastes*, juv.

Gelastes lambruschini, Bp. Cat. Parzud. p. 11 (1855); id. Consp. Av. ii. p. 227.

Larus subroseus et *Larus brehmii*, Heugl. Syst. U. Vög. N.O.-Afr. Sitz. Ak. Wiss. Wien, 1856, p. 321; cf. Heugl. Orn. N.O.-Afr. ii. Abth., Band 2, p. 1412.

Gelastes columbinus. Bp. Consp. Av. ii. p. 227 (1857).

"*Gelastes leucocephalus*, Brisson," Bp. Consp. Av. ii. p. 227 (syn.).

Larus lambruschini, Bp., Schl. M. P.-Bas, *Lari*, p. 28 (1863); Hume, Stray Feath. i. p. 274 (1873).

Chroicocephalus gelastes, Licht. Nomencl. Av. M. Berolst. p. 98.

"*Larus arabicus*, Hemp. & Ehr.," Mus. Berolst. (fide H. S.).

Hab. South coast of Spain, the Mediterranean and Black Sea (breeding); the Red Sea, Persian Gulf, and the coasts as far as Kurrachi; also West Africa to Senegal, whence there is a specimen in the Paris Museum.

This species seems to have no very near allies. It never has a hood; yet its structure and wing-pattern remind us of *L. ridibundus*. In appearance it is like *L. scopulinus*; but its wings are very long, its bill is slender, its flight is Tern-like, and its eggs are singularly like those of *Sterna cantiaca* and *S. media*. I locate it here because I do not know of any better position for it.

31. Larus leucophthalmus, Licht.

Larus leucophthalmus, Licht.; Temm. Pl. Col. liv. 62, pl. 366 (1825); id. Man. d'Orn. 4me pt. p. 486 (1840); Heugl. Ibis, 1859, p. 349; König-Warth. Ibis, 1860, p. 129; Finsch & Hartl. Vög. Ostafr. p. 821; Finsch, Trans. Zool. Soc. vii. pt. vi. p. 302; Schl. M. P.-Bas, *Lari*, p. 32.

Iris (mispr.) *leucophthalmus*, Lesson, Tr. d'Orn. p. 618 (1831).

Xema lecophthalmum, Bp. Ucc. Eur. p. 78 (1842).

Xema leucophthalma, Gray, Brit.-M. List, Anseres, p. 171 (1844).

Adelarus leucophthalmus, Bruch, J. f. Orn. 1853, p. 106, et 1855, p. 278; Bp. Compt. Rend. xlii. p. 771 (1856); Blasius, J. f. Orn. 1865, p. 378.

Chroicocephalus leucophthalmus, Brehm, Naumannia, 1855, p. 295.

Larus masauanus, Heugl. Peterm. Geogr. Mittheil. 1861, p. 31.

Hab. Temminck states that this species visits Greece and the shores of the Bosphorus; but no recent travellers in those parts have ever met with it; and although two energetic naturalists, Dr. Krüper and M. Alléon, have for years been resident in the neighbourhood and have thoroughly explored the Greek Archipelago and the Bosphorus, they have never met with it, either there or in the Eubœan channel, which Lindermayer (Vög. Griech. p. 177) so particularly indicates. Even in the Red Sea it is, according to Von Heuglin, very scarce north of the tropic, though frequent more to the south; it does not, however, appear to go beyond the Gulf of Aden and the Somali coast; for neither Blanford nor Hume mention it as occurring along the Mekran coast; and its range is therefore much less extensive than that of the allied species *L. hemprichi*.

32. Larus hemprichi (Bp.).

Xema crassirostris (Licht.), Boie, Isis. 1844, p. 192.

Larus crassirostris, Licht. Nomencl. p. 99 (1854) (nec Vieill.), Mus. Berolst.

Adelarus hemprichii, Bp.; Bruch, J. f. Orn. 1853, p. 106 (descr.), et 1855, p. 278; Bonap. Naum. 1854, p. 212; Blasius, J. f. Orn. 1865, p. 378.

Larus hemprichi, Heugl. Ibis, 1859, p. 350; König-Warth. Ibis, 1860, p. 129 (nidif.); Schleg. Mus. P.-Bas, *Lari*, p. 32; Finsch, Trans. Zool. S. vii. pt. vi. p. 302, pl. xxvii.; Finsch & Hartl. Vög. Ostafr. p. 823; Blanford, Abyssinia, p. 441 (Red Sea); Hume, Stray Feath. i. p. 279; Blanford, East Persia, ii. p. 292 (Aden to Kurrachee harbour); Hume, Stray F. 1876, p. 414; Butler, op. cit. 1877, p. 296.

Hab. This Gull appears to have a wider range than its congener *L. leucophthalmus*, as it is not confined to the Red Sea south of the tropic, but also frequents the Persian Gulf and the coast eastward as far as Bombay. Von Heuglin and Baron König von Warthausen (*loc. cit.*) have given an excellent account of the habits and nidification of both these species; and more recently in 'Stray Feathers' Capt. Butler has given a description of the great colony on the island of Astola.

In the Bulletin de la Société Zoologique de France, 1re partie, 1877, p. 32, M. Jules Vian gives an account of two immature specimens, one of *L. leucophthalmus* and one of *L. hemprichi*, which were supposed to have been obtained on the coast of Nice. M. Vian showed me these specimens when I was last in Paris; and they are undoubtedly genuine examples of the respective species. M. Vian thinks that the opening of the Suez Canal may have caused their appearance upon the shores of France; I cannot prove the contrary, but, from the make-up of the skins, I must confess I am very sceptical as to their having got so far as Nice *alive*. They had passed through at least one, if not two dealers' hands before M. Vian saw them.

33. Larus atricilla, Linn.

Larus atricilla, Linn. Syst. Nat. i. p. 225 (1766), nec Pallas (ex Catesby); Gm. Syst. Nat. i. p. 600 (1788); Temm. Man. d'Orn. ed. 2, pt. ii. p. 779 (Mediterranean, in error); Montagu, Orn. Dict. Rennie's ed. p. 259 (1833) (Winchelsea); Schl. M. P.-Bas, *Lari*, p. 44 (1863); Scl. & Salv. P. Z. S. 1871, p. 576; Coues, B. N.-West Am. p. 650 (1874); Reid, Zoologist, 1877, p. 489 (Bermudas).

Larus ridibundus, Wilson, Am. Orn. ix. p. 89, pl. 74. fig. 4 (1814), nec Linn.; Léotaud, Ois. de Trinidad, p. 532.

Xema atricilla, Boie, Isis, 1822, p. 563; Cab. in Schomb. Guiana, iii. p. 761.

Gavia atricilla, Macgill. Man. Brit. Orn. ii. p. 240 (1842).

Chroicocephalus atricilla, Bruch, J. f. Orn. 1853, p. 106; Lawr. B. N. Am. p. 850 (1858).

Chroicocephalus serranus, Bruch, J. f. Orn. 1853, p. 106 (nec Tschudi).

Atricilla catesbyi, Bruch, J. f. Orn. 1855, p. 287.

"*Atricilla megalopterus*," Bp.; Bruch, J. f. Orn. 1855, p. 287.

"*Atricilla micropterus*," Bp.; Bruch, tom. cit. p. 288.

Hab. America, from Maine, on the east coast, down to the mouth of the Amazons and to the West-Indian Islands; on the west coast,

California, Mexico, Guatemala, and as far south as Tumbez, the northern frontier of Peru (*Jelski*). Once obtained by Col. Montagu at Winchelsea, Sussex. The specimen in the British Museum, from his collection, is undoubtedly of this species; but there seems to be no warrant for its reputed occurrence in Southern Europe and the Mediterranean.

This species may always be known by its black primaries.

34. Larus franklini, Sw. & Rich.

Larus atricilla, J. Sabine, App. Franklin's Polar Sea, p. 695 (1823), nec Linn. nec auctt. (the description clearly applies to this species).

Larus franklini, Sw. & Rich. F. Bor.-Am., Birds, p. 424, pl. lxxi. (1831); Schlegel, Mus. Pays-Bas, *Lari*, p. 36 (1863); Scl. & Salv. P. Z. S. 1871, p. 577; Newton, P. Z. S. 1871, p. 57, pl. iv. fig. 4, egg (Manitoba); Coues, B. N.-West Am. p. 653 (1874).

Larus cucullatus, Licht. MSS. (Mexico), type in Berlin Mus. (examined, H. S.).

Larus pipixcan, Wagler, Isis, 1831, p. 515.

Xema franklini, Bp. Comp. L. B. Eur. & N. Am. p. 62 (1838); Boie, Isis, 1844, p. 194.

Xema pipixcan, Boie, *loc. s. cit.*

Chroicocephalus franklini, Bruch, J. f. Orn. 1853, p. 104, et 1855, p. 289; Lawr. B. N. Am. p. 851 (1858).

Chroicocephalus cucullatus, Bruch, J. f. Orn. 1853, p. 104, et 1855, p. 290; Lawr. B. N. Am. p. 851 (1858); Coues, Proc. Phil. Ac. 1862, p. 309.

Chroicocephalus kitlitzii, Bruch, J. f. Orn. 1853, p. 104 (described from a drawing), nec Swinhoe, P. Z. S. 1860, which = *L. saundersi*.

Chroicocephalus schimperi, Bruch, J. f. Orn. 1853, p. 104 (nec Schlegel, 1863, which = *L. saundersi*).

Larus cinereo-caudatus, Ph. et Landb. Wiegm. Arch. 1861, p. 293.

Hab. Interior of North America, west of the Mississippi; breeds in Manitoba; seldom visits the Atlantic coast, but has once occurred at St. Bartholomew's, West Indies (*Sund.*); goes down the Pacific coast as far as Chili, whence I have a fully adult example with partial hood, collected by Mr. E. Reid, of Santiago, and also one from Callao, Peru.

The primaries of this species undergo much alteration with the age of the bird; and in time the subapical mirror on the first extends over the greater part of the webs.

From the description there can be little or no doubt that Bruch's *L. kitlitzi* and *L. schimperi* are referable to this species. Both were suppressed in his second review (1855), when he corrected a few of his more glaring errors; and all trace of the second name has vanished from the Mainz Museum, where I especially looked for it, as Schlegel had adopted it for a totally different Chinese species. The type was said to have come from New Zealand, had a bright red bill, dark hood, and black primaries with white tips.

35. **Larus serranus**, Tsch. (Fig. 9.)

Larus serranus, Tschudi, Wiegm. Arch. 1844, pt. i. p. 314; Fauna Peruana, Aves, p. 307 (1845–6); Scl. & Salv. P. Z. S. 1871, p. 577.

Chroicocephalus personatus (Natt.), Bruch, J. f. Orn. 1853, p. 104, et 1855, p. 289.

Xema cirrhocephalum, Peale; Cassin, U.S. Expl. Exp. Orn. p. 381 (1858).

Larus glaucotis, Cassin, *l. c.* p. 381 (1858).

Gavia serrana, Bp. Rev. Zool. 1855, p. 19.

Larus personatus, Natt.; Schl. M. Pays-Bas, *Lari*, p. 35 (1863).

Gavia personata, Blasius, J. f. Orn. 1865, p. 372.

Larus bonapartii, Scl. & Salv. P. Z. S. 1868, p. 178.

Hab. This fine black-hooded species is found throughout the Cordillera and the Andes of Northern Chili, Bolivia, Peru, and as far north as Ecuador, whence Mr. Salvin has a specimen. It breeds

Fig. 9.

1. 2. 3.

Three outer primaries of *L. serranus*, ad.

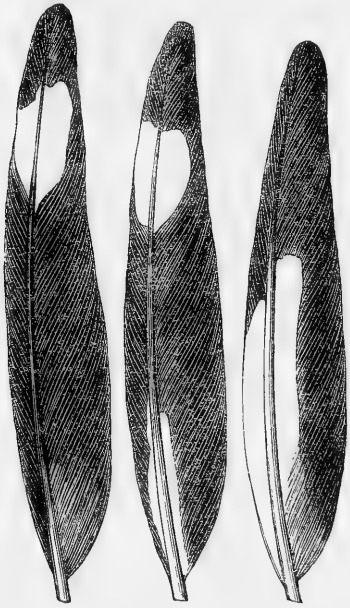
in colonies on the shores of mountain-lakes, and is well known to the Quichua-speaking Indians under the name of "Quiulla," doubtless an imitation of its cry. During the bad weather it descends to the west coast. The eggs and nestlings are as yet unknown to me.

Messrs. Sclater and Salvin (P. Z. S. 1871, p. 577) quote Burmeister as an authority for the occurrence of this species near Mendoza in the Argentine Republic; but the description which he gives clearly applies to *L. maculipennis*; indeed the dimensions cited being *smaller* than those of *his L. maculipennis*, Licht. (which, again, is not that species, but *L. cirrhocephalus*, Vieill.), show clearly that his bird cannot possibly be the real *L. serranus*, which is the largest of the group of the true Hooded Gulls in America. On the other hand, the dimensions assigned by Peale and Cassin to their respective *X. cirrhocephalum* and *L. glaucotis* (18 inches long), and the descriptions of the markings of the primaries, go to prove that those names must be referred to this species. The figure (p. 196) shows the pattern of the primaries in an adult and tolerably old bird.

36. Larus brunneicephalus, Jerdon. (Fig. 10.)

Larus brunneicephalus, Jerdon, Madras Journ. xii. p. 225 (1840); Schl. Mus. P.-Bas, *Lari*, p. 35 (1863).

Fig. 10.



1 2 3.

Three outer primaries of *L. brunneicephalus*, ad.

Xema brunnicephala, Gray, List of B. in Brit. Mus. iii. p. 172 (1844); Jerdon, B. of India, iii. p. 832 (1864); Holdsworth, P. Z. S. 1872, p. 480 (Ceylon).

Chroicocephalus brunnicephalus, Bruch, J. f. Orn. 1853, p. 105.
Chroicocephalus brunniceps, Cabanis, J. f. Orn. 1853, p. 105 (note); Bruch, J. f. Orn. 1855, p. 291.
Chroicocephalus brunneicephalus, Bp. Compt. Rend. Ac. Sc. xli. p. 73 (1856); Swinhoe, P. Z. S. 1871, p. 421; Dav. et Oust. O. de la Chine, p. 521.
Xema brunneicephalum, A. David, N. Arch. Mus., Bull. vii. no. 460 (1871).
Larus lacrymosus, Licht. (Bengal, imm.), type in Berlin Mus. (examined, H. S.).
Gavina lacrymosus (Licht.); Bp. Naum. 1854, p. 212.
Gavia brunnicephalus (Jard.); Bp. Naum. 1854, p. 213.
Chroicocephalus tibetanus, Gould, P. Z. S. 1864, p. 54. [Tibet, Major Hay.]
Xema brunneicephala, Hume, Yarkand Exp. Orn. p. 300, pl. xxxii. (1873); Blyth, J. A. S. B. 1875, pt. ii. p. 162 (Burma).

Hab. Henderson found this Gull very abundant in full breeding-plumage in July, at an elevation of 15,000 feet, near the Pangong lake; and in winter it occurs both on the inland waters and along the coast of India, as far west as Sind. Eastward it occurs in Burma and visits Ceylon, where it is abundant. David obtained it abundantly in Mongolia and China, apparently as near to the sea-board as Pekin. Taczanowski, however, does not cite it amongst the species found in any part of Siberia; and it is therefore doubtful if it can be Middendorff's *L. ridibundus*, var. *major*. As regards its reported occurrence in Japan, Cassin's bird obtained in Parry's expedition is clearly *L. ridibundus*.

37. Larus ichthyaëtus, Pall.

Larus ichthyaëtus, Pallas, It. ii. App. no. 27 (1776), Caspian; Gm. Syst. Nat. i. p. 599 (1788); Pallas, Zoogr. Ros.-As. ii. p. 322 (1811); Rüpp. Reise N. Afr. Atlas, p. 27, pl. 17 (1826), Red Sea; Cassin, Perry's Exp. Japan, ii. p. 232 (1856) (?); Tristram, Ibis, 1868, p. 330, Palestine; Shelley, B. of Egypt, p. 307, pl. 13 (1872); Schlegel, M. P.-Bas, *Lari*, p. 34 (1863); Dresser, B. of Europe, pt. xviii. (June 1873).
Ichthyaëtus, Kaup, Natürl. Syst. pp.102,169 (1829), type of genus *Ichthyaëtus*.
Xema ichthyaetum, Bp. B. Eur. & N. Am. p. 62 (1838).
Larus kroicocephalus, Jameson, Journ. As. Soc. viii. p. 242 (1839).
Kroikocephalus ichthyætus, Jerdon, B. of India, iii. p. 831 (1864).
Chroicocephalus icthyaëtus, Bruch, J. f. Orn. 1853, p. 104; Swinhoe, P. Z. S. 1863, p. 327.
Larus ichthyaëtus minor, Schl. M. P.-Bas, *Lari*, p. 34 (1863).

Hab. Caspian Sea and inland lakes, Lake of Galilee (*Tristram*), Mediterranean coast of Egypt and up to Nubia, the Red Sea, thence to Bombay and down the coast to Madras, and on the lakes and large rivers of Northern India. As a straggler, in the Black Sea and the Greek Archipelago, and once at the mouth of the Exe, in Eng-

land Cassin states that Perry's expedition obtained two specimens in Yedo Bay, Japan, where it is described as abundant; but both the supposed examples were young birds without a trace of a hood, only striated on the head; and the other points of the description would equally apply to young Herring-Gulls, which I am inclined to think they were. At all events the reported occurrence of this Gull in Japanese waters remains unconfirmed; Capt. Blakiston has never met with it; and Capt. St. John, H.M.S. 'Sylvia,' during the years he was surveying those coasts, never saw it.

38. Larus melanocephalus, Natt. (Fig. 11.)

Larus melanocephalus, Natt. Isis, 1818, p. 816; id. in Temm. Man. d'Orn. 2nd ed. ii. p. 777 (1820); Schl. M. P.-Bas, *Lari*,

Fig. 11.

1. 2. 3.

Three outer primaries of *L. melanocephalus*, jr.

p. 43 (1863); Degl. & Gerbe, Orn. Europ. ii. p. 437 (1867); Bree, B. of E. 2nd ed. v. p. 81 (breeding in Black Sea); Saund. Ibis, 1872, p. 79 (Thames).

Xema melanocephalus, Boie, Isis, 1822, p. 365.

Xema melanocephalon, Brehm, Vög. Deutschl. p. 757 (1831).

Xema caniceps, Brehm, Vög. Deutschl. p 758.
Chroicocephalus melanocephalus, Bruch, J. f. Orn. 1853, p. 104.
Melagavia melanocephalus, Bp. Naum. 1854, p. 213.
Gavia melanocephala, Bp. Compt. Rend. 1856, xlii. p. 771.

Hab. Mediterranean and Black Sea; outside the Straits of Gibraltar I observed it, apparently breeding, in the marshes of Huelva; and it regularly ascends the west coast of the Iberian peninsula and of France as far as Bordeaux, as is proved by the specimens annually obtained there. It is therefore not at all astonishing that an immature specimen should have been shot out of a flock of *L. ridibundus* at Barking Creek in January 1866. This example is in the British Museum.

In old birds the primaries are white, excepting a very black streak down the outer web of the first primary only; but it is not unusual to find birds with the full black hood and white tail indicative of maturity, but with a good deal of black on both the outer and inner webs of the outer five primaries, the black crossing both webs near their extremities and forming a subapical bar. The drawings (fig. 11, p. 199, and fig. 12, p. 201) show the differences between the pattern of the three outer primaries of a bird of the year, shot in March, and that of a *L. ridibundus* of about the same age.

39. LARUS RIDIBUNDUS, Linn. (Fig. 12.)

? *Larus cinerarius*, Linn. Syst. Nat. i. p. 224 (1766).
Larus ridibundus, Linn. Syst. Nat. i. p. 225 (1766); Schl. M. P.-Bas, *Lari*, p. 37 (1863).
Larus erythropus, Gm. Syst. Nat. i. p. 597 (1788).
Larus cinerarius, Schäff. Mus. Orn. p. 63 (1789); Pall. Z. Rosso-As. ii. p. 326.
Larus canescens, Bechst. Orn. Tash. p. 370 (1802).
Larus atricilla, Pallas, Zoogr. Rosso-As. ii. p. 324 (1811), nec Linn.
Larus nævius, id. tom. cit. p. 327.
Larus capistratus, Temm. Man. d'Orn. 2nd ed. pt. ii. p. 785 (1820).
Xema ridibundus, Boie, Isis, 1822, p. 563.
Xema capistratus, Boie, Isis, 1822, p. 563, et 1844, p. 192.
Xema ridibundum, Brehm, Vög. Deutsch. p. 760 (1831).
Xema pileatum, id. op. cit. p. 761.
Xema capistratum, id. op. cit. p. 762.
Chroicocephalus capistratus, Eyton, Hist. Rarer Brit. B. p. 63 (1836); Bruch, J. f. Orn. 1853, p. 105.
Chroicocephalus ridibundus, Eyton, Cat. Brit. Birds, p. 53 (1836); Bruch, J. f. Orn. 1853, p. 105; Swinhoe, P. Z. S. 1871, p. 421; David & Oust. Ois. de la Chine, p. 520 (1877).
Gavia ridibundus, Bp. Naumannia, 1854, p. 213.
Gavia capistratus, Bp. *op. cit.* p. 213.
Chroicocephalus pileatus, Brehm, Naum. 1855, p. 295.
Larus brunneicephalus?, Cassin, Perry's Exp. Japan, ii. p. 233 (1856), clearly this species in winter dress.

Larus cahirinus, "Hemp. & E., Syria," Mus. Berolst (*fide* H. S.).
Larus cahiricus, "Ehr. Arabia," id. (*fide* H. S.).

Hab. Northern and temperate Europe, breeding; the Mediterranean coast to Egypt and Asia Minor, the Red Sea, Arabian coast, and the coast, interior waters, and rivers of India; ascending for 500 miles up the Burrampootra (*Godwin-Austen*), Burma, China, and

Fig. 12.

1. 2. 3.

Three outer primaries of *L. ridibundus*, jr.

Japan in winter; also throughout the more temperate portions of Siberia (breeding). It is said by Schlegel to visit "South Africa;" but I remain rather suspicious of the accuracy of the collectors who are responsible for that somewhat vague locality, so long as this statement is unconfirmed from other sources.

40. LARUS MACULIPENNIS, Licht. (Fig. 13.)

Larus maculipennis, Licht. Verz. Doubl. p. 83 (1823), Monte Video (type examined, H. S.); Scl. & Salv. Nom. Av. Neotrop. p. 148 (1873); Durnford, Ibis, 1877, p. 43 (Chuput valley, Patagonia); id. tom. cit. p. 202 (prov. B. Ayres).

Xema cirrhocephalum, Gould, Zool. Beagle, iii. p. 142 (1841), partim.

Xema cirrhocephala?, Gray, List Birds Brit. Mus. iii. p. 173 (1844), partim (East Patagonia).

Chroicocephalus maculipennis, Bruch, J. f. Orn. 1853, p. 105.

Gavia maculipennis, Blasius, J. f. Orn. 1865, p. 374.

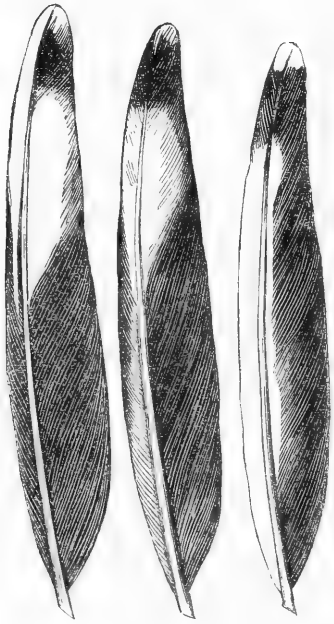
"*Larus serranus*, Tsch.," Burmeister, La Plata-Reise, ii. p. 519 (1861), nec Tschudi (Entre Rios, Mendoza).

Larus cirrhocephalus, Hudson, P. Z. S. 1870, p. 802; id. P. Z. S. 1871, p. 4, nec Vieillot.

Larus glaucodes, Saunders, P. Z. S. 1874, p. 294 (partim).

Hab. Chuput valley, North-east Patagonia (breeding), up to the La Plata, the Argentine Provinces, Mendoza, Entre Rios, Uruguay, and the south coast of Brazil.

Fig. 13.



1. 2. 3.

Three outer primaries of *L. maculipennis*, old.

Burmeister's description of the bird which he calls *L. serranus* clearly applies to this species; the dimensions (length 12 in., wing 11 in., tarsus 2 in.) exactly suit it, whilst the wing of true *L. serranus* is over 14 in. long.

The distinction between this species and the next, *L. glaucodes*, seems to rest upon the patterns of the primaries, as shown in the drawings (figs. 13 and 14). In *L. maculipennis* the black forms a bar; in *L. glaucodes* it is a mere border: and this is perfectly constant.

I have selected the primary of the *oldest L. maculipennis* I could find as presenting the least amount of black, and therefore closest to *L. glaucodes*; but, in spite of that, the difference is quite recognizable.

41. Larus glaucodes, Meyen. (Fig. 14.)

Larus glaucodes, Meyen, Obs. Zool. p. 115, pl. xxiv.; id. Beitr. Zool. p. 239, pl. xxxiv. (1834); Gay, Faun. Chil. Aves, i. p. 480 (1847); Cassin, Birds U.S. Astronom. Exp. p. 204 (1855); Scl. & Salv. Nom. Av. Neotrop. p. 148 (1873).

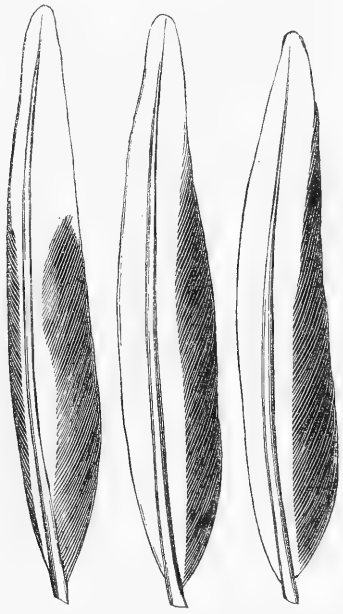
Larus glaucotes, Cabanis, Ibis, 1861, p. 312.

Larus glaucotis, Schlegel, Mus. P.-B. *Lari*, p. 42 (1863).

Xema cirrhocephalum, Gould, Zool. Beagle, iii. p. 142 (1841), part., nec Vieill.

Xema cirrocephala, Gray, List Birds Brit. Mus. iii. p. 173 (1844).

Fig. 14.



Three outer primaries of *L. glaucodes*, old.

Xema glaucodes, Boie, Isis, 1844, p. 192 ?

Larus albipennis, Peale, Zool. U.S. Expl. Exp. p. 288 (1848); *fide* Cassin, in Orn. U. S. Expl. Exp. p. 379 (1858); Chili.

Larus albipennis, Licht. M.S.; Gray, List B. Brit. M. p. 173 (1844), type in Berlin Mus. (examined, H. S.).

Chroicocephalus glaucotes, Bruch, J. f. Orn. 1853, p. 105, et 1855 p. 291.

Gavia roseiventris, Gould, P. Z. S. 1859, p. 97 (Falkland Islands).

Larus roseiventris, Sclater, P. Z. S. 1860, p. 391; Abbott, Ibis, 1861, p. 166 (Falkland Islands).

Gavia glaucotis, Blasius, J. f. Orn. 1865, p. 374.

Chroicocephalus glaucodes, G. R. Gray, Hand-l. Birds, iii. p. 114.

Hab. Falkland Islands, Straits of Magellan, Western Patagonia, and coast of Chili. I cannot find any evidence of its occurrence in Eastern Patagonia; and certainly at the Chuput river, lat. 43° S., its place is taken by *L. maculipennis*.

Specimens from the Falklands seem to be smaller on the average than Chilian examples; but there is no other point of difference.

42. Larus cirrhocephalus, Vieill.

Larus cirrhocephalus, Vieillot, in 2nd ed. Nouv. Dict. Hist. Nat. t. xxi. p. 502 (1818), Brazil; id. Gal. des Ois. ii. p. 223, pl. 289 (1834); Schlegel, M. P.-Bas, *Lari*, p. 37 (1863); Scl. & Salv. P. Z. S. 1871, p. 578; iid. Nom. Av. Neotrop. p. 148 (1873); Saunders, P. Z. S. 1874, p. 292; Durnford, Ibis, 1877, p. 201.

Larus poliocephalus, Temm. M. d'Orn. ii. p. 780 (1820); Max. v. Wied, Beitr. iv. p. 854; vide Salv. Ibis 1874, p. 320.

Chroicocephalus cirrhocephalus, Bruch, J. f. Orn. 1853, p. 106.

Cirrhocephalus plumbiceps, Bruch, J. f. Orn. 1855, p. 288.

"*Larus maculipennis*, Licht.," Burm. Syst. Ueb. Th. Brasil. iii. p. 448 (1856), nec Licht. (Brazil coast, especially the small islands); id. La Plata-Reise, ii. p. 518. no. 256 (1861) (R. Paraná).

Gavia cirrhocephala (part.), Blasius, J. f. Orn. 1865, p. 376.

Hab. Coast of Brazil, bays and lakes, down to Rio de la Plata, and up the Paraná. Mr. Durnford did not observe it south of Buenos Ayres. On the Pacific coast it occurs near Callao, one specimen from Chorillos being in my own collection, and another, obtained by M. Grec of Lima at the Chinchas Islands in 1855, being in the Bordeaux Museum.

43. Larus phæocephalus, Sw.

Larus poiocephalus (sic), Swains. B. W. Afr. ii. p. 245, pl. 29 (1837): ad. ex. believed to be the type, in Cambr. Mus. from Senegambia, examined, H. S.

Xema phæocephala, Strickl. & Scl. B. of Damar., Contrib. Orn. 1852, p. 160.

Gavia cirrhocephala (part.), Blasius, J. f. Orn. 1865, p. 376.

Larus poiocephalus, Swains., Layard, B. S. Afr. p. 368 (1867), partim; Barboza du Bocage, J. f. Orn. 1876, p. 293 (Cunene, Benguela).

Larus phæocephalus, Hartl. Orn. W.-Afr. p. 252 (1857); id. J. f. Orn. 1861, p. 273; Finsch & Hartl. Vög. Ost-Afr. p. 825 (1870); Saunders, P. Z. S. 1874, p. 292.

Cirrhocephalus poiocephalus, Gurney, Anderss. B. Damaral. p. 358 (1872).

Hab. West Coast of Africa from the Gambia down to Walvisch

Bay, Damaraland, and at Lake Ngami (*Chapman*). I possess or have examined specimens from the above localities. The species may extend as far as the Cape of Good Hope and to the south-east coast; but of this I have no positive information.

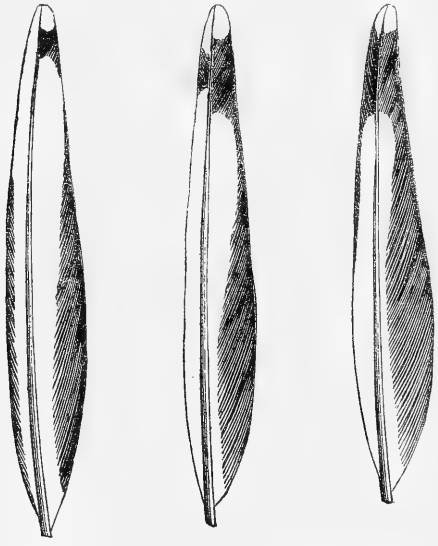
This species is very closely allied to *L. cirrhocephalus*; but it is smaller, and the bill and feet are orange-red, whilst in the larger American species those soft parts are of a deep lake-colour; and the feathers in this species do not come down so close to the base of the nostrils—differences which are quite sufficient to separate the two forms. The African species was long confounded with *L. hartlaubi* of the Cape of Good Hope, a bird belonging to a totally distinct group, and which never has a hood at all.

44. Larus saundersi (Swinhoe). (Fig. 15.)

"*Gavia kittlitzii*, Bruch," Swinhoe, Ibis, 1860, p. 68 (not of Bruch, which is described from a drawing and is *L. franklini*).

Larus schimperi, Schlegel, M. P.-Bas, *Lari*, p. 40, 1863 (not of Bruch, 1853, nor of Bp., which =*L. franklini*).

Fig. 15.



1. 2. 3.

Three outer primaries of *L. saundersi*, ad.

Chroicocephalus kittlitzii, Swinh. Ibis, 1863, p. 428, et P. Z. S. p. 328.

Xema kittlitzii, David, N. Arch. Mus. Bull. vii. 1871, no. 461.

Chroicocephalus saundersi, Swinhoe, P. Z. S. 1871, pp. 273, 421, pl. 22; David & Oustalet, Ois. de la Chine, p. 523 (1877).

Hab. The coasts of China, especially about Amoy, in winter

(*Swinhoe*), and the interior waters, and those of Mongolia (*David*). Nidification unknown.

This well-defined species, with which my friend the late R. Swinhoe did me the honour to associate my name, is, to judge by the structure of its feet, an inland species or river-Gull during a great part of the year. The tarsi are slender, the hind toe elevated and long, and the webs of the feet are much scalloped; indeed the foot is almost that of a Marsh-Tern. Had Bonaparte or Bruch been acquainted with it, they would doubtless have created a genus for it. The bill is very stout and corvine-looking; the hood, in breeding-plumage, is of a deep metallic black; and the pattern of the primaries (see fig. 15, p. 205) is also peculiar, these being principally white with a black bar near the tip, and a black border to the edge of the inner web.

45. LARUS MINUTUS, Pallas.

Larus albus, Scop. Ann. i. Hist. Nat. p. 80. no. 106 (1769).

Larus minutus, Pallas, Reise Russ. Reichs, iii. p. 702, App. no. 35 (1776); Gm. Syst. Nat. i. p. 595 (1788); Pallas, Zoogr. Rosso-As. ii. p. 331 (1811); Schlegel, M. P.-Bas, *Lari*, p. 42 (1863); Sharpe and Dress. B. of Eur. pt. iv. (1871).

Larus atricilloides, Falk. Itin. iii. p. 355, t. 24, *fide* Gm. Syst. Nat. i. p. 601 (1788).

Xema minutus, Boie, Isis, 1822, p. 365.

Larus d'orbignyi, Audouin, Hist. Nat. de l'Egypte, pl. 9. fig. 3, Expl. p. 271 (1825).

Hydrocolœus minutus, Kaup, Nat. Syst. p. 113 (1829).

Larus nigrotis, Lesson, Tr. d'Orn. p. 619 (1831).

Chroicocephalus minutus, Eyton, Hist. R. Brit. B. p. 61 (1836); Bruch, J. f. Orn. 1853, p. 105.

Gavia minuta, Macgill. Hist. Brit. B. v. p. 613 (1852).

Hab. European coasts and occasionally inland (on passage and in winter); breeding in the marshes of Russia, and formerly in Gottland. Middendorff obtained it in May on the Lena, to the south of Jakusk, and as far east as the sea of Okotsk. Once in north India (*Irby*); North Africa to Egypt in winter.

Scopoli's description of *L. albus* applies fairly to this species, but it is not sufficiently precise to enforce the adoption of that name to the prejudice of a long accepted one like that of Pallas.

46. LARUS PHILADELPHIÆ (Ord). (Fig. 16.)

Sterna philadelphia, Ord, Guthrie's Geogr. 2nd Am. ed. ii. p. 319 (1815), *fide* Lawr., B. N. Am. p. 252.

Larus minutus, J. Sabine, App. Franklin's Polar Sea, p. 696 (1823); Sw. & Rich. F. Bor.-Am. Birds, p. 426 (1831), nec Pallas.

"*Larus capistratus*, Temm.," Bp. Specch. Comp. p. 69 (1828), nec Temm.

Larus melanorhynchus, Temm. Pl. Col. livr. 85, tab. 504 (1830), Chili?

Larus bonapartii, Sw. & Rich. F. Bor.-Am., Birds, p. 425, pl. 72

(1831); Thompson, B. of Ireland, iii. p. 317 (1851), near Belfast; Schlegel, Mus. P.-Bas, *Lari*, p. 41 (1863).

Xema bonapartii, Bp. Birds of Eur. and N. Am. p. 62 (1838).

Chroicocephalus bonapartii, Bruch, J. f. Orn. 1853, p. 105, et 1855, p. 292.

Chroicocephalus subulirostris, Bp.; Bruch, J. f. Orn. 1853, p. 105 (type in Mainz Mus. examined, H. S.).

Gavia bonapartii, Bp. Naumannia, 1854, p. 213.

Gavia subulirostris, id. tom. cit. p. 213.

Fig. 16.

1. 2. 3.

Three outer primaries of *L. philadelphiæ*, jr.

Chroicocephalus philadelphia, Lawr. B. N. Am. p. 852 (1858); Dall & Bann. Tr. Chicago Ac. 1869, p. 305 (Alaska); Newton, P. Z. S. 1871, p. 57, pl. iv. fig. 6, egg (Arctic America).

Gavia bonapartei, Blasius, J. f. Orn. 1865, p. 371.

Larus philadelphia, Allen, Am. Nat. iii. p. 643 (Salt Lake); Harting, Handbk. Brit. B. p. 172 (1872); Reid, Zoologist, 1877, p. 489 (Bermudas).

Hab. British North America and Alaska (in summer), breeding on the Yukon and neighbouring localities. In autumn it descends the coasts of America, as far as California on the west and North Carolina on the east; as a straggler it has visited the Bermudas and also the British Islands.

The drawing (fig. 16) of the outer primaries in the young shows wherein the pattern differs from those of allied species. In the adult the distinctions are yet more marked.

Genus Rhodostethia, Macgill.

The distinguishing characteristic of this genus is the *cuneate tail*, in which respect the sole representative species is unlike every other. On account of this elongation of the central feathers of the tail, some systematists have placed it next to the *Stercorariinæ*; but it should not be inferred from this solitary point of resemblance that the two genera are at all closely related, their representatives being in other respects far apart. It is much to be desired that the sternum of the next specimen obtained should be preserved, as I believe this part of its structure has never been critically examined.

47. Rhodostethia rosea, Macgill.

Larus roseus, Macgill. Wern. Soc. Trans. v. no. xiii. p. 249 (1824), descr. of sp. from Melville Peninsula; Jard. & Selby, Ill. Orn. vol. i. pl. xiv.

Larus rossii, Richards. App. Parry's 2nd Voy. p. 359 (1825), Melville Peninsula; J. C. Ross, App. Ross's 2nd Voy., Nat. Hist. p. 36 (1835), Felix Harbour, Boothia; Sw. & Rich. F. Bor.-Am. ii. Birds, p. 427 (1831); J. C. Ross, App. Parry's Narr. p. 195 (1828).

Rossia rosea (Macgill.), Bp. Comp. List, p. 62 (1838).

Rhodostethia rossi, Macgill. Man. Brit. Orn. pt. ii. p. 253 (1842).

Rhodostethia rossii, id. Brit. Birds, v. p. 618.

Rhodostethia roseus, Bruch, J. f. Orn. 1853, p. 106.

Rhodostethia rosea, Saunders, Ibis, 1875, p. 484 (jr.); Payer, Austrian Exp. ii. p. 91 (English transl.); Dresser, B. of Eur. pt. lix-ix. (1877)

"*Larus collaris*," MS., Schreibers, in Mus. Vindob.

Hab. Melville Peninsula, 69½° N. lat., and Boothia, straggling to Greenland, once to the Faroes, once to Heligoland, and (on very questionable authority) once to England. This last specimen, which I have examined, has every appearance of having been mounted from a skin and not from the flesh. Ross and Parry state that it was seen to the north of Spitzbergen in about 82° N. lat.; but they did not obtain specimens, and no subsequent visitors to that district have observed it; more recently Lieut. Payer says that it was obtained about Franz-Josef Land.

There can be no doubt of the prior claim of Macgillivray's name for this species; but its imposition, in anticipation of that which Richardson intended to bestow on it, gave rise to a good deal of bad feeling at the time.

In 'The Ibis,' 1875, p. 484–487, I gave a description of the immature plumage of this Gull from two specimens in the Mainz Museum, and enumerated the eleven examples known to exist; to these may be added one more in Copenhagen, and one, of which Mr. O. Salvin has recently informed me, in the museum of Vienna: total thirteen specimens.

In reply to inquiries respecting the Vienna example, Hr. von Pelzeln informs me that it formed part of the collection made by Giesecké during his seven years' residence in Greenland, and came

into the possession of the Imperial Museum in 1818, when it received from Professor Schreibers the MS. and unpublished name of *Larus collaris*. In the interval between the publication of the 4to edition of Ross's 'Voyage to Baffin's Bay' and the later 8vo edition (both of which bear the date of 1819), Ross, or Leach (for, although under Ross's name, Leach was probably the real authority) heard of Schreibers's name, and, jumping at the conclusion that Schreibers's bird was *L. sabini*, inserted the synonym of *X. collaris* (Schr.) for that species in the 8vo edition. Had Schreibers's description been published, his name would have considerably antedated the present one.

Genus Xema, Leach.

The real distinguishing character of this genus, as instituted by Leach, is the *forked tail*; but the name has been improperly employed by Boie and others for many other species. Leach, however, defined it most clearly; and a generic name should never be used in any other sense than that of the founder.

48. Xema sabinii (Sabine).

Larus sabini, J. Sabine, Tr. Linn. Soc. xii. p. 520, pl. 29 (1818); J. Wilson, Ill. Ornith. pl. iii. (1831).

"*Xema sabini*, Leach," J. Ross, App. Ross's Voy. Baff. Bay, p. 57 (1819), 4to ed.; Steph. in Shaw's Gen. Zool. xiii. pt. i. p. 177, pl. 20 (1826); Eyton, Rarer Brit. B. p. 54 (1836).

"*Xema collaris* (Schreibers)," Ross in App. Ross's Voy. Baf. Bay, ii. p. 164 (1819). 8vo ed. (not in 4to ed.), nec Schreibers.

Gavia sabini, Macgill. Man. Brit. Orn. ii. p. 241 (1842).

Larus sabini, J. C. Ross, App. Ross's 2nd Voy. p. 37 (1835).

Larus sabinii, Richardson, App. Parry's 2nd Voy. p. 360 (1825); Sw. & Richs. F. Bor.-Am., Birds, p. 428 (1831); Middendorff, Sib. Reis., Zool. ii. p. 244, pl. xxiv. fig. 5, xxv. fig. 1 (young and egg), (1853).

Xema sabinii, Bruch, J. f. Orn. 1855, p. 292; Lawr. B. of N. Am. p. 856 (1860); Newton, P. Z. S. 1871, p. 57, pl. iv. fig. 5 (egg); Dresser, B. Europe, pt. xxxi. August 1874.

Larus sabinei, Schl. M. P.-Bas, *Lari*, p. 44 (1863).

Xema sabinei, Coues, B. of N.W. Am. p. 660 (1874–5); Reid, Zoologist, 1877, p. 490 (Bermudas).

Hab. Arctic America, breeding to the north of Upernavik, in Greenland, and then across to the west, breeding in Alaska (*Dall*); not rare in Plover Bay, Eastern Siberia (*Dall*), and breeding on the tundras of the Taimyr, north of 74° (*Middendorff*). In autumn it migrates southward; and many specimens have from time to time been obtained on the British coasts and those of the continent, as far east as Holstein, and on the French coasts. Most of these are birds of the year; but Dr. L. Bureau has an adult, with full black hood, captured on the coast of Brittany on August 25th, 1872. In America its southern range, as until now recorded, was down to New York on the east, and to Great Salt Lake, Utah, on the west—

roughly speaking, as far as 40° N. lat.; but Messrs. Sclater and Salvin have recently shown me a specimen from Prof. Steere's collection[1], Mus. University of Michigan, labelled "Macabi, September 1872," and on the card-label "Tumbez," Macabi Island being a little to the north of Huanchacho on the coast of Peru, in nearly 8° S. lat.—an enormous extension of its previously known limits. It is in adult plumage, with the exception of some dusky feathers on the nape; the forehead and head are white and devoid of the hood, which it was reasonable to suppose would only be worn during the breeding-season, although this is the first absolute *proof* I have had of this; the bill as in adults; the tail white and well-forked; feet rather faded. I imagine this to be a bird of the second year. This species has once occurred at the Bermudas.

The name of *X. collaris* was applied to this species as a synonym in the 8vo edition of Ross's 'Voyage' (1819), under the erroneous impression that this was the *L. collaris* to which Prof. Schreibers, then Director of the Vienna Museum, had given that MS. and unpublished name; but as a matter of fact that name belongs to an example of *Rhodostethia rosea*. For the elucidation of this point I am indebted to the kindness of Herr A. von Pelzeln, who also informs me that the Vienna Museum is the possessor of what is probably the oldest specimen of this species in any European collection, it having been received, without any published name or description, from the Ornithological Institution of that city about 1806.

49. Xema furcatum (Neboux).

Mouette à queue fourchue, Neboux, Rev. Zool. 1840, p. 290.

Larus furcatus (Neboux), Voy. 'Vénus,' Atlas, pl. x. (1846); Prévost & Des Murs, Voy. 'Vénus,' v. Ois. p. 277 (1855).

Xema furcatus, Bruch, J. f. Orn. 1853, p. 103.

Creagrus furcatus, Bp. Naumannia, 1854, p. 213; Bruch, J. f. Orn. 1855, p. 292; Salvin, Tr. Zool. S. ix. p. 506 (Galapagos).

Hab. The type of this species in the museum of Paris is said to have been obtained at Monterey, California, in November, by Dr. Neboux of the French frigate 'Vénus.' The only other specimen known to exist is in the British Museum, and was obtained during the voyage of H.M.S.'s 'Herald' and 'Pandora,' at Dalrymple Rock, Chatham Island, Galapagos group. The 'Herald' appears to have visited Chatham Island between the 11th and 16th January, a date which is worth bearing in mind, as the British-Museum specimen seems to be in fully adult plumage; the grey tint which pervades the lower part of the neck and breast in the Paris specimen, and which is probably a sign of comparative immaturity, having disappeared, leaving the hood well defined. But for the absence of the distinct collar at the bottom of the hood, and the narrow white band of feathers at the base of the upper mandible, this bird might be briefly described as a gigantic Sabine's Gull, the tail being rather more forked in proportion than in that species. It is certainly remarkable that, in spite of the researches of the American naturalists, no other speci-

[1] See above, p. 141.

men of this Gull should ever have been obtained in any part of California; and Mr. Salvin inclines to think the Californian locality an erroneous one, in view of similar mistakes known to have been made with the birds collected during the voyage of the 'Vénus.' It is on the other hand somewhat strange that if the head quarters of this Gull, of which the appearance is sufficiently striking to attract attention, are in the Galapagos group, none of the other visitors or naturalists should have brought any news of it.

Creagrus is one of Bonaparte's arbitrary and undefined genera; and there seems to be no structural difference to warrant the generic separation of this species from *Xema sabinii*.

In this paper I have from time to time acknowledged with much pleasure the assistance I have received from my friends and correspondents; and I have now to render my especial thanks to the authorities of the British and Cambridge Museums, and of the Smithsonian Institution, Washington, and to Dr. Brewer of Boston, to Professor Peters of Berlin, Professor Reinhardt of Copenhagen, M. Oustalet, M. Bouvier, Mr. O. Salvin, Mr. H. Seebohm, Mr. Harvie-Brown, Mr. Gervase Matthew, R.N., and Mr. E. Hargitt, for the opportunities they have severally afforded me of examining examples of rare species and also series of specimens.

P.S. (April 1st).—I take this opportunity of correcting an error in my paper on the *Sterninæ* (P. Z. S. 1876, p. 671) where two species are united under the name of *Anous cæruleus*. At that time I had not seen a specimen of the real *A. cæruleus*, Bennett; and that species and *A. cinereus*, Gould, are so very much alike that, until examples were available for comparison, the descriptions and plates might easily have been taken to refer to the same species in different stages of plumage. Seen by the light of further experience they appear to be distinct; and the following is their synonymy and habitat:—

ANOUS CÆRULEUS (Bennett).

Sterna cerulea, F. D. Bennett, Narr. Whaling-Voy. round Globe, ii. App. p. 248 (1840), Christmas Island, Pacific.

"*Sterne cendré*," Neboux, Rev. Zool. Oct. 1840, p. 291, et

Stolida cinerea. id. Voy. 'Vénus,' Atlas, pl. 9 (1846); nec *Anous cinereus*, Gould, P. Z. S. 1845 (Pacific, N. of Equator).

Sterna teretirostris, Lafresnaye, Rev. Zool. 1840, p. 242, et

Procelsterna tereticollis, id. Mag. de Zool. 1842, pl. 29: no locality; both described from a single specimen purchased from a dealer at Havre.

Anous parvulus, Gould, P. Z. S. 1845, p. 104 (described from a specimen obtained by Bennett at Christmas Island); Cassin, U.S. Expl. Exp., Birds, p. 393 (Honden Island, Low archip. 14° S., 138° W.).

Megalopterus plumbeus, Peale, U.S. Expl. Exp. p. 285 (1848), Honden Island.

Anous cinereus (Neb.), Finsch and Hartl. F. Central-Polynesiens, p. 239 (1867), Phœnix group, 3° 8′ S., 171° W., nec Gould.

Hab. Pacific, from a little north of the Equator; Christmas Island; the Ellice group, 9° S., 179° E., whence there are two specimens in, the British Museum recently obtained by the Rev. S. J. Whitmee; the Phœnix group; and Honden Island, Low archipelago.

ANOUS CINEREUS, Gould.

Pelecanopus pelecanoides, G. R. Gray, L. Birds Brit. M. iii. p. 180 (Australia, presented by Sir T. Mitchell).

Anous cinereus, Gould, P. Z. S. 1845, p. 104 (N.E. Australia); id. B. Australia, vii. pl. 76 (1848), Norfolk I. and N.E. coast Australia.

Procelsterna albivitta, Bp. Compt. Rend. xlii. 1856, p. 773; Gould, Hand-b. B. Austr. ii. p. 420 (1865); Gray, Hand-l. iii. p. 123 (1871).

Sterna cinerea, Schlegel, M. P.-Bas, *Sternæ*, p. 38 (1863), Australia.

Anous albivittatus, Finsch, P. Z. S. 1877, p. 776 (Eua, Friendly group).

Hab. Norfolk Island; N.E. Australia and the Tonga or Friendly group, in about 22° S., 175° W. It is presumably the species observed by Mr. E. L. Layard in the Fiji group.

The range of these two species appears to be nearly parallel, that of *A. cæruleus* being the more northerly. *A. cæruleus* is smaller than *A. cinereus*, Gould, and is darker all over, especially on the underparts, which are blue-grey, whereas in *A. cinereus* they are nearly white. The differences are too great to be explained away as being due to age, and I admit the distinctness of the two species; but they are very closely allied. The fact of their being found in such close proximity within so limited an area is very remarkable.